BEFORE THE
SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC.—RAIL CONSTRUCTION AND OPERATION—IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

COMMENTS OF NORTHERN PLAINS RESOURCE COUNCIL AND ROCKER SIX CATTLE COMPANY TO TONGUE RIVER RAILROAD COMPANY'S SUPPLEMENTAL APPLICATION

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INTRODUCTION

Northern Plains Resource Council and Rocker Six Cattle Company (collectively "Northern Plains") submit the following comments in opposition to the Tongue River Railroad Company's ("TRRC") application to construct a railroad for serving the Otter Creek Mine. The Board should deny the application because the Tongue River Railroad ("TRR") project is unequivocally inconsistent with the public convenience and necessity. The TRR was speculative in 1983 when first proposed to the Board's predecessor and today the project is not only speculative, it is irrational.

In August 2013, the Board granted Northern Plains' request to conduct limited discovery to, among other things, test the veracity of TRRC's thinly supported application and related filings. Having completed discovery, it is apparent that any optimism TRRC and its owners expressed in their filings is not shared privately. Northern Plains can now confirm that TRRC's owners no longer support their earlier claims that "market forces are coalescing" behind Otter Creek,[1] that transporting coal out of Otter Creek is "critical to meeting energy needs,"[2] and that "there is an *ample* reason to believe that there will be a market for the coal once it becomes available for transport."[3] Indeed, Arch Coal, Inc. ("Arch"), one of TRRC's owners and the owner of Otter Creek, [redacted] The domestic and seaborne coal markets are in such poor shape that Arch has incurred over $1 billion in losses over the last three years, plans to pay $50 million in liquidated

[1] TRRC Supp. App. to Constr. at 21.
[2] V.S. of Stevan Bobb at 5 (Dec. 14, 2012).
[3] Letter from Coburn to Blodgett & Summerville at 1 (Feb. 6, 2013) (emphasis added).
[4] Ex. A, Tr. of Dep. of Andrew Blumenfeld at 58:1-3; 60:3-7 [hereinafter Blumenfeld Depo.].

damages for unused coal export terminal capacity in 2015, and continues to sell non-core assets to maintain liquidity to pay off mountainous debt.[5] This collapsing coal market is not cyclical; it is part of a long-term structural change.

The BNSF Railway Company ("BNSF"), TRRC's other principal owner, has come to the same conclusion—[redacted][6] Despite contrary representations to the Board, BNSF [redacted]

[redacted][7]

[redacted][8]

Due to poor market conditions, Arch is also close to insolvency. It continues to incur massive losses year over year, has roughly $1 billion in debt coming due in 2018,

[5] Arch Coal, Inc., Sec. & Exch. Comm'n (Form 10-K) (Comm'n File No. 1-13105) (Nov. 7, 2014).
[6] Ex. B, Tr. of Dep. of Stevan Bobb at 42:19-25 [hereinafter Bobb Depo.].
[7] *Id*. at 41:18–42:2.
[8] Ex. C, [redacted]); Ex. A, Blumenfeld Depo. at 108:1–111:23.

and more than $5 billion in debt maturities coming due in 2018-2021.[9] Given its current $1.2 billion in liquidity, Arch is not a company that can afford the [redacted] capital investment to open Otter Creek or the $417 million needed to construct the TRR, certainly not both.

If the Board grants a license for this speculative project, TRRC and its owners will wait with bated breath hoping the markets rebound while Northern Plains' members put their lives on hold fearing TRRC's condemnation power. The power of eminent domain for speculative projects creates significant hardships to landowners along the proposed route. As one federal court has noted, it is an "abuse of the condemnation process" to initiate a "condemnation action for a project that was always speculative, at best."[11] Such actions "squander[] not only a great deal of the Defendants' hard-earned money, but also a great deal of [the] Court's time."[12]

As with the earlier iterations of the TRR, the mere right to condemn private property creates real and significant hardship to Northern Plains' members. The threat of the TRR passing through private lands prevents ranchers and farmers improving their operations since the railroad could literally destroy the investment. The threat also creates a significant cloud on the property making it difficult, if not impossible to sell at a reasonable price. Northern Plains' members have suffered through TRRC proposal after proposal for 30 years and it is time for the Board to put an end to it. TRRC and its owners

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[9] Arch Coal, Inc., Sec. & Exch. Comm'n (Form 8-K) (Comm'n File No. 1-13105) 1 (Feb. 3, 2015) [hereinafter Arch 2015 Form 8-K].
[10] Ex. D, [redacted]); Ex. E, Tr. of Dep. of William Rowlands [hereinafter Rowlands Depo.].
[11] Ex. F, Order Denying Defendants' Application for Costs, *Dakota, Minn. & E. R.R. Corp. v. Tracy*, No. 07-CV-00144-WFD, ¶13 (D. Wyo. July 20, 2011).
[12] *Id.*

cannot provide any reasonable assurances that Otter Creek will open in the foreseeable future or that the TRR will ever be built. It is not in the public interest to license speculative projects that put ranchers and farmers in the crosshairs.

Northern Plains respectfully requests that the Board deny TRRC's application. Northern Plains has consistently demonstrated that the project fails to meet the Board's well-established test for demonstrating public convenience and necessity. There is no public demand or need for the service, the applicant is not financially fit, and the project is demonstrably not within the public interest. Because TRRC fails to meet each prong of this test, the Board should decline to issue TRRC a Certificate of Public Convenience and Necessity.

PROCEDURAL BACKGROUND

TRRC first received a permit to construct an 89-mile route between Miles City, Montana, and Ashland, Montana, in 1985 ("TRR I"). In 1989, TRRC asked the Interstate Commerce Commission ("ICC") to extend TRR I to Decker, Montana ("TRR II"). In 1998, with no notable progress made toward building a railroad, TRRC applied to the Board to construct the "Western Alignment" ("TRR III") to modify TRR II. The Board approved TRR III in 2007, which TRRC later abandoned.

Northern Plains appealed TRR II and TRR III to the Ninth Circuit. Having found violations of the National Environmental Policy Act ("NEPA"), the court remanded TRR II and III to the Board. On remand, TRRC filed a Statement of Intent with the Board claiming it was no longer interested in constructing TRR II or III, and requested the Board re-open the original route in TRR I. On June 18, 2012, the Board reopened TRR I, but required TRRC to file a revised application due to "changed circumstances" in the

proposed route and TRRC's ownership. The Board noted that "[r]equiring a revised application . . . will ensure that, when the Board again considers the transportation merits of TRRC's proposal, it will have before it a complete and current description of TRRC's plans and financial fitness, and any replies raising concerns about TRRC's revised application that might be filed."[13]

The TRRC submitted its Revised Application for the new TRR I on October 16, 2012, proposing the "Miles City Alignment," the TRR I route with minor "refinements."[14] However, the Board rejected the application, noting TRRC's attempt to "incorporate information from the original 1983 application" as support for the current application was too dated to rely on.[15]

TRRC submitted its Supplemental Application on December 17, 2012. The Supplemental Application contained a significantly different route from the previously approved applications. Referred to as the "Colstrip Alignment," the new route proposed to connect a 42-mile rail line terminating at an existing BNSF line and two other termini — one at the proposed Otter Creek Mine, and one at the formerly proposed Montco Mine. The Board accepted the Supplemental Application and published notice in the Federal Register on January 9, 2013.

On April 2, 2013, Northern Plains filed its initial comments on the Supplemental Application ("PCN Comments"). On June 7, 2013, TRRC replied to Northern Plains'

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[13] *Tongue River R.R. Co., Inc. – Rail Constr. and Operation – In Custer, Powder River & Rosebud Cntys., Mont.*, Finance Docket 30186, at 9 (S.T.B., June 18, 2012) (Decision to re-open TRR).
[14] *Tongue River R.R. Co., Inc. – Rail Constr. and Operation – In Custer, Powder River & Rosebud Cntys., Mont.*, Finance Docket 30186 (S.T.B., Oct. 16, 2012).
[15] *Tongue River R.R. Co., Inc. – Rail Constr. and Operation – In Custer, Powder River & Rosebud Cntys., Mont.*, Finance Docket 30186, at 3 (S.T.B., Nov. 1, 2012).

comments. Thereafter, on June 15, 2013, Northern Plains petitioned the Board to issue a revised Procedural Schedule to accommodate limited discovery in this matter.

On July 7, 2013, Northern Plains filed a Sur-reply, which among other things requested limited discovery to address the complex issues in this proceeding. TRRC replied to Northern Plains' Sur-reply on August 9, 2013. On August 27, 2013, the Board accepted Northern Plains' Sur-Reply and granted its request for discovery in this proceeding. The Board noted that this proceeding involves a "number of important and complex issues" that warrant further development of evidence through discovery.[16] The Decision recognized four issues raised by Northern Plains in its request for discovery: (1) inconsistencies in TRRC's pleadings, (2) the credulity of TRRC's evidence, (3) the level of commitment to the project from TRRC's financial backers (Arch Coal, BNSF Railway, and TRR Financing), and (4) Arch Coal's estimates of demand for the coal.[17]

NPRC served TRRC with interrogatories on September 12 and requests for production on September 13, 2013. On October 7, 2013, the TRRC served its responses to interrogatories and requests for documents. TRRC's responses were inadequate and Northern Plains filed a motion to compel with the Board on January 13, 2014.

On September 10, 2014, the Board largely granted Northern Plains' Motion to Compel and ordered TRRC to produce several categories of documents related to the PCN determination.

After TRRC completed its document production, Northern Plains deposed four individuals involved with the TRR: Andrew Blumenfeld, the Vice President of Strategy

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[16] *Tongue River R.R. Co., Inc. – Rail Constr. and Operation – In Custer, Powder River & Rosebud Cntys., Mont.*, Finance Docket 30186, at 3 (S.T.B., Aug. 27, 2013) (NRPC Sur-Reply).
[17] *Id*. at 2-3.

and Analysis at Arch; Mike Rowlands, President of Arch's subsidiary, Otter Creek Coal, LLC; Stevan Bobb, Executive Vice President and Chief Marketing Officer of BNSF and former President of TRRC; and Scott Castelberry, Director of Coal Marketing at BNSF. Messrs. Bobb, Blumenfeld, and Rowlands each provided verified statements in this proceeding.

COMMENTS

I. THE TONGUE RIVER RAILROAD COMPANY'S PROPOSED PROJECT IS INCONSISTENT WITH PUBLIC CONVENIENCE AND NECESSITY.

The Interstate Commerce Commission Termination Act ("ICCTA") prohibits the Board from authorizing the construction and operation of a railroad if it finds doing so would be "inconsistent with the public convenience and necessity."[18] A proposed railroad thus needs a Certificate of Public Convenience and Necessity to proceed. While Congress does not expressly define "public convenience and necessity," the Board evaluates railroad construction projects with the following three-prong test: (1) whether there is a public demand or need for the proposed service; (2) whether the applicant is financially fit to undertake the construction and provide the service; and (3) whether the proposed rail project is in the public interest and will not unduly harm competitors.[19] This is referred to as the "public convenience and necessity" ("PCN") test.

When arguing that a railroad proposal does not meet the PCN test, opponents do not have a "heavy burden of rebuttal."[20] Rather, opponents only need to show "credible

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[18] 49 U.S.C. § 10901(c) (2012).
[19] *N. Plains Res. Council, Inc.*, 668 F.3d at 1092; *Norfolk S. Corp. & Norfolk S. Ry. Co. — Constr. & Operation — In Indiana County, Pa.*, 2003 WL 21132522 at *4 (S.T.B 2003).
[20] *Dakota, Minn. & E.R.R. Corp., Constr. Into the Powder River Basin*, 1998 WL 398189 at *3 (S.T.B. 1998).

evidence challenging the elements that make up the public convenience and necessity determination."[21] Moreover, the Board requires that an applicant supply specific information to meet the PCN requirements rather than mere generalized, speculative statements.[22] If the Board finds that the TRRC's application fails to meet any one of these three requirements the project is inconsistent with the PCN and the Board must deny the application.

A. There is No Public Demand or Need for the TRRC's Proposed Rail Service.

Information obtained from TRRC and its owners in discovery confirms Northern Plains' earlier comments—there is no public demand and need for the TRR. Coal markets are struggling and will not create sufficient demand for Otter Creek in the foreseeable future. Moreover, it is clear that coal markets have deteriorated further since Northern Plains filed its last comments in July 2013. The Board should note that Northern Plains' comments predicted a continued downturn in the markets, a prediction that has proven accurate.

TRRC's filings have painted a different picture of the TRR project and Otter Creek mine. For example, TRRC claimed:

> [M]arket forces are coalescing behind a determination that the coal resource at Otter Creek should be developed and transported. Where industry players are prepared to dedicate resources to a significant mine and the railroad needed to transport the mine's product to market, the STB has no grounds for finding that

[21] *Id.* at * 11 (internal quotations omitted).
[22] *See id.* at *2 (requiring greater specificity from the applicant in support of a proposed rail line project).

> construction and operation are inconsistent with the public convenience and necessity.[23]

TRRC claimed that transporting coal out of Otter Creek is "critical to meeting energy needs,"[24] and that "there is an *ample* reason to believe that there will be a market for the coal once it becomes available for transport."[25] The Board granted Northern Plains' request for discovery to test the credulity of TRRC's evidence and based on information obtained in discovery, it is clear that none of these assertions hold true.

Market forces are not coalescing around this project and TRRC's owners are <u>not</u> prepared to dedicate significant resources to the TRR and Otter Creek. [redacted]

[23] TRRC Supp. App. to Const. at 21.
[24] V.S. of Stevan Bobb at 5 (Dec. 14, 2012).
[25] Letter from Coburn to Blodgett & Summerville at 1 (Feb. 6, 2013) (emphasis added).
[26] Ex. A, Blumenfeld Depo. at 60:22–24.
[27] *Id.* at 60:25–61:9; 32:19–47:11 ([redacted]).
Id. at 73:15–74:9.

[redacted][29]

While BNSF may be willing to spend a fraction of its budget on obtaining permits and related development expenses, it is not yet willing to make the $416 million investment necessary to construct the TRR.[30] Arch and BNSF are simply not prepared to—or in Arch's case capable of—dedicating significant resources to the TRR project and Otter Creek.

[redacted] Indeed, there is ample reason to believe that the markets will not support opening Otter Creek for the foreseeable future.

1. *There is No Domestic Demand for Otter Creek and Other Ashland-Area Coal.*

In its original comments to the Board, Northern Plains explained that domestic demand for coal is declining rapidly due to alternative fuels, especially low natural gas prices, as well as pollution control costs and greenhouse gas regulations. Consequently, many electric utilities are retiring their coal-fired power plants or converting to natural gas. Compared to other PRB coal sources, there is even less demand for Otter Creek coal

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[29] Ex. B, Bobb Depo. at 41:18–42:2.
[30] The $416 million estimate for constructing the TRR is not the only cost BNSF would incur. It would also need to upgrade the Nichols Wye at a cost of $37 million. These costs were not presented to the Board in TRRC's application. Ex. G, Stevan Bobb, *Financial Info. For Buffet Letter*, TRR-004549 (Jan. 9, 2013).
[31] V.S. of Stevan Bobb at 5 (Dec. 14, 2012).
[32] Bobb Depo. at 94:12–96:22.

and other Ashland-area coal because electric utilities generally do not prefer high-sodium content coal.

Arch acknowledges [redacted].

[redacted]

[33] Ex. H, [redacted]
[34] *Id.* at TRR-038626.
[35] *Id.*
[36] *Id.*
[37] *Id.*
[38] Ex. I, [redacted]).
[39] *Id.*

[redacted] These factors among others have led to a structural, long-lasting decline in demand for coal.[41]

The declining market is evident from declining production in the PRB, including Arch's mines. According to SNL Energy ("SNL"),[42] [redacted]

[40] Ex. H, [redacted].
See Ex. J, V.S. of Thomas Sanzillo at 4 ("Coal production in the PRB is shrinking due to structural, long-term changes in the domestic and international markets.").
[42] SNL is one of the leading services for energy issues. V.S. of Thomas Sanzillo at 6, n.9; *see also* Ex. A, Blumenfeld Depo. at 38:5–21.
[43] Ex. K, [redacted].
Id.
[45] *Id.*
[46] Ex. L, [redacted].
Blumenfeld Depo. at 56:22–25.

[redacted]

Not only would Otter Creek have to compete with existing idled mines in a weak market, but it would also have to compete for customers that are willing to accept high-sodium content coal, which make up a smaller percentage of the total market. The sodium content of Otter Creek coal is considered high, ranging from 5.8 to 8.8 percent, which is much higher than the 1.2 percent typical of coal from the Southern PRB in Wyoming.[50] Competition for these customers is high given [redacted]

[redacted]

[48] *Id.* at 57:17– 58:3.
[49] *Id.* at 67:10–12.
[50] Ex. M, Norwest Corp., *Otter Creek Property Summary Report*, E-3 (July 12, 2006) [hereinafter *Norwest Report*].
[51] Ex. A, Blumenfeld Depo. at 55: 16-17
[52] Ex. N, [redacted]).
Id.

[redacted]

[54] *Id.*
[55] *Id.*
[56] *Id.*
[57] *Id.*
[58] *Id.*
[59] Ex. A, Blumenfeld Depo. at 64:2–3.
[60] *Id.* at 64: 7–10.
[61] *Id.* at 64:11–12.
[62] *Id.* at 64:20–25.

[redacted] Yet, these sources do not present an optimistic forecast for the coal industry.

For example, as shown by the detailed analysis by Northern Plains' witness Thomas Sanzillo, Finance Director for the Institute of Energy Economics and Financial Analysis ("IEEFA"), the trajectory of EIA production estimates is declining, leaving demand insufficient to warrant new mine investment.[65] EIA estimates for production out of the PRB in 2030 declined by 200 mtpa from the EIA's 2011 Annual Energy Outlook ("AEO") to the 2014 AEO (projecting 699 mtpa by 2030 in 2011; and 498 mtpa in 2014). Recent release of the EIA's 2015 Short-Term Energy Outlook ("STEO") suggests that further reductions of the EIA long-term outlook may be imminent.[66] The EIA projections show "very slow growth for the PRB region, if any."[67]

TRRC's witness Mr. Seth Schwartz, President of Energy Ventures Associates ("EVA"), incorrectly interpreted EIA data as showing a huge and growing market for

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[63] *Id.*
[64] *See* Ex. O, [redacted] Similarly, TRRC stated that "the EIA forecast is perhaps the best forecast available. It is an objective forecast published on an annual basis by a knowledgeable, objective third-party." TRRC Supp. App. Reply Comments at 16.
[65] Ex. J, V.S. of Thomas Sanzillo at 17.
[66] *Id.* at 8.
[67] *Id.* at 13.

Otter Creek coal. Mr. Schwartz essentially disregarded the massive decline in coal markets in 2012 by (1) incorrectly attributing the decline to mild weather and a temporary decline in the price of natural gas; and (2) by claiming that the "short-term drop in domestic level coal demand is expected to turn around in 2013."[68] However, by August, when SNL was projecting flat or decreased coal demand for the year, it was clear that the markets were not going to turn around.[69] Mr. Schwartz had access to this information but ignored it.[70] By the end of 2013, PRB production fell from 419 mtpa in 2012 to 407 mtpa.[71] 2012 was not an anomaly.

Mr. Sanzillo also notes Mr. Schwartz's analysis of EIA data was at odds with his own firm's analysis from January 2013. Essentially, EVA noted declines in coal production and coal plant investments were solely attributable to natural gas displacement and extended periods of low natural gas prices.[72] EVA predicted coal markets would not rebound significantly until gas prices rose above $5mm/btu.[73] However, average monthly natural gas prices hit this level only once since January 2013.[74] Ultimately, "[h]ad Mr. Schwartz provided a more circumspect analysis of the long-term impacts of low natural gas prices and reflected actual 2013 coal production in both his statements, his claims would have been confounded by the facts of declining

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[68] *Id.* (citing V.S. of Seth Schwartz (June 2013)).
[69] *Id*.
[70] *Id.* at 11.
[71] *Id.* at 10.
[72] *Id*.
[73] *Id*.
[74] *Id*.

production, slowing markets, plummeting prices and the persistence of low natural gas prices."[75]

Mr. Schwartz's claims about robust growth in the Montana region are similarly problematic. Mr. Schwartz incorrectly claims that the 2013 EIA AEO demand data for Montana coal production he relies on is limited to domestic demand and excludes international demand thereby claiming there is even more demand for Montana coal than the data show.[76] However, this is not true. As Mr. Sanzillo points out, the EIA data is inclusive of domestic production without regard to where the coal may be sold.[77] Mr. Schwartz's analysis also ignores existing competition in this coal-producing region.[78] Several companies have active mines in Montana and they are unlikely to abandon those investments.[79]

A broader review of the EIA estimates show a downward trajectory of production estimates for coal production in Montana, including the 2014 EIA AEO, which lowered the outlook for Montana coal in the 2030 period. As Mr. Sanzillo states, "technically there is some projected growth, but the trajectory of production estimates is declining and is insufficient to warrant new mine investment."[80] Mr. Sanzillo notes that while [redacted] TRRC "rely heavily" upon the EIA as "the best forecast available . . . published on an annual basis by a knowledgeable, objective third-party," they ignore the fact that

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[75] *Id*.
[76] *Id*. at 15, n.44.
[77] *Id*.
[78] *Id.* at 17.
[79] *Id*. at 16.
[80] *Id*. at 17.

the EIA has been drastically reducing its outlook for PRB coal every year since Arch acquired the lease rights for Otter Creek.[81]

The EIA is not the only organization showing declining demand projections for PRB coal. The SNL Coal Supply Forecast as of December 31, 2014 shows that Southern PRB coal production is projected to remain relatively flat through 2025, and Northern PRB production is projected to decrease from 40 mtpa in 2015 to 38 mtpa in 2025.[82] Again, the decrease in production reflects demand reductions, not available resources. The EIA and SNL are two highly reputable organizations [redacted]. Both organizations show declining future demand projections for PRB coal.

Even assuming [redacted], they were still not strong enough to warrant opening the mine. [redacted]

[81] *Id.* at 8–12; *see also* Ex.A, [redacted]; TRRC Supp. App. Reply Comments at 16.
[82] TRRC Supp. App. Reply Comments at at 29.
[83] Ex. A, [redacted].
[84] Ex. C, [redacted].

[redacted]

In conclusion, domestic demand for coal is declining rapidly due to alternative fuel availability, pollution control costs, and greenhouse gas regulations. As a result, many electric utilities are retiring their coal-fired power plants or converting to natural gas. This has led to a diminishing domestic market for PRB coal, [redacted]

2. *There is No International Market for Otter Creek Coal.*

[redacted] Arch

[86] *Id.* at 59:6–8, 18–25; 60:1–2.
[87] *Id.* at 60:3–7.
[88] *Id.* at 56:3–6, 22–25.
[89] *See* Ex. [redacted]
See Ex. Q, [redacted]
[91] Ex. P [redacted]

invested heavily in increasing port capacity. Arch contracted for greater capacity at existing ports, such as the Ridley Terminal in Prince Rupert, Canada.[92]

Arch also invested in new ports by acquiring a 38 percent interest in Millennium Bulk Terminals – Longview, L.L.C. to build a proposed coal export facility on the Columbia River near Longview, Washington.[93] With the hope for increased West Coast exports, TRRC switched the direction of the proposed TRR route with the Colstrip Alignment, which would reduce the rail distance and cost of shipping to West Coast export terminals, but increase these factors for the traditional domestic market. However, now that the international market has collapsed, the Colstrip Alignment points towards a dead market.

As Northern Plains predicted, the international markets were not a viable market for Otter Creek coal. Ports are operating far below capacity for coal exports. As Mr. Sanzillo stated, "[t]he supply of coal-port capacity for shipping coal mined in the United States exceeds demand for it."[94] Indeed, Arch anticipates incurring $50 million in liquidated damages for unused port capacity.[95] [redacted]

[92] Arch Coal, News Release: Arch Coal Announces Agreement with Canada's Ridley Terminal for Pacific Coast Exports (Jan. 18, 2011), *available at* http://news.archcoal.com/phoenix.zhtml?c=107109&p=irol-newsArticle&ID=1517028; *see also* Tom Sanzillo, Inst. for Energy Econ. & Fin. Analysis, *No Need for New U.S. Coal Ports: Data Shows Oversupply in Capacity* (Nov. 19, 2014), *available at* http://www.ieefa.org/wp-content/uploads/2014/11/Sanzillo-port-capacity.pdf [hereinafter Sanzillo*, No Need for New U.S. Coal Ports*].

[93] Arch Coal, News Release: Arch Coal Acquires Equity Interest in West Coast Terminal (Jan. 12, 2011), *available at* http://news.archcoal.com/phoenix.zhtml?c=107109&p=irol-newsArticle&ID=1515428.

[94] Sanzillo*, No Need for New U.S. Coal Ports*.

[95] Arch Coal, News Release: Arch Coal, Inc. Reports Fourth Quarter and Full Year 2014 Results (Feb. 3, 2015), *available at* http://news.archcoal.com/phoenix.zhtml?c=107109&p=irol-newsArticle&ID=2012926; Seeking Alpha, *Arch Coal's (ACI) CEO John Eaves on Q4 2014 Results – Earnings Call Transcript, Question-and-Answer Session* (Feb. 3, 2015) http://seekingalpha.com/article/2880806-arch-coals-aci-ceo-john-eaves-on-q4-2014-results-earnings-call-transcript?page=6&p=qanda&l=last.

[redacted]

All of the evidence points to the conclusion that there is no international market for Otter Creek coal. Major investors are pulling out of Pacific Northwest coal export facility investments.[99] As stated by Mr. Sanzillo, "Any serious consideration of coal markets should suggest to public officials that the coal industry is a poor investments partner now and for the foreseeable future."[100] Since Northern Plains filed its earlier comments, no new West Coast ports have begun construction.

In January 2014, Goldman Sachs pulled out of the Gateway Pacific Terminal in Bellingham, Washington when it sold all of its shares in the project.[101] Arch's partner in the Millennium Bulk Terminals export facility, Ambre Energy, sold all of its U.S. coal investments (including its share in Millennium Bulk Terminals) to Resource Capital Funds of Denver, Colorado for $18 million in December 2014.[102] This sale was spurred by "what industry analyst firm Wood Mackenzie has described as a substantial oversupply of thermal coal in the seaborne market . . . ."[103] Ambre reported, it "has

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[redacted]

[99] Sanzillo, *No Need for New U.S. Coal Ports*.
[100] *Id.*
[101] David Steves, *Wall Street Giant Backs Away from Washington Coal Export Project*, OR. PUB. BROAD. (Jan. 4, 2014) http://www.opb.org/news/article/wall-street-giant-backs-away-from-washington-coal-/.
[102] *Ambre Energy to Divest Pacific Northwest Interests*, COAL AGE (Dec. 3, 2014), http://www.coalage.com/news/latest/4051-ambre-energy-to-divest-pacific-northwest-interests.html.
[103] Ex. R, Ambre Energy, Form 5057A Filing with the Australian Sec.& Invest. Comm'n ¶ 29(a) (Nov. 12, 2014).

struggled, in the face of a sharply deteriorating thermal coal market, to raise the capital required to fund the operations of AENA, that is, the development of its US port projects, the optimization of its US coal mining assets, and the implementation generally of its US coal export strategy."[104]

[redacted][5] Similarly, Goldman Sachs echoes these findings, stating "the start of [carbon dioxide] emissions trading in China is a particularly symbolic move coming from an emerging market that is particularly reliant on coal. Meanwhile, far from boosting the seaborne market, the Chinese domestic market is currently acting as a drag on demand growth and thermal coal prices."[106]

Thus, it is clear that China is not going to be exporting as much coal as they used to, generally speaking, and any coal that they do import will likely not be U.S. — or Otter Creek— coal. Even if China continues to import coal, other countries are much more competitive than the U.S. market, especially since China recently places a tariff on all coal imports coming from markets other than Indonesian and Vietnamese coal sources; accordingly, Indonesian and Vietnamese markets have an immense advantage over U.S. coal resources.[107]

Even if China were to import significant amounts of U.S. coal, Otter Creek coal would not be necessary because other U.S. mines are already operating far below

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[104] *Id*. at ¶ 34(a).

[105] Ex [redacted]

Goldman Sachs, *The Window for Thermal Coal Investment is Closing,* 4 (July 24, 2013) http://goo.gl/Z9RlE1.

[107] *See* Sanzillo, *No Need for New U.S. Coal Ports*.

production capacity. [redacted]

Beyond China, Asian markets generally cannot support a demand for Otter Creek coal. For example, India imported less than 1 million tons US coal in 2013, and India has set goals to significantly reduce its coal import levels. Sanzillo Verified Statement at 37. But even if India increases coal imports, India's principle coal suppliers, Indonesia and South Africa, already have an advantage as being currently engaged in the Indian market. Sanzillo Verified Statement at 37. Similarly, Australian coal is already being developed for this Indian market by both Australian and Indian interests. Sanzillo Verified Statement at 37.

The prospect of an Asian market for coal has fooled investors before. For example, the $200 million Los Angeles Export Terminal from the late 1990's never exceeded 4 million tons per year and went out of operation only six-years after it was first commissioned.[109] With the rapid decline in Asian imports, as noted above, investors are pulling out of the export market. Like in the 1990's example of the LA export terminal, the markets do not justify the investment for new port construction.

As Arch Coal is well aware, coal markets have plummeted domestically and the overseas market cannot compensate.[110] The coal industry's predictions of a growing

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[108] Ex. A, [redacted]

[109] *See* Patrick McGreevy, *L.A. Weighs Costly Exit From Coal Terminal*, L.A. TIMES (Jun. 14, 2003) http://articles.latimes.com/2003/jun/14/local/me-coal14.

[110] Global Credit Research, *Moody's: Weak Demand Leads to Negative Outlook for North American Coal Industry* (Mar. 12, 2015) https://www.moodys.com/research/Moodys-Weak-Demand-Leads-to-Negative-

overseas market failed to materialize and instead the picture today is of an oversuplied global market whose forcasts for US coal producers is likely to only get worse.[111] Mr. Sanzillo notes that "[i]nternational thermal coal prices have collapsed . . . and are likely to stay low for the foreseeable future."[112] For example, an Australian coal product used as a global benchmark for thermal coal, Newcastle Coal, fell dramatically from its peak in 2011 of $141.94 per ton to its present price (as of March 19, 2015) of $59.50 per ton. Given the low price of thermal coal on the international market, any supposed cost of production advantage at Otter Creek has been eviscerated.[113] Whatever need China has for imported coal can be adequately filled without Otter Creek coal. "Most financial analyst projections have evolved to a clear consensus: as China reduces its import needs, sufficient capacity from the Pacific Rim producers (Australia, South Africa, Indonesia, and Russia) exists to meet the needs of the remaining import countries, including India."[114]

3. *Arch is financially unable to open the Otter Creek mine for the foreseeable future.*

The weak coal markets are reflected in Arch's stock price and poor financial performance. Over the last several years, Arch's stock has plummeted from a high of roughly $60 per share to at or below $1. Its management has taken drastic measures to control costs. Recently, Arch elected to freeze its employee pension plan benefits.[115]

Outlook-for-North-American--PR_320617 ("The outlook for the North American coal industry has been changed to negative from stable, Moody's Investors Service says in a new report.").
[111] Ex. J, V.S. of Thomas Sanzillo at 5–6.
[112] *Id.* at 21.
[113] *Id*. at 23–25.
[114] *Id.* at 22.
[115] Arch 2015 Form 8-K.

Freezing employee pension plan benefits allows Arch to show significant increases in operating income on their annual reports to shareholders. It is typical for financially unhealthy companies to freeze employee pension plan benefits in order to reduce expenses, likely due to pressure from near term notes that are due and pressure from creditors.[116] Arch, as reported in their most recent 8-K, has a total of $5.1 billion in long-term debt; of which, $1.9 billion is due in 2018.[117] Arch has not demonstrated it could both service its debts and still have the necessary funds to construct and service the proposed TRR project or open the Otter Creek mine.

Arch Coal's financial fitness has been the subject of recent news as the company "became at least the third U.S. coal producer to cut or suspend its dividend."[118] On its website, Arch states:

> In the past, the company has paid quarterly dividends, with the payable dates occurring on or around March 15, June 15, September 15 and December 15. However, there can be no assurance that the company will continue to pay quarterly dividends in the future. Quarterly dividend payments are made at the discretion of the board of directors, and are dependent on Arch Coal's future earnings, capital requirements and financial condition.[119]

According to this statement, Arch's dividend to investors is contingent upon its "future earnings" and "financial condition."[120] Arch's cancelled dividend payments to

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[116] Pension Rights Center, *Pension Freezes*, http://www.pensionrights.org/publications/fact-sheet/pension-freezes (last visited Mar.23, 2015).
[117] Arch 2015 Form 8-K.
[118] Tim Loh, *Arch Is Latest Coal Miner to Cut Dividend as Prices Slump*, BLOOMBERG BUS. (Feb. 3, 2015, 8:01 AM) http://www.bloomberg.com/news/articles/2015-02-03/arch-coal-suspends-dividend-amid-market-downturn.
[119] *Investor FAQ*, Arch Coal, http://investor.archcoal.com/phoenix.zhtml?c=107109&p=irol-faq (last visited Feb. 25, 2015).
[120] *Id*.

investors shows the company is less certain of future earnings and has a less than positive outlook on its financial condition. The company further states "[t]he moves underscore how far embattled U.S. coal miners are going to cut costs amid the worst downturn for the commodity in decades."[121] Although suspending its dividend is an indication of Arch's own financial fitness, it is also indicative of the floundering coal market generally, which contributes to Arch's overall financial woes. Zacks Investment Research, a leading investment research firm, recently put the coal industry at "220 out of 258" industries in their expanded industry classification — "[t]his puts the industry in the lower third of all industries, corresponding to a negative outlook."[122]

In Arch's most recent financial report on fourth quarter and full year 2014 earnings results, it reported a net loss of $240.1 million for the fourth quarter alone.[123] In 2014, Arch reported a net loss of $558.4 million for the year and divested assets in Appalachia "as part of the company's ongoing asset portfolio re-alignment effort."[124] These results are consistent with Arch's downward financial spiral due to a significantly negative short- and long-term coal market outlook.[125] Arch's underperforming assets incurred significant amounts of impairment costs and goodwill payments, which necessitated its divestiture.

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[121] *Id*.
[122] *Zacks Industry Outlook Highlights: Peabody Energy, Arch Coal & Hallador Energy Press Releases*, NASDAQ.COM, (Mar. 13, 2015) http://www nasdaq.com/article/zacks-industry-outlook-highlights-peabody-energy-arch-coal-and-hallador-energy-press-releases-cm454565#ixzz3UhZ2QMD6.
[123] Arch 2015 Form 8-K.
[124] *Id*. at 2.
[125] Andrew Meola, *Arch Coal (ACI) Stock Closes Lower Today After Argus Downgrade,* STREET.COM (Feb. 23, 2015 at 4:09 PM) http://www.thestreet.com/story/13055182/1/arch-coal-aci-stock-closes-lower-today-after-argus-downgrade.html.

To combat poor market conditions and the current financial position of Arch, John T. Drexler, Arch's Senior Vice President and Chief Financial Officer, stated "Arch's top financial priorities are preserving liquidity, controlling costs and holding the line on capital spending."[126] Though its recent balance sheet shows $1.54 billion in total current assets on hand, Arch Coal has consistently been losing money every quarter for the past three years. [127]

Furthermore, over the past three years — and significantly, over the past year — Arch's debt to Earnings Before Interest, Taxes, Depreciation and Amortization ("EBITDA") ratio has exponentially increased. Debt to EBITDA ratio is one of the more common methods of evaluating the financial health and liquidity position of a particular entity. In this case, the consistently high debt to EBITDA ratio for Arch is indicative of its inability to pay off its debts. Therefore, it is clear that Arch is taking on more debt than their business is earning.

Given the amount of debt coming due, the negative outlook for coal markets, and Arch's substantial yearly losses, and its strategic goals, Arch is simply not in a position financially to make the [redacted] investment in opening a new mine. It is

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[126] Arch 2015 Form 8-K.

[127] *Id.* at 9. *I.e.,* Arch reported a net loss of $240.1 million on Feb. 3, 2015. Arch 2015 Form 8-K; $97 million on Oct. 28, 2014. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (Oct. 28, 2014); $97 million on July 29, 2014. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (July 29, 2014); $124.1 million on Apr. 22, 2014. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (Apr. 22, 2014); $371.2 million on Feb. 4, 2014. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (Feb 4, 2014); $128.4 million on Oct. 29, 2013. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (Oct. 29, 2013); $72.2 million on July 30, 2013. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (July 30, 2013); $70 million on Apr. 23, 2013. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (Apr. 23, 2013); and $295 million on Feb. 3, 2013. Arch Coal, Inc., Securities & Exchange Comm'n, (Form 8-K) (Comm'n File No. 1-13105) 1 (Feb. 3, 2013).

considered one of the "most financially challenged companies in the industry" and "will not be able to raise the capital necessary to finance Otter Creek or the Tongue River Railroad."[128]

B. **The Tongue River Railroad Company is Not Financially Fit to Undertake the Construction of, and to Provide Services of, the Proposed Project.**

Arch's financial fitness also places TRRC's financial fitness in doubt. As noted above, [redacted] Currently, BNSF and Arch each own a 38.29 percent share in TRHC, with the remainder 23.42 percent owned by TRR Financing, LLC.[130] Since the submission of Northern Plains' most recent comments, Arch has continued to illustrate that it is not financially fit to move forward with the $416 million construction the proposed TRR rail line while at the same time financing the [redacted] needed to open Otter Creek.

Obviously, if Arch does not open Otter Creek, TRRC will not construct a railroad to serve it. Even assuming it opens and it reaches the production levels claimed in TRRC's application, its financial fitness remains questionable. First, TRRC's project income is simply a calculation of what TRRC would have to earn assuming the railroad costs $416 million to construct and the cost of capital is 11.57%. The projected income further *assumes* that an operator will pay this amount. When Northern Plains highlighted this issue in its initial PCN comments, TRRC provided a projected net income statement that estimates the amount of net income BNSF would receive in the first two years of

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[128] Ex. J, V.S. of Thomas Sanzillo at 4-5.
[129] Ex. B, [redacted].
[130] Letter from Coburn to Brown RE: Updated List of Directors & Officers for TRRC Inc. & BNSF Railway Co. & Updated Ownership Percentages for TRRC, Inc. (Mar. 6, 2015).

operation following construction.[131] However, as noted above, BNSF has not yet committed to being the operator of the line and these projections may be entirely irrelevant.

Northern Plains' expert witness Michael Nelson, an expert in railroad finances and veteran of Board proceedings, reviewed the income projections and points to serious flaws in the revenue projections. He notes that the "Net Income from the 'TRRC Segment' does not come close to justifying the investment required in the 'TRRC Segment', and that it would be irrational for BNSF to make up the difference since BNSF will benefit from the same flows (from other mines) even if the project is not constructed."[132] He concludes, "[o]verall, the earnings the project could generate are nowhere near the level that would make the project attractive to a rational investor."[133] TRRC is not financially fit given these realities.

C. The Tongue River Railroad Company's Proposed Project is Not in the Public Interest.

Even if the Board decides that the TRRC's proposed project meets the demand and financial fitness prongs of the PCN test, the Board must reject the application if the project is not in the public interest.[134] The Board's public interest finding "is a broad one," involving "consideration of a wide range of factors."[135] One factor the Board must consider is the impact the new rail line might have in furthering the goals of the national

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[131] TRRC notes that the BNSF income projection does not supersede the earlier TRRC projection that assumes payment from the operator. TRRC Reply at 4 (Aug. 9, 2013).
[132] *Id*.
[133] Ex. T, V.S. of Michael Nelson at 10.
[134] *Northern Plains Res. Council v. Surface Trans. Bd.*, 668 F.3d 1067, 1092–93 (9th Cir. 2011).
[135] *Louisville & Jefferson Ctny. Riverport Auth. & CSX Trans., Inc.*, *Construction and Operation Exemption in Jefferson Cnty., KY*, 4 I.C.C. 2d 749, 754, 1988 WL 226227 (S.T.B. 1988).

rail transportation policy.[136] Additional factors the Board must consider include the environmental impacts of the proposed rail line.[137] The Board must also consider whether the project will have detrimental impacts to the public health and safety in its public interest determination.[138]

The Board must consider the impacts the proposed project will have on members of the public at large — including affected private landowners, locally and regionally affected communities, and the international welfare — during its public interest analysis. If the Board accepts the TRRC's demand assertions as true, it must evaluate the significant impacts the project will have on the public interest based on the project's maximum projected operation levels (transporting 20 million tons of PRB coal per year via the TRR).

1. *The TRR is Not in the Public Interest Because it is a Speculative Project that has Deprived Neighboring Landowners of the Full Use and Economic Value of their Private Property.*

TRRC's plans to construct a railroad in the Montana PRB have held private landowners captive for over three decades. The constant prospect of the railroad impacts the daily decisions landowners must make about their property. TRRC's speculative

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[136] *Louisville & Jefferson Ctny. Riverport Auth. & CSX Trans., Inc.*, 4 I.C.C. 2d at 754–55 (holding that "the rail transportation policy of 49 U.S.C. §10101a reflects [the Board's] public interest considerations" and a new rail line proposal must promote the rail transportation policy of §10101a to be in the public interest).

[137] *Alaska RR Corp., Construction and Operation Exemption, Rail Line Between North Pole and Delta Junction, AK*, Fed. Carr. Cas. P 37331 (I.C.C.), 2010 WL 24954 at *8 (S.T.B. 2010) ("In a rail construction case, we weigh environmental concerns against transportation concerns in evaluating the public interest. Environmental impacts can lead the Board to find that a proposal is not consistent with the public convenience and necessity.").

[138] *Indiana & Ohio Ry. Co., Construction and Operation, Butler, Warren, and Hamilton Cntys., OH*, 9 I.C.C. 2d 783, 788, 1993 WL 287692 (S.T.B. 1993) (holding that the Board's overarching mandate to abide by the rail transportation policy of 49 U.S.C. § 10101a(8) "'to operate transportation facilities and equipment without detriment to the public health and safety'" is "a statement of the public interest which [the Board] will use as a guideline in determining whether the public convenience and necessity require or permit construction of a new rail line.").

railroad projects have deprived landowners, including Northern Plains' members, of their fundamental right to make the best use of their property.

Private property rights are at the core of our constitutional democracy and civil society. Holding private property hostage to a wholly speculative railroad offends our fundamental notions of due process and fair play. While private corporations are entitled to risk their capital for speculative private ventures, Congress long ago recognized that railroads had to be regulated in the public interest, and that included the approval of new rail lines because with that approval comes a right a condemnation, a right normally reserved to the sovereign. This Board has an obligation to transfer that sovereign right sparingly, and only upon a demonstrated public need.

Northern Plains' members Clint McRae and Mark Fix have for years suffered from the various TRR proposals. Mr. McRae, a fourth-generation rancher, has been forced to delay making improvements to his ranch due to the everlasting uncertainty of the TRR.[139] For example, Mr. McRae has wanted to improve the efficiency of his ranch by constructing cross-fencing and livestock watering pipelines.[140] Although these improvements are critical to the ranch's productivity and viability, Mr. McRae cannot afford to make the improvements twice.[141] The railroad would not reimburse Mr. McRae for the costs to move the fencing and water pipelines.

Mr. Fix faced similar problems. As the owner and operator of a ranch along the banks of the Tongue River, Mr. Fix is threatened by the TRRC's inconsistent route proposals hampering his ability to make the most efficient and effective use of his

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[139] Ex. U, V.S. of Clint McRae at 1–2.
[140] *Id*. at 2–4.
[141] *Id*. at 4.

ranchlands.[142] For example, Mr. Fix was forced to delay constructing a circle-pivot irrigation system for nearly a decade due to the ICC's approval of TRR I and TRRC's inconsistent route proposals.[143] Additionally, Mr. Fix has had to consider how to manage his cattle if the TRR bisects his lands, cutting off his pastures from the ranch's primary water source.[144]

As stated by Mr. McRae,

> "Ranching is not an easy business and we need to be efficient to compete in the global market. We have put our business and lives on hold because any improvements we make to the ranch could be severely impacted by TRRC's eminent domain rights. We would not be compensated for these losses. The restrictions TRR proposals have placed on our ranch has caused uncertainty in our future."[145]

Mr. Fix reports that delaying improvements on account of the TRR cost him approximately $405,000 in lost sales.[146]

Although the Board assumes that private landowners like Mr. McRae and Mr. Fix would be compensated for any right-of-way TRRC receives through eminent domain, the Board must consider that ranchers and farmers like Mr. McRae and Mr. Fix have never been compensated for their losses described above. As noted by Mr. Nelson, the willingness of landowners such as Mr. McRae and Mr. Fix "to spend substantial sums to defend their property rights reflects, in part, the economic harms to their farms, ranches, etc. posed by the uncertainty surrounding the project."[147] As evidenced above, "[a]

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[142] Ex. V, V.S. of Mark Fix at 1–2.
[143] *Id*. at 2–3.
[144] *Id*. at 2.
[145] *Id*. at 2.
[146] *Id.* at 3.
[147] Ex. T, V.S. of Michael Nelson at 4.

railroad holding condemnation authority for a project that might not be built unavoidably interferes with land use planning and restricts investments that farmers, ranchers and others normally would undertake to ensure the most productive and efficient use of their land."[148]

Even though it was never built, TRR I had a significant impact on property values along its proposed right-of-way. As described by Roger Jacobs, a licensed real estate professional representing prospective buyers and sellers of ranchlands in the intermountain west (including Montana's PRB), buyers often feel it is simply "too risky" to purchase ranchland when the possibility of a railroad running through the property hangs overhead.[149] The risk lies within the railroad's potential to "cross irrigation lines, making maintenance difficult or even impossible," and its ability to destroy "wells, circle pivots, water tanks, and fencing dividing the pastures that have been built on the property."[150] Mr. Jacobs has experienced first-hand the difficulties of selling ranchland affected by the TRR. When Mr. Jacobs attempted to sell the Ball Ranch, located just southwest of Miles City along eight miles of the Tongue River and in the path of the TRR I route, he found that it was "impossible to sell" the ranch with the prospect of the TRR's condemnation of its potential right of way clouding the title.[151] The Ball Ranch is a prime example of the interference TRRC's ventures have had on local landowners despite the fact it was never built. The Ball Ranch was an excellent property — it ran a cow-calf operation and feedlot for 600 cows; it had an irrigation system with over 33 miles of

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[148] *Id*.
[149] Ex. W, V.S. of Roger Jacobs at 3.
[150] *Id*.
[151] *Id*. at 2–3.

pipeline to ensure cattle were constantly close to water; it had the additional irrigation capacity to produce crops such as alfalfa, hay, and corn; and it also provided ideal wildlife habitat for outdoor enthusiasts.[152] However, once the required disclosure was made to prospective buyers that that the TRRC had a right to build a railroad through the land, buyers became either completely disinterested or became unwilling to pay the full value of the ranch.[153] Mr. Ball was finally able to sell the Ball Ranch after TRRC abandoned that route.[154] If the Board authorizes TRRC's proposal, landowners along the planned route will face the same fate as the owners of the Ball Ranch. It will be difficult, if not impossible, to sell their property at a fair value even though the railroad may never be built. Since TRR I was first approved in 1985, there has yet to be a railroad constructed. Three decades of uncertainty is enough — it is time for the Board to end the process once and for all in all fairness to the public interest of affected private landowners.

2. *Granting a Certificate of Public Convenience and Necessity to a Wholly Speculative Railroad Project is Not in the Public Interest.*

An earlier decision by the Board in the DM&E proceeding demonstrates the dangers of sanctioning eminent domain authority for speculative railroad projects. The Board granted the DM&E's application to extend its railroad system into the PRB even though the record indicated the project had limited financial viability.[155] With a Certificate of Public Convenience in hand, DM&E initiated condemnation proceedings

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[152] *Id*. at 2.
[153] *Id*. at 2–3.
[154] *Id*. at 3.
[155] *Dakota, Minnesota, & Eastern Railroad Corporation Construction into the Powder River Basin*, 3 S.T.B. 847, 1998 WL 869567 at *3 (1998).

against landowners. After several years of litigation, and on the eve of a decision, DM&E abruptly dismissed the case. In a subsequent order, the court remarked on the impropriety of the proceeding in light of the speculative nature of the project and warned that courts will not uphold abusive uses of the condemnation process.[156] "Plaintiffs initiated this condemnation action for a project that was always speculative, at best. By their conduct, Plaintiffs have squandered not only a great deal of the Defendant's hard-earned money, but also a great deal of this Court's time."[157] Indeed, the court noted DM&E could not provide any "reasonable assurances that the railroad would be built in the foreseeable future."[158] Similarly here, TRRC has not provided any "reasonable assurances" the TRR will be built in the foreseeable future.

3. *The TRR is Not in the Public Interest Because it May Violate Competition, Discrimination, and Sound Rail Transportation Policy Goals of the National Rail Transportation Policy.*

The Board must consider the influence the proposed TRR might have on its ability to carry out the national rail transportation policy goals assuring against unlawful discrimination, guaranteeing effective competition, and fostering a sound rail transportation system during its public interest analysis.[159] As ably described by Mr. Nelson, the Board should consider (1) the potentially discriminatory impact of the TRR for its favoring of the transport of coal from the Otter Creek Mine solely, and (2) the impacts of BNSF's chronic service problems already experienced along its Northern

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[156] Ex. F, Order Denying Defendants' Application for Costs, *Dakota, Minn. & E. R.R. Corp. v. Tracy*, No. 07-CV-00144-WFD, ¶13 (D. Wyo. July 20, 2011).
[157] *Id*.
[158] *Id*. at ¶ 11.
[159] *Louisville & Jefferson Ctny. Riverport Auth. & CSX Trans., Inc.*, 4 I.C.C. 2d at 754–55 ("the rail transportation policy of 49 U.S.C. §10101a reflects [the Board's] public interest considerations").

Corridor route as issues potentially contravening the national rail transportation policy during its public interest analysis.[160]

As noted, the Board must ensure approval of the TRR will meet the national rail transportation policy goals of 49 U.S.C. § 10101. Section 10101(5) states that it is the policy of the United States "to foster sound economic conditions in transportation and to ensure effective competition and coordination between rail carriers and other modes." Section 10101(12) states the national policy is "to prohibit predatory . . . practices, to avoid undue concentrations of market power, and to prohibit unlawful discrimination." And, Section 10101(4) mandates the national rail transportation policy is "to ensure the development and continuation of a sound rail transportation system with effective competition among rail carriers and with other modes, to meet the needs of the public."

First, the TRRC's application arguably runs afoul of sections 10101(5) and (12).[161] The application fails to explain why it is in the public interest to expend significant funds to construct a spur rail line meant to serve only one potential customer (the Otter Creek Mine).[162] Arch and BNSF have both acknowledged that other potential mines and development activities in the Ashland area that may benefit from the proposed TRR have since been terminated.[163] Indeed, there is no foreseeable need for the TRR absent the potential Otter Creek Mine development.[164] BNSF's significant partnership interest with Arch to fully fund the proposed TRR can thus be interpreted as arguably

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[160] Ex. T, V.S. of Michael Nelson at 8–9.
[161] *Id.* at 8.
[162] *Id.*
[163] *Id.*
[164] *Id.*

discriminatory action against other existing mines and rail carriers throughout the PRB.[165] For example, while BNSF has historically funded new trackage of branch lines connecting to main lines in the PRB, these rails have generally been for the benefit of multiple mines.[166] Instances in which BNSF has funded rail access for a single mine are limited to short segments in which a mine site is connected directly to a branch or main rail route.[167] The fact that BNSF is willing to expend significant amounts of its limited resources to service a 42-mile route benefitting only one potential customer — a single customer that supports a single commodity, at that (the coal industry) — is disconcerting.[168] As such, the TRRC's application arguably violates the national rail transportation policy's goals of §§ 10101(5) and (12).

Second, the TRRC's application arguably ignores the Board's duty to foster "a sound rail transportation system" under Section 10101(4).[169] Since 2013, BNSF has acknowledged its own deficiencies in service along its Northern Corridor route (BNSF's route including the area of the PRB and proposed TRR).[170] Although BNSF has attributed these service problems to mere weather and unanticipated traffic issues, complications along BNSF's Northern Corridor continue to evolve and clearly have not yet been adequately resolved.[171] It is apparent that BNSF has either (1) chosen not to devote the resources necessary to mend the service issues being experienced along the Northern Corridor, or (2) has not ensured the resources it has expended have been efficiently used.

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[165] *Id.*
[166] *Id*.
[167] *Id*.
[168] *Id*.
[169] *See id.* at 8–9.
[170] *Id*.
[171] *Id*. at 9.

Id. Adding the proposed TRR to BNSF's Northern Corridor has the potential to only further exacerbate BNSF's already existing chronic service problems by diverting resources to service a single potential customer.[172] Additionally, given the difficult topography of the proposed TRR route, the TRR project will demand even higher amounts of resources that, based upon the state of BNSF's service level along the Northern Corridor thus far, BNSF apparently does not have.[173] The Board must consider BNSF's ability to render adequate service if it approves the proposed TRR as part of its mandate to ensure "a sound rail transportation system" under the national rail transportation policy.[174]

Accordingly, the Board should consider that the TRRC's application likely fails to meet the mandated national rail transportation policy goals of Sections 10101 (4), (5), and (12), and therefore, fails the public interest prong of the PCN test.

4. *TRRC's Project is Not in the Public Interest Because it Cannot be Built and Operated Without Detriment to the Environment, Public Health, and Public Safety.*

In addition to the TRRC proposal's devastating impacts upon neighboring landowners and the proposal's potential defiance of the national rail transportation policy goals regarding discrimination, competition, and soundness of the national rail system, the project is not in the interest of the broader public due to its detrimental impacts upon the environment, public health, and public safety. First, although the TRRC's project is undergoing the procedural environmental analyses of the National Environmental Policy Act ("NEPA") in a separate proceeding, the Board can deny an application under the

[172] *Id.*
[173] *Id.*
[174] *Id*.

PCN test before completion of NEPA's environmental review if the existing evidence sufficiently demonstrates that the project is not in the public interest.[175]

Second, the national rail transportation policy of 49 U.S.C. § 10101 explicitly provides that the United States government must "operate transportation facilities and equipment *without detriment to the public health and safety*."[176] Accordingly, the Board has held that this policy mandate must be achieved if the Board is to find that a proposed railroad application meets the public interest prong of the PCN test.[177]

a. If Built, the TRR will Cause Significant Harm to the Environment on Local, Regional, and International Levels.

The TRRC's application fails the public interest prong of the PCN test based on the environmental ramifications of a variety of constituent elements: (1) the construction and operation of the TRR, (2) the associated construction and operation of the Otter Creek Mine, and (3) the subsequent burning of coal mined from Otter Creek and transported via the TRR. Although the environmental review process is on-going and will reveal the full extent of environmental harm caused by the TRRC's project once completed, it is clear at this point that the harmful, cumulative environmental effects of the TRR will affect local, regional, and international ecosystems. These factors may be considered during the Board's public interest PCN analysis.[178]

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[175] *See Northern Plains Res. Council*, 668 F.3d at 1094–95 ("When conducting a public convenience and necessity test, the Board may 'draw its conclusion from the infinite variety of circumstances which may occur in specific instances.'. . . Thus, consideration of the public interest is permissible under this test." (internal citation omitted)).
[176] 49 U.S.C. §10101(8) (2012) (emphasis added).
[177] *Indiana & Ohio Ry. Co.,* 9 I.C.C. 2d at 788; *Louisville & Jefferson Ctny. Riverport Auth. & CSX Trans., Inc.*, 4 I.C.C. 2d at 754–55.
[178] *Alaska RR Corp.,* 2010 WL 24954 at *8.

First, if the TRR is constructed as proposed, the project will have the potentially devastating effect of transforming the Tongue River Valley's ("TRV") iconic agricultural landscape into an industrial belt serving to benefit multinational corporations and overseas fossil fuel markets over the interests of local ranchers and communities who rely on the TRV's essential environmental resources. The environmental impacts of 20 million tons of coal per year being transported through the currently stable, family-owned ranchlands of the TRV would be disastrous to local soil conditions, air quality, and water resources. The immediately impacted local ranchlands are currently rich in clean air and water resources, support abundant native fish and wildlife habitat, and provide prime opportunities for successful agricultural operations and recreation. This environment will be devastated by the coal dust from TRR trains being deposited along the rail tracks throughout the vital riparian landscape of the TRV, impacting the health of local livestock, fish, and wildlife.[179]

Additionally, as noted in the ICC's 1985 mitigation plan for the approval of TRR I, there are a variety of environmental consequences inherent in all railroad construction and operation projects.[180] Significant environmental impacts that will affect the local landscape if the TRR was again approved during the current proceeding are: (1) the decreased productivity of ranches; (2) the loss of ranchland due to railroad right of ways;

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[179] *See BNSF Railway Statement on STB Coal Dust Decision: Coal Dust Frequently Asked Questions,* BURLINGTON N. SANTA FE RY., http://www.bnsf.com/customers/what-can-i-ship/coal/coal-dust html#2 (last visited Feb. 24, 2015) (acknowledging fugitive coal dust as an environmental concern); *see also* Edward M. Calvin & Jerome E. Williams, *A Rail Emission Study: Fugitive Coal Dust Assessment and Mitigation*, in *Proceedings for the Seventh Annual Environment Virginia '19 Symposium*, 44–53, 44 (1996) *available at* http://www.powerpastcoal.org/wp-content/uploads/2011/08/A-RAIL-EMISSION-STUDY-FUGITIVE-COAL-DUST-ASSESSMENT-AND-MITIGATION.pdf (finding that approximately 0.6 tons of coal per rail car escapes during rail transport).

[180] *See* Interstate Commerce Comm'n, *Appendix B, A Master Mitigation Policy and Plan for the Proposed Tongue River Railroad Project, Finance Docket No. 30186* (Sept. 4, 1985).

(3) the indirect land losses resulting from the severance of parcels; (4) wildlife disturbance and the proliferation of noxious weeds; and (5) increased demand for community services.[181] Environmental impacts from decreased air quality associated with increased diesel engine train traffic, fugitive coal dust emissions, and the risk of accidents and spills will affect not only the localized region nearest to the proposed TRR, but will be felt in communities down-line throughout Montana, Idaho, Washington, and Oregon as well.[182]

Accordingly, if approved, the TRR's environmental devastation will stretch far beyond the source of the increased coal production in the Powder River Basin (PRB). After making its way through the ranchlands of southwestern Montana, the TRR's coal trains will move westward impacting communities and landscapes throughout the Intermountain West and Pacific Northwest. Down-line communities will feel the brunt of increased rail traffic pressure, increased air and water pollution from coal dust escaping from rail cars, and the environmental harms associated with the burning of coal either domestically or in Asian countries.

In fact, perhaps most significantly, the TRR will only add insult to injury to the spiraling environmental harms associated with global climate change. The Board must consider the cumulative environmental impacts of the proposed project and, therefore, must consider the project's contribution to increased global greenhouse gas emissions.[183]

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[181] *Id.*
[182] *Id.*
[183] *Mid States Coalition for Progress v. Surface Trans. Bd.,* 345 F.3d 520, 549 (8th Cir. 2003) (holding that "it would be irresponsible for the Board to approve" the proposed rail construction project "without fist examining the effects that may occur as a result of the reasonably foreseeable increase in coal consumption.").

Coal combustion is responsible for over 30 percent of the United States' total carbon dioxide emissions, which are a significant contributor to global climate change.[184] Indeed, coal plants constitute the "single largest source of sulfur dioxide, mercury, and air toxic emissions and the second largest source of nitrogen oxide pollution."[185] These toxins contribute to the build-up of greenhouse gases in the atmosphere creating a host of threats to the environment and human health generally.[186]

The Board cannot ignore the impacts of global climate change upon the public environment. The United States government must proceed with caution as they consider the energy choices they make into the future to avoid reaching the "tipping point" at which our environment can no longer handle the offsetting balance caused by global climate change.[187] Accordingly, the Board should not approve a project, such as the TRR, that will result in a clear exacerbation of the harmful impacts of climate change. Contrary to the public interest, the TRRC's project would damage our local, regional, and international environment.

b. <u>If Built, the TRR will Threaten the Public Health and Safety of Communities Throughout Montana, the Pacific Northwest, and Beyond.</u>

The TRRC's proposed project fails the public interest prong of the PCN test because it violates the national rail policy's mandate that rail transportation facilities and

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[184] Alan H. Lockwood, et. al., *Physicians for Social Responsibility, Coal's Assault on Human Health* 8 (Nov. 2009) *available at* http://www.psr.org/assets/pdfs/psr-coal-fullreport.pdf [hereinafter Lockwood, *Health Report*].
[185] *Id*. at 8 (citations omitted).
[186] *Id*. at 35-36.
[187] *Id*. at 39, 41.

equipment must not cause "detriment to the public health and safety."[188] Where "substantial adverse public safety concerns outweigh the transportation benefits of the proposed line," the Board must deny an application for a Certificate of Public Convenience and Necessity under Section 10901.[189] Affected communities throughout the West have expressed their opposition to the very real public health and safety concerns their communities face if the TRR is approved.[190]

First, coal dust resulting from TRR's operation will negatively impact the health of children and adults throughout the West. Coal is harmful to human health at all stages of its lifecycle.[191] During transport, coal trains are responsible for releasing coal dust particles and diesel fumes "into the air, degrading air quality and exposing nearby communities to dust inhalation."[192] Unfortunately, children often face the most severe health risks from coal dust pollution.[193]

Second, the increased rail traffic in communities throughout the West resulting from the TRR's operation will threaten public safety. The TRR has the potential to severely impact the public safety of communities along rail lines transporting coal originating in the TRV to its final destination. Public safety concerns include delayed

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[188] 49 U.S.C. §10101(8) (2012).
[189] *Indiana & Ohio Ry. Co.*, 9 I.C.C. 2d at 783.
[190] *See e.g.* Ex. X, (including letters and resolutions from the Cities of Livingston, Montana; Sandpoint, Idaho; Spokane, Stevenson, and Seattle, Washington; and Hood River, Oregon all opposing the Board's approval of the TRR due to the harms associated with the project upon the environment, health, and safety of their local communities).
[191] Lockwood, *Health Report* at v.
[192] *Id*. at 8 (stating that "[t]ogether, railroad engines and trucks release over 600,000 tons of nitrogen and 50,000 tons of particulate matter into the air every year in the process of hauling coal, largely through diesel exhaust. Diesel engines currently produce approximately 1.8 million tons of NOx [(Nitrogen Oxide)] and 63,000 tons of small particles (less than 2.5 microns in diameter) each year. These emissions adversely effect many organ systems." (citations omitted)).
[193] *Id*. at x–xi (noting that children/infants are the "most vulnerable population[]" in five of eleven enumerated diseases caused by coal pollution).

emergency response times, increased risk of accidents and spills, and the health impacts noted previously from increased diesel engine use and coal dust emissions from rail cars. A traffic study conducted in Seattle, Washington to analyze the impacts of increased coal train traffic that would result from the construction and operation of a proposed new coal export terminal on the U.S. West Coast states that increased coal train traffic could have "potentially severe consequences for the City's transportation plan and improvements, with increases in risk of accidents, impacts to the City's levels of service, ability to provide effective emergency response times, and possible interference with local freight delivery systems important to the City's economic recovery."[194]

Health officials have also noted the safety threats associated with increased coal train traffic through communities across the West. Dr. Melissa Weakland, MD, of the Washington Academy of Family Physicians stated "We know from the data that the coal trains would negatively impact the health of our communities because of increased air pollution from diesel particulates and coal dust, delays in emergency response time because of long waits at railroad crossings, and increases in noise pollution in our communities."[195] Additionally, the Multnomah County Health Department in Oregon noted that "coal dust from rail transport along (not including coal dust from a terminal) has potential to result in growth and development problems, heart and lung problems, cancers, and safety related injury and deaths."[196]

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[194] Gibson Traffic Consultants, Inc., *Cherry Point Coal Export Facility Rail Operations-City of Seattle–Preliminary Report, GTC #11-036*, 4 (Feb. 13, 2012) *available at* http://www.powerpastcoal.org/wp-content/uploads/2012/10/GTC-Seattle-Traffic-Report-SO-small.pdf [hereinafter Gibson Traffic Report].
[195] Power Past Coal, *Health Concerns About Coal Export in the Northwest* 1 (Dec. 2013) *available at* http://www.powerpastcoal.org/wp-content/uploads/2013/12/health-impacts-03.pdf.
[196] *Id*. at 2.

Each passing coal train has the potential to cause six to seven minute delays at rail crossings.[197] Based on an average of 18 additional coal trains per day, communities along rail lines throughout the West will feel the safety impacts of one additional coal train passing through a given crossing every 1.3 hours, 24-hours per day.[198] The added delays at rail crossings resulting from TRR shipments being added to already congested rail lines presents a serious public safety issue in communities bisected by affected rail lines. As described by one former emergency medical physician:

> There are several medical conditions that are extremely time sensitive. In certain stroke patients 5 minutes may make the difference between being able to be treated with thrombolytics or not. Thrombolytics in certain stroke patients can reverse devastating neurologic defects. In heart attack victims a delay of minutes can result in heart muscle death. And in major trauma time delays can result in increased blood loss and organ failure. . . . [If] potential delays in reaching a hospital caused by the increased coal traffic" is not considered, "[l]iterally, some people's lives may hang in the balance.[199]

If approved, the TRR will threaten communities along its route, contrary to the statutory mandate that the Board "operate transportation facilities and equipment *without detriment to the public health and safety*."[200]

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[197] Gibson Traffic Report at 1 (basing the delay on a 1.5 mile long coal train travelling 35 miles per hour; delays are approximately three to four minutes for trains travelling at 50 miles per hour).
[198] *Id*.
[199] Power Past Coal, *Health Concerns About Coal Export in the Northwest* 2 (Dec. 2013) *available at* http://www.powerpastcoal.org/wp-content/uploads/2013/12/health-impacts-03.pdf (quoting Eric Luther Schutz, MD).
[200] 49 U.S.C. §10101(8) (2012) (emphasis added).

5. *Because the TRR will Harm Local Landowners, will Defy National Rail Transportation Policy Goals, and will Impair the Environment, Health, and Safety of the General Public, the Board must Reject the TRRC's Application for the Proposed Project's Failure to be in the Public Interest.*

In sum, even if the Board accepts the TRRC's assertions that there is adequate public demand and need and that the TRRC is financially fit to construct and operate the TRR, the Board cannot find that the TRRC's project is in the public interest. The TRRC's application, therefore, fails to pass the third prong of the PCN test. The TRRC's project has been negatively impacting local private landowners' beneficial use and economic value of their ranchlands. The TRRC's application fails to indicate how the proposed rail line complies with the national rail transportation policy goals of 49 U.S.C. § 10101 regarding the prevention of unlawful discrimination, the guarantee of adequate competition, and the maintenance of a sound national rail system. If approved, the TRR will have serious, detrimental impacts upon the environment, the public health, and the public safety in communities throughout the region and the world. As such, the Board must reject the TRRC's application for the project's failure to be in the public interest.

CONCLUSION

The Board cannot approve the TRRC's supplemental application to construct the TRR if it finds that doing so would be "inconsistent with the public convenience and necessity."[201] In order to receive a Certificate of Public Convenience and Necessity, as required by Section 10901(c), the TRRC must demonstrate (1) that there is public demand and need for the TRR; (2) that the TRRC is financially fit to undertake construction and operation of the TRR; and (3) that construction of the TRR would be in

[201] 49 U.S.C. § 10901(c) (2012).

the public interest.[202] As evidenced, the TRRC does not meet any one of these requirements.

Northern Plains Resource Council, Inc. and Wally McRae/Clint McRae dba Rocker Six Cattle Company hereby request that the Board deny TRRC's application for a Certificate of Public Convenience and Necessity because there is no public demand and need for the proposed rail line, TRRC is not financially fit, and the rail line is not in the public interest.

Dated this 26th day of March, 2015



Jack R. Tuholske
Kenneth J. Rumelt
Attorneys for Northern Plains and Rocker Six Cattle Company

[202] *Norfolk Southern Corporation and Norfolk Southern Railway Company*, 2003 WL 21132522 at *4.

CERTIFICATE OF SERVICE

I certify that the foregoing has been served by U.S. mail on all parties of this record on this 26th day of March, 2015.



Kenneth J. Rumelt
Attorney for Northern Plains and Rocker Six Cattle Company

Exhibit List

Exhibit A: Tr. of Dep. of Andrew Blumenfeld

Exhibit B: Tr. of Dep. of Stevan Bobb

Exhibit C: Andrew Blumenfeld, *Presentation: Strategy Discussion – Markets* (Dec. 13, 2011)

Exhibit D: Arch Coal, *Presentation: Otter Creek Update* (Nov. 7, 2010)

Exhbiit E: Tr. of Dep. of William Rowlands

Exhibit F: Order Denying Defendants' Application for Costs, *Dakota, Minn. & E. R.R. Corp. v. Tracy*, No. 07-CV-00144-WFD (D. Wyo. July 20, 2011)

Exhibit G: Stevan Bobb, *Financial Info. For Buffet Letter* (Jan. 9, 2013)

Exhibit H: Andrew Blumenfeld, *Market Analysis: 2012 Budget and Five-Year Plan Presentation* (Nov. 1, 2011)

Exhibit I: Arch Coal, *Natural Gas Presentation Slides* (Apr. 11, 2013)

Exhibit J: V.S. of Thomas Sanzillo

Exhibit K: Darren Epps, *Arch Tells Investors it will Show Patience with Idled PRB Production*, SNL ENERGY (June 19, 2013 at 2:49 PM)

Exhibit L: Andrew Blumenfeld, *Mem. from Andy Blumenfeld & Charles Dayton to Deck Slone, RE: PRB Optimization* (April 11, 2013)

Exhibit M: Norwest Corp., *Otter Creek Property Summary Report* (July 12, 2006)

Exhibit N: Andrew Blumenfeld, *Email from Andy Blumenfeld to Steve Cavallo, RE: Otter Creek* (Sep. 15, 2011)

Exhibit O: Arch Coal, *List of Publications Arch Coal uses to Analyze Domestic and International Demand for PRB Coal*

Exhibit P: Andy Blumenfeld, *Presentation: Inland Rivers, Ports & Terminals, Industry Outlook Panel – Energy* (May 3, 2012)

Exhibit Q: Arch Coal, *Otter Creek Update*

Exhibit R: Ambre Energy, Form 5057A Filing with the Australian Sec.& Invest. Comm'n (Nov. 12, 2014).

Exhibit S: Andrew Blumenfeld, *Email from Andy Blumenfeld to John Eaves and Deck Sloan,* RE: China Rail (Feb. 18, 2013)

Exhibit T: V.S. of Michael Nelson

Exhibit U: V.S. of Clint McRae

Exhibit V: V.S. of Mark Fix

Exhibit W: V.S. of Roger Jacobs

Exhibit X: Letters and resolutions from the Cities of Livingston, Montana; Sandpoint, Idaho; Spokane, Stevenson, and Seattle, Washington; and Hood River, Oregon

Exhibit F

FILED
U.S. DISTRICT COURT
DISTRICT OF WYOMING
JUL 20 2011
Stephan Harris, Clerk
Casper

United States District Court
For The District of Wyoming

DAKOTA, MINNESOTA & EASTERN RAILROAD CORPORATION, WYOMING DAKOTA RAILROAD PROPERTIES, INC.,

Plaintiffs,

vs.

Case No. 07-CV-144-D

46.271 ACRES OF LAND, MORE OR LESS, LOCATED IN CAMPBELL COUNTY, STATE OF WYOMING, DANIEL E. TRACY, as Trustee of the Daniel Eugene Tracy Revocable Trust, dated November 10, 2000 and JOYCE A. TRACY, as Trustee of the Joyce Ann Tracy Revocable Trust, dated November 10, 2000, MARC D. TRACY and TAMALA J. TRACY as tenants by the entirety, PRB RAIL, LLC,

Defendants.

ORDER DENYING DEFENDANTS' APPLICATION FOR COSTS

This matter comes before the Court on Defendants' Application for Costs [Doc. 224]. The Court, having considered both Defendants' Application and Plaintiffs' Objection thereto, and considering itself otherwise fully advised in the matter, hereby FINDS and ORDERS as follows:

1. This matter was litigated in a two-week trial before the Court in which

Defendants vigorously defended Plaintiffs' use of the power of eminent domain. At trial, Defendants argued that Plaintiffs failed to satisfy the requirements to exercise the power of eminent domain set forth in the Wyoming Eminent Domain Act, WYO. STAT. ANN. § 1-26-501, et seq. In particular, Defendants argued that the proposed condemnation was not necessary within the meaning of WYO. STAT. ANN. § 1-26-504(a) because the proposed project was not economically viable and because Plaintiffs could not provide reasonable assurances that the project would be built in the foreseeable future. Defendants further argued that Plaintiffs failed to negotiate in good faith as required by WYO. STAT. ANN. §§ 1-26-509(a) and 510(a).

2. On August 26, 2009, on the eve of this Court's entry of an order addressing the issue of whether Plaintiffs had satisfied the requirements to exercise eminent domain under Wyoming law, Plaintiffs filed a Notice of Dismissal pursuant to Fed. R. Civ. P. 71.1.

3. Under Rule 71.1(i) of the Federal Rules of Civil Procedure, a plaintiff in a condemnation action may dismiss an action without a court order by filing a notice of dismissal, so long as no compensation hearing has begun and the plaintiff has not acquired title or a lesser interest, or taken possession of the property. At the time the notice was filed, Plaintiffs had not taken possession of Defendants' property, had not acquired title or a lesser interest, and no compensation hearing had begun. Accordingly, pursuant to Fed. R. 71.1(i), this action was dismissed without further Court

action.

4. Subdivision (l) of Rule 71.1 provides that "[c]osts are not subject to Rule 54(d)." Fed. R. Civ. P. 54(d) ordinarily governs the imposition of costs in a civil action.

5. The Notes to subd vision (l) explain the reason for this as follows:

> Since the condemnor will normally be the prevailing party and since he should not recover his costs against the property owner, Rule 54(d), which provides generally that costs shall go to the prevailing party, is made inapplicable.

Notes to Subdivision (l) of Fed. R. Civ. P. 71.1. Accordingly, the clear aim of subdivision (l) is to prevent an award of costs against an unsuccessful condemnee.

6. The Notes go on to state:

> Without attempting to state what the rule on costs is, the effect of subdivision (l) is that costs shall be awarded in accordance with the law that has developed in condemnation cases.

Id.

7. Neither Defendants nor Plaintiffs have cited the Court to any law that has developed in condemnation cases on the issue of awarding costs, other than cases in the context of the Equal Access to Justice Act ("EAJA"), 28 U.S.C. § 2412. *See, e.g., United States v. Gyurman*, 836 F.2d 480 (10th Cir. 1987). Although these cases involve condemnation by the United States or an agency thereof, Defendants argue they nonetheless provide support for an award of fees in this case. Plaintiffs, unlike the United States, have no immunity from an award of costs. Accordingly, Defendants argue that an award of costs is more appropriate in the case of a private condemnor

such as Plaintiffs.

8. In addition to cases under the EAJA, the Court notes that at least one Wyoming case provides support for an award of costs where a condemnor has voluntarily abandoned plans to pursue condemnation. *See Snodgrass v. Rissler & McMurry Co.*, 903 P.2d 1015, 1018 (Wyo. 1995). Unlike the federal statute, however, Wyo. R. Civ. P. 7.1, which the Wyoming Supreme Court applied in *Snodgrass*, provides an express basis for awarding costs. *See* Wyo. R. Civ. P. 7.1(m) ("In any proceeding under [Wyo. R. Civ. P. 7.1] costs may be allowed and apportioned between the parties on the same or adverse sides in the discretion of the court as authorized by statute or by rule of this court."). The Court is bound in this case to apply Fed. R. Civ. P. 7.1. The fact that Wyoming's procedural rule relating to condemnation actions provides for an award of costs does not provide a basis for this Court to award costs under its own applicable rule.

9. Further, Defendants' assertion that the voluntary dismissal of this action renders it the "prevailing party," is not supported by Tenth Circuit case law. Defendants argue that where, as here, a condemnor voluntarily dismisses a contested condemnation action, the condemnee may properly be considered the "prevailing party." In support of this proposition, Defendants cite this Court to *United States v. 101.80 Acres of Land, More or Less, in Idaho County, Idaho*, 716 F.2d 714, 722 (9th

Cir. 1983), a case under the EAJA.[1] In a discussion of the legislative history of EAJA, the Ninth Circuit concluded that Congress intended the term "prevailing party" to be applied broadly. In doing so, it referenced a case cited in the House Report accompanying the bill from which the EAJA derived. The referenced case noted that "[a] party may be deemed prevailing . . . if the plaintiff has sought dismissal of a groundless complaint". *See id.* (citing *Corcoran v. Columbia Broadcasting System, Inc.*, 121 F.2d 575 (9th Cir. 1941)

10. Aside from being the thinnest of threads upon which this Court could weave a basis for awarding costs, this argument is at odds with directly analogous Tenth Circuit case law under Fed. R. Civ. P. 41(a)(1)(A)(i).[2] In *Lorillard Tobacco Co. v. Engida*, 611 F.3d 1209, (10th Cir. 2010), the Tenth Circuit noted that voluntary dismissal "ordinarily does not create a prevailing party because in order to create a prevailing party there must be a judicially sanctioned change in the legal relationship of the parties." (internal quotation omitted). Like Fed. R. Civ. P. 41(a)(1)(A)(i), under the plain language of Fed. R. Civ. P. 71.1(i), "a plaintiff may dismiss the action without a court order; no judicial sanction is required." *Id.*

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[1] The issue in *101.80 Acres* was whether landowners who prevailed in compensation proceedings and ultimately obtained an award that exceeded the amount originally deposited with the Court by the United States could be deemed "prevailing parties" under the EAJA.

[2] Fed. R. Civ. P. 41(a)(1)(A)(i) governs a plaintiff's voluntary dismissal of a civil action outside of the condemnation context.

11. Here, there can be no question that Plaintiffs' action in dismissing their condemnation case was a complete vindication of the position taken by Defendants before this Court. Defendants asserted that the initiation of this condemnation action was premature in that Plaintiffs could not provide the Court with reasonable assurances that the railroad would be built in the foreseeable future. Plaintiffs admitted as much in their Notice of Dismissal, in which they acknowledged that "DM&E cannot say that there is a reasonable probability that it will proceed with its Powder River Basin project in the immediate term." Notice of Dismissal at ¶ 3.

12. This Court may award costs to Defendants, under Fed. R. Civ. P. 71.1, if at all, only if such an award is "in accordance with the law that has developed in condemnation cases." Notes to subdivision (l), Fed. R. Civ. P. 71.1. Defendants have not provided and the Court has not found any development of the law establishing whether a condemnor who voluntarily dismisses a contested condemnation action pursuant to 71.1(i) is liable for costs to the condemnee.

13. The Court is mindful that the amount of costs Defendants seek to recover in this action is only a fraction of the money they actually spent to defend their property rights from what, in the Court's view, was an abuse of the condemnation process. Plaintiffs initiated this condemnation action for a project that was always speculative, at best. By their conduct, Plaintiffs have squandered not only a great deal of the Defendants' hard-earned money, but also a great deal of this Court's time. The Court

makes this comment for the benefit of its judicial colleagues in this and other districts, so that they might look at any similar conduct by this railroad with a jaundiced eye.

14. Thankfully, cases such as this are rare. In most instances, the appropriateness of the exercise of the power of eminent domain itself is not at issue, and instead, the Court's focus in presiding over condemnation matters is ordinarily limited to the amount of the fair compensation due for a taking. In those rare instances, where a condemnor attempts to take land without first satisfying the requirements for the proper use of the power of eminent domain, sound public policy dictates that an award of costs is appropriate. But public policy is the prerogative of the legislature and not a federal trial court. Without a basis in existing law for doing so, this Court, regrettably, cannot award Defendants the relief they seek.

WHEREFORE, for the reasons set forth above, the Defendants' application for costs is **DENIED.**

IT IS SO ORDERED.

DATED this 20th day of July, 2011.

United States District Judge

Exhibit J

PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC.—RAIL CONSTRUCTION AND OPERATION—IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF THOMAS SANZILLO

My name is Thomas Sanzillo and I am Finance Director for the Institute for Energy Economics and Financial Analysis ("IEEFA"). I have served in this job since May 2012 but have been involved in fossil fuel finance matters since September 2007. In this capacity I research and prepare studies, memos, and testimony (and supervise the same) and speak publicly on a range of fossil fuel issues. I have authored, co-authored, or provided related research on United States domestic coal markets and plant finances, U.S. coal producer and mine finance and financial regulation, federal coal leasing in the Powder River Basin ("PRB"), federal coal subsidies, federal/state mine reclamation, utility finance, public power financials (including municipal power systems, rural cooperatives, and state power agencies). I have testified before three Public Service Commissions (Minnesota, Wisconsin, and Colorado) and submitted affidavits in two coal related federal proceedings as well as before an administrative proceeding at the Exim Bank. My work has involved energy and coal issues in at least 25 states.

My work has also included analysis of global economic trends and coal markets. I have co-authored a number of international coal market studies related to India and

Australia (with our office in Sydney, Australia) and provided oversight, research, and direction on a global analysis of coal markets with Carbon Tracker Institute. In addition, I have published a number of reports related to U.S. coal exports.

Prior to my work with IEEFA, I served for seventeen years (1990-2007) in various senior management positions in New York City and State government finance. My last position was the First Deputy Comptroller for New York State (I served for a short period as the State Comptroller due to an early resignation). The New York State Comptroller is the sole trustee of a $156 billion globally invested public pension fund, chief accountant and procurement officer, chief auditor for state finances, agencies, and local governments, and reviews and approves most public debt.[1]

I present this Verified Statement on behalf of the Northern Plains Resource Council ("Northern Plains"). The purpose of this Verified Statement is to offer my professional opinion on the viability of the Otter Creek mine project, the only coal mine that would be served by the proposed Tongue River Railroad. My Verified Statement: 1) provides historical and up to date information on the status of coal markets in the United States and globally; 2) offers information and analysis on the current and future financial outlook of Arch Coal, Inc. ("ACI"), a 38.29% owner of the Tongue River Railroad Company ("TRRC"), and 3) provides an overall opinion on the viability of the Otter Creek project that would be served by the Tongue River Railroad.

To prepare this testimony I have reviewed TRRC's December 17, 2012 Supplemental Application for Construction and Operation Authority, Northern Plains'

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[1] Thomas Sanzillo, *The New York State Comptroller's Office*, The Oxford Handbook of New York State Government and Politics 287, 292 (2012).

April 2, 2013 Comments on TRRC's application, TRRC's June 7, 2013 Reply, Northern Plains' July 2, 2013 Sur-reply, and TRRC's August 9, 2013 Reply as well the affidavits and material provided as part of those submissions. I have also reviewed all of the highly confidential documents[2] produced in discovery by the TRRC and its owners including various internal documents of both ACI and BNSF Railway Company ("BNSF"). I have also reviewed discovery deposition transcripts from this proceeding.

My testimony also draws upon many of the same external sources used by the parties in this proceeding, most notably the reports and statistical projections of domestic and international coal markets provided by the United States Energy Information Administration ("EIA"). I supplement this largely quantitative data from the EIA with additional quantitative and qualitative analysis provided by several large banks with long histories with the coal industry. I further rely on detailed analysis of global coal markets conducted by Carbon Tracker Institute ("CTI") in September 2014.[3] CTI and my organization, IEEFA, collaborated on significant portions of the report, and many of the modeling assumptions regarding national and global coal markets were derived from IEEFA's modeling. Where necessary and appropriate I rely upon market price information provided by coal companies and independent market pricing data, analytical, and industry reporting sources.

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[2] Confidential documents are identified in the body of this affidavit along with appropriate Bates numbers and other identifiers. Further clarifying information is provided in accompanying footnotes where appropriate.

[3] *See generally* Carbon Tracker Initiative, http://www.carbontracker.org/report/carbon-supply-cost-curves-evaluating-financial-risk-to-coal-capital-expenditures/ (last updated Mar. 24, 2015).

SUMMARY OF CONCLUSIONS

- **There is no need or market demand for Otter Creek coal for the foreseeable future.** Based upon what we can see today and for the foreseeable future there is insufficient demand from the domestic and international thermal coal markets to warrant any finding of a viable market for this new coal mine and the underlying rail infrastructure to support it.

- **Coal production in the PRB is shrinking due to structural, long-term changes in the domestic and international markets**. From 2005 through 2011 the region produced on average 462 million tons per year ("mtpa"). From 2012 through 2014 the region produced on average 415 mtpa, a 47 mtpa decline or just over 10%.

- **Looking forward through 2016 coal production is expected to continue declining nationally and in the PRB**. From 2011 through 2016 the Western Region, the region dominated by the PRB, is expected to shrink by 73 mtpa.

- **The EIA has downgraded its long-term forecasts**. In 2011 the EIA estimated that by 2030 the PRB would produce 699 mtpa. By 2014 the EIA downgraded its 2030 forecast to 493 mtpa, a 206 mtpa decline in expected PRB production.

- **There is no room in the current or projected market for Otter Creek coal.** In recent years Montana coal production has been consistent with the historical average of the last ten years, approximately 42 mtpa. The EIA is projecting some long-term growth but there are two other companies in Montana positioned to meet this demand. In addition, there are four other coal producers in the PRB looking to export coal off the west coast. With six competitors vying for a minimal amount of new coal production there is just no room for another, poorly positioned entrant into the market. In addition, EIA's projections for coal exports to Asia identify a maximum long-term market in the 21 mtpa range. Current Montana coal producers have exported 12 mtpa in a good year.

- **Plans to export the coal from Otter Creek will not materialize**. The EIA has recently substantially downgraded its estimate of short-term export potential. ACI has done the same. According to four major investment advisors (J.P Morgan, Goldman Sachs, Citibank, and Bernstein Research), the current unfavorable market for exported coal from the United States is either never going to rise or will not do so for the foreseeable future. Investors and coal companies have scaled back or completely pulled out of the export market and related infrastructure projects. For example, ACI anticipates paying $50 million in liquidated damages in 2015 for unused export terminal capacity due to weak seaborne coal markets.

- [redacted]

- **ACI is not financially fit to make the investments needed to open the Otter Creek mine and/or the Tongue River Railroad.** The financial condition of ACI, like the coal industry in general has deteriorated over the last four years. The company has posted three consecutive years of losses totaling more than $1 billion and is expected to lose money in 2015 as well. Its stock price has fallen from a high of $67.00 per share to its current level just under $1.00 per share. The company faces $5.1 billion in debt maturities in 2018-2021. It is considered one of the most financially challenged companies in the industry. ACI will not be able to raise the capital necessary to finance Otter Creek or the Tongue River Railroad.

I. THERE IS NO NEED OR MARKET DEMAND FOR OTTER CREEK COAL.

[redacted][4] This is the conclusion of Wood Mackenzie ("WM"); a coal consultant relied upon by TRRC and its owners. Based upon what we can see today and for the foreseeable future there is insufficient demand from the domestic and international thermal coal markets to warrant any finding of a viable market for this new coal mine and the underlying rail infrastructure to support it.

Currently the domestic and global thermal coal markets are oversupplied. Low coal prices and other market factors are driving down annual coal production, including in the PRB. The annual amount of coal burned for electricity nationwide has decreased and is expected to fall further.[5] The EIA has for the last several years consistently downgraded the size of future domestic markets and the rate of growth of regional coal production, including in the PRB. ACI's own signature mine in the PRB, Black Thunder

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[4] [redacted]

[5] U.S. Energy Info. Admin., *Short-Term Energy Outlook (STEO)*, EIA.gov 1, 39 (Feb. 10, 2015), http://www.eia.gov/forecasts/steo/archives/feb15.pdf [hereinafter *2015 STEO*].

has produced approximately 100 mtpa.[6] The mine has a permitted capacity[7] [redacted] [redacted].[8] The EIA's declining production forecasts, which now extend to estimates for U.S. coal exports, are part of a negative outlook for the industry shared by the world's leading investment banks and coal consultants. In addition, the largest coal producers in the PRB, including ACI, have posted multiple years of dismal financial performance, including sizeable yearend losses in the hundreds of millions.

In the five-year period prior to TRRC's application, TRRC and its principal coal consultants, the EIA, and most analysts estimated significant growth in PRB production based on then-recent history in the domestic and international thermal coal market. The markets, however, changed during those years and subsequent to the submission of TRRC's application. None of these past robust assumptions about U.S. coal producers capturing significant amounts of future growth have materialized.

A. The PRB is producing less coal than it has in the recent past.

According to the EIA, in 2009 the PRB produced 455 mtpa of coal. By 2013, the amount declined to 407 mtpa. According to SNL Energy[9] data released on 2014 coal

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[6] U.S. Sec. & Exch. Comm'n, *ACI 2015 Form 10K*, SEC.gov 1, 14 (Feb. 27, 2015), http://sec.gov/Archives/edgar/data/1037676/000104746915001419/a2223254z10-k.htm [hereinafter *ACI 2015 10K*].

[7] *Id.* at 15.

[8] [redacted]

[9] SNL Energy is an online trade news service and database on energy issues, including coal. At the time I prepared this Verified Statement, the EIA has not published formal 2014 production numbers. SNL, a trade publication, reports an unofficial count much sooner as part of its broader

production, the PRB showed some increase.[10] From 2005 through 2011, the region produced on average 462 million tons per year (see Table I). During the current period, 2012 through 2014, the region produced on average 415 mtpa, a 47 mtpa decline or just over 10%. The historical trajectory is clear; the region is producing less coal.

Some in the coal industry see this decline as a short-term blip against an otherwise long-term tide of rising coal production. As described below, a consensus of large investment banks, financial analysts, and other coal industry leaders see this decline as either a long-term trend or a permanent secular decline.

Table I: EIA Accounting of Powder River Basin Coal Production (000/tons of coal)

Year	**Powder River Basin**		**Wyoming**[11]	**Montana**	**Wyoming + Montana**[12]
2014	**418,156**		**N/A**	**N/A**	**N/A**
2013[13]	**407,567**		387,924	42,231	430,155
2012	**419,066**		401,442	36,694	438,136
2011[14]	**462,600**		438,673	42,008	480,681

reporting functions. SNL works closely with the EIA on coal reporting. For example, SNL operates the EIA's spot coal website, http://www.eia.gov/coal/news_markets/.

[10] Darren Epps and Hira Fawad, *Top Producing Powder River Basin Coal Mines in Q4'14*, SNL Financial (Jan. 30, 2015).

[11] U.S. Energy Info. Admin., *Coal Data Browser*, EIA.gov, http://www.eia.gov/beta/coal/data/browser/#/topic/33?agg=1,0&geo=vvvvvvvvvvvvo&freq=A&start=2008&end=2013&ctype=linechart&ltype=pin&rtype=s&pin=&rse=0&maptype=0 (last visited Mar. 25, 2015).

[12] The reason for the difference between PRB numbers and aggregate Wyoming and Montana numbers is that some of the mines in each state are not technically within the designated borders of the PRB.

[13] U.S. Energy Info. Admin., *Table 1. Coal Production and Number of Mines by State and Mine Type, 2013 and 2012*, EIA.gov, http://www.eia.gov/coal/annual/pdf/table1.pdf (last visited Mar. 25, 2015) (there is no 2013 Annual Coal Report available).

[14] U.S. Energy Info. Admin., *Annual Coal Report 2011*, EIA.gov 1, 3 (Nov. 2012), http://www.eia.gov/coal/annual/archive/05842011.pdf.

2010	**468,428**		442,522	44,732	487,254
2009[15]	**455,503**		431,107	39,486	470,593
2008	**479,000**		467,644	44,786	512,430
2007[16]	**496,000**		453,568	43,390	496,958
2006	**449,000**		446,742	41,822	488,564
2005[17]	**430,000**		404,318	40,353	444,671

The most recent 2015 EIA, Annual Short Term Energy Outlook ("STEO") projects a 104 mtpa loss of coal consumption for electricity in the U.S. from 2011 through 2016.[18] During this same period, the U.S. is expected to lose 144 mtpa on the production side. The Western Region, the region dominated by PRB production, is expected to see a 73 mtpa decline during this same period.[19] Similarly, the outlook shows a slight decline in the delivered price of coal nationwide through 2016.[20]

TRRC's consultant, Seth Schwartz, President of Energy Ventures Associates ("EVA"), offers the view of a rising coal market in his Verified Statement[21] and Rebuttal

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[15] U.S. Energy Info. Admin., *Annual Coal Report 2010*, EIA.gov 1, 12-13 (2010), http://www.eia.gov/coal/annual/archive/05842010.pdf.
[16] U.S. Energy Info. Admin., *Coal Production by Region and Type, Reference Case*, EIA.gov, http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2010&subject=7-AEO2010&table=95-AEO2010&region=0-0&cases=aeo2010r-d111809a (last visited Mar. 25, 2015).
[17] U.S. Energy Info. Admin., *Table 92. Domestic Refinery Distillation Base Capacity, Expansion, and Utilization*, EIA.gov, http://www.eia.doe.gov/oiaf/archive/aeo07/supplement/pdf/sup_ogc.pdf (last visited Mar. 25, 2015).
[18] *2015 STEO*, *supra* note 5.
[19] *Id.*
[20] *Id.*
[21] Verified Statement of Seth Schwartz in Support of Tongue River Railroad Company's Reply to NPRC Comments to Supplemental Application at 2, *Tongue River R.R. Co.—Rail Construction and Operation—In Custer, Powder River and Rosebud Counties, Mont.*, No. 30186 (S.T.B. June 7, 2013) [hereinafter Schwartz Comments].

Verified Statement.[22] The data shows otherwise. In Mr. Schwartz's August 2013 statement he points to the long-term rise of coal production out of the PRB starting in 1986. Mr. Schwartz shows a historical annual increase from 1986 until 2011 of 4.8%.[23]

Mr. Schwartz states the EIA is now showing forward annual growth rates at 0.8%.[24] He acknowledges that this growth rate is smaller than historic numbers[25] but he counters that the actual amount of coal production should increase according to the 2013 EIA Annual Coal Outlook. So, with growth from 460 mtpa in 2011[26] to 540 mtpa by 2030, he concludes the PRB is clearly growing.[27] Mr. Schwartz's points are partial accounts of the EIA data and a mischaracterization of the facts as they existed at the time of his statements to this Board.

There was ample evidence on the public record at the time that required a more qualified statement than the one offered. Mr. Schwartz offered his initial testimony in June 2013 and a rebuttal in August 2013. The production baseline Mr. Schwartz establishes for the PRB are taken from the 2009 through 2011 period; approximately 460 mtpa (see Table I above).[28] Mr. Schwartz essentially disregarded the precipitous drop in PRB coal production in 2012 by arguing it was the result of the twin anomalies of mild weather and a temporary decline in natural gas prices. In June he claimed the "short-term

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[22] Rebuttal Verified Statement of Seth Schwartz in support of Tongue River Railroad Company's Reply to NPRC Comments to Supplemental Application at 2, *Tongue River R.R. Co.—Rail Construction and Operation—In Custer, Powder River and Rosebud Counties, Mont.*, No. 30186, (S.T.B. Aug. 9, 2013) [hereinafter Schwartz Rebuttal Comments].
[23] *Id.* at 7.
[24] *Id.* at 6.
[25] *Id.*
[26] *Id.*
[27] *Id.*
[28] Schwartz Comments, *supra* note 21, at 4.

drop in domestic level coal demand is expected to turnaround in 2013." [29] If he believed this in June by August it was clear 2013 would be a lot like 2012. By August 2013, SNL was projecting flat or decreased coal demand for 2013.[30] By December 2013 PRB coal production fell from an already low level of 419 mtpa in 2012 to 407 mtpa for 2013. (See Table I)

Mr. Schwartz's analysis is also at odds in important ways with his own firm, Energy Ventures Analysis, Inc. ("EVA"), from earlier in the year. [31] At the January 2013 Coaltrans[32] conference in Miami, EVA's representative made the following points: 1) displacement of coal by natural gas was taking place since 2010; 2) all of the coal production decline in 2012 was due to natural gas displacement—all 170 million tons;[33] 3) the extended period of low natural gas prices had caused utilities to reconsider their investments of coal plants, citing the Big Sandy coal project canceled by AEP,[34] and 4) low natural gas prices in the United States were resulting in higher levels of exports of coal and driving down global coal prices.[35] The robust coal rebound referred to by Mr. Schwartz would occur according to EVA when natural gas prices rose above

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[29] *Id.* at 5-6.
[30] Jesse Gilbert & Steve Piper, *Eroding Prospects for Summer Demand Highlight SNL Energy's August Coal Forecast*, SNL Financial (Aug. 1, 2013).
[31] Emily S. Medine, *Coal-Gas Switching*, Energy Ventures Analysis, Inc. 4 (Jan. 31, 2013) [hereinafter EVA–Coaltrans].
[32] Coaltrans supports conferences on emerging coal trends for market participants. Its conferences are organized on a worldwide basis. The Miami conference quoted here was the United States coal conference. In attendance are CEOs from the coal industry and many business and trade leaders.
[33] EVA–Coaltrans, *supra* note 31, at 2.
[34] *Id.* at 20.
[35] *Id.* at 18.

$5mm/btu.[36] According to the EIA, since January 2013 the average monthly price of natural gas rose above $5.00 mmbtu in only one month.

Had Mr. Schwartz provided a more circumspect analysis of the long-term impacts of low natural gas prices and reflected actual 2013 coal production in both his statements, his claims would have been confounded by the facts of declining production, slowing markets, plummeting prices, and the persistence of low natural gas prices.[37]

In sum, while Mr. Schwartz is technically correct to portray the EIA's scenario as a growth scenario, the growth scenario is essentially flat. As demonstrated throughout this Verified Statement, in order for Otter Creek to succeed, it would require coal market growth that is far more robust than the flat growth EIA and other coal analysts project.

B. The recent past shows deterioration in PRB demand and the future looks worse.



[36] *Id.* at 22.
[37] U.S. Energy Info. Admin., *Natural Gas*, EIA.gov, http://www.eia.gov/dnav/ng/hist/rngwhhdm.htm (last visited Mar. 26, 2015).

The forward outlook for coal gets worse. Mr. Schwartz used the EIA 2013 Annual Energy Outlook ("2013 AEO") to support his claim of a robust market.[38] However, the EIA's outlook for the PRB has declined precipitously year after year. Year to year comparisons of EIA's estimates highlight general market direction and production levels. In 2011, the EIA's AEO Coal Outlook estimated PRB coal production in 2030 at 699 mtpa (See Table II: EIA 2011 AEO). In the 2013 AEO scenario, the EIA's estimate for 2030 dropped by more than 150 mtpa to 540 mtpa (see Table II).[39] In 2014, after Mr. Schwartz's August 2013 Verified Statement, the EIA reduced its PRB coal outlook in 2030 by 47 mtpa to 493 mtpa (See Table II: EIA 2014). The EIA reduced its 2030 long-term outlook by 206 mtpa in three years.

Table II: Actual/Projected PRB Production Arch/EIA: 2010-2030 (Table Format) (Million tons)

Year	Arch PRB December 2011	EIA 2011 AEO April 2013	EIA 2013 AEO June 2013	EIA 2014 AEO	Actual
2010	473	477	473	473	468
2011	465	465	468	468	463
2012	491	483	431	425	419
2013	514	488	460	447	408
2014	522	486	453	458	418

[38] Schwartz Comments, *supra* note 21, at 7.

[39] One cannot find this number in the actual EIA file on the website. Mr. Schwartz has combined the projections for Western Montana and Powder River Basin. This combining of categories is a reasonable way to interpret PRB data consistent with EIA's other definitions of the region. *See* U.S. Energy Info. Admin., *Total Energy Supply, Disposition, and Price Summary, Reference Case*, EIA.gov, http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014&subject=7-AEO2011&table=95-AEO2014&region=0-0&cases=ref2014-d102413a (last visited Mar. 25, 2015).

2015	544	491	425	481	
2016	567	493	406	450	
2030		699	540	493	

Mr. Schwartz had access to the earlier EIA Outlooks. The trend was (and is) down, not the robust growth he states. He also had access to mid-year EIA 2013 data showing continued weakened demand. Had Mr. Schwartz included these key data points—EIA reductions in the long-term PRB outlook plus the flat/declining trend evident by actual production through 2Q 2013—there would have been insufficient support for his overly optimistic market perspective for the Otter Creek project.

Figure I, shown above, also strongly suggests that the EIA projections overestimated PRB production for the last several years. For EIA data to be of value it requires broader context. In contrast to Mr. Schwartz's approach, the standard practice among analysts is to supplement EIA data with knowledgeable market analysis and data of actual performance.[40]

[redacted][41] [redacted] For example, [redacted] The EIA's 2011 estimate for PRB in 2016 was 493 mtpa.

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[40] The EIA publishes a comparison of its projections against actual performance. It also frequently updates its information with data and analysis on changing trends. *See* U.S. Energy Info. Admin., *Analysis & Projections: Annual Energy Outlook Retrospective Review – Evaluation of 2013 and Prior Reference Case Projections*, EIA.gov (Apr. 7, 2014), http://www.eia.gov/forecasts/aeo/retrospective/.

[41] [redacted]

All of EIA's projections estimate very slow growth for the PRB region, if any. The estimates are consistent with the last three years of coal production in the United States and the PRB. This weak outlook reflects the actual condition of the coal market in the PRB.

C. EIA projections for Montana coal follow the same downward adjustments as the rest of the PRB.

Mr. Schwartz makes an aggressive case for Montana coal—the market for the coal is growing he says:

> EIA forecasts growth in domestic demand of 20 million tons over 2011 by 2030 . . . and an increase of 10 million tons in domestic demand by 2019. Importantly, this is just the projected increase in domestic demand for Montana PRB coal. A significant share of the new development of Otter Creek mine coal is likely to be shipped to the growing export market as well.[42]

However, the data do not support his claims.

Table III. EIA Projections of Montana Coal 2012, 2013 and 2014 and actuals (2011-2014)

Year	AEO EIA 2012	AEO EIA 2013	AEO EIA 2014[43]	Actual
2011	48.99	41.65	41.65	42.0
2012	43.21	30.95	36.4	36.7
2013	48.83	36.22	43.27	42.2

[42] Schwartz Rebuttal Comments, *supra* note 22, at 6.
[43] U.S. Energy Info. Admin., *Coal Production by Region and Type, Reference Case*, EIA.gov, http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014&subject=7-AEO2014&table=95-AEO2014&region=0-0&cases=ref2014-d102413a (last visited Mar. 25, 2015).

2014	52.4	39.95	46.3	42.2(est)
2015	58.77	44.2	50.99	
2016	63.06	41.63	48.7	
2020	66.55	53.74	55.3	
2025	76.74	57.42	57.46	
2030	73.5	62.55	56.97	
2035	80.68	68.61	59.25	

Although Mr. Schwartz portrays Montana as a region with rapid demand, the last ten years of growth have been flat. Since 2005, (see Table I) Montana has averaged 41.7 mtpa. The most recently reported period from 2012 to 2014 is in the 42 mtpa range. (Table III: Montana Actual). There have been some up years and some down years, but over the last three years the production has been about average. There are no precipitating events or long term growth trends that Mr. Schwartz can point to sustain an argument of robust growth.

Mr. Schwartz's claims are incorrect for several reasons. First, looking forward, the 2013 AEO forecast relied upon by Mr. Schwartz shows a 2030 production level of 62.55 mtpa (see Table III) from Montana, 20 mtpa more than actual 2011 production (and average annual production from 2012 to 2014 in the 42 mtpa range).[44] The 2013 EIA

[44] Mr. Schwartz makes a point that the 2013 EIA Annual Energy Outlook data he identifies is domestic demand data. He asserts that the mine will also serve an unspecified export demand. Mr. Schwartz refers the reader to: U.S. Energy Info. Admin., *Coal Supply, Disposition, and Prices, Reference Case*, EIA.gov, http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=7-AEO2013&table=95-AEO2013&region=0-0&cases=ref2013-d102312a (last visited Mar. 25, 2015). This chart is entitled "Coal Production by Region Type and Reference." It represents total production by sub-region, including Western Montana. This chart is inclusive of all production with no distinction

AEO demonstrates continued growth after 2030. This level of demand might support a new mine, but according to the EIA this demand level [redacted].[45] The 2012-2025 average annual production anticipated by EIA, 2013 EIA Montana estimates is 43.4 million tons, slightly above the historical average.

Second, such an assumption ignores the fact that Cloud Peak Energy and Signal Peak/Gunvor also mine and ship coal out of their Montana operations at Spring Creek[46] and Bull Mountain for both export and domestic consumption. Production in 2014 for

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made for import and exports for Western Montana coal. Other charts in this database do make distinctions. *See* U.S. Energy Info. Admin., *Total Energy Supply, Disposition, and Price Summary, Reference Case*, EIA.gov, http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=7-AEO2013&table=15-AEO2013&region=0-0&cases=ref2013-d102312a (last visited Mar. 25, 2015). This chart, "Supply, Disposition and Prices," nets out U.S. imports and exports to show total U.S. supply. The total production numbers are the same for both charts. Mr. Schwartz's observation regarding the EIA data is wrong.

[45] The Application before the STB states that the first year of commercial operation for the mine is 2017. Verified Statement of William M. Rowlands at 3, *Tongue River R.R. Co.—Rail Constr. & Operation—In Custer, Powder River & Rosebud Cntys., Mont.*, No. 30186 (S.T.B. Sept. 21, 2012) and reaffirmed in William M. Rowlands' later Verified Statement (S.T.B. Dec. 13, 2012). [redacted] The date for commencement of mining is January 2019. *See* ARM 17.24.303_R1_20141021_Otter Creek Mine, Exhibit 202C, Ownership and Control Otter Creek Mine, http://deq.mt.gov/ea/ottercreek1stroundresponse.mcpx (last visited Mar. 26, 2015). On March 19, 2015, the DEQ submitted a 65 page list of deficiencies that needed to be corrected. This should take the process through the end of at least 2015 putting the in service date optimistically in 2019 or 2020. [redacted].

[46] Cloud Peak Energy, Inc., *Annual Report (Form 10-K)* 5 (Feb. 14, 2014), *available at* http://api40.10kwizard.com/cgi/convert/pdf/CLD-20140214-10K-20131231.pdf?ipage=9391982&xml=1&quest=1&rid=23&section=1&sequence=-1&pdf=1&dn=1. The Spring Creek mine serves both domestic and international markets.

export out of these mining operations was approximately 12 million tons.[47] Each company is producing below capacity levels.[48] Each company is heavily involved with mining Montana coal for international export. Having made significant capital investments, it is unlikely that these companies will abandon their export expansion plans. In addition, Peabody Energy,[49] Ambre Energy/Resource Capital Funds,[50] and Alpha Natural Resources[51] also have plans to move PRB coal off the west coast and into the Asian market.

Third, ACI claims it may open the Otter Creek mine in the 2020 period. According to the EIA's 2013 outlook, in 2020 Montana is expected to produce 54 million tons, 12 million above the current levels. Given the existing competition, there is no prospect for a 20 mtpa Montana mine entering the market in the early 2020 period.

Fourth, Mr. Schwartz's incomplete analysis relied on EIA's 2013 AEO forecast. After TRRC submitted Mr. Schwartz's Verified Statement, the EIA revised its 2014 long-

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[47] Coal and Energy Report, *Powder River/Bull Mountain Production 2008-2013, 2014 Projected, (Hanou Energy), (Oct. 29, 2014)* reports 8.2 million tons projected from Bull Mountain/Signal Peak in 2014. SNL Energy/Companies and Assets/Signal Peak/Power Plants Served reported domestic deliveries of 263,000 tons in 2014. Cloud Peak reports between 4.0 and 4.5 million tons exported. Cloud Peak Energy, *Press Release: Cloud Peak Energy Amends Throughput Agreement with Westshore Terminals to Increase Committed Export Capacity and Extend Term* (Aug. 8, 2014), http://investor.cloudpeakenergy.com/press-release/business-development/cloud-peak-energy-amends-throughput-agreement-westshore-terminals.

[48] Spring Creek production was down slightly in 2014 from 2013 levels. Epps & Fawad, *supra* note 10. Gunvor reported 8.7 million tons in 2013 and has a stated goal for the mine of 15 million tons per year. Christopher Coats, *OSM Increases Signal Peak's Footprint with Environmental Review*, SNL Financial (Oct. 28, 2014).

[49] Clifford Krauss, *U.S. Coal Companies Scale Back Export Goals*, N.Y. Times (Sept. 13, 2013) http://www.nytimes.com/2013/09/14/business/energy-environment/us-coal-companies-scale-back-export-goals.html?pagewanted=all&_r=0.

[50] Darren Epps, *Vote Set for Private Equity to Take Over Ambre Energy's U.S. Operations*, SNL Financial (Nov. 28, 2014).

[51] Mayur Sontakke, *Why ANR's Operations in the Powder River Basin Face Challenges,* Market Realist (Nov. 6, 2014), http://marketrealist.com/2014/11/why-anrs-operations-powder-river-basin-face-challenges/.

term outlook downward to 57 mtpa by 2030. From the EIA 2011 to the EIA 2014 estimate of 2030 there is an anticipated 16 mtpa reduction of the Montana production estimates. According to the EIA, the out years through 2035 get worse, not better, as the gap between its 2012 and 2014 estimate for Montana is now a 21 mtpa decline. Again, technically there is some projected growth, but the trajectory of production estimates is declining and is insufficient to warrant new mine investment.

D. Price signals undermine what little support there may be for opening Otter Creek.

The trend toward declining PRB production and the erosion in the EIA's long-term production estimate for the PRB and Montana is further illustrated by low coal prices in the region. The spot price for PRB 8800 coal currently stands at $10.95 per ton.[52] Few spot market sales occur at this level as coal producers would lose money. For example, ACI's 2014 cost of production in the PRB is $11.04 per ton.[53]

Companies, like ACI, achieve a better price through longer-term, more reliable demand secured through multi-year contracts with domestic utilities. ACI, for example, disclosed PRB coal sales for 2014 at $12.86 per ton and offered guidance for 2015 and 2016 based on some contracted capacity at $13.39 per ton and $14.58 per ton, respectively.[54] Cloud Peak posted estimated 2014 results at $13.01 per ton and anticipates

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[52] Platts McGraw Hill Financial, *Coal Trader: Incorporating Coal Outlook, Platts Daily OTC Assessment* 1 (Mar. 23, 2015).
[53] Arch Coal, Inc., *Press Release: Arch Coal, Inc. Reports Fourth Quarter and Full Year 2014 Results* (Feb. 3, 2015, 7:45 AM), *available at* http://news.archcoal.com/phoenix.zhtml?c=107109&p=irol-newsArticle&ID=2012926 [hereinafter *Press Release: Arch Coal, Inc.*].
[54] *Id.*

2015 prices at $12.92 per ton.[55] Alpha Natural Resources posted PRB coal revenues at $11.89 per ton in 2014 and anticipates a slight decline to $11.83 per ton with 82% capacity committed.[56]

Even as ACI secures contract prices significantly higher than spot prices and higher than some of its peers, the company posted razor thin PRB margins of $0.28 per ton in 2014.[57] These slim margins were achieved after the company significantly reduced operating costs in the PRB.[58] The 2015 EIA STEO anticipates additional price slippage in 2015 and 2016.[59] The current market price of coal received by ACI and other PRB producers does not cover expenses and sufficient profit to warrant additional investment in new mine capacity. For example, citing weak market conditions, ACI has pulled back an application for a new long-term lease for the West Jacobs mine.[60]

E. The United States domestic price of coal is down and the global thermal export market offers no opportunity for ACI to improve its cash position from the Otter Creek mine.

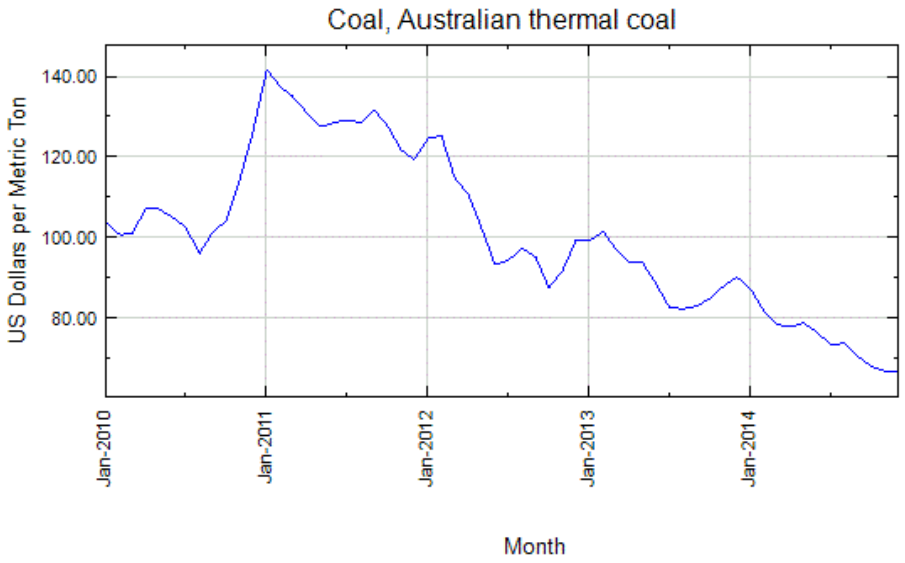
With shrinking opportunities in the United States, ACI, like many other coal producers, announced plans to move forward with coal export strategies. In 2011 and 2012, rising

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[55] Cloud Peak Energy, Inc., *Press Release: Cloud Peak Energy, Inc. Announces Results for Fourth Quarter and Full Year 2014* (Feb. 17, 2015), *available at* http://investor.cloudpeakenergy.com/press-release/earnings/cloud-peak-energy-inc-announces-results-fourth-quarter-and-full-year-2014.
[56] Alpha Natural Resources, *Press Release: Alpha Natural Resources Announces Results for Fourth Quarter and Full Year 2014* (Feb. 2, 2015), *available at* http://ir.alphanr.com/file.aspx?IID=4100842&FID=27648419.
[57] *Press Release: Arch Coal, Inc.*, *supra* note 53.
[58] *Id.*
[59] *2015 STEO*, *supra* note 5.
[60] Associated Press, *Arch Coal Cites Weak Market in Request to Withdraw Coal Lease Application in NE Wyoming*, Daily J., http://www.dailyjournal.net/view/story/950e3db1c7e44f24bd6c38a0efe79a09/WY--Coal-Lease/ (last updated Mar. 9, 2015, 7:44 AM).

global demand and prices on the thermal market gave this scenario plausibility. However, the global thermal coal market is now oversupplied. In the current market and for the foreseeable future, U.S. coal producers and PRB coal producers have limited export opportunities. Current international thermal market sales from the United States are probably based on pre-existing contracts and are not profitable.[61] Going forward, the overall market for U.S. coal producers in the Pacific Rim is likely to get worse.[62]

Figure II: U.S. Exports: Global Price Collapse



Index Mundi.com[63]

[61] John Bridges, J.P. Morgan, North America Equity Research, *Global Coal Update: Oversized Mine, Rail and Port Capacity Leads to Skinny Prices; U.S. Miners Watch their Thermometers* (June 29, 2014), *available at* http://pg.jrj.com.cn/acc/Res/CN_RES/INDUS/2014/6/29/37603388-1ecd-419e-8cbd-bd7d51fc5902.pdf.

[62] For a detailed analysis of the nature of changes in the global seaborne thermal market as China's 25% market share declines see the Bernstein Research. Bernstein Research, *Asian Coal & Power: Less, Less, Less . . . The Beginning of the End of Coal* 117–24 (June 2013), *available at* http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.fossil.energy.gov%2Fprograms%2Fgasregulation%2Fauthorizations%2F2013_applications%2Fsierra_club_13-69_venture%2FEx._110_-_Bernstein_peak_coal_report.pdf&ei=JQcTVbPiJqblsASR6oHYCA&usg=AFQjCNE87qzDcOc_8deqxSAyQTgSZbTE9Q&bvm=bv.89217033,d.cWc.

[63] IndexMundi, *Coal, Australian Thermal Coal*, IndexMundi.com, http://www.indexmundi.com/commodities/image.aspx?commodity=coal-australian&months=60 (last visited Mar. 25, 2015).

International thermal coal prices have collapsed (see Figure II) and are likely to stay low for the foreseeable future. The price of Newcastle Coal, an Australian coal product used as a global benchmark for thermal coal, fell dramatically from 2011 to the present. At its peak in January 2011, the price was $141.94 per ton. On March 19, 2015, the Newcastle price was $59.50 per ton.[64] Looking forward, one Newcastle Coal Futures database identifies coal price contracts from 2016 to 2021 trading in the $61.00 to $66.00 range.[65] (See Figure III) Persistent low prices are a sign that demand is falling. More to the point, the robust assumptions made by ACI and many other coal consultants at the high point of the market in 2011 no longer have a sound basis.

In late 2010,[66] Peabody Energy and early 2011 ACI[67] each provided an analysis of the Chinese coal markets using price points in the $90 per ton range. Each company was predicting net back profits (the amount of profit received by the U.S. coal producer from the international market price of coal minus transport and logistics costs) in the $20 per ton margins for this market. In 2012, China imported 318 million tons of coal (up from 200 million tons in 2011)[68] and coal producers worldwide were predicting longer-

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[64] For the current price of coal, *see* Platts McGraw Hill Financial, *Coal Trader International, Incorporating International Coal Report* 1 (Mar. 19, 2015). Some analysts see the price dropping below $60.00 per ton through 2016. Jonathan Rowland, *Coal Prices to Drop Further – BofA Merrill Lynch*, World Coal (Dec. 3, 2014) http://www.worldcoal.com/coal/12032015/Coal-prices-to-drop-further-BofA-Merrill-Lynch-coal2059/.

[65] *ICE NewCastle Coal Futures Prices*, Barchart.com (Mar. 24, 2015) http://www.barchart.com/commodityfutures/ICE_NewCastle_Coal_Futures/LQ.

[66] Peter Gartrell & John Miller, *Peabody Projections Show Lucrative Chinese Market for PRB Coal*, Platts Coal Trader (Dec. 6, 2010).

[67] Peter Gartrell, *Arch CEO Sees $20 Range for PRB Coal to Asia*, Platts Coal Trader (Jan. 31, 2011).

[68] U.S. Energy Info. Admin., *International Energy Statistics 2008-2012*, EIA.gov, http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=1&pid=1&aid=3 (last visited Mar. 25, 2015).

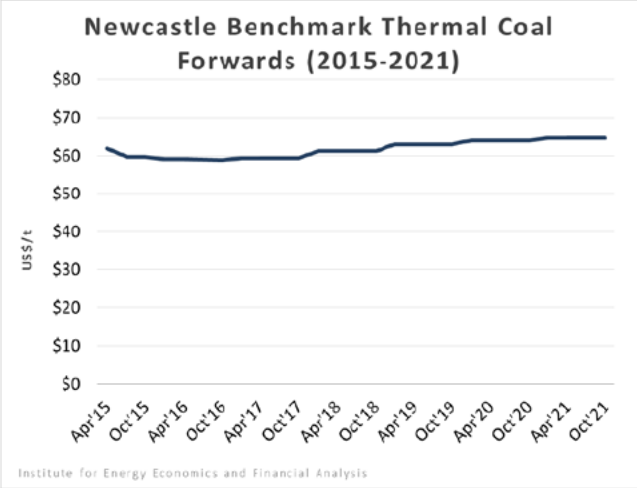
term growth from this source.[69] More recently, Cloud Peak Energy stated it would require a Newcastle price between $80 and $90 per ton before selling coal to China.[70]

During 2014, the market for Chinese imported coal and the global coal market more generally cooled (see discussion below) and global prices have collapsed.[71] Most financial analyst projections have evolved to a clear consensus: as China reduces its import needs, sufficient capacity from the Pacific Rim producers (Australia, South Africa, Indonesia, and Russia) exists to meet the needs of the remaining import countries, including India. United States coal producers will fill a niche market but one not much larger than what exists today (see discussion below by Goldman Sachs, J.P. Morgan, Bernstein Research, and Citigroup). This is also the conclusion of the extensively researched product released by Carbon Tracker Institute and the Institute for Energy Economics and Financial Analysis.[72] A recent compilation of futures market contracts for Newcastle Coal places the price range from 2015 to 2021 in the mid $60 per ton range.[73]

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[69] Dan Lowrey, *Woodmac Sees Half of US Coal Production Exported by 2030*, SNL Financial (Mar. 7, 2012).
[70] *Cloud Peak Energy's CEO Discusses Q1 2014 Results – Earnings Call Transcript*, SeekingAlpha.com (Apr. 29, 2014, 5:00 PM), http://seekingalpha.com/article/2175763-cloud-peak-energys-ceo-discusses-q1-2014-results-earnings-call-transcript?part=single.
[71] Damian Carrington, *China's Coal Use Falls for First Time this Century, Analysis Suggests*, Guardian (Oct. 22, 2014, 9:37 AM), http://www.theguardian.com/environment/2014/oct/22/chinas-coal-use-falls-for-first-time-this-century-analysis-suggests.
[72] Inst. for Energy Econ. & Fin. Analysis, *Carbon Tracker Initiative* (Sept. 22, 2014), *available at* http://www.carbontracker.org/wp-content/uploads/2014/09/Coal-Demand-IEEFA-complete.pdf.
[73] *Stock Market Quotes & Charts: Quote Board*, eSignal.com (Mar. 24, 2015) http://quotes.esignal.com/esignalprod/quote.action?symbol=NCFQ-ICE.

Figure III: Newcastle Benchmark Thermal Coal Forwards (2015-2021)



F. The supposed cost of production advantage at Otter Creek is eviscerated by the severe and persistent drop in the price of coal on the global thermal market.

[redacted]. [74] The Norwest appraisal, prepared as part of the Montana State Land Board coal lease deliberation, assumed in 2006 that 2015 prices for the first year of production would be between $6.20 and $6.82[75] per ton. Using a 2% annual adjustment (and assuming a 2020 date of commercial operation) this would make the first year estimated costs between $6.90 per ton and $7.50 per ton.[76] ACI has not independently updated the 2006 Norwest appraisal, nor offered its own analysis of the cost of production from the mine. ACI's 2014 cost of production for its PRB mines was $11.04 per ton and when

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[74] [redacted] Norwest Corporation, *Otter Creek Property Summary Report*: *Volume I of II* (July 12, 2006).

[76] Another document prepared by JT Boyd Consultants in 2011 relying on subsequent mining studies of OC place the advantage for ACI at $4.00 per ton in 2020 and pegs the 2020 cost of production at $8.96 per ton. John T. Boyd Co., *Powder River Basin Coal Resource & Cost Study* (Sept. 2011), *available at* http://www.xcelenergy.com/staticfiles/xe/Regulatory/Regulatory%20PDFs/PSCo-ERP-2011/8-Roberts-Exhibit-No-MWR-1.pdf.

adjusted through 2020 ACI's cost of production would be $12.45 per ton. The relative advantage using these assumptions for Otter Creek is $5.0 to $5.6 per ton over Arch's average PRB costs.

TRRC claims about the cost advantage of the Otter Creek mine are offered based on an almost ten-year-old estimate. The conclusory statements Messrs. Blumenfeld and Schwartz make regarding the Otter Creek mine are not based on any actions taken by ACI to verify the estimates independently. The estimate lacks a solid foundation. Assuming this range of relative cost advantage is accurate, a closer look at other potential revenue and expense factors show the purported advantage rapidly disappears.

Table: IV Comparison of ACI/Peabody 2010/11 Estimates of Coal Export Profits versus current markets

	ACI/BTU - December 2010 [77]	Current
Asian Coal Price	$96.28	$65.00
Expense Transport	($58.71)	($58.71)
Market Price US	($13.65)	($13.39)
	$23.92	($7.10)

When ACI and Peabody (see Table IV) identified the price they needed to make a comfortable profit on exported coal in 2010 and 2011, they said a comfortable coal price would be $96.28 per ton. Looking forward, the Newcastle price is in the mid $60 per ton range.[78] At this price, using basically the same assumptions and ACI's most recent contracted coal prices for 2015, coal exports lose money. The $31.00 per ton drop in

[77] Gartrell & Miller, *supra* note 66. *See also* Gartrell, *supra* note 67.
[78] On March 19, 2015, Platts Coal International listed prices for the Quinhuangdao 4200 and 5000 coal products as $52.50 and $58.40 per ton respectively. Platts McGraw Hill Financial, *supra* note 64, at *China Coal Index Physical Coal Benchmark Prices*. These coals are comparable to PRB coal. As noted above the Newcastle benchmark price was at $59.50 per ton.

market price for thermal coal from 2010/2011 to today and through 2020/2021 eviscerates the profit margin identified by ACI and Peabody at the $96.28 per ton level for exported coal. PRB coal in China and exports to Asia more generally are ‘out of the money’, uncompetitive.

Mr. Schwartz also asserts that Otter Creek would replace higher cost mines and therefore be a good source of coal for domestic use. This is a statement without sufficient foundation. To be accurate, TRRC should support this conclusion with a business plan. Such a plan would reflect a realistic market price for coal in a much smaller domestic market, updated operating costs for Otter Creek certified by ACI (preferably with independent corroboration), and the full debt service costs inclusive of the mine, rail, and port. ACI has taken on full ownership of the mine and partial ownership of the rail and port. Unlike a typical domestic mine where capital investment is restricted to mine acquisition and mine development costs, ACI has determined that, in order to move this coal to market, it must also invest in a rail line and port. [redacted] The debt burden on Otter Creek does not disappear simply because coal is sold domestically. In fact, the financial viability is made worse the more domestic coal is sold at a lower price than exported coal in a future, presumably more robust market. ACI is already severely overburdened by debt (see discussion below: *Looming Debt Burden*). Otter Creek is only likely to increase ACI’s substantial debt burden.

G. EIA data on exports show a weakening market for United States coal exports both on a short and long-term basis.

Between 2011 and 2013, the EIA increased its estimate of United States thermal coal exports. Recently the EIA has downgraded its short-term exports outlook. Actual thermal coal exports out of the United States have declined since peak 2012 levels (Figure IV: Actual). Export levels are expected to stay flat or drop through 2030 according to a host of investment bankers and analysts (see discussion below of J.P. Morgan, Morgan Stanley, Bernstein Research, and Citigroup).



There are three observations regarding actual thermal coal export performance and the projections of ACI and the EIA. First, actual thermal coal exports peaked in 2012 and have dropped in each year thereafter. (Figure IV: Actual). Second,

[79] SNL's Coal Forecast of Steam coal demand ranges from 40 mtpa in 2015 rising to 47 mtpa in 2017 and dropping off to 40 mtpa in 2020.

[redacted][80] In 2014, only 31 million tons were exported.[81] Third, the most recent 2015 EIA STEO published February 10, 2015 downgrades the 2015 and 2016 export outlook by 30% from the EIA's 2014 outlook (See Figure IV: EIA STEO 2015).

The EIA's underlying long-term outlook for Asian coal exports has been low and remained relatively stable. The Annual Energy Outlooks for 2012,[82] 2013, [83]and 2014 [84] start with 2011 baseline figures between 8 and 12 mtpa (actual was 8.1 million tons) and rise to a range of 21.3 to 22.4 mtpa by 2030. This estimate supports, perhaps 10 mtpa of new demand in an environment where there are six known competitors. Even when the EIA projected increases in overall United States coal exports its view of Asian demand remained relatively static, lagging other markets as a destination region for United States coal exports.

H. Industry analysts forecast weak United States coal exports.

Like many other analysts, WM, a coal consultant relied upon by ACI and BNSF, have altered their once-optimistic position with regard to the export potential of PRB

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[80] [redacted]

[81] Rohan Somwanshi, *Global Coal Exports in 2014 Exceed Demand, a Gap Expected to Widen in 2015*, SNL Financial (Feb. 27, 2015).

[82] U.S. Energy Info. Admin., 2012 Annual Energy Outlook, *World Steam Coal Flows By Importing Regions and Exporting Countries, Reference Case*, *available at* http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2012&subject=7-AEO2012&table=96-AEO2012&region=0-0&cases=ref2012-d020112c.

[83] U.S. Energy Info. Admin., 2013 Annual Energy Outlook, *World Steam Coal Flows By Importing Regions and Exporting Countries, Reference Case*, *available at* http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=7-AEO2013&table=96-AEO2013&region=0-0&cases=ref2013-d102312a.

[84] U.S. Energy Info. Admin., 2014 Annual Energy Outlook, *World Steam Coal Flows By Importing Regions and Exporting Countries, Reference Case*, *available at* http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2014&subject=7-AEO2014&table=96-AEO2014&region=0-0&cases=ref2014-d102413a.

coal. The company published a broad analysis of domestic and global coal markets and export potential out of the United States in March 2012. Nationwide WM projected United States exports would increase to 500 mtpa by 2030.[85] This analysis was widely distributed within the coal and investor community.[86] [redacted] ;[89] 3) GDP growth and specific additions to coal fired generation capacity were critical to the increases; 4) United States exports of thermal coal would expand from 53 mtpa in 2012 to 363 mtpa in 2030; and 5) United States market share would rise from 6% to 17% of the world market for thermal coal. [redacted] .[90]

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[85] Wood Mackenzie, *Changing Supply/Demand Fundamentals Allow the U.S. to Reduce Dependence on Foreign Energy and Emerge as Important Energy Player* (Mar. 7, 2012), http://www.woodmacresearch.com/cgi-bin/wmprod/portal/corp/corpPressDetail.jsp?oid=10429709.

[86] Lowrey, *supra* note 69.

[87] [redacted]

[89] [redacted] *See also* Wood Mackenzie, *Global Thermal Trade Flow Changes will Ensure Security of Thermal Coal Supply, Albeit at a High Price* (Mar. 14, 2012), http://www.woodmacresearch.com/cgi-bin/wmprod/portal/corp/corpPressDetailOpen.jsp?pass=10441615.

[90] [redacted]

WM's aggressive export numbers were tempered by an otherwise bearish analysis of the domestic PRB market. [redacted]

In February 2015, WM[96] reversed its outlook on Asian demand for United States coal exports. WM identified a slowing Chinese economy, a growing divergence between commodity price and market growth versus GDP growth, and particularly identified short and medium term problems for United States coal producers[97] looking to export. The company identified a slowing economy, a change in economic priorities, and new policy directions in China policy with regard to air pollution. The company is projecting that the global thermal market will stay in a condition of oversupply through 2021 plus or minus how many new mine projects are actually delayed.[98]

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[91] [redacted]

[96] *CHINA: Energy Demand has Decoupled Significantly from GDP, says Wood Mackenzie Economist*, EnergyAsia (Feb. 17, 2015), http://energyasia.com/blog/china-energy-demand-decoupled-significantly-gdp-says-wood-mackenzie-economist/. *See also Wood Mackenzie: China's Energy Demand Needs Review Amid Economic Changes*, Rigzone (Jan. 29, 2015), http://www.rigzone.com/news/oil_gas/a/136981/Wood_Mackenzie_Chinas_Energy_Demand_Needs_Review_Amid_Economic_Changes/?all=HG2.

[97] Wood Mackenzie, *Australian Coal Mines Best Positioned; US Most at Risk* (Feb. 8, 2015), http://www.woodmac.com/public/media-centre/12526159.

[98] Rohan Somwanshi, *Analyst: Sporadic Coal Mine Closures to Not Enough to Rebalance Oversupplied Market*, SNL Financial (Feb. 17, 2015).

SNL Energy maintains a database of coal industry information. It also offers a Coal Forecast consisting of supply, demand, and price estimations through 2025 (see Appendix I). [redacted].[99] SNL estimates for the PRB show largely flat production levels but declining overall projections for United States production. Production levels fall through 2025 from 1.008 billion tons per year in 2015 to 999 million tons by 2025. Southern PRB production is flat through 2025 and Montana coal (Northern PRB) drops slightly from 40 mtpa to 38 mtpa. Steam coal export estimates remain largely flat in the 44-47 million ton range through 2020 and then drop to 40 million ton per year by 2035 (See Appendix I).

I. Independent investment analysts overwhelmingly project severe retrenchment in the global thermal coal market.

The four investment perspectives quoted below were originally released in June, July, September, and October 2013. These perspectives support and enrich the trends and direction of the EIA data discussed above. The perspectives provide qualitative support that the export market for United States coal is presently under severe stress and it is likely to remain so for the foreseeable future. The studies and several actions by these banks and analysts form a general consensus that the international coal market is oversupplied. Global coal producers will face low prices and tight margins. Bernstein Research points to the structural nature of the changes stating the trend is not likely to reverse itself. Citibank concludes that the end of the coal super cycle is here. Goldman Sachs says capital shifts from larger mining concerns suggest a significant move away from coal. J.P. Morgan concludes it is not economic to export coal at present.

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[99] [redacted]

These trends will likely continue as China's need for coal imports diminish. Each of these analyses uses as a backdrop the dramatic rise of Chinese thermal imports over the last decade. The Chinese import market peaked in 2013 at 330 mtpa.[100] The worldwide market for seaborne was approximately 858 million tons in 2013.[101] In 2014, China's coal imports declined to 289 mtpa.[102] When China buys less coal on the global market it drives down demand and price.

Bernstein Research concluded its work in the spring of 2013:

> Decelerating power growth and structural weakness in other end markets, combined with more hydro, nuclear and renewables and more coal production and rail capacity in China, add up to the once unthinkable: zero net imports in 2015 and falling Chinese demand by 2016.
>
> Globally, Chinese demand for coal has been the primary driver or the backstop behind every new investment in coal mining over the last decade; the "global coal market" ended with the collapse in price in 2012: regional miners will see almost zero demand in China from 2015.
>
> Once Chinese coal demand starts to fall there is no robust growth for seaborne thermal coal anywhere; developed market demand is weak due to gas, environmental concerns or industrial activity; that leaves just one large structural growth market for seaborne coal: India.[103]

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[100] Kalayano Teodoro, *Global Shipping Index Falls to Record Low as China Cuts Coal Imports* (Feb. 11, 2015).
[101] Euracoal, Euracoal Market Report: World Coal Market Developments (1/2014), *World Coal Production and Seaborne Trade* (May 2014), *available at* http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.euracoal.com%2Fcomponenten%2Fdownload.php%3Ffiledata%3D1401266763.pdf%26filename%3DEuracoal%2520Market%2520Report%25201-14.pdf%26mimetype%3Dapplication%2Fpdf&ei=SgUTVar4LPSRsQT_qIDACg&usg=AFQjCNE7vyzD9bxBMmA-rPtaZpFGHJFATQ.
[102] Teodoro, *supra* note 100.
[103] Bernstein Research, *supra* note 62, at Cover Page.

The Bernstein analysis concludes that the global thermal coal market will never recover.[104] Thermal coal imports to China declined by 36 million tons in 2014 approximately 11%.[105] Goldman Sachs 2013 view of thermal coal markets cast a profile of a weak and declining market.

> Earning a return on incremental investment in thermal coal mining and infrastructure capacity is becoming increasingly difficult. In the short term, a sharp deceleration in seaborne demand (we expect average annual growth to decline to 1% in 2013-17 from 7% in 2007-12) has moved the market into oversupply and caused a downward shift in the cost curve; **we downgrade our price forecasts** to US$83/t in 2014 and US$85/t in 2015 (down 13% and 11% respectively) and maintain a relatively flat outlook for the rest of our forecast period to 2017.
>
> Mines are long-lived assets with a long payback period, and investment decisions today are sensitive not just to prices and margins today, but also to projections going well into the next decade. We believe that thermal coal's current position atop the fuel mix for global power generation will be gradually eroded by the following structural trends: 1) environmental regulations that discourage coal-fired generation, 2) strong competition from gas and renewable energy and 3) improvements in energy efficiency. The prospect of weaker demand growth (we believe seaborne demand could peak in 2020) and seaborne prices near marginal production costs suggest that most thermal coal growth projects will struggle to earn a positive return for their owners; in our view, this is reflected in the way diversified mining companies are reallocating their capital towards more attractive sectors[106]

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[104] *Id.* at 1.
[105] Naomi Christie and Kiyotaka Matsuda, *Shipping Costs Test New Low as China Coal Imports Slide: Freight*, Bloomberg Business (Feb. 5, 2015, 7:01 PM), http://www.bloomberg.com/news/articles/2015-02-06/shipping-costs-test-new-low-as-china-coal-imports-slide-freight.
[106] Goldman Sachs, *The Window for Thermal Coal Investment is Closing*, Rocks and Ores1 (July 24, 2013), *available at* http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAA&ur

Goldman Sachs' price downgrade in 2013 was followed by actual price declines far greater than estimated. Goldman anticipated a price of $83 per ton in 2014. The average price for 2014 was $70 per ton.[107] In January 2014, Goldman Sachs sold its stake in a coal port greenfield project in Bellingham, Washington a joint venture with SSA Marine Terminals (40+ million ton per year capacity).[108]

In October 2013, J.P. Morgan analysts expressed their concerns regarding the ability of United States coal producers to access the global thermal coal market: "[w]hile the outlook for ILB coal appears stronger than other basins, the region is not immune from the challenged coal market," Further, "[e]xport markets have been crucial in balancing supply-demand in the US; however, depressed international prices appear to have closed the door on new export contracts and could create domestic oversupply."[109] In 2014, the company continued to weigh in with its analysis of the global thermal coal trade estimating a decline of United States thermal coal exports through 2016 from 49 mtpa to 36 mtpa.

> It's not economic to export US coal at present, and while some sales are continuing; probably driven by take or pay commitments, we doubt new sales will be signed outside long standing relationships.

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l=http%3A%2F%2Fdivestinvest.org%2Fwp-content%2Fuploads%2F2014%2F01%2FGoldman-Sachs-Rocks-and-Ores-2013.pdf&ei=hQkTVd-3GazisATC7II4&usg=AFQjCNHCv0D3bT2qtx2wf1hlItQxpg7W6A&bvm=bv.89217033,d.cWc.

[107] *World Bank Commodities Price Data (The Pink Sheet)*, World Bank (Jan. 6, 2015), http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1111002388669/829392-1420582283771/Pnk_0115.pdf.

[108] *UPDATE 2-Goldman Fund Sells Stake in Port Eperator SSA Marine*, Reuters (Jan. 7, 2014, 8:48 PM), http://www.reuters.com/article/2014/01/08/goldman-port-sale-idUSL2N0KI00U20140108.

[109] Darren Epps, *Analyst: Illinois Basin Stable but Not Immune to Coal Market Weakness*, SNL Financial (Oct. 8, 2013).

> US coal exports are falling more quickly now, but with other countries apparently concluding it's easier to drop costs rather than production, seaborne prices are reaching new lows. [110]

In September 2013, Citibank[111] offered its view identifying broad changes in Chinese GDP, pollution and energy policy, internal country improvements, rising influence of renewables, and other energy sources to conclude that coal producer's looking to enter the export market were going to find it very difficult to succeed.

> As the range of forecasts for Chinese coal demand is wide, we believe investors should price in higher probabilities of lower coal demand. Optimistic long-dated coal prices may be unsupported. Although lower prices may spur demand growth elsewhere, the demand slowdown in China should more than offset such gains, in our view. Coal exporting countries that have been counting on strong future coal demand could be most at risk. The end of the supercycle should weigh on both the mining and equipment sectors. But sectors that excel at renewable integration, distributed generation, transmission could benefit the most.

In October 2014, several major investment banks announced they would not provide financing to support a large coal mining and export infrastructure in Australia.[112] This is one of the largest proposed mining initiatives in the world that would serve the same Asian markets as PRB producers.[113]

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[110] Bridges, *supra* note 61.
[111] Anthony Yuen et. al., *The Unimaginable: Peak Coal in China*, Citi Research (Sept. 4, 2013), *available at* https://ir.citi.com/z5yk080HEXZtoIax1EnHssv%2Bzm4Pc8GALpLbF2Ysb%2Fl21vGjprPCVQ%3D%3D.
[112] *Briefing: The Outlook for Financing for Australia's Galilee Basin Coal Proposals*, IEEFA (Oct. 22, 2014), *available at* http://www.ieefa.org/wp-content/uploads/2014/10/IEEFA-briefing-Galilee-Financiers.pdf.
[113] Rohan Somwanshi, *Report: U.S. Banks Will Not Fund Australia Coal Terminal Expansion*, SNL Financial (Oct. 28, 2014).

J. Even ACI sees no market for Otter Creek coal.

[redacted]

114 [redacted]
115 [redacted]
116 [redacted]
117 [redacted]
119 [redacted]

4. [redacted]

II. ACI WILL NOT BE ABLE TO FULFILL ITS FINANCIAL OBLIGATIONS FOR ITS PARTICIPATION IN THE TONGUE RIVER RAILROAD AND OTTER CREEK PROJECT.

ACI is not in a position to fulfill its financial obligations to this project. Even if ACI receives the necessary permits to move forward with developing Otter Creek,[124] it is questionable whether it could deliver on its significant capital commitment in the next 5-10 years. ACI's financial performance for the last decade has seriously lagged the nation's publicly traded companies. Its stock price has collapsed, revenues are down, costs are rising, debt levels are dangerously high, and liquidity has depleted. ACI is reducing production, capital investment, and generally in the market, is considered perilously close to insolvency. The prospect for coal price increases that could improve margins and cash position is unlikely to be of sufficient size or duration to foster a

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120 [redacted]

124 Matthew Brown, *Montana Regulators Say Coal Mine Proposal Can't Proceed Without More Information from Company*, Daily Journal (Mar. 20, 2015, 5:58 PM), http://www.dailyjournal.net/view/story/c484bf7b155c4ebc8182ff41154dd88f/MT--Otter-Creek-Mine/.

turnaround in company finances. At the time, the Otter Creek project will require a significant capex infusion the company is likely to have neither the cash reserves nor debt available to complete the project. Much of ACI's Central Appalachian holdings are in the red[125] and its PRB margins show only the slimmest upside. The company has posted three consecutive years of losses totaling more than $1 billion. The outlook for 2015 and 2016 suggest reduced production and price increases insufficient to drive a companywide rebound. In addition, further depletion of liquidity is anticipated.

Over the last several years, the significant changes in coal markets domestically and worldwide have frustrated several of ACI's strategic turnaround plans. The company first announced prospective sales specifically to China (discussed above). In responses to questions from the STB and others, ACI clarified its view that it is only going to export some of the coal to China. ACI has no contracts in China.[126] The company has also targeted Japan,[127] South Korea, and Taiwan. Over this period, ACI's revenue from Asian sales has dropped. It was presented as a solution a vision for large scale exporting of metallurgical coal out of its Central Appalachian mines. During ACI's 2014/3rd quarter conference call, management put exports on a back burner vying instead for greater

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[125] Appalachian operating margins are posted as negative $8.82 per ton. Arch Coal, *News Release: Arch Coal, Inc. Reports Fourth Quarter and Full Year 2014 Results* (Feb. 3, 2015), http://news.archcoal.com/phoenix.zhtml?c=107109&p=irol-newsArticle&ID=2012926 [hereinafter *ACI Fourth Quarter and Full Year 2014 Results*].

[126] David Coburn, Attorney for Tongue River Railroad Corporation to Kenneth Blodgett, Surface Transportation Board, Docket FD 30186, Information Request # 1, p. 3.

[127] Recent talks between Japanese utilities and coal producers for new deals going forward have identified Indonesia as a new significant supplier as well as other subbituminous coal suppliers. None of the published reports mention that any U.S. coal producer is in the running for a significant share of the market. Pricing levels discussed in the press place negotiations for coal in the $60 per ton range and below. Joseph Green, *Japan Seeks Coal, but Not Australian Coal*, World Coal (June 3, 2015), http://www.worldcoal.com/coal/06032015/Japan-coal-Australian-seeks-2025/.

domestic share.[128] At a recent Coaltrans conference in Miami, ACI's CEO, John Eaves, raised the potential for United States coal suppliers to fill voids from future Indonesian coal bottlenecks.[129]

Some coal producers are now pointing to India as a potential long-term importer of coal,[130] placing potential import figures as high as 200 million tons per year. In 2013, United States coal producers exported less than 1 million tons of thermal coal to India.[131] While India is likely to increase coal imports in the short term, the current providers of coal, principally Indonesia and South Africa, are already in the market and Australian and Indian coal interests are trying to develop new mine capacity in Australia.[132] Furthermore, the Indian government has set an import goal significantly lower than current levels.[133]

In its 2014 year-end filing, ACI acknowledged that coal exports from the United States would likely see further decline in 2015.[134] This represents a significant downward

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[128] *Arch Coal's (ACI) CEO John Eaves on Q3 2014 Results - Earnings Call Transcript*, Seeking Alpha (Oct. 28, 2014 3:54 PM ET), http://seekingalpha.com/article/2606325-arch-coals-aci-ceo-john-eaves-on-q3-2014-results-earnings-call-transcript?page=6&p=qanda&l=last [hereinafter *ACI Q3 2014 Results*].
[129] Darren Epps, *US Coal Exports Finish 2014 Below 100 Million Tons, But CEOs Remain Resolute*, SNL Financial (Feb. 9, 2015).
[130] *Indian Coal Demand Growth Overtakes China*, Wood Mackenzie (Mar. 04, 2015), http://www.woodmac.com/public/views/india-coal-growth.
[131] U.S. Energy Info. Admin., *Quarterly Coal Report October – December 2013 16* (2013), *available at* http://www.eia.gov/coal/production/quarterly/pdf/0121134q.pdf.
[132] Tim Buckly & Tom Sanzillo, *Stranded: A Financial Analysis of GVK's Proposed Alpha Coal Project in Australia's Galilee Basin*, The Institute for Energy Economics & Financial Analysis (June 2013), *available at* http://ieefa.org/report-stranded-alpha-coal-project-in-australias-galilee-basin/.
[133] Krishna N. Das, *Goyal: May Stop Thermal Coal Imports in 2-3 Years* (Nov. 13, 2014), http://in.reuters.com/article/2014/11/12/india-coal-imports-idINKCN0IW0FJ20141112.
[134] *ACI Fourth Quarter and Full Year 2014 Results, supra* note 125.

estimate from the more aggressive estimates offered to the Surface Transportation Board by its consultants in this proceeding.

A. ACI's financial performance is weak with very little upside potential.

1. Market and Coal Industry: Lagging Stock Performance

For most of the last twenty years, ACI has been a marginal stock performer and significantly lagging the Dow Jones Industrial Average (see Table VII). From 2001 to the present, the SNL Coal Index, a measure of industry performance, rose 26% while ACI declined by 87%. ACI's stock has been in a precipitous decline since 2008, falling from a peak of $ 67.00[135] per share to its current levels, which hover around $1 per share. Arch has also underperformed its peers.

Figure V: Arch Coal Versus Dow Jones: Percent Growth/Loss (20 years)

Benchmarks	Arch Coal	Dow Jones Industrial
One Year	(-62%)	(+12%)
Two Year	(-77%)	(+41%)
Five Year	(-94%)	(+80%)
Ten Year	(-92%)	(+71%)
Twenty Year	(-91%)	(+354)

SNL Energy, February 11, 2015

[135] *ACI Historical Prices*, Yahoo! Finance, http://finance.yahoo.com/q/hp?s=ACI&a=07&b=12&c=2007&d=02&e=20&f=2015&g=d&z=66&y=1584.

2. ACI's Declining Revenues

ACI revenues grew from 2008-2011, at a time when the company also led its industry peers in stock performance. Since 2011, ACI revenues have declined by $950 million, or 25%. Export revenues from 2012 to 2013 dropped by $331 million.[136] The short-term industry consensus is for flat or declining revenues in 2015[137] and ACI expects further declines in export sales.

Table III: ACI Revenues 2008-2014

	2008	2009	2010	2011	2012	2013	2014
Revenues	2.983	2.576	3.186	3.883	3.768	3.014	2.937

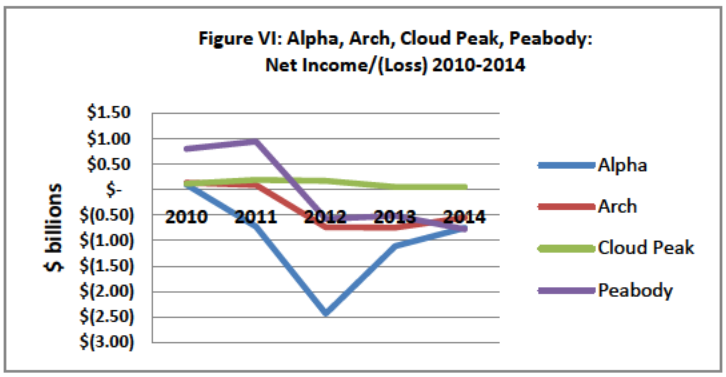
Arch Coal, Form 10K CY 2008, 2010, 2012, 2013

3. ACI and PRB Producer Financial Performance 2010-2014

In 2014, ACI posted its third consecutive year of losses. The company improved its performance in 2014, posting losses of $558 million against losses in excess of $700 million in 2011 and 2012. Other large PRB producers also posted losses or marginal gains. Peabody, the PRB's largest producer also posted the largest losses but not quite as large as ACI.

[136] All Export revenue was $1.153 billion in 2012 and $822 million in 2013, and Asian coal export revenue dropped from $203 million in 2012 to $160 million in 2013. Arch Coal, Securities & Exchange Comm'n (Form 10-K) 19 (Mar. 01, 2013), https://www.sec.gov/Archives/edgar/data/1037676/000104746913002059/a2213264z10-k.htm; Arch Coal, Securities & Exchange Comm'n (Form 10-K) 19 (Feb. 28, 2014), https://www.sec.gov/Archives/edgar/data/1037676/000104746914001604/a2218540z10-k.htm.

[137] Darren Epps, *Coal Industry Looks to 2016 for Relief from Low Natural Gas Prices*, SNL Financial (Feb. 11, 2015).



Institute for Energy Economics and Financial Analysis

4. Declining ACI Liquidity

In a severely declining market, ACI has concentrated on cost reduction and management of its liquidity. ACI designs its liquidity management efforts to show investors that the company has the resources to weather a prolonged down cycle. In ACI's 2013 10K, ACI described its liquidity position:

> As described below, we took actions during the fourth quarter of 2013 to further bolster our liquidity and extend debt maturities. These proactive steps will help us navigate the current market cycle by providing us greater flexibility. We now have more than $1.4 billion of liquidity, with $1.2 billion of that in cash or highly liquid investments. We have no meaningful maturities of debt until 2018, after successfully refinancing our 2016 notes without increasing our interest costs; and significantly relaxed financial maintenance covenants. We have suspended or eliminated most financial maintenance covenants that pertain to our $250 million revolver until June of 2015, when a relaxed, senior secured leverage ratio covenant steps back in. Until then, only a minimum liquidity covenant remains in place. With these transactions, we have implemented a flexible capital structure, with high levels of

> prepayable debt, which should allow us to de-lever our balance sheet, should markets and our cash flows improve.[138]

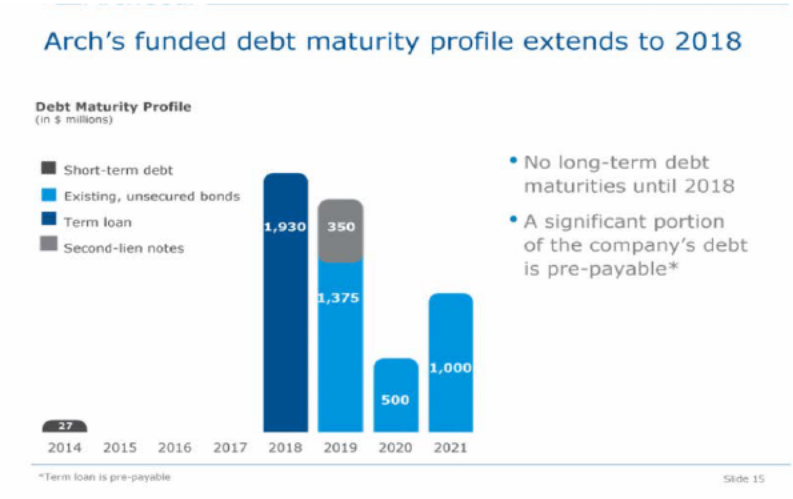
From 2011 to 2013, ACI increased its cash and cash equivalents from $138 million to $911 million.[139] During 2014, ACI's cash and cash equivalent declined to $734 million.[140] ACI's highly liquid short-term investments remained flat year-to-year 2013 to 2014. In total, by the end of 2014, ACI's position from cash and short-term investment declined to $983 million, down from $1.2 billion identified at the end of 2013. Liquidity is the top financial priority for ACI officials.[141] Cash and cash equivalents are down. ACI's CFO, John T. Drexler, reassured the investment community that most of ACI's liquidity was in cash and short-term investments with only a limited amount in its credit lines.[142]

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[138] Arch Coal, Sec. & Exch. Comm'n (Form 10-K) 68 (Feb. 28, 2013), http://www.sec.gov/Archives/edgar/data/1037676/000104746914001604/a2218540z10-k.htm.
[139] *Id.* at F-8.
[140] *Press Release: Arch Coal, Inc.*, *supra* note 53.
[141] *Arch Coal's (ACI) CEO John Eaves on Q4 2014 Results – Earnings Call Transcript*, SeekingAlpha.com (Feb. 3, 2014, 7:48 PM), http://seekingalpha.com/article/2880806-arch-coals-aci-ceo-john-eaves-on-q4-2014-results-earnings-call-transcript.
[142] *ACI Q3 2014 Results*, *supra* note 128.

5. Looming Debt Burden

Figure VII: Arch Coal Debt Burden Looking Forward



Arch Coal.

[redacted] These observations made in June 2013 remain industry consensus today.

According to ACI, from 2018 to 2021, it will be required to address $5.1 billion in debt (See Figure VII). Depending upon the final capital contribution ratios set between the TRRC partners, ACI could pay some or all of the capital to develop the rail and mine.

[redacted] ACI also owns a 38% interest in the Millennium

143 [redacted]
144 [redacted]
145 [redacted]

Bulk Terminal, which is expected to move forward during the same time-period. The cost of this project is currently listed at $650 million.[146]

ACI currently is on negative credit watch by Standard and Poor's and Moody's and has a CCC rating from Fitch.[147] Analysts[148] place some of the company's corporate bond yield to maturity at 37%, reflecting the sharp downturn in equity value and weak outlook. ACI's distressed credit profile suggests that such a heavily leveraged project and series of related investments during the 2018-2021 period would meet strong headwinds from the investment community.

WM analysts summarize the current state of the investment environment in the PRB:

[redacted][149]

III. THE TRRC PROJECT IS NOT IN THE PUBLIC INTEREST.

The Surface Transportation Board should reject TRRC's permit request. This permit and supporting materials ask permission for a project that is neither reasonable nor prudent. The only benefit that will accrue to the public will be incidental to other considerations.

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[146] Ambre Energy, Millennium Bulk Terminal (2012), *available at* http://www.ambreenergy.com/millennium-bulk-terminal.

[147] Mayur Sontakke, *What Credit Rating Agencies Think about Arch Coal*, Market Realist (October 20, 2014, 1:00 PM), *available at* http://finance.yahoo.com/news/credit-rating-agencies-think-arch-170019501.html.

[148] Mayur Soutakke, *Why Arch Coal's Debt Profile Hinges on Liquidity* (Oct. 20, 2014), http://finance.yahoo.com/news/why-arch-coal-debt-profile-130018583.html.

[149] [redacted]

A leading PRB coal company executive in a recent interview observed that Japanese coal consumers were looking at U.S. ports to supply coal from the United States 30 and 40 years[150] into the future. TRRC (ACI and BNSF) have asked the STB for permission to move forward now.

ACI officials as part of this proceeding have acknowledged the weak market that existed in 2012 when they submitted their application. [redacted][151] [redacted] The EIA, another key resource for market information has consistently downgraded the expectations of PRB market growth and is now also dampening its outlook on PRB export potential. Most major investment banks conclude likewise and my organization along with Carbon Tracker Institute has produced arguably one of the most extensive and publicly available studies on global coal markets in the world. ACI still has confidence in the future of Asian exports but at no specified time, in a variety of prospective places, not necessarily with Otter Creek as the resource or with ACI as the supplier. TRRC and ACI produce no business plan to outline future profitability in part because to do so would be premature.

As a former public finance official responsible for investing a $156 billion public pension fund in companies like ACI and as a senior manager with extensive government to business procurement experience, I am quite attuned to how private companies use

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[150] Darren Epps, *In Interview: Cloud Peak CEO Makes the Case for Coal Export Strategy*, SNL Financial (Feb. 15, 2015).

[151] [redacted]

public resources to build value. In this case, TRRC seeks a public decision in the form of a permit from the Surface Transportation Board. TRRC does so having provided evidence that barely meets the definition of a speculative market. The Tongue River Railroad and Otter Creek mine have a high risk of loss. The expectation of reward is limited and without meaningful foundation from TRRC.

TRRC is not seeking this permit decision, an allocation of public rights and resources, to provide public benefit that one would expect from a private company. If approved with the information, background, and support TRRC offered, it would award an unpromising private venture with very little expectation of serving the public interest. ACI's inability to produce a business plan and its reliance on broad demand assumptions is of concern. ACI, a company in a severe state of financial crisis, needs to adopt higher standards of diligence when spending annually on speculative projects.

There is no evidence that more coal mining has any public benefit to the nation at this point. Coal markets are oversupplied here and abroad. Whatever markets will exist in the future, the proposed Otter Creek mine will play an insignificant role. The idea that the mine is cost competitive does not stand up under even modest scrutiny.

The ancillary public benefits also cannot be found in this presentation. The lack of a real time frame means there is no discussion of when job growth will occur from construction or new mine employment. There is no discussion of when enhanced tax collection can start. The government cannot plan royalty income at the state and federal level from this mine project. Neither BNSF nor ACI has Otter Creek in any known capital construction plan. These normal components of a timely, reasonable, and prudent

application to the Surface Transportation Board are non-existent. This project and application are premature.

More traditional investment analysis yields additional insights worthy of the Surface Transportation Board's consideration. ACI is in severe financial distress. Any responsible financial scenario suggests that there will be a major reorganization of ACI over the next few years, including a high potential for sale or trading non-core assets like Otter Creek mine. United States coal mining assets are trading at historically low values.[152] In this respect, a decision to approve the permit serves ACI's short-term objective to enhance its asset base, which will help ACI in negotiations about its financial future. In this case, the public interest, the domain of the Surface Transportation Board, is placed second to a host of other considerations.

[152] *See* Darren Epps, *From $2 to $296M, Coal Acquisitions Hit Furious Pace as New Players Arrive,* SNL Financial (Nov. 12, 2014).

APPENDIX I: SNL Coal Supply Forecast (1000 tons)								
As Of: 12/31/2014								
Term	*Central Appalachia*	*Northern Appalachia*	*Southern Appalachia*	*Illinois Basin*	*Southern Powder River Basin*	*Northern Powder River Basin*	*Uinta Basin*	*Gulf and Interior*
15-Jan	114,000	128,000	16,000	146,000	405,000	40,000	35,000	50,000
16-Jan	109,000	125,000	16,000	150,000	411,000	39,000	33,000	50,000
17-Jan	101,000	122,000	15,000	157,000	416,000	39,000	31,000	50,000
18-Jan	92,000	120,000	14,000	170,000	416,000	39,000	29,000	50,000
19-Jan	90,000	118,000	13,000	178,000	416,000	38,000	28,000	50,000
20-Jan	86,000	116,000	13,000	184,000	412,000	38,000	28,000	50,000
21-Jan	83,000	114,000	13,000	188,000	411,000	38,000	28,000	50,000
22-Jan	83,000	114,000	13,000	190,000	405,000	38,000	28,000	50,000
23-Jan	83,000	114,000	13,000	195,000	404,000	38,000	28,000	50,000
24-Jan	83,000	114,000	13,000	199,000	404,000	38,000	28,000	50,000
25-Jan	82,000	113,000	13,000	199,000	404,000	38,000	28,000	50,000

Other Western Basins	*Total Basin Production*	*Steam Coal Imports*	*Total Steam Coal Supply*
74,000	1,008,000	9,000	1,017,000
72,000	1,005,000	9,000	1,014,000
70,000	1,001,000	9,000	1,010,000
68,000	998,000	9,000	1,007,000
66,000	997,000	9,000	1,006,000
64,000	991,000	9,000	1,000,000
63,000	988,000	9,000	997,000
63,000	984,000	9,000	993,000
63,000	988,000	9,000	997,000
63,000	992,000	9,000	1,001,000
63,000	990,000	9,000	999,000

VERIFICATION

I, Thomas Sanzillo, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

Thomas Sanzillo

Dated this 25 day of March, 2015.

TS – 1

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Friday, January 30, 2015 10:16 AM ET Exclusive

Top-producing Powder River Basin coal mines in Q4'14

Article
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By Darren Epps and Hira Fawad

Production from the largest active Powder River Basin mines climbed 2.6% in 2014 compared to the previous year to 418.16 million tons despite rail service issues, ending a streak of three consecutive years of declines.

PRB coal production in 2014 easily topped the 2013 total of 407.57 million tons, driven by record output fromPeabody Energy Corp.'s flagship North Antelope Rochelle mine in Wyoming, a significant increase at Westmoreland Coal Co.'s Absaloka mine in Montana and a strong finish to the year.

Peabody increased its PRB shipments to the highest level since 2011 despite rail constraints, the company said. North Antelope production was buoyed by output from the new School Creek operation.

Fourth-quarter 2014 PRB coal production jumped 9.4% compared to the year-ago quarter to 110.48 million tons, according to an SNL Energy analysis of U.S. Mine Safety and Health Administration data, signaling long-awaited improvement in the rail transportation system.

Only one of the 16 mines — Western Fuels Association Inc.'s Dry Fork mine — reported a production decrease in the fourth quarter of 2014 compared to the year-ago quarter. In the third quarter of 2014, nine of the 16 minesreported lower production than in the third quarter of 2013, including five of the six highest-producing mines.

"We did see quite a degree of improvement in [rail service] in the fourth quarter, and it was the best period of the year," Peabody President and CEO-elect Glenn Kellow said during a fourth-quarter 2014 earnings call Jan. 27. "I think we still continue to see that as we roll forward through into January, and it's been well-publicized, the improvements and focus that the rails had in this area."

Tools

Related Companies

Peabody Energy Corp. (BTU)	$ 6.35	(2.01%)
Alpha Natural Resources Inc. (ANR)	$ 0.92	4.47%
Ambre Energy Ltd.	Brisbane, Australia	

Last Updated: 3/25/2015 More>>

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About This Feature

Data feature produced by SNL's research groups in cooperation with the news department, leverages SNL's unrivaled data resources to highlight emerging trends and topics of interest.

Powder River Basin coal mine production

Mine	Ultimate parent(s)	Operator	Coal produced (tons) Q4'13	Q4'14	12 mos. ended Q4'13	12 mos. ended Q4'14	Change from prior year (%)
North Antelope Rochelle	Peabody Energy	Peabody Powder River Mining	28,249,932	30,671,497	111,005,549	117,965,515	6.27
Black Thunder	Arch Coal	Thunder Basin Coal	23,611,538	26,506,223	100,687,876	101,016,860	0.33
Cordero	Cloud Peak Energy	Cordero Mining	9,027,032	9,276,244	36,670,450	34,809,101	-5.08
Antelope Coal	Cloud Peak Energy	Antelope Coal	7,945,046	9,034,754	31,354,248	33,646,960	7.31
Eagle Butte	Alpha Natural Resources	Alpha Coal West	5,151,571	5,210,041	19,904,433	20,690,237	3.95
Spring Creek Coal Co.	Cloud Peak Energy	Spring Creek Coal	4,688,046	5,012,638	17,669,717	17,338,424	-1.87
Belle Ayr	Alpha Natural Resources	Alpha Coal West	4,150,849	4,625,701	18,258,922	15,796,556	-13.49
Rawhide	Peabody Energy	Peabody Caballo Mining	3,836,658	3,959,328	14,246,329	15,473,474	8.61
Buckskin	Peter Kiewit Sons'	Kiewit Mining	3,576,549	3,996,127	15,023,906	15,334,726	2.07
Coal Creek	Arch Coal	Thunder Basin Coal	2,079,463	2,412,109	8,522,265	9,414,483	10.47
Rosebud & Crusher/ Conveyor	Westmoreland Coal	Western Energy	1,790,400	2,576,607	8,234,130	9,018,465	9.53
Caballo	Peabody Energy	Peabody Caballo Mining	2,194,166	2,239,334	8,979,111	7,990,986	-11.00
Absaloka	Westmoreland Coal	Westmoreland Resources	1,370,287	1,512,215	4,168,748	6,557,844	57.31
Dry Fork	Western Fuels Association	Western Fuels-Wyoming	1,306,921	1,280,689	5,433,936	5,373,973	-1.10
Wyodak	Black Hills	Wyodak Resources Development	1,020,860	1,084,659	4,285,445	4,317,023	0.74
Decker	Ambre Energy	Decker Coal	976,565	1,079,898	3,121,820	3,411,609	9.28
Total			**100,975,883**	**110,478,064**	**407,566,885**	**418,156,236**	**2.60**

As of Jan. 26, 2015.
Source: SNL Energy

SNL

Other PRB operations showing strong year-over-year improvement include Cloud Peak Energy Inc.'s Antelope mine, Peabody's Rawhide mine, Arch Coal Inc.'s Coal Creek mine, Westmoreland's Rosebud mine and Ambre Energy Ltd.'s Decker mine.

Growth in the basin may continue despite an array of coal-fired power plant retirements in 2015. In a Jan. 26 note, Cowen & Co. LLC said it believes the PRB is the only region that is likely to see significantly improved output in 2015 as rail service improves and utilities restock inventories. Most Central Appalachia coal cannot compete with low natural gas prices, Cowen said, and even Illinois Basin growth may be more measured.

PRB coal producers also can benefit from the collapse in oil prices due to the fuel intensity of their surface mining operations.

Peabody executives said they project PRB coal consumption increasing by 20 million tons in 2015 despite an overall decrease in demand for U.S. coal due to lower natural gas prices. They believe PRB coal can still remain competitive if natural gas prices are around $2.50/MMBtu to $2.75/MMBtu.

PRB producers continue to move away from 8,400 Btu/lb coal due to market weakness and the spread compared to 8,800 Btu/lb coal. According to SNL Energy over-the-counter market survey data, prompt-month PRB 8,400 Btu/lb coal was priced at just $8.55/ton as of Jan. 28. The prompt-month 8,800 Btu/lb coal product was priced at $10.80/ton.

Peabody's Caballo mine, which produces 8,500 Btu/lb coal, has seen production totals decline rapidly over the last few years. Caballo production in 2014 totaled 7.99 million tons, down 11.0% from the 8.98 million tons produced in 2013.

Cloud Peak's Cordero Rojo mine, which produces 8,476 Btu/lb coal, reported output of 34.81 million tons in the 12 months ended in the fourth quarter of 2014, down 5.1% from the 36.67 million tons produced in the year-ago period. Cloud Peak is planning to reduce Cordero Rojo production by 10 million tons annually starting in 2015.

Alpha Natural Resources Inc.'s Belle Ayr mine, which produces 8,550 Btu/lb coal, produced 15.80 million tons in 2014, down 13.5% from the 18.26 million tons produced in the year-ago period.

TS – 4

BEFORE THE

SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC. – RAIL CONSTRUCTION AND OPERATION – IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF SETH SCHWARTZ IN SUPPORT OF TONGUE RIVER RAILROAD COMPANY'S REPLY TO NPRC COMMENTS TO SUPPLEMENTAL APPLICATION

My name is Seth Schwartz. I am President of Energy Ventures Analysis, Inc. ("EVA"). My business address is 1901 North Moore Street, Suite 1200, Arlington, VA 22209. I have been a principal at EVA since it was founded in 1981. Since that time, most of my work has been consulting for the energy industry regarding coal markets and economics of coal operations and coal procurement. My clients include coal producers, coal consumers, coal transporters, and investors in coal operations and coal-fired power plants, as well as regulatory agencies and industry associations. I have testified numerous times regarding coal markets in Federal courts (district court, bankruptcy court and the U.S. Supreme Court), State courts, arbitration hearings and regulatory agencies, including the Surface Transportation Board, the Federal Energy Regulatory Commission, the Environmental Protection Agency, and state public utility commissions.

I am providing this verified statement in response to the April 2, 2013 NPRC Comments to Tongue River Railroad Company's Supplemental Application submitted by Northern Plains Resource Council and Rocker Six Cattle Company (jointly, "NPRC"), as well as the November

2012 report prepared for NPRC by Power Consulting Inc. ("Power Report") and the March 2013 report prepared for NPRC by Synapse Energy Economics ("Synapse Report"), another consultant, which are offered as support for NPRC's Comments.

My opinions are summarized as follows:

- Contrary to the claims by NPRC and its consultants, the domestic market for Powder River Basin ("PRB") coal is huge and it is not declining. While the market is no longer growing as fast as it was in 1986 (at the time when the TRRC rail line was originally approved), it now averages 450 million tons per year, three times larger than it was in 1986.
- The drop in the domestic market in 2012 was an anomaly due to very mild winter weather and extremely low natural gas prices. This short-term event has already ended and is not a trend of declining markets for PRB coal.
- The Montana PRB domestic market is not severely limited by the sodium content of the coal or by transportation factors to just a few power plants as NPRC claims. There are a large number of power plants which use Montana PRB coal with similar quality as Otter Creek today or have used Montana PRB coal in the past. Further, there are many more power plants which are designed to use this high-sodium coal. The Montana PRB is projected by the U.S. Energy Information Administration ("EIA") to be the fastest-growing source of U.S. coal production.
- While there are some power plants that have announced plans to retire due to new rules from the Environmental Protection Agency ("EPA"), they constitute only 10% of the existing domestic market. Most large plants are already compliant with the new EPA rules or are investing in emissions controls. Excluding plants that have plans to retire, existing plants that could use Montana PRB coal currently consume approximately 118 million tons per year.
- The export market is a huge potential market for Montana PRB coal. While its consultants discuss this large and growing market, NPRC claims that this export market is "dwindling". The fastest-growing coal markets in the world are Asian countries which are the logical market for PRB coal exports, including China, South Korea and other countries in Southeast Asia.

- The committed expansion of the existing ports in western Canada provides enough port capacity to handle the proposed production from the Otter Creek mine, were one to assume that the entire production of the mine would be exported. In addition, there are several proposed new port projects on the U.S. West Coast that could serve coal exports. Port capacity will not constrain the development of the Otter Creek mine.
- Montana PRB coal has been competitive in the world markets and is likely to be competitive in the future. Cloud Peak's Spring Creek mine in the Montana PRB has been exporting over 4 million tons per year of PRB coal to Asia.
- It is not possible to predict what percentage of the Otter Creek coal will move westbound for export or will be sold to the domestic market, as markets will continue to change over time. It is likely that a meaningful share of the coal will be used domestically, primarily, but not entirely, in the Upper Midwest, with the remainder exported.
- The Otter Creek mine and development of other Ashland area coal reserves would not create increased coal demand or require increased demand in order to be economically competitive. The Otter Creek coal reserves are becoming steadily more economic over time as the existing mines in the Montana and Wyoming PRB deplete their coal reserves and are forced to mine higher-cost reserves with higher strip ratios (the amount of rock which must be removed per ton of coal produced). While the undeveloped coal reserves at Otter Creek will have strip ratios of 3.0:1 (cubic yards of rock per ton of coal), new leases to maintain production at existing PRB mines now have strip ratios over 4.0:1 and up to 5.0:1. The productivity of the existing PRB coal mines has been declining and costs have been rising due to these rising strip ratios, which is making the Otter Creek coal reserve comparatively more economic over time.

I. There is a Large Domestic Market for Otter Creek and Ashland Area Coal

A. The NPRC Comments Misrepresent Both the Current and Projected Size of the Domestic Market for Powder River Basin Coal

NPRC, the Power Report and the Synapse Report are replete with statements suggesting that the domestic market for Powder River Basin ("PRB") coal has declined significantly and is expected to decline in the future.[1] These sweeping statements rely on an unusual short-term event to selectively show a decline in the market and misrepresent the coal forecasts to imply that the domestic market for PRB coal is expected to decline in the future.

1. The Market for PRB Coal is Still over 400 Million Tons per Year

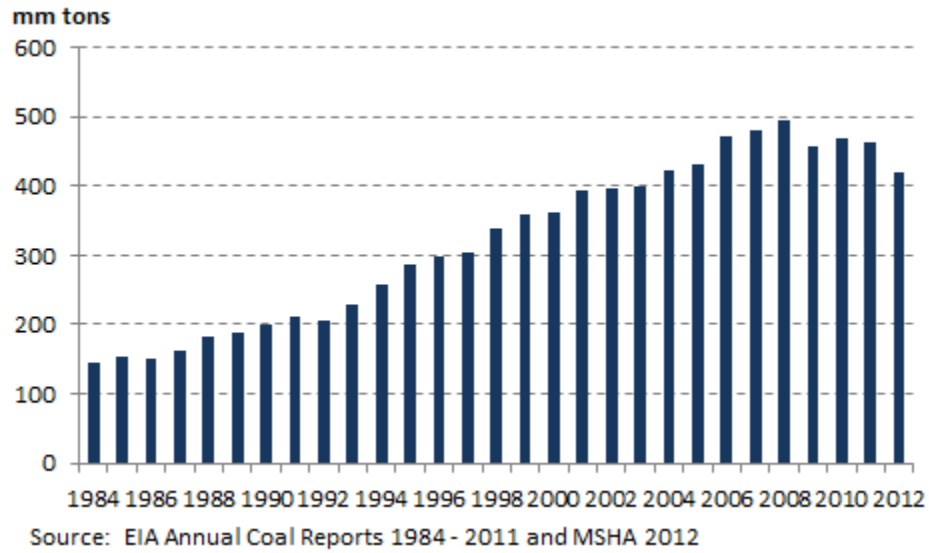
While it is true that the growth in domestic demand for PRB coal has slowed, and even declined in 2012, it is not true that the market for this coal could be described as so small that it is not adequate for the entry of a new mine at Otter Creek. The production of PRB coal did grow dramatically from 1986 through 2006, before leveling out at about 460 million tons per year for the years 2009 – 2011. As described further below, there was a decline in 2012 to 419 million tons due to the temporary impact of very mild weather on the natural gas and electric power markets. Even at the total 2012 market of 419 million tons per year for PRB coal and 1,061 million tons for all U.S. coal,[2] the Otter Creek mine operating at 20 million tons per year would supply less than 5% of the PRB coal market and less than 2% of the total U.S. coal market.

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[1] NPRC Comments at 2: "The demand for PRB coal is so low …"; "Domestic demand for coal is declining precipitously…"
NPRC Comments at 10: "All of these factors lead to the decline in demand for coal…"
Power Report at 1: "Coal demand in the historical markets for PRB coal … are projected to decline."
Synapse Report at 2: "Demand for coal is falling across the United States…"

[2] EIA Quarterly Coal Report, October – December 2012, page 7 at http://www.eia.gov/coal/production/quarterly/

Exhibit 1: Powder River Basin Coal Production 1984 – 2012 (mm tons)[3]



2. The Drop in PRB Coal Demand in 2012 was due to Temporary Factors

The decline in domestic coal consumption in 2012 was driven by the unusually mild winter weather of 2011–2012. The mild weather caused a drop of 1.7% in total retail electric power sales from 2011 to 2012 (including a drop of 3.4% in residential power demand) and a corresponding decline in electric power generation.[4] The fall in demand for natural gas for residential home heating was even more dramatic, down 11.4% from 2011 to 2012. The total demand for natural gas for residential and commercial use fell 786 billion cubic feet from 2011 to 2012.[5] This created a massive surplus of natural gas and record high gas inventories, which caused natural gas prices to fall sharply, with prices at Henry Hub reaching a low of $1.95 per million Btu in April 2012, down from $3.81 per million Btu at the beginning of the winter in November 2011.[6] The natural gas surplus had no place to go other than the electric power

[3] EIA Annual Coal Reports 1984 through 2011 at http://www.eia.gov/coal/annual/ and Mine Safety and Health Administration Data Retrieval System at http://www msha.gov/drs/drshome.htm
[4] EIA Electric Power Monthly, April 2013, Table 5.1 at http://www.eia.gov/electricity/monthly/pdf/epm.pdf
[5] EIA Monthly Energy Review, April 2013, Table 4.3 at http://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf
[6] EIA website at http://tonto.eia.gov/dnav/ng/hist/rngc1w htm

market, displacing coal-fired generation. As a result of both the decline in demand for electricity in 2012 and the increase of gas-fired generation, the demand for coal for power generation fell 11.6% from 929 million tons in 2011 to 821 million tons in 2012.[7]

There were unusual events in 2012 which negatively affected the market for Montana PRB coal which are unlikely to be repeated. In November 2011, the largest customer for Westmoreland Coal's Absaloka mine (one of the 4 mines operating in the Montana PRB) was shut down by a fire in the boiler of Sherburne County Unit 3 and did not operate for all of 2012.[8] As a result, the production at Absaloka fell from 5.6 million tons in 2011 to 2.7 million tons in 2012, its lowest level since 1987.[9] Further, hydroelectric power generation in the Pacific Northwest was above normal for the second straight year, depressing coal burn at the Colstrip station in Montana (the largest market for Montana coal) to 7.8 million tons, compared to a typical annual burn of almost 10 million tons.[10]

The short-term drop in domestic coal demand is expected to turn around in 2013. The winter weather returned to normal, natural gas inventories fell back to normal and natural gas prices recovered to over $4.00 per million Btu by April 2013.[11] In its most recent Short-Term Energy Outlook, EIA projects: "EIA expects total coal consumption will increase by 7.3 percent from 890 MMst in 2012 to 955 MMst in 2013 as consumption in the electric power sector rises due to higher electricity demand and high natural gas prices."[12] Thus the hyperbole in the NPRC

[7] EIA Electric Power Monthly, April 2013, Table 2.1 at http://www.eia.gov/electricity/monthly/pdf/epm.pdf
[8] Westmoreland Coal, 2012 SEC Form 10-K, page 32 at http://www.westmoreland.com/library/2013_SEC_Filings/WLB_-_12.31.2012_-_10K_at_031213_Final.pdf
[9] Mine Safety and Health Administration, data retrieval system at http://www msha.gov/drs/drshome htm
[10] EIA 923 data 1998 – 2012 at http://www.eia.gov/electricity/data/eia923/
[11] EIA website at http://tonto.eia.gov/dnav/ng/hist/rngc1w.htm
[12] EIA Short-Term Energy Outlook, May 2013, page 7 at http://www.eia.gov/forecasts/steo/pdf/steo_full.pdf (note that EIA is referring to coal consumption for domestic electric power generation, not including other domestic demand and exports)

Comments ("it is unreasonable to expect that there will be domestic demand for Otter Creek and other Ashland area coal") is unfounded.

3. The Long-Term Domestic Market for PRB Coal is Projected by EIA to be Large and Growing

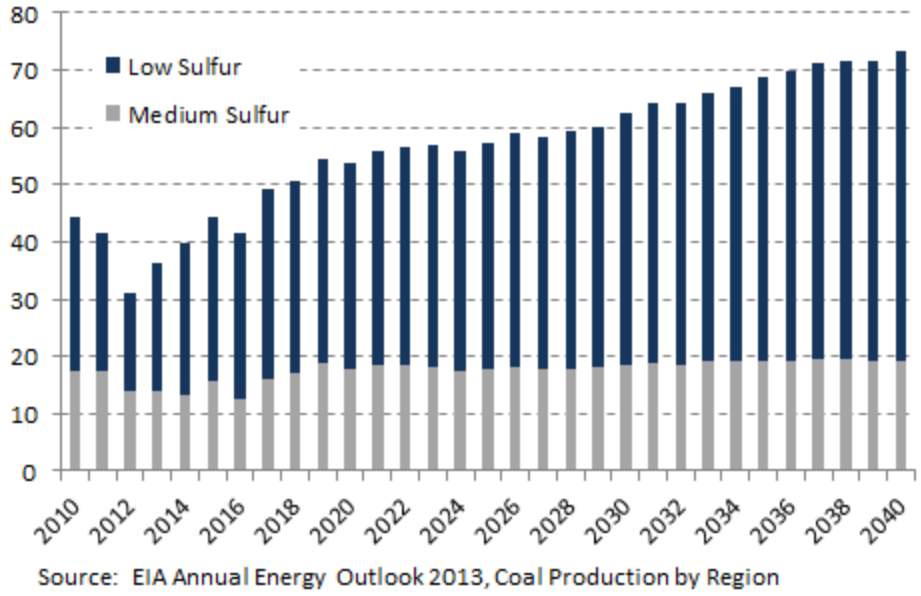
EIA has recently released the Annual Energy Outlook ("AEO") 2013, which is a forecast of energy supply and demand through 2040. TRRC and NPRC both relied upon the Annual Energy Outlook Early Release in the Supplemental Application and in the NPRC Comments, respectively. EIA forecasts that the total demand for US coal will increase at an average annual rate of 0.2% from 2011 to 2040[13], not decline as the Power Report and the Synapse Report represent. NPRC argues that "TRRC's characterization of the [EIA] report is misleading and inaccurate" because the Early Release referenced that coal production would grow, not consumption.[14] Regardless of the NPRC's illogic (if coal production grows, obviously coal consumption must also be growing), the EIA AEO does project that domestic coal consumption will grow at the same 0.2% annual rate through 2040 as coal production.[15]

Further, ***EIA projects that Montana PRB coal will be the fastest-growing coal supply region of any region in the country***. As shown in Exhibit 2 below, EIA's detailed AEO tables project that Montana PRB coal will grow at an average annual rate of 2.0% from 2011 to 2040, while the next highest-growth region is at a lower 1.2% average annual rate.[16] EIA's forecast of Montana PRB coal production increases from 41.7 million tons in 2011 to 73.4 million tons in 2040, quickly recovering from the drop in 2012 and showing rapid growth beginning in 2017 (about the time that Otter Creek could be on line). EIA further divides the projection for

[13] EIA, Annual Energy Outlook, Table A15 at http://www.eia.gov/forecasts/aeo/pdf/0383%282013%29.pdf
[14] NPRC Comments at 11
[15] EIA, Annual Energy Outlook, Table A15 at http://www.eia.gov/forecasts/aeo/pdf/0383%282013%29.pdf
[16] See http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=7-AEO2013&table=95-AEO2013&region=0-0&cases=ref2013-d102312a

Montana PRB coal into "low-sulfur" like Otter Creek, and medium-sulfur (like the existing Rosebud and Absaloka mines). EIA forecasts that the production of low-sulfur Montana PRB coal will grow at the rate of 2.8% annually through 2040, from 24.4 million tons in 2011 to 54.1 million tons in 2040.[17] Clearly, EIA thinks that there will be demand for the Otter Creek coal.

Exhibit 2: EIA Forecast of Montana PRB Coal Production 2011 – 2040 (mm tons)

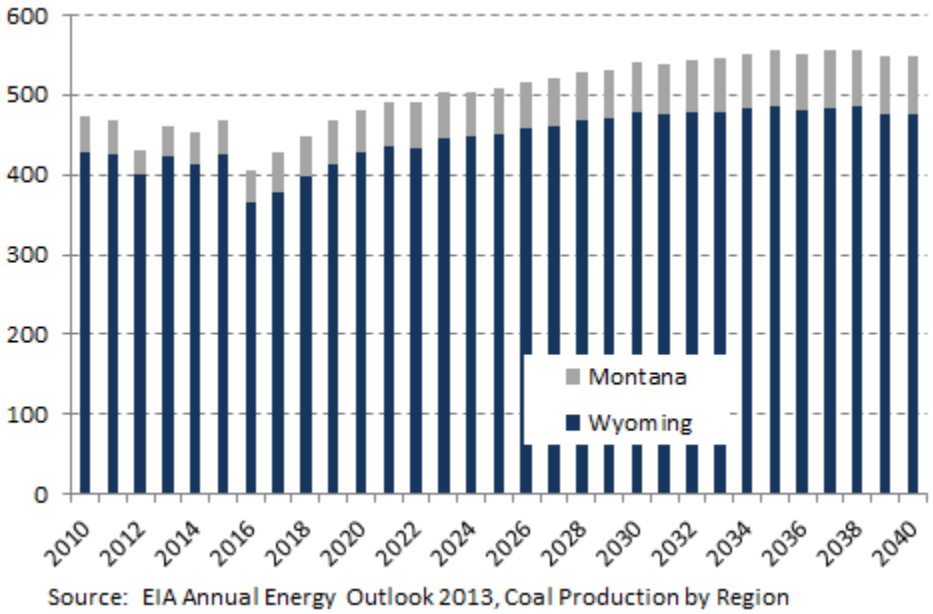


Source: EIA Annual Energy Outlook 2013, Coal Production by Region

As shown in Exhibit 3, EIA projects that the entire PRB (Montana and Wyoming) will resume its growth after 2016 and will exceed 500 million tons per year by 2023 and exceed 550 million tons per year by 2034.[18] While this rate of growth is slower than the PRB experienced from 1984 to 2007, it is still projected to be a very large and growing market which will need expanded coal production to supply it.

[17] ibid
[18] ibid

Exhibit 3: EIA Forecast of PRB Coal Production 2011 – 2040 (mm tons)



Source: EIA Annual Energy Outlook 2013, Coal Production by Region

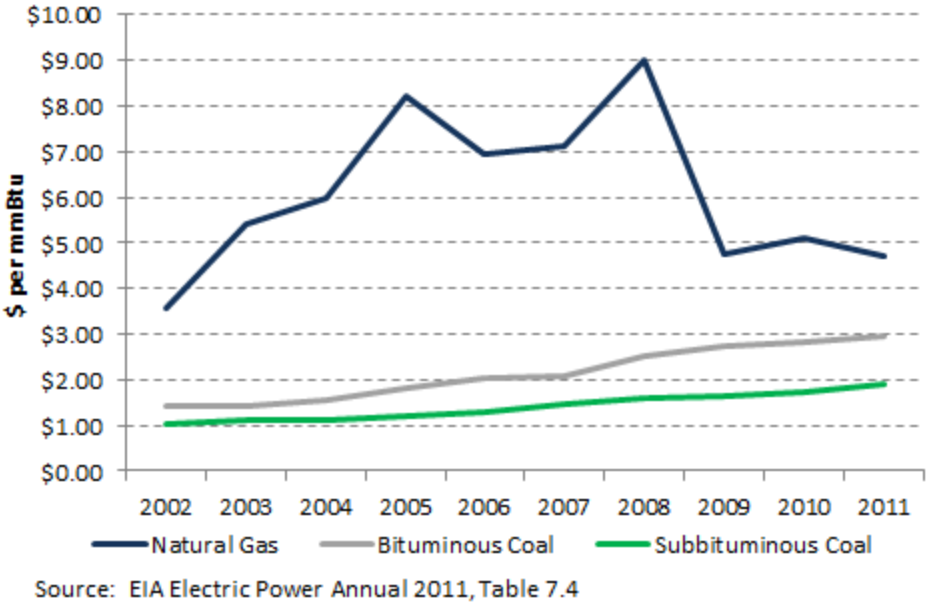
The NPRC Comments rely on the Synapse Report, which alleges that "falling prices of natural gas coupled with higher mining and transportation costs for coal have eroded coal's competitiveness."[19] However, the data in the Synapse Report show that coal still has a substantial cost advantage over natural gas, just not as large as it was at the peak of natural gas prices. The Synapse Report cites the EIA Electric Power Annual 2011 for the delivered cost of fuel for the electric power industry; however Synapse has misrepresented and manipulated the data to exaggerate the decline in natural gas prices relative to PRB coal prices. Synapse claims that its chart[20] presents the price of natural gas and subbituminous coal (i.e., PRB coal), but the prices presented are actually for bituminous coal, which is much higher cost. Further, by starting the chart at the peak of gas prices, the decline in gas prices looks more dramatic.

I have presented the full data on delivered prices (including the commodity price and transportation) for coal and natural gas from the EIA Electric Power Annual 2011 on Exhibit 4

[19] NPRC Comments at 2; Synapse Report at 1
[20] Synapse Report at 5, Figure 2

below. In 2011, the delivered price of subbituminous (PRB) coal was $1.90 per million Btu, compared to $2.94 per million Btu for bituminous coal and $4.72 per million Btu for natural gas.[21] Thus PRB coal retains a large delivered cost advantage over both natural gas and bituminous coal; still larger than it was in 2002.

Exhibit 4: Average Delivered Cost of Natural Gas and Coal to the Electric Power Industry



Source: EIA Electric Power Annual 2011, Table 7.4

B. The Market for Otter Creek Coal is Not Severely Constrained by its Sodium Content and Relative Transportation Costs

The NPRC Comments, the Power Report and the Synapse Report all assert that the market for Otter Creek coal is severely limited by its sodium content.[22] This assumption is a key element in the arguments raised by these parties, *i.e.*, there are very few power plants that can burn this coal due to its sodium content. Further, they all contend that the market for Otter Creek coal is limited to a small geographic region because of its location and relative transportation

[21] EIA, Electric Power Annual 2011, Table 7.4 at http://www.eia.gov/electricity/annual/pdf/epa.pdf
[22] NPRC Comments at 2, "few electric utilities are willing to accept it due to its high sodium content"
Power Report at 16, "the high sodium character of the Otter Creek coal limits the market into which it can be sold"
Synapse Report at 1, "high sodium content limits Otter Creek's customer base"

costs compared to the Wyoming PRB mines.[23] Both of these assertions are grossly exaggerated and are not founded on any analysis done by these parties.

1. There are Many Power Plants That Have Used and Will Use Higher-Sodium Coals

The assertions made regarding the marketability of Otter Creek coal given its sodium content in the NPRC Comments, the Power Report and the Synapse Report all have the same referenced source: the Otter Creek Property Summary Report prepared by Norwest Corporation in 2006. They all assert that high-sodium coal causes slagging problems in boilers and claim that "boiler slag is the molten bottom ash produced in wet bottom boilers".[24] This is incorrect in several respects:

- Slag is the retained solid material from coal (ash) which adheres to the furnace. It is not produced in wet bottom boilers; it is produced in all boilers. Wet bottom boilers are called wet bottom because they are designed to remove slag from the furnace in molten form.[25] Thus, wet bottom boilers ***require*** a coal with a low ash fusion temperature, such as Otter Creek. For these boilers, a slagging coal is not a problem, it is a necessity.
- All PRB coals, including those in Wyoming, are slagging coals (they have a low ash fusion temperature). Wyoming PRB coal causes similar slagging problems as Montana PRB for boilers not designed for coal with low ash fusion temperature.[26]

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[23] NPRC Comments at 14, "Otter Creek … will not be able to compete with Wyoming PRB coal … because of the transportation costs and higher sodium content of Otter Creek coal"
Power Report at 12, "Montana PRB … suffers from of (sic) a transportation disadvantage relative to the Wyoming PRB"
Synapse Report at 3, "Montana coal is at a relative disadvantage to Wyoming"

[24] NPRC Comments at 2, Synapse Report at 1, Power Report at 14

[25] Babcock and Wilcox, Steam, its generation and use, Chapter 21, Fuel Ash Effects on Boiler Design and Operation (Babcock and Wilcox is the inventor and manufacturer of the cyclone boiler, which is the principal wet bottom boiler in use in the United States). See http://203.158.253.140/media/e-Book/Engineer/Power%20Plant/Steam%20Generation%20and%20Use/pdf/Chap%2021.pdf

[26] Lehigh Energy Update, "Accounting for Changes in Coal Properties when Optimizing Combustion, March 2002 at http://www.lehigh.edu/~inenr/leu/leu_31.pdf

- The high sodium content of Montana coals can cause fouling in the superheater area (from fly ash), which is a different problem for boilers not designed for this coal. Power companies deal with this problem with sootblowers and tube spacing.[27]
- Sodium does not "interfere with air pollution control devices" as asserted in the Power Report,[28] it is used as an additive to improve the performance of air pollution control equipment. Many plants add trona, a naturally-occurring sodium carbonate mineral to improve the performance of electro-static precipitators and to control acid mist.[29]
- All Montana PRB coals are high-sodium. The Otter Creek coal is no different than the coals that have been produced and sold in Montana for many years. [30] Power plants that have used Montana PRB coals in the past, or that have wet bottom boilers which are designed for low ash fusion temperature coals, are all likely markets for higher-sodium Montana PRB coal.

2. Montana PRB Coals have a Transportation Advantage to Some Markets and a Disadvantage to Other Markets

Compared to the Wyoming PRB coals, the Montana PRB coals have a shorter rail distance to reach customers in the northern states (primarily Montana, Washington, Oregon, North Dakota, Minnesota, Wisconsin, Michigan and the Great Lakes) and a longer rail distance to reach markets in states farther south. Accordingly, these northern states will be the primary domestic market for the coal. This does not mean that all customers in the northern states use Montana PRB coal and all markets in the southern states use Wyoming PRB coal. It merely means that if all other factors are equal (mine price, coal quality, etc.), the customers in the

[27] Babcock and Wilcox, Steam, its generation and use, Chapter 21
[28] Power Report at 14
[29] See Babcock & Wilcox "Trona Injection for Effective SO_3 Mitigation" at http://www.babcock.com/library/pdf/ps-415.pdf
[30] Norwest Corporation, Montana Otter Creek State Coal Valuation, January 30, 2009, page 2-2 (attached as SS-1). Exhibits attached to this verified statement have the prefix "SS-".

northern states will prefer Montana PRB over Wyoming because of a freight mileage advantage and vice versa.

I have estimated the rail mileage distances for Otter Creek and the competing Wyoming PRB mines to a number of potential domestic markets.[31] Otter Creek has a mileage advantage of over 355 miles to Duluth (857 miles vs. 1,212 miles) to serve the markets in Minnesota and the Great Lakes (power plants in Michigan). Otter Creek also has a shorter distance to load coal on the Mississippi River (857 miles to St. Paul) for transfer to barge delivery than the Wyoming PRB mines (1,169 miles to St. Louis). For customers located near Chicago, or served by eastern railroads with interchange in Chicago, Otter Creek has a mileage disadvantage to Chicago of 131 miles (1,329 miles compared to 1,198 miles from the Black Thunder mine). For customers to the south, such as the Coronado plant in Arizona, Otter Creek has a mileage disadvantage of over 400 miles (1,864 miles vs. 1,445 miles).

Even though the transportation differentials mean that Montana PRB coal will be more competitive in the northern states and less competitive in the southern states, the rail mileage difference is only one factor in the competition to supply the most economic coal to all of the markets. The Synapse Report cited a study by the Energy Information Administration (EIA) regarding coal transportation rates to the electric power sector. [32] This study estimated that the average delivered price for PRB coal in 2010 was $29.76 per ton, with an average rail transportation cost of $17.31 per ton.[33] A difference in the rail rate of 10% due to the difference in miles would be a difference in the delivered price of 6%, which could be offset by the difference in the mine prices between Otter Creek and the Wyoming PRB.

[31] Source: PCMiler rail software
[32] Synapse Report at 8
[33] EIA Coal Transportation Rates to the Electric Power Sector, Table 7 at http://www.eia.gov/coal/transportationrates/pdf/table7_PRB_Averages.pdf

C. The Potential Domestic Market for Otter Creek and Montana PRB Coal is Huge

Rather than a market limited to a "small number of Midwestern generating plants",[34] there is a large potential market consisting of power plants which either 1) already use Montana PRB coal; 2) have used Montana PRB coal in the past but currently use Wyoming PRB coal due to economic advantages; or, 3) currently use Wyoming PRB coal and have a boiler design with wet bottom (cyclone) boilers which prefer coals with low ash fusion temperature (high-sodium) and are likely potential customers for Otter Creek coal. Contrary to the contentions in the Synapse Report[35] and the Power Report,[36] few of these plants have announced plans to retire.

1. NPRC Overstates the Number of Coal-Fired Plants Announced for Retirement

The NPRC Comments make claims regarding the potential for retirement of coal-fired plants at several specific existing customers for Montana PRB coal that are not supported by the record.

- Minnesota Power: The NPRC Comments cite the Minnesota Power 2013 Resource Plan in support of the contention that "the number of power plants Otter Creek and other Ashland area mines could serve will soon decrease".[37] The NPRC Comments make much of the fact that Minnesota Power plans to convert an existing coal-fired plant at Laskin Energy Center to a gas peaking facility in 2015. What the NPRC Comments fail to mention is that the Laskin station is Minnesota Power's oldest (built in 1953) and smallest plant (only 110 MW), which burned only 334,000 tons of coal in 2011. In contrast, the same Resource

[34] Power Report at 14, similarly NPRC Comments at 15 and Synapse Report at 25
[35] Synapse Report at 25
[36] Power Report at 20
[37] NPRC Comments at 17

Plan[38] affirms that the Boswell Energy Center, which is its largest coal-fired facility at over 1,000 MW and supplies over one-third of the company's power supply, is economic for Minnesota Power to invest in emissions controls and will continue to operate for the entire planning period. The Boswell plant burns over 4 million tons per year and is one of the largest markets for Montana PRB coal. The retirement of the tiny Laskin plant is almost irrelevant. The contention that there will be a large decline in demand for Montana PRB coal because power plants are retiring is rebutted by Minnesota Power's Resource Plan.

- DTE Energy: The NPRC Comments cite a report by the Union of Concerned Scientists claiming that many power plants are "ripe for retirement".[39] While it may be true that this advocacy group thinks that these coal-fired plants should be retired, their opinion matters little compared to the power companies who own these plants. The NPRC Comments specifically cite 2 power plants owned by Detroit Edison (St. Clair and Trenton Channel) as "ready for retirement" because these are 2 of the plants listed in the Norwest report. However, DTE Energy (Detroit Edison) has stated that it plans to invest in new emissions control equipment for its coal-fired power plants. In its 2012 SEC Form 10-K, DTE states that it will make approximately $1.6 billion of capital expenditures through 2020 to comply with emissions regulations.[40] In its most recent financial presentations, DTE outlines its plans for its coal fleet and identifies only 203 MW which will be retired in the short-term and another 650 MW which may be retired

[38] NPRC Comments, Appendix 9 at 38
[39] NPRC Comments at 19
[40] DTE Energy Company Form 10-K 2012, page 26 at http://phx.corporate-ir.net/phoenix.zhtml?c=68233&p=irol-sec

pending EPA regulations, while another 6,830 MW are classified as long-term units (operate at least 20 more years) and medium-term units (may face retirement after 2020).[41]

2. The Potential Domestic Market for Otter Creek and Montana PRB Coal

I have performed an analysis of the potential domestic market for Otter Creek coal. I have defined the potential domestic market for Otter Creek coal to include 1) plants which are currently purchasing Montana PRB coal; 2) plants which have previously purchased Montana PRB coal; and 3) plants which are purchasing PRB coal and have wet bottom boilers which prefer high-sodium coal. Also, I have considered the impact of the announced plans to retire existing coal-fired units on the potential market. This analysis is based on the coal purchases in 2011 (the last full year with complete data reported to EIA).[42] My conclusions are:

- In 2011, the total domestic demand (purchases) of PRB coal by all electric power plants (excluding industrial markets) was 445.4 million tons. This demand included 416.1 million tons of Wyoming PRB coal and 29.3 million tons of Montana PRB coal.
- Of the 2011 PRB coal demand, 47.9 million tons were at power plants which have announced plans to retire through 2025, which is only 11% of the existing market. The demand from these retiring plants will be offset by increased demand from several new power plants that were under construction in 2011 (Turk, Sandy Creek and Dry Fork) as well as increased utilization of existing plants with growing demand for electricity.

[41] DTE Presentation, Citi Global Energy & Utilities Conference, May 15-16 2013, page 15 at http://phx.corporate-ir.net/phoenix.zhtml?c=68233&p=irol-presentations
[42] See EIA data for calendar year 2011 at http://www.eia.gov/electricity/data/eia923/

- The potential domestic power market for Montana PRB coal is about 139.7 million tons per year, which is the amount of PRB coal purchased at plants which are currently using at least some Montana PRB coal (45.6 million tons/year), other plants which have used Montana PRB coal in the past (55.0 million tons/year), and other plants which have cyclone boilers (39.2 million tons/year). Excluding plants which have announced plans to retire, the potential domestic power market for Montana PRB coal is about 118.0 million tons per year.

The detailed plant-specific table supporting this analysis is shown on Appendix 1.[43]

[43] Data on 2011 generation, burn and coal purchases comes from EIA 923 data at http://www.eia.gov/electricity/data/eia923/; identification of plants which burned Montana PRB coal in previous years comes from EIA and FERC 423 data at http://www.eia.gov/electricity/data/eia423/; identification of which plants are cyclone and wet bottom boilers comes from EPA Air Markets Program at http://ampd.epa.gov/ampd/

II. The Export Market for Otter Creek and Montana PRB Coal is Large and has Viable Transportation Options

The NPRC Comments claim that "There is no International Demand for Otter Creek Coal,"[44] yet their own expert reports that "the new markets for Montana PRB coal envisioned by PRB coal companies [is] exports to Asia."[45] In fact, there is a large and growing export market for US coal and the coal from Otter Creek and the Ashland area is well-situated to supply it. The NPRC Comments' arguments appear to come down to these points:

- "U.S. infrastructure is not aligned for exporting Otter Creek coal to Asia."[46]
- "Otter Creek coal cannot compete in the dwindling markets for steam coal in Europe, Japan and South Korea."[47]

I will address each of these claims.

A. Expanding Terminal Capacity on the West Coast is Planned to Handle Increasing Coal Exports to Asia

The NPRC Comments consider the plans for new export coal terminals in the State of Washington, but discount the impact of the expansions of the existing coal terminals in Canada to significantly increase the ability for PRB coal (both Montana and Wyoming) to export coal to Asia. The NPRC Comments only mention the Westshore Terminal in Vancouver, Canada and incorrectly claim that it is already operating near capacity and that the capacity expansion at Westshore is not "going smoothly." In fact, there are 3 large existing coal terminals in Canada (Westshore, Neptune and Ridley), all of which are expanding and all of which provide the ability for increased exports of US coal from Montana and Wyoming to Asia, as described below.

[44] NPRC Comments at 19
[45] Power Report at 17
[46] NPRC Comments at 26
[47] NPRC Comments at 28

Westshore Terminals Investment Corporation is a public company which owns the Westshore Terminal at Roberts Bank, British Columbia. The coal export terminal is located only 500 meters from the United States border[48] and is the largest coal export terminal (based on shipments) in North America. Westshore is served by the BNSF railroad as well as the CP and CN railroads. As Westshore Terminal Investment Corporation states, "In recent years, Westshore has proved to be an increasingly popular choice on the West Coast for United States mines, particularly in the Powder River Basin in Montana and Wyoming. U.S. shipments reached a record 8.2 million tonnes in 2011."[49] Not only are the NPRC Comments wrong that "recent plans to increase Westshore's capacity from 27 million tons to 30 million tons has resulted in significant local opposition" but the recent expansion of Westshore was actually completed late in 2012 and "it is now estimated that the throughput capacity is approximately 33 million tonnes, under current and foreseeable operating conditions."[50] Westshore's exports were a record 27.3 million tonnes[51] in 2011 (2012 exports fell to 26.1 million tonnes because an accident disrupted loading), which included 8.2 million tonnes of coal from Montana and Wyoming.[52] U.S. coal accounts for 29% of the exports from Westshore.[53] There are only 3 Canadian companies (Teck, Coal Valley and Grande Cache) exporting coal through Westshore and these exports are not likely to grow in the future. While Teck plans to increase production by 3 million tonnes per year, Coal Valley has idled one of its two mines and its exports are falling.[54] The expansion of Westshore provides an additional 6 million tonnes per year of excess

[48] See www.westshore.com
[49] Ibid
[50] Westshore Terminals Investment Corporation, Annual Information Form, March 19, 2013, page 3 at http://www.westshore.com/pdf/finance/2012/aif.pdf
[51] Note that all of the data for Westshore is in metric tons (tonnes); one metric ton equals 1.10231 short tons
[52] See www.westshore.com
[53] Westshore Terminals Investment Corporation, Annual Information Form, March 19, 2013, page 6
[54] Sherritt International Corporation, Annual Information Form, page 44 at http://www.sherritt.com/getattachment/33fb64ba-3744-449a-a45d-47a1cd6ab035/2012-Annual-Information-Form

capacity for increased exports of coal from Montana and Wyoming on top of the 8 million tonnes currently exported.

The second export coal terminal in Vancouver is the Neptune Terminal, owned by Teck Coal and served by BNSF, CP and CN railroads. Neptune has recently completed an expansion of its capacity from 8.5 to 12.5 million tonnes per year and plans to further increase export capacity to 18.5 million tonnes per year.[55] Exports through Neptune reached a high of 6.4 million tonnes in 2012.[56] The expansion will provide an additional 12 million tonnes per year of available capacity for U.S. coal exports, as there are no expansions planned for Canadian producers (other than Teck's 3 million tonnes per year) in southeast British Columbia which would be shipped through Vancouver.

The third large Canadian coal export terminal is Ridley Terminal, located in Prince Rupert, British Columbia and served by the CN railroad. Ridley was built in 1984 to handle coal exports from the new mines in northeast British Columbia.[57] Ridley has existing export capacity of 12 million tonnes of coal per year and exported 11.5 million tonnes in 2012.[58] Ridley has begun construction on a project to more than double its export capacity to 25 million tonnes per year, with completion by the end of 2014.[59] In 2011, Ridley signed contracts to handle shipments of Powder River Basin coal with Arch Coal, Cloud Peak Energy and Enserco Energy (a coal trader).[60] While much of the additional capacity at Ridley is expected to be supplied by

[55] Teck Fourth Quarter 2012 Investor Presentation, February 7, 2013, page 12 at http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fInvestors+Pages%2fFinancial+Reporting+Pages%2fQuarterly+Reports&portalName=tc
[56] Westshore Terminals Investment Corporation, Annual Information Form, March 19, 2013, page 6
[57] Ridley Terminals Inc., 2011 Annual Report, page 1 at http://www rti.ca/sites/default/files/annualreport/Ridley_2011AR_English_V4.pdf
[58] Westshore Terminals Investment Corporation, Annual Information Form, March 19, 2013, page 6
[59] Ridley Terminals Inc. 2012 Third Quarter Report, page 4 at http://www rti.ca/sites/default/files/2012_q3_financial_statements_en_-_final_v2.pdf
[60] Ridley Terminals Inc. 2011 Annual Report, page 7

new Canadian mines (Teck's Quintette mine and Coalspur's Vista project), Ridley is likely to have additional capacity to handle PRB coal beyond the existing contracts.

Another existing terminal in Vancouver, Canada, Fraser Surrey Docks, is served by the BNSF railroad and is proposing to add the ability to export 4.0 million tonnes per year of PRB coal. The operation is expected to start exporting in 2014 and reach full capacity the next year.[61] This would provide the capacity for an additional 4 million tonnes per year.

In total, the expansion plans at the existing Canadian terminals would add 35 million tonnes per year of export coal capacity above the shipments in 2012. Even if all of the Ridley expansion were consumed by new Canadian coal mines, there would be 22 million tonnes per year (24.25 million tons per year) of new capacity in the Port of Vancouver available for increased shipments of PRB coal from Montana and Wyoming. This capacity is more than enough to accommodate the new Otter Creek mine, even if one were to assume that all projected Otter Creek coal is exported. The terminals in Vancouver, Canada are perfectly "aligned" to handle exports of Montana PRB coal to Asia; that is what they are doing today. Westshore reports that 79% of its exports are to Asia and Ridley reports that 90% of its exports are to Asia.[62]

There are also 3 large new terminal projects proposed in Washington and Oregon to handle increased coal exports from the PRB to Asia. The terminal projects are:

- SSA Marine Gateway Pacific Terminal in Cherry Point, Washington is a proposed new terminal to handle dry bulk commodities (coal, grain and potash). The port would be served by the BNSF railroad and would be designed to handle up to 54

[61] Fraser Surrey Docks memo to Port Metro Vancouver, May 13, 2013 at http://www fsd.bc.ca/_documents/detailed_project_scope.pdf

[62] Westshore Terminals Investment Corporation, Annual Information Form, March 19, 2013, page 3 and Ridley Terminals Inc. 2011 Annual Report, page 7

million tons per year, of which 48 million tons is expected to be coal.[63] It can load capesize vessels in deep water and is located near an oil refinery and an aluminum smelter.[64] Peabody Energy (the largest producer in the Wyoming PRB) has a contract to ship up to 24 million tonnes per year of coal through Gateway Pacific.[65] Cloud Peak Energy (the third-largest PRB coal producer) has announced a contract to ship up to 16 million tons per year.[66] While the NPRC Comments at page 26 state that "Arch Coal is also invested in the planned Gateway Pacific terminal", that is not correct.[67]

- Millennium Bulk Terminals in Longview, Washington is an operating bulk material terminal which is planned to handle coal exports. The terminal is located on the site of an idle aluminum smelter on the Columbia River.[68] It is served by both the BNSF and UP railroads and can load Panamax vessels. The planned capacity is 44 million tonnes per year of coal. The project is owned by Ambre Energy and Arch Coal has a 38% ownership interest.[69] Cloud Peak also has an option to export up to 5 million tonnes per year through the terminal.[70]
- The Morrow Pacific project is a proposed new terminal at the Port of Morrow, Oregon on the Columbia River, served by the UP railroad. The coal would be barged to the Port Westward Industrial Park and transloaded to Panamax ocean

[63] Gateway Pacific Terminal Project Information Document, February 28, 2011, page 1-9 at http://gatewaypacificterminal.com/wp-content/uploads/2011/09/GPT%20PID%20DOCUMENT.pdf
[64] See Gateway Pacific Terminal website at http://gatewaypacificterminal.com/the-project/what/
[65] See http://www.peabodyenergy.com/content/120/Press-Releases
[66] See http://www.businesswire.com/news/home/20130213005880/en/Cloud-Peak-Energy-Announces-Option-Agreement-SSA
[67] Gateway Pacific Terminal Project Information Document, February 28, 2011, page 1-10 at http://gatewaypacificterminal.com/wp-content/uploads/2011/09/GPT%20PID%20DOCUMENT.pdf
[68] See http://millenniumbulk.com/
[69] See http://www.ambreenergy.com/millennium-bulk-terminal
[70] See http://phx.corporate-ir net/phoenix.zhtml?c=232126&p=irol-newsArticle_print&ID=1764789&highlight=

vessels. The project is designed to ship 3.5 million tonnes per year initially, with a planned expansion to 8 million tonnes per year.[71]

These projects are in the permitting process. Even if these Washington and Oregon terminals are not permitted, there is adequate capacity in Canada to accommodate the volume of Otter Creek coal that could be exported.

B. World Thermal Coal Demand is Growing and Montana PRB Coal is Competitive with other Sources

The Comments critique the outlook for thermal coal imports in China, South Korea, Japan and Europe, stating, for example,

- "There is no international demand for Otter Creek coal."
- "The market for Asian coal is speculative and waning."
- "… the dwindling markets for steam coal in Europe, Japan and South Korea."

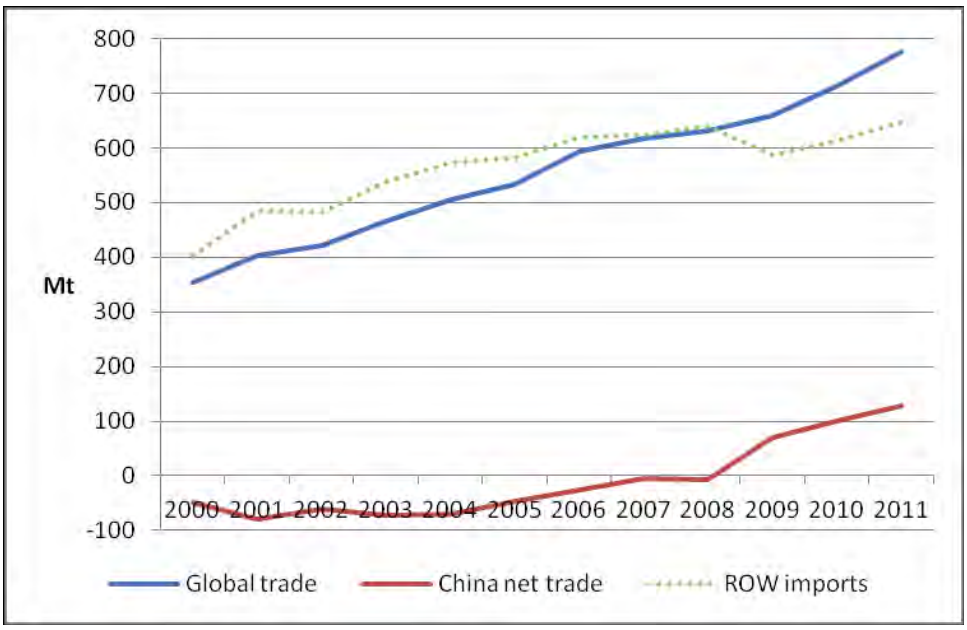
Notably, the Comments do not rely upon their expert reports, including the Synapse Report, the Power Report and the Verified Statement of Gerald Fauth, for this assertion. Synapse makes no mention of the export market at all, while the Power Report and Fauth talk at length about the large market for PRB coal in Asia, thereby contradicting the NPRC Comments.

In fact, the world market for thermal coal is huge and has been growing steadily and rapidly since the early 1990's. The International Energy Agency (IEA) publishes statistics on world coal demand and trade. According to the IEA, world steam (thermal) coal consumption has increased from 3.16 billion tonnes in 1995 to 5.66 billion tonnes in 2011.[72] Since the year 2000, the rate of growth has averaged over 200 million tonnes each year and the rate of growth has accelerated, with consumption increasing by 718 million tonnes in the last two years.[73]

[71] See http://www.ambreenergy.com/morrow-pacific-project
[72] IEA, Coal Information 2012, Table 2.4 (attached as SS-2)
[73] Ibid

While a large driver of the growth in world consumption has been in China, with much of the coal supplied by increased production in China, world thermal coal imports have also been increasing rapidly. World seaborne coal trade (coal shipped by ocean vessel) has more than doubled from 356 million tonnes in 2000 to 791 million tonnes in 2011. NPRC's Comments cite a presentation on world coal markets by the IEA,[74] but they do not cite the chart on world steam coal trade shown on Exhibit 5, which comes directly from the same presentation.[75]

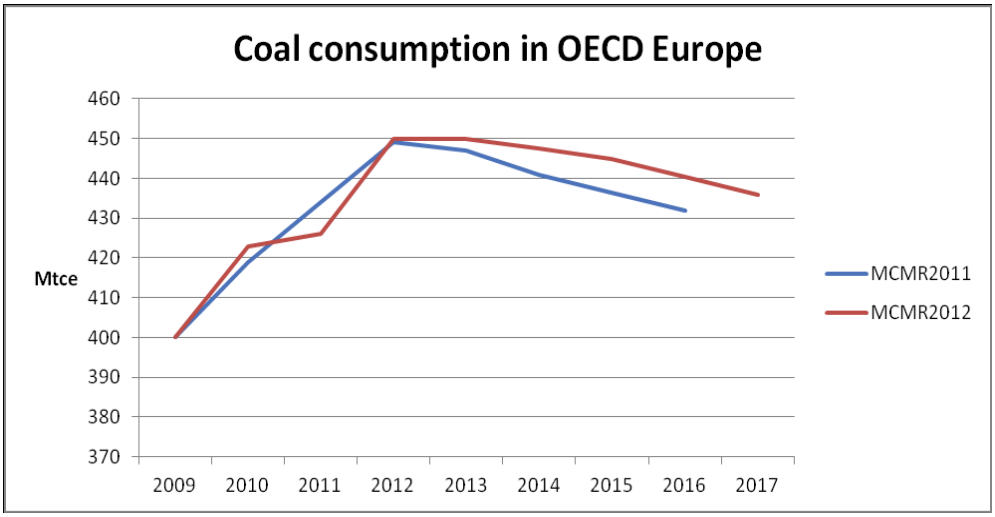
Exhibit 5: IEA Presentation, World Seaborne Steam Coal Trade (million tonnes)



The NPRC Comments misquote one slide regarding IEA's projection of European thermal coal imports, claiming that it shows "IEA predict that European demand for coal imports will decrease significantly by 2015".[76] Actually, the slide is a forecast of coal ***consumption*** in Europe, not coal ***imports***, as shown on Exhibit 6.[77] The difference between consumption and imports is domestic production in Europe, which is steadily declining.

[74] NPRC Comments at 28
[75] IEA, Medium-term Coal Market Report presentation December 18, 2012, slide 9 at http://www.iea.org/newsroomandevents/speeches/121218MCMR2012_presentation_KSK.pdf
[76] NPRC Comments at 28
[77] IEA, Medium-term Coal Market Report presentation December 18, 2012, at slide 6

Exhibit 6: IEA Medium-Term Coal Market Report, Coal Consumption in Europe

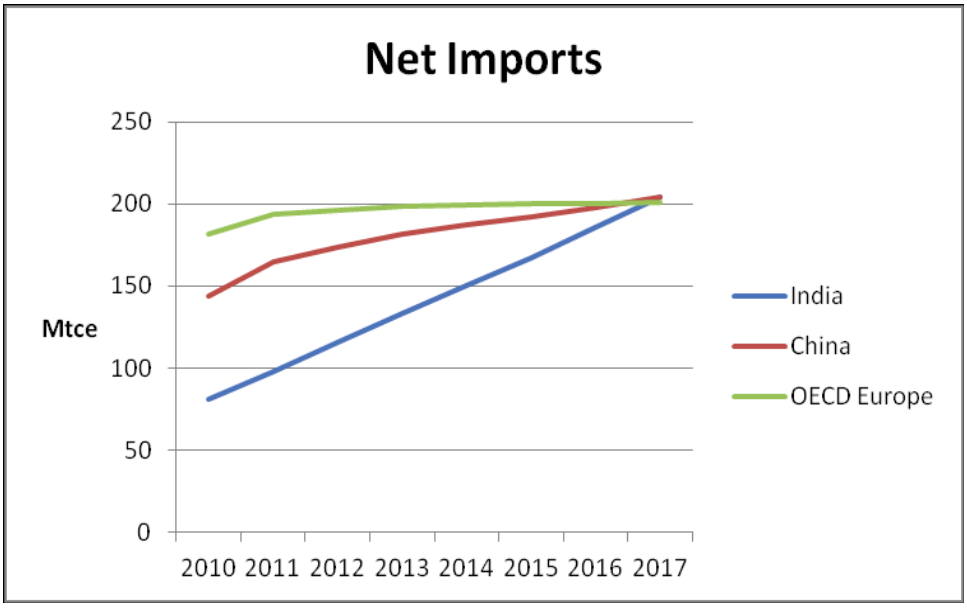


The IEA forecast does not even show that consumption will decrease significantly by 2015. It shows that total coal demand in OECD Europe[78] is projected by IEA to fall from 450 million tonnes in 2012 and 2013 to 445 million tonnes in 2015,[79] a drop of just 1%, hardly significant. Further, this slide (cited in the NPRC Comments at page 28) shows that the IEA has ***increased*** its forecast of European coal consumption since its previous forecast in 2011.

Finally, if NPRC wanted to show what IEA was actually forecasting for European coal ***imports***, it only had to look at slide 10 from the same presentation,[80] shown on Exhibit 7, which shows a forecast of flat coal imports to Europe (the reason why consumption is projected to decline slightly but imports are flat is that production in Europe is declining). This slide also shows that IEA projects imports into China and India will rise significantly by 2017.

[78] OECD is the Organization for Economic Cooperation and Development; OECD Europe includes most countries in the European Union
[79] IEA, Medium-term Coal Market Report 2012, Table 23 (attached as SS-3)
[80] IEA, Medium-term Coal Market Report presentation December 18, 2012, slide 10

Exhibit 7: IEA Medium-Term Coal Market Report, World Imports

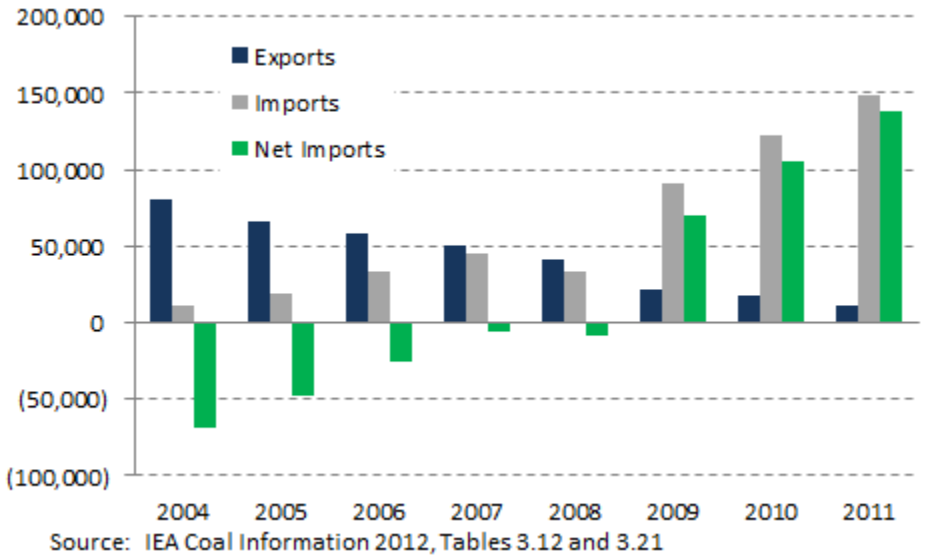


NPRC is also wrong when it states that "Europe, long a destination for coal from the eastern U.S., does not present a likely market for western coal."[81] In fact, Montana coal is being shipped to Europe today through the Midwest Energy Resources Company (MERC) terminal in Superior, Wisconsin. According to the Lake Carriers' Association, the coal shipments from Lake Superior ports in 2012 "included … 1.3 million tons shipped to Quebec City for loading into oceangoing vessels and delivery overseas."[82] This is Montana coal shipped through the MERC dock, just as TRRC said was likely. NPRC is correct that shipments through MERC have declined from their peak of 22.3 million tons in 2008 to 13.7 million tons in 2011,[83] but this merely demonstrates that the MERC terminal has excess capacity which is not being used. The decline comes from reduced shipments of PRB coal to Ontario Power Generation in Canada, due to closure of its coal-fired plants.

[81] NPRC Comments at 28
[82] Lake Carriers' Association, Monthly Cargo report, January 9, 2013 at http://www.lcaships.com/wp-content/uploads/2013/01/coal1212-text.pdf
[83] See http://www midwestenergy.com/terminal_activity.php

NPRC also misquotes IEA's presentation regarding steam coal imports into China. NPRC claims that the pie chart shows that "Even as coal imports in China increased from 104 [million] metric tons (Mt) in 2009 to 133 Mt in 2010, the market share commanded by U.S. exports declined."[84] Actually, according to IEA's Coal Information 2012, steam coal imports from the U.S. into China were flat from 2009 to 2010 but more than doubled in 2011.[85] As IEA's trade data shows on Exhibit 8, China has swung from being one of the world's largest steam coal exporters to the world's largest steam coal importer in a very short period of time from 2004 to 2011.[86] In 2004, China was a net exporter of 69 million tonnes of steam coal, but in 2011, China was a net importer of 138 million tonnes.[87] This swing caused increased demand of 207 million tonnes per year from other world coal suppliers, including the United States.

Exhibit 8: Thermal Coal Net Imports to China (1000 tonnes)



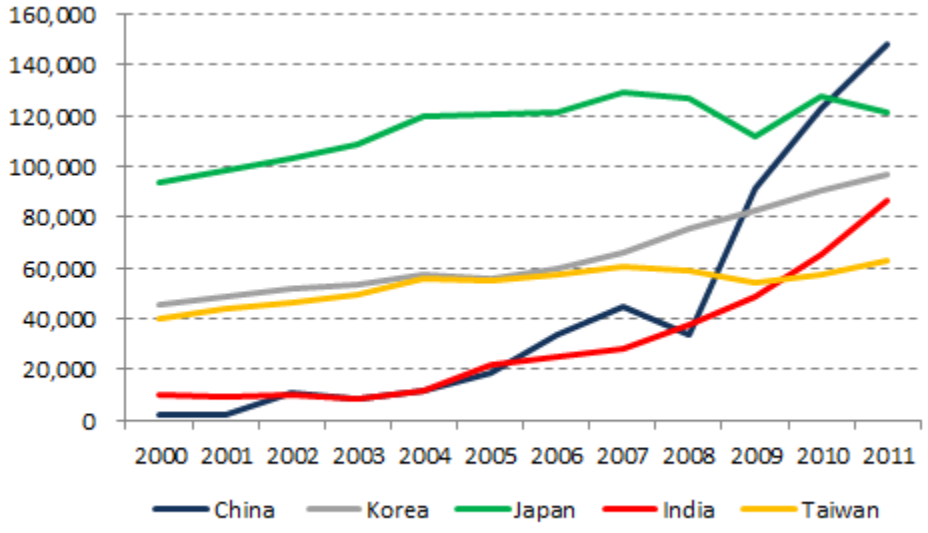
Source: IEA Coal Information 2012, Tables 3.12 and 3.21

The major destinations for U.S. coal exports from Montana and Wyoming from the West Coast are the countries of South Korea, China, Japan and Taiwan. Rather than "dwindling"

[84] NPRC Comments at 25
[85] IEA, Coal Information 2012, Table 2.4 (attached as SS-2)
[86] Id, Tables 3.12, 3.21 and page V.23 (attached as SS-2)
[87] Ibid

thermal coal imports into these countries has been growing and growth is expected to continue. Including India, these countries are the world's largest thermal coal importers and their demand has grown rapidly since 2000, as shown on Exhibit 9.[88]

Exhibit 9: Thermal Coal Imports to China, Korea, Japan, India and Taiwan (1000 tonnes)



Source: IEA Coal Information 2012, Table 3.12

The growth in thermal coal imports in these countries is being driven by the construction of new coal-fired power plants to serve increasing demand for electricity. Contrary to the allegations in NPRC's Comments, coal demand in China and these other Asian countries continues to grow rapidly due to construction of new coal-fired power plants. The new coal-fired plants are being built with the flexibility to consume subbituminous coal from Indonesia and the PRB, as this is the lowest-cost coal on the world market (most existing plants were designed to burn bituminous coal).

In China, coal consumption has been growing at the rate of over 200 million tonnes every year since 2000, increasing from 1.38 billion tonnes in 2000 to 3.65 billion tonnes in 2011.[89] Most of this growth is due to the construction of new coal-fired power plants. According to the

[88] IEA Coal Information 2012, Table 3.12 (attached as SS-2)
[89] Id, Table 2.1 (attached as SS-2)

U.S. EIA, "At present, China is installing approximately 900 megawatts of coal-fired capacity (equivalent to one large coal-fired power plant) per week."[90] This is equal to almost 50,000 megawatts of new coal-fired capacity each year, which would equal the entire U.S. coal-fired capacity in six years. The NPRC Comments misstate the concern in China over pollution in Beijing and other cities. The pollution problem in Beijing comes from local consumption of coal for heating homes and small businesses, as the last coal-fired power plant in Beijing is being closed this year.[91] The NPRC Comments cite a press release from a company called IHS CERA to argue that coal imports to China will decline in the future due to increased domestic coal production in China.[92] While it is true that domestic coal production in China has also increased rapidly, it has not grown as fast as consumption, hence the rapid switch of China from a large coal exporter to the largest coal importer since 2004. While the long-term future is uncertain to all, both the International Energy Agency (see Exhibit 7 above) and IHS CERA project growing thermal coal imports into China through the end of this decade meaning that China will continue to be a huge market for imported thermal coal. The IHS CERA press release forecasts that coal demand in China will continue to grow at an average annual rate of 2.4% through 2025, reaching an astonishing level of 5.1 billion tonnes by 2025, up from 3.7 billion tonnes in 2011,[93] an increase 50% greater than the entire annual production of the U.S. coal industry.

South Korea is the largest existing market for PRB coal exports and will grow rapidly this decade. According to IHS CERA's McCloskey Coal Report, "A considerable ramp up in

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[90] EIA, International Energy Outlook 2011, page 97 at http://www.eia.gov/forecasts/ieo/pdf/0484%282011%29.pdf

[91] See http://topic.chinadaily.com.cn/index/cache?collection=cbsweb&source=China+Daily&title=Beijing+to+shut+coal-fired+boilers+to+clean+up+air&aid=16534168

[92] NPRC Comments at 22; See IHS CERA, China's Coal Market Not the "Promised Land" for International Suppliers, "Chinese coal imports will peak before the end of the decade and enter a prolonged period of decline … A moderation of demand combined with a rise in domestic supply and improved transportation will bring international producers into increased competition with domestic suppliers." At http://press.ihs.com/press-release/energy-power/chinas-coal-market-not-promised-land-international-suppliers

[93] Ibid

Korean import requirements is expected to come from 2014 onwards…"[94] McCloskey reports that the 2012 thermal coal imports for the five Korean generators were 79 million tonnes, but is expected to grow to 120.9 million tonnes by 2017, with new coal-fired power plants being completed from 2014 – 2017, including:

- **2014:** Kosep's 870 MW Yeonghueng and 500 MW Bukpyeong
- **2015:** Korea East-West Power's (EWP) 1,000 MW Dangjin 9, Kospo's 1,000 MW Samcheck, Kosep's 1,000 MW Yeosu 1, 500 MW Bukpyeong 2, and 500 MW Dongbu Green
- **2016:** EWP's 1,000 Dangjin 10, Kowepo's 1,000 MW Taean 9 and 1,000 MW Taean 10, and Komipo's 1,000 MW New Boryeong 1
- **2017:** Komipo's 1,000 MW New Boryeong 2[95]

While most of Korea's imported coal demand is currently supplied by Indonesian subbituminous coal, PRB coal is a very competitive source for the Korean market. The Korean power companies have shown their interest in PRB coal imports with new long-term contracts to purchase PRB coal from Ambre Energy, the primary developer of the Morrow Pacific and Millennium Bulk Terminals and 50% owner of two mines in Montana and Wyoming. Korea South-East Power (Kosep) and Korea Southern Power (Kospo) have each signed 10-year contracts to purchase a total of 4 million tons per year from Ambre Energy.[96]

In Japan, while growth in coal consumption had slowed after 2005, it has now resumed due to the drop in nuclear power output after the Fukushima Dai-ichi nuclear plant disaster. The Wall Street Journal reported that Japan imported a record amount of thermal coal in fiscal year

[94] IHS CERA, McCloskey Coal Report, May 17, 2013, page 29, "Komipo's imports to reach 21mt/yr from 2017" (attached as SS-4)
[95] Ibid
[96] Platts Coal Trader International, May 1, 2012, page 6, "S Korean utilities ink 10-year deals for US thermal coal with Ambre" (attached as SS-5)

2012-13, according to a Reuters report cited by SNL Energy.[97] Japan has recently started operations at large coal-fired power plants, which contributed to the increased coal consumption.[98] Further, according to the Canberra Times, Japan has moved to fast-track the approval of new coal-fired power plants and Tokyo Electric has issued a tender for the construction of a new 2,600 MW coal-fired power plant.[99]

India is the fastest-growing market for imported coal, with imports more than tripling from 2007 to 2011. According to the World Resources Institute, India has 519,396 MW of proposed new coal-fired power plants, second only to China.[100] Many of these projects are 4,000 MW ultra-mega power projects, which are designed to be highly-efficient and burn coal with lower heat content.[101]

There are new coal-fired power plants under construction across Southeast Asia. In Vietnam, there are 5 new coal-fired plants, each 1,200 MW, to be placed in service between 2013 and 2018.[102] New coal plants are also under construction in the Philippines, Indonesia, Singapore, Malaysia and Pakistan.[103] Except for Indonesia, there is little local coal production in these countries, so these projects will require imported coal.[104]

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[97] SNL Energy, "Japan imports record amounts of steam coal, LNG in FY'13", April 30, 2013 (attached as SS-6)
[98] Wall Street Journal, "Japan Increases Coal Use at Expense of Oil", May 21, 2013 (attached as SS-7)
[99] SNL Energy, "Japan to fast track approval of new coal-fired power plants", April 25, 2013 (attached as SS-8)
[100] World Resources Institute, Global Coal Risk Assessment, November 2012, Table I.1 at http://pdf.wri.org/global_coal_risk_assessment.pdf
[101] See Platts International Coal Report, March 18, 2013 "India's Reliance Power commissions first unit of Sasan UMPP (attached as SS-9) and McCloskey Coal Report, May 17, 2013, "Indian imports could hit 266 mt by 2017" (attached as SS-10)
[102] Platts International Coal Report, April 29, 2013, page 9, "Petrovietnam to push ahead with coal-fired power plants in next 3 months" (attached as SS-11)
[103] See SNL Energy Coal Report, April 29, 2013, "Malaysia short-lists 5 companies to build 2,000-MW coal plant (attached as SS-12); SNL Energy Daily Coal Report, April 17, 2013, "Demand for Indonesia's low-grade coal surges" (attached as SS-13); Platts Coal Trader International, January 8, 2013, "Alsons to begin construction of Philippines coal-fired power unit in Q1" (attached as SS-14); SNL Energy Daily Coal Report, January 25, 2013, "Pakistan approves construction of 600-MW coal plant" (attached as SS-15)
[104] IEA Coal Information 2012, Table 1.1 (attached as SS-2)

IEA projects that seaborne thermal coal imports into China, Korea, Japan, Taiwan, India and other Asian countries will continue to grow rapidly from 496 million tonnes in 2011 to 652 million tons in 2017.[105]

The major existing thermal coal suppliers to the Asian market are Indonesia and Australia, both of which have been increasing production. While Australian coal is bituminous, much of Indonesia's exports are subbituminous coal, like Otter Creek and the PRB. Otter Creek will need to compete with Indonesian coal in the growing markets in Asia. World market prices fluctuate, and at times PRB coal has been lower-cost than comparable Indonesian coal and at times higher-cost.[106] The future competitive position of PRB coal exports will depend on many factors, including world currency exchange rates, demand growth in world markets, supply growth and mining costs in Indonesia and other competing countries, ocean freight costs and inland freight costs. Cloud Peak Energy's exports of PRB coal to Asia were 4.4, 4.7, 3.3 and 1.6 million tons in 2012, 2011, 2010 and 2009, respectively.[107] PRB coal has been competitive in Asia since 2009 and is likely to remain so for the foreseeable future.

The proposed Otter Creek mine is well-placed to supply the growing export market to Asia. Otter Creek will have the shortest rail distance to reach the existing export terminals in Vancouver, Canada and the proposed new terminals in Washington and Oregon. Compared to the Wyoming PRB (like Arch's Black Thunder mine), Otter Creek is 135 miles closer to Longview, Washington and 138 miles closer to Cherry Point, Washington and Vancouver, Canada. For exports though the MERC dock, Otter Creek is 355 miles closer than the Wyoming PRB and 176 miles closer than the Spring Creek mine in the Montana PRB.[108]

[105] IEA, Medium-term Coal Market Report 2012, Table 29 (attached as SS-3)
[106] IHS CERA, McCloskey Coal Report, "Can PRB compete in Asia", December 14, 2012 (attached as SS-16)
[107] Cloud Peak Energy 2012 SEC Form 10-K, page 60 at http://cloudpeakenergy.com/investor-relations/sec-filings/
[108] Mileage calculated using PCMiler commercial software (attached as SS-17)

III. Otter Creek is Able to Compete with Existing Wyoming and Montana PRB Coal Mines

The development of the new Otter Creek coal mine will not change the demand for coal but it will change the source of supply to serve the future coal markets. The current and future markets for subbituminous coal will be supplied by the existing PRB mines in the U.S., other potential future mines in the PRB (such as the proposed projects of Cloud Peak at Youngs Creek and County Coal at Shell Creek) as well as the growing supply of Indonesian subbituminous coal in the international market. The success of a new mine development at Otter Creek depends upon its ability to compete with the existing producers of Montana and Wyoming PRB coal as well as other potential new mine projects. The competitive economics depend on the differences in the mining costs and the transportation costs to reach customers in various locations. With regard to transportation, there are some markets where Otter Creek will have an advantage over the Wyoming PRB (the northern states of Montana, Michigan, Minnesota, North Dakota, Washington and Oregon) and other markets to the south where Otter Creek will have a disadvantage. However, Otter Creek is likely to have significantly lower mining costs because of the fact that there has been significant depletion of coal reserves at the existing mines due to a high level of production over many years.

Because the Montana PRB coal is competitive in both the domestic and export markets today, and is expected to remain competitive in both markets in the future, it is not possible to predict the percentage of Otter Creek coal that will be shipped to each market in the future. Otter Creek will have a very long mine life and it is likely that the markets will change multiple times over the course of its life. At the present time, it appears likely that a majority of the Otter Creek coal will be sold in domestic markets, primarily but not exclusively in the Upper Midwest, but a significant share of the coal would be sold to export markets.

A. The Major Change Since 1986 has been Reserve Depletion of Other Mines

The NPRC Comments and the Power Report make much of the fact that the Tongue River Railroad was not constructed when it was approved in 1986 and they contend that the domestic market for this coal is much worse than it was in 1986.[109] The question they raise is if the market for Montana PRB coal was not sufficient to develop the Tongue River Railroad in 1986, why would it be better now? There are several questions and answers:

- Why were mines in the Ashland area of the Montana PRB not developed before now? The reason that the Ashland area Montana PRB mines were not developed prior to now has been the lack of rail transportation, not the lack of market. The PRB market is more than large enough to absorb the additional supply from Montana, but it has not had rail to access the market because the Tongue River Railroad was not built. The market for PRB coal is much larger today than it was in 1986. PRB coal production in 1986 was only 151 million tons. PRB coal production for the last 10 years has averaged 450 million tons per year.[110]
- How was the market demand satisfied without the Ashland area Montana PRB mines? The BNSF/UP Joint Line opened the Wyoming PRB to development ahead of the Ashland area. Once the Joint Line was built, new coal mines were built in the Wyoming PRB and were able to expand to meet the growing market.
- What has changed to make the development of the Montana PRB mines more likely today? First, the market is three times larger today, at 450 million tons per year, not 150 million. Second, the coal reserves at the existing PRB mines (both Montana and Wyoming) have been heavily mined over this period of time and

[109] Power Report at 1
[110] Mine Safety and Health Administration, data retrieval system at http://www.msha.gov/drs/drshome.htm

have much higher costs now. The undeveloped reserves at Otter Creek still have low strip ratios (the cubic yards of rock which must be mined to produce one ton of coal), while the strip ratios at the existing PRB mines have been steadily rising. Finally, the Otter Creek coal reserves, which previously were held by separate parties in alternating ("checkerboard") tracts, have now been consolidated into logical mining units because both reserve owners (Great Northern Properties and the State of Montana) have leased their coal to the same lessee, Arch Coal.

Since 1986, the mines in the PRB have mined more coal than they have remaining reserves. As shown on Exhibit 10, in the Montana PRB, the Big Sky mine has been closed and the Decker mine is nearly depleted. In Wyoming, 2 mines have been closed and the remaining reserves from 6 mines have been merged into adjacent operations for economies of scale. The current reserves held by the active mines in the Wyoming PRB are 7.7 billion tons and in the Montana PRB are 0.66 billion tons. These reserves are adequate to support the current production rate of about 450 million tons per year for about 18 years. The proposed Otter Creek mine has reported reserves of 1.4 billion tons, more than double the total assigned reserves at all of the existing mines in the Montana PRB.[111]

[111] Arch Coal SEC Form 10-K 2012, page 47 at http://investor.archcoal.com/phoenix.zhtml?c=107109&p=irol-sec

Exhibit 10: PRB Coal Production and Assigned Reserves (million tons)

Company	Mine	Status	Production 2012	Cumulative 1986 - 2012	Reserves 12/31/2012
Alpha	Belle Ayr	active	24.2	515	368
Alpha	Eagle Butte	active	22.5	516	404
Arch Coal	Black Thunder	active	93.1	1,530	1,466
Arch (Kennecott)	Jacobs Ranch	merged		627	
Arch (Triton)	North Rochelle	merged		112	
Arch Coal	Coal Creek	active	7.6	106	170
Cloud Peak	Antelope	active	34.3	530	649
Cloud Peak	Cordero	active	39.2	762	331
Cloud Peak	Caballo Rojo	merged		111	
Kiewit	Big Horn	closed		4	
Kiewit	Buckskin	active	18.1	423	250
PacifiCorp	Dave Johnston	closed		44	
Peabody	NARM Complex	active	107.6	1,478	2,364
Peabody	North Antelope	merged		169	
Peabody	Caballo	active	16.8	573	852
Peabody	Rawhide	active	14.7	282	312
Western Fuels	Dry Fork	active	6.0	87	304
Western Fuels	Fort Union	merged		3	
Wyodak	Wyodak	active	4.2	103	232
Wyodak (Kerr-McGee)	Clovis Point	merged		3	
Wyoming Total			**388.4**	**7,979**	**7,702**
Cloud Peak	Spring Creek	active	17.2	292	293
Ambre Energy	Decker	active	2.8	232	2
Peabody	Big Sky	closed		58	
Westmoreland	Absaloka	active	2.7	135	59
Westmoreland	Rosebud	active	8.0	316	307
Montana Total			**30.7**	**1,032**	**661**

Sources: Production from MSHA data; reserves from company SEC Forms 10-K and annual reports
Note: 12/31/2012 reserves for Kiewit and Western Fuels calculated from last filing of reserve data less cumulative production

New coal reserves and mines are needed to replace the depletion of existing reserves over time. The new Otter Creek and Ashland area coal reserves which will be accessed by the Tongue River Railroad will be needed to replace the depletion of reserves at the existing PRB mines, both in Montana and Wyoming.

B. The Otter Creek Coal Reserves are More Economic Today than in 1986 Because Costs Have Been Rising at Existing PRB Mines Due to Reserve Depletion

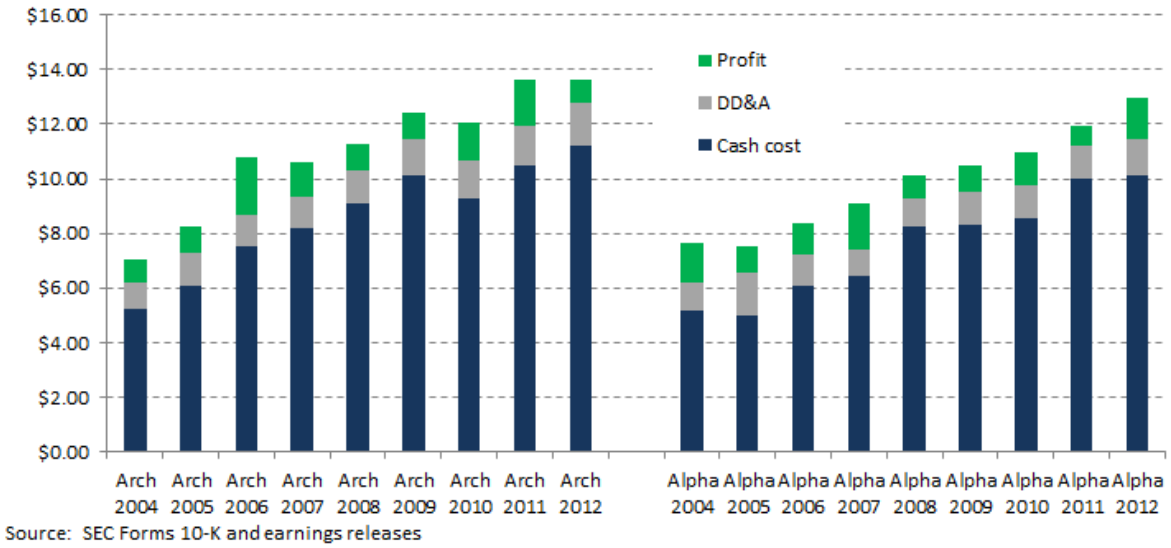
From 1986 to 2012, 9.0 billion tons of coal has been mined in the PRB, including 1.0 billion tons in Montana and 8.0 billion tons in Wyoming.[112] All of the coal mines began producing coal in their lowest-cost reserves first, which are near the outcrop where the strip ratios are the lowest. As the lowest-cost coal was mined, the existing mines have moved steadily into reserves with higher strip ratios which are farther from the rail loadout and have higher costs to produce and transport. This is even acknowledged in the Synapse Report, which states that "Arch Coal's Powder River Basin production costs have escalated at an average annual rate of nearly 7 percent since 2003."[113] While true, Synapse mistakenly attributes the cost increase to the price of diesel fuel, which only accounts for a relatively small portion of the total cost of coal production in the PRB. While most companies do not disclose the components of their production costs, Cloud Peak Energy (the third-largest producer in the PRB) formerly published this data in the SEC Form 10-K. For the years 2007, 2008 and 2009, fuel and lubricants accounted for just 11.4%, 12.9% and 7.8%, respectively, of Cloud Peak's cost of coal production.[114] Including the cost of explosives (which are partly related to fuel oil costs), the total fuel-related costs for these years were 17.3%, 19.6% and 13.9%, respectively.

The vast majority of the cost increase in the PRB is due to the increased strip ratio experienced at the existing mines. The increase in the strip ratio affects all of the components of mining costs (including labor, fuel, repairs, supplies, explosives, tires and other services) because it requires more rock to be moved per ton of coal produced. The cost increases have not been

[112] Mine Safety and Health Administration, data retrieval system at http://www.msha.gov/drs/drshome.htm
[113] Synapse Report at 8
[114] Cloud Peak Energy, SEC Form 10-K for the year 2009, page 80 at http://cloudpeakenergy.com/investor-relations/sec-filings/

limited to Arch Coal. Exhibit 11 shows the reported production costs (both cash costs and DD&A[115]) from 2004 to 2012 for the PRB mines of Arch Coal and Alpha Natural Resources.

Exhibit 11: Reported Production Costs and Profit for PRB Producers ($/ton)

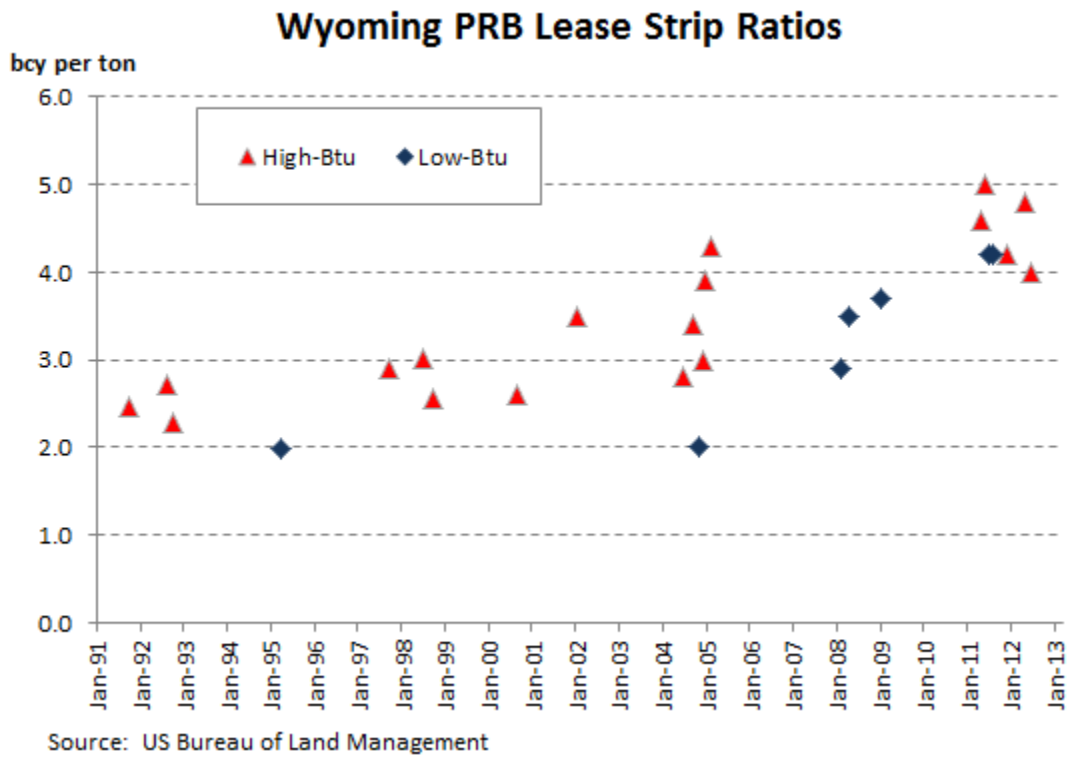


The steady increase in strip ratios in the Wyoming PRB can be seen from the reports issued by the Bureau of Land Management ("BLM") regarding the issuance of new leases to Wyoming coal producers. Coal producers obtain new federal coal leases through the lease-by-application ("LBA") process. The existing PRB mines have replaced their depleting coal reserves by acquiring new federal leases in order to continue operations. The first LBA in the Wyoming PRB was issued in 1991 (before that time, producers were mining on leases obtained in the 1960's and 1970's). The strip ratios in the new LBAs are shown on Exhibit 12.[116] The early LBAs were issued with strip ratios of 2.0:1 – 2.7:1. The strip ratios in the LBAs have steadily increased over time and the new leases now have strip ratios of 4.0:1 – 5.0:1. This

[115] Depreciation, depletion and amortization of existing investment
[116] U.S. Department of Interior, Bureau of Land Management at http://www.blm.gov/wy/st/en/programs/energy/Coal_Resources/PRB_Coal/lba_title.html

means that the amount of rock that the Wyoming PRB coal producers must remove per ton of coal produced has doubled over time and will continue to grow in the future.

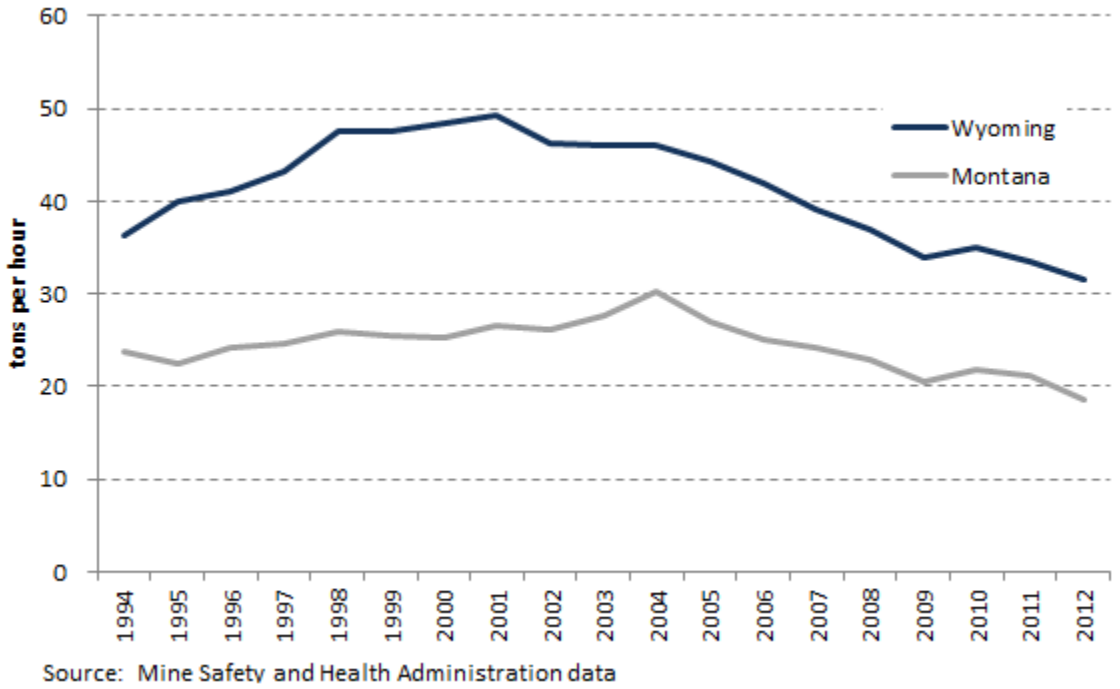
Exhibit 12: Strip Ratios for New Wyoming PRB LBAs



The impact of increased strip ratios can be seen in the steadily declining productivity (tons produced per hour worked) of the PRB mines since 2001. Prior to 2001, productivity was steadily increasing through the use of larger mining equipment and capital investment. As shown on Exhibit 13, productivity has declined steadily since its peak in 2001, with the Wyoming PRB average falling 36% from 49.3 tons per hour in 2001 to 31.5 tons per hour in 2012.[117] The Montana PRB average has fallen 38% from its peak of 30.2 tons per hour in 2004 to 18.7 tons per hour in 2012. Labor productivity is the key indicator of production costs and is directly correlated with the change in strip ratios.

[117] Calculated from Mine Safety and Health Administration data (tons produced divided by hours worked, excluding office hours) at http://www.msha.gov/drs/drshome htm

Exhibit 13: PRB Labor Productivity (tons per hour worked)



Source: Mine Safety and Health Administration data

While the reserves have been depleting and costs have been rising at the existing PRB mines, the Otter Creek coal still has the same economic conditions as it had in 1986. The Norwest report projected the strip ratio to be 3.0:1 (cubic yards of rock per ton of coal).[118] Compared to the strip ratios in the Wyoming PRB (see Exhibit 12) this strip ratio would have been higher-than-average cost in 1986, but is now lower-cost than the existing mines, which are entering into new leases with strip ratios of 4.0 – 5.0:1. Otter Creek's cost advantage will grow as the existing mines move into steadily higher strip ratios.

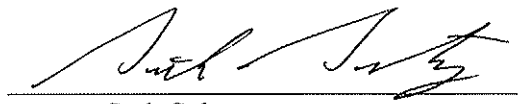
As shown on Exhibit 11, PRB coal prices have been escalating steadily, driven by the rising cost of production. The average coal sales prices received by Arch and Alpha have increased by $2.79 and $4.55 per ton, respectively, since 2006, when Norwest prepared its

[118] Norwest Corporation, Otter Creek Property Summary Report, July 12, 2006, Table 2.2 (attached as SS-18)

property summary report. The rising price of PRB coal (and rising costs at its competitors) has made the Otter Creek coal more economic than it was at the time of Norwest's report.

VERIFICATION

I, Seth Schwartz, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.



Seth Schwartz

Dated this 6th day of June, 2013

Appendix 1: Domestic Electric Power Markets for Montana PRB Coal

									2011 PRB Coal Purchases 1000 tons									
									Total Purchases of PRB Coal				2011 Market for MT PRB			MT PRB Excl. Retire		
Owner	Plant	Unit	ST	Retire Date	Capacity MW	Generation GWh	Capacity Factor	Coal Burn 1000 tons	Total	WY	MT	Retire	Now	Past	Wet	Now	Past	Wet
AEP	Flint Creek	1	AR		480	3,785	90.0%	2,303	2,302	2,302			0	0	0	0	0	0
AEP	Kammer	1-3	WV	2015	615	1,774	32.9%	871	183	183		183	0	0	183	0	0	0
AEP	Northeastern	3	OK		470	3,567	86.6%	2,174	2,089	2,089			0	0	0	0	0	0
AEP	Northeastern	4	OK	2016	465	3,529	86.6%	2,128	2,089	2,089		2,089	0	0	0	0	0	0
AEP	Oklaunion	1	TX		690	3,385	56.0%	2,158	2,150	2,150			0	0	0	0	0	0
AEP	Rockport	1-2	IN		2,600	16,360	71.8%	9,058	7,920	7,920			0	0	0	0	0	0
AEP	Tanners Creek 4	4	IN	2015	500	2,639	60.3%	1,404	834	834		834	0	0	834	0	0	0
AEP	Welsh	1,3	TX		1,056	7,318	79.1%	4,585	4,653	4,653			0	0	0	0	0	0
AEP	Welsh	2	TX	2014	528	3,558	76.9%	2,206	2,327	2,327		2,327	0	0	0	0	0	0
AEP - OVEC	Clifty Creek	1-6	IN		1,231	7,944	73.7%	4,251	2,978	2,978			0	0	0	0	0	0
AEP - OVEC	Kyger Creek	1-5	OH		1,023	6,510	72.6%	3,220	1,200	1,200			0	0	0	0	0	0
AES	Shady Point		OK		350	1,882	61.4%	1,314	951	937	14		951	0	0	951	0	0
Allete	Boswell	3-4	MN		935	6,487	79.2%	3,756	3,807	2,044	1,763		3,807	0	0	3,807	0	0
Allete	Boswell	1-2	MN		138	798	66.0%	505	519	519			0	0	0	0	0	0
Allete	Laskin	1-2	MN	2015	110	459	47.6%	334	322	322		322	0	0	0	0	0	0
Allete	Rapids Energy		MN		27	34	14.5%	63	63	63			0	0	0	0	0	0
Allete	Taconite Harbor	1-3	MN		225	1,115	56.6%	683	747	530	217		747	0	0	747	0	0
Alliant Energy	Burlington	1	IA		212	1,201	64.8%	772	768	768			0	0	0	0	0	0
Alliant Energy	Columbia	1-2	WI		1,070	6,971	74.4%	4,396	4,416	4,416			0	4,416	0	0	4,416	0
Alliant Energy	Dubuque	3-4	IA	2011	66	102	17.7%	86	24	24		24	0	24	0	0	0	0
Alliant Energy	Edgewater	5	WI		422	2,358	63.8%	1,507	1,469	1,469			0	0	0	0	0	0
Alliant Energy	Edgewater	4	WI	2018	334	1,795	61.4%	1,052	1,023	1,023		1,023	0	0	1,023	0	0	0
Alliant Energy	Edgewater	3	WI	2015	76	180	27.0%	115	131	131		131	0	0	131	0	0	0
Alliant Energy	Kapp	2	IA		221	898	46.4%	604	585	585			0	585	0	0	585	0
Alliant Energy	Lansing	4	IA		261	1,363	59.7%	957	829	829			0	0	0	0	0	0
Alliant Energy	Nelson Dewey	1-2	WI	2013	226	1,056	53.4%	572	382	0	382	382	382	0	0	0	0	0
Alliant Energy	Ottumwa	1	IA		716	3,402	54.3%	2,241	2,248	2,248			0	0	0	0	0	0
Alliant Energy	Prairie Creek	1-4	IA		215	530	28.2%	392	677	677			0	0	0	0	0	0
Alliant Energy	Sutherland	1-3	IA	2012	111	418	43.0%	255	171	171		171	0	0	171	0	0	0
Ameren	Coffeen	1-2	IL		900	4,994	63.3%	3,043	2,816	2,816			0	0	2,816	0	0	2,816
Ameren	Duck Creek	1	IL		410	2,088	58.1%	1,186	1,064	1,064			0	0	0	0	0	0
Ameren	Edwards	1-3	IL		740	4,856	74.9%	2,926	2,880	2,880			0	2,880	0	0	2,880	0
Ameren	Hutsonville	3-4	IL	2011	154	764	56.7%	480	440	440		440	0	0	0	0	0	0
Ameren	Joppa	1-6	IL		1,002	7,709	87.8%	4,749	4,721	4,721			0	0	0	0	0	0
Ameren	Labadie	1-4	MO		2,402	18,581	88.3%	10,851	10,810	10,810			0	0	0	0	0	0
Ameren	Meramec	1-4	MO	2014	884	5,466	70.6%	3,570	3,508	3,508		3,508	0	0	0	0	0	0
Ameren	Meredosia	3	IL	2011	215	860	45.6%	545	450	450		450	0	0	0	0	0	0
Ameren	Newton	1-2	IL		1,198	7,387	70.4%	4,352	4,385	4,385			0	0	0	0	0	0
Ameren	Rush Island	1-2	MO		1,167	8,226	80.5%	4,836	4,726	4,726			0	0	0	0	0	0
Ameren	Sioux	1-2	MO		957	5,209	62.1%	2,881	2,151	2,151			0	0	2,151	0	0	2,151
Ames, IA	Ames	7-8	IA		95	293	35.3%	214	220	220			0	0	0	0	0	0
Arizona Public Service	Cholla	1-4	AZ		995	7,302	83.8%	4,145	43	0	43		43	0	0	43	0	0
Arkansas River Power	Lamar	1	CO		39	56	16.7%	89	89	89			0	0	0	0	0	0
Associated Electric	Chamois	2	MO	2013	50	373	86.0%	249	243	243		243	0	0	243	0	0	0
Associated Electric	New Madrid	1-2	MO		1,160	7,282	71.7%	4,230	4,060	4,060			0	0	4,060	0	0	4,060
Associated Electric	Thomas Hill	1-3	MO		1,120	8,131	82.9%	4,919	4,762	4,762			0	0	4,762	0	0	4,762
Basin Electric	Dry Fork	1	WY		385	568	16.8%	363	382	382			0	0	0	0	0	0
Basin Electric	Laramie River	1-3	WY		1,710	12,204	81.5%	7,416	7,405	7,405			0	0	0	0	0	0
Basin Electric	Leland Olds	1-2	ND		669	3,256	55.6%	2,699	301	301			0	0	301	0	0	301
Black Hills Power	Ben French	1	SD	2012	25	130	59.2%	119	119	119		119	0	0	0	0	0	0
Black Hills Power	Neil Simpson	5	WY	2014	22	143	75.1%	131	131	131		131	0	0	0	0	0	0
Black Hills Power	Neil Simpson II	1	WY		90	645	81.9%	510	510	510			0	0	0	0	0	0
Black Hills Power	Wygen	3	WY		110	820	85.1%	596	596	596			0	0	0	0	0	0
Black Hills Power	Wygen	1	WY		90	719	91.2%	545	545	545			0	0	0	0	0	0
Black Hills Power	Wygen	2	WY		95	673	80.8%	519	519	519			0	0	0	0	0	0
Cleco	Brame	2	LA		523	3,198	69.8%	1,937	1,939	1,939			0	0	0	0	0	0
Colorado Springs Utilities	Martin Drake	5-7	CO		259	1,542	68.0%	915	648	648			0	0	0	0	0	0
Colorado Springs Utilities	Nixon	1	CO		208	1,450	79.6%	871	931	931			0	0	0	0	0	0
Consumers Power	Campbell	1-3	MI		1,402	8,372	68.2%	4,653	4,336	4,336			0	0	0	0	0	0
Consumers Power	Cobb	4-5	MI	2014	300	1,487	56.6%	821	845	269	576	845	845	0	0	0	0	0
Consumers Power	Karn	1-2	MI		515	2,559	56.7%	1,440	906	599	307		906	0	0	906	0	0
Consumers Power	Weadock	7-8	MI	2014	310	1,757	64.7%	932	700	700		700	0	700	0	0	0	0
Consumers Power	Whiting	1-3	MI	2017	326	1,581	55.4%	943	813	813		813	0	0	0	0	0	0
Dairyland Power	Alma	4-5	WI		181	105	6.6%	68	63	63			0	63	0	0	63	0
Dairyland Power	Genoa	3	WI		345	888	29.4%	543	425	425			0	425	0	0	425	0
Dairyland Power	Madgett	1	WI		387	1,976	58.3%	1,243	1,112	1,112			0	0	0	0	0	0
Detroit Edison	Belle River	1-2	MI		1,260	7,905	71.6%	4,401	4,079	0	4,079		4,079	0	0	4,079	0	0
Detroit Edison	Monroe	1-4	MI		3,000	16,849	64.1%	8,528	5,736	5,736			0	5,736	0	0	5,736	0
Detroit Edison	River Rouge	2-3	MI		509	2,481	55.7%	1,328	1,034	1,034			0	0	0	0	0	0
Detroit Edison	St Clair	1-4,6-7	MI		1,406	6,096	49.5%	3,523	3,002	0	3,002		3,002	0	0	3,002	0	0
Detroit Edison	Trenton Channel	7-9	MI		725	3,427	54.0%	1,933	1,205	1,205			0	0	0	0	0	0

									2011 PRB Coal Purchases 1000 tons									
				Retire	Capacity	Generation	Capacity	Coal Burn	Total Purchases of PRB Coal				2011 Market for MT PRB			MT PRB Excl. Retire		
Owner	Plant	Unit	ST	Date	MW	GWh	Factor	1000 tons	Total	WY	MT	Retire	Now	Past	Wet	Now	Past	Wet
Dominion Generation	Kincaid	1-2	IL		1,108	5,101	52.6%	3,192	3,255	3,255			0	3,255	0	0	3,255	0
Dominion Generation	State Line	3-4	IN	2012	490	3,054	71.1%	1,837	1,839	1,839		1,839	0	1,839	0	0	0	0
Dynegy	Baldwin	1-3	IL		1,800	13,435	85.2%	7,688	7,624	7,624			0	0	7,624	0	0	7,624
Dynegy	Havana	6	IL		441	2,934	75.9%	2,003	1,965	1,965			0	0	0	0	0	0
Dynegy	Hennepin	1-2	IL		293	2,193	85.5%	1,318	1,315	1,315			0	0	0	0	0	0
Dynegy	Vermilion	1-2	IL	2011	177	155	10.0%	107	50	50		50	0	0	0	0	0	0
Dynegy	Wood River	4-5	IL		446	3,440	88.0%	2,023	2,073	2,073			0	0	0	0	0	0
Edison Mission Energy	Crawford	7-8	IL	2012	537	2,382	50.6%	1,481	1,483	1,483		1,483	0	1,483	0	0	0	0
Edison Mission Energy	Fisk	19	IL	2012	326	1,583	55.4%	966	968	968		968	0	968	0	0	0	0
Edison Mission Energy	Joliet	7-8	IL		1,040	5,892	64.7%	3,663	3,386	3,386			0	3,386	0	0	3,386	0
Edison Mission Energy	Joliet	6	IL	2018	314	1,672	60.8%	1,105	1,191	1,191		1,191	0	1,191	0	0	0	0
Edison Mission Energy	Powerton	5-6	IL		1,538	9,177	68.1%	5,872	6,701	6,701			0	6,701	0	0	6,701	0
Edison Mission Energy	Waukegan	6-8	IL	2014	689	3,890	64.4%	2,410	2,414	2,414		2,414	0	2,414	0	0	0	0
Edison Mission Energy	Will County	3-4	IL		772	3,447	51.0%	2,207	2,140	2,140			0	2,140	0	0	2,140	0
EIF	Plum Point	1	AR		665	4,159	71.4%	2,343	2,278	2,278			0	0	0	0	0	0
Empire District Energy	Asbury	1-2	MO		213	1,169	62.7%	727	706	706			0	0	706	0	0	706
Empire District Energy	Riverton	7-8	KS	2012	92	259	32.1%	184	203	203		203	0	0	0	0	0	0
Entergy	Independence	1-2	AR		1,678	10,987	74.7%	6,613	6,848	6,848			0	0	0	0	0	0
Entergy	Nelson	6	LA		550	3,497	72.6%	2,382	2,334	2,334			0	0	0	0	0	0
Entergy	White Bluff	1-2	AR		1,659	10,387	71.5%	6,207	6,069	6,069			0	0	0	0	0	0
First Energy	Ashtabula	5	OH	2015	244	875	41.0%	568	334	334		334	0	0	0	0	0	0
First Energy	Bay Shore	2-4	OH	2012	489	2,316	54.1%	1,297	856	856		856	0	0	0	0	0	0
First Energy	Eastlake	1-5	OH	2015	1,278	6,664	59.5%	3,424	2,414	2,414		2,414	0	0	0	0	0	0
First Energy	Fort Martin	1-2	WV		1,107	7,104	73.3%	3,072	396	396			0	396	0	0	396	0
First Energy	Hatfields Ferry	1-3	PA		1,580	10,764	77.8%	4,509	156	156			0	156	0	0	156	0
First Energy	Lake Shore	18	OH	2015	195	583	34.1%	383	274	274		274	0	0	0	0	0	0
First Energy	Sammis	1-7	OH		2,220	10,045	51.7%	4,747	1,094	1,094			0	0	0	0	0	0
First Energy	Willow Island	1-2	WV	2012	239	163	7.8%	123	92	92		92	0	92	0	0	0	0
Fremont, NE	Lon Wright	8	NE		85	446	59.9%	308	304	304			0	0	0	0	0	0
GDF Suez	Coleto Creek	1	TX		632	4,090	73.9%	2,297	2,950	2,950			0	0	0	0	0	0
Grand Island Utilities	Platte	1	NE		100	554	63.2%	379	320	320			0	0	0	0	0	0
Grand River Dam Authority	GRDA	2	OK		520	3,498	76.8%	2,275	2,288	2,288			0	0	0	0	0	0
Grand River Dam Authority	GRDA	1	OK		490	3,295	76.8%	2,142	2,288	2,288			0	0	0	0	0	0
Great River Energy	Stanton		ND		190	1,263	75.9%	717	752	0	752		752	0	0	752	0	0
Hastings Utilities	Whelan	1-2	NE		297	1,517	58.3%	943	926	926			0	0	0	0	0	0
Hibbing	Hibbing		MN		31	72	26.8%	90	90	90			0	0	0	0	0	0
Holland, MI	James De Young	3-5	MI	2015	58	217	42.7%	138	28	0	28	28	28	0	0	0	0	0
Kansas City Board	Nearman Creek	1	KS		235	1,381	67.1%	900	970	970			0	0	0	0	0	0
Kansas City Board	Quindaro	1-2	KS		208	936	51.4%	603	646	646			0	0	646	0	0	646
Kansas City P&L	Hawthorn	5	MO		565	3,760	76.0%	2,239	2,203	2,203			0	0	0	0	0	0
Kansas City P&L	Iatan	1-2	MO		1,520	9,016	67.7%	4,982	4,738	4,738			0	0	0	0	0	0
Kansas City P&L	La Cygne	1	KS		688	3,940	65.4%	2,339	2,371	2,371			0	0	2,371	0	0	2,371
Kansas City P&L	La Cygne	2	KS		674	4,213	71.4%	2,549	2,371	2,371			0	0	0	0	0	0
Kansas City P&L	Lake Road	4	MO		97	340	40.0%	373	367	367			0	0	367	0	0	367
Kansas City P&L	Montrose	1-3	MO		510	2,598	58.2%	1,653	1,588	1,588			0	0	0	0	0	0
Kansas City P&L	Sibley	1-3	MO		495	2,361	54.4%	1,384	1,269	1,269			0	0	1,269	0	0	1,269
Lansing, MI	Eckert	1-6	MI		363	1,310	41.1%	914	1,345	1,345			0	0	0	0	0	0
Lansing, MI	Erickson	1	MI		158	825	59.5%	492	368	368			0	0	0	0	0	0
LCRA	Fayette	1-3	TX		1,641	10,765	74.9%	6,550	6,086	6,086			0	0	0	0	0	0
LG&E	Trimble County	1-2	KY		1,261	7,795	70.6%	3,202	609	609			0	0	0	0	0	0
Luminant	Big Brown	1-2	TX		1,150	7,898	78.4%	5,925	2,581	2,581			0	0	0	0	0	0
Luminant	Martin Lake	1-3	TX		2,418	17,608	83.1%	13,699	3,555	3,555			0	0	0	0	0	0
Luminant	Monticello	1-2	TX		1,176	7,412	71.9%	5,403	3,688	3,688			0	0	0	0	0	0
Luminant	Monticello	3	TX		780	5,049	73.9%	3,650	2,459	2,459			0	0	0	0	0	0
Manitowoc, WI	Manitowoc	8-9	WI		95	178	21.3%	100	14	14			0	0	0	0	0	0
Marquette Board L&P	Shiras	3	MI		44	288	74.8%	195	188	188			0	0	0	0	0	0
MDU Resources	Hardin	1	MT		116	646	63.5%	462	462	0	462		462	0	0	462	0	0
MidAmerican Energy	George Neal North	3	IA		515	3,167	70.2%	1,957	1,950	1,950			0	0	0	0	0	0
MidAmerican Energy	George Neal North	1-2	IA	2016	435	2,486	65.3%	1,476	1,450	1,450		1,450	0	0	1,450	0	0	0
MidAmerican Energy	George Neal South	4	IA		644	4,272	75.7%	2,540	2,777	2,777			0	0	0	0	0	0
MidAmerican Energy	Louisa	1	IA		700	4,291	70.0%	2,606	3,303	3,303			0	0	0	0	0	0
MidAmerican Energy	Riverside	7-9	IA	2016	135	798	67.5%	576	600	600		600	0	0	0	0	0	0
MidAmerican Energy	Walter Scott	3-4	IA		1,480	11,165	86.1%	6,572	6,728	6,728			0	0	0	0	0	0
MidAmerican Energy	Walter Scott	1-2	IA	2016	133	823	70.6%	549	550	550		550	0	0	0	0	0	0
Muscatine, IA	Muscatine	9	IA		160	599	42.7%	398	416	416			0	0	0	0	0	0
Muscatine, IA	Muscatine	7-8	IA		80	247	35.3%	361	416	416			0	0	416	0	0	416
Nebraska Public Power	Gentleman	1-2	NE		1,365	9,333	78.1%	5,634	5,626	5,626			0	0	0	0	0	0
Nebraska Public Power	Sheldon	1-2	NE		225	1,399	71.0%	944	931	931			0	0	931	0	0	931
Newmont	TS Power	1	NV		203	1,315	73.9%	727	729	729			0	0	0	0	0	0
NIPSCO	Michigan City	12	IN		469	2,940	71.6%	1,596	1,225	1,225			0	0	1,225	0	0	1,225
NIPSCO	Schahfer 14-15	14-15	IN		903	4,408	55.7%	2,692	2,595	2,595			0	0	2,595	0	0	2,595

									2011 PRB Coal Purchases 1000 tons									
				Retire	Capacity	Generation	Capacity	Coal Burn	Total Purchases of PRB Coal				2011 Market for MT PRB			MT PRB Excl. Retire		
Owner	Plant	Unit	ST	Date	MW	GWh	Factor	1000 tons	Total	WY	MT	Retire	Now	Past	Wet	Now	Past	Wet
NRG Energy	Big Cajun 2	1,3	LA		1,168	8,256	80.7%	5,310	4,786	4,786			0	0	0	0	0	0
NRG Energy	Big Cajun 2	2	LA	2015	575	4,493	89.2%	2,982	2,393	2,393		2,393	0	0	0	0	0	0
NRG Energy	Dunkirk	1-4	NY	2014	530	1,979	42.6%	1,201	1,197	1,197		1,197	0	0	0	0	0	0
NRG Energy	Huntley	67-68	NY		380	1,400	42.1%	831	823	823			0	0	0	0	0	0
NRG Energy	Limestone	1-2	TX		1,700	13,466	90.4%	9,171	3,894	3,894			0	0	0	0	0	0
NRG Energy	Parish	5-8	TX		2,488	16,767	76.9%	11,043	9,061	9,061			0	9,061	0	0	9,061	0
NV Energy	Reid Gardner	1-4	NV	2017	605	2,242	42.3%	1,171	310	310		310	0	0	0	0	0	0
Oklahoma Gas & Electric	Muskogee	4-6	OK		1,491	8,661	66.3%	5,322	4,133	4,133			0	0	0	0	0	0
Oklahoma Gas & Electric	Sooner	1-2	OK		1,031	6,822	75.5%	4,060	3,355	3,355			0	0	0	0	0	0
Omaha Public Power	Nebraska City	1-2	NE		1,309	9,104	79.4%	5,319	4,920	4,920			0	0	0	0	0	0
Omaha Public Power	North Omaha	1-5	NE		599	3,319	63.3%	2,168	1,952	1,952			0	0	0	0	0	0
Otter Tail Power	Big Stone	1	SD		464	2,456	60.4%	1,648	1,676	1,676			1,676	0	0	1,676	0	0
Otter Tail Power	Hoot Lake	2-3	MN	2020	149	788	60.5%	486	484	0	484	484	484	0	0	0	0	0
PacifiCorp	Dave Johnston	4	WY		330	2,072	71.7%	1,433	1,441	1,441			0	0	0	0	0	0
PacifiCorp	Dave Johnston	3	WY		220	1,552	80.5%	1,084	1,080	1,080			0	0	0	0	0	0
PacifiCorp	Dave Johnston	1-2	WY		222	1,423	73.2%	1,046	1,080	1,080			0	0	0	0	0	0
PacifiCorp	Wyodak	1	WY		362	1,829	57.7%	1,450	1,449	1,449			0	0	0	0	0	0
Platte River Power Authority	Rawhide	1	CO		279	2,287	93.6%	1,281	1,310	1,310			0	0	0	0	0	0
Portland General Electric	Boardman	1	OR	2020	585	3,334	65.0%	1,985	2,352	2,243	108	2,352	2,352	0	0	0	0	0
PPL Generation	Colstrip	3-4	MT		1,480	9,439	72.8%	5,939	6,107	0	6,107		6,107	0	0	6,107	0	0
PPL Generation	Colstrip	1-2	MT		614	3,574	66.4%	2,295	2,298	0	2,298		2,298	0	0	2,298	0	0
PPL Generation	Corette	1	MT	2015	154	830	61.5%	550	555	555		555	0	555	0	0	0	0
Raven Power	Crane	1-2	MD		385	981	29.1%	589	583	583			0	0	583	0	0	583
Rockland Capital	England	1	NJ	2014	129	61	5.4%	32	14	14		14	0	0	14	0	0	0
Rosebud Energy	CELP	1	MT		40	259	74.0%	214	203	203			0	0	0	0	0	0
Salt River Project	Coronado	1-2	AZ		785	5,444	79.2%	3,295	3,124	2,362	762		3,124	0	0	3,124	0	0
San Antonio CPS	Deely	1-2	TX	2018	830	6,311	86.8%	3,781	3,704	3,704		3,704	0	0	0	0	0	0
San Antonio CPS	Spruce	1-2	TX		1,370	8,955	74.6%	5,116	5,115	5,115			0	0	0	0	0	0
Sikeston, MO	Sikeston	1	MO		233	1,838	90.0%	1,136	1,094	1,094			0	0	0	0	0	0
Southern Company	Daniel	1-2	MS		969	2,746	32.4%	1,451	987	987			0	987	0	0	987	0
Southern Company	Miller	1-4	AL		2,742	20,522	85.4%	12,042	11,868	11,868			0	0	0	0	0	0
Southern Company	Scherer	1-4	GA		3,446	21,330	70.7%	13,123	13,619	13,619			0	0	0	0	0	0
Springfield, MO	James River	1-5	MO		239	965	46.1%	654	607	607			0	0	0	0	0	0
Springfield, MO	Southwest	1-2	MO		478	2,512	60.0%	1,457	1,639	1,639			0	0	0	0	0	0
Sunflower Electric	Holcomb	1	KS		362	2,728	86.0%	1,651	1,597	1,597			0	0	0	0	0	0
Texas Municipal Power	Gibbons Creek	1	TX		462	3,138	77.5%	1,942	2,085	2,085			0	0	0	0	0	0
Tondu Energy	Filer City	1	MI		60	381	72.4%	234	74	74			0	0	0	0	0	0
TransAlta	Centralia	1-2	WA	2025	1,405	5,200	42.2%	3,425	3,523	1,181	2,343	3,523	3,523	0	0	0	0	0
Tri-State G&T	Springerville	3-4	AZ		832	5,883	80.7%	3,388	3,413	3,413			0	0	0	0	0	0
TVA	Allen	1-3	TN		749	4,605	70.2%	2,660	2,299	2,299			0	0	2,299	0	0	2,299
TVA	Colbert	1-5	AL	2016	1,192	4,739	45.4%	2,330	447	447		447	0	0	0	0	0	0
TVA	Gallatin	1-4	TN		982	7,277	84.6%	4,331	4,249	4,249			0	0	0	0	0	0
TVA	Johnsonville	1-10	TN	2015	1,230	4,696	43.6%	2,828	1,663	1,663		1,663	0	0	0	0	0	0
TVA	Kingston	1-9	TN		1,445	4,718	37.3%	2,331	1,198	1,198			0	0	0	0	0	0
TVA	Shawnee	1-9	KY		1,224	7,831	73.0%	4,117	2,029	2,029			0	0	0	0	0	0
Virginia	Virginia		MN		29	48	19.0%	83	83	83			0	0	0	0	0	0
Westar Energy	Jeffrey	1-3	KS		2,213	13,593	70.1%	9,059	9,096	9,096			0	0	0	0	0	0
Westar Energy	Lawrence	3-5	KS		548	3,512	73.2%	2,132	2,035	2,035			0	2,035	0	0	2,035	0
Westar Energy	Tecumseh	7-8	KS		204	1,112	62.2%	724	673	673			0	673	0	0	673	0
Western Farmers	Hugo	1	OK		412	2,878	79.8%	1,892	1,705	1,705			0	0	0	0	0	0
Willmar	Willmar		MN		24	24	11.3%	35	35	35			0	0	0	0	0	0
Wisconsin Energy	Pleasant Prairie	1-2	WI		1,224	6,128	57.1%	4,096	4,202	4,202			0	0	0	0	0	0
Wisconsin Energy	Presque Isle	7-9	MI		261	1,544	67.5%	1,041	1,770	926	844		1,770	0	0	1,770	0	0
Wisconsin Energy	Presque Isle	5-6	MI		176	699	45.4%	361	105	105			0	0	0	0	0	0
Wisconsin Energy	South Oak Creek	5-8	WI		1,137	5,352	53.7%	2,919	2,889	2,889			0	0	0	0	0	0
Wisconsin Public Service	Pulliam	7-8	WI		216	751	39.8%	492	395	395			0	0	0	0	0	0
Wisconsin Public Service	Pulliam	5-6	WI	2015	119	171	16.4%	131	100	100		100	0	0	0	0	0	0
Wisconsin Public Service	Weston	4	WI		535	3,659	78.1%	1,960	1,793	1,793			0	0	0	0	0	0
Wisconsin Public Service	Weston	3	WI		322	1,877	66.5%	1,137	1,327	1,327			0	0	0	0	0	0
Wisconsin Public Service	Weston	1-2	WI	2015	135	490	41.5%	321	466	466		466	0	0	0	0	0	0
Wyandotte, MI	Wyandotte	8	MI		32	26	9.2%	38	20	0	20		20	0	0	20	0	0
Xcel Energy	Arapahoe	3-4	CO	2013	157	569	41.4%	421	422	422		422	0	0	0	0	0	0
Xcel Energy	Bay Front	4-6	WI	2015	74	50	7.6%	47	47	47		47	0	47	0	0	0	0
Xcel Energy	Black Dog	3-4	MN	2015	278	1,183	48.6%	773	726	726		726	0	726	0	0	0	0
Xcel Energy	Comanche	1-3	CO		1,410	7,346	59.5%	4,230	4,623	4,623			0	0	0	0	0	0
Xcel Energy	Harrington	1-3	TX		1,066	5,708	61.1%	3,355	3,568	3,568			0	0	0	0	0	0
Xcel Energy	King	1	MN		578	3,421	67.6%	1,885	2,040	2,040			0	2,040	0	0	2,040	0
Xcel Energy	Pawnee	1	CO		495	2,928	67.5%	1,877	2,005	2,005			0	0	0	0	0	0
Xcel Energy	Sherburne County	1-3	MN		2,313	12,991	64.1%	7,788	8,192	3,462	4,730		8,192	0	0	8,192	0	0
Xcel Energy	Tolk	1-2	TX		1,080	7,807	82.5%	4,395	4,221	4,221			0	0	0	0	0	0
Total					**143,289**	**852,738**	**67.9%**	**513,273**	**445,417**	**416,095**	**29,322**	**47,885**	**45,552**	**54,971**	**39,171**	**37,937**	**44,933**	**35,122**

MONTANA OTTER CREEK STATE COAL VALUATION

ENERGY, MINING, AND ENVIRONMENTAL CONSULTANTS

NORWEST CORPORATION

MONTANA OTTER CREEK STATE COAL VALUATION

Submitted to:

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION

TRUST LAND MANAGEMENT DIVISION
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JANUARY 30, 2009

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EXECUTIVE SUMMARY

Norwest Corporation (Norwest) completed a valuation of the Otter Creek Coal Tracts 1 through 3 located in the State of Montana. The purpose is to determine the fair market value that Montana should accept from a qualified bidder. This valuation was completed according to the methods specified in the Bureau of Land Management (BLM) Handbook H-3070-1, *Economic Evaluation of Coal Properties*. The handbook provides two separate methods for determining a coal property's value. These methods are the Comparable Lease Sales Approach and the Income Approach. Research for this valuation was completed in October, 2008 and all revenue and costs reflect economic conditions at that time. The actual valuation process went through multiple reviews by Norwest and by the State of Montana prior to completion and preparation of this report on January 30, 2009.

Comparable Lease Sales Approach

The Comparable Lease Sales Approach uses similar past lease sales to determine the bonus price per ton of the coal. It is generally assumed that this approach provides the best indication of value when reliable sales data are available. The Comparable Lease Sales Approach takes past lease sale transactions and compares them to the new coal property to determine its value. Adjustments to the reference properties are made to develop a more accurate estimate of the new property. Typically these adjustments include key economic parameters such as coal quality, stripping ratio, and transportation options among others. The final per ton value is calculated by taking an average of the similar lease sales or one that is the closest in coal quality and stripping ratio to the new property and applying any adjustments for differences in these parameters.

Income Approach

Using the Income Approach, an economic model of the coal property is created. This model should emulate the most economic mine plan for the coal property which creates the highest net present value (NPV). Under the Income Approach, a mine plan based on current and projected coal markets is created. Cost and revenue streams are estimated and combined to produce a cash flow over the projected mine life. The cash flow is then discounted to present day values using a discount rate of 10%. This rate is

justified on the basis that it is representative of the alternative cost of capital and has been successfully used for a number of years in coal land valuations. The calculated NPV is then divided by the number of recoverable tons for the lease to determine the bonus price per ton.

FINDINGS

The results of the two valuation methods are discussed in detail in the body of this report and are summarized in Table E.1 below.

Table E.1 Fair Market Value of Montana Unleased Coal

Method	Bonus ($/ton)	Recoverable Tons (1,000,000s)	Total Bonus ($1,000,000s)
Comparable Lease Sales Approach	$0.0539	572.3	$30.8
Income Approach	$0.0652	572.3	$37.3

The Comparable Lease Sales Approach produced a value of $30.8 million (M) or approximately $0.05/ton for Montana's 572M recoverable tons of coal. This value is lower than similar federal lease sales of high sodium coal in Montana, reflecting the lack of existing rail service at Otter Creek.

The Income Approach produced a value of $37.3M, or $0.07/ton for 572M tons of coal. The economic model includes $187M for an 85 mile rail line addition. There is an approved rail line proposed along this same route, owned by the Tongue River Railroad Company (TRRC), but construction has not begun, nor is Norwest aware of a set schedule for construction. Norwest has assumed that the developer of Otter Creek would pay for this railroad in the two years ahead of production and be reimbursed by TRRC over 15 years from the start of production. Because the developer would not own the railroad, the cost is not included as a capital expenditure, but rather is shown in the cash flow calculation along with recapture payments from TRRC at 4% interest. Had the railroad been in place at the time of this report, the resulting NPV would have been $124.8M, or approximately $0.10/ton.

In addition to the bonus bid, Montana will receive production royalties for coal mined on these leases as well as an annual fee of $3 per acre. The typical royalty is 12.5% of the gross sales value. On a theoretical market price of $20/ton FOB mine, the royalty would be $2.50/ton.

In summary, Norwest concludes that a bonus bid between $0.05 and $0.07/ton of recoverable coal, as determined through the Comparable Lease Sales and Income approaches, represents the fair market value range for the Otter Creek Tracts 1 through 3.

Figure E.1 shows the general location of the Otter Creek Coal Tracts. Figure E.2 illustrates the remaining lease areas.

TABLE 2.1
FEDERAL COAL LEASE SALES- POWDER RIVER BASIN, MONTANA AND WYOMING (from 1991)

10/30/08

TRACT	APPLICANT	HIGH BIDDER	BLM SERIAL NO.	CASE TYPE	SALE DATE	TOTAL BONUS	TRACT ACRES	BONUS ($/ACRE)	TONS RECOV. (MMT)	BONUS ($/TON)	MINING RATIO (BCY:TON)	HEAT VALUE (BTU/LB)	%S	% Ash	% Moist.	Na as % Ash
Spring Creek	Spring Creek Coal	Spring Creek Coal	MTM 94378	LBA	4/17/2007	$19,902,200	1,117.7	$17,806.39	108.60	$0.1833	2.89	9,331	0.35	3.80	25.71	8.38
Decker Modifications	Decker Coal Co.	Decker Coal Co.	MTM037604/ MTM057934	MOD	4/18/2006	$456,320	100.4	$4,545.02	4.960	$0.0920	2.76	9,546	0.42	4.35	24.16	1.27
West Roundup	Triton Coal	Peabody Energy	WYW151134	LBA	2/16/2005	$317,697,610	2,812.51	$112,958.75	327.186 *	$0.9710	4.30	8,790	0.20	na	na	1.60
West Antelope	Antelope Coal	Antelope Coal	WYW151643	LBA	12/15/2004	$146,311,000	2,809.13	$52,084.10	194.961 *	$0.7505	3.00	8,858	0.23	na	na	1.86
West Hay Creek	Triton Coal	Kiewit Mining Group	WYW151634	LBA	11/17/2004	$42,809,400	921.16	$46,473.49	142.698 *	$0.3000	2.00	8,346	0.28	na	na	1.75
Little Thunder	Ark Land Co.	Ark Land Co.	WYW150318	LBA	9/22/2004	$610,999,950	5,083.50	$120,192.77	718.719 *	$0.8501	3.40	8,884	0.24	na	na	1.20
NARO South	Powder River Coal	Powder River Coal	WYW154001	LBA	6/29/2004	$274,000,000	2956.725	$92,670.10	297.469 *	$0.9211	2.80	8,929	0.20	na	na	2.00
Rosebud	Western Energy	Western Energy	MTM80697	Mod	2/17/2004	$11,250	30.0	$375.00	0.250	$0.0450	4.63	8,382	0.81	10.3	25.41	0.5
N. Jacob's Ranch	Jacob's Ranch Coal	Jacob's Ranch Coal	WYW146744	LBA	1/16/2002	$379,504,652	4,982.2	$76,171.49	537.542 *	$0.7060	3.51	8,792	0.45	5.46	27.40	1.29
Spring Creek	Kennecott	Kennecott	MTM88405	LBA	11/27/2000	$1,740,200	150.0	$11,601.33	15.860	$0.1097	2.08	9,370	0.34	3.65	25.53	8.63
Horse Creek	Antelope Coal	Antelope Coal	WYW141435	LBA	9/7/2000	$91,220,121	2,818.7	$32,362.54	275.577 *	$0.3310	2.60	8,890	0.22	4.28	26.83	1.49
Spring Creek	Kennecott	Kennecott	MTM69782	MOD	10/1/1999	$13,860	10.0	$1,386.00	0.330	$0.0420	1.92	9,361	0.41	3.91	25.51	9.56
Rosebud	Western Energy	Western Energy	MTM80697	LBA	6/16/1999	$4,416,000	1,401.0	$3,152.03	27.600	$0.1600	3.51	8,382	0.81	10.3	25.41	10.3
Thunderhead	Kerr-McGee	Ark Land Co.	WYW136458	LBA	10/1/1998	$158,000,009	3,545.5	$44,563.50	412.000 *	$0.3835	2.57	8,810	0.34	4.48	27.93	1.45
Powder River	Peabody	Peabody	WYW136142	LBA	6/30/1998	$109,596,500	4,224.2	$25,944.91	532.024 *	$0.2060	3.00	8,742	0.19	4.21	27.93	1.84
Decker	Kennecott	Kennecott	MTM57934-A/ MTM61685	MOD	6/10/1998	$478,400	320.0	$1,495.00	7.360	$0.0650	2.35	9,512	0.42	4.35	24.16	1.27
Spring Creek	Kennecott	Kennecott	MTM69782	MOD	4/10/1998	$163,170	25.0	$6,526.80	3.366	$0.0485	1.48	9,350	0.35	3.70	25.51	8.72
N. Rochelle	Bluegrass Coal	Bluegrass Coal	WYW127221	LBA	9/25/1997	$30,576,340	1,481.9	$20,632.78	157.610 *	$0.1940	2.91	8,680	0.23	4.91	na	na
Antelope	Kennecott	Kennecott	WYW128322	LBA	12/4/1996	$9,054,600	617.2	$14,670.45	60.364	$0.1500	1.70	8,776	0.23	4.22	25.70	1.21
Spring Creek	Kennecott	Kennecott	MTM69782	MOD	6/16/1995	$166,000	60.0	$2,766.67	4.380	$0.0379	1.88	9,357	0.35	3.71	na	na
Eagle Butte	Cyprus-Amax	Cyprus-Amax	WYW124783	LBA	4/5/1995	$18,470,400	1,059.2	$17,438.40	163.300	$0.1131	1.99	8,376	0.22	4.60	25.51	8.72
Spring Creek	Kennecott	Kennecott	MTM69782	MOD	11/23/1994	$19,509	15.0	$1,300.60	0.465	$0.0420	1.67	9,237	0.33	4.15	na	na
Caballo	Exxon	Exxon	WYW125698	MOD	2/2/1994	$25,217	20.2	$1,246.82	0.917	$0.0275	1.76	8,500	0.38	5.05	na	na
Spring Creek	NERCO	NERCO	MTM69782	MOD	9/1/1993	$1,000	10.0	$100.00	0.020	$0.0500	2.10	8,183	0.55	9.10	na	na
Scotta Bay	Thunder Basin	Thunder Basin	WYW2313	MOD	5/30/1993	$64,000	10.2	$6,268.36	1.030	$0.0621	1.43	8,752	0.39	5.35	na	na
West Rocky Butte	Peabody	Peabody	WYW122586	LBA	1/7/1993	16,500,000	463.2	$35,621.76	56.700	$0.2910	3.75	8,354	0.27	4.30	na	na
N. Antelope	Peabody	Peabody	WYW119554	LBA	9/28/1992	$86,987,765	3,064.0	$28,389.89	403.500	$0.2156	2.23	8,752	0.27	4.30	na	na
W. Black Thunder	Thunder Basin	Thunder Basin	WYW118907	LBA	8/12/1992	$71,909,282	3,492.5	$20,589.69	429.000	$0.1676	2.72	8,839	0.25	4.40	na	na
Jacobs Ranch	Kerr-McGee	Kerr-McGee	WYW117924	LBA	9/26/1991	$20,114,930	1,708.6	$11,772.62	147.424	$0.1364	2.46	8,540	0.47	5.40	na	na
E.Black Thunder	Thunder Basin	Thunder Basin	WYW2313	MOD	4/29/1991	$300,155	102.8	$2,920.93	5.000	$0.0600	0.70	8,508	0.32	4.98	na	na
West Decker	Kiewit	Kiewit	MTM37604	MOD	1/1/1991	$494,650	160.0	$3,091.56	7.610	$0.0650	4.20	9,610	0.35	3.85	na	na

* *Reserves expressed as TONS MINABLE*
MOD- Lease Modification
LBA- Lease By Application

COAL INFORMATION

2012

with 2011 data

Table 1.1: World coal[1] production

(thousand tonnes)

	1973	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e
Australia	79604	104504	160726	204562	241807	306722	372558	397076	411647	424090	414303
Austria	3328	2865	3081	2448	1298	1249	-	-	-	-	-
Belgium	10362	8018	7666	2357	637	375	109	-	-	-	-
Canada	20472	36688	60853	68332	74981	69163	65345	67749	62938	67896	67114
Chile	1435	1165	1326	2183	1038	366	544	667	636	619	654
Czech Republic	103745	116807	121037	101398	74901	65162	62026	60200	56417	55209	54352
Estonia	x	x	x	22486	12433	11727	14591	16117	14939	17933	18734
France	29114	22750	18894	13532	9896	4100	617	277	147	261	149
Germany	470816	484218	522886	434021	251614	205067	205925	194381	183623	182303	188561
Greece	13301	23198	35888	51896	57662	63887	69398	65720	64893	56520	58767
Hungary	27111	26025	24092	17830	14772	14033	9570	9404	8986	9113	9555
Ireland	64	60	57	25	1	47	55	59	71	66	61
Israel	-	-	-	303	470	390	429	427	444	432	416
Italy	1190	1286	1892	1014	172	14	95	117	72	101	92
Japan	25190	18054	16381	7979	6317	2964	-	-	-	-	-
Korea	13571	18625	22543	17217	5720	8300	2832	2773	2519	2084	2084
Mexico	2578	3089	5193	6933	9320	11344	10755	11430	10548	10106	12384
Netherlands	1829	-	101	-	-	-	-	-	-	-	-
New Zealand	2468	2138	2526	2578	3577	3458	5267	4830	4564	5331	4947
Norway	415	288	507	303	292	632	1471	3430	2641	1935	1386
Poland	195845	229987	249388	215320	200713	162815	159540	144013	135172	133238	139242
Portugal	221	177	237	281	-	-	-	-	-	-	-
Slovak Republic	5804	5796	5731	4766	3759	3648	2511	2423	2573	2378	2376
Slovenia	x	x	x	5583	4884	4480	4540	4520	4429	4430	4501
Spain	12994	28292	39663	35682	28305	23471	19481	10187	9445	8430	6621
Sweden	12	18	13	11	-	-	-	-	-	-	-
Turkey	12396	18625	39997	47428	55073	63268	58340	79402	79499	73399	78075
United Kingdom	131985	130097	94111	92762	53037	31198	20498	18054	17874	18416	18342
United States	543012	752961	801636	933561	937098	971591	1038591	1075881	987552	996107	1004131
IEA Total	**1704849**	**2031477**	**2229906**	**2255303**	**2021632**	**2001164**	**2094229**	**2135976**	**2030633**	**2036877**	**2050158**
OECD Total	**1708862**	**2035731**	**2236425**	**2292791**	**2049777**	**2029471**	**2125088**	**2169137**	**2061629**	**2070397**	**2086847**
Algeria	333	3	23	-	-	-	-	-	-	-	-
Botswana	-	-	437	794	898	947	985	910	738	988	738
Dem. Rep. of Congo	130	138	121	126	93	96	120	131	135	139	132
Egypt	-	-	-	-	-	58	25	-	-	-	24
Morocco	565	680	775	526	650	31	12	-	-	-	-
Mozambique	394	207	35	40	38	16	3	38	38	38	38
Nigeria	327	176	140	90	20	3	8	8	8	8	8
South Africa	62352	115120	173500	174800	206211	224200	244986	252213	249489	254522	253105
United Rep. of Tanzania	-	1	15	4	44	79	75	92	98	105	95
Zambia	940	570	511	377	152	196	150	1	1	1	-
Zimbabwe	2806	2768	3104	5345	4693	4260	3621	2706	2852	3083	2996
Other Africa	160	196	317	314	342	585	678	711	761	789	708

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Table 1.1: World coal[1] production (continued)

(thousand tonnes)

	1973	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e
Argentina	451	390	400	276	305	259	25	110	82	65	81
Brazil	2339	5242	7712	4595	5199	6806	6255	6612	5709	5415	5448
Colombia	2834	4164	8766	21375	25651	38242	59064	73502	72807	74350	83783
Peru	33	41	127	97	51	17	43	142	322	92	92
Venezuela	50	42	40	2189	4064	7885	7195	4922	3282	2730	2271
Bangladesh	-	-	-	-	-	-	77	840	888	770	1000
India	79908	116110	158508	225258	290426	335675	437267	525178	566113	570424	585924
Indonesia	149	304	1908	10230	41828	79377	170541	248766	291247	325000	376200
DPR of Korea	30198	44106	52000	46353	31300	29743	34610	32333	31556	31957	31556
Malaysia	-	-	-	111	135	384	788	1254	2138	2397	2842
Mongolia	-	-	6523	7157	5019	5185	7526	10071	14442	25455	31346
Myanmar	10	38	86	78	35	580	574	669	620	686	1415
Nepal	-	-	-	-	-	17	12	15	15	16	16
Pakistan	1143	1569	2238	2746	3637	3094	4871	3739	3481	3451	3669
Philippines	39	326	1256	1232	1293	1357	2880	3609	4687	6650	9435
Chinese Taipei	3327	2574	1858	472	235	83	-	-	-	-	-
Thailand	361	1525	5188	12421	18421	17708	20878	17982	17786	18344	21137
Vietnam	2990	5200	5594	4638	8350	11609	34093	39777	44078	44011	44524
Other Asia	2323	4496	151	108	97	463	740	1242	1426	1524	1493
PR of China	417000	620150	837272	1050734	1342222	1394043	2299697	2734421	2895345	3140154	3471073
Albania	811	1420	2150	2071	80	30	64	85	14	14	22
Bosnia and Herzegovina	x	x	x	19670	1640	7439	9119	11244	11469	10985	15003
Bulgaria	26810	30213	30880	31675	30830	26432	24695	29050	27279	29427	37844
Croatia	x	x	x	174	82	-	-	-	-	-	-
Georgia	x	x	x	1103	34	7	5	11	152	105	73
Kazakhstan	x	x	x	131443	84494	77444	87197	111072	100854	110929	116670
Kosovo	x	x	x	..	..	3508	4609	5427	6041	6082	6082
Kyrgyzstan	x	x	x	3635	463	425	335	492	602	582	845
F.Y.R. of Macedonia	x	x	x	6644	7249	7516	6881	7630	7426	6724	5959
Montenegro	x	x	x	..	..	..	1297	1740	957	1938	1938
Romania	24851	35164	46581	38183	41121	29285	31106	35861	33961	31127	35263
Russian Federation	x	x	x	371899	245728	240324	282881	304962	275991	321701	333831
Serbia	x	x	x	45937	40595	37094	35100	38709	38499	37976	40817
Tajikistan	x	x	x	925	41	22	99	199	202	200	200
Ukraine	x	x	x	152763	76298	62403	60361	59628	55540	55387	61806
Uzbekistan	x	x	x	6400	3054	2569	3076	3290	3654	3340	2842
Former Soviet Union	667600	716000	726000	x	x	x	x	x	x	x	x
Former Yugoslavia	32450	41301	68472	x	x	x	x	x	x	x	x
Islam. Rep. of Iran	903	925	1106	835	1084	1148	1556	1590	1152	1025	1174
Non-OECD Total	**1364587**	**1751159**	**2143794**	**2385843**	**2524202**	**2658644**	**3886180**	**4572984**	**4773937**	**5130706**	**5591518**
World	**3073449**	**3786890**	**4380219**	**4678634**	**4573979**	**4688115**	**6011268**	**6742121**	**6835566**	**7201103**	**7678365**

(1) Coal comprises all coals from anthracite through lignite, however excludes peat and manufacture of all coal products. For further information, see notes and definitions in Part I.

Source: *IEA/OECD Energy Statistics of OECD Countries , IEA/OECD Energy Statistics of Non-OECD Countries*

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Table 2.1: World coal[1] consumption

(thousand tonnes)

	1973	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e[2]
Australia	51413	67316	78360	95289	102491	128123	141181	141660	142236	140295	119699
Austria	6184	6145	7046	6663	5135	5105	5325	4107	3345	3815	3875
Belgium	17169	17099	15851	16429	12589	11266	7757	6162	4855	5164	4173
Canada	25614	37272	48175	49146	52634	62968	60211	55533	49253	48172	42738
Chile	1772	1718	1827	3720	3391	4590	4571	7726	6817	8351	9654
Czech Republic	103745	103759	105884	91832	66480	61089	56843	54809	50995	51544	49425
Denmark	3146	9669	11935	9992	11003	6641	6293	6836	6778	6496	5526
Estonia	x	x	x	26336	14646	13319	14860	15833	13856	17949	18809
Finland	3035	5692	5318	5648	6540	5193	4598	4986	5413	6982	5478
France	43064	50650	38925	30885	24127	22156	21178	19192	16373	17347	14629
Germany	478298	488138	525987	451015	269035	238905	241844	238900	221862	228108	229618
Greece	13651	23237	37964	53433	58442	65685	70659	65155	65550	58318	60050
Hungary	29033	27544	25626	20305	16931	15173	11588	11837	10676	10989	11576
Iceland	1	12	69	65	65	101	117	109	98	106	112
Ireland	822	1066	1586	3236	2734	3021	3048	2382	1981	1977	2132
Israel	-	-	2927	4023	7038	10981	12553	13367	12291	12742	13034
Italy	12902	18409	23935	22416	17642	18043	24248	24914	19949	21767	23298
Japan	81790	87726	109391	114960	133564	153190	176974	184088	163717	185367	175377
Korea	16329	27790	42505	44776	44634	71799	82272	102723	106861	120048	130344
Luxembourg	305	374	199	197	217	172	122	115	104	102	89
Mexico	2894	3973	5317	6881	10245	12294	17559	14000	16367	17642	19240
Netherlands	4814	6129	10379	14101	14314	12786	13059	12710	11899	11903	11706
New Zealand	2460	1976	2074	2243	2138	2095	4286	3933	2987	2645	2946
Norway	772	951	1118	749	1018	999	795	826	538	818	763
Poland	156379	199086	214135	187622	171019	142859	142027	142319	132814	141381	146027
Portugal	805	604	1050	4397	5708	6154	5476	4156	4677	2702	3695
Slovak Republic	18618	21412	21593	18360	12551	8869	8290	8025	7593	7214	7209
Slovenia	x	x	x	6090	5239	4925	5192	5197	4942	4922	4993
Spain	16322	31222	48440	46823	42542	45654	44498	26413	19678	14661	23515
Sweden	1060	2138	4158	3709	3444	2861	3070	2774	2433	2859	3043
Switzerland	258	315	640	494	253	179	217	237	221	228	233
Turkey	12237	20431	41490	54324	61019	79932	76736	98614	98694	95608	101874
United Kingdom	133527	123610	105980	106722	75916	59839	61779	58220	48786	51428	51213
United States	505515	650167	744671	815949	863552	966391	1029721	1021750	918493	949702	925349
IEA Americas	531129	687439	792846	865095	916186	1029359	1089932	1077283	967746	997874	968087
IEA Asia Oceania	151992	184808	232330	257268	282827	355207	404713	432404	415801	448355	428366
IEA Europe	1056146	1157680	1249239	1149352	878659	812581	809450	793689	735214	741411	759147
OECD Americas	535795	693130	799990	875696	929822	1046243	1112062	1099009	990930	1023867	996981
OECD Asia Oceania	151992	184808	235257	261291	289865	366188	417266	445771	428092	461097	441400
OECD Europe	1056147	1157692	1249308	1181843	898609	830926	829619	814828	754110	764388	783061
IEA Total	**1739267**	**2029927**	**2274415**	**2271715**	**2077672**	**2197147**	**2304095**	**2303376**	**2118761**	**2187640**	**2155600**
OECD Total	**1743934**	**2035630**	**2284555**	**2318830**	**2118296**	**2243357**	**2358947**	**2359608**	**2173132**	**2249352**	**2221442**

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Table 2.1: World coal[1] consumption (continued)

(thousand tonnes)

	1973	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e[2]
Algeria	63	93	1226	1005	632	689	819	856	290	-	1
Botswana	-	-	466	815	912	1040	1002	914	742	992	738
Dem. Rep. of Congo	170	167	156	169	136	132	160	190	195	209	202
Egypt	487	894	1192	1340	1540	1820	1810	1696	1660	1625	1625
Kenya	70	16	90	151	96	66	89	109	95	165	32
Libya	-	-	-	-	-	-	-	-	-	-	9
Morocco	582	635	1110	1774	2665	4018	4938	4462	4099	4223	4860
Mozambique	587	288	106	58	56	-	-	10	10	10	33
Namibia	-	-	-	-	16	3	20	413	193	136	136
Nigeria	289	151	94	55	20	3	8	8	8	8	8
Senegal	-	-	-	-	-	-	152	215	254	264	357
South Africa	60408	86961	125870	124900	147205	157135	175403	196727	192164	189968	182710
United Rep. of Tanzania	-	1	15	4	44	79	75	92	98	105	99
Tunisia	33	21	21	15	-	-	-	-	-	-	-
Zambia	941	618	471	375	148	130	140	1	1	1	-
Zimbabwe	2758	2614	3026	5355	4494	4297	3698	2767	2917	3154	3042
Other Africa	222	278	379	436	442	697	763	971	940	974	936
Argentina	1072	1425	1247	1367	1439	1058	1383	1682	1654	1364	2729
Brazil	4122	9142	16861	15436	17120	20270	20003	20823	17420	21707	24919
Colombia	2859	2803	3144	4825	5608	4231	4173	3589	5399	6202	8258
Costa Rica	1	1	1	-	-	1	2	1	4	1	-
Cuba	-	95	126	153	77	22	22	24	17	13	13
Dominican Republic	-	-	224	17	80	93	476	763	747	709	925
Guatemala	-	22	-	-	-	215	409	452	294	492	518
Haiti	-	-	61	12	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	135	183	105	103	107	32
Jamaica	-	-	-	52	55	53	58	48	51	54	72
Panama	13	-	32	32	51	60	-	-	-	-	-
Peru	86	74	107	149	389	708	1075	1073	1142	1100	647
Uruguay	32	4	-	1	-	1	1	2	3	4	4
Venezuela	53	42	42	355	7	181	51	193	325	273	-
Bangladesh	243	235	98	563	642	660	742	1257	1257	1257	1848
Cambodia	-	-	-	-	-	-	-	-	16	17	43
Hong Kong (China)	12	3	5523	8928	9109	6058	10824	11345	12331	10324	12946
India	77172	107796	156229	220707	294875	357009	463510	573880	619706	643203	655344
Indonesia	129	236	925	6320	11892	22720	42031	48926	57885	57854	66778
DPR of Korea	30580	44456	54200	48453	31940	29383	31806	29709	28576	27356	28217
Malaysia	13	84	574	2150	2558	3661	10926	15062	16730	23161	24022
Mongolia	-	-	6167	6649	5204	5212	5473	5999	6521	6511	9203
Myanmar	74	248	266	118	38	580	574	669	620	686	1420
Nepal	78	83	17	81	123	430	413	309	322	337	337
Pakistan	1270	1667	2954	4246	4722	4044	7714	8391	8139	7718	6260
Philippines	40	558	2419	2576	3004	8603	9909	11794	10060	13319	14785
Singapore	1	1	2	2	-	-	1	1	-	-	-
Sri Lanka	-	-	1	8	5	-	93	72	93	95	242
Chinese Taipei	3572	5956	11085	17230	26229	46780	59716	62611	60018	63415	66320
Thailand	362	1619	5344	12707	20801	21270	29525	34377	33318	35419	37562
Vietnam	2770	4052	4990	3951	5917	7808	14812	21104	22397	26146	21567
Other Asia	2426	4857	345	303	244	575	725	1224	1275	1362	1448
PR of China	414180	626010	803907	1050745	1316108	1377767	2274375	2686468	2941280	3102909	3648126

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Table 2.1: World coal[1] consumption (continued)
(thousand tonnes)

	1973	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e[2]
Albania	899	1580	2370	2145	80	73	77	98	226	248	44
Armenia	x	x	x	552	3	-	-	2	-	-	-
Azerbaijan	x	x	x	200	6	-	-	-	-	-	-
Belarus	x	x	x	2389	1125	504	168	76	79	79	55
Bosnia and Herzegovina	x	x	x	19670	1640	7437	9457	11606	11547	12090	15941
Bulgaria	32447	36703	38934	37824	34316	29223	29231	33167	30186	32601	40954
Croatia	x	x	x	1893	331	703	1140	1182	848	1171	1646
Cyprus	-	-	74	97	97	49	53	41	22	27	18
Georgia	x	x	x	1323	44	27	18	119	226	113	89
Kazakhstan	x	x	x	89249	64825	44090	63767	78456	72239	78029	82830
Kosovo	x	x	x	..	..	3633	4658	5232	5971	6270	6144
Kyrgyzstan	x	x	x	6154	792	1169	1339	1028	1104	1146	1399
Latvia	x	x	x	920	252	97	120	162	130	167	273
Lithuania	x	x	x	1303	372	131	287	324	242	306	393
F.Y.R. of Macedonia	x	x	x	6937	7435	7769	7473	7744	7480	6939	6075
Malta	-	-	192	300	52	-	-	-	-	-	-
Republic of Moldova	x	x	x	4510	1315	181	167	198	181	186	154
Montenegro	x	x	x	..	..	..	1261	1727	937	1869	1869
Romania	26180	39373	53109	46223	45700	31962	36002	39545	34483	31607	36875
Russian Federation	x	x	x	374080	245331	230479	214594	229532	186662	223820	234666
Serbia	x	x	x	45937	40605	37324	35391	38741	39085	37679	41185
Tajikistan	x	x	x	1494	41	29	105	207	215	217	204
Turkmenistan	x	x	x	670	-	-	-	-	-	-	-
Ukraine	x	x	x	147423	89898	66680	64023	70571	59114	65489	67749
Uzbekistan	x	x	x	8940	3028	3542	3185	3518	3817	3426	2962
Former Soviet Union	647358	692140	700445	x	x	x	x	x	x	x	x
Former Yugoslavia	33896	44306	73306	x	x	x	x	x	x	x	x
Islam. Rep. of Iran	948	1783	1444	1061	1546	1781	2074	1754	1137	952	1140
Lebanon	-	1	-	-	180	200	200	200	109	340	289
Syrian Arab Republic	1	1	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	236	557	894	1162	2084
Non-OECD Total	**1349499**	**1720093**	**2080987**	**2345882**	**2455657**	**2556780**	**3655108**	**4277171**	**4508303**	**4760882**	**5374411**
World	**3093433**	**3755723**	**4365542**	**4664712**	**4573953**	**4800137**	**6014055**	**6636779**	**6681435**	**7010234**	**7595853**

(1) Coal comprises all coals from anthracite through lignite, however excludes peat and manufacture of all coal products. For further information, see notes and definitions in Part I.

(2) Consumption data for 2011e is supplied by OECD member countries. For non-OECD countries, it is calculated using production and net trade data from varied sources. Stock changes are not accounted for, with the exception of the People's Republic of China, where it has been necessary to estimate consumption (and calculate stock changes) based on official growth rates.

Source: *IEA/OECD Energy Statistics of OECD Countries* , *IEA/OECD Energy Statistics of Non-OECD Countries*

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Table 2.4: World steam coal[1] consumption

(thousand tonnes)

	1973[2]	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e[3]
Australia[4]	27292	27373	34504	43367	45865	56031	66186	67205	66717	64059	45814
Austria	2856	500	787	1822	1484	1885	2215	2236	1645	1964	2087
Belgium[4]	17169	8994	7490	8996	7657	7001	4288	2969	2724	2293	1525
Canada	17556	24269	31904	34765	37318	47299	44782	40647	35158	34316	27573
Chile[4]	1711	1224	1365	3228	2676	3876	3868	7051	6226	7842	9014
Czech Republic	27780	11771	10665	10119	7532	5745	4887	5127	3825	4443	3712
Denmark	3146	9662	11929	9992	11003	6641	6293	6836	6778	6496	5526
Estonia	x	x	x	382	85	87	56	129	87	60	70
Finland[4]	3035	5692	5318	4937	4890	3909	3197	3909	4498	5776	4199
France[4]	40289	33510	25175	19122	14872	15258	14920	11907	12818	12790	10794
Germany	105801	46092	45641	44749	40231	44501	41759	44054	36544	43475	37540
Greece	651	161	1750	1380	1480	1121	563	523	337	614	387
Hungary	2137	3249	3456	1435	287	390	1269	1182	757	653	465
Iceland[4]	1	12	49	52	58	87	103	102	88	102	104
Ireland	822	1066	1579	3184	2689	2985	2995	2357	1957	1956	2111
Israel	-	-	2927	3720	6568	10591	12124	12940	11847	12310	12618
Italy	11603	5787	11729	12694	10480	11355	18610	18985	16357	16616	18139
Japan[4]	81690	17496	35935	50026	73768	96109	120444	126721	111383	127688	121542
Korea[4]	16329	23803	35546	33041	28329	52384	61389	78888	85679	92838	98050
Luxembourg	305	346	199	197	217	172	122	115	104	102	89
Mexico[4]	2894	-	1480	3970	8368	11358	16880	12990	14460	16468	17450
Netherlands	4794	2452	6215	9641	9388	8686	8327	8266	8448	7920	7443
New Zealand[4]	2317	1760	1804	1841	1755	1882	3925	3680	2727	2286	2625
Norway	772	519	724	749	1018	999	795	826	538	818	763
Poland	122097	138506	138825	102104	90418	70039	69281	69656	65823	72452	71523
Portugal[4]	805	241	680	4084	5253	5657	5476	4156	4677	2702	3695
Slovak Republic	5834	3037	3019	2743	2585	2059	2245	2034	1936	1673	1555
Slovenia	x	x	x	262	328	446	612	596	492	520	437
Spain	13260	14715	26058	25788	28696	33695	33471	22960	17176	12163	20975
Sweden	1060	484	2538	2194	1798	1089	1223	1188	993	991	1410
Switzerland	258	315	640	481	245	173	178	162	155	166	164
Turkey	4595	1781	1887	3098	3956	8506	14574	16472	15902	18854	21924
United Kingdom	133527	111982	94858	96205	67429	51015	55210	51289	43123	45455	45499
United States[4]	492567	546581	645362	701657	752854	866163	932692	931318	839346	862251	832051
IEA Americas	510123	570850	677266	736422	790172	913462	977474	971965	874504	896567	859624
IEA Asia Oceania	127628	70432	107789	128275	149717	206406	251944	276494	266506	286871	268031
IEA Europe	502596	400862	401162	365714	313608	282881	291898	277209	247115	260372	261525
OECD Americas	514728	572074	680111	743620	801216	928696	998222	992006	895190	920877	886088
OECD Asia Oceania	127628	70432	110716	131995	156285	216997	264068	289434	278353	299181	280649
OECD Europe	502597	400874	401211	366410	314079	283501	292669	278036	247782	261054	262136
IEA Total	**1140347**	**1042144**	**1186217**	**1230411**	**1253497**	**1402749**	**1521316**	**1525668**	**1388125**	**1443810**	**1389180**
OECD Total	**1144953**	**1043380**	**1192038**	**1242025**	**1271580**	**1429194**	**1554959**	**1559476**	**1421325**	**1481112**	**1428873**

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Table 2.4: World steam coal[1] consumption (continued)

(thousand tonnes)

	1973[2]	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e[3]
Algeria	63	-	-	-	-	-	-	-	-	-	1
Botswana	-	-	466	815	912	1040	1002	914	742	992	738
Dem. Rep. of Congo	170	167	156	169	136	132	160	190	195	209	202
Egypt	487	-	-	1	-	-	-	-	-	-	-
Kenya	70	16	90	151	96	66	89	109	95	165	32
Libya	-	-	-	-	-	-	-	-	-	-	9
Morocco	582	635	1110	1774	2665	4018	4938	4462	4099	4223	4860
Mozambique	587	288	106	58	56	-	-	10	10	10	33
Namibia	-	-	-	-	16	3	20	413	193	136	136
Nigeria	289	151	94	55	20	3	8	8	8	8	8
Senegal	-	-	-	-	-	-	152	215	254	264	357
South Africa	60408	79803	119870	119225	142985	154566	172428	193381	189136	186886	178765
United Rep. of Tanzania	-	1	15	3	43	79	75	92	98	105	99
Tunisia	33	21	21	15	-	-	-	-	-	-	-
Zambia	941	618	471	375	148	130	140	1	1	1	-
Zimbabwe	2758	1623	2757	4743	3873	3484	3008	2362	2504	2730	2630
Other Africa	222	278	379	436	442	697	763	971	940	974	936
Argentina	1072	624	421	246	850	500	594	895	867	675	1627
Brazil	2842	2066	5212	2703	3374	7463	7686	8929	6792	9278	10764
Colombia	2859	2087	2399	4050	4927	3644	3659	3048	4284	4242	4791
Costa Rica	1	1	1	-	-	1	2	1	4	1	-
Cuba	-	95	126	153	77	22	22	24	17	13	13
Dominican Republic	-	-	224	17	80	93	476	763	747	709	925
Guatemala	-	22	-	-	-	215	409	452	294	492	497
Haiti	-	-	61	12	-	-	-	-	-	-	-
Honduras	-	-	-	-	-	135	183	105	103	107	32
Jamaica	-	-	-	-	-	-	-	-	-	-	-
Panama	13	-	32	32	51	60	-	-	-	-	-
Peru	86	25	57	112	338	664	1075	1073	1142	1100	647
Uruguay	32	4	-	1	-	1	1	2	3	4	4
Venezuela	53	42	42	355	7	181	51	193	325	273	-
Bangladesh	243	235	98	563	642	660	742	1257	1257	1257	1848
Cambodia	-	-	-	-	-	-	-	-	16	17	43
Hong Kong (China)	12	3	5523	8928	9109	6058	10824	11345	12331	10324	12946
India	73410	87296	120167	166231	233168	296333	394230	495490	530741	553569	591128
Indonesia	129	236	925	6320	11892	22580	41933	48819	57816	57799	64742
DPR of Korea	23580	40170	49200	43310	30900	29383	31806	29709	28576	27356	28014
Malaysia	13	84	574	2150	2558	3661	10926	15062	16730	23161	24022
Mongolia	-	-	480	595	1290	70	-	-	-	-	-
Myanmar	74	221	223	80	15	468	504	592	548	646	1132
Nepal	78	83	17	81	123	430	413	309	322	337	337
Pakistan	1270	1098	1567	2320	2546	2166	5139	6350	6508	6188	4653
Philippines	-	558	2415	2573	3001	8600	9909	11794	10060	13319	14785
Singapore	-	-	-	-	-	-	1	1	-	-	-
Sri Lanka	-	-	1	8	5	-	93	72	93	95	242
Chinese Taipei	3572	4443	8523	13080	22021	41544	54797	58014	55843	57773	62501
Thailand	1	94	212	250	2305	3684	8479	15885	15475	17378	16425
Vietnam	2770	4052	4990	3951	5917	7808	14490	20511	22397	26146	21567
Other Asia	220	657	345	303	244	530	630	1148	1187	1268	1444
PR of China	414180	559188	741034	970583	1176247	1258729	1854137	2183502	2378905	2520059	2966891

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Table 2.4: World steam coal[1] consumption (continued)

(thousand tonnes)

	1973[2]	1980	1985	1990	1995	2000	2005	2008	2009	2010	2011e[3]
Albania	89	135	187	240	-	-	-	-	-	-	-
Armenia	x	x	x	552	3	-	-	2	-	-	-
Azerbaijan	x	x	x	200	6	-	-	-	-	-	-
Belarus	x	x	x	2389	1125	504	168	76	79	79	55
Bosnia and Herzegovina	x	x	x	-	-	4057	4556	5408	5382	5224	4651
Bulgaria	6136	5073	6724	4192	4944	2054	3310	4203	3015	3156	3235
Croatia	x	x	x	403	143	623	1057	1121	799	1112	1587
Cyprus	-	-	74	97	97	49	52	40	21	26	18
Georgia	x	x	x	637	38	27	18	119	226	113	89
Kazakhstan	x	x	x	55823	50342	31309	48836	64249	56812	61120	66440
Kosovo	x	x	x	..	..	9	12	15	7	34	34
Kyrgyzstan	x	x	x	4014	505	830	887	554	502	554	579
Latvia	x	x	x	917	252	97	120	162	130	167	273
Lithuania	x	x	x	1303	372	130	284	324	101	150	249
F.Y.R. of Macedonia	x	x	x	12	72	-	97	175	110	155	119
Malta	-	-	192	300	52	-	-	-	-	-	-
Republic of Moldova	x	x	x	4510	1315	181	167	198	179	186	154
Romania	8490	6781	6880	4269	843	392	715	1191	788	645	876
Russian Federation	x	x	x	186148	112597	98284	96447	106563	69630	97843	92176
Serbia	x	x	x	137	55	306	227	245	170	147	158
Tajikistan	x	x	x	1044	34	27	103	205	213	215	204
Turkmenistan	x	x	x	670	-	-	-	-	-	-	-
Ukraine	x	x	x	84932	55256	35306	33793	42660	33806	38602	41111
Uzbekistan	x	x	x	2740	81	69	73	198	101	65	210
Former Soviet Union	490220	397576	419445	x	x	x	x	x	x	x	x
Former Yugoslavia	2540	388	400	x	x	x	x	x	x	x	x
Islam. Rep. of Iran	948	83	100	75	158	155	590	287	104	96	113
Lebanon	-	1	-	-	180	200	200	200	109	340	289
Syrian Arab Republic	1	1	-	-	-	-	-	-	-	-	-
United Arab Emirates	-	-	-	-	-	-	236	557	894	1162	2084
Non-OECD Total	**1101544**	**1197023**	**1504406**	**1712431**	**1891549**	**2034510**	**2827942**	**3347225**	**3524836**	**3741480**	**4235530**
World	**2246497**	**2240403**	**2696444**	**2954456**	**3163129**	**3463704**	**4382901**	**4906701**	**4946161**	**5222592**	**5664403**

(1) Steam coal is also commonly known as thermal coal. From 1978 onwards it comprises anthracite, bituminous coal and sub-bituminous coal. For further information, see notes and definitions in Part I.

(2) Data prior to 1978 are hard coal. Hard coal comprises anthracite, coking coal, other bituminous coal and for certain countries sub-bituminous coal.

(3) Consumption data for 2011e is supplied by OECD member countries. For non-OECD countries, it is calculated using production and net trade data from varied sources. Stock changes are not accounted for, with the exception of the People's Republic of China, where it has been necessary to estimate consumption (and calculate stock changes) based on official growth rates.

(4) Includes sub-bituminous coal prior to 1978.

Source: *IEA/OECD Energy Statistics of OECD Countries* , *IEA/OECD Energy Statistics of Non-OECD Countries*

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Table 3.11: World coking coal imports - selected countries

(thousand tonnes)

	Belgium	France	Ger-many	Spain	UK	USA	Canada	Russian Fed.	India	PR of China	Chinese Taipei	Japan	Korea
1988	6838	8165	2248	3643	7082	-	6255	x	3700	50	4687	71128	11237
1989	7064	7769	2281	4000	7998	-	5917	x	4410	303	4921	68689	11651
1990	7132	7848	1706	4169	8614	-	4491	-	5854	250	4237	64935	11287
1991	6426	7660	1057	4652	9196	-	4744	-	5272	408	4350	61839	15572
1992	5795	7457	1357	4343	8385	-	4848	-	6325	400	3748	57900	16381
1993	4748	6904	987	4572	8602	-	4681	-	6936	-	3915	57104	17321
1994	4444	6747	1093	3893	8065	-	4467	3237	9874	-	4032	60301	16902
1995	5267	7300	1427	3244	7754	-	4129	2215	9378	-	4390	59799	17151
1996	5325	7387	2189	3318	8245	-	4833	1708	10617	-	3946	59479	18226
1997	4328	7235	2536	3745	8072	-	4301	1274	11745	398	6033	59098	17395
1998	4195	7052	4299	3905	8646	1050	4597	292	10023	103	5636	53649	17979
1999	3953	6950	3519	3548	8020	1065	4041	2	10992	263	5375	54880	17227
2000	3818	6543	4608	3755	8462	1547	4296	200	11063	339	5158	57081	19575
2001	4169	6942	3984	3424	7723	2091	3987	-	11107	277	5373	56625	17899
2002	3363	6405	5174	3425	6315	2207	4315	-	12947	256	5272	58435	20003
2003	3220	5577	5504	3321	6474	1556	3272	-	12992	2605	5274	57744	20315
2004	3577	6798	6875	4043	6345	1987	3429	-	16925	6830	5078	60884	21808
2005	3533	6255	7152	3571	6551	1603	4228	866	16891	7195	4968	56530	20627
2006	3490	5995	8692	3622	6774	1533	4253	167	17877	4663	4872	57671	20081
2007	3247	6191	9627	3682	7481	1515	3322	-	22029	6219	4483	58200	22532
2008	2993	7239	9255	3371	6349	1580	3286	1450	21080	6857	4757	57367	24083
2009	1666	3581	6448	2058	5164	947	2219	225	24690	34417	4119	52334	20659
2010	2801	4615	7793	2777	6235	1385	3092	847	19484	34774	5524	57679	28160
2011e	*2704*	*3799*	*8778*	*2505*	*5467*	*1445*	*3770*	-	*19339*	*38251*	*3819*	*53835*	*32234*

Table 3.12: World steam coal imports - selected countries

(thousand tonnes)

	Belgium	France	Ger-many	Spain	UK	USA	Canada	Russian Fed.	India	PR of China	Chinese Taipei	Japan	Korea
1988	4227	3949	11056	5123	4603	1936	11222	x	-	1693	12768	30113	11420
1989	5594	8174	8790	6569	4139	2587	8605	x	-	1987	11931	32820	12565
1990	7629	11541	11874	6287	6169	2449	9678	53210	192	1753	14290	41983	12442
1991	7995	14132	14366	8336	10415	3075	7823	46911	-	960	14094	50836	13522
1992	8219	14532	14095	9936	11954	3450	8155	39723	170	1230	18391	52730	14400
1993	7146	7327	12103	8154	9798	6631	3787	28200	394	1428	21430	54949	20060
1994	8215	5443	14390	7876	7023	6880	4899	23961	682	1209	22689	61176	24107
1995	8832	5890	13625	10645	8142	6533	5606	20519	3134	1635	24367	67555	28680
1996	7489	8371	14159	8812	9554	6464	7374	18373	2558	3217	27202	70893	27848
1997	8468	6369	17495	7595	11685	6792	10168	19441	4695	1615	30186	77119	34602
1998	8439	11372	17950	10649	12598	6818	14060	21508	6512	1483	31457	76395	35607
1999	6883	10891	19159	16550	12273	7139	15718	16042	8708	1410	35729	83735	37342
2000	7529	12437	23340	17894	14984	9724	18935	25318	9867	1839	40251	93259	45320
2001	8512	9018	29527	15492	27819	16581	19636	27820	9441	2384	43718	97991	48482
2002	6543	11737	27433	21089	22372	13853	17744	20866	10313	11002	46542	102871	51705
2003	6170	11191	29413	18231	25417	21058	19294	25217	8691	8493	49396	108674	53090
2004	6213	12662	32661	20430	29808	22648	15793	22259	11559	11854	55405	119920	57155
2005	5271	13596	29953	21185	37417	25903	16516	21524	21695	18975	55284	120447	56131
2006	4566	14396	33440	20082	43754	31158	16463	25575	25204	33463	57439	121448	59626
2007	4168	12767	36660	20757	35883	31350	15110	23441	27765	44797	60749	128788	65753
2008	4438	14049	36172	17596	37527	29333	17262	29542	37923	33483	59083	126724	75501
2009	3140	11827	32027	14980	33003	19461	10691	23583	48565	91423	54516	111385	82323
2010	2726	12925	37932	10040	20286	16036	9515	24012	65078	122942	57631	127692	90431
2011e	*1988*	*10628*	*32508*	*13663*	*27143*	*10297*	*5575*	*23849*	*86399*	*146362*	*62501*	*121542*	*96916*

Notes: Steam coal comprises anthracite, other bituminous coal and sub-bituminous coal for all countries.

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Table 3.20: World coking coal exports - selected countries

(thousand tonnes)

	Poland	Canada	USA	Aus-tralia	Co-lombia	Vene-zuela	Russian Fed.	Kazakh-stan	Ukraine	PR of China	India	Indo-nesia	South Africa
1988	13381	27609	56200	55881	862	-	x	x	x	3241	-	9	5016
1989	11467	28677	59083	55228	891	-	x	x	x	2896	-	9	4161
1990	11226	26851	57568	57750	945	-	31573	-	7775	3473	-	29	3633
1991	9767	28786	58645	65450	967	-	15633	-	8503	3840	-	49	3523
1992	10781	23124	53910	67561	1016	-	24322	-	7342	3700	-	89	5088
1993	12829	23921	45044	73941	1040	-	6729	4247	3101	4283	-	170	4843
1994	10694	27066	42941	71496	1101	-	17367	3375	4106	4906	254	210	5764
1995	12296	28564	47255	74291	1158	-	8693	1999	-	6744	329	241	6305
1996	9886	28722	48036	76968	1182	-	6538	1509	31	7487	188	303	6133
1997	9138	30092	47314	83462	1223	-	8450	1371	44	4601	272	334	5650
1998	6506	28353	42722	83312	1230	-	6440	271	12	4855	385	285	5167
1999	6635	28946	29146	91996	1178	-	6400	184	17	5246	774	835	2517
2000	5290	28386	29780	99161	1230	-	7300	344	22	6470	624	616	1744
2001	3813	26914	23053	104935	1251	-	14431	316	-	11445	879	740	970
2002	3521	22964	19539	104526	1282	-	9196	271	3	13295	163	826	759
2003	2710	23716	20039	106814	1333	-	9470	328	24	13135	158	914	584
2004	3036	23847	24349	110815	1624	-	11935	245	417	5757	114	1059	917
2005	3151	26710	26001	124914	937	-	9983	247	509	5260	46	1222	524
2006	3601	25203	24946	120477	729	-	10007	289	530	4344	107	1550	672
2007	2363	26674	29198	131965	688	-	10019	262	118	2543	36	1736	910
2008	1683	26643	38599	136924	762	-	13614	329	197	3457	109	1922	1266
2009	1725	21531	33803	125238	764	-	13276	283	453	636	269	2049	616
2010	1815	27528	50906	157265	1216	-	18030	294	261	1461	111	2201	834
2011e	*1670*	*27666*	*63077*	*140455*	*112*	-	*13811*	*294*	*247*	*2897*	*49*	*567*	*152*

Table 3.21: World steam coal exports - selected countries

(thousand tonnes)

	Poland	Canada	USA	Aus-tralia	Co-lombia	Vene-zuela	Russian Fed.	Kazakh-stan	Ukraine	PR of China	India	Indo-nesia	South Africa
1988	18959	4123	30003	43737	9259	1025	x	x	x	12405	200	957	39154
1989	17476	4140	32374	43441	11596	1689	x	x	x	12442	160	2480	42770
1990	16839	4149	38344	45646	12560	1834	24478	51480	14442	13817	100	4631	46267
1991	12697	5317	40164	54733	15412	2196	21769	51963	4219	16161	110	7193	43834
1992	11761	5041	39045	58681	13598	2309	16178	42459	-	19663	130	15318	46971
1993	10139	4353	22558	57811	16576	3825	19152	29574	-	15532	100	16708	46868
1994	17001	4629	21795	59705	17336	4135	5733	22625	-	19288	419	20004	49074
1995	19572	5429	33074	62411	17116	4242	17570	18769	2400	21873	322	31067	53371
1996	19034	5726	34040	63888	23599	3617	18803	19331	2258	28998	290	36067	54091
1997	20328	6438	28474	74095	26357	5105	15043	23486	2330	30730	268	41380	58550
1998	21549	5830	29376	83484	28831	5908	17602	23023	1869	27442	438	47315	56133
1999	17467	4593	23855	79865	28754	6828	21309	16841	2121	32191	382	54915	63718
2000	17955	3696	23226	87801	34161	7930	29437	33937	2298	48587	668	56181	68166
2001	19216	2704	21013	87243	37617	7560	27122	30952	3729	78680	1024	65604	68240
2002	19102	3841	16266	99808	35228	7344	34301	26704	3089	70592	1354	72155	68472
2003	17409	4566	18857	101935	44311	6748	45155	32244	2888	80851	1469	87772	70947
2004	16648	1904	19002	107611	49278	6748	56681	24081	3466	80901	1180	104063	67029
2005	16218	1366	19094	107415	52670	7143	76023	24199	3157	11722	1943	127386	70918
2006	13134	2927	19914	111984	61239	7589	81384	28316	2927	58866	1447	181637	68075
2007	9537	4002	24161	112424	64575	6355	88035	25691	3503	50568	1591	193150	66053
2008	6778	6267	35089	115265	67761	4729	83856	31716	4597	41831	1546	198025	56625
2009	6671	6939	19576	136504	65992	2957	92276	28012	4837	21712	2185	231382	51361
2010	8150	5751	23023	135352	66932	2457	114245	29078	5933	17641	4298	265000	65562
2011e	*5098*	*5933*	*34059*	*144055*	*75413*	*2271*	*109358*	*31781*	*7496*	*10579*	*4366*	*308910*	*71552*

Notes: Steam coal comprises anthracite, other bituminous coal and sub-bituminous coal for all countries.

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Steam coal[1] exports by destination

(thousand tonnes)

	1978[2]	1985	1990	1995	2000	2005	2009	2010	2011e
World	**2820**	**5270**	**13280**	**24062**	**48578**	**66413**	**21331**	**18814**	**10579**
OECD	**534**	**2663**	**6879**	**17495**	**33172**	**37207**	**15445**	**12842**	**8688**
Austria	-	-	-	-	-	-	-	-	-
Belgium	-	112	292	406	109	297	-	114	-
Canada	-	-	-	-	114	70	-	-	-
Czech Republic	-	-	-	-	-	-	-	-	-
Denmark	-	29	57	-	-	-	-	-	-
Finland	-	-	100	-	-	-	-	-	-
France	-	46	1776	956	452	8	2	-	-
Germany	21	9	8	57	-	79	-	-	4
Greece	-	-	-	-	228	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
Israel	-	-	-	13	-	2	3	-	-
Italy	-	-	310	455	383	-	-	-	3
Japan	513	2427	3258	7717	12585	15947	5906	6060	4206
Korea	-	-	838	7362	18760	18481	9250	6464	4455
Mexico	-	-	-	-	2	8	1	-	-
Netherlands	-	1	152	449	146	148	11	-	9
Norway	-	-	4	-	36	24	-	6	-
Poland	-	-	-	-	-	-	2	-	-
Portugal	-	-	-	-	-	-	-	-	-
Spain	-	-	-	-	199	184	-	-	-
Sweden	-	-	8	-	-	-	-	-	-
Turkey	-	-	-	-	43	1736	62	189	-
United Kingdom	-	34	69	80	107	163	205	-	-
United States	-	-	-	-	8	60	3	9	11
Other OECD[3]	-	5	7	-	-	-	-	-	-
Non-OECD	**2286**	**2607**	**6401**	**6567**	**15406**	**29162**	**5886**	**5972**	**1891**
Brazil	-	-	-	-	585	293	4	-	-
Bulgaria	-	-	-	29	-	-	-	-	-
China, People's Rep.	-	-	-	-	-	-	-	-	-
Chinese Taipei	-	-	-	3988	9076	20992	4872	4198	1872
Hong Kong, China	-	700	1708	1469	1963	993	122	395	-
India	-	-	-	264	1562	3492	12	-	-
Morocco	-	-	-	-	36	138	-	-	-
Romania	-	-	-	-	-	-	-	-	-
Russian Federation	-	-	-	103	-	3	-	-	-
Ukraine	-	-	-	-	-	-	-	-	-
Other Africa	-	-	-	-	-	-	-	2	-
Other Asia	2286	1907	4693	714	2182	3186	876	1377	16
Other Eastern Europe	-	-	-	-	-	65	-	-	-
Other FSU	-	-	-	-	2	-	-	-	-
Other non-OECD Americas	-	-	-	-	-	-	-	-	-
Other Middle East	-	-	-	13	-	2	3	-	3
Non-specified/Other	-	-	-	-	-	44	-	-	-

(1) Steam coal now comprises anthracite, other bituminous coal and sub-bituminous coal.

(2) Earliest year for which split by coal type is available.

(3) Australia, Chile, Estonia, Iceland, Ireland, Luxembourg, New Zealand, Slovak Republic, Slovenia and Switzerland.

Source: IEA/OECD Coal Statistics.

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International Energy Agency

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TABLES

Table 23 Coal demand, 2010-17, Base Case Scenario (BCS), in Mtce

Mtce	2010	2011*	2013	2015	2017	CAGR
OECD	1 545	1 525	1 496	1 473	1 457	-0.8%
OECD Americas	768	745	683	663	653	-2.2%
United States	718	697	636	612	600	-2.5%
OECD Europe	423	426	450	445	436	0.4%
OECD Asia Oceania	354	353	363	364	368	0.7%
Non-OECD	3 507	3 754	4 042	4 359	4 712	3.9%
China	2 387	2 562	2 757	2 965	3 190	3.7%
India	410	446	501	566	643	6.3%
Africa and Middle East	157	152	158	166	176	2.5%
Eastern Europe/Eurasia	312	336	336	336	337	0.1%
Other developing Asia	212	225	252	284	320	6.1%
Latin America	29	34	37	42	46	5.1%
Total	**5 053**	**5 279**	**5 538**	**5 832**	**6 169**	**2.6%**

* Estimate.

Table 24 Coal demand, 2010-17, Chinese Slow-Down Case (CSDC), in Mtce

Mtce	2010	2011*	2013	2015	2017	CAGR
OECD	1 545	1 525	1 500	1 485	1 476	-0.5%
OECD Americas	768	745	684	666	656	-2.1%
United States	718	697	637	615	604	-2.4%
OECD Europe	423	426	452	450	443	0.6%
OECD Asia Oceania	354	353	364	370	377	1.1%
Non-OECD	3 507	3 754	3 982	4 187	4 406	2.7%
China	2 387	2 562	2 696	2 791	2 881	2.0%
India	410	446	501	566	643	6.3%
Africa and Middle East	157	152	158	166	176	2.5%
Eastern Europe/Eurasia	312	336	336	336	337	0.1%
Other developing Asia	212	225	253	286	323	6.2%
Latin America	29	34	38	42	47	5.3%
Total	**5 053**	**5 279**	**5 482**	**5 672**	**5 883**	**1.8%**

* Estimate.

Table 25 Coal production, 2010-17, BCS, in Mtce

Mtce	2010	2011*	2013	2015	2017	CAGR
OECD	1 402	1 408	1 431	1 413	1 421	0.2%
OECD Americas	815	828	794	763	759	-1.4%
United States	760	771	741	706	697	-1.7%
OECD Europe	241	244	252	245	235	-0.7%
OECD Asia Oceania	345	335	386	404	427	4.1%
Non-OECD	3 757	4 101	4 107	4 419	4 748	2.5%
China	2 346	2 593	2 575	2 774	2 986	2.4%
India	349	362	368	399	440	3.3%
Africa and Middle East	211	210	215	235	252	3.1%
Eastern Europe/Eurasia	408	433	426	437	442	0.3%
Other developing Asia	368	419	429	464	511	3.4%
Latin America	75	83	93	110	118	5.9%
Total	**5 158**	**5 508**	**5 538**	**5 832**	**6 169**	**1.9%**

* Estimate.

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Table 29 Seaborne steam coal imports, 2010-17, BCS, in Mtce

	2010	2011*	2013	2015	2017	CAGR
Europe and Mediterranean	143	153	154	154	155	0.2%
Japan	108	103	106	107	106	0.4%
Korea	76	82	83	81	86	0.8%
Chinese Taipei	53	57	62	66	72	3.8%
China	110	130	137	141	147	2.1%
India	51	69	101	129	157	14.7%
Latin America	12	16	17	18	19	2.7%
Other	58	55	71	76	84	7.3%
Total	**611**	**665**	**731**	**773**	**825**	**3.7%**

* Estimate.

Table 30 Seaborne steam coal imports, 2010-17, CSDC, in Mtce

	2010	2011*	2013	2015	2017	CAGR
Europe and Mediterranean	143	153	155	159	161	0.9%
Japan	108	103	107	110	110	1.1%
Korea	76	82	84	83	89	1.4%
Chinese Taipei	53	57	62	68	74	4.5%
China	110	130	116	107	47	-15.6%
India	51	69	103	137	170	16.1%
Latin America	12	16	17	18	19	3.3%
Other	58	55	71	78	87	7.9%
Total	**611**	**665**	**715**	**761**	**758**	**2.2%**

* Estimate.

Table 31 Seaborne steam coal exports, 2010-17, BCS, in Mtce

	2010	2011*	2013	2015	2017	CAGR
Australia	119	126	146	160	182	6.3%
South Africa	61	63	63	71	75	3.1%
Indonesia	221	255	276	287	309	3.3%
Russia	89	81	81	90	94	2.5%
Colombia	62	70	74	87	92	4.7%
China	13	9	6	4	3	-16.0%
United States	13	27	59	46	42	7.6%
Other	33	35	27	29	29	-3.3%
Total	**611**	**665**	**731**	**773**	**825**	**3.7%**

* Estimate.

Table 32 Seaborne steam coal exports, 2010-17, CSDC, in Mtce

	2010	2011*	2013	2015	2017	CAGR
Australia	119	126	145	155	165	4.6%
South Africa	61	63	63	71	75	3.1%
Indonesia	221	255	276	286	306	3.1%
Russia	89	81	80	85	83	0.5%
Colombia	62	70	74	87	92	4.7%
China	13	9	6	4	3	-16.0%
United States	13	27	45	45	5	-24.8%
Other	33	35	27	29	28	-3.7%
Total	**611**	**665**	**715**	**761**	**758**	**2.2%**

* Estimate.

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Turkey's cement output sees robust growth

TURKEY'S CEMENT PRODUCTION continues to perform strongly and increased 43% year-on-year in February, according to the latest figures from the Turkish Cement Manufacturers' Association.

Cement output in February was 4.30mt, up from 2.67mt in the same month last year. Production in the first two months reached 8.25mt, up from 5.76mt in the January-February period in 2012. End-February inventories at cement plants were 0.76mt, down from 0.85mt at the same time last year.

Cement exports were also higher y-o-y in February at 0.78mt, up from 0.60mt previously. Exports for the January-February period are also much stronger y-o-y at 1.65mt, compared to 1.1mt previously.

Deliveries to the Libyan and Russian markets remain very strong and demand from Lebanon is also improving. This continues to help compensate for the loss of cement exports to markets in Syria and Iraq.

Queensland coal shipments keep rising

TOTAL COAL SHIPMENTS from Queensland kept rising in April, despite some lingering flood and rail repair impacts, according to confirmed terminal figures.

They showed shipments reached 14.60mt for the month, 16.4% higher year-on-year than 12.54mt previously, pushing the year-to-date total to 56.49mt, up 9.2% y-o-y against 51.73mt previously (*see table*).

Australian coal shipments – April ('000t)

Port	April 13	April 12	YTD 13	YTD 12
Abbot Point	1,795	1,184	6,310	4,182
Dalrymple Bay	4,937	4,368	19,772	16,592
Hay Point	2,459	2,279	11,154	10,161
Gladstone	4,586	3,960	16,650	17,734
Brisbane	820	745	2,608	3,056
QLD Total	**14,597**	**12,536**	**56,494**	**51,725**
Newcastle				
PWCS	9,457	10,004	35,739	34,088
NCIG	3,223	1,537	10,981	7,010
Pt Kembla	1,054	1,365	3,896	4,569
NSW Total	**13,734**	**12,898**	**50,616**	**45,958**
AUST Total	**28,231**	**25.434**	**107,110**	**97,683**

Source: IHS McCloskey

The bulk of the monthly and YTD increases came from the major met coal terminals, Dalrymple Bay and Hay Point, while the major thermal coal terminal of Gladstone also improved in April, but was down on a YTD basis after bearing the brunt of flood and rail issues.

In New South Wales, monthly and YTD totals also rose y-o-y, mainly reflecting the ramp up of the NCIG terminal at Newcastle, with PWCS shipments also stronger against a slightly re-stated previous basis.

For Australia in total, April shipments rose to 28.23mt, 11.3% higher y-o-y than 25.37mt previously. This took the YTD total to 107.11mt, 9.7% higher y-o-y than 97.62mt previously.

Komipo's imports to reach 21mt/yr from 2017

KOREA MIDLAND POWER (Komipo) is looking to import 50% more coal from 2017 onwards, pushing its intake to around 21mt/yr from its current level of 14mt/yr.

The rise will be a result of the introduction of the two new 1GW units at the Boryeong thermal power plant, scheduled for completion around that time, the company stated.

A $247.9m shipping contract – spanning 15 years – has been signed with compatriots Hyundai Merchant Marine and SW Shipping to bring in supplies from Australia and Indonesia.

Across the whole of last year the five Korean generators imported 79mt of coal, a level projected to be maintained this year.

A considerable ramp up in Korean import requirements is expected to come from 2014 onwards, when Kosep's 870MW Yeongheung and the 500MW Bukpyeong power plants come online, adding 8.4mt of demand, and bringing Korean imports to 82.4mt.

Five new power plants are set to start up in 2015 - EWP's 1GW Dangjin 9, Kospo's 1GW Samcheck 1.2, Kosep's Yeosu 1 and the independent 500MW Bukpyeong 2 and 500MW Dongbu Green 1.2, requiring a total of 19.8mt of coal, and bringing the overall total to 102.2mt.

In 2016, EWP's 1GW Dangjin 10, Kowepo's 1GW Taean 9 and 1GW Taean 10 and Komipo's 1GW New Boryeong 1 should become operational, ramping up coal needs by 14.9mt to 117.1mt in total.

The completion of Komipo's 1GW New Boryeong 2 in 2017 will see the need for a further 3.8mt, taking total demand to 120.9mt/yr.

Turkey`s coal imports to grow to 25mt by 2023

STEAM COAL IMPORTS for electricity generation in Turkey could grow to 25mt by 2023 from 9mt in 2012 if all coal fired projects currently on the drawing board get built, according to Dr Sirri Uyanik, CEO of generator Isken, speaking at the *IHS McCloskey European Coal Outlook* conference in Nice.

According to Dr Uyanik, the government`s vision for Turkey in 2023 is to become the tenth biggest economy worldwide and the fourth largest in Europe.

In order to achieve this, installed capacity for electricity generation has to increase from 57GW in 2012 to 90GW by 2020, or an additional annual installed capacity growth of 5GW.

Coal imports reached 27mt during 2012, of which 9mt were used for electricity generation, 5.8mt for coke and steel production, 2.4mt for industrial uses and the rest for domestic heating.

A total of 6mt of the total of 9mt imported for power plants came from Colombia, 1mt from South Africa and the rest from Russia, Indonesia, the CIS and other smaller players.

It has been estimated that by 2023 imports from Colombia could reach 15mt, 2mt from South Africa and 8mt from Russia, Indonesia, CIS and others.

Turkey has 3.88GW of coal fired power plants currently in operation: Isken (1.32GW), Eren (1.36GW), Icdas (1GW) and Colakoglu (196MW).

There are currently 2.2GW of coal plants under construction, 3GW licensed and 3GW have applied for licensing, for a total of 8.2GW of new capacity.

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"Buyers are holding back...now. India and China seem to be quiet," a Singapore-based source said.

Demand from China is expected to improve in July as the approaching summer is expected to lead to lower hydroelectric power generation and higher need for electricity, an Indonesia-based source said.

"We are waiting for that (summer demand)," he said.

Higher freight rates are affecting demand, market sources said.

Platts assessed the daily Panamax freight rates from South Kalimantan to India's west coast at $10.80/mt and to the east coast at $10.30/mt, both unchanged from Friday, when it had assessed these rates higher on-day.

However, the Indonesia-based source said higher freight rates might be favourable for Indonesia, given its proximity to major coal consuming countries, as freight rates for cargoes from the US and Australia might be impacted due to their longer journeys.

Rains in Indonesia's Kalimantan coal-producing region continue, but it is not heavy enough to impact production, this source said.

Platts assessed the daily 90-day prices for FOB Kalimantan 5,900 kcal/kg GAR at $90.25/mt, and 5,000 kcal/kg GAR at $70.50/mt, both unchanged from Friday. They are down 75 cents and 25 cents, respectively, since April 2.

— *Deepak Kannan*

S Korean utilities ink 10-year deals for US thermal coal with Ambre

Perth — Two South Korean power utilities have signed in-principle agreements to buy US thermal coal from Ambre Energy in 10-year deals worth a combined $2.5 billion, the Australia and US-based coal producer said in a statement Sunday.

The deals highlight the growing importance of US thermal coal to Asian coal buyers, the company added.

Korea South-East Power Co. has agreed to buy 3 million st/year and Korea Southern Power Co. 1 million st/year of thermal coal from Ambre's US coal mines over 10 years.

An Ambre spokesman said the deals were signed on Friday April 27.

The South Korean power companies will also invest A$20 million ($20.9 million) in Ambre Energy following its listing on the Australian Securities Exchange, which is planned for mid-2012, the company said. They will also provide more funding for expansion in the US and Australia, Ambre added.

"With this strategic partnership we have put in place one of the final building blocks required to achieve our vision of creating an integrated thermal coal mining and export business," Ambre Energy managing director Edek Choros said in the company's statement.

South Korea's five power utilities currently import around 110 million mt/year of thermal coal, which comes mostly from Australia and Indonesia and to a lesser degree from Colombia, Russia and South Africa.

The coal supply agreements for Kosep and Kospo will start once Ambre Energy's Morrow Pacific coal export terminal is commissioned in the US state of Oregon, linked by the Union Pacific railway to coal mines in Colorado, Montana, Wyoming and Utah.

At Port Morrow on the US west coast, Ambre Energy plans to build a marine terminal that will receive thermal coal barged down the Columbia River for shipment to Asian markets on Panamax ships.

"Ambre Energy expects to make significant progress on this development over the coming year with a goal to barge and ship first coal to Asia in 2013-14," Ambre said.

The company currently has a 50% stake in two US coal mines, the Decker coal mine in Montana's Powder River Basin, which is a joint venture with Cloud Peak Energy; and the Black Butte mine, a joint venture with Anadarko Petroleum in Wyoming.

The Decker mine and Black Butte mines each produce about 3 million st/year of low ash, low sulfur sub-bituminous thermal coal, which is currently sold in the domestic market.

Millennium bulk terminals at Longview in the state of Washington is set to be the next coal-loading facility to be commissioned by Ambre Energy in 2014-15. The facility is located on the site of a former aluminum smelter operated by Alcoa that closed in 2001, according to information on Ambre's website.

The Millennium bulk terminals project is a joint venture between Ambre with a 62% stake and US coal producer Arch Coal with a 38% stake. It is accessible by the Union Pacific and Burlington Northern Santa Fe railways.

Ambre said on its website that its new port capacity will help it access the Asian seaborne market, a key obstacle currently.

Ambre has 100% interest in two coal deposits in Black Horn and Rosebud in Wyoming and stakes in coal-to-liquid fuel and coal exploration projects in Australia.

— *Mike Cooper*

Clarification

Platts would like to clarify that it has updated its methodologies for the Virtual Freight, Freight Differential and CIF ARA carbon-adjusted prices published daily on page 1 of Coal Trader International, to include the formulae for the calculation of these prices.
The updated methodologies are available to view at: http://www.platts.com/MethodologyAndSpecifications/Coal

China coal producer Shenhua Energy Q1 net profit up 6.3%

Huaihua, Hunan — China Shenhua Energy Co., the listed subsidiary of China Shenhua Group, posted net profit of Yuan 11.18 billion ($1.78 billion) in the first quarter of 2012, up 6.3% year on year, the company said Saturday.

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Tuesday, April 30, 2013 2:17 PM ET

Japan imports record amounts of steam coal, LNG in FY'13

By Kalayaan Teodoro

Coal and LNG imports into Japan were at record highs for the fiscal year ended in March due to power utilities using more fossil fuels after the Fukushima Dai-ichi nuclear incident in 2011, Reuters reported April 30.

Japan imported 106.3 million tonnes of thermal coal in fiscal 2012-2013, up 4.5% year over year and surpassing the previous record of 105 million tonnes set in the fiscal year ended in March 2011, according to the report.

Japan, the world's top purchaser of LNG, also brought in 86.9 million tonnes of the fuel in fiscal 2012-2013, an increase of 4.4% over the previous fiscal year's record high.

The Japanese government reportedly is speeding up approval for new coal-fired power plants as coal and natural gas usage increases with the decline of nuclear power in the country.

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ASIA BUSINESS | May 21, 2013, 11:33 p.m. ET

Japan Increases Coal Use at Expense of Oil

Tepco Started Two Coal-Fired Units in April, Boosting Demand for Relatively Cheaper Coal While Limiting Oil Use

By MARI IWATA

TOKYO—Japan's thermal coal imports rose while oil imports fell in April, reflecting increased coal-fired output at electricity utilities. The trend of coal replacing relatively more expensive oil will likely continue until the summer, as higher temperatures could force generators to use all available capacity.

Japan's imports of thermal coal totaled 7.8 million metric tons in April, up 10% from last April, Ministry of Finance data showed Wednesday. Crude-oil imports fell 2.2% to 18.7 million kiloliters, or 3.93 million barrels a day, the ministry said.

Last month, Tokyo Electric Power Co., Japan's largest power utility by capacity, started operations at its one-gigawatt Hitachinaka No. 2 unit and 600-megawatt Hirono No. 2 unit, both northeast of Tokyo, accounting for a significant portion of the increase in coal consumption.

A pair of one-gigawatt coal-fired units at Tohoku Electric Power Co.'s Haramachi generation site that came online in December also contributed to the on-year rise in coal demand. The No. 1 and No. 2 units at Haramachi had both been out of commission since the earthquake and tsunami in March 2011.

Both Tokyo Electric, known as Tepco, and Tohoku Electric cut their oil consumption as they increased power output from coal in a bid to cut costs, spokesmen at each company said previously. Generators save more than two-thirds when they burn coal instead of oil.

"Coal demand will remain strong because utilities use it as base load," said Yuji Morita, senior research fellow at the Institute of Energy Economics Japan, adding that "weak oil demand may be only temporary at a time when power consumption is seasonally low."

The Japan Meteorological Agency has forecast temperatures will likely be somewhat higher than normal this summer.

Write to Mari Iwata at mari.iwata@dowjones.com

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Thursday, April 25, 2013 10:59 AM ET

Report: Japan to fast track approval of new coal-fired power plants

By Kalayaan Teodoro

Japan is planning to fast track the environmental assessment process for new coal-fired power plants as the nation's power sector is under pressure to drive down costs, *The Canberra Times* of Australia reported April 26, citing Japanese local publications.

The normal approval process for new coal-fired plants can take up to four years, according to the report. The Japanese government aims to reduce the processing time to 12 months maximum. The country's commitment to reduce 2020 carbon emissions by 25% will also be revised in October, according to local media.

Coal-fired power plants that have started operations in 2013 are expected to consume 11.5 million tonnes of coal per year, *The Times* reported.

Meanwhile, Tokyo Electric Power Co. has called for tenders for the construction of new coal-fired power stations with 2,600 MW of capacity to replace lost nuclear capacity and aims to have the stations in operation by the end of the decade. The company is reportedly adding coal-fired generation capacity of about 2.6 GW from two new plants that came online in April and electricity bought from two units owned by Tohoku Electric Power Co. Inc.

The closure of much of Japan's nuclear power after the Fukushima Dai-ichi incident has caused the country to rely on expensive oil as fuel for its power plants, driving up energy bills and causing the government to look to coal as a cheaper alternative. Tohoku Electric Power recently settled a steam coal contract with Xstrata plc at a four-year-low price of $95/tonne.

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Leeuwpan, Matla and Arnot produce 3 million mt/year, 14 million mt/year and 5 million mt/year of coal respectively and mainly supply thermal coal to power stations owned by state-run generator Eskom in "cost-plus" agreements.

However, South African national power generator, Eskom, admitted Thursday that there has been very little coal delivered to its power stations during the 10-day wildcat strikes.

Eskom spokesman Hilary Joffe said the utility had 48 days worth of coal stockpiles Thursday, which were running down as the strikes wear on.

"There has been very little in the way of coal deliveries since the strike began and we are becoming concerned. At this time of year we are usually building up our stockpiles ready for winter, but instead we have had to run them down," Joffe said.

Anglo workers briefly down tools

Workers at Anglo American's Kleinkopje thermal coal mine also briefly downed tools Tuesday, indicating that the spate of unofficial strikes may be spreading to other South African coal producers.

An Anglo spokesman confirmed Wednesday that workers at the mine near Witbank in the Mpumalanga province had staged an illegal walkout Tuesday morning, but the dispute had been resolved by late afternoon, with the night shift unaffected.

The spokesman did not specify the reasons for the strike, although he told Platts that it was an "isolated incident over internal issues specific to the mine" and Anglo did not expect it to spread to any of its other operations.

— Jacqueline Holman & Chris Bishop

Turkey licenses new 600 MW coal-fired power plant

Istanbul — Turkey's energy regulator EPDK has issued a generating license to Turkish company Filiz Enerji for a 600 MW thermal plant to be sited at Lapseki on the south side of the Dardanelles straits on the Sea of Marmara.

Speaking to Platts, a spokesman for Filiz confirmed that the newly licensed plant will burn imported hard coal and that the company is tentatively planning to commission it by the end of 2015.

Interest in developing new coal-fired plants in Turkey has surged since announcements last year by energy minister Taner Yildiz that the country needs to diversify away from over-reliance on imported gas.

And at the end of last year deputy prime minister Ali Babacan said that an existing investment incentive scheme will be extended to include the development of coal-fired power plants.

Already this year the EPDK has issued a generating license to Turkey's park Elektrik for a 500 MW plant burning locally produced lignite.

In addition, the EPDK has received license applications from two companies planning to develop plant burning locally produced lignite: KLK Madencilik (660 MW) and Teyo Yatirim (720 MW), and from three companies planning to develop plants burning imported coal: Sanko (810 MW), Atakas Elektrik (660 MW) and Suba Enerji (1,370 MW).

Late last year saw the signing of an MoU between Turkey and Abu Dhabi under which Abu Dhabi power company TAQA will develop up to 8 GW of new generating capacity burning lignite from Turkey's giant Afsin Elbistan lignite field.

— David O'Byrne

Production suspended at part of Prodeco's Calenturitas coal mine

Barranquilla — Colombia's environment authority ANLA has suspended production in a section of Glencore unit Prodeco's Calenturitas thermal coal mine as a preventive measure for alleged violations to its environmental license, Prodeco said late Monday.

ANLA specifically prohibited mining from the CD section of the Calenturitas mine, stating that Prodeco mined coal outside of the permitted territory as stipulated in the license, Prodeco said in a statement.

Prodeco has decided to abide with the measure, but is appealing, it said.

"The preventive measure imposed by ANLA implies, unfortunately, various effects in the normal progress of our operations, including a reduction in coal production in the Calenturitas mine, the temporary suspension of work done by our employees on the CD sector, and the corresponding effect in royalty and tax payments to the nation," Prodeco said.

The miner, however, did not specify how much coal would be shut in due to the measure.

Prodeco mined 14.8 million mt of coal in 2012, a 1% increase on-year, making it Colombia's third largest thermal coal exporter. The company is also on-track to increase its production to 20 million mt by 2014, with the construction of a new coal export terminal, Puerto Nuevo, which should be operational by the end of the first half of 2013.

Prodeco was one of the few companies not affected by a series of export disruptions in December, which included an ANLA temporary ban on coal exports from Colombia's second-largest exporter, Drummond and an ongoing strike at Colombia's largest exporter, Cerrejon.

— Jaime Concha

India's Reliance Power commissions first unit of Sasan UMPP

New Delhi — Indian private sector power producer Reliance Power Monday announced that the first 660 MW unit at its 3,960 MW ultra mega power project (UMPP) in

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Sasan, Madhya Pradesh in central India has been successfully synchronized.

Coal production has already started from two captive blocks allotted for the Sasan UMPP, while the third coal block has also received forest clearance and is under development, the company said in a statement. The blocks have a production capacity of about 20 million mt/year.

Reliance Power said the project would be the first integrated coal mine and super-critical power plant to be commissioned in India.

It added that the project's electricity generated would be sold to 14 distribution companies across seven states benefiting an estimated 350 million people.

Reliance Power, part of the Reliance Group, has a generating capacity of 1,840 MW. It is also developing three coal mines in Indonesia.

Sasan is the second UMPP to be connected to the grid after Tata Power's 4,000 MW UMPP in Mundra, Gujarat. The Mundra UMPP recently became fully operational.

— Sapna Dogra

COKING COAL / COKE / STEEL

Asia coking coal seaborne prices continue to dip on Chinese chill

Singapore — Coking coal prices fell further Friday as Chinese steelmakers continued to retreat from the spot market because of uncertainty in the steel market.

Several sources from large Chinese trading houses Friday were reluctant to discuss anything related to price since they felt that it was meaningless in the current illiquid market.

"We are expecting most domestic miners to cut prices at the end of March and early April," a Beijing-based trader said. "I will wait for it."

A trading source agreed that, given the current faltering steel prices, procurement of raw materials such as coking coal would necessarily have to wait.

"People just don't have confidence in the near-term market," a second Beijing trader said. He believed that BHP Mitsubishi Alliance's Saraji HCC would have great difficulty finding a buyer even if it was offered at $172/mt CFR China.

Perhaps reflective of current souring sentiment, another trading source said it is "meaningless talking about prices. It is impossible to make any deals now."

Platts assessed premium low-vol hard coking coals $2/mt lower at $159/mt FOB Australia Friday. Second-tier HCCs also declined by $1.50/mt to $144.50/mt FOB.

A purchasing manager from a large Chinese steel mill said his plant had changed their blending plans and was now aiming for second-tier HCC instead of premium low-vols HCC. "We don't have any purchasing plan now for Peak Downs or Saraji," he said.

He said he might consider $150/mt CFR China for Australian 60-63% CSR HCC with 21-22% VM and 7 CSN.

Indicative offers were also heard by a trading source at $155/mt CFR China for Indonesia mid-vol HCC with 60% CSR.

There was however some support to Friday's market from an end-user who was willing to pay around $160/mt CFR China for such material, though only for a small volume.

Chinese mills plan to cut coal inventory

Smaller mills in south China were also said to be planning to cut coking coal inventory to only seven days — which places constraints on accepting any Panamax cargoes, one trader said.

Such steps, unheard of before, would mean mills would be looking more towards port stocks rather than seaborne shipments, the source added.

"70,000 mt is too much for some mills to digest."

One trader withdrew his bid for a Panamax cargo yesterday due to interest only in smaller volumes.

Another mill situated in central China also said that their coking coal inventories also have been reduced from 25-30 days to 15 days.

A source who recently visited the ports at Jintang said that there was little activity going on in the coal yards — another sign that there was lack of even domestic coking coal trading activity going on.

"It is just not a good time to buy or sell anything."

In the domestic coking coal market in north China, coking coal prices had also started to decline due to dropping coke prices and reduced demand from coke plants.

A Beijing-based trader also reported quite weak demand from coke plants at Tangshan region: "They have cut production to 70-80% from full capacity."

Coke plants and mills have sent inquiries to major Chinese miners to cut price.

Separate trading sources reported offers for Australian second-tier HCC with 60-63% CSR and above 20% VM at only Yuan 1,150-1,160/mt ex-stock, and the seller was "open for negotiation."

Canadian high-CSR HCC was also reported to be indicatively offer at Yuan 1,200/mt ex-stock for 65-70% CSR, 25% VM, 85 G-value and 15 Y-value.

Meanwhile, a Hebei-based mill source said he had just bought an Australian premium low-vol HCC at Yuan 1,290/mt delivered to mill with credit.

Platts assessed premium hard coking coal in northern China at Yuan 1,270/mt ex-stock ($204/mt), Yuan 50/mt lower comapred with last week, and and standard-quality HCC fell by Yuan 70/mt to Yuan 1,160/mt ex-stock. Prices include VAT.

Indian coke tenders

Elsewhere, the Bokaro plant of India's state-owned Steel Authority of India (SAIL) awarded its coke procurement tender at Rupee 17,700/mt delivered to

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becoming a significant supplier to the export market, he said it will in 5-10 years but not in the next 2-3 years.

He said the outlook for the US domestic market continues to be bleak, with a wave of environmental legislation removing 40GW of coal-fired generating capacity in the next couple of years.

Natural gas continues to have the biggest impact on coal burn in the US, but with gas prices moving up to and stabilising at around $4, Vining said gas storage levels are beginning to decline.

"The question is, are the gas producers going to produce themselves back into a $2-3 market? Probably not".

And while coal stockpiles in the US remain very high, Vining said there is a glimmer of hope on the horizon that stock levels will finally begin to erode.

He said: "We're still fat, we've still got a lot of inventories in the US. But $4 gas and the continuation of favourable weather patterns should see inventories drop to normal by the end of the year."

US exports hit record level in March

STRONG DEMAND FOR thermal and coking coal pushed US exports to a new record high in March, surpassing any previous total since the US government began compiling data in 1973.

Exports for the month totalled 13.64mt, up 42% from February's 8.63mt and 23.2% higher year-on-year, according to data released by the US International Trade Commission (USITC).

Thermal coal exports in March reached 6.22mt, up 69.8% from February's total of 3.30mt and up 25% year-on-year.

More than half of the thermal coal, approximately 3.80mt, was delivered to Europe. The United Kingdom received 1.16mt of US coal in March, the first time the total amount surpassed 1.0mt since July 2012. Exports to the Netherlands (0.933mt); Italy (0.533mt); France (0.456mt) and Germany (0.372mt) also posted year-on-year increases.

Coking coal exports in March totalled 7.42mt, up 25.9% from February's total of 5.32mt and 22% higher than the same month in 2012.

Asia was the biggest destination for coking coal, taking 3.69mt. Exports to China were 1.27mt in March, the highest amount since June of last year. Exports to Japan hit 0.64mt in March followed by South Korea (0.55mt) and India (0.34mt). With the exception of India, exports to all Asian destinations increased year-on-year.

Brazil was the second largest export destination for US coking coal in March receiving 0.88mt, an increase of 21% year-on-year.

Coking coal exports to Europe declined 12% year-on-year in March to 2.38mt. Turkey remains one of the bright spots in the European market for US coking coal. The country took 0.74mt in March, the highest amount on record.

Exports of both thermal and coking coal in Q1 totalled 31.84mt, up by 11% from the same corresponding period in 2012. Coking coal exports in Q1 totalled 18.45mt up 4.8% year-on-year, while thermal exports during the period totalled 13.39mt, up 21.2% from 2012.

Industry observers believe March will be the high point for US exports in 2013.

"We are really impressed with the amount of thermal coal that shipped in March," one source said. "Coal from Central Appalachia and the Illinois Basin made a strong showing. However, the general consensus is that US exports will decline by 10 to 15mt this year. The reduction could even be higher, so March will probably be the best month for US exports. We believe export numbers will begin to fall going forward."

Indian imports could hit 266mt by 2017 – Mjunction

TOTAL INDIAN COAL imports will reach between 185-266mt by 2017, from current import levels of around 135mt, due to increasing demand and a growing shortfall from domestic supply, Viresh Oberoi, CEO and managing director of broker mjunction told delegates at the *IHS McCloskey European Coal Outlook Conference* in Nice.

Oberoi said the wide range of predicted import levels is largely because of uncertainty around the growth in domestic coal production over the same period.

The growth in coal demand will be fuelled by increased consumption from the power, steel and cement sectors, he said.

Total Indian power capacity is expected to increase by 100,000MW between 2012-17, with around 70,000MW being met by coal-fired capacity, compared to levels in 2011, according to Oberoi. This will lead to utilities and captive power plants consuming a total of 739mt/yr of thermal by 2017, he added.

In terms of steel production, India's total annual capacity will rise to 126mt by 2017 with an addition of 52mt compared to 2011 levels, while steel plants will consume 67mt/yr of met coal, he said.

Meanwhile, cement production will rise to around 407mt by 2017, compared to 224mt in 2011, with cement producers consuming around 48mt/yr of thermal.

Coal imports are expected to be made up of between 110-135mt of Indonesian material, 40-48mt from Australia, 25-37mt from South Africa and 10-20mt from the US and elsewhere, according to Oberoi.

Projected coal demand including domestic and imports is expected to hit 981mt/yr.

In terms of domestic coal production, the current level of 560mt/yr would rise to 715mt/yr based on current rates, but to 795mt/yr in a "best case scenario", as output fails to keep pace with growing demand, he said.

In 2012, India imported 35.20mt of met coal and 123mt of thermal coal.

There is already $1.12tn allocated for infrastructure growth in the government's 12th five-year plan from 2012-2017, with electricity making up $300bn of the total and ports and railways a combined $144bn.

PEOPLE

Linares ratified as Drummond president

JOSE MIGUEL LINARES has been ratified as Drummond's president in Colombia after serving as interim president since January 1 this year.

He replaces Augusto Jiménez, who stepped down at the end of last year after 23 years in charge of one of Colombia's largest coal producers.

Prior to this, Linares was vice president of legal and corporate affairs at Drummond. He has been working at the company for more than 23 years. The appointment has been well received by the company's workforce ahead of upcoming pay negotiations. Linares is well liked by the workers and the government bodies in charge of coal.

Linares said: "This appointment is a vote of confidence that the Drummond family, company executives and colleagues have placed in me after 23 years of career growth within the company."

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where it plans to retire four coal units totaling 595 MW. It is also retiring two coal units, totaling 323 MW at its Yorktown plant, also in Virginia, and keep an 818-MW oil-fired unit running as a peaker.

— Peter Maloney

Coal stocks at Indian ports down marginally on week: Interocean

Singapore—Major ports in India had about 10.3 million mt of coal stockpiles as of Saturday, compared with 10.7 million mt a week earlier, according to data released Monday by Interocean Group, a New Delhi based ship broker.

The stocks recorded Saturday included 8.28 million mt of thermal coal, 2.01 million mt of coking coal, and 9,168 mt of anthracite and petcoke, the data showed.

Paradip port on India's east coast had the highest total stockpile, 2.7 million mt, which was flat week on week. Next was Krishnapatanam port with 1.4 million mt, down from about 2 million mt the previous week.

Haldia port on the east coast had the highest stockpile of coking coal at 587,200 mt, down from 609,700 mt a week earlier, the data showed.

India's coal imports have remained high due to a shortage in domestic supply. In March, the country imported about 11.8 million mt of coal, of which about 2.1 million mt was coking coal and the rest was thermal coal.

— Deepak Kannan

Petrovietnam to push ahead with coal-fired power plants in next 3 months

London—State-owned Vietnam Oil and Gas Group (Petrovietnam) will speed up procedures and arrange capital required for the timely construction of its coal-fired power plants during the next three months, the chairman of the energy company said earlier this month.

The projects include Vung Ang-1, Thai Binh-2, Long Phu-1 and Song Hau-1 coal-fired independent power producer plants, which together have about 5,000 megawatts of capacity.

Petrovietnam also owns a 6-MW operational wind farm at Phu Quy and a 3.2-MW small hydropower plant at Nam Cat. However, most of its future projects will be large-scale coal-fired plants, with the company planning to supply 20% of national output by 2015.

The first of Petrovietnam's coal-fired projects that is scheduled to enter operation is the 1,200-MW Vung Ang-1 plant in the Vung Ang Economic Zone in Ha Tinh province. The two 600-MW subcritical units began construction in 2009 and are scheduled to enter operation in June 2013 and December 2013, respectively.

The plant will burn 3.2 million mt/year of indigenous coal with a heating value of around 5,050 kcal/kg and an ash content of 25%, with the coal being supplied by the state miner Vinacomin and delivered through dedicated wharves at Vung Ang port.

Several other coal-fired projects are due to follow the commissioning of Vung Ang-1. The two 600-MW subcritical units comprising the 1,200-MW Thai Binh-2 project at My Loc commune in the Thai Thuy district of Thai Binh province secured an investment license in 2012 and are scheduled to be commissioned in September 2015 and March 2016, respectively.

Thai Binh-2 will be supplied by Vinacomin with around 3 million mt/year of indigenous coal with a heating value of around 5,300 kcal/kg and an ash content of up to 30%.

1,200-MW Long Phu-1 to use imported coal

While the Vung Ang-1 and Thai Binh-2 projects are both predicated on the use of local coal, the 1,200-MW Long Phu-1 project at Long Duc commune in the Long Phu district of Soc Trang province is projected to use imported coal. Long Phu-1 will comprise two 600-MW supercritical units that are projected to use 3.2 million mt/year of coal imported from Indonesia and Australia, and with a heating value of around 5,725 kcal/ kg and maximum ash content of around 15%.

The 1,200-MW, $1.633-billion Song Hau-1 project at Phu Huu A commune in the Chau Thanh district of Hau Giang province is similar to Long Phu-1. It will comprise two 600-MW supercritical units that are projected to use

Petrovietnam projects offered for foreign investment

Project	Owner	Province	Capacity	Type	COD	Investment, $m	% offered
Nhon Trach-1	PV Power	Dong Nai	450	Gas	2009	322	49
Song Hau-1	Petrovietnam	Hau Giang	1,200	Coal	2017, 2018	1,633	49
Thai Binh-2	Petrovietnam	Thai Binh	1,200	Coal	2015, 2016	1,656	49
Vung Ang-1	Petrovietnam	Ha Tinh	1,200	Coal	2013	1,595	49
Quang Trach-1	Petrovietnam	Quang Binh	1,200	Coal	2016	1,778	49
Long Phu-1	Petrovietnam	Soc Trang	1,200	Coal	2015, 2016	1,595	49
Hua Na	PV Power	Nghe An	180	Hydro	2013, 2013	288	49
Dak Drinh	PV Power	Quang Ngai	125	Hydro	2013	238	35
Hoa Gang	Petrovietnam	Binh Thuan	49.5	Wind	2014	83	49

Source: Petrovietnam

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The country's first-quarter coal imports grew 27.3% year over year to 63.8 million tonnes, as a domestic surfeit of the resource lowered prices of imported coal and encouraged utilities to look to overseas suppliers, Reuters said.

Imports of coking coal in March rose 11.9% to 4.6 million tonnes compared to the same month in 2012, bringing total imports of the steelmaking fuel to 17.2 million tonnes.

Indonesia was once again the top coal supplier to China, selling 6.0 million tonnes in March, up from 5.1 million tonnes in the previous month and up almost 19% year on year. Traders told Reuters that the surge in Indonesian imports was due to China's increased demand for low-sulfur subbituminous coal, which is often used for blending purposes.

China's imports from Australia were at 5.7 million tonnes in March, up 55.7% compared to the year-ago period.

The price of thermal coal at Qinhuangdao, China's largest shipping port for the fuel, fell to its lowest in more than three years, according to an April 22 Bloomberg News report. Prices for coal spec'd at 5,500 kilocalories per kilogram dropped to 605 Chinese yuan from 615 yuan as of April 21, according to data from the China Coal Transport and Distribution Association obtained by Bloomberg.

Coal stockpiles dropped 15% to a five-month low of 5.8 million tonnes from the week of April 15, due to maintenance work at major coal railway Daqin. The railway, which connects Shanxi province to Qinhuangdao and handles a third of all rail-transport coal in China, is conducting maintenance from April 13 to May 7. Around 290,000 tonnes per day of coal shipments are affected, according to the association.

Even with the resurgence of coal imports, producers and traders expect shipments to fall in the second quarter as Chinese demand for thermal coal stalls, Reuters said. A senior industry official recently said that the "golden decade" of coal power ended in 2011.

As of April 19, US$1 was equivalent to 6.18 Chinese yuan.

Report: Malaysia short-lists 5 companies to build 2,000-MW coal plant

Malaysia's Energy Commission has initially short-listed five companies for the 2,000-MW Project 3B coal-fired power plant to be developed at their respective proposed sites in the country, London's *Energy Business Review* reported April 19.

The plant will be built at a cost of 12 billion Malaysian ringgit and commissioned in stages in October 2018 and April 2019, according to the report.

The five companies are 1Malaysia Development, Formis Resources, Tenaga Nasional, Malakoff and YTL Power International. All the bidders have either foreign or local partners, the report said.

1Malaysia Development plans to build the plant at Negri Sembilan, while Malakoff has proposed Selangor. Formis and YTL Power have both proposed Johor, while TNB plans to build the plant at Perak, according to the report.

The commission received seven requests for qualification submissions for the power plant project on March 11.

As of April 18, US$1 was equivalent to 3.03 Malaysian ringgit.

Lots of interest in Rio Tinto's assets for sale, CFO says

Global miner Rio Tinto Plc told shareholders that there is a lot of interest in the company's list of assets up for sale, Reuters reported April 18.

The company addressed concerns that it could not find buyers at a good price, Reuters said. Included in the list of assets on the market are $3 billion of stakes in several thermal coal mines in Australia.

"It is the case that we will have a lot of appetite for the assets that we are considering the sale of," said Guy Elliott, Rio Tinto's outgoing CFO. "There are plenty of buyers — many of them customers, sovereign wealth funds, competitors. There is a long list of them that is well financed and able to buy these assets."

In January, Rio Tinto recorded a massive write-down on its investments, including coal assets in Mozambique, which caused former CEO Tom Albanese to step down. Rio Tinto said there was still potential for its Mozambican operations, according to the report.

Rio Tinto, which is in danger of a credit rating downgrade, recorded a full-year 2012 loss of $3 billion.

Poland to move away from coal, seek low-cost alternatives, minister says

Poland is moving away from its reliance on coal-fired power generation and is seeking low-cost electricity alternatives, Bloomberg News reported April 25, citing Environment Minister Marcin Korolec.

Korolec said he is seeking to phase out subsidies for clean power and fossil fuels, even as the country moves to replace its aging power stations. "Maybe we have to introduce a phase-out of energy subsidies in all areas, a phase-out of fossil fuel and also renewable energies and concentrate on those technologies which are commercial," he said at an energy conference in New York.

Poland is facing pressure from the European Commission to implement rules for renewable energy. The nation was one of those that voted to block the EU's proposal to increase the price of CO2 emissions, according to the report.

Korolec was skeptical about carbon capture and storage technology, which could reduce pollution from Poland's coal-fired plants. "CCS is a beautifully romantic story, but I don't see it. It is cheaper to build a gas plant," he said.

Europe will need more coal- and gas-fired power plants to back up the use of renewables in power generation, according to a grid operators group in the region.

Scottish Coal goes into administration, cuts 590 jobs

Scottish Coal has cut 590 jobs at its mining operations in the U.K., and its directors have put the company into administration, an alternative to liquidation, BBC News reported April 19.

Scottish Coal is a unit of Scottish Resources Group plc, which said in March that it planned to lay off 450 workers due to financial woes brought about by weakening coal prices and high operating costs. The company's six open-cast coal mines in East Ayrshire, South Lanarkshire and Fife have been shut down.

The company's administrators plan to secure the sale of certain operations as well as key assets in the coming weeks, BBC said. "It is still possible that mining operations will continue and offer future employment prospects for at least some of the people who have lost their jobs today," said Blair Nimmo of KPMG, joint provisional liquidator.

The U.K. coal sector has seen a number of challenges in the past months, with miners UK Coal Mine Holdings Ltd. and Hargreaves Services closing down some operations and ATH Resources Plc going into administration.

India's Jindal Steel to revive Mmamabula energy project in Botswana

India's Jindal Steel & Power, or JSPL, aims to revive the Mmamabula energy project in central Botswana, Xinhua News reported April 19, citing local media.

JSPL plans to develop the 2.7 billion-tonne Mmamabula coal asset, targeting construction of a 3,600-MW power station and exporting millions of tonnes of the fuel annually. The company has finished technical and financial studies for eight mining complexes, and there are multiple studies ongoing for power generation, according to Tony Zebert, head of Jindal Africa.

"We are looking at coal exports through Walvis Bay in Namibia and development of power station within 36 to 42 months, depending on discussions we are having here and within the region as well as the regional power situation," Zebert said.

JSPL also plans to include coal-to-liquids technology as part of the project, according to the report. "We will be bringing [coal-to-liquids] technology and expertise from India to Africa," Zebert said.

In September 2012, JSPL acquired CIC Energy, which had been developing the project prior to the acquisition.

Yancoal Australia's coal sales decline 12% in Q1'13

Yancoal Australia Ltd. reported sales of 1.4 million tonnes of metallurgical coal and 1.9 million tonnes of thermal coal from its equity interests in Australian coal mines, according to the company's production report for the March quarter.

Overall coal sales declined 12% from the year-ago quarter, the company said.

Yancoal produced 5.2 million tonnes of run-of-mine coal in the quarter ended March, up 11% from 4.7 million tonnes in the comparable period of

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The company's thermal operations in Mozambique were impacted by heavy rain in January and February with a force majeure called for two weeks due to the closure of the rail system.

In 2012, Rio Tinto produced 20.7 million tonnes of thermal coal, up from 17.8 million tonnes in 2011.

Some analysts have suggested that the global thermal coal market remains oversupplied and more production cuts are needed to restore market balance, which is not forthcoming. Meanwhile, annual price negotiations between Japanese utilities and Australian producers "appear to be in stalemate," according to one recent report.

Rio Tinto said production of hard coking coal used in steelmaking in the first quarter 2013 was 1.5 million tons, 10% below the year-ago period. Coal production at its Hail Creek operation in Queensland was impacted by lower-than-expected overburden removal during 2012, as well as wet weather. Additionally, a planned shutdown of the Kestrel mine coal-handling plant was undertaken during March for upgrade works as part of the Kestrel mine extension.

The company expects that 2013 hard coking coal production will be 8.5 million tonnes, up from 8 million tonnes in 2012.

Semisoft coal production rose 72% in the first quarter 2013 to 1 million tonnes "as operations in the Hunter Valley changed their production profile to take advantage of the stronger short term market for alternate product to hard coking coal due to wet weather in Queensland," Rio Tinto said.

For full year 2013, semisoft coal production is expected to be 4 million tonnes, up from 3.3 million tonnes in 2012.

COMPANY REFERENCED IN THIS ARTICLE:

Rio Tinto Plc **RIO**

PR: Rio Tinto PLC: First quarter 2013 operations review

E-mail this story.

Report: Demand for Indonesia's low-grade coal surges

by Rohan Somwanshi

The demand for Indonesia's low-grade coal has been increasing due to its voluminous supply in the country, Indonesia's *Jakarta Globe* reported April 16, citing a representative of the coal mining industry.

"Five years ago, the demand for Indonesian coal was typically for that with a heating content above 5,000 to 5,500 kilocalories per kilogram. Now the demand is increasing significantly for coal with a heating content of 4,200 [kilocalories per kilogram] and demand for coal with a heating content of 3,800 is starting to steadily increase," said Bob Kamandanu, chairman of the Indonesian Coal Mining Association.

"The buyers acknowledged that Indonesia has plenty of middle- or low-grade coal, so they based their power plant construction on the abundant supply from this country," Kamandanu added.

Low-grade coal contains heating value below 4,500 kilocalories per kilogram, according to the report.

Indonesia's coal production grew 2% to 3% in the first quarter of 2013, while low-grade coal output rose 20% in the same period, according to Kamandanu. The country's low-grade coal is expected to account for 50% of the country's total output in 2013. Indonesia's coal output may reach 400 million tonnes in 2013, up 5.2% from 2012 levels.

According to an earlier report, Indonesia has started implementing a plan that will no longer allow exports of low-quality coal by the end of 2013, in a move to revive the country's power sector.

E-mail this story.

Indonesia meets coal target for Q1, produces 99 million tonnes

by Kalayaan Teodoro

Indonesia has met its coal production target for the first quarter, *The Jakarta Post* reported April 16, citing a government official.

The country produced 99 million tonnes of coal in the first three months of 2013, which is the initial target set by the Energy and Mineral Resources Ministry, according to Edi Prasodjo, coal director of the ministry.

About 80% of the output, or 80 million tonnes, was exported to major coal consumers such as China and India, Prasodjo said.

Indonesia, the world's largest thermal coal exporter, is targeting to produce 391 million tonnes of thermal coal for 2013. Roughly 74 million tonnes will be allocated for domestic customers as part of the country's domestic market obligation, and the rest will be exported, Prasodjo said.

The Indonesian Coal Mining Association estimated that the country's 2013 coal production could reach 400 million tonnes, with exports reaching 330 million tonnes, according to earlier reports.

E-mail this story.

Cardero Resource further extends option to acquire met coal project in Canada

by Rohan Somwanshi

Canada-listed Cardero Resource Corp. said April 16 that it has extended an option to acquire four coal licenses that form part of the Carbon Creek metallurgical coal project in British Columbia.

The deadline to exercise the option has now been extended to April 22 from April 14, Cardero said in a news release. Under the new terms agreed with the targeted private company, Cardero paid a nonrefundable deposit of C$1 million on April 12, with C$3 million balance and 400,000 shares due upon exercise of the option.

Cardero said it also is negotiating a private placement of US$5.5 million of senior secured notes with certain affiliates of Luxor Capital Group LP. The net proceeds of the notes will be used to fund the option and for working capital purposes.

Under the private placement offering, the notes are expected to have a one-year term. The notes will be secured by a general security agreement over the assets of the company, as well as a specific pledge of the shares of Cardero Coal Ltd.

As a bonus for subscribing for and purchasing the notes, the holders of the notes will, subject to regulatory process, be issued an aggregate of 2 million common shares of the company. The bonus shares will be subject to a four-month hold period in Canada from the date of issuance, according to the release.

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mates to $175/mt CFR after deducting 17% VAT and Yuan 30/mt port charges.

"Highway transportation trouble caused by cold weather keeps supply tight, and inventory levels at mills were not high enough to ignore the effect," a purchasing manager with a north China steelmaker said, "so port stock HCC prices saw some increase."

However, purchasing managers said they are very reluctant to accept the increase given lean profits at mills currently, and one pegged the tradable level at Yuan 1,280-1,290/mt ex-stock, equivalent to $169-171/mt CFR.

Meanwhile, prices for Mongolian HCC with around 23% VM, 9% ash and 0.5% sulfur also saw some small increment to around Yuan 1,250-1,280/mt delivered Tangshan, according to a trading source. The price was slightly higher than the Yuan 1,250/mt Tangshan delivered price reported by another trader two weeks ago.

Strong PCI demand persists

PCI demand continued to be strong given good steel prices, tighter supply and higher domestic PCI prices.

Australia PCI, with 13-15% VM and 9% ash was heard offered to China at $147-148/mt CFR China, although some market participants felt that it was high.

One trader however expressed some interest in the material since he held an optimistic view for the market in the near term.

A mill source partly agreed, saying that he might consider paying $145/mt CFR for BMA's South Walker Creek PCI.

Not many cargoes were heard offered in the market and "miners also seem holding back a little bit," another trader added.

Demand for semi-soft was also strong in China. An east China trader said he would pay around $130/mt CFR for Indonesia semi-soft with 37-38% VM and below 1% sulfur, considering a port stocks price level at Yuan 1,040-1,050/mt ex-stock at north China ports, Jingtang and Rizhao. The price approximates to $137-138/mt CFR.

— Edwin Yeo, Helena Sheng

India begins CIL restructuring process, invites expressions of interest

New Delhi — India's coal ministry Monday invited expressions of interest from consulting organizations to help restructure the country's largest coal producer Coal India Limited as recommended by the Planning Commission.

The expressions of interest have to be submitted within 15 days.

The restructuring was recommended by various panels in view of the rapidly increasing demand for coal which has made the need to hike production imperative. It would also make the coal sector competitive, the panels added.

A study to examine the recommendations and "to assess the need for restructuring of CIL in light of the avoidance of drawbacks inherent in a monopolistic situation" had been proposed, the coal ministry said.

The study would also assess the scope for improving competition among CIL's subsidiaries to improve production, it added.

The Planning Commission had earlier recommended spinning off CIL's seven subsidiaries into separate state-owned companies to increase coal output.

CIL, which meets 80% of the country's coal requirements, missed its production target for fiscal year 2011-12 running from April to March, producing only 435.84 million mt against a target of 440 million mt. For fiscal 2012-13, CIL aims to produce 464 million mt.

The Planning Commission has said that by 2016-17, the end of the 12th Five Year Plan, overall domestic coal production will be 795 million mt against demand of 980.5 million mt.

— Sapna Dogra

Alsons to begin construction of Philippines coal-fired power unit in Q1

Manila — Alsons Consolidated Resources plans to begin construction of a coal-fired power plant in Sarangani province in the southern Philippines this quarter, after securing a Philippines Pesos 9.3 billion ($227 million) syndicated bank loan for the project, company chief financial officer Luis Ymson told Platts Monday.

The first phase of the project will comprise a 105 MW power unit, which is scheduled to come online in August 2015, the company said Monday in a filing with the Philippine Stock Exchange. The plant will be operated by Alsons' subsidiary, Sarangani Energy.

Ymson said the 105 MW unit will require 600,000 mt/year of coal with a calorific value of 3,500-4,500 kcal/kg GAR. The company has already inked a coal supply deal with Japan's Toyota Tsusho, he said, adding that the coal will be mainly from Indonesia. Further details of the contract are not known.

The company is also planning to build a 105 MW coal-fired unit in Zamboanga city, also in the southern Philippines, before doubling the capacity at the Sarangani plant to 210 MW, Ymson said without providing a timeline for the two projects. But he said that the company is now open to receiving coal supply proposals for the Zamboanga plant and the second Sarangani unit.

The Zamboanga project will be undertaken by another Alsons subsidiary, San Ramon Power. The project already received environmental approval from local authorities early last year, and an engineering, procurement and construction contract was signed with South Korea's Daelim Industrial in December, the company said.

— Cecilia Quiambao

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mer CEO of Leighton Holdings Ltd., told Bloomberg. "We met with a number of investors in London. They can see the issues. They want to go forward on a positive basis."

COMPANIES REFERENCED IN THIS ARTICLE:

Bumi plc

PT BUMI Resources Tbk.

E-mail this story.

Report: Pakistan approves construction of 600-MW coal plant

by Rohan Somwanshi

The Council of Common Interests has approved the construction of a 600-MW coal-fired power project at Jamshoro in Pakistan, the *Dawn* of Pakistan reported Jan. 24.

The power plant will use 80% imported coal and 20% coal produced from the Thar region, according to the report. The Asian Development Bank will provide a $900 million loan for the development of the power project.

In a related matter, Pakistan Prime Minister Raja Pervez Ashraf directed the finance ministry to immediately process the request by the government of Sindh province to provide sovereign guarantees to a Chinese firm interested in mining Thar coal and establishing a power plant, the report said.

E-mail this story.

Report: Malawi coal firm to double production

by Rohan Somwanshi

Eland Coal could double production after it completes installation of a new excavator at its Mwaulambo mine in Karonga, Malawi, *The Daily Times* of Malawi reported Jan. 22.

The new machine will allow coal production of 25 tonnes per hour, compared to the current rate of 10 tonnes per hour, Mayamiko Mwinjilo, head of marketing and sales at Eland Coal, told the publication.

"We are the only mining company in the country which is producing washed coal but the new plant will produce coal of even better quality than we are producing now through its ability to separate pure coal from no-coal materials right during mining," the *Times* quoted Mwinjilo as saying. Eland Coal produces 3,500 tonnes of coal per month and exports 85% of the total monthly production, according to Mwinjilo.

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Alpha Natural *continued*

plan on active mechanized mining units and for an accumulation of combustible material. Air readings taken by inspectors indicated increased potential for ignitions in the mine as well as for injuries and illnesses to miners, MSHA said.

The mine operator, Mill Branch Coal Corp., has been cited 35 times in the past two years for failure to follow the approved ventilation plan.

In all, eight coal mines in West Virginia, Virginia, Kentucky and Colorado were targeted during the December inspections and received a combined 98 citation and nine orders.

"December's impact inspections found one of the lowest numbers of violations to date, which tells us broadly that mines undergoing impact inspections are improving," said Joseph Main, assistant secretary of labor for mine safety and health. "But we still see some mines that fail to address recurring problems that put miners at risk."

COMPANIES REFERENCED IN THIS ARTICLE:

Alpha Natural Resources Inc. **ANR**

Brooks Run Mining Co. LLC

Dorchester Enterprises Inc

Mill Branch Coal Corp

Industry Document: MSHA Announces Results of December 2012 Impact Inspections

E-mail this story.

US coal exports *continued*

tion and the only other generation technologies it has are nuclear and hydroelectric.

"Consequently, it consumes all of the nuclear and hydroelectric energy it has and any supply shortfall must be made up with coal-fired generation. This means that China is going to buy all of the coal it can to meet this electricity supply shortfall."

Environmentalists: US should not encourage coal use

Environmentalists, meanwhile, counter that the U.S. should not abet carbon pollution by exporting coal. Lowering the global price of coal will only encourage its use, they said.

Greenpeace released a report Jan. 22 titled "Point of No Return" claiming that the proposed expansion of U.S. coal exports would produce 420 million tonnes of carbon emissions annually by 2020. Greenpeace took aim at Ambre Energy Ltd., Arch Coal Inc. and Peabody Energy Corp. — three of the producers involved in the five export coal proposals in the Pacific Northwest.

Greenpeace counts U.S. coal export expansion as one of 14 global projects threatening to hasten climate change and alter ecosystems.

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now signed term contracts with US suppliers – Cloud Peak Energy, Arch Coal and Signal Peak.

Jang said the US domestic market had "gone" as a result of the US government being "not friendly" to the industry and low gas prices. "They are looking for a second market," he said, indicating that the US was keen to develop markets outside of the US.

With most PRB coals currently exported through Canada's Ridley Island terminal - a huge distance from the PRB fields in Wyoming - and capacity at the Canadian ports constrained, Jang said port expansion and the construction of new ports on the US West Coast is necessary.

He said that Korea South East Power and Korea Southern Power had agreements in place with port developer Ambre Energy for 5mt/yr offtake over a 10 year period.

The Millennium Bulk Terminal (MBT) project is planned for Longview, Washington state, at the location of a former Reynolds Metals Co alumina smelter, about 50 miles upriver from the Pacific Ocean on the Colombia River.

The $600m project is planned to have an ultimate capacity of 44mt/yr, though would initially export far less. It is a joint venture between Australia's Ambre Energy (62%) and Arch Coal (38%).

The terminal is supposed to start coming online in 2015. Its position away from the coast means that it will be a relatively shallow water terminal, accommodating panamax vessels.

Jang said that EWP would not be against investing in a US coal export terminal to increase the availability of supply.

Despite these moves, Indonesian material still accounts for the bulk of imports into the Korean gencos, at 50.78% in 2010 and 46.4% in 2011.

A rapid rise in the level of imports from Korean generators is expected in the next five years, with a considerable ramp up coming from 2014 onwards as a host of new power plants come online. Korea has imported around 74mt in each of the last three years and expects to maintain that level through 2013.

The first big pick up will come with the introduction of Kosep's 870MW Yeongheung and the 500MW Bukpyeong power plants in 2014, which will add 8.4m/t of demand, bringing Korean imports to 82.4mt.

In the following year, five new power plants are set to come online with EWP's 1GW Dangjin #9, Kospo's 1GW Samcheck #1.2, Kosep's Yeosu #1 and the independent 500MW Bukpyeong #2 and 500MW Dongbu Green #1.2, adding an additional 4.85GW of generation to Korea's power mix in total.

A total of 19.8mt of coal will be required for those new plants completed in 2015, bringing total demand above the nine-figure mark for the first time, up at 102.2mt.

Another three power plants are due to fire up in 2016, with EWP's 1GW Dangjin #10, Kowepo's 1GW Taean #9 and 1GW Taean #10 and Komipo's 1GW New Boryeong #1.

The combined 4GW power output of these four plants will ramp up coal needs by 14.9mt, taking the total requirement across Korea to 117.1mt.

Komipo's 1GW New Boryeong #2 completes the round of the new power plants in 2017, topping out the demand requirements with a further 3.8mt and bringing total demand to 120.9mt.

From 2018 to 2024 there will be no construction of new coal-fired power plants, with only nuclear planned, totalling 8.6GW across six units.

Can PRB compete in Asia?

THE DRIVE BY *the Korean gencos to diversify supply through imports of Powder River Basin material comes hand in hand with a drive to build US west coast export terminals as the US coal industry looks to the export market in the face of reduced domestic demand. Currently most PRB is exported through the Canadian port of Ridley Island where rail costs from the PRB are around $45/short tons (st). Exports through the proposed west coast terminals are likely to result in a rail saving of $15/t. IHS CERA examines the potential market for PRB export to Asia.*

The primary driver behind efforts to build coal export terminals in the Pacific Northwest of the US is Powder River Basin (PRB) coal. PRB coal is cheap to mine and abundant, and could be easily mined in significantly greater quantities than the 465mst mined in 2011. However, the steady move away from coal-fired electricity generation in the US means that demand for the coal is essentially capped, a situation that is unlikely to be reversed given the recent shale-gas revolution. The only way for PRB producers to sell more tons, or even to sustain current tonnages, is to expand into other markets, and prospective Northwest terminals are an effort to tap the fast growing Asian market.

Producers also hope that PRB exports to Asia would cause PRB pricing to be at least partially driven by Pacific coal prices. At current prices of around $12 FOB mine/st, basis 8,800Btu GAR, PRB coal is often referred to as "the cheapest btu on the planet". However, coal with a similar heat content from Indonesia currently markets at around $60/t FOB, basis 4,900kc NAR, and approached $90/t FOB during the market peak in mid-2011, while PRB only reached $14/t.

PRB is cheap because of the long expensive rail-hauls to its US generation centers and a competitive supply environment. PRB producers looking to export tons do so with the hope that international buying of PRB will pull up prices, providing them not only with healthy income from the export sales, but improved margins on their domestic sales.

Currently there are five export terminals in various stages of planning on the northwest US coast amounting to 115mt/yr of export capacity coming on line between 2014 and 2017. Development and operation of these terminals and their logistics chains faces political, environmental and permitting challenges. However, the construction and operation of export facilities and transportation infrastructure means creation of jobs and tax income. Since the approval process governing the west coast terminals resides with the same local and state jurisdictions that will benefit most from their development, as long as the US Army Corps of Engineers' environmental impact studies do not raise substantial questions, the terminals could be built – if the demand is there.

Are west coast exports viable?

Despite the potential upside of growing PRB into the Asian market, and the apparently surmountable challenges facing the terminal developments themselves, the terminals face some serious problems that question the viability of such a large build in capacity.

There are two ways that PRB coal can go to Asia. The first of these is that supply-demand dynamics in the Pacific market will be structurally tight enough in the longer term that market forces will make PRB coal economic. This hinges on ongoing supply-demand tightness in Asia, driven by continual growth in China and other Asian demand centres.

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However, recent Chinese economic slowing casts some doubt on this. A far more serious concern, however, is raised by IHS CERA's recently completed multi-client study "Coal Rush".

This study found that China will progressively becoming more self-sufficient in its coal needs, slowing the rate of its import growth, as existing resources can be mined plentifully at current cost levels, and transportation costs fall as rail bottlenecks are resolved. At the same time, rapidly improving export outlooks from Australia, Russia, South Africa, Mozambique and Colombia mean that supply has the ability to ramp up, and quickly. These factors seriously question the notion that the Pacific market will remain structurally tight in the longer term in such a way that prices would move up enough to incentivise large scale PRB imports.

In this scenario any potential growth of PRB in Asia would have been through being more competitive on a delivered basis than other coals in the market. However, the primary coal that PRB is likely to displace is Indonesian origin. The economic comparison with Indonesian coal is not good (see table). A year ago, when the Pacific market was tight, PRB out-competed Indonesian coal into both southern China and Korea, even allowing for some heat content loss during transit. In today's much looser market, the economics are much less favourable. PRB is currently well out of the money into southern China, and about $5/t out of the money into Korea. This is assuming a very small PRB producer margin.

Importantly, though, economics are not the only grounds on which PRB coal can displace Indonesian. Some end users, particularly utilities in Korea and Taiwan, desire to diversify away from Indonesian coal for qualities reason outlined by East West Power's Jason Jang *(see lead article)*. PRB is more consistent in quality, and PRB producers are large reliable entities with strong credit.

More importantly, however, there is a limit to which buyers will switch for these reasons. At potential current delivered prices into Korea and Taiwan the extra cost of PRB may be acceptable, but PRB is likely too far out of the money into southern China to warrant the same switching. Even in Korea, where coal import demand will rise in the coming years as new coal units come online, a 20% PRB market share would only amount to around 24mt in 2017, with Taiwan probably representing a quarter of that amount. Both of those amounts may be generous.

While it seems likely that there will be a PRB market in Korea and Taiwan, the size of the market elsewhere seems limited, although Indian buyers are watching these developments keenly. These factors suggest that PRB exports are likely to be capped at 30-40mt/yr this decade, and it seems unlikely that they can rise much beyond that without a paradigm shift in Indian buying or a Chinese regulatory change that favours imported coal.

Even if PRB can develop a market in Asia, there are significant logistical challenges. PRB does not travel well, with its high volatile content and long travel distances making it prone to spontaneous combustion en route. This doesn't prevent the movement of the coal to Asia, but it impacts the heat content of the delivered coal and therefore its economics.

Another factor capping PRB exports is the I-5 rail corridor in the North West of the US, which would be used to serve the West Coast ports. This is one of the busiest rail stretches in the country, and likely cannot accommodate coal movements of anywhere near the 115mt/yr of proposed export capacity without substantial development. Additionally, the trip-miles involved in exporting PRB are long, so would require additional locomotives, rolling stock and crews. These issues are likely not insurmountable, but rail companies will not invest without guaranteed business, and there is little actual booked business underlying the terminal projects.

PRB vs Indonesian prices into Asia

	Southern China		Korea		short ton/ metric ton
	Today	1 year ago	Today	1 year ago	
PRB FOB Mine Cost	11.00	11.00	11.00	11.00	$/st
Producer Margin	2.00	2.00	2.00	2.00	$/st
+ Rail *	30.00	30.00	30.00	30.00	$/st
+ Port Throughput	7.00	7.00	7.00	7.00	$/st
FOB Pacific NW	50.00	50.00	50.00	50.00	$/st
=	**55.12**	**55.12**	**55.12**	**55.12**	**$/mt**
+ Panamax Freight	16.00	20.00	13.60	17.00	$/mt
CIF Asia	**71.12**	**75.12**	**68.72**	**72.12**	**$/mt**
GAR-NAR conversion	73.54	77.68	71.06	74.57	$/mt
+5% quality degradation	4.44	4.69	4.29	4.51	$/mt
Delivered	77.41	81.76	74.80	78.50	$/mt
Conversion to 4,900kc	2.44	2.58	2.36	2.48	$/mt
PRB Delivered					
(4,900kc NAR)	**79.85**	**84.35**	**77.16**	**80.98**	**$/mt**
Indonesian FOB					
(4,900kc NAR)	**60.00**	**88.00**	**60.00**	**88.00**	**$/mt**
+ Freight	5.00	5.50	9.00	9.50	$/mt
+5% quality degradation	3.25	4.68	3.45	4.88	$/mt
Indonesian Delivered					
(4,900kc NAR)	**68.25**	**98.18**	**72.45**	**102.38**	**$/mt**

* $30 per short ton is for rail to Washington, Oregon and Vancouver. Rail to Ridley Terminal in Prince Rupert Canada is $40-45 per short ton.

Source: IHS

Rail constraints in the meantime will increase potential for delays, demurrage risks and missed laycans. Additionally, rail companies in the US have also consistently priced their transportation rates to take the bulk of the economic upside in both domestic flows and exports through the US east coast. This likely limits the potential per-ton upside for producers exporting PRB.

History offers some cautionary lessons regarding terminal development. The west coast has seen significant coal port developments before, and like the current proposed developments they were all predicated on projections of Asian demand. The Port of Portland built a coal terminal in the 1980s but it failed due to lack of coal buying interest. Like the terminals on the Columbia River, that terminal could only take Panamax vessels. Despite being able to take much larger vessels, the 10mt/yr, $200m Los Angeles Export Terminal (LAXT) never exceeded 4mt/yr in the six years that it operated before its closure due to lack of profitability.

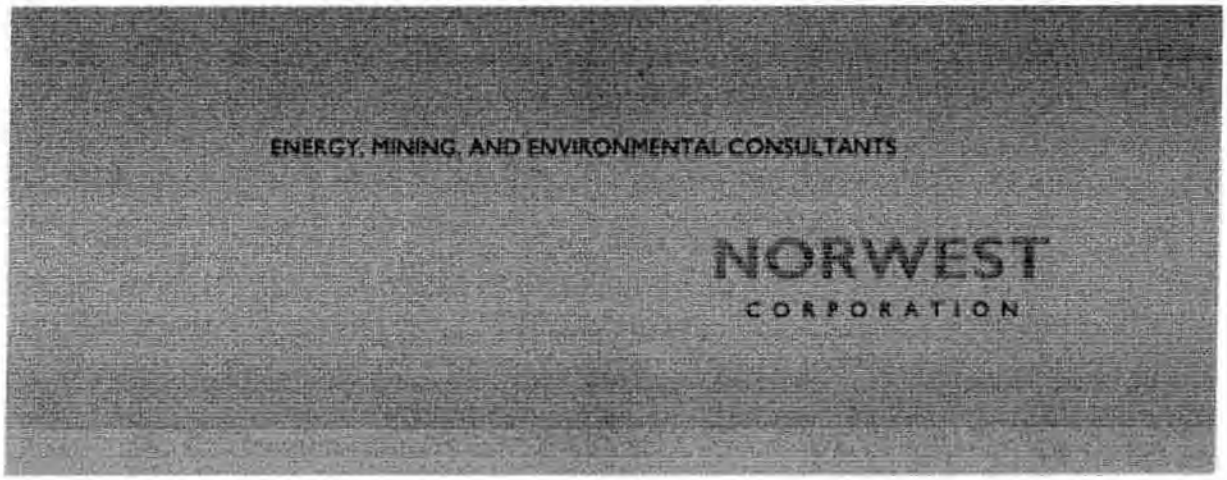
Importantly, LAXT was unable to lock in long term purchase contracts with Asian buyers, and that situation is very similar to the current terminal developments. Currently there are some term deals *(see lead article)* for throughput at the prospective West Coast terminals, but they come nowhere close to the total projected

	Otter Creek	Spring Creek	Black Thunder
a. Export ports and domestic docks:			
MERC terminal, Duluth, MN	857	1,033	1,212
Cherry Point, WA	1,465	1,478	1,603
Longview, WA	1,205	1,218	1,340
St. Paul, MN	857	1,033	1,076
Hall Street, MO	1,484	1,262	1,169
b. Domestic power plants:			
Transalta Centralia, WA	1,251	1,263	1,389
PGE Boardman, OR	1,010	1,022	1,148
Minnesota Power Boswell, MN	859	1,035	1,305
Xcel Sherco and King, MN	791	967	1,115
Allete Columbia, WI	1,117	1,293	1,336
EME Powerton, IL	1,307	1,152	1,059
Ameren Coffeen, IL	1,546	1,335	1,242
Dominion Kincaid, IL	1,389	1,233	1,140
PPL Colstrip, MT	35	269	395
SRP Coronado, AZ	1,864	1,605	1,445
MS Power Daniel, MS	2,207	1,812	1,719
LCRA Fayette, TX	2,171	1,615	1,455
AECI New Madrid, MO	1,768	1,394	1,224
Nipsco Michigan City, IN	1,342	1,304	1,211
c. Interchange points with other railroads:			
Chicago, IL (NS and CSX)	1,329	1,291	1,198
Memphis, TN (NS and CSX)	1,786	1,412	1,319
Woodlawn, IL	1,464	1,308	1,215
East St. Louis, IL	1,477	1,264	1,171
Kansas City	1,293	921	828

Source: PC Rail

OTTER CREEK PROPERTY SUMMARY REPORT

Volume I of II



OTTER CREEK PROPERTY SUMMARY REPORT

Volume I of II

Submitted to:
GREAT NORTHERN PROPERTIES, L.P.

and:
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

July 12, 2006

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EXECUTIVE SUMMARY

Norwest Corporation (Norwest) was contracted by Great Northern Properties L.P. (GNP) to analyze and interpret existing data regarding coal properties controlled by GNP and the State of Montana, collectively referred to as the Otter Creek Property. The Otter Creek Property covers a large area within Powder River and Rosebud counties, Montana. The tract trends north to south and encompasses over 100 square miles of land.

The overall project objectives consisted of updating the geologic model and resource estimates, identifying specific logical mining units (LMUs), preparing documents that describe each LMU in terms of geology, available resources, coal quality, mineability, strip ratio and range of expected mining costs. An additional objective of this study was to assess the vertical variation of sodium in the Knoblock Seam and to assess the opportunity for selective mining in order to minimize variations in coal quality.

The Otter Creek Property is located in the Ashland coalfield east of Billings, Montana. The Otter Creek Property is located in Rosebud and Powder River Counties, Montana. The general location of the property is shown on Figure E.1.

GNP coal resources are located within the boundaries of the Custer National Forest and comprise alternating sections of property held in fee by GNP and public domain property held by the State of Montana.

The coal resources of the Otter Creek Property have been the subject of several investigations starting in the mid 1970's. This has resulted in numerous data sets developed by several corporate and government entities.

TRACT 1

Location		Coal Ownership Summary					Total Resources										Speculative Resources			In-place Resources		
T/R	SECTION	Coal Ownership	Acres	GNP	State of Montana	Private	Waste (bcy)	Coal Tons	In-Place Ratio (CY/ton)	Moisture (%) EQ Basis	Moisture (%) AR Basis	Dry Basis (%) Ash (%)	Dry Basis (%) Sulfur (%)	Dry Basis (%) BTU/lb	MAF Basis BTU/lb	% in Ash Sodium	Acres	Waste (bcy)	Coal Tons	Acres	Waste (bcy)	Coal Tons
R45T3	25	GNP	528	528	0	0	152,485,500	63,218,790	2.4	25.15	26.95	7.15	0.27	11,909	12,828	4.40	0	-	-	528	152,485,500	63,218,790
R45T3	26	MONTANA	527	0	527	0	167,923,001	36,905,500	2.9	24.53	26.44	6.85	0.26	12,036	12,882	4.78	278	41,809,117	17,605,734	360	86,113,884	19,060,775
R45T3	27	GNP	643	643	0	0	39,655,338	8,238,315	4.8	24.37	26.32	6.82	0.26	11,959	12,832	6.55	231	39,655,338	8,238,315	0	0	0
R45T3	34	MONTANA	630	0	630	0	137,099,820	47,390,265	2.9	24.36	26.49	6.91	0.26	11,893	12,774	7.26	307	57,814,586	19,166,099	323	79,285,234	28,224,167
R45T3	35	GNP	627	627	0	0	213,788,926	65,933,488	3.2	24.04	26.37	6.84	0.26	11,939	12,820	7.13	0	-	-	627	213,788,926	65,933,488
R45T3	36	MONTANA	631	0	631	0	248,730,338	67,792,575	3.7	24.32	26.79	6.78	0.26	11,985	12,856	7.63	0	-	-	631	248,730,338	67,792,575
R45T4	1	GNP	617	617	0	0	177,684,645	62,677,035	2.8	23.97	26.98	6.91	0.26	11,921	12,805	7.52	0	-	-	617	177,684,645	62,677,035
R45T4	2	MONTANA	583	0	583	0	117,723,552	39,887,149	3.0	24.03	26.20	6.78	0.25	11,924	12,791	7.75	131	25,680,962	5,440,582	452	92,043,190	34,446,566
R45T4	3	GNP	613	613	0	0	106,097,945	43,214,341	2.5	24.46	26.52	6.95	0.26	11,849	12,778	8.06	203	29,230,858	12,347,727	409	76,866,386	30,866,614
GRAND TOTAL			5,599	3,128	2,471	0	1,366,134,985	435,257,236	3.0	24.36	26.58	6.89	0.26	11,936	12,819	6.82	1,148	194,179,861	62,958,457	4,637	1,199,964,824	372,298,799
TOTAL GNP			3,128				652,681,474	243,291,839	2.8	24.49	26.83	6.97	0.26	11,916	12,811	6.66	434	68,885,997	20,686,042	2,281	623,666,477	232,065,967
TOTAL STATE OF MONTANA			2,471				611,443,511	191,975,397	3.2	24.31	26.83	6.79	0.26	11,959	12,829	7.02	714	125,284,864	42,372,415	1,798	486,188,447	140,032,832

TRACT 2

Location		Coal Ownership Summary					Total Resources										Speculative Resources			In-place Resources		
T/R	SECTION	Coal Ownership	Acres	GNP	State of Montana	Private	Waste (bcy)	Coal Tons	In-Place Ratio (CY/ton)	Moisture (%) EQ Basis	Moisture (%) AR Basis	Dry Basis (%) Ash (%)	Dry Basis (%) Sulfur (%)	Dry Basis (%) BTU/lb	MAF Basis BTU/lb	% in Ash Sodium	Acres	Waste (bcy)	Coal Tons	Acres	Waste (bcy)	Coal Tons
R45T4	10	State of Montana	412	0	412	0	88,188,746	23,300,634	3.8	24.04	26.29	7.06	0.30	11,785	12,680	7.49	338	68,753,296	19,375,549	74	19,435,446	3,920,985
R45T4	11	GNP	674	674	0	0	174,429,347	69,009,462	2.5	24.61	26.27	6.80	0.27	11,950	12,830	7.58	72	14,662,126	3,007,514	601	159,867,221	66,001,948
R45T4	12	State of Montana	668	0	668	0	156,970,046	73,256,900	2.1	24.56	26.47	6.78	0.26	12,020	12,882	8.20	0	-	-	668	156,970,046	73,256,900
R45T4	13	GNP	465	465	0	0	211,586,426	55,900,331	3.8	24.25	26.31	6.70	0.26	12,027	12,898	8.00	0	-	-	465	211,586,426	55,900,331
R45T4	14	State of Montana	469	0	469	0	164,326,247	57,340,481	2.7	24.06	26.23	6.66	0.27	12,071	12,916	8.36	0	-	-	469	164,326,247	57,340,481
R45T4	15	GNP	360	360	0	0	85,129,096	33,599,286	1.7	24.07	26.14	6.79	0.29	12,004	12,848	7.97	43	7,360,388	1,770,287	317	77,768,708	26,329,019
R45T4	22	GNP	120	120	0	0	12,145,372	13,536,556	0.9	24.13	27.67	7.83	0.32	11,871	12,829	7.10	0	-	-	120	12,145,372	13,536,556
R45T4	23	State of Montana	201	0	201	0	29,381,763	23,185,241	1.3	24.12	27.69	7.85	0.32	11,904	12,845	7.13	0	-	-	0	29,381,763	23,185,241
R45T4	27	OTHER	162	0	0	162	18,551,890	16,165,693	1.1	24.14	27.54	7.85	0.32	11,872	12,840	6.38	0	-	-	0	18,551,890	16,165,693
R45T4	23	GNP	674	674	0	0	210,664,817	80,099,553	2.6	24.14	28.02	7.18	0.30	11,976	12,894	7.06	0	-	-	674	210,664,817	80,099,553
R45T4	24	State of Montana	598	0	598	0	327,847,427	67,269,794	4.9	24.18	28.36	7.13	0.28	11,974	12,880	7.16	0	-	-	598	327,847,427	67,269,794
R45T4	25	GNP	715	715	0	0	288,764,953	70,723,716	4.1	24.16	28.53	7.73	0.30	11,900	12,866	8.40	0	-	-	715	288,764,953	70,723,716
R45T4	26	State of Montana	525	0	525	0	193,349,685	71,587,040	2.7	24.15	28.06	6.15	0.32	11,860	12,871	5.28	52	4,137,356	1,166,718	793	169,212,549	70,418,322
R45T4	35	GNP	167	167	0	0	25,798,046	8,002,314	3.0	24.15	25.19	6.26	0.31	11,829	12,841	6.05	46	5,564,849	1,453,307	119	21,213,196	7,549,007
R45T4	36	State of Montana	189	0	189	0	73,707,842	15,580,027	5.9	24.16	29.45	7.51	0.30	11,923	12,841	6.97	0	-	-	189	73,707,842	12,580,027
GRAND TOTAL			6,689	3,175	3,363	162	2,921,811,354	676,867,031	3.8	24.17	28.25	7.21	0.29	11,955	12,866	7.22	534	101,377,711	25,774,486	6,155	1,820,443,002	647,282,578
TOTAL GNP			3,174				979,467,656	330,871,221	3.0	24.13	27.46	5.44	0.21	9,058	9,746	5.57	164	27,477,363	6,226,068	3,011	952,810,499	323,746,133
TOTAL STATE OF MONTANA			3,363				1,023,771,566	328,926,116	3.1	24.22	28.30	7.21	0.29	11,956	12,869	7.21	371	73,899,348	20,548,367	2,982	949,861,218	386,371,756
TOTAL PRIVATE			162				18,551,890	16,165,693	1.1	24.14	27.54	7.85	0.32	11,872	12,840	6.38	0	0	0	162	18,551,890	16,165,693

TRACT 3

Location		Coal Ownership Summary					Total Resources										Speculative Resources			In-place Resources		
T/R	SECTION	Coal Ownership	Acres	GNP	State of Montana	Private	Waste (bcy)	Coal Tons	In-Place Ratio (CY/ton)	Moisture (%) EQ Basis	Moisture (%) AR Basis	Dry Basis (%) Ash (%)	Dry Basis (%) Sulfur (%)	Dry Basis (%) BTU/lb	MAF Basis BTU/lb	% in Ash Sodium	Acres	Waste (bcy)	Coal Tons	Acres	Waste (bcy)	Coal Tons
R45T3	5	GNP	880	880	0	0	135,856,185	49,181,085	2.7	24.36	26.83	6.87	0.29	11,999	12,802	7.85	249	43,156,272	18,584,928	411	90,499,892	32,596,160
R45T4	6	State of Montana	526	0	526	0	220,961,070	63,962,089	3.5	24.35	26.69	6.77	0.27	12,051	12,925	9.06	41	7,695,128	3,825,536	485	213,265,942	60,026,561
R45T4	7	GNP	513	513	0	0	197,886,176	57,411,269	3.4	24.27	26.56	6.77	0.26	11,973	12,840	9.24	0	-	-	513	197,886,176	57,411,269
R45T4	8	State of Montana	602	0	602	0	155,971,292	63,379,970	2.5	24.30	27.02	6.73	0.27	12,046	12,913	8.58	10	2,366,187	236,047	593	153,605,105	63,140,923
R45T4	9	GNP	396	396	0	0	56,270,891	28,997,478	2.0	24.51	27.56	6.51	0.25	12,015	12,890	8.23	91	10,505,574	6,151,225	304	45,764,117	22,846,251
R45T4	10	GNP	39	39	0	0	5,165,252	1,701,942	3.0	24.17	27.92	6.80	0.29	11,979	12,843	7.02	37	4,905,052	1,564,575	2	259,030	137,368
R45T4	15	GNP	120	120	0	0	14,146,915	11,196,031	1.3	24.15	28.07	6.86	0.29	12,066	12,877	7.33	0	-	-	120	14,146,915	11,196,031
R45T4	16	State of Montana	478	0	478	0	69,441,137	47,871,805	1.5	24.21	27.82	6.90	0.27	12,066	12,912	8.19	0	-	-	478	69,441,137	47,871,805
R45T4	17	GNP	424	424	0	0	123,029,818	47,955,189	2.6	24.28	27.42	6.83	0.26	11,954	12,814	8.82	0	-	-	424	123,029,818	47,955,189
R45T4	18	State of Montana	640	0	640	0	354,435,493	71,311,566	5.0	24.26	26.93	6.88	0.26	11,971	12,846	9.01	0	-	-	640	354,435,493	71,311,566
R45T4	20	State of Montana	586	0	586	0	206,997,619	61,446,520	3.4	24.21	27.27	7.47	0.30	11,950	12,895	7.00	0	-	-	586	206,997,619	61,446,520
R45T4	21	GNP	640	640	0	0	163,781,896	72,055,955	2.3	24.18	27.15	6.19	0.33	11,817	12,814	6.82	0	-	-	640	163,781,896	72,055,955
R45T4	22	State of Montana	161	0	161	0	26,909,924	18,345,018	1.5	24.15	27.35	6.22	0.34	11,811	12,799	7.11	0	-	-	161	26,909,924	18,345,018
GRAND TOTAL			5,893	2,791	3,992	0	1,735,593,675	564,964,836	2.9	24.26	27.11	7.06	0.28	11,975	12,869	8.18	429	68,648,212	28,362,311	5,464	1,666,945,463	536,602,525
TOTAL GNP			2,791	2,791	0	0	996,737,345	293,690,847	2.6	24.26	27.10	7.16	0.26	11,936	12,838	8.02	378	58,827,896	24,300,725	2,414	838,109,445	244,390,122
TOTAL STATE OF MONTANA			3,092	0	3,992	0	1,038,856,330	326,266,970	3.2	24.25	27.13	6.97	0.27	12,002	12,892	8.33	51	10,041,314	4,061,585	3,041	1,028,786,221	322,144,385

GRAND TOTALS FOR TRACT 1, TRACT 2 AND TRACT 3

GRAND TOTAL	18,181	9,094	8,826	162	5,661,540,177	1,796,219,104	3.0	24.25	27.94	7.07	0.28	11,957	12,855	7.48	2,111	364,226,985	120,095,222	16,070	4,697,313,193	1,586,123,882
TOTAL GNP	9,094				3,388,916,475	842,952,028	2.8	24.25	26.33	6.43	0.25	10,802	11,617	6.67	976	154,991,258	53,112,856	8,118	2,213,925,417	789,839,172
TOTAL STATE OF MONTANA	8,925				2,674,071,813	847,101,383	3.2	24.25	27.90	7.02	0.28	11,974	12,869	7.60	1,135	209,235,727	66,982,367	7,790	2,464,835,686	789,119,017
TOTAL PRIVATE	162				18,551,890	16,165,693	1.1	24.14	27.54	7.85	0.32	11,872	12,840	6.38	0	0	0	162	18,551,890	16,165,693

TS – 5

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC. – RAIL CONSTRUCTION AND OPERATION – IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

REBUTTAL VERIFIED STATEMENT OF SETH SCHWARTZ IN SUPPORT OF TONGUE RIVER RAILROAD COMPANY'S REPLY TO NORTHERN PLAINS RESOURCE COUNCIL AND ROCKER SIX CATTLE CO.'S SURREPLY

My name is Seth Schwartz. I am President of Energy Ventures Analysis, Inc. ("EVA"). My business address is 1901 North Moore Street, Suite 1200, Arlington, VA 22209. I have been a principal at EVA since it was founded in 1981. Since that time, most of my work has been consulting for the energy industry regarding coal markets and economics of coal operations and coal procurement. My clients include coal producers, coal consumers, coal transporters, and investors in coal operations and coal-fired power plants, as well as regulatory agencies and industry associations. I have testified in person or by affidavit numerous times regarding coal markets in Federal courts (district court, bankruptcy court and the U.S. Supreme Court), State courts, arbitration hearings and regulatory agencies, including the Surface Transportation Board, the Federal Energy Regulatory Commission, the Environmental Protection Agency, and state public utility commissions. I have previously filed a statement in this proceeding on behalf of the TRRC.

I am providing this rebuttal verified statement in response to the July 2, 2013 Surreply to Tongue River Railroad Company's ("TRRC") June 7, 2013 Reply to Comments submitted by Northern Plains Resource Council and Rocker Six Cattle Company (jointly, "NPRC"), as well as the verified statement in support of NPRC by Thomas Michael Power ("Power Surreply").

My opinions are summarized as follows:

- The Power Surreply cites the fact that EIA has a lower growth rate in its forecasted demand for PRB coal in its latest forecast than it did in the past. The Power Surreply tries to draw the inference from this that the market for PRB coal is less favorable than it was in the past, therefore there is less need for the Tongue River Railroad now than there was previously. However, it is not the rate of growth that matters; it is the total size of the market that would be served by the new mine relative to the size of the mine. On this basis, the market is far larger today than it was in the past and there is a greater need for the Tongue River Railroad than ever.
- The Power Surreply challenges the importance of EIA's forecast of a higher growth rate in domestic demand for Montana low-sulfur PRB coal than other US coal regions by asserting that EIA's forecasted growth of domestic demand does not increase by 20 million tons annually (the expected Otter Creek full production level) over 2011 until 2035 (implying that the mine would not be needed until then). This is not true. EIA forecasts growth in domestic demand of 20 million tons over 2011 by 2030 (not 2035) and an increase of 10 million tons by 2019.[1] This amount is just the projected increase in domestic demand for Montana PRB coal and the Otter Creek mine is expected to serve export markets also. The new production will also serve to replace depletion of production from existing mines and will mine at lower costs because of better economics.
- The Power Surreply incorrectly asserts that I testified that the market for Montana PRB coal is not limited by its sodium content and transportation costs. In my previous statement, I performed a study defining the size of the market which can

[1] See EIA Annual Energy Outlook, at http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=7-AEO2013&table=95-AEO2013&region=0-0&cases=ref2013-d102312a

use PRB coal with high sodium content and to which Montana PRB coal already has proven to be competitive. While the market in which Montana PRB coal can and does compete is not unlimited, it is much larger than needed for the Otter Creek mine to increase domestic sales up to its full planned capacity.

- While in this Surreply, Mr. Power challenges my contention that the Otter Creek mine will be able to compete with the Wyoming PRB mines because of the rising costs of Wyoming PRB coal, in contemporaneous testimony from another proceeding, Mr. Power argued that Wyoming PRB coal prices would increase significantly for all of the same reasons which I cited in my testimony.
- While the NPRC contends that PRB coal is not competitive in Asia, its expert Mr. Power asserts in a contemporaneous report that "PRB coal will be highly competitive in southeastern coastal Chinese markets".[2] Mr. Power wrote that an additional 140 million tons of PRB coal (including Wyoming and Montana) exports to China "can be delivered at a much lower cost than either domestic Chinese coal or the current major sea-borne exporters of coal to that market, Indonesia and Australia."[3]
- The NPRC Surreply contends that the coal export terminals in Canada will not be available to ship Otter Creek coal to export markets in Asia because they are committed to Canadian coals. However, the "analysis" by NPRC's attorneys fails to calculate the available capacity from the Canadian port expansions, which will still be substantial. Even Mr. Power found that PRB coal could be exported economically to China "from the proposed new and expanded coal ports on the U.S. and British Columbian west coast",[4] including the expansions at Westshore Terminals and Ridley.[5]
- The Power Surreply contends that I "ignore(s) the history of the actual development of Montana and Wyoming PRB coal markets" and do not explain

[2] Power, Thomas Michael and Donovan S. Power, "The Impact of Powder River Basin Coal Exports on Global Greenhouse Gas Emissions", May 2013, p. 4 (hereafter "May 2013 Power Report") at http://www.powereconconsulting.com/WP/assets/GHG-Impact-PRB-Coal-Export-Power-Consulting-May-2013_Final.pdf . Cited excerpts of the May 2013 Power Report are attached as Rebuttal Exhibit SS-1.
[3] Ibid.
[4] Ibid.
[5] Id at 22.

why Wyoming PRB production has developed much faster than Montana PRB since 1983. This is not correct. As discussed in my earlier statement submitted with TRRC's June 7, 2013 Reply Comments ("Initial Schwartz Statement"), the explanation for the prior rapid growth of Wyoming PRB relative to Montana PRB is a combination of:

- The initial development and early mining of the Wyoming PRB mines was low-cost because the strip ratios were very low. Wyoming PRB coal costs and prices were so low that new mine development in the Montana PRB could not compete economically with the expansion of the existing Wyoming PRB mines to supply the growing market for PRB coal.
- The development of rail access to the Wyoming PRB in the early 1970's[6] allowed these mines to be developed and operating before 1986, when the Tongue River Railroad was first approved. Once developed these existing mines had an economic advantage compared to new mines in the Montana PRB because the rail transportation facilities were already in place as well as lower operating costs due to lower strip ratios. The growth in Wyoming PRB coal production since 1986 has been from the expansion of the already-developed mines, not from the construction of new mines, as would be required in the Ashland area of the Montana PRB that would be served by the Tongue River Railroad.

- In the May 2013 report, Mr. Power agreed that the undeveloped Montana PRB coal reserves would have an economic advantage over Wyoming PRB coal to serve as exports to Asia, writing:

> "In addition, much of the PRB coal supply that in the northern part of the Powder River Basin in Montana has not faced significant development pressure over the last forty years because it was at a transportation cost disadvantage relative to Wyoming coal in reaching the fastest growing American markets. As a result, Wyoming produces ten times as much coal as Montana even though Montana has the larger economic reserves. For exports to Asia from the west coast of North America, Montana coal resources are likely to have the cost advantage."[7]

[6] See http://www.wyohistory.org/essays/burlington-route-wyomings-second-transcontinental-railroad
[7] May 2013 Power Report at 13.

I. The Ability of a New Mine on the Tongue River Railroad to Compete in the Domestic Market

The Power Surreply largely repeats the opinions offered in the November 2012 Power Statement submitted with NPRC's April 2, 2013 Comments ("Power Original Statement"). Those opinions were that:

- The future growth in the domestic market for PRB coal is expected to be much slower than it has been in the past;
- The domestic market for Otter Creek coal is severely limited by its sodium content and a geographic disadvantage;
- Prior growth in the market for PRB coal has been served principally by mines in Wyoming, not Montana; and,
- The fact that the Tongue River Railroad has not been developed since it was approved in 1986 proves that these market limitations will prevent its development in the future.

I address each of these assertions below.

A. The Size and Future Growth of the Domestic Market for Powder River Basin Coal

The Power Surreply (relying on forecasts from the Energy Information Administration, "EIA") emphasizes that the projected growth rate for PRB coal in the domestic market is a much slower rate of growth (in annual percentage) than it was in the past, including when the Tongue River Railroad first received approval in 1986. While it is true that the rate of growth has slowed, the potential domestic market for the new Otter Creek mine is measured by the size of the market, not the rate of growth. In 1986, the total market for PRB coal (measured by its production) was 144.7 million tons, including 29.3 million tons from Montana,[8] of which all but

[8] EIA Coal Production 1986 pp. 19 – 23, Powder River Basin coal production includes Big Horn and Rosebud counties in Montana plus Campbell, Converse and Sheridan counties in Wyoming. Referenced excerpts are attached as Rebuttal Exhibit SS-2.

0.7 million tons were sold in the domestic market.[9] In 2011, total PRB production was 462.6 million tons, including 36.5 million tons from Montana, of which exports were less than 10 million tons.[10] This was a historical growth rate of 4.8% annually over the 25-year period from 1986 to 2011. While the rate of growth projected by EIA for period for the period 2011 – 2030 is much lower at 0.8%, the total market is still projected to expand to 540.7 million tons by 2030.[11] The total size of the market for PRB coal in 2011 was 3.2 times what is was in 1986 and it is projected by EIA to increase by 78 million tons by 2030. The projected growth is almost 4 times greater than the expected production from Otter Creek and the total projected market is 27 times the size of the Otter Creek mine's expected annual production at full capacity.[12]

The Power Surreply challenges the importance of EIA's forecast of a higher growth rate in domestic demand for Montana low-sulfur PRB coal than other US coal regions. It asserts that EIA's forecasted growth of domestic demand does not increase by 20 million tons over 2011 (the expected annual Otter Creek production at full capacity) until 2035 (implying that the mine would not be needed until then). This is not true. EIA forecasts growth in domestic demand of 20 million tons over 2011 by 2030 (not 2035) and an increase of 10 million tons in domestic

[9] EIA Coal Distribution January – December 1986, p. 43, foreign coal distribution reported for Bureau of Mines Districts 22 and 23 are exports of Montana coal. Referenced excerpts are attached as Rebuttal Exhibit SS-3.
[10] EIA Annual Coal Report 2011 p. 3 http://www.eia.gov/coal/annual/pdf/acr.pdf . EIA does not collect or estimate data on PRB coal exports; I have estimated 2011 PRB exports to be 7.1 million tons based on reported steam coal exports reported by the Bureau of Census, including exports to Asia reported at the Seattle customs district plus exports to Canada reported at the Detroit customs district plus about 0.5 million tons blended into exports reported at the New Orleans custom district; see EIA Quarterly Coal Report, October – December 2011 Table 14 at http://www.eia.gov/coal/production/quarterly/pdf/0121114q.pdf.
[11] See EIA Annual Energy Outlook 2013, at http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=7-AEO2013&table=95-AEO2013&region=0-0&cases=ref2013-d102312a
[12] I recognize that the TRRC rail line would serve other mines in the Ashland area as well as the Otter Creek mine. However, there are no known mine development projects other than the Otter Creek mine project in the Ashland area at present. As a result of the uncertainties regarding the timing of future development of other Ashland area mines and the volumes that may be produced from those mines in the future when they may be developed, I have not taken tonnage that may be produced from other Ashland area mines into account in my analyses.

demand by 2019.[13] Importantly, this is just the projected increase in domestic demand for Montana PRB coal. A significant share of the new development of Otter Creek mine coal is likely to be shipped to the growing export market as well.

What the Power Surreply does not rebut is the showing in my earlier statement[14] that the contention in the Power Original Statement regarding the supposed "shrinking market for Montana PRB Coal" is not supported by EIA's forecast of future markets. It is indisputable that in EIA's latest forecast, the growth rate for Montana PRB coal is the highest growth rate of any coal region in the country.[15] This is not a shrinking market.

At the same time Mr. Power was contending in the Power Surreply that the domestic market for Montana PRB coal is "limited",[16] he wrote in a May 2013 report that the domestic market for PRB coal, which he defined as including Wyoming and Montana coal,[17] would grow significantly:

> "If new ports are not built, PRB coal will likely continue to be limited to serving existing U.S. markets which, while projected by EIA to be relatively flat in the aggregate, are likely to support significant additional PRB production."[18]

In a footnote, Mr. Power went on to state that:

> "EIA projects that in order to meet tightening EPA air quality standards and offset declines in central Appalachian coal production due to rising costs of production, the demand for PRB coal within the US will expand between 2010 and 2035 at a rate of about 10 million tons per year, raising PRB coal production from about 500 million tons per year in 2010 to about 700 million tons in 2035 despite static aggregate coal consumptions levels in the United States."[19]

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[13] Ibid.
[14] Initial Schwartz Statement at 4.
[15] EIA Annual Energy Outlook 2013, at http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2013&subject=7-AEO2013&table=95-AEO2013&region=0-0&cases=ref2013-d102312a
[16] Power Surreply at 13.
[17] May 2013 Power Report, p. 14 http://www.powereconconsulting.com/WP/assets/GHG-Impact-PRB-Coal-Export-Power-Consulting-May-2013_Final.pdf
[18] May 2013 Power Report, p. 22 http://www.powereconconsulting.com/WP/assets/GHG-Impact-PRB-Coal-Export-Power-Consulting-May-2013_Final.pdf
[19] Ibid.

B. The Limits on the Domestic Market for Otter Creek Coal Due to its Sodium Content

The Power Surreply misstates my opinion regarding the impact of sodium content on the domestic market for Otter Creek coal and then rebuts the misstatement. Contrary to Mt. Power's claim, I did not say that "the American market for this type of coal is not limited by its high sodium content".[20] I stated that "the Montana PRB domestic market is not severely limited by the sodium content … to just a few power plants as NPRC claims" and that "there are many power plants that have used and will use higher-sodium coals".[21] My prior testimony acknowledged that the high sodium content of the Otter Creek coal will cause a problem for some power plants and identified those problems.[22] I performed a the market study to identify which power plants have already demonstrated their ability to use high-sodium Montana PRB coal, because they have burned this coal in the past, and which power plants have a boiler design that is capable of using Montana PRB coal. My market study included a list of each power plant that was capable of using Montana PRB coal. My study showed that the total size of the domestic market capable of using Montana PRB coal was 139.7 million tons in 2011, which was 31.3% of the total market for PRB coal in that year. Rather than claiming that the domestic market for Otter Creek coal was not limited by the sodium content, my testimony explained that the market was limited and quantified the size of the market that could be served by Montana PRB coal to be far in excess of the projected production from the Otter Creek mine. In my earlier statement, I quantified the capacity at the much larger number of power plants that can and do use high-sodium coals.

[20] Power Surreply at 4.
[21] Initial Schwartz Statement at 10 – 11.
[22] Initial Schwartz Statement at 11 – 12.

The Power Surreply presents a new fact -- that the University of Montana is researching sodium removal – as support for its opinion that the high sodium content limits the domestic market for Otter Creek coal. However, this new fact does not prove anything other than what Mr. Power and I have already agreed on: the high sodium content of Montana PRB coal causes problems for some power plants, but not all power plants. I have not dismissed the problems associated with the high-sodium content of Otter Creek coal; I quantified the domestic market for such coal and found that the market that can and has used this coal is much larger than needed to support the development of the Otter Creek mine.

C. The Domestic Geographic Transportation Advantages and Disadvantages of Montana PRB Coal

There is no substantive disagreement between my opinion and the opinion expressed in the Power Surreply that, because of its geographic location, Montana PRB coal has a transportation cost difference when competing with Wyoming PRB coal to power plants located across the U.S. Montana PRB coal has a transportation advantage over Wyoming PRB coal in some locations, *i.e.,* to the "northern tier" states of Washington, Oregon, Montana, North Dakota, Minnesota, and the Great Lakes (Michigan, Wisconsin and points farther East). Montana PRB coal has a transportation disadvantage compared to Wyoming PRB mines to customers located farther south. Where we appear to disagree, however, is whether Montana PRB coal's geographic transportation advantages and disadvantages limit the market for the proposed Otter Creek mine so much that such coal is not likely to be developed.

Even in the northern tier states, where it has an acknowledged transportation advantage, Montana PRB historically has had a smaller share of the market than Wyoming PRB coal. As shown on Exhibit 1, in 2010 the total amount of PRB coal distributed to the northern tier states was 91.0 million tons. Montana PRB constituted 34.1 million tons of coal deliveries to these

states (37.5% of the PRB demand), while Wyoming PRB coal constituted 56.9 million tons of the deliveries.

Exhibit 1: Coal Distribution to the Northern Tier States 2010 (1000 tons)

	PRB Coal			Western	Illinois		
State	**Montana**	**Wyoming**	**Lignite**	**Bituminous**	**Basin**	**Appalachia**	**Total**
Washington	2,495	2,451					4,946
Oregon	152	1,939		76			2,167
Montana	10,714	646	310	7			11,677
North Dakota	1,281	371	28,640				30,292
South Dakota		2,376				8	2,384
Minnesota	9,068	8,391		15	16	121	17,611
Wisconsin	539	21,788		707	784	1,071	24,889
Michigan	9,831	18,952		518	187	8,526	38,014
Total	**34,080**	**56,914**	**28,950**	**1,323**	**987**	**9,726**	**131,980**

Source: EIA Annual Coal Distribution Report 2010

The share of the market captured by Montana PRB coal (vs. Wyoming PRB) has been limited by the lack of supply of low-cost Montana PRB coal, even in the northern tier states where such coal has a transportation advantage. There are only 5 Montana PRB mines that have developed rail access[23] and those mines have had significant depletion of their reserves: Big Sky mine is closed, Decker mine is barely operating and Rosebud mine has closed the areas A and B which produced coal for the rail market (areas C and D are still operating and produce coal for the adjacent Colstrip power plant). Access to the low-cost Ashland area Montana PRB coal has been prevented by the lack of rail transportation infrastructure. If the low-cost Ashland area Montana PRB coal (like the Otter Creek mine) had rail access to the Tongue River Railroad, it would be highly competitive with Wyoming PRB coal to serve the plants in the northern tier states where Montana PRB coal has a transportation advantage.

[23] Spring Creek, Absaloka, Decker, Rosebud and Big Sky mines.

Further, Montana PRB coal still can and does compete successfully in domestic markets where it has a transportation disadvantage compared to Wyoming PRB coal. Since 1986, Montana PRB domestic coal deliveries to states outside of the northern tier have totaled 120 million tons, compared to 884 million tons of Montana PRB coal delivered to the 8 northern tier states.[24] In this period, Montana PRB deliveries have exceeded 1.0 million tons annually to each of 9 states outside the northern tier, as geographically widespread as the Southwest (Arizona and Texas), the Plains (Kansas and Nebraska), the Midwest (Illinois and Indiana), the Northeast (Ohio and Pennsylvania) and even the Southeast (Mississippi). A relative freight disadvantage does not preclude the coal from being sold in a particular location, it simply means that the mine price must be lower or there must be other factors which attract the customer. Montana PRB coal has been priced higher than Wyoming PRB in the past, because of the limited coal supply.

D. The History of Development of PRB Coal Supply in Wyoming and Montana

The Power Surreply repeats its earlier claim that "Montana and Wyoming PRB coals have not faced the same domestic market opportunities", as though the large historical growth of Wyoming PRB coal compared to Montana PRB coal means that there is no market for Montana PRB coal. The much greater growth in Wyoming PRB coal production does not mean that Montana PRB coal could not have served the same market; it means that Wyoming PRB coal was lower-cost coal (either at the mine or due to rail transportation costs) or had rail access.

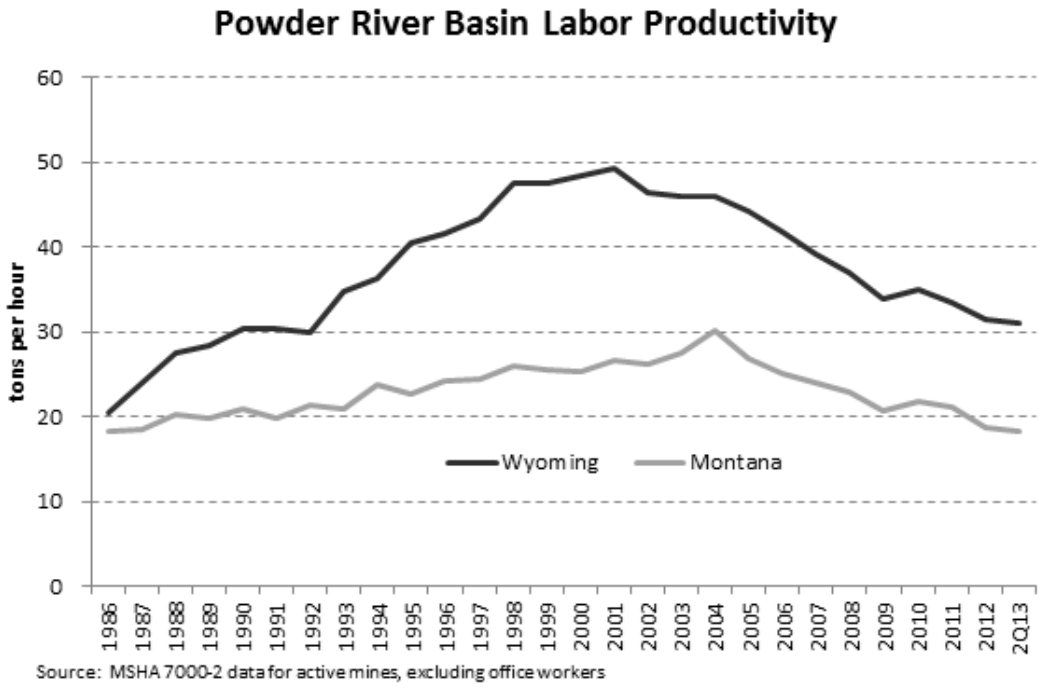
In fact, Wyoming PRB coal was lower-cost to produce and, as a result, sold at significantly lower mine prices than Montana PRB coal through much of the historical period since 1986 as shown on Exhibit 3. The Wyoming PRB coal mines were developed starting at the burn line (where the coal was so close to the surface that it burned from oxidation), with strip

[24] EIA Annual Coal Distribution Report from 1986 to 2011 http://www.eia.gov/coal/distribution/annual/archive.cfm

ratios of less than 2.0:1 (2 cubic yards of overburden per ton of coal mined). [25] In contrast, the Montana PRB coal reserves had higher strip ratios and thus higher costs to produce.

A good measure of the cost of coal production is labor productivity, which is the tons produced divided by the hours worked. The Wyoming PRB coal mines have had the highest labor productivity of any mines in the United States,[26] due to the very low strip ratios and very large equipment that has been employed to mine this. As shown in Exhibit 2 below, as the Wyoming PRB coal mines were developed, labor productivity improved from 1986 to 2001 as the mines expanded and employed ever larger equipment. However, labor productivity growth peaked in 2001 and has been declining sharply since then. As the coal mines have progressed into mining higher strip ratios and deeper cover, Wyoming PRB labor productivity has fallen from 49.3 tons per hour ("tph") worked in 2001 to 31.1 tph in 2013. *See* Exhibit 2.

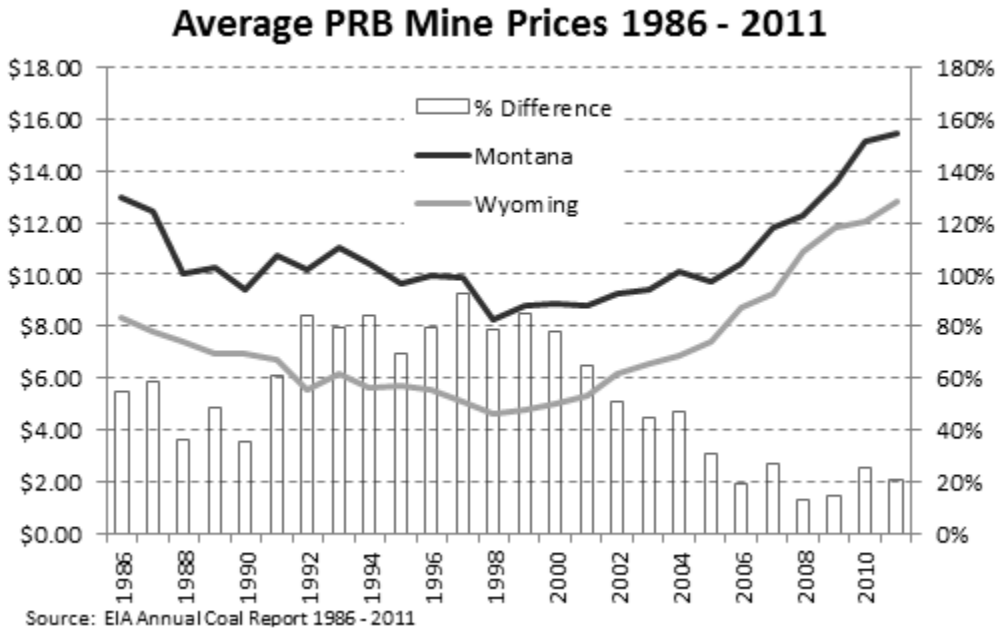
Exhibit 2: Powder River Basin Labor Productivity 1986 – 2013 (tons per hour worked)



[25] See USGS Assessment of Coal Geology, Resources, and Reserves in the Gillette Coalfield, Powder River Basin, Wyoming p. 101 http://pubs.usgs.gov/of/2008/1202/pdf/ofr2008-1202.pdf
[26] EIA Annual Coal Report 2011 p. 32 at http://www.eia.gov/coal/annual/

Labor productivity at the Wyoming PRB mines has been significantly higher than that at the Montana PRB mines historically, which is a cost advantage that has translated into lower mine prices for Wyoming PRB coal than for Montana PRB coal. *See* Exhibit 3. The lower mine price is a major reason why the production of Wyoming PRB coal has increased to supply the growing coal demand, while the production of Montana PRB coal has stagnated.

Exhibit 3: Historical Average Mine Prices for PRB Coal ($/ton)



As shown in Exhibit 3, the average mine sales price for Montana PRB coal was over 35% higher than Wyoming PRB coal for the period 1986 through 2004, reflecting the fact that this coal had higher production costs than Wyoming PRB coal. However, average mine prices for Wyoming PRB coal have been escalating more rapidly than those for Montana PRB coal in recent years because the huge production rate of Wyoming PRB coal has driven these mines into much higher strip ratios with higher production costs as a result. The average mine price for Montana PRB coal has been less than 25% higher than that for Wyoming PRB coal for the last 4 years. The undeveloped Montana PRB coal reserves in the Ashland area (like the Otter Creek

mine) have strip ratios that are significantly lower than today's strip ratios at the Wyoming PRB mines, and they would have lower operating costs as a result. The lower operating cost for the Otter Creek mine would allow it to compete with the Wyoming PRB mines and capture sales to customers which have previously purchased Wyoming PRB coal.

E. The Change in the Competitive Position of Wyoming PRB Mines Compared to the Otter Creek Mine

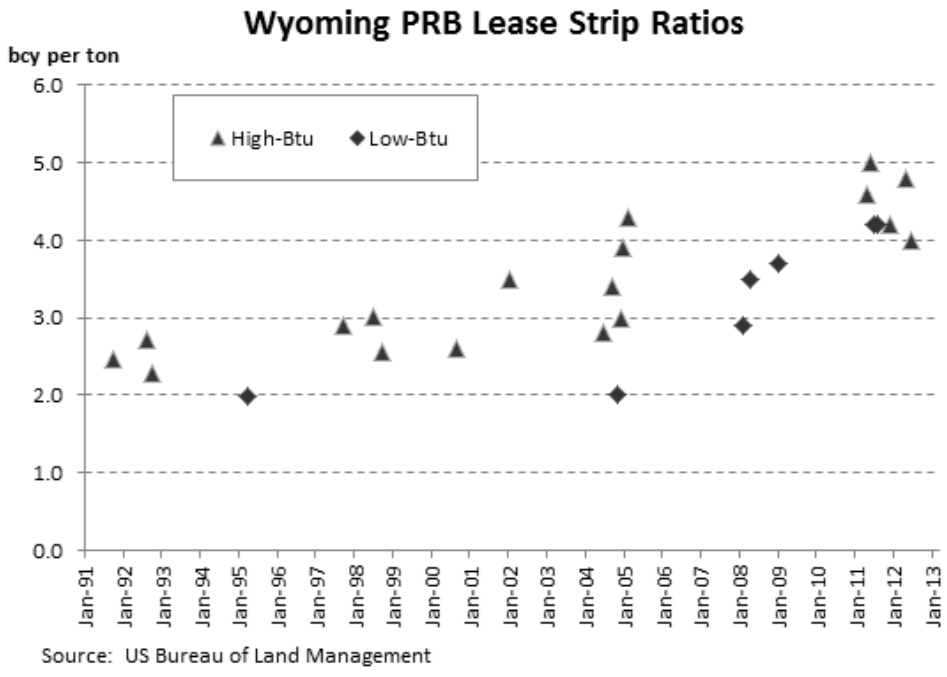
As I explained in my previous testimony, the major change in the competitive position of the Otter Creek mine project (and other mines that might be developed in the Ashland area) has been the steady depletion of other PRB coal mines. While some mines have closed (Big Sky and Big Horn) and others have had their remaining reserves merged into larger mines (Clovis Point, Caballo Rojo, North Antelope, Jacobs Ranch and North Rochelle),[27] all of the mines have mined out their lowest cost coal and are experiencing steadily increasing production costs. The Wyoming PRB coal mines have been steadily mining away from the coal outcrop into deeper overburden and higher strip ratios. The map of Federal coal leases[28] in the Wyoming PRB prepared by the Bureau of Land Management ("BLM") [29] in Appendix 1 shows the large extent of mining on the eastern edge of the Wyoming PRB. The map from the United States Geological Service on Appendix 2 shows the strip ratios for the Wyoming PRB reserves and how mining has steadily progressed to the west into higher cover.[30]

As I explained in my previous testimony, the increase in strip ratios in the Wyoming PRB can be seen from the reports issued by the BLM on the new federal coal leases through the lease-by-application ("LBA") process. The Wyoming PRB mines first began mining on leases which

[27] Initial Schwartz Statement at 36.
[28] Virtually all of the coal mined in the Wyoming PRB is on Federal coal leases.
[29] U.S. Department of Interior, Bureau of Land Management at http://www.blm.gov/wy/st/en/programs/energy/Coal_Resources/PRB_Coal/prb_maps html
[30] USGS Assessment of Coal Geology, Resources, and Reserves in the Gillette Coalfield, Powder River Basin, Wyoming p. 101 http://pubs.usgs.gov/of/2008/1202/pdf/ofr2008-1202.pdf

were obtained on lease sales by the BLM in the 1960's and 1970's. These mines began operations in coal reserves that had strip ratios less than 2.0:1. They had very low costs and expanded rapidly to supply the growing market. As the reserves on the initial leases were mined out, these mines have acquired new federal leases through LBAs in order to continue operations. As shown on Exhibit 4,[31] the strip ratios in the LBAs issued in the 1990's were 2.0:1 – 2.7:1, which were still lower ratio than the average projected Otter Creek strip ratios of 3.0:1.[32] Thus, had Otter Creek been developed in 1986, it would have been at an economic disadvantage. Since 2005, all of the LBAs have had strip ratios over 4.0:1 and are approaching 5.0:1 which is now above the average projected Otter Creek strip ratios. *See* Exhibit 4. Thus, the cost to mine coal in the Wyoming PRB has been increasing and will continue to grow in the future. This is the major reason why Otter Creek can be economic to develop today.

Exhibit 4: Strip Ratios for New Wyoming PRB LBAs



[31] U.S. Department of Interior, Bureau of Land Management at http://www.blm.gov/wy/st/en/programs/energy/Coal_Resources/PRB_Coal/lba_title.html

[32] Norwest Corporation, Otter Creek Property Summary Report, July 12, 2006, Table 2.2 (attached as Exhibit SS-18 to Initial Schwartz Statement).

Mr. Power agreed with my opinion that Wyoming PRB coal prices will increase in real terms (that is, above the rate of inflation) in testimony that he recently filed in May 2013 on behalf of the Sierra Club in opposition to Georgia Power's plan to convert its McIntosh power plant to use PRB coal, as quoted below:

"The real price increase in my projected Wyoming PRB mine-mouth price is associated with several economic forces:

- Declining labor productivity in the PRB mines as those mines have to go deeper and deeper to obtain that coal and then haul the extracted coal further for processing and loading.
- Projected increased costs as the mines expand or relocate requiring the movement of roads and, potentially, rail lines.
- Rising labor, fuel, explosives and machinery costs.
- Increasing competition among PRB mining companies to obtain the most attractive additional coal tracts onto which to expand or build a new mine. This has led the upfront bonus bids paid to the owner of the coal, which is mainly the Federal Government, which can run to hundreds of millions of dollars, to rise dramatically in recent years.
- The continuing demand for PRB coal in the southeastern U.S. as is evidenced, for instance, by Georgia Power's proposal to use PRB coal to fuel McIntosh 1.
- The new demand for PRB coal in export markets *if* port and rail infrastructure are available to facilitate those exports.
- That demand for PRB coal allows the market price to follow the cost of producing the coal."[33]

Mr. Power's testimony in the Georgia case is consistent with my opinion in all salient points: rising demand (both domestic and export) for PRB coal, increasing cost of production for Wyoming PRB coal, and increasing real prices for Wyoming PRB coal. All of these factors

[33] Georgia Public Service Commission, Docket Number 36498, Testimony and Exhibits of Thomas Power Ph.D., on behalf of the Sierra Club and Coosa River Basin Initiative, May 10, 2013 http://www.psc.state.ga.us/factsv2/Document.aspx?documentNumber=147826. Cited excerpts of this testimony are attached as Rebuttal Exhibit SS-4.

support my opinion that there is domestic demand for coal from the Otter Creek mine and this mine can compete for the market with Wyoming PRB coal.

The best evidence that there is a market for Otter Creek coal is the fact that a major mining company, Arch Coal, has made a large investment to acquire the coal reserves. Arch Coal purchased the mining rights under 2 coal leases:

- On November 12, 2009, Arch paid $73.1 million to Great Northern Properties for the lease of its coal reserves at Otter Creek; and,
- On March 18, 2010, Arch was awarded a state coal lease for the Otter Creek tracts for a price of $85.8 million.[34]

By purchasing the mining rights to these properties, which divide the reserves in a "checkerboard" manner, Arch created the ability to economically mine the Otter Creek tract as a contiguous property. The fact that a major producer of Wyoming PRB coal would invest in the right to mine Otter Creek shows that the marketplace believes that there is demand for this coal and it can be economically competitive with the Wyoming PRB.

The Power Surreply also asserts that the Otter Creek mine would have to compete with *new* Wyoming PRB mines (in addition to the existing Wyoming PRB mines), which would not have higher strip ratios due to previous mining.[35] However, there are no proposed new mines in the Gillette area of the Wyoming PRB as shown on the BLM map at Appendix 1. All of the coal reserves near the outcrop have been leased and mined. The reserves in this area have been fully controlled by the existing mines as they have expanded and the mine borders touch each other. There are no proposed new Federal coal leases to support a new Wyoming PRB mine; all of the proposed leases are to support continued operations of existing Wyoming PRB mines in higher

[34] Arch Coal, SEC Form 10-K 2011, p. F-14 http://investor.archcoal.com/phoenix.zhtml?c=107109&p=irol-sec
[35] Power Surreply at 21 – 22.

strip ratios as discussed above. The only other proposed new mine in the PRB is the Youngs Creek mine, which is in the Northern PRB on the Montana – Wyoming border near the Spring Creek mine. Cloud Peak purchased this coal reserve from Chevron and Consol Energy in 2012 for $300 million.[36] This potential new mine development is in a similar area to Otter Creek and is further evidence that established mining companies (like Cloud Peak and Arch) in the PRB believe that new mines in the Montana PRB can be economically competitive with the Wyoming PRB.

II. The Availability of Port Capacity at the Canadian Terminals for the Export Market

The NPRC Surreply claims that my testimony that there would be 22 million tonnes[37] per year of increased capacity available for increased U.S. coal exports from expansions at Canadian ports was not accurate.[38] The NPRC Surreply based this claim on the following assertions:

- The Neptune terminal deals solely in metallurgical coal and is controlled by Teck, so its capacity would not be available to ship Otter Creek coal;
- There is no reason to believe that any of the proposed capacity at the Fraser Surrey Docks would be allotted to U.S. suppliers;
- Other companies have contracts for a large share of the Westshore Terminal capacity; and,
- All of the capacity from the expansion at the Ridley Terminal is already secured by other competitors.

While NPRC's assertions, which are based on a collection of press releases, are either wrong or exaggerated, NPRC misses the entire point. My testimony is that there is ample capacity for increased U.S. coal exports through the expansions of the Canadian terminals to

[36] See Cloud Peak Energy 2012 SEC Form 10-K, p. 8 http://cloudpeakenergy.com/investor-relations/sec-filings/
[37] A tonne is a metric ton, which equals 1.10231 short tons.
[38] NPRC Surreply at 17.

absorb the increased production transported by the Tongue River Railroad which might be exported through the West Coast. While it is true that other producers may want to increase coal exports also, that will always be a possibility. However, a reasonable analysis of current shipments and planned capacity shows that the capacity will be available. If Otter Creek coal is economically competitive with other coals, this terminal capacity will be available for it.

First, the TRRC has not claimed that all of the proposed 20 million tons per year of expected production from the Otter Creek mine is likely to be shipped to export markets through the West Coast, or that even half of the production would be shipped through these terminals. TRRC's filings project that a majority of the expected production is likely to be sold in the domestic market; so perhaps as much as 10 million tons per year might be exported.

Second, the coal that will be exported through the Canadian ports is not rigidly tied to one particular port. The coal can be shipped where the capacity is available and economic. Thus, while NPRC claims that Otter Creek coal could not use excess capacity at one or more ports because it would not be available to Arch, it ignores the fact that coal shipments can change among ports and it is the total available capacity which is relevant to the analysis.

I have prepared a summary of the 2012 capacity reported by the Canadian ports, the planned capacity expansions, and the actual shipments of coal in 2012 by source on Exhibit 5.

Exhibit 5: Canadian Port Capacity and Actual 2012 Shipments (million metric tons)

	Vancouver Terminals					Canada
	Westshore	**Neptune**	**Fraser**	**Total**	**Ridley**	**Total**
Existing Capacity	28.0	8.5	0.0	36.5	12.0	48.5
2012 Shipments						
Canada	18.5	6.4	0.0	24.9	9.6	34.5
US	7.6	0.0	0.0	7.6	1.9	9.5
Total	**26.1**	**6.4**	**0.0**	**32.5**	**11.5**	**44.0**
Expanded Capacity						
2013	33.0	12.5	0.0	45.5	12.0	57.5
2014	33.0	12.5	4.0	49.5	18.0	67.5
2017	33.0	18.5	4.0	55.5	24.0	79.5
Available Capacity over 2012						
Metric tons per year	6.9	12.1	4.0	23.0	12.5	35.5
Short tons per year	7.6	13.3	4.4	25.4	13.8	39.1
2012 Shipments						
Canada						
Teck	14.9	6.4	0.0	21.3	1.0	22.3
Coal Valley	2.2			2.2	1.3	3.5
Grande Cache	1.1			1.1		1.1
Walter				0.0	4.5	4.5
Peace River				0.0	1.4	1.4
Petroleum coke	0.3			0.3	1.4	1.7
	18.5	**6.4**	**0.0**	**24.9**	**9.6**	**34.5**
US						
Cloud Peak	3.6			3.6	0.4	4.0
Signal Peak	4.0			4.0		4.0
Arch Coal				0.0	1.5	1.5
	7.6	**0.0**	**0.0**	**7.6**	**1.9**	**9.5**

Sources:

2012 shipments calculated from annual reports filed by Westshore and Ridley Terminals

Capacity expansion plans referenced in Schwartz June 2013 Statement at 18 - 23

The existing capacity at the Vancouver-area ports was 36.5 million tonnes per year in 2012. The port capacity was highly-utilized in 2012, with 32.5 million tonnes actually shipped.

These ports plan to expand capacity to 55.5 million tonnes per year by 2017. Of this additional 19 million tonnes, 9 million tonnes is now in place in 2013.

NPRC asserts that there is no reason to assume that any of the 4 million tonnes per year capacity at the proposed Fraser Surrey Docks terminal would be allotted to U.S. suppliers.[39] Actually, there is a very good reason to assume that all of the capacity will be allotted to U.S. suppliers: the president of Fraser Surrey Docks says so. As stated in the press:

> "Concerns have been raised about the transfer of coal from mines in Montana and Wyoming, through the Lower Mainland, to the dock in Surrey, and down the Fraser River, from where it would cross the Pacific Ocean to markets in Asia. Fraser Surrey Docks president and CEO Jeff Scott outlined a long list of safety, health and environmental precautions that would work toward ensuring the clean transport of that coal…. Sitting by his side was Courtney Wallace, northwest regional director of public affairs for BNSF Railway, the company owned by Warren Buffett that will, if the project is approved, transport the coal from U.S. mines to the Surrey port."[40]

There is a very good reason why the coal which would be exported by Fraser Surrey Docks would be U.S. coal from Montana and Wyoming: the dock is served by the BNSF Railway, which serves the mines in the U.S. but not the mines in Canada.

NPRC makes another flawed assertion when it claims that the Neptune Terminal deals solely in metallurgical coal.[41] NPRC implies that Neptune can only handle metallurgical coal, as though somehow the terminal could not ship thermal coal also. It is true that the Neptune Terminal is owned by Teck Resources Limited and at the present time only ships coal produced by Teck. However, it is not true that all of Teck's coal is metallurgical coal, as Teck states:

> "Lesser quality PCI and thermal coal products accounted for approximately 10% of our annual sales volume in 2012."[42]

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[39] NPRC Surreply at 19.
[40] See http://www.straight.com/news/384911/fraser-surrey-docks-outlines-coal-transfer-precautions-opposition-continues, May 22, 2013
[41] NPRC Surreply at 17.
[42] Teck Resources Limited, 2012 Annual Information Form, p. 15
http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fInvestors+Pages%2fFinancial+Reporting&portalName=tc

Further, any terminal that ships metallurgical coal can also ship thermal coal. While Teck owns the Neptune terminal, they are expanding it to handle more coal, either more of Teck's own coal or coal for third parties. If, as NPRC claims, Neptune will only handle Teck's own coal, then Teck would ship less of its coal through the Westshore Terminal making more capacity available there for other shippers, like Arch Coal. There are many ports owned or controlled by coal companies that allow third-parties to ship coal through those ports (for example, the CNX Terminal in Baltimore, owned by Consol Energy[43] and the DTA Terminal in Newport News (owned by 3 coal companies)[44] both allow coal from third parties to be shipped through the terminals). Teck will either ship more of its own coal or third-party coal through the Neptune expansion; it will not sit idle after Teck has spent $40 million[45] on the expansion to achieve 12.5 million tonnes per year capacity. Teck has further completed the feasibility study to increase capacity to 18.5 million tonnes per year[46] and detailed engineering work for this expansion is underway.[47]

The largest coal terminal in Vancouver is the Westshore Terminal. It has just completed the expansion from capacity of 28 million tonnes per year to 33 million tonnes per year.[48] It is true that Westshore ships significant volumes of Canadian coal, about 18.5 million tons in 2012. It is also true that Westshore has long-term contracts with its 3 Canadian shippers: Teck, Coal

[43] http://www.consolenergy.com/other-services/marine-terminal.aspx
[44] http://www.dominionterminal.com/Facility%20Description htm
[45] Teck Resources Limited, 2013 Second Quarter News Release, p. 26 http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fMedia+Pages%2fMedia+Detail&releaseNumber=13-24-TR&portalName=tc
[46] Teck Resources Limited, 2012 Fourth Quarter News Release, p. 19 http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fMedia+Pages%2fMedia+Detail&releaseNumber=13-4-TR&portalName=tc
[47] Teck Resources Limited, 2013 Second Quarter News Release, p. 18 http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fMedia+Pages%2fMedia+Detail&releaseNumber=13-24-TR&portalName=tc
[48] Westshore Terminals 2012 Annual Information Form, p. 2 http://www.westshore.com/pdf/finance/2012/aif.pdf

Valley and Grand Cache.[49] However, these contracts leave ample space for Westshore to expand its shipments of U.S. coal. The Teck contract commits Teck to ship not less than 16 million tonnes per year and up to 19 million tonnes per year.[50] Excluding its plan to reopen the Quintette mine (which would ship through Ridley Terminal)[51], Teck is targeting an expansion from its existing mines of just 3 million tonnes, from 24.7 million tonnes in 2012[52] to 28 million tonnes per year.[53] As Teck ships 1 million tonnes of this coal from Cardinal River mine to Ridley and 2 million tonnes eastbound to the Great Lakes,[54] that means that Teck's exports through the Vancouver ports could grow by 3 million tonnes to 25 million tonnes per year. These exports will be split between Neptune, which Teck owns and has capacity of 12.5 million tonnes per year (possibly growing to 18.5 million), and Westshore.[55] With the capacity expansion at Neptune more than adequate to handle all of Teck's planned production, it is clear that Teck will not be increasing its exports through Westshore.

The second-largest shipper is Sherritt International (Coal Valley Resources), which produces thermal coal from 2 mines.[56] Coal Valley has suspended operations at its Obed mine and projects that its production will decline from 4.4 million tonnes in 2011 to just 3.2 million

[49] Westshore Terminals 2012 Annual Information Form, p. 6 http://www.westshore.com/pdf/finance/2012/aif.pdf
[50] Ibid.
[51] Teck Resources Limited Annual Information Form, p. 23 http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fInvestors+Pages%2fFinancial+Reporting&portalName=tc
[52] Teck Q4 2012 Conference call presentation, p. 6 http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fInvestors+Pages%2fPresentations+and+Webcasts&portalName=tc
[53] Teck presentation to BMO Global Metals & Mining Conference, February 2013, p. 14 http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fInvestors+Pages%2fPresentations+and+Webcasts&portalName=tc
[54] Teck Investor Day Coal Business Unit presentation November 2012, p. 21 http://www.teck.com/Generic.aspx?PAGE=Teck+Site%2fInvestors+Pages%2fPresentations+and+Webcasts&portalName=tc
[55] Id at p. 23.
[56] Sherritt International Corporation Annual Information Form 2012, p. 42 http://www.sherritt.com/Investor-Relations/Financial-Reports/AIFS-Proxies

tonnes in 2013.[57] Coal Valley shipped 2.2 million tonnes through Westshore in 2012 (Coal Valley also exports through Ridley), down from 2.7 million tonnes in 2011. Coal Valley is a high-cost thermal coal producer, reporting cash costs of $89.97 per tonne in 2013 against a sales price of $89.74 per tonne.[58] While Coal Valley has a contract to ship *up to* 3 million tonnes per year, not only is Coal Valley not expanding its exports, it reports that it has just 17.4 million tonnes, or 5 years of life at its existing mine and just 2.6 million tonnes of reserves at the Obed mine.[59]

The third Canadian shipper is Grande Cache, which was acquired by a joint venture of Winsway Coking Coal Holdings Limited (60%), based in Hong Kong, and Marubeni (40%) in March 2012.[60] Winsway has represented that it plans to expand production from Grande Cache from 1.7 to 3.5 million tonnes per year, but that it will split this capacity between Westshore and Ridley terminals, not ship exclusively through Westshore.[61] As a result, the maximum expansion potential through Westshore would be 1.8 million tonnes per year. Given Winsway large operating losses at Grande Cache[62] and the lack of any progress in expansion so far, it is not likely that any expansion will actually occur.

Thus, with no increase from Coal Valley, no increase from Teck (any increase would go to Neptune), and no more than a 1.8 million tons increase from Grande Cache (which is highly unlikely), the expansion of capacity at Westshore would be almost totally available to ship U.S. origin coals. As shown on Exhibit 5, the expanded capacity of the terminals in Vancouver will

[57] Sherritt Q2 2013 Quarterly Report, p. 11 http://www.sherritt.com/Investor-Relations/Financial-Reports/Quarterly-Reports
[58] Sherritt Q1 2013 Quarterly Report, p. 7 http://www.sherritt.com/Investor-Relations/Financial-Reports/Quarterly-Reports
[59] Sherritt International Corporation, 2012 Annual Information Form, pp. 42 - 50 http://www.winsway.com/html/ir_presentations.php
[60] Winsway Coking Coal Holdings Limited 2012 Annual Report, p. 118 http://www.winsway.com/html/ir_reports.php
[61] Winsway 2012 Results Presentation, pp. 14 - 19 http://www.winsway.com/html/ir_presentations.php
[62] Winsway 2012 Annual Report, p. 118 http://www.winsway.com/html/ir_reports.php

add the capability to increase total coal shipments over the actual 2012 level by 17 million tonnes per year in 2014 (from 32.5 million tonnes actually shipped in 2012 to capacity of 49.5 million tonnes) and another 6 million tonnes per year with the next expansion of Neptune by 2017. The increased production from the Canadian producers may be up to 5 million tonnes between Teck and Grande Cache (even assuming that Coal Valley does not continue to decline as it has been doing for the last 2 years). That means that at least 12 million tonnes of additional port capacity would be available for increased U.S. coal exports by 2017 and possibly over 20 million tonnes per year if Neptune expands further and Coal Valley declines.

U.S. coal exports already accounted for 7.6 million tonnes through Westshore in 2012, split between Cloud Peak and Signal Peak. While these producers may compete with Arch to expand exports through the Vancouver ports, there is no reason to believe that Arch would not be competitive in this market, given the transportation advantage and the low operating cost of a mine at Otter Creek.

While the NPRC discounts the potential for PRB coal to ship to Asia from the expanded ports in British Columbia, its expert Mr. Power does not agree. In a recent report prepared for the Energy Foundation by Thomas Michael Power and Donovan S. Power, they wrote:

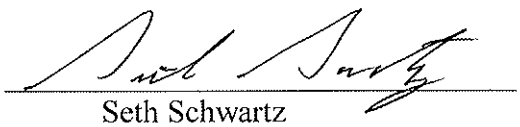
> "A major additional expansion of PRB coal sales beyond US domestic markets through exports to Asia largely hinges on the ability of the U.S. to ship PRB coal out of new or expanded ports on the west coast of North America. The proposed coal shipping ports of Longview and Cherry Point together represent some 130 million tons of additional coal shipping capacity. **The Westshore Terminals in Vancouver, BC, plans to expand its export capacity from 24 to 33 million tons and the Port Ridley in northern British Columbia plans an expansion of from 12 to 24 million tons** (*emphasis added*)**.** In addition, Ambre Energy and Kinder Morgan Terminals have proposed a coal export project at the Port of St. Helens upstream from Longview on the Oregon side of the Columbia and an undisclosed company has proposed developing a coal port at Coos Bay, Oregon. Considering only those facilities that have developed detailed plans, the combined new export capacity on the west coast of North America has the potential to exceed 150 million tons of coal per year in the near future. In the analysis below we have

assumed that 140 million tons per year of PRB coal will be exported from west coast ports to Asia by 2025."[63]

[63] May 2013 Power Report, p. 22 http://www.powereconconsulting.com/WP/assets/GHG-Impact-PRB-Coal-Export-Power-Consulting-May-2013_Final.pdf

VERIFICATION

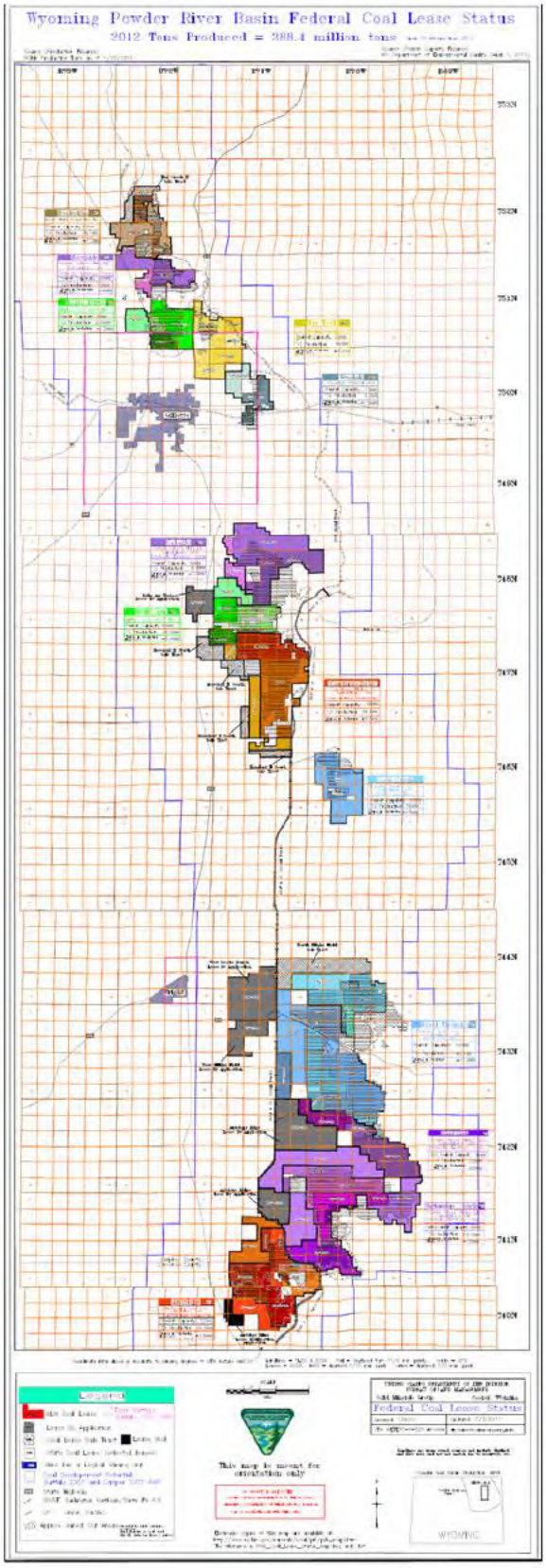
I, Seth Schwartz, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.



Seth Schwartz

Dated this 9th day of August, 2013

Appendix 1: Wyoming PRB Federal Coal Lease Map



Appendix 2: Strip Ratios of the Wyoming PRB Coal Reserves

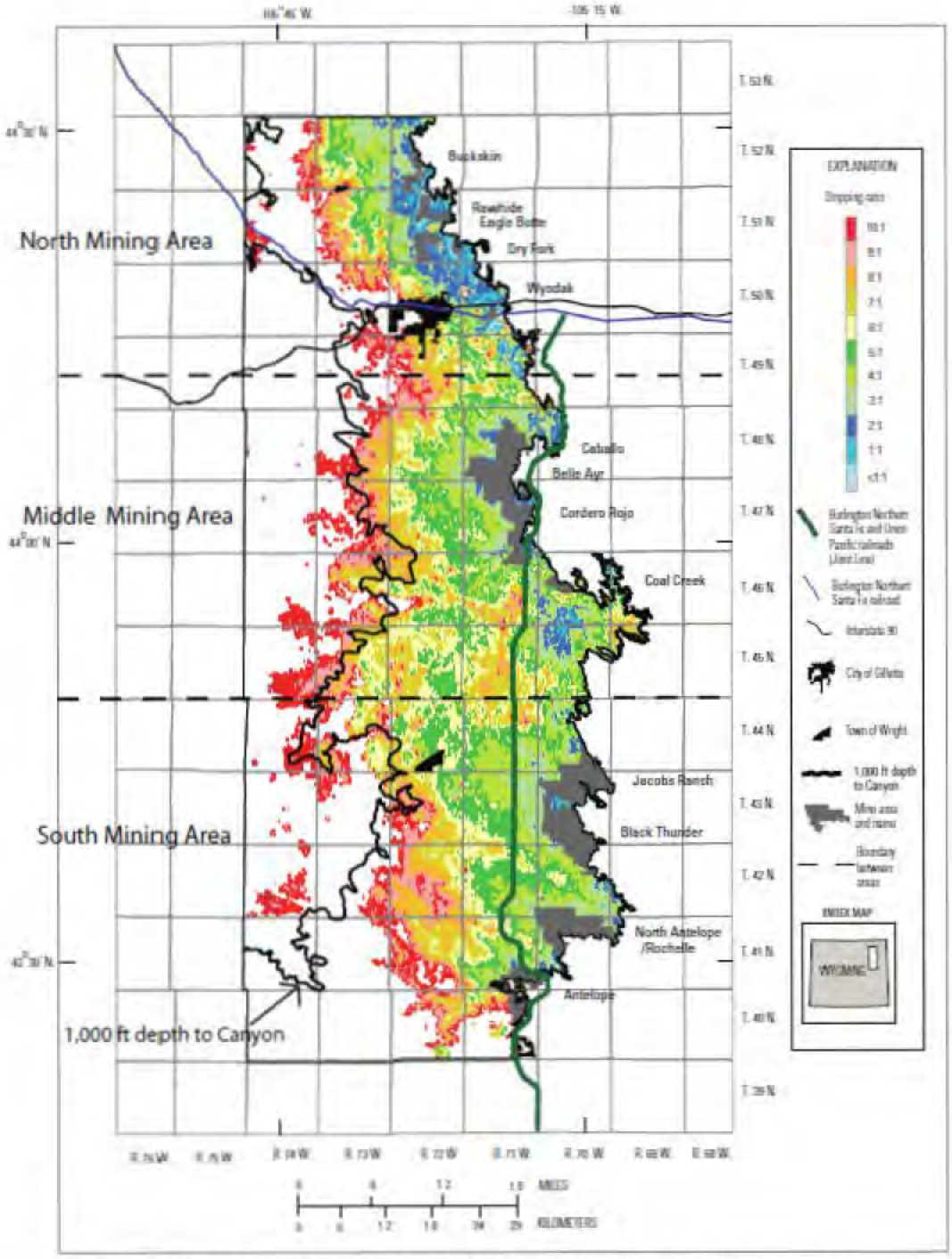


Figure 62. Map showing the stripping ratio for the six coal beds for which reserves were calculated. Waste rock includes the volume of overburden above the uppermost coal bed, volume of rock between coal beds, and volume of partings within the coal bed. Coal includes all coal from the top of the Roland coal bed to the bottom of the Canyon coal bed.

REBUTTAL SS-1

The Impact of Powder River Basin Coal Exports on Global Greenhouse Gas Emissions

A report prepared for

The Energy Foundation

San Francisco, CA
www.ef.org

by

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May 2013

expected to rise by 98 million tons. That is, about 70 percent of the PRB coal exports would represent net additional coal consumption and GHG emissions. Only 30 percent of the PRB exports displace other sources of coal. The 98 million ton increase in annual coal consumption will release about 183 million tons of CO2. That is the equivalent of the coal consumption and GHG emissions of 14 electric generating plants the size of the Centralia plant in Washington. The Centralia plant has been schedule for retirement by the Washington state government to reduce GHG emissions.

4. PRB Coal Will Be Highly Competitive in Southeastern Coastal Chinese Markets, Pushing Coal Costs There Downward

Our analysis of the cost of mining an additional 140 million tons of coal in the PRB and shipping it by rail and ship from the proposed new and expanded coal ports on the U.S. and British Columbian west coast found that PRB coal can be delivered at a much lower cost than either domestic Chinese coal or the current major sea-borne exporters of coal to that market, Indonesia and Australia. Using conservative assumptions, PRB coal could, if it had to, undersell current suppliers to the south coast of China by as much as 40 percent.

Given the expected ongoing rapid growth in coal consumption in this coastal market, this means that PRB coal could ultimately export much more coal that the 140 million tons we have considered and drive the cost of coal to this part of the Chinese market much lower than the 12 percent we have calculated. That would increase coal consumption and GHG emission even more.

We analyzed the incremental costs associated with expanded PRB mining and found that due to the geologic and economic characteristics of that coal (large quantities, thick seams, close to the surface, etc.) annual production can increase with only modest impacts on the cost of production. Substantial increases in PRB coal production can take place without driving the PRB mine mouth coal costs significantly upward. Other studies have confirmed this. Just as important, past coal production in the PRB supports the same conclusion: While PRB coal production has increased many fold over the last four decades, the real mine mouth coal price declined for most of that period and remains the lowest in the country today.

5. Increases in PRB Mine Mouth Coal Prices Will Not Cause a Shift from Coal to Natural Gas in Generating American Electricity because PRB Mine Mouth Coal Prices Represent a Small Part of the Total Cost of Using PRB Coal.

The cost of transporting PRB coal to distant electric generators in the eastern U.S. largely determines the delivered cost of that coal, not the mine mouth price back in Wyoming and Montana. As much as two-thirds of the delivered costs are transportation costs. In addition, increasingly stringent air emission standards being imposed on coal-fired electric generators represent substantial costs that have discouraged the building

The other primary assumption on which the environmental optimism about the impact of coal exports to China is based is that exports to China will drive up coal costs in the United States. Of course, if the supply of coal in the U.S. were fixed and Chinese demand for that coal was not limited by the high cost of most of that coal, Chinese competition to buy that coal would certainly drive up the cost of coal to American customers, possibly to very high levels. But the cost of production for much of America's thermal coal supply does not make it an attractive source to Asia, especially if coal ports on the west coast provide more direct Chinese access to PRB coal. In addition, the coal supply in the United States is *not* fixed. PRB coal companies want to *expand* their coal production in order to export coal to China and other U.S. domestic coal mines that over the last several decades have had to cut back production due to competition from PRB coal would also like to expand production if they could be competitive in Asian or other world markets.

In that setting, how much coal prices would rise in the U.S. as a result of such PRB coal exports would depend on how much more costly it will be to expand production at existing mines and to open up new mines. This is an empirical question that we will explore in detail in this report. Here we will just point out that the PRB contains a very large and very low cost coal resource that has been able to respond to increased demand for its coal by expanding its scale of production many fold over the last several decades while also reducing the real mine mouth price of that coal. In addition, much of the PRB coal supply that in the northern part of the Powder River Basin in Montana has not faced significant development pressure over the last forty years because it was at a transportation cost disadvantage relative to Wyoming coal in reaching the fastest growing American markets. As a result, Wyoming produces ten times as much coal as Montana even though Montana has the larger economic reserves. For exports to Asia from the west coast of North America, Montana coal resources are likely to have the cost advantage.

Another important assumption in the environmentally optimistic view of the impact of PRB exports to China is that it is primarily the mine mouth cost of coal that determines whether coal or natural gas is burned by U.S. electric generators. This too is an empirical question that we will explore in some detail. What we will conclude is that the shift from coal-fired to natural gas-fired electric generation has been underway for many years in the United States despite the relatively low cost of coal and, until recently, the relatively high cost of natural gas as a fuel for electric generation. Changes in the mine mouth cost of the PRB within the range expected due to PRB coal exports will have little or no impact on the fuel choices being made by American electric generators. It is other costs, transportation, capital, environmental, and regulatory, that are driving a shift towards natural gas as the fuel for electric generation that is already well underway.

II. Powder River Basin Coal Exports to China: Resource, Cost, and Competitiveness on the South China Coast

1. The Powder River Basin Coal Resource

The Powder River Basin (PRB) is one of the world's largest deposits of coal. The PRB runs from northeastern Wyoming to southeastern Montana and holds the thickest beds of coal in the United States.[16] The PRB is primarily composed of sub-bituminous coal noted for some of the lowest sulfur content in the country (an average value of 0.48 percent).[17] Although the heat content average (8,800 Btu) is not high, the relative abundance of the coal deposits near or at the surface allow for some of the cheapest mine mouth prices for coal in the entire world. Because the coal deposits are so abundant with relatively small overburdens, surface mining is dominant across the PRB. The PRB has steadily increased its share of the coal market in the United States since it began producing coal in the 1970s. Coal production from the PRB represents about half of all US production (on a Btu basis) and is projected by the Energy Information Administration (EIA) to continue to expand its share of U.S. coal production through 2035.[18]

The PRB is estimated by the EIA to have "recoverable reserves" of 162 billion tons.[19] At current mining levels of approximately 500 million tons per year, this coal resource would last more than three centuries.[20] With essentially flat coal consumption predicted by the EIA through 2035 for the United States, and energy use per capita predicted to decline, it is not surprising that the major coal producers in the PRB are anxious to secure new customers, including overseas customers, for their coal.[21]

The relatively flat projection of U.S. coal consumption (0.2 percent annual growth) can be juxtaposed to China's coal consumption for electricity that is estimated by the EIA to grow at 3 percent annually through 2035.[22] Other sources have China's growth rate for thermal coal consumption as high as 8 percent per year.[23] At a 3 percent growth rate China would double its coal consumption in 24 years and an 8 percent growth rate would double its coal consumption in less than 10 years.

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[16] http://pubs.usgs.gov/pp/p1625a/Chapters/PQ.pdf and http://www.epa.gov/ogwdw/uic/pdfs/cbmstudy_attach_uic_attach05_powder.pdf

[17] http://pubs.usgs.gov/pp/p1625a/ES/ESpt2.html

[18] Annual Energy Outlook 2011 page 85.

[19] David Scott and James Luppens. "Assessment of Coal Geology, Resources, and Reserve Base in the Powder River Basin, Wyoming and Montana." U.S. Department of the Interior and U.S. Geologic Survey, February 2013.

[20] EIA and USGS define "recoverable reserve" and "recoverable resource" differently. In general these measures of available coal take into account restrictions on mining coal deposits, coal mining losses, and represent coal that could be mine if coal prices were high enough and/or technological change reduced the cost of that mining.

[21] Annual Energy Outlook 2011 page 62 and 63. This comparison is coal use in the electricity sector.

[22] http://www.eia.gov/forecasts/ieo/pdf/0484percent282011percent29.pdf page 71

[23] http://resourceinvestingnews.com/21056-chinese-coal-imports-surge.html

exporting countries. Changes in the relative value of US and Chinese currencies could affect PRB competitiveness. Chinese and other coal suppliers, in response to competition, could improve the efficiency with which they produce their coal. However, given what we know now, it seem highly likely that PRB will be a highly competitive new source of coal to the industrial and population centers on the southeast coast of China.

Many other coal and investment analysts have made calculations that are similar to those presented here, also emphasizing that shipping PRB coal to the southern coast of China could be a very lucrative business.[49] More tangible evidence of the potential profit that can be made from exporting North American coal to Asia from the west coast is provided by the PRB coal that the U.S. is currently shipping to China. Although Prince Rupert, BC, is 1,900 miles and the Westshore Terminal in Vancouver, B.C. is 1,600 miles from the Spring Creek Mine in Montana, Cloud Peak Energy shipped 4.5 million tons of coal from the PRB to Asia through these west coast ports in 2011.[50] This very long overland transportation path bypasses the entire west coast of the United States due to the current lack of coal ports there.

The coal ports of Virginia Beach, Virginia, experienced massive delays in 2011 because the port was trying to operate well over capacity, partially to take advantage of the weather-related disruptions in international coal exports from Indonesia and Australia that shifted demand to the United States and other countries.[51] Spurred by over-used port capacity at U.S. ports up and down the eastern seaboard, the major US coal companies began scrambling to ship coal in large volumes out ports on the Gulf of Mexico. "Despite taking more than 45 days to reach Asia, coal shipments from the U.S. have surged into Asia. But with huge queues off the busy East coasts ports of Newport News and Baltimore, shippers and producers are developing new capacity out of the Gulf of Mexico."[52] By contrast it would take less than half that time (approximately 21 days) to ship coal from the coast of Washington to southeastern China.[53]

Although the US is shipping coal to China through many different ports right now, and although we can show that it is a lucrative proposition for the coal companies to send PRB coal to China, there currently is no large scale American west coast coal port that allows the relatively close proximity of PRB coal to the west coast and the travel distance advantage of reaching China from the west coast. The existing North American west coast ports in Canada are too crowded and their shipping capacity is too small to accommodate a significant increase in coal exports. If significant volumes of coal from

[49] http://www.wusa9.com/news/local/story.aspx?storyid=124286 and http://daily.sightline.org/2010/12/10/coooooooal-train/ and http://seekingalpha.com/article/225244-thermal-coal-as-u-s-export-industry

[50] Cloud Peak Energy Investor Presentation November 2011.

[51] http://hamptonroads.com/2011/02/coal-ships-create-sight-hampton-roads-waters

[52] http://www.coalage.com/index.php/features/1087-coal-producers-a-shippers-work-to-increase-export-capacity.html

[53] It takes approximately 20 days to ship coal from the Ridley Terminal in Prince Rupert, BC and come back. It is approximately one day farther from Vancouver, B.C. which we use as a proxy for the Bellingham area than from the Ridley Terminal. http://www.ecoalchina.com/english/news/gnmtxw/957746.shtml Also see: http://www.cn.ca/en/shipping-china-asia-north-america-coal.htm .

the PRB are going to move out of North America, new ports will have to be built. If new ports are not built, PRB coal will likely continue to be limited to serving existing U.S. markets which, while projected by EIA to be relatively flat in the aggregate, are likely to support significant additional PRB production.[54] A major additional expansion of PRB coal sales beyond US domestic markets through exports to Asia largely hinges on the ability of the U.S. to ship PRB coal out of new or expanded ports on the west coast of North America.

The proposed coal shipping ports of Longview and Cherry point together represent some 130 million tons of additional coal shipping capacity.[55] The Westshore Terminals in Vancouver, BC, plans to expand its export capacity from 24 to 33 million tons and the Port Ridley in northern British Columbia plans an expansion of from 12 to 24 million tons.[56] In addition, Ambre Energy and Kinder Morgan Terminals have proposed a coal export project at the Port of St. Helens upstream from Longview on the Oregon side of the Columbia and an undisclosed company has proposed developing a coal port at Coos Bay, Oregon. Considering only those facilities that have developed detailed plans, the combined new export capacity on the west coast of North America has the potential to exceed 150 million tons of coal per year in the near future. In the analysis below we have assumed that 140 million tons per year of PRB coal will be exported from west coast ports to Asia by 2025. Stanford University's Program on Energy and Sustainable Development has modeled the market for PRB coal at current ocean shipping costs and concluded that 163 million tons of PRB coal would have been competitive in Asian markets in 2009 if there were no port or other constraints on shipping coal from the west coast.[57]

[54] EIA projects that in order to meet tightening EPA air quality standards and offset declines in central Appalachian coal production due to rising costs of production, the demand for PRB coal within the US will expand between 2010 and 2035 at a rate of about 10 million tons per year, raising PRB coal production from about 500 million tons per year in 2010 to about 700 million tons in 2035 despite static aggregate coal consumptions levels in the United States.

[55] The Bellingham Herald reports that the Gateway Pacific terminal could ship 50 million tons at maximum capacity. The Seattle PI reported in internal emails from Ambre (Millennium's corporate parent) revealed that they planned to ship 80 million tons from the proposed port facility. http://www.bellinghamherald.com/2011/08/11/2137016/cherry-point-cargo-terminal-could.html and http://blog.seattlepi.com/seattlepolitics/2011/03/15/strategic-withdrawal-for-longview-coal-exporter/

[56] Slide 15 of Cloud Peak Energy's Annual Stockholder Meeting from 2011 shows that these expansions are underway.

[57] Asia's Changing Landscape. Richard Morse and Lars Schernikau. World Coal. October 2011. http://hms-ag.com/fileadmin/user_upload/pdf/2011-10b_WorldCoal_LS_Article_Asian_Coal.pdf. Also see, "US Coal: A Stranded Asset Ready for Export?", presentation at IEA Outlook for Coal Industry and Markets, Richard Morse, April 14, 2011, Beijing. Dated 12/04/2011, http://www.iea.org/work/2011/WEO_Coal/03_02_MORSE.pdf .

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Table 6. U.S. Coal Production[1] and Number of Coal Mines by Coal-Producing State and County and Type of Mining, 1986 (Continued)

(Thousand Short Tons)

Coal-Producing State and County	Type of Mining				Total	
	Underground		Surface		Number of Mines	Production
	Number of Mines	Production	Number of Mines	Production		
Missouri (Continued)						
Randolph	–	–	2	2,676	2	2,676
Vernon	–	–	1	142	1	142
Montana	–	–	**8**	**33,978**	**8**	**33,978**
Big Horn	–	–	4	18,820	4	18,820
Musselshell	–	–	1	24	1	24
Richland	–	–	1	237	1	237
Rosebud	–	–	2	14,897	2	14,897
New Mexico	**2**	**753**	**9**	**20,743**	**11**	**21,496**
Colfax	2	753	1	921	3	1,674
McKinley	–	–	3	6,737	3	6,737
San Juan	–	–	5	13,084	5	13,084
North Dakota	–	–	**13**	**25,640**	**13**	**25,640**
Bowman	–	–	1	1,936	1	1,936
Burke	–	–	1	21	1	21
McLean	–	–	1	5,449	1	5,449
Mercer	–	–	4	11,867	4	11,867
Oliver	–	–	3	6,073	3	6,073
Stark	–	–	1	217	1	217
Ward	–	–	1	63	1	63
Williams	–	–	1	14	1	14
Ohio	**13**	**14,352**	**160**	**21,858**	**173**	**36,209**
Athens	–	–	4	72	4	72
Belmont	2	1,796	10	3,825	12	5,621
Carroll	–	–	7	464	7	464
Columbiana	–	–	21	1,025	21	1,025
Coshocton	–	–	5	1,751	5	1,751
Gallia	1	35	3	466	4	501
Guernsey	–	–	4	219	4	219
Harrison	3	2,199	8	1,269	11	3,467
Hocking	–	–	5	166	5	166
Holmes	–	–	4	453	4	453
Jackson	1	132	9	1,186	10	1,318
Jefferson	–	–	17	2,124	17	2,124
Lawrence	–	–	3	290	3	290
Mahoning	–	–	5	384	5	384
Meigs	2	3,777	–	–	2	3,777
Monroe	1	3,562	–	–	1	3,562
Muskingum	–	–	7	1,341	7	1,341
Noble	–	–	4	3,252	4	3,252
Perry	1	1,750	7	462	8	2,212
Stark	–	–	6	516	8	516
Tuscarawas	–	–	20	1,712	20	1,712
Vinton	2	1,100	7	714	9	1,814
Washington	–	–	1	141	1	141
Wayne	–	–	1	28	1	28
Oklahoma	–	–	**18**	**3,036**	**18**	**3,036**
Craig	–	–	5	692	5	692
Haskell	–	–	5	541	5	541
Latimer	–	–	1	217	1	217
Le Flore	–	–	1	216	1	216
Pittsburg	–	–	1	134	1	134
Rogers	–	–	4	1,074	4	1,074
Wagoner	–	–	1	161	1	161
Pennsylvania	**96**	**37,167**	**367**	**33,398**	**463**	**70,564**
Allegheny	5	996	2	495	7	1,491
Armstrong	10	3,099	21	1,184	31	4,283
Beaver	–	–	2	169	2	169
Bedford	1	19	2	99	3	118
Blair	–	–	2	403	2	403
Butler	2	393	14	1,972	16	2,365
Cambria	3	1,805	18	2,546	21	4,351
Carbon	–	–	2	141	2	141
Centre	1	676	8	1,031	9	1,707
Clarion	–	–	13	2,692	13	2,692
Clearfield	3	117	56	6,604	59	6,721
Clinton	–	–	4	360	4	360
Columbia	–	–	3	52	3	52

See Footnotes at end of table.

Table 6. U.S. Coal Production[1] and Number of Coal Mines by Coal-Producing State and County and Type of Mining, 1986 (Continued)

(Thousand Short Tons)

Coal-Producing State and County	Type of Mining				Total	
	Underground		Surface		Number of Mines	Production
	Number of Mines	Production	Number of Mines	Production		
West Virginia (Continued)						
Brooke	1	1,024	3	508	4	1,532
Clay	1	27	3	280	4	308
Fayette	5	277	8	1,162	13	1,439
Gilmer	2	263	–	–	2	263
Grant	4	2,229	3	456	7	2,686
Greenbrier	9	590	4	334	13	925
Harrison	6	2,915	14	801	20	3,716
Kanawha	10	3,329	11	2,061	21	5,390
Lewis	2	75	5	208	7	283
Logan	61	7,022	13	3,465	74	10,487
Marion	3	4,685	2	52	5	4,738
Marshall	2	4,184	–	–	2	4,184
Mason	–	–	1	241	1	241
McDowell	58	6,104	6	181	64	6,285
Mineral	2	413	9	371	11	783
Mingo	30	7,750	9	2,418	39	10,169
Monongalia	16	15,181	16	993	32	16,174
Nicholas	29	3,963	22	3,462	51	7,425
Ohio	–	–	2	185	2	185
Preston	12	2,060	26	1,846	38	3,906
Raleigh	22	7,039	4	186	26	7,225
Randolph	13	1,660	2	111	15	1,771
Taylor	–	–	1	30	1	30
Tucker	–	–	2	189	2	189
Upshur	4	1,346	4	417	8	1,763
Webster	6	868	5	960	11	1,828
Wyoming	46	8,913	4	273	50	9,186
Wyoming	**1**	**164**	**26**	**136,656**	**27**	**136,820**
Campbell	–	–	15	111,638	15	111,638
Carbon	1	164	2	1,923	3	2,087
Converse	–	–	2	4,761	2	4,761
Hot Springs	–	–	1	27	1	27
Lincoln	–	–	2	4,034	2	4,034
Sheridan	–	–	1	1,359	1	1,359
Sweetwater	–	–	3	12,914	3	12,914
U.S. Total	**1,640**	**358,949**	**1,535**	**526,932**	**3,175**	**885,880**

[1] Excludes silt, culm, refuse bank, slurry dam, and dredge production except for Pennsylvania anthracite. Excludes mines producing less than 10,000 short tons of coal during the year.

Note: Total may not equal sum of components because of independent rounding.

Source: Energy Information Administration, Form EIA-7A, "Coal Production Report."

REBUTTAL SS-3



DOE/EIA-0125(86/4Q)
Distribution Category UC-98

Coal Distribution January-December 1986

Energy Information Administration
Office of Coal, Nuclear, Electric
and Alternate Fuels
U.S. Department of Energy
Washington, DC 20585

This report was prepared by the Energy Information Administration, the independent statistical and analytical agency within the Department of Energy. The information contained herein should not be construed as advocating or necessarily reflecting any policy position of the Department of Energy or any other organization.

Table 16. Distribution of U.S. Coal by Origin, Destination, and Method of Transportation: January-December 1986

(Thousand Short Tons)

Coal-Producing Region and District of Origin	U.S. DISTRIBUTION								
	Railroad	Water				Truck	Tramway, Conveyor, and Slurry Pipeline	Unknown or Not Reveatable	Total
		River	Great Lakes	Tidewater	Total				
Appalachian Total	**193,189**	**60,032**	**6,888**	**7,504**	**74,423**	**49,359**	**27,226**	**2,732**	**346,928**
District 1	19,225	102	691	100	893	10,183	12,349	452	43,102
District 2	9,282	7,475	746	–	8,221	4,378	–	159	22,041
Districts 3 and 6[1]	15,293	12,497	618	1,684	14,799	3,721	4,864	86	38,763
District 4	6,920	10,371	59	–	10,430	10,664	7,890	20	35,924
District 7	4,488	1,526	602	218	2,547	153	895	93	8,176
District 8	130,311	24,113	3,971	5,502	33,587	9,231	–	1,739	174,869
District 13	7,327	3,940	–	–	3,940	9,145	1,228	112	21,751
District 24[2]	342	8	–	–	8	1,883	–	70	2,303
Interior Total	**93,228**	**45,359**	**380**	**1,015**	**46,754**	**34,136**	**20,608**	**279**	**195,005**
District 9	13,453	19,133	148	1,015	20,296	4,940	1,843	54	40,586
District 10	34,422	16,934	31	–	16,965	5,103	2,732	70	61,291
District 11	18,210	7,025	201	–	7,227	7,055	120	126	32,738
District 12	13	–	–	–	–	484	–	3	500
District 14	352	–	–	–	–	234	–	24	611
District 15	26,776	267	–	–	267	16,319	15,913	2	59,279
Western Total	**171,577**	**9,316**	**6,521**	**–**	**15,837**	**19,800**	**54,147**	**1,058**	**262,420**
Districts 16 and 17[1]	11,804	–	–	–	–	4,364	–	193	16,381
District 18	13,414	–	–	–	–	6	18,035	1	31,456
District 19	117,433	8,695	–	–	8,695	7,377	3,372	18	136,895
District 20	6,470	–	–	–	–	4,263	1,982	16	12,731
District 21	3,712	–	–	–	–	3,483	18,660	2	25,857
Districts 22 and 23[1]	18,744	622	6,521	–	7,143	287	12,098	827	39,099
Districts 1-23[2] Total	**457,652**	**114,699**	**13,789**	**8,519**	**137,007**	**101,412**	**101,981**	**3,999**	**802,050**
U.S. Total	**457,994**	**114,707**	**13,789**	**8,519**	**137,015**	**103,295**	**101,981**	**4,069**	**804,353**

Coal-Producing Region and District of Origin	FOREIGN DISTRIBUTION							
	Canada						Overseas[3]	Total
	Railroad	Water			Truck	Total		
		Great Lakes	Tidewater	Total				
Appalachian Total	**401**	**13,925**	**289**	**14,214**	**28**	**14,644**	**67,882**	**82,526**
District 1	33	127	–	127	14	173	4,624	4,797
District 2	–	3,820	51	3,870	12	3,882	2,103	5,985
Districts 3 and 6[1]	36	3,799	–	3,799	–	3,835	4,348	8,183
District 4	–	1	–	1	–	1	98	99
District 7	78	749	7	756	–	835	10,263	11,098
District 8	13	5,421	41	5,461	–	5,475	38,863	44,338
District 13	–	–	–	–	–	–	6,734	6,734
District 24[2]	241	9	190	199	3	443	850	1,293
Interior Total	**–**	**73**	**–**	**73**	**(*)**	**73**	**1,102**	**1,175**
District 9	–	63	–	63	–	63	392	455
District 10	–	7	–	7	–	7	195	202
District 11	–	3	–	3	–	3	261	264
District 14	–	–	–	–	–	–	251	251
District 15	–	–	–	–	(*)	(*)	3	3
Western Total	**–**	**–**	**–**	**–**	**–**	**–**	**1,710**	**1,710**
Districts 16 and 17[1]	–	–	–	–	–	–	436	436
District 20	–	–	–	–	–	–	551	551
Districts 22 and 23[1]	–	–	–	–	–	–	723	723
Districts 1-23[2] Total	**161**	**13,989**	**99**	**14,088**	**25**	**14,274**	**69,844**	**84,118**
U.S. Total	**401**	**13,998**	**289**	**14,287**	**28**	**14,717**	**70,694**	**85,411**

[1] Combined to avoid disclosure of individual company data.
[2] District 24 is the anthracite-producing district in Pennsylvania. Districts 1-23 represent the total U.S. production of bituminous, subbituminous coal and lignite. See Appendix A for more information.
[3] Also includes Mexico.
(*) Quantity is less than 500 short tons.
Note: Total may not equal sum of components because of independent rounding.
Source: Energy Information Administration, Form EIA-6, "Coal Distribution Report."

REBUTTAL SS-4

BEFORE THE
GEORGIA PUBLIC SERVICE COMMISSION

IN RE:	**)**	
GEORGIA POWER COMPANY'S 2013	**)**	
INTEGRATED RESOURCE PLAN AND	**)**	
APPLICATION FOR DECERTIFICATION	**)**	
OF PLANT BRANCH UNITS 3 AND 4,	**)**	**DOCKET NUMBER 36498**
PLANT MCMANUS UNITS 1 AND 2, PLANT	**)**	
KRAFT UNITS 1-4, PLANT YATES UNITS	**)**	
1-5, PLANT BOULEVARD UNITS 2 & 3,	**)**	
AND PLANT BOWEN UNIT 6	**)**	

PUBLIC DISCLOSURE

TESTIMONY

AND EXHIBITS

OF

THOMAS POWER, Ph.D.

On Behalf of the

Sierra Club
and
Coosa River Basin Initiative

May 10, 2013

Q. WHAT ECONOMIC FORCES ARE DRIVING THE MINE-MOUTH PRICE OF PRB COAL UPWARD AT THAT RATE?

A. It is important to point out that my projected Wyoming PRB coal price for 2042 and 2052 are 36 and 39 percent below the Wyoming PRB prices implicit in EIA's Annual Energy Outlook 2013 trend line. EIA's PRB real price trajectory implies a mine mouth price of $30.67 in 2042 and $36.33 in 2052.

The real price increase in my projected Wyoming PRB mine-mouth price is associated with several economic forces:

- Declining labor productivity in the PRB mines as those mines have to go deeper and deeper to obtain that coal and then haul the extracted coal further for processing and loading.
- Projected increased costs as the mines expand or relocate requiring the movement of roads and, potentially, railroad lines.
- Rising labor, fuel, explosives and machinery costs.
- Increasing competition among PRB mining companies to obtain the most attractive additional coal tracts onto to which to expand or build a new mine. This has led the upfront bonus bids paid to the owner of the coal, which is mainly the Federal Government, which can run to hundreds of millions of dollars, to rise dramatically in recent years.
- The continuing demand for PRB coal in the southeastern U.S. as is evidenced, for instance, by Georgia Power's proposal to use PRB coal to fuel McIntosh 1.
- The new demand for PRB coal in export markets *if* port and rail infrastructure are available to facilitate those exports.
- That demand for PRB coal allows the market price to follow the cost of producing the coal.

TS – 6

hursday, August 01, 2013 11:44 AM ET Exclusive

Eroding prospects for summer demand highlight SNL Energy's August coal forecast

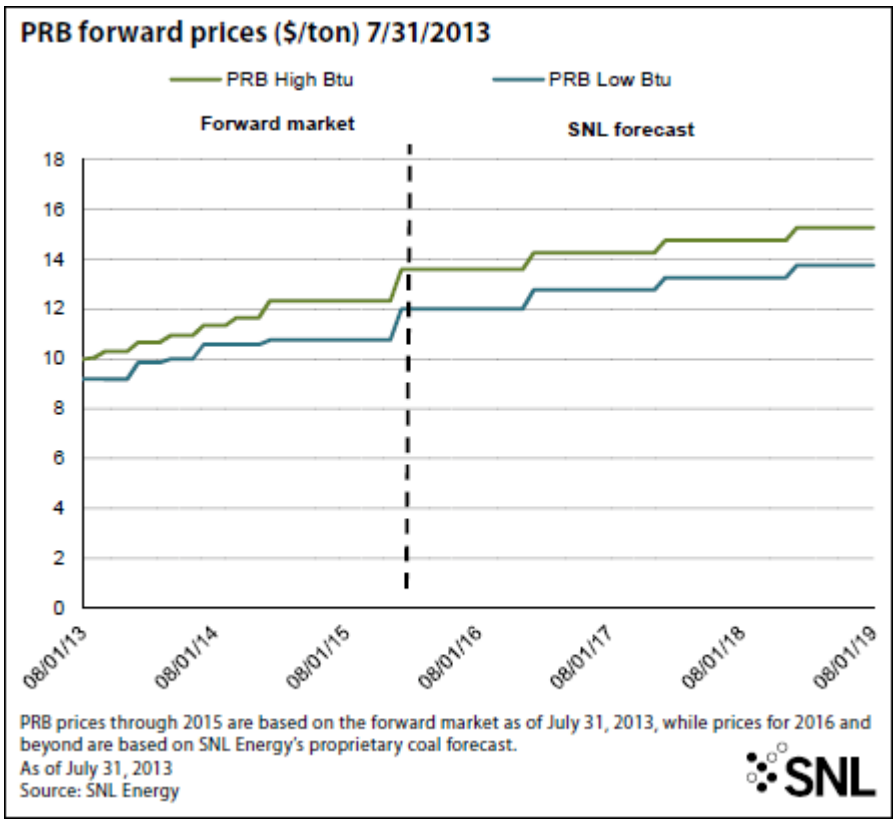
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By Jesse Gilbert and Steve Piper

While episodes of electric demand for cooling have appeared, they have not been sustained against flat economic growth during 2013, effectively keeping a lid on domestic steam coal markets.

The late-ending first-quarter winter that briefly put upward pressure on natural gas markets and fostered a significant reversal of coal/gas switching in favor of coal has since settled into margin competition. In crude oil markets WTI has aligned more closely with global markets, driving a surge in prices that has created greater margins to shale gas production for associated liquids. In turn, this has driven surpluses in dry natural gas and a retreat in natural gas prices. So while demand for coal has improved a bit this summer, the pull has been too modest to create price uplift. The NYMEX CAPP prompt-month benchmark lost $1.82/ton, or 3%, with higher Btu CAPP essentially flat. The NYMEX PRB contract lost 30 cents/ton, or 3%. Physical markers for the prompt quarter trended up by 15 cents/ton in the Illinois Basin and up 50 cents/ton to $2.00/ton in Northern Appalachia on reported market tightness.

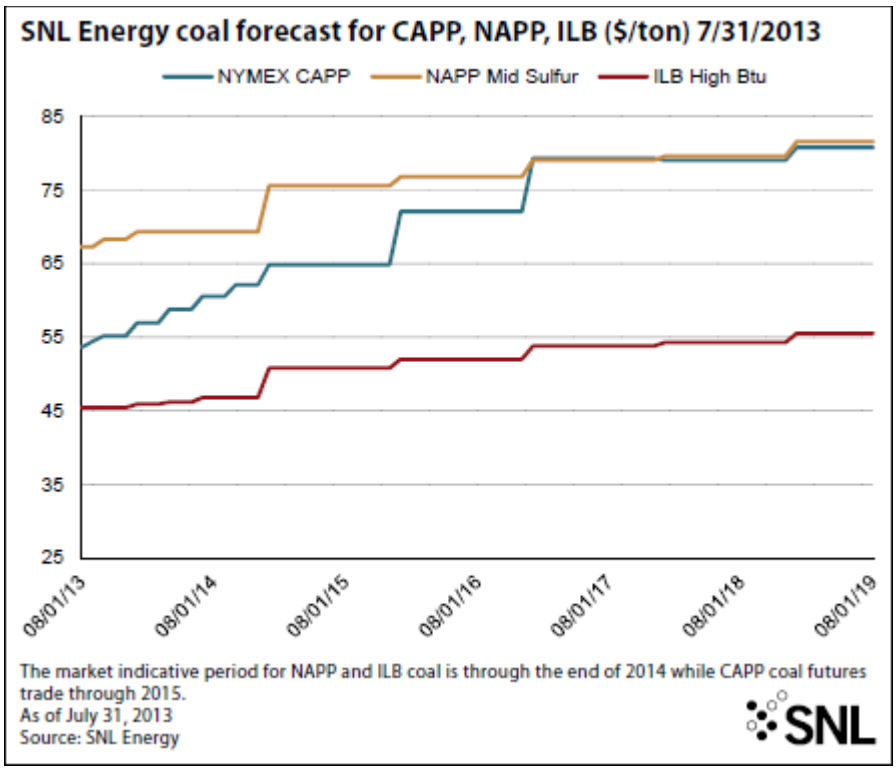
Natural gas storage levels are normal for this time of year, with recent price declines driven by lower break-even price for new shale production. SNL Energy expects this dynamic to persist until crude oil prices break below the $95 per barrel level, perhaps later this summer as driving season eases. Powder River Basin remains at competitive price points versus natural gas, supporting higher production volumes in June and July. Production growth can best be described as tentative, however. The chart below shows SNL Energy's current price forecast for the PRB 8800 and 8400 markers.



The chart above indicates slow upward movement in PRB 8800 over the next two years, with lower natural gas and continued softness in export markets overhanging price prospects. Price spreads to Asian export markets seemed promising for western producers earlier this summer, but China's slower growth track will erode those spreads. NYMEX indications for PRB 8800 are available through 2015, with the SNL Energy long-term forecast results picking up beginning in 2016. By 2016, SNL Energy forecasts that PRB will show stronger growth in production — 3% to 4% per year — to ramp up exports and fill in behind declining Appalachian production.

Eastern coal has had to respond more aggressively to natural gas price cuts to avoid losing market share, with cuts in July offsetting reported growth in June. Nevertheless, cuts in high-cost production during the first half of the year may have put producers on a more sustainable path as indicated by recent pricing gains out of Northern Appalachia.

The chart below shows the current price forecast for bituminous steam coal. For NAPP and ILB, the market-indicative period is through the end of 2014, while NYMEX CAPP futures trade out to 2015.



Coal production and demand

Total production volume continued to grow in July with a surge in western production more than offsetting easing tonnage in the east, according to preliminary reports. While there are a few mines left to report detailed second-quarter volumes, the Powder River Basin appears to be at similar or lower volumes than last year. A boost in third-quarter production could alter this trend, but first-half production cutbacks make a high level of year-over-year growth unlikely. Overall production levels on a 52-week moving average basis are estimated to be 4.5% lower than the same period last year.

The production chart below compares SNL Energy's production forecast with recent history. Broadly, Appalachian declines are expected to continue, with growth in Illinois Basin and Powder River Basin available to offset tonnage declines and meet this year's rebound in coal-fired generation.

Production outlook — Powder River Basin

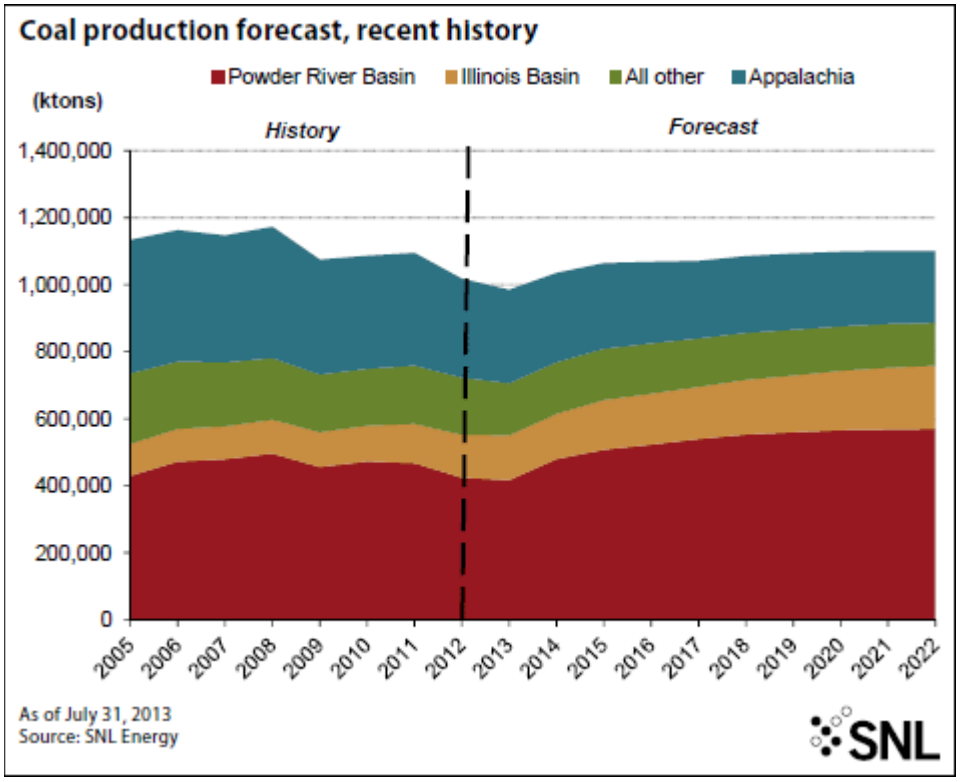
SNL Energy estimates 2013 Powder River Basin production, including Northern and Southern PRB, at 417 million tons, about 2% lower than 2012 levels. With inventory levels close to normal, this level of production appears realistic, given July's million-ton-per-week growth. The PRB would need sustained production growth of 430,000 tons per week to hit SNL Energy's forecast.

Production Outlook — Illinois Basin

Illinois Basin production grew 8.5% to 128 million tons in 2012, with a strong surge the first half of the year. With demonstrated ability to grow production, advantageous locations to export markets and favorable economics against Appalachian coal, ILB is seeing its market expand. SNL Energy estimates 2013 production of 134 million tons, or 4.7% year-over-year growth. Capacity for growth may be higher, but weak exports compared to last year and surplus bituminous inventories are limiting factors.

Production Outlook — Appalachian Basin

Appalachian tonnage totaled 295 million tons in 2012, down 12% from 2011. Declines in Central Appalachia drive much of the downturn, with Northern Appalachia on a slower decline trajectory. Continued high prices relative to competitive fuels indicate the increasing cost structure of mining operations, forcing further cuts to economize the best remaining tonnage. Owing to higher than expected production out of Northern Appalachia, SNL Energy estimates 2013 production at 279 million tons, 6.5% below 2012 levels.



Coal forecast methodology overview

SNL Energy's market-indicative coal forecasts represent forward curves for spot-traded instruments, analogous to a strip of contracts, with the shorter tenors (current year, prompt year, plus additional years if available) driven by the observed/assessed market and the longer tenors (years three to 20 for physically assessed markers, and years five to 20 for markers with NYMEX futures) driven by fundamental estimates of cash costs of production, accepted returns to capital, regional productive capacity, and forecast supply and demand. For the long-tenored portion of the curve, SNL Energy forecasts prices for specific coal markers, and defines the remaining markers via historical spreads.

TS – 7

Coal-Gas Switching

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703-276-8900

January 31, 2013



1

Outline

- Low natural gas prices caused an estimated 170 million tons of reduced coal burn in 2012 compared to non-switching baseline. The impact has not been uniform across the country.
- The coal gas switching has had many consequences both on the short- and long-term markets for coal.
- Coal gas switching in unlikely to be a permanent phenomenon as gas prices increases are likely.



2

Electricity Demand

Period	Coal	Natural Gas	Nuclear	Hydro	Other Renewables	Other	Total
Thousand Megawatthours							
2002	1,933,130	691,006	780,064	264,329	79,109	110,814	3,858,452
2003	1,973,737	649,908	763,733	275,806	79,487	140,514	3,883,185
2004	1,978,301	710,100	788,528	268,417	83,067	142,142	3,970,555
2005	2,012,873	760,960	781,986	270,321	87,329	141,954	4,055,423
2006	1,990,511	816,441	787,219	289,246	96,525	84,760	4,064,702
2007	2,016,456	896,590	806,425	247,510	105,238	84,526	4,156,745
2008	1,985,801	882,981	806,208	254,831	126,101	63,466	4,119,388
2009	1,755,904	920,979	798,855	273,445	144,279	56,869	3,950,331
2010	1,847,290	987,697	806,968	260,203	167,173	55,729	4,125,060
2011	1,733,430	1,013,689	790,204	319,355	193,981	49,997	4,100,656
2012 (11 Months)	1,382,973	1,146,605	700,748	253,287	197,784	38,753	3,720,150
Market Share							
2002	50.1%	17.9%	20.2%	6.9%	2.1%	2.9%	100.0%
2003	50.8%	16.7%	19.7%	7.1%	2.0%	3.6%	100.0%
2004	49.8%	17.9%	19.9%	6.8%	2.1%	3.6%	100.0%
2005	49.6%	18.8%	19.3%	6.7%	2.2%	3.5%	100.0%
2006	49.0%	20.1%	19.4%	7.1%	2.4%	2.1%	100.0%
2007	48.5%	21.6%	19.4%	6.0%	2.5%	2.0%	100.0%
2008	48.2%	21.4%	19.6%	6.2%	3.1%	1.5%	100.0%
2009	44.4%	23.3%	20.2%	6.9%	3.7%	1.4%	100.0%
2010	44.8%	23.9%	19.6%	6.3%	4.1%	1.4%	100.0%
2011	42.3%	24.7%	19.3%	7.8%	4.7%	1.2%	100.0%
2012 (11 Months)	37.2%	30.8%	18.8%	6.8%	5.3%	1.0%	100.0%

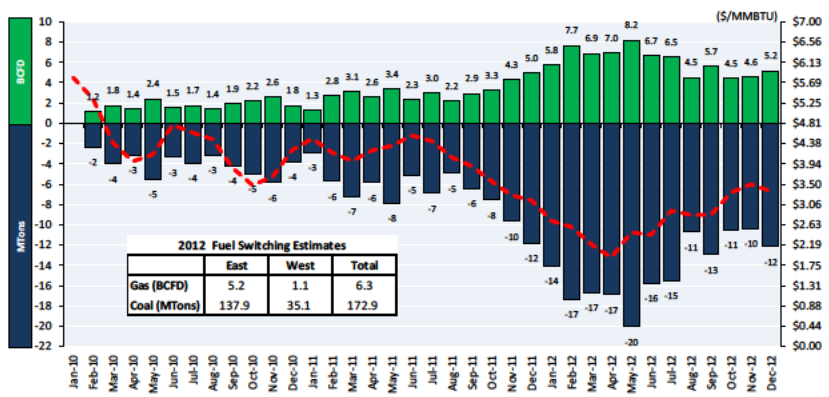
Source: Electric Power Monthly

Firsts in 2012

- Coal generation below 40%
- Natural gas generation above 30%
- Renewables (excluding hydro) above 5%
- Nuclear under 19%.

3

Coal Burn Lost to Natural Gas in Electricity Generation

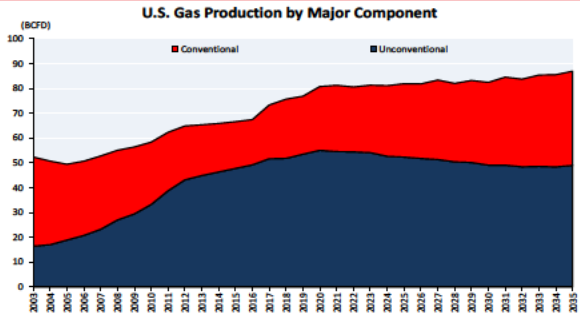


- Coal displacement by gas began in 2010 but accelerated in 2012 as gas prices dropped in order to displace coal in the electricity sector.

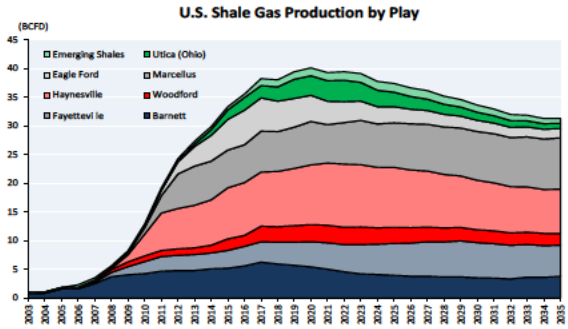
4

Gas Supply Increases

- The growth in natural gas supply is from unconventional sources, mostly shale.



- The shale comes from seven major plays plus a small amount from emerging plays.



Gas Had No Place Else To Go

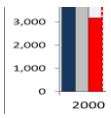
Prices had to fall given the lack of storage capacity.



6

Gas Had No Place Else To Go

Prices had to fall given the lack of no other immediately available alternate market.



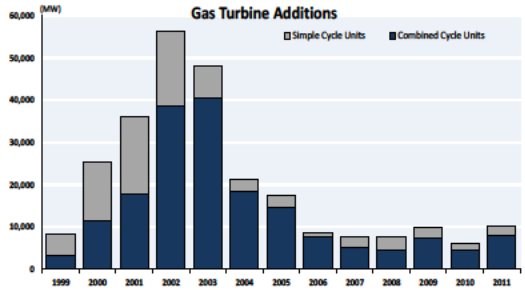
7

Regions

8

Displacement Varies by Region

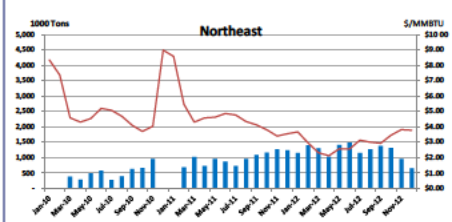
- Most regions have "excess" combined cycle gas turbines (CCGT) which allows the displacement to occur. CCGTs were overbuilt in the last 10 plus years creating the capacity overhang.

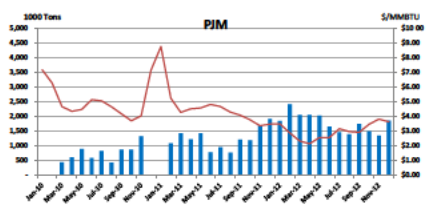


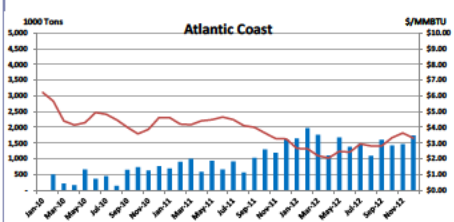
- Displacement levels are a function of relative cost of gas versus coal generation, each of which vary by region.
- Delivered coal prices vary more than delivered gas prices because of the significant differences in mine prices and transportation costs.

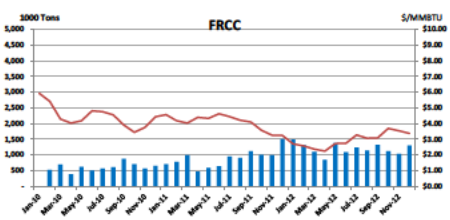
9

Coal Displacement by Region



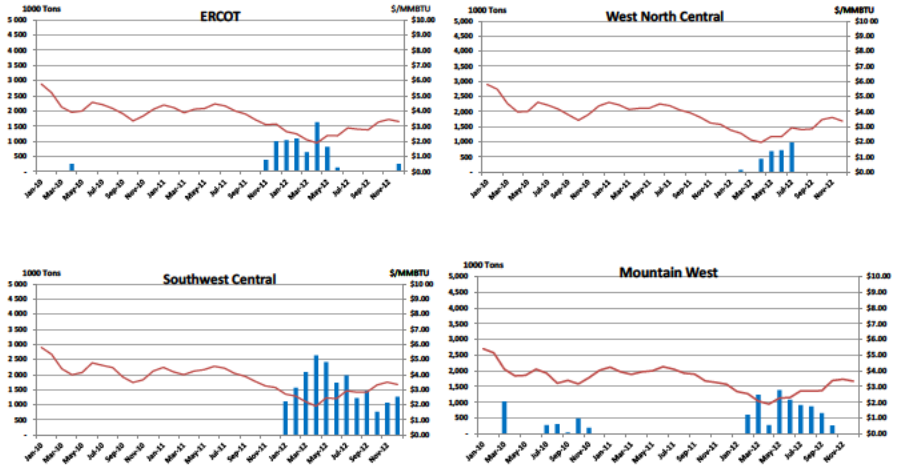




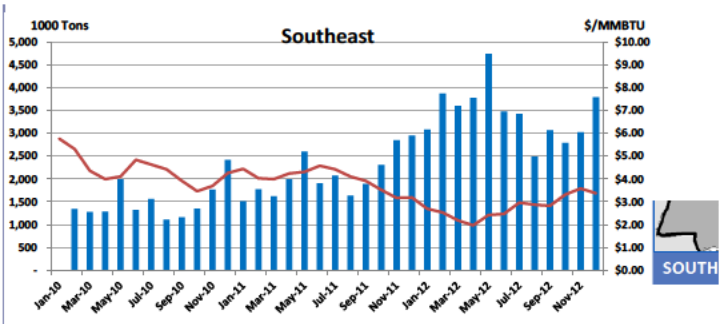


10

Coal Displacement by Region



Coal Displacement in the Southeast



- Displacement has been the greatest in the Southeast.
  - Coal burn is high in the Southeast (more tons to displace)
  - Delivered coal prices are high in the Southeast.

Coal vs. Gas in the Southeast

FUEL PRICES - Southeast		Dec-12	Nov-12	Δ MoM	Dec-11	Δ YoY
Coal - CAPP-CSX_12,500 BTU_1.6# SO2						
Mine Cost	$/ton	$61.44	$64.92	-$3.48	$69.21	-$7.78
Freight Cost	$/ton	$22.00	$22.00		$22.00	
Enviro. Cost	$/ton	$0.19	$0.17	$0.02	$0.23	-$0.05
Total Cost	$/ton	$83.62	$87.09	-$3.46	$91.45	-$7.82
	$/mmbtu	$3.34	$3.48	-$0.14	$3.66	-$0.31
	$/MWh	$33.45	$34.84	-$1.39	$36.58	-$3.13
Gas						
Transco Zone 4	$/mmbtu	$3.37	$3.58	-$0.21	$3.19	$0.18
Enviro. Cost	$/mmbtu	n/a	n/a		n/a	
Regional Price	$/MWh	$23.59	$25.06	-$1.47	$22.33	$1.26
Electricity						
Southern, into	$/MWh	$40.88	$27.99	$12.89	$35.34	$5.54
Dark Spread	@10,000 HR	$7.43	-$6.85	$14.28	-$1.24	$8.67
Spark Spread	@7,000 HR	$17.29	$2.93	$14.36	$13.01	$4.28

- In the Southeast for plants burning CAPP, the delivered CAPP coal is high compared to delivered price of gas
- Given current power prices and gas prices, natural gas is lower cost on the margin.



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Coal Displacement in the Southeast

Electric Power Generation (GWh) - Southeast	Dec-12	Nov-12	Oct-12	Δ MoM	Dec-11	Δ YoY	YTD	Δ YTD
Fossil	30,789	29,417	26,986	1,372	27,265	3,524	371,802	(3,779)
Peaker	1	1	2	0	1	(0)	16	6
Gas Turbine	959	656	318	303	275	685	11,469	5,171
Steam - Oil	64	28	31	35	58	5	419	(83)
Steam - Gas	638	539	331	99	437	201	7,226	1,211
CCGT	11,222	9,702	9,533	1,521	8,885	2,338	137,387	38,249
Coal	17,905	18,490	16,770	(585)	17,610	296	215,284	(48,334)
Non-Fossil	12,728	10,780	10,035	1,948	13,037	(308)	130,527	(1,801)
Nuclear	8,762	8,256	8,297	506	10,068	(1,306)	106,616	(2,302)
Hydro	3,791	2,363	1,574	1,428	2,917	874	21,874	(872)
Wind	6	8	4	(1)	6	-	51	(2)
Other	169	154	160	16	45	124	1,985	1,375
TOTAL	43,517	40,197	37,021	3,320	40,302	3,216	502,329	(5,580)

40,302

Capacity Factor by Fuel Type - Southeast	Dec-12	Nov-12	Oct-12	Δ MoM	Dec-11	Δ YoY	YTD	Δ YTD
Fossil								
Peaker	0.1%	0.1%	0.2%	0.0%	0.1%	0.0%	0.2%	0.1%
Gas Turbine	6.3%	4.4%	2.1%	1.8%	1.8%	4.5%	6.3%	2.8%
Steam - Oil	70.0%	32.4%	34.7%	37.6%	64.3%	5.7%	39.1%	-7.9%
Steam - Gas	27.3%	23.9%	14.2%	3.5%	18.7%	8.6%	26.2%	4.3%
CCGT	59.8%	53.4%	50.8%	6.4%	50.7%	9.1%	62.0%	13.9%
Coal	46.4%	49.5%	43.5%	-3.1%	45.7%	0.8%	47.3%	-10.8%
Non-Fossil								
Nuclear	86.0%	83.7%	81.4%	2.3%	98.8%	-12.8%	88.6%	-2.2%
Hydro	41.6%	26.8%	17.3%	14.8%	32.0%	9.6%	20.4%	-0.9%
Wind	29.4%	37.3%	19.7%	-7.9%	29.4%	0.0%	20.1%	-0.7%

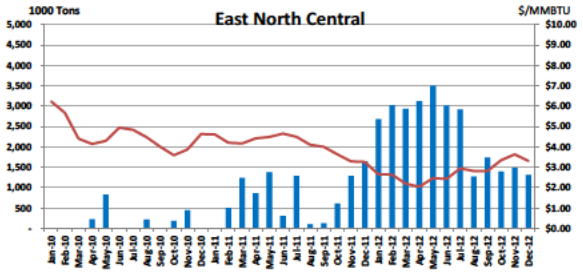
- Coal generation was about 43% of total generation in the Southeast in 2012; natural gas was 27%. (By contrast, coal was 67% in 2005/6; gas was less than 9%.)
- CCGT plants had average capacity factor in 2012 of 62%, a 13.9% increase from 2011 levels.
- Coal plants had average capacity factor of 47.3%, a 10.8% decline from 2011 levels.



14

The Tipping Point

- Tipping point varies by region primarily because of the differences in delivered coal prices.
- In the East North Central region, the tipping point was about $3.00.

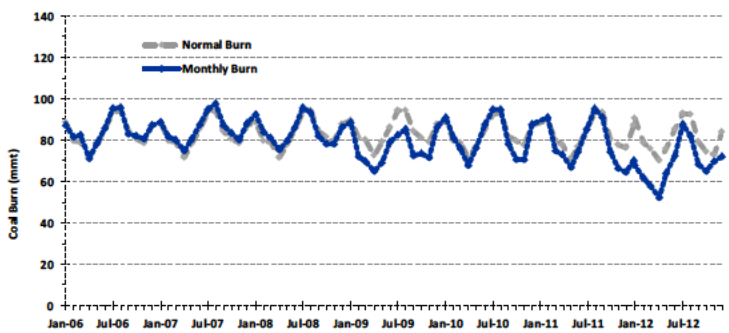


FUEL PRICES - East North Central		Dec-12	Nov-12	Δ MoM	Dec-11	Δ YoY
Coal - ILLB-L OH Rvr_11,500 BTU_5 0# SO2						
Mine Cost	$/ton	$41 50	$38 90	*$2.60*	$48 63	*-$7.13*
Freight Cost	$/ton	$9 00	$9 00		$9 00	
Enviro Cost	$/ton	$0 18	$0 17	*$0.02*	$0 23	*-$0.04*
Total Cost	$/ton	$50 68	$48 07	*$2.62*	$57 85	*-$7.17*
	$/mmbtu	$2 03	$1 92	*$0.10*	$2 31	*-$0.29*
	$/MWh	$20 27	$19 23	*$1.05*	$23 14	*-$2.87*
Gas						
Chicago City Gate	$/mmbtu	$3 37	$3 70	*-$0.33*	$3 26	*$0.11*
Enviro Cost	$/mmbtu	n/a	n/a		n/a	
Regional Price	$/MWh	$23 59	$25 90	*-$2.31*	$22 82	*$0.77*
Electricity						
Illinois Hub	$/MWh	$23 14	$18 74	*$4.40*	$24 64	*-$1.50*
Dark Spread	@10,000 HR	$2 86	-$0 49	$3 35	$1 50	$1 36
Spark Spread	@7,000 HR	-$0 45	-$7 16	$6 71	$1 82	-$2 27



15

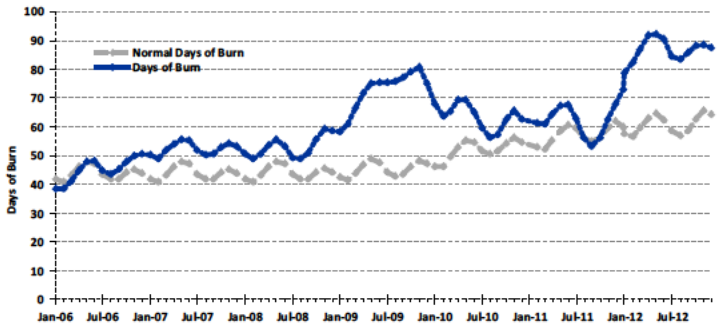
Consequences of Coal Displacement – Falling Burn



- Average monthly burn below has been running substantially below "normal" levels.

16

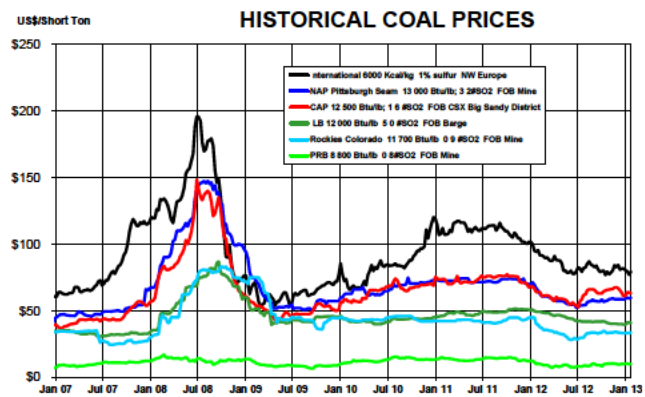
Consequences of Coal Displacement – Rising Stocks



- Average days of burn are now higher than the levels experienced as a result of the global financial crisis.

17

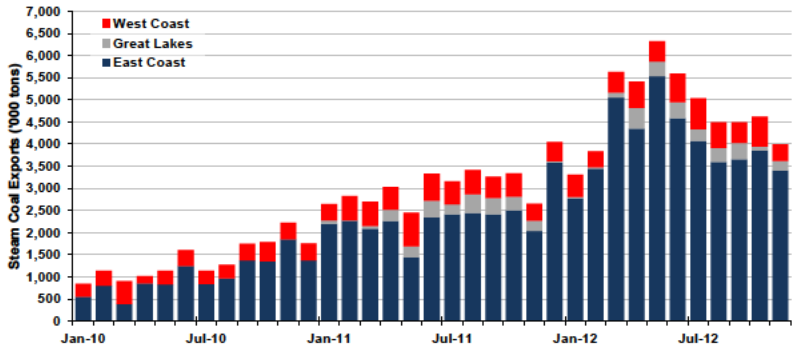
Consequences of Coal Displacment – Falling Coal Prices



- U.S. coal prices are dragging down global coal prices as utilities, producers, and traders are moving excess supply into global market

18

Consequences of Coal Displacement – Increasing Exports



- Steam coal exports surged in 2012 as producers, consumers, and traders unwound their positions.

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Consequences of Coal Displacement – Rethinking Long-Term Resource Plans

- The extended period of low natural gas prices is causing utilities to reconsider their investments in existing coal plants.
- A good example is American Electric Power (AEP).
  - In its 2009 10-K filing, AEP stated it intended to retrofit scrubbers on Big Sandy and Muskingum River.
  - By 2011, AEP had changed its mind with respect to Muskingum River. AEP's third quarter 2011 10-Q filing notes the decision to write off the investment in the Muskingum River scrubber. AEP noted in its 2011 Fact Book, that its plans for Muskingum River 5 are to either repower it with natural gas or to replace it with Muskingum River 6, a natural gas combined cycle plant.
  - On May 30, 2012 AEP filed a motion with the Kentucky Public Service Commission to withdraw its application for cost recovery of the Big Sandy retrofit.

20

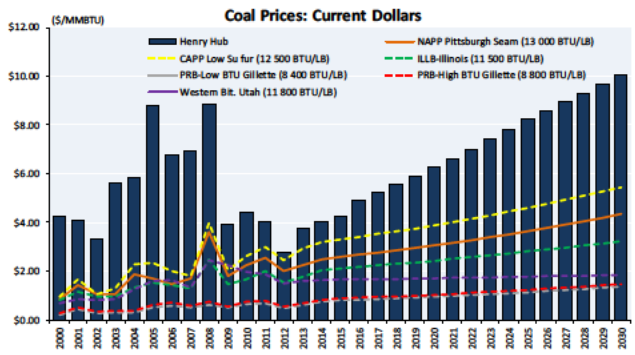
Consequences of Coal Displacement – Rethinking Coal Procurement Strategies

- Reducing contract purchases to avoid being over-contracted
- Increasing inventory both on- and off-site
- Revising dispatch strategies for coal plants
  - Using replacement coal costs to dispatch
  - Consideration of costs for not burning coal - decremental pricing
  - Capitalizing a portion of high coal prices over an extended term

21

Outlook for Fuel Switching

- Natural gas prices will not stay below $5.00 per MMBtu.
- Coal prices are not expected to increase at the same rate as natural gas prices.
- Remaining coal plants should generally be economic in the future subject to carbon policy.



22

Natural Gas Demand

- **Outlook for Domestic**

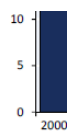
Sector	Increase 2011 to 2035 BCFD/yr	%/Annum	Observation
Residential	0.03	0 2%	Entrenched conservation offsets customer growth.
Commercial	0.04	0.4%	Conservation; limited economic growth.
Industrial	0.27	1 2%	62 restarts, expansions and new plants.
Electric	0.81	2 8%	(1) Gas low cost option and (2) coal retirements vs. (3) renewable mandates and (4) limited new nukes. Also, assumes \$15/ton CO_2 tax in 2020.
Transportation	0.09	N/A	HDV, not LDV.
Total	**1.3**	**1.6%**	

- **Outlook for Export**
  - There are 28 proposed North American liquefaction projects (40.9 BCFD).
  - North American LNG exports expected to start in 2016. Not clear how many projects will be built.

23

Electric Sector Natural Gas Demand

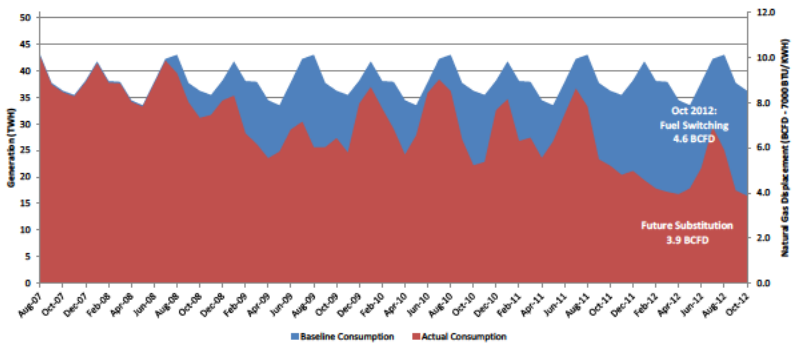
- **Composite Assessment**
  - Growth in utility gas consumption continues but offset by decline in fuel switching as gas prices increase



24

Impact of Coal Retirements

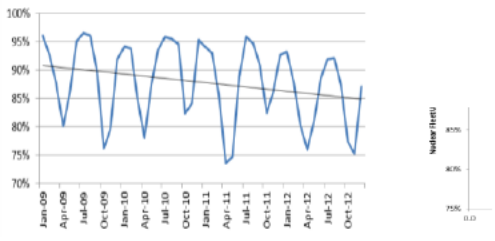
- **Coal Retirements**
  - Not a direct correlation between the capacity of the plants likely to be retired and the future increase in gas-fired generation
    - Fuel switching already has captured about 55 percent of the affected generation.



25

Reduced Nuclear Generation Increases Natural Gas Demand

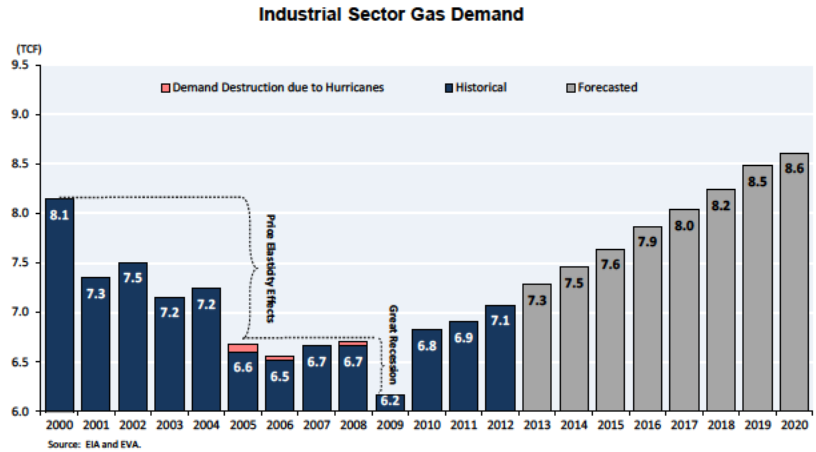
- **Nuclear Plant Capacity Factors Have Been Declining**
  - Extended outages have been more common in places where gas is more likely to provide substitute generation
  - Shorter unplanned outages are more likely to be replaced with gas due to limited duration
- **Significant quantities of gas could be consumed as a result of poorer nuclear plant performance.**



26

Industrial Sector Natural Gas Demand

- **Composite Assessment**
  - Likely return to 2000 demand levels by 2020



27

Conclusions

- Gas prices fell to the levels necessary to displace coal generation because natural gas had no place else to go in the short-term.
- Coal demand has been significantly affected in the near-term by coal gas switching. The impact has not been uniform across the U.S. as the regions with highest delivered coal prices have been disproportionately affected.
- Coal gas switching is not expected to continue in the future with higher gas prices but there will be residual impacts of the current coal gas switching primarily as a result of increased coal plant retirements.

28

Thank You and Question

Emily Medine

emedine@evainc.com

412-421-2390



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TS – 8

HIGHLY CONFIDENTIAL

TS – 9

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 30186

TONGUE RIVER RAILROAD COMPANY, INC. – RAIL CONSTRUCTION AND OPERATION – IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF
WILLIAM M. ROWLANDS

My name is William M. Rowlands. I am President of Otter Creek Coal, LLC ("Otter Creek Coal"), an operating subsidiary of Arch Coal Inc. ("Arch Coal") and an affiliate of Ark Land Company ("Ark"). I have been an employee of several Arch Coal operating subsidiaries across the United States with duties relating to engineering, operations and management including Mingo Logan Coal Company in West Virginia, Cumberland River Coal Company in Kentucky and Virginia and Thunder Basin Coal Company in Wyoming. I am a graduate of West Virginia Institute of Technology with a B.S. degree in civil engineering.

My responsibilities at Otter Creek Coal include the day to day operation and development of the Otter Creek Mine, a greenfield coal mining project to be located in Powder River County, Montana. In that capacity, I have been responsible for developing the operation since its inception including investigation and quantification of the coal reserves, preparation of the applications for various permits related to the Otter Creek Mine including the mining permit, and interaction with the community and governmental agencies with respect to the development of the Otter Creek Mine. Based on my work experience, I am knowledgeable about the coal

reserves in Powder River County, Montana, including those in the Otter Creek area, about Ark's lease of coal tracts in Otter Creek, Montana, and about Otter Creek Coal's plans to develop the coal tracts in the Otter Creek area

I. Coal Reserves in Powder River County, Montana

The coal reserves in Powder River County, Montana making up the Otter Creek Tracts are owned in a "checkerboard" configuration by Great Northern Properties Limited Partnership ("GNP") and the State of Montana which together comprise a generally contiguous 1.5 billion ton coal reserve consisting of low sulfur, sub-bituminous coal. Construction of the Tongue River Railroad rail line will provide, for the first time, rail service to one of the largest remaining undeveloped reserves of low suffer, sub-bituminous coal in the United States.

In November 2009, Ark leased the coal reserves in Powder River County, Montana that are owned by GNP. In March 2010, Ark leased from the State of Montana the remaining coal reserves in Powder River County, Montana. Together, the Powder River County coal reserves leased by Ark are commonly referred to as "Otter Creek Tracts." Otter Creek Coal, which as I have noted is an indirect, wholly owned subsidiary of Arch Coal and an affiliate of Ark, will develop the Otter Creek Mine and mine the coal in the Otter Creek Tracts.

II. Otter Creek Coal's Plan to Develop Otter Creek Tracts

Otter Creek Coal has already sought and obtained a prospecting permit from the Montana Department of Environmental Quality ("MDEQ") for the Otter Creek area. On July 26, 2012, Otter Creek Coal filed a mine permit application with MDEQ seeking authority to construct and operate the Otter Creek Mine, a planned combination dragline/truck shovel surface coal mine that will be located in the Otter Creek Tracts near the southern end of Otter Creek Spur (Terminus Point 2) of the Tongue River rail line. Before the permit application can be acted

upon by the MDEQ, that agency will undertake an environmental review under the Montana Environmental Protection Act. The Otter Creek Mine will transload coal to unit trains on the Tongue River Railroad via a projected rail spur/coal silo configuration located along a rail loop at Terminus Point 2 of the Tongue River rail line. The rail loop at the mine will be designed to accommodate 150-car unit trains.

Assuming that Otter Creek Coal is granted a mine permit, including all supplemental and ancillary required permits, we estimate that it will take approximately two and a half years to complete the construction of the Otter Creek Mine. Based on a myriad of factors including, without limitation, market conditions and general business considerations, our best estimate is that the Otter Creek Mine could be constructed and ready to produce coal in January 2017.

The Otter Creek Mine is expected to ramp up to its annual full production level of approximately 20 million tons of coal after two years of production. Accounting for mine start up and preparatory work to reach the coal seam, in the first year of production, we expect the Otter Creek Mine to produce approximately 6 million tons of coal. In the second year of production, as we continue to fully implement the mine, we expect the mine to produce approximately 16 million tons of coal. Thereafter, in the third and subsequent years of operation, we expect the Otter Creek Mine to produce 20 million tons of coal annually, although actual production may vary considerably depending upon market conditions and/or other business considerations. Based upon the projected rate of production and estimated coal reserves in the planned mining area of 330 million tons, the Otter Creek Mine should allow for nearly 20 years of mineable coal production.

VERIFICATION

I, William M. Rowlands, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

William M. Rowlands

Dated this 21 day of September, 2012

TS – 10

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 30186

TONGUE RIVER RAILROAD COMPANY, INC. – RAIL CONSTRUCTION AND OPERATION – IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

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In November 2009, Ark leased the coal reserves in Powder River County, Montana that are owned by GNP. In March 2010, Ark leased from the State of Montana the remaining coal reserves in Powder River County, Montana. Together, the Powder River County coal reserves leased by Ark are commonly referred to as "Otter Creek Tracts." Otter Creek Coal, which as I have noted is an indirect, wholly owned subsidiary of Arch Coal and an affiliate of Ark, will develop the Otter Creek Mine and mine the coal in the Otter Creek Tracts.

II Otter Creek Coal's Plan to Develop Otter Creek Tracts

Otter Creek Coal has already sought and obtained a prospecting permit from the Montana Department of Environmental Quality ("MDEQ") for the Otter Creek area. On July 26, 2012, Otter Creek Coal filed a mine permit application with MDEQ seeking authority to construct and operate the Otter Creek Mine, a planned combination dragline/truck shovel surface coal mine that will be located in the Otter Creek Tracts near the southern end of Otter Creek Spur (Terminus Point 2) of the Tongue River rail line. The permit requests authority to develop a

mine that would cover approximately 7,600 acres in the Otter Creek area Before the permit application can be acted upon by the MDEQ, that agency will undertake an environmental review under the Montana Environmental Protection Act. The Otter Creek Mine will transload coal to unit trains on the Tongue River Railroad via a projected rail spur/coal silo configuration located along a rail loop at Terminus Point 2 of the Tongue River rail line. The rail loop at the mine will be designed to accommodate 150-car unit trains

Assuming that Otter Creek Coal is granted a mine permit, including all supplemental and ancillary required permits, we estimate that it will take approximately two and a half years to complete the construction of the Otter Creek Mine Based on a myriad of factors including, without limitation, market conditions and general business considerations, our best estimate is that the Otter Creek Mine could be constructed and ready to produce coal in January 2017.

The Otter Creek Mine is expected to ramp up to its annual full production level of approximately 20 million tons of coal after two years of production. In the first year of production, we expect the Otter Creek Mine to produce a pro-rated amount of 12 million tons of coal. In the second year of production, we expect the mine to produce approximately 16 million tons of coal. Thereafter, in the third and subsequent years of operation, we expect the Otter Creek Mine to produce 20 million tons of coal annually, although actual production may vary considerably depending upon market conditions and/or other business considerations. Based upon the projected rate of production and estimated coal reserves in the planned mining area of 330 million tons, the Otter Creek Mine should allow for nearly 20 years of mineable coal production.

According to a study prepared by the University of Montana's Bureau of Business & Economic Research entitled "The Impact of Otter Creek Coal Development on the Montana

Economy," the development of Otter Creek coal and the TRRC line will bring significant economic benefits to Montana. *See* Appendix D to the Application. These benefits include the creation of more than 2,600 jobs during construction of the mine and railroad, and more than 1,700 new permanent jobs during operations of the mine The jobs will not only result from direct employment by the mine and railroad, but would also be created in the retail, health care, construction, government and health care sectors, among others The Study also concluded that the development would increase Montana personal income by more than $100 million during construction of the mine and railroad, and by more than $125 million per year during mine operations. The coal mine development also will generate substantial tax revenues for the State of Montana.

III. Potential Markets for Otter Creek Coal

Because the Otter Creek Mine coal will not be developed for several years pending the permitting process and other regulatory and operational hurdles, it is not possible to predict at this time where the coal will be delivered after production commences. However, there are various potential markets generally identified for the Otter Creek coal We believe that the Otter Creek Mine project "will help [Arch] competitively serve US power producers, supply additional coal for export to emerging Asia or possibly house the site of a future coal-conversion facility." *See* March 18, 2010 Arch Coal press release titled "Arch Coal Secures State-Controlled Otter Creek Coal Reserves in Montana" (included as Attachment 1) In other words, the coal could move east or west for domestic use or export.

VERIFICATION

I, William M Rowlands, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

William M. Rowlands
William M Rowlands

Dated this 13th day of December, 2012

Arch Coal Secures State-Controlled Otter Creek Coal Reserves in Montana

March 18, 2010 2.22 PM ET

ST. LOUIS, March 18, 2010 -- Arch Coal, Inc (NYSE ACI) today announced that it was the successful bidder for a state coal lease known as the Otter Creek Tracts located in southeastern Montana Arch made a one-time bonus bid for the lease of $85.8 million, payable in April 2010 The coal lease will give Arch the right to mine approximately 8,300 acres of state-owned minerals. Arch now controls approximately 1.5 billion tons of coal in Montana's Otter Creek area, including previous reserve additions such as the coal lease secured in November 2009 through Great Northern Properties Limited.

"We view the combined Otter Creek coal reserves as a strategic platform for future growth in the Northern Powder River Basin,' said Steven F Leer, Arch's chairman and chief executive officer. "The addition of the Montana state reserves further expands and strengthens our position while affording us greater flexibility in future site development As previously stated, we believe these Northern PRB reserves will help us competitively serve U S. power producers, supply additional coal for export to emerging Asia or possibly house the site of a future coal-conversion facility "

St. Louis-based Arch Coal is the second largest U.S coal producer. Through its national network of mines, Arch supplies cleaner-burning, low-sulfur coal to U.S. power producers to fuel roughly 8 percent of the nation's electricity The company also ships coal to domestic and international steel manufacturers as well as international power producers

Forward-Looking Statements: *This press release contains "forward-looking statements" - that is, statements related to future, not past, events In this context, forward-looking statements often address our expected future business and financial performance, and often contain words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," or "will." Forward-looking statements by their nature address matters that are, to different degrees, uncertain For us, particular uncertainties arise from changes in the demand for our coal by the domestic electric generation industry; from legislation and regulations relating to the Clean Air Act and other environmental initiatives; from operational, geological, permit, labor and weather-related factors; from fluctuations in the amount of cash we generate from operations; from future integration of acquired businesses; and from numerous other matters of national, regional and global scale, including those of a political, economic, business, competitive or regulatory nature. These uncertainties may cause our actual future results to be materially different than those expressed in our forward-looking statements We do not undertake to update our forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required by law For a description of some of the risks and uncertainties that may affect our future results, you should see the risk factors described from time to time in the reports we file with the Securities and Exchange Commission*

APPENDIX B

Appendix B

Estimated Tongue River Railroad Construction Costs

Colstrip to Terminus Point 2 (34.6 miles) and Terminus Point 1 (7.5 miles)

	Grading & Bridge Construction	Track Construction	Signal & Communications Construction	Total
Construction Year 1	$169,200,000	$0	$0	$169,200,000
Construction Year 2	$169,200,000	$31,000,000	$7,900,000	$208,100,000
Construction Year 3	$0	$31,000,000	$7,900,000	$38,900,000
Total	$338,400,000	$62,000,000	$15,800,000	$416,200,000

Note All costs shown above are in 2013 dollars and not adjusted for inflation

APPENDIX C



MONTANA COAL COUNCIL

2301 COLONIAL DRIVE • HELENA, MONTANA 59601
(406) 442-6223 • FAX: (406) 449-6628 • EMAIL: MTCOAL@AOL.COM

August 7, 2012

Chairman Daniel R Elliot
Surface Transportation Board
395 E Street SW
Washington, DC 20423

RE: Tongue River Railroad, Finance Docket 30186

Chairman Elliot:

The Montana Coal Council is an industry trade association representing all six of Montana's operating coal mines, a handful of major coal reserve holders, numerous coal consuming customers, and over 50 major suppliers of goods and services Collectively we represent 1208 direct employees and nearly 10,000 indirect. Needless to say, the coal industry is a huge economic engine in the state of Montana. The six operating mines alone paid $118,363,376 in state, local and federal taxes in 2011. Continuance of that level of economic activity hinges on expansion and replacement of depleting permitted coal reserves. Consequently the development of new coal mines and the associated necessary transportation systems is paramount to Montana's economic future.

The Tongue River Railroad project is a key component to the economic prosperity of Montana, and southeastern Montana in particular. This project will open up hundreds of employment opportunities for Montana residents and skilled labor from around the country. In addition to the employment opportunities, the tax revenues provide benefits to residents in all corners of the state Furthermore, various pollings have indicated that Montanans overwhelming support expanded coal mining in Montana (nearly 75%) A recent report by the University of Montana Bureau of Business and Economic Research quantifies that 2600 jobs will be created by development of the Otter Creek Coal mine and the associated Tongue River Railroad. Collectively this development would add 1740 permanent jobs and increase the tax base by over $100 million annually! That is an incredible shot in the arm for Montana economics

We have every reason to have confidence in the ability of the companies involved to fulfill all their regulatory requirements and carry out their activities as good corporate citizens. We urge your approval of the TRRC's filing.

Respectfully,

Bud Clinch, Executive Director
Montana Coal Council

Montana Chamber of Commerce

Your Business Advocate Since 1931

August 1, 2012

Chairman Daniel R. Elliot
Surface Transportation Board
395 E Street SW
Washington, DC 20423

RE Revised Application for Construction of the Tongue River Railroad, Finance Docket 30186

Chairman Elliot·

For over 80 years, the Montana Chamber has been the state's leading advocate for business, economic development and job creation Our mission focuses on growth of the private sector through free enterprise, responsible stewardship of the land, and private investment. The revised application for the construction of the Tongue River Railroad is very much in line with the Montana Chamber's mission, and it will be a huge economic benefit to our state

Montana would not exist without railroads. With our expansive borders and sparse population, we grow and extract much more than we can ever consume, which necessitates affordable, reliable and fast transportation means. These essential transportation arteries allow farmers, ranchers and business to move their goods to larger markets.

The railroads have also been important to Montana's role in being an energy leader for our country and the world We have some of the largest coal reserves on the globe, and most of it sits in very remote areas of the state. New mines, such as the proposed Otter Creek coal mine, cannot come online without a rail line The proposal contained in the Tongue River Railroad's revised application will help get these new mines up and running and will allow the coal to be transported to market.

Montanans are anxious to see Montana's large coal reserves developed They know that increased coal development will mean more good-paying jobs, more money for schools and government programs, and a smaller tax burden on individual taxpayers. They also believe this can all be done without having harmful impacts on the land where they live and recreate. According to our annual poll of Montana likely voters (600 respondents, 4.1% margin of error), more than three-quarters of Montanans want government to promote more mining of coal.

As the "Treasure State," Montana has huge potential in being a part of energy solutions for the future The Tongue River Railroad is an essential part of that future, and we urge the Surface Transportation Board to expeditiously approve the revised application of the Tongue River Railroad. Montanans are anxious to get more people to work and see the economic benefits of these new projects

Please feel free to contact us if you would like to know more about the economic benefits of the project and the support for these projects in the business community and among regular Montanans.

Sincerely,

Webb Scott Brown

Webb Scott Brown
President/CEO
Montana Chamber of Commerce
webb@montanachamber.com

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WESTERN ENVIRONMENTAL TRADE ASSOCIATION

2301 Cooney Drive, Suite 101, Helena, MT 59602
406-443-5541
weta@weta-montana.org
www.weta-montana.org

November 30, 2012

Chairman Daniel R. Elliot
Surface Transportation Board
395 E Street SW
Washington, DC 20423

Re: Tongue River Railroad, Finance Docket 30186

Chairman Elliot:

The membership of the Western Environmental Trade Association (WETA) strongly supports the Tongue River Railroad Company's (TRRC) efforts to construct a rail line in the Ashland/Otter Creek mine area.

WETA is one of Montana's largest and most diverse natural resource industry advocates—representing 100 industries, trade unions, small businesses and support services involved in coal and hard rock mining, agriculture, timber and wood products, construction, manufacturing, transportation, electricity generation and transmission, oil and gas exploration and production and recreation. We promote responsible natural resource development and reasonable environmental regulation in Montana and strive to help create opportunities for natural resource-based job growth and economic development.

The Tongue River Railroad project is a key component to the economic well being of the State of Montana—and in particular—its southeast region. This part of the state has experienced very difficult economic challenges and population decline for a generation. The vast majority of people remaining in southeast Montana strongly support development of the Tongue River Railroad and the coal resources it would transport from the proposed Otter Creek Mine. This project has the potential to significantly improve the quality of life for thousands of southeast Montana residents and provide benefits to the rest of the state as well.

A recent study completed by the University of Montana Bureau of Business and Economic Research concluded construction of the Tongue River Railroad and the Otter Creek Coal Mine would create over a billion dollars of demand for rail transport annually. The two projects

would also create over 2,600 construction jobs, 1,740 permanent jobs and over $100 million in annual tax revenue. Montana's working families, communities and public schools will all greatly benefit from the railroad and mine and deserve a fair and expedient evaluation so construction can begin promptly.

WETA has every confidence that TRRC can demonstrate that the routing proposed for its rail line is essential for connecting coal resources in southeast Montana to the interstate rail network and that it can be developed with minimal disruption.

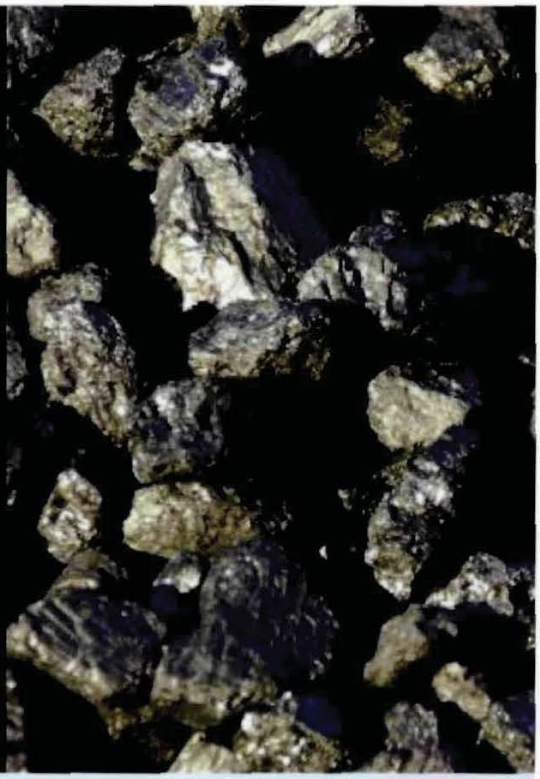
Please expedite approval of the TRRC's filing as soon as possible.

Sincerely,

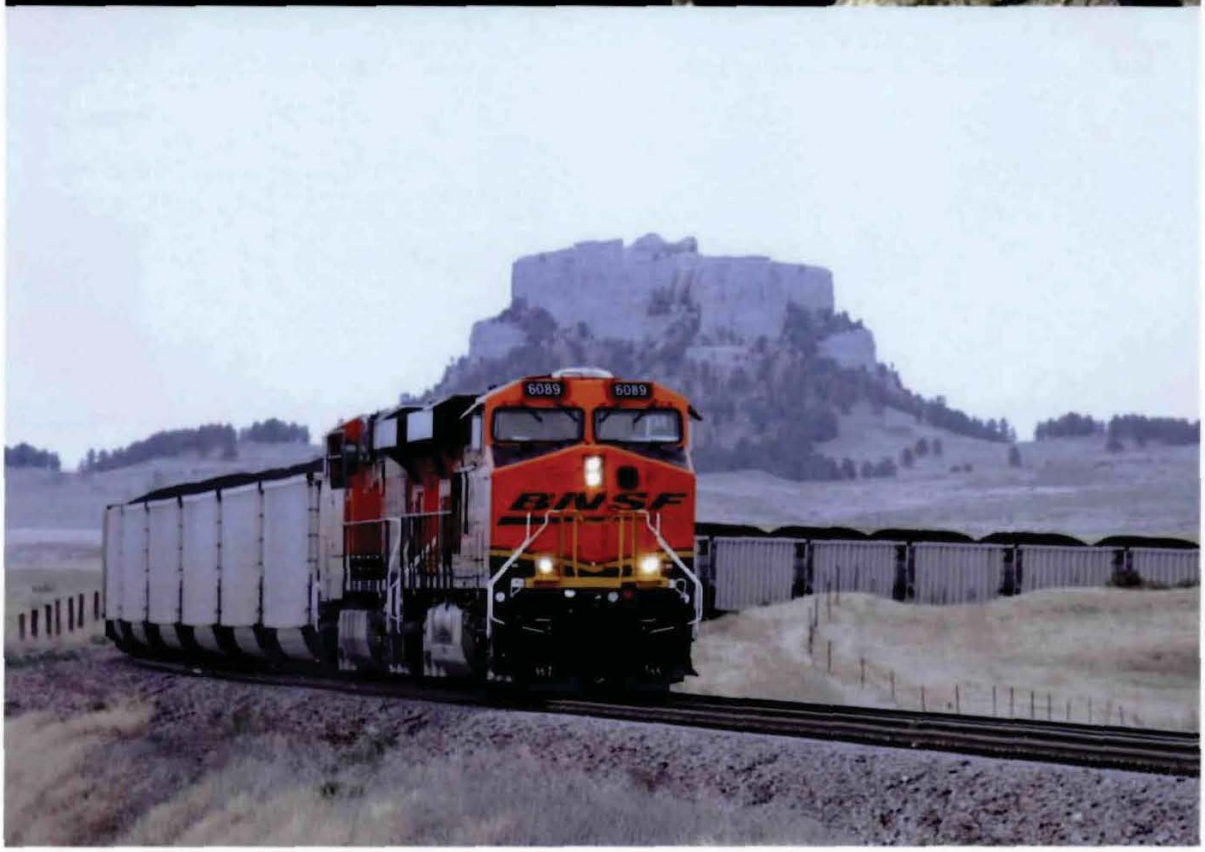
Mark Lambrecht
Executive Director

APPENDIX D

The Impact of Otter Creek Coal Development on the Montana Economy



Patrick M. Barkey, Director
Paul E. Polzin, Emeritus Director
Bureau of Business & Economic Research
The University of Montana



Acknowledgements

This report was produced and authored by Patrick Barkey and Paul Polzin, director and emeritus director, respectively, of The University of Montana Bureau of Business and Economic Research. The research was supported by The Montana Contractors Association. The authors of this study would like to acknowledge the cooperation and support from Otter Creek Coal, LLC as well and BNSF Railway who provided helpful information for this report. All errors and omissions are, of course, our own.

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0. Executive Summary

This is a study of the effects on the Montana economy of the development of Otter Creek coal in southeastern Montana. As described below, the Bureau of Business and Economic Research at The University of Montana, using a state-of-the-art policy analysis model and publicly available data describing the timing and type of investments involved, produced a detailed assessment of the ultimate impact of coal development and operations -- including the construction and operations of the railroad -- on employment, income, output, and population in the Montana economy.

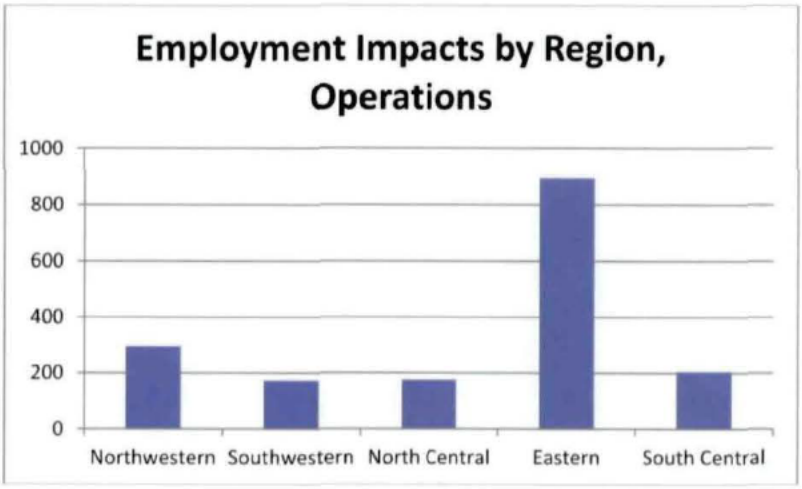
Impacts Summary

	Impacts by Phase	
Category	Construction	Operations
Total Employment	2,648 Jobs	1,740 Jobs
Private Sector	2,372 Jobs	1,338 Jobs
Personal Income	$103.5 million	$125.4 million
Disposable Personal Income	$87.7 million	$167.9 million
Population	1,025 people	2,843 people
State tax revenues	$23.5 million	$91.6 million

This study finds that with the Otter Creek coal development the state economy would be significantly larger, more prosperous, and more populous than would otherwise be the case. Specifically, we find that as a result of the development of the first of the three Otter Creek tracts, ultimately producing 20 million tons of coal, that:

- 2,648 jobs would be created during the peak year of the construction phase as the mine facilities and the railroad are built, with most new jobs created in eastern Montana;
- The impacts on income received by Montana households would be similarly substantial, with $103.5 million of new personal income and $87.7 million in after-tax income occuring during the peak construction year statewide. In eastern Montana, total household earnings would increase more than 8 percent;
- As a result of the continuing operations of the mine, 1,740 new permanent, year-round jobs would be created in the Montana economy, increasing household income by $125.4 million per year;
- Job increases would occur across a wide spectrum of industries, and, largely due to rail operations, in most regions of the state;
- Overall state population would be almost 2,850 higher and school-aged population more than 560 higher due to the operations of the mine.

- Mine operations would increase state and local tax revenue by more than $91 million per year due to both coal-specific taxes as well as growth in the overall base for Montana's other taxes.



Background and Overview

The University of Montana Bureau of Business and Economic Research at (BBER) was engaged by the Montana Contractors' Association to conduct an empirical study of how the development of the Otter Creek coal tracts in southeastern Montana would impact the economy of the state. Specifically, the BBER was tasked with (i) developing and detailing a scenario of coal development in Otter Creek, including land preparation, building, and other infrastructure preparation, and transportation improvements, including rail, (ii) developing a scenario of ongoing coal production from a new mine that reflected the capacity of the tracts, the likely limitations of a mining permit, and the conditions of the global coal marketplace, and (iii) incorporating these scenarios into an economic impact model which would fully describe how the state economy (and its subregions) would evolve should these events take place. This report presents the findings of this analysis.

This study asks and answers a simple question: How would be economies of Montana and it sub-regions react if Otter Creek coal development takes place? To address this question, we construct two future economic scenarios – a baseline, no development scenario and a coal development scenario. The difference between these two alternative futures – in the number of jobs, the dollars of income, and the number of people who live in Montana -- is the ultimate impact of the development of coal.

The coal development scenario incorporated into this study was independently developed by the BBER using publicly available information from public filings, historical

data, and the information available on other mining projects. The scenario is broadly consistent with the expected scale of the project and what is economically and operationally feasible. Thus, the results reported here are representative of how the investments and operations associated with the coal (and railroad) development will affect statewide growth.

Research Overview

The core question posed by this study is: What would the Montana economy look like if Otter Creek coal development takes place? The question essentially involves analyzing two different futures for the Montana economy the status quo, no-investment scenario where development does not occur and a coal development scenario which includes mining, transportation, and other associated infrastructure. The latter represents a stimulus which can set off other actions and reactions in the economy.

There are three essential components to estimating the ultimate impact of new investment. These are:

- the *direct impact* (e g., spending) the investment itself represents,
- the *indirect impacts*, which are the spending of other entities (e.g., the railroad) which are carried out by others because of the original investments, and
- the *induced impacts* that occur as the spending represented by the direct and indirect impacts propagates through the economy

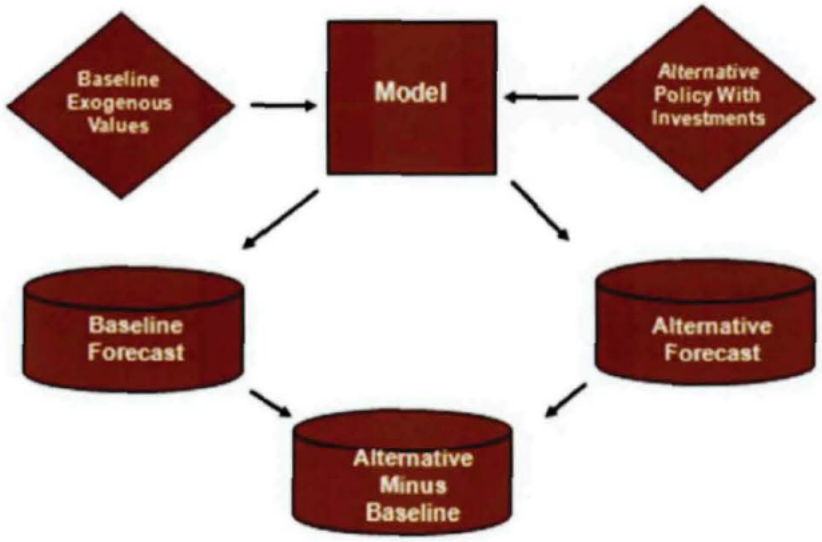
Likewise there are two different stages of any project involving significant infrastructure development.

- the *permitting and construction phase* - a one-time boost in spending and investment -- that occurs in the beginning of a project -- to plan and build infrastructure, facilities and, buildings, and
- the *operations phase* - commencing when construction is complete and ongoing operations can begin. The operations phase continues for the life of the project.

Although the precise timetable and scale of the investments that could take place as part of development of the Otter Creek coal tracts are not yet known, reasonable scenarios can be constructed based on development of similar coal seams elsewhere. This study has carefully constructed a development scenario that faithfully represents the major investments that would have to take place to develop and produce Otter Creek coal. The induced impacts, which take place as wage, vendor, and other payments are captured by Montana businesses and households and are spent again in the state and local economies, are estimated using BBER's five-region economic impact model.

To quantify the impacts of events that influence the Montana economy, the BBER uses a mathematical model of the regional economy leased from Regional Economic Models, Inc. (REMI). The fundamental premise of the REMI model is that regions compete for investment, jobs, and people. Thus, when new events occur which change the competitiveness of one particular region – such as construction and development of mining operations – investment, employment, and demographic flows in and out of the region can be affected, ultimately producing new levels of economic activities. The model thus produces impact estimates by examining the economy before and after these new events take place.

The total contribution of Otter Creek development to the economy is the difference between these two scenarios, as shown diagrammatically in the figure below. The model is a means of estimating the economy's new "resting point," which includes the changes in investment, employment, and spending that are induced by the project.



The Direct and Indirect Economic Contribution of Otter Creek Coal

The first step in the analysis is to specify the timing and the extent of spending by Arch Coal on developing the mine. Before a shovel full of Otter Creek coal can be mined, a number of regulatory, engineering, and logistical tasks must be carried out. The construction of all of the infrastructure of the mine, including land preparation, road, rail, and power distribution construction, equipment acquisition, construction of buildings and on-site processing facilities, and, finally, the excavation of the initial overburden, will take approximately two years at a cost of about $600 million.

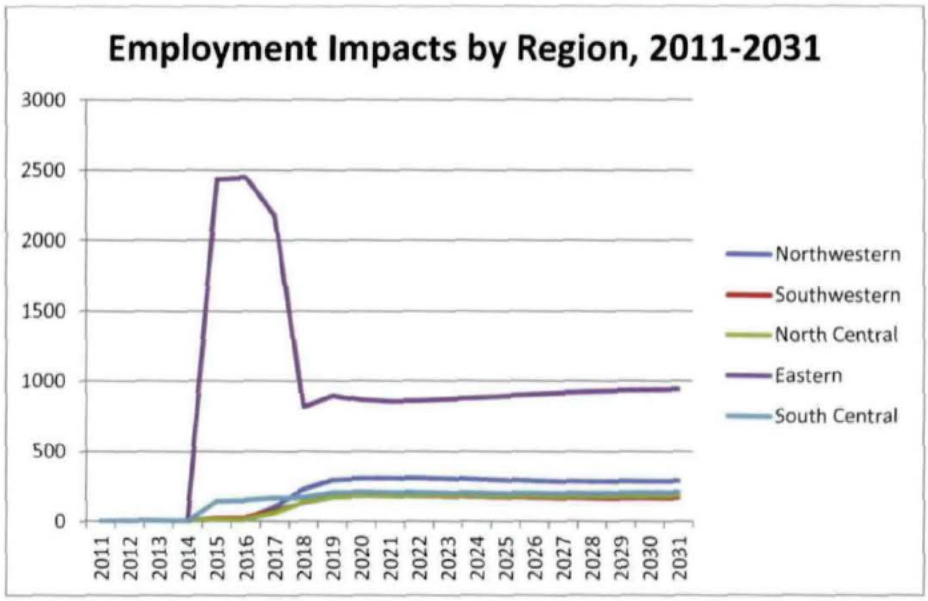
It is anticipated that when construction is completed that the Otter Creek mine will produce 20 million tons of coal annually, with approximately 300 full-time employees, plus an additional 50 contractors. We expect that the mine mouth value of this coal will be $14 per ton. We anticipate that the dominant market for this coal will be Asia, with coal shipped by rail to the (new and existing) Pacific northwest coal ports. Significant domestic customers are expected as well.

The development of the railroad represents by far the most significant indirect impact of mine development. While transporting coal by truck is possible, the economic competitiveness of the mine depends critically on access to the rail transportation network. Coincident with mine construction, we envision a new 89-mile rail spur north to connect to the main BNSF line near Miles City at a cost of about $472 million. When operational, new and existing rail links – including those owned by both BNSF and Montana Rail Link (MRL) – within Montana will see approximately $340 million in new demand for rail transportation services due to mining operations.

The Economic Impact of Otter Creek Coal

The substantial amount of spending and production occurring in both the construction and operations phases of this project represents a tremendous new injection of revenue and income for Montana businesses and households. This sets off new investment, employment, and demographic flows as secondary jobs and income are created. The investment ultimately produces a new level of economic activity, with jobs and incomes affected across the spectrum of the economy. The difference between this new level of activity and the status quo projection represents the total economic impact of Otter Creek coal.

We can measure how Otter Creek direct and indirect impacts propagate through the Montana economy with the REMI model. Comparing the trajectory of the economy with and without coal development yields an estimate of the impact of Otter Creek over the next 20 years. As can be seen from the employment impacts graphed below, with the tremendous activity in the construction phase of the project, the impacts of the project in the beginning of the project are outsized, especially in the eastern Montana region. When the construction is complete and mining operations commence, the job impacts remain significant, growing slightly over the span of the next two decades.



Since the investment and spending patterns in the construction and operations phases of the project are distinct, we present the findings of the analysis for the two phases separately. In the discussion that follows, we define the construction phase impacts as the total impacts that occur in year 2016, the peak year. The operations impacts are defined as the impacts occurring in year 2019, when all construction impacts are finished. All dollar figures are inflation-corrected, expressed in terms of 2012 dollars.

Employment Impacts

The wide footprint of the mine's economic impacts can be seen very clearly from the distribution of new jobs by industry, shown in the table below. As would be expected, the majority of jobs in the construction phase are construction industry jobs, and in the operations phase a large number of new mining jobs are created. But in each phase there are significant ripple effects on other sectors of the economy. These include retail trade, health care, accommodations and food, and local government. The increases come about through a variety of mechanisms – some industries benefit directly from worker spending, some are due to other businesses related through the supply chain, still others come about because of population increases as people migrate to the state because of the new jobs.

The analysis shows that mine and other associated construction supports almost 2,650 new jobs statewide, and that mine operations creates more than 1,700 new permanent jobs in the Montana economy.

Employment Impacts

Industry	Job Impacts by Phase	
	Construction	Operations
Forestry, Fishing, Related Activities, and Other	0	0
Mining	(3)	346
Utilities	0	6
Construction	1,948	79
Manufacturing	4	3
Wholesale Trade	41	66
Retail Trade	129	235
Transportation and Warehousing	0	51
Information	1	3
Finance and Insurance	2	7
Real Estate and Rental and Leasing	12	45
Professional and Technical Services	30	44
Management of Companies and Enterprises	0	0
Administrative and Waste Services	25	43
Educational Services	1	7
Health Care and Social Assistance	69	165
Arts, Entertainment, and Recreation	5	20
Accommodation and Food Services	54	116
Other Services, except Public Administration	54	103
State Government	37	71
Local Government	240	331
TOTAL	2,648	1,740

Income Impacts

The impacts on Montanan's personal income as a result of Otter Creek coal investment stem from three separate mechanisms. First, income is created – both wage and salary income, as well as business proprietor income – as the new jobs described above are created. Secondly, as population increases due to increased Montana job opportunities, the total income of the state increases. The final way in which Otter Creek coal impacts after-tax income of Montanans has to do with the substantial tax

revenues paid by the mine. How these revenues would be dealt with by the Legislature is unknown. The conservative assumption made in this study is that the increased revenues allow the Legislature to fund the same amount of services with lower tax rates. These lower rates increase the after-tax income of Montana households.

As shown in the table below, the personal income impacts of Otter Creek development are substantial – amounting to $103.5 million in the construction phase and $125.4 million in permanent increases during mine operation. The increase in after-tax income during coal operations exceeds the pre-tax increase, amounting to a $167.9 million increase in Montana household purchasing power every year the mine is in operation.

Personal Income Impact, Millions of Dollars

Category	Income Impacts by Phase	
	Construction	Operations
Total Earnings by Place of Work	$123.0	$119.4
Total Wage and Salary Disbursements	81.9	88.1
Supplements to Wages and Salaries	21.0	25.5
Employer contributions for employee pension and insurance funds	13.5	16.3
Employer contributions for government social insurance	7.5	9.2
Proprietors' income with inventory valuation and capital consumption adjustments	20.2	5.8
Less: Contributions for government social insurance	15.8	18.3
Employee and self-employed contributions for government social insurance	8.3	9.1
Employer contributions for government social insurance	7.5	9.2
Plus: Adjustment for residence*	-1.7	-1.2
Gross earnings flows into Montana	2.2	2.1
Gross earnings flows out of Montana	3.9	3.3
Equals: Net earnings by place of residence	105.6	99.9
Plus: Rent, interest, and dividends	5.8	19.0
Plus: Personal current transfer receipts	-7.8	6.6
Equals: Personal Income	103.5	125.4
Less: Personal current taxes	15.7	-42.4
Equals: Disposable personal income	87.7	167.9

* Total earnings data are derived from records of employers who are located in Montana. Since some Montana workers are employed by out-of-state firms, and some Montana firms employ workers from other states, the adjustment for residence nets out these two impacts to produce an estimate of Montana residents' income.

Other Impacts

Mine operations, as well as construction, also have other significant impacts on the Montana economy, including:

- significant increases in population, in both eastern Montana as well as the entire state, as workers migrate into the state and region in pursuit of economic opportunities;
- an increase in the school-aged population as younger workers bring their young (or yet to be born children) into the state;
- increases in local government, primarily in local public schools, in response to population changes caused by the mine development and operation;
- increases in state and local tax revenues due to both (i) severance and other special taxes levied on coal, and (ii) an increase in the base of Montana's other major taxes.

Summary and Conclusion

Through an analysis of the direct, indirect, and induced economic activity surrounding the development of Otter Creek coal, we find that the total economic contribution such an activity would make to the state economy to be substantial. The construction of the mine, the new railroad construction, and the other associated infrastructure represents a total investment approaching $1 billion and is expected to create more than 2,600 construction jobs in the peak building year. The operations of the mine are expected to create more than 1,700 permanent jobs in the Montana economy and add almost $168 million in after-tax income annually. Those jobs would benefit all regions of the state as well as a broad spectrum of public and private sector businesses.

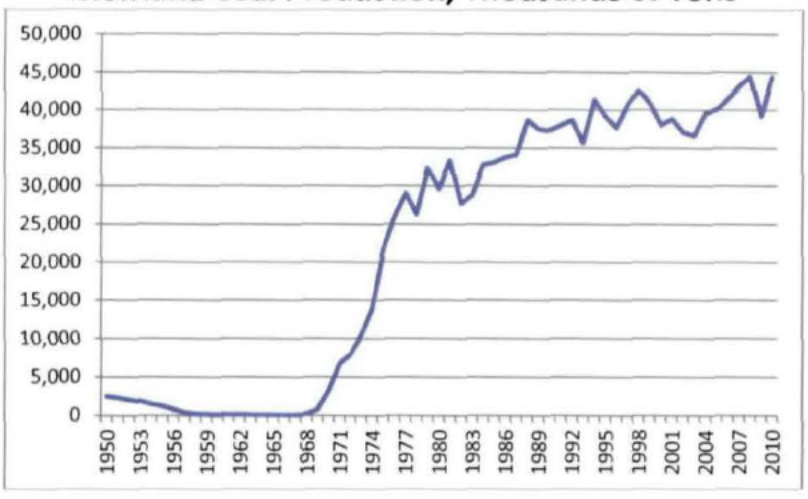
1. Background and Overview

1.1 Montana Coal: History and Prospects

Coal mining has a long history in Montana. In the age of steam, underground mines near Red Lodge, Roundup, and elsewhere supplied coal to railroads and the industrial facilities in the Butte-Anaconda area. In addition, numerous small underground and surface mines provided coal to local homes and businesses. By the 1960s, diesel locomotives and other energy sources reduced Montana coal production to practically zero.

Montana's current coal mining industry began with the Arab oil boycott of 1973 and the resulting energy crunch. There were numerous proposals to use Powder River Basin coal to produce synthetic natural gas and other fuels. In addition, the naturally low sulfur content of Powder River coal made it an attractive boiler fuel for electric utilities attempting to comply with newly formulated emission regulations. One federal study published in 1975 predicted that Montana coal production would be between 34 and 64 million tons in 1980 and from 39 to 153 million tons in 1985 (Northern Great Plains Resource Program, 1975, p. 40). A later federal-state study released in 1979 predicted Montana coal production would be 39.3 million tons in 1980 and 49.7 million tons in 1985 (U.S. Department of the Interior and Montana Department of State Lands, 1975, pp1-3).

Figure 1.1
Montana Coal Production, Thousands of Tons

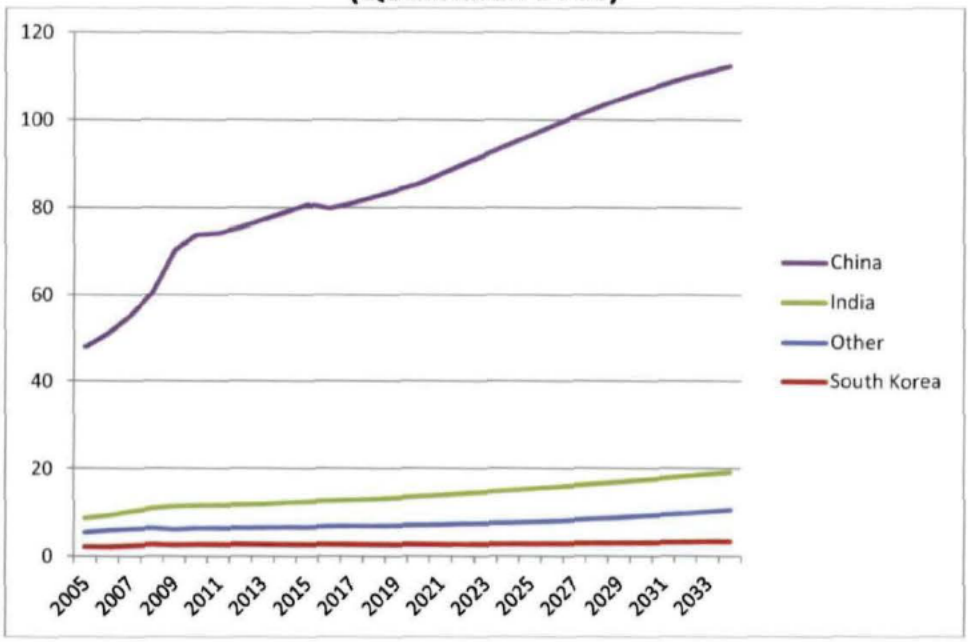


Source: Montana Coal Council.

The 1970s' forecasts for Montana production of the Powder River Basin were far too rosy. There were a number of reasons for this over-optimism. First, synthetic fuel production never materialized. Second, changes in federal emission regulations made low-sulfur coal less attractive. Third, Wyoming coal mines are closer via rail to large metro areas in the southeast and southern Midwest and they received the benefits of the fast urban growth. Finally, the nationwide demand for electricity moderated due to rising prices (Polzin, 1985).

Montana's coal production has been relatively stable over the last four decades. In 1981, about 33.3 million tons of coal was being produced at six large surface mines in eastern Montana. The more recent trends are pictured in Figure 1.1. Total Montana coal production has been between 40 and 45 million tons per year since 2000, with only a mild upward trend since the 1990s.

Figure 1.2
Actual and Predicted Asian Coal Demand
(Quadrillion BTUs)



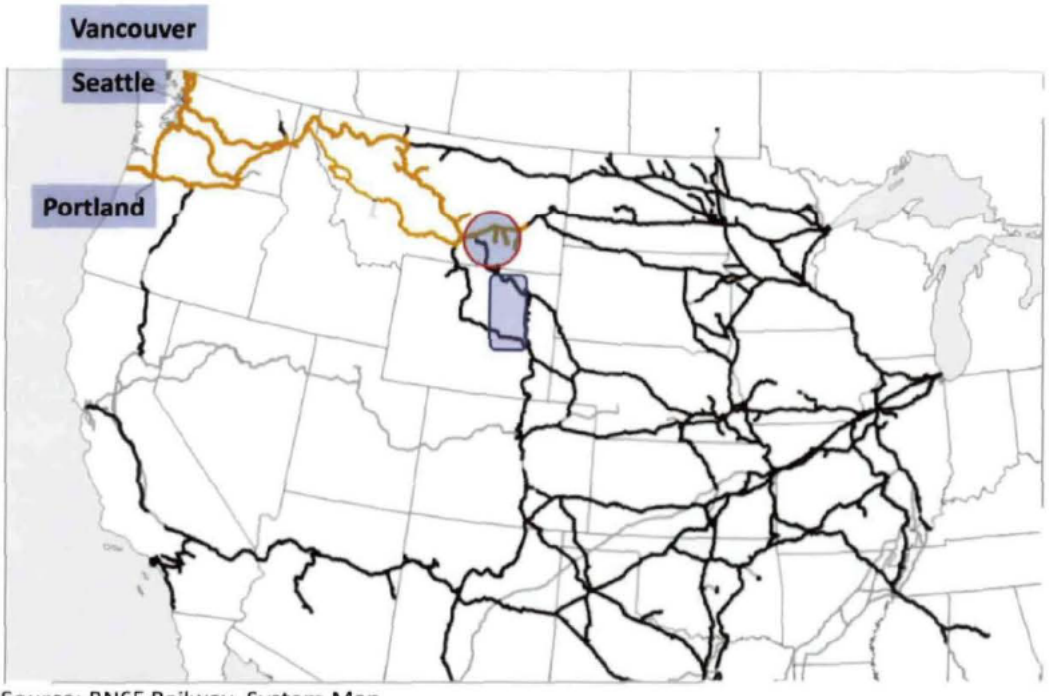
Source: U.S. Energy Information Administration (EIA), International Energy Statistics database (www.eia.gov/ies, accessed November, 2011).

Since the 1970s' renewal, Montana coal has been primarily used to fire electrical generating plants and most is transported by train to cities in the northern Midwest. In

addition, significant amounts of coal are burned for electric generation near the mine site at Colstrip and small amounts are transported west toward the Pacific Northwest. Domestic markets are unlikely to provide significant growth for Montana coal. The overall production of U.S. coal has been stable or declining due increased environmental concerns about coal-fired electric generating plants.

The same is not true in Asia, especially Southeast Asia, where coal demand is mushrooming. As shown in Figure 1.2, the annual demand for coal in China and elsewhere in the region is projected to grow significantly between 2010 and 2035. The data in Figure 1.2 are measured in Btus rather than tons to correct for quality differences between different types of coal. To put this growth into perspective, the increase from 2010 to 2035 in China alone is more than twice the current U.S. production of coal. If this growth in Asian demand materializes, it would have some very favorable impacts on Montana. There is not sufficient capacity in Southeast Asia to satisfy this growth, so coal would have to be imported by boat from other places. There are currently only a couple of bulk loading facilities in the Northwest that can handle coal, and they are in British Columbia. But there are proposals for several more on the Washington and Oregon coast.

Figure 1.3
Major Rail Lines Serving Powder River Basin and Destination Markets



Source: BNSF Railway, System Map.

Figure 1.3 depicts the rail lines in the Northern Great Plains and Pacific Northwest along with Montana and Wyoming in the Powder River Basin. It takes only quick glance to see that the Montana coal fields are closer to Northwest ports than the Wyoming coal fields. The transportation situation may now be reversed. Just as Wyoming was in a favorable geographic position to serve the fast growth in the south and east, Montana is now better situated to serve these fast growing Asian markets.

1.2 Otter Creek Coal

In the mid-1990s the U.S. government bought property adjacent to Yellowstone National Park on which the mining company Noranda proposed to develop a gold mine, called the New World mine. Governor Marc Racicot, citing the revenue that would be lost to the state because the mine would not be developed, asked the federal government for compensation. The federal government offered Montana a choice: $10 million, or the Otter Creek coal tracts located near Ashland in Powder River County. The State of Montana chose the coal.

The Otter Creek coal tracts have not yet been developed because they have a checkerboard ownership pattern. Great Northern Properties owns slightly more than half of the 1.3 billion tons of coal and the State of Montana owns the remainder. Montana invited bids for its coal in 2009. Arch Coal was chosen as the successful bidder. Since Arch Coal already leased the coal owned by Great Northern Properties, the checkerboard ownership problem no longer inhibits the development of these deposits.

The development phase for these tracts is just beginning and few specifics have been developed. Some preliminary work has begun as the Montana Department of Environmental Quality has determined that the Arch Coal's application to begin prospecting is administratively complete.

The state's 2009 appraisal of the tracts envisioned two surface mines each producing roughly 35 million tons per year. Projects of this scale would roughly triple Montana's coal production. Very conservatively, there would be at least 500 new mining jobs, which would place them among the largest industrial employers in the state. In addition, a new railroad would have to be constructed connecting the mines with the BNSF mainline to the north.

The new mines would be subject to administrative review before they could begin production. The mine operator would have to submit detailed operating and reclamation plans to the Montana Departments of Natural Resources and Conservation (DNRC) and Environmental Quality (EQC) for permitting review pursuant to the Montana Environmental Policy Act (MEPA).

1.3 The Impact of Coal Operations and Development

It is difficult to compare the economic contribution to the state economies coal mining makes in different states. Mining technology, the quality, quantity, and placement of coal seams, access to markets, and the vintage of equipment can all play a major role in productivity, production and impacts. But some studies carried out for coal mines in the western United States can at least frame the analysis. Studies of new developments for surface mining of other minerals can be relevant as well.

- A 2010 study conducted by the University of Utah found that the 24.3 million tons of coal mined annually from Utah employed 1,888 people, and that the operations induced an additional 2,815 jobs to be created in the state economy.

- A study of the new development of a proposed surface copper mine in Arizona conducted by Arizona State University in 2010 found that the project would generate about 3,600 jobs and $152 million in personal income while under construction, with operations supporting about 2,100 jobs and $143 million per year.

- A 2005 study conducted by the University of Wyoming of different production scenarios for Powder River Basin coal and natural gas in Wyoming found that a "low" production ramp up scenario that increased coal production by about 145 million tons per year contributed to an increase of about 12,500 jobs in a six-county region of the state.

All of these studies made use of the REMI model -- which we also employ in this study -- to estimate economic impacts. These studies confirm that the development of coal and other surface mined mineral reserves represent large-scale projects with commensurate large economic impacts.

1.4 Report Overview

The remainder of this report proceeds as follows. In the next section we introduce the policy analysis model that is used in this study to estimate economic impacts of Otter Creek coal development, and describe the basic philosophy behind its construction. As we shall describe, the task of estimating economic impacts involves carefully assessing the direct investments and spending (direct impacts) of both the Otter Creek mine as well as the Tongue River railroad. This is carried out in the following two sections. Section 5 presents the results of the analysis, followed by conclusions in the last section.

2. Policy Analysis with the REMI Model

Economic impacts occur because of events or activities that create new expenditures. Spending which is new – which is over and above existing expenditures and does not simply displace spending elsewhere in the region – not only adds to economic activity in its own right, but it also induces further spending as the recipients of wages, sales and tax revenues spend a portion of their income in the local economy. Changes in the path of investment, migration, and prices and wages are possible as well.

The basic tool used in this study to assess the economic contribution of Otter Creek is an economic model, calibrated to represent the interactions in the Montana economy, leased from Regional Economic Models, Inc.. The REMI model is one of the best known and most respected analytical tools in the policy analysis arena and has been used in more than a hundred previous studies as well as dozens of peer-reviewed articles in scholarly journals. It is a state-of-the-art econometric forecasting model that incorporates dynamic feedbacks between economic and demographic variables. The REMI model forecasts employment, income, expenditures and populations for counties and regions based on a model containing over 100 stochastic and dynamic relationships as well as a number of identities. A full explanation of the design and operation of the model can be found in Treyz (1988).

The model used in this study disaggregated the state economy into five regions: Northwest, Southwest, North Central, South Central, and Eastern. It explicitly recognizes trade flows that exist between these regions, as well as between the regions and the rest of the world. The definition of the regions is shown in Figure 2.1 below.

Figure 2.1
Economic Regions

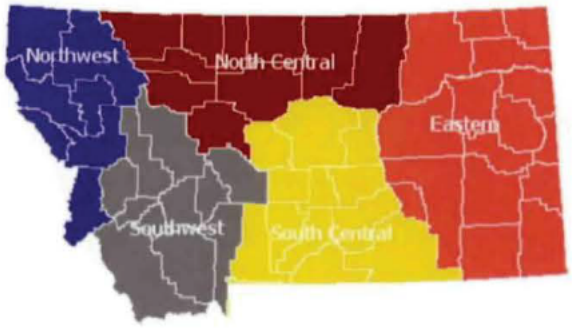
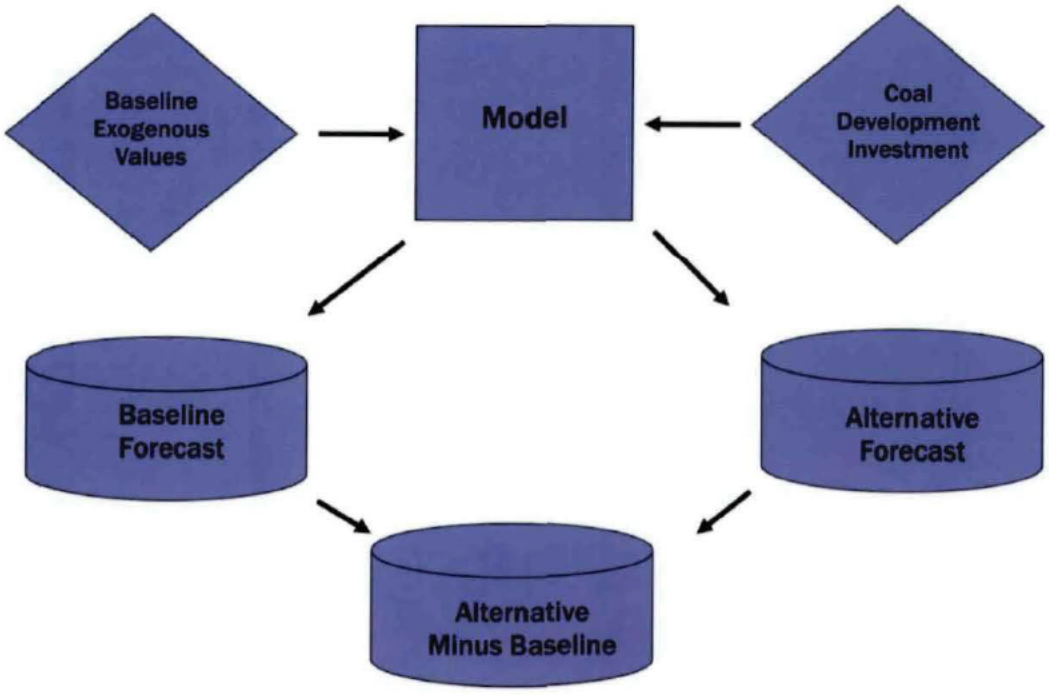


Table 2.1

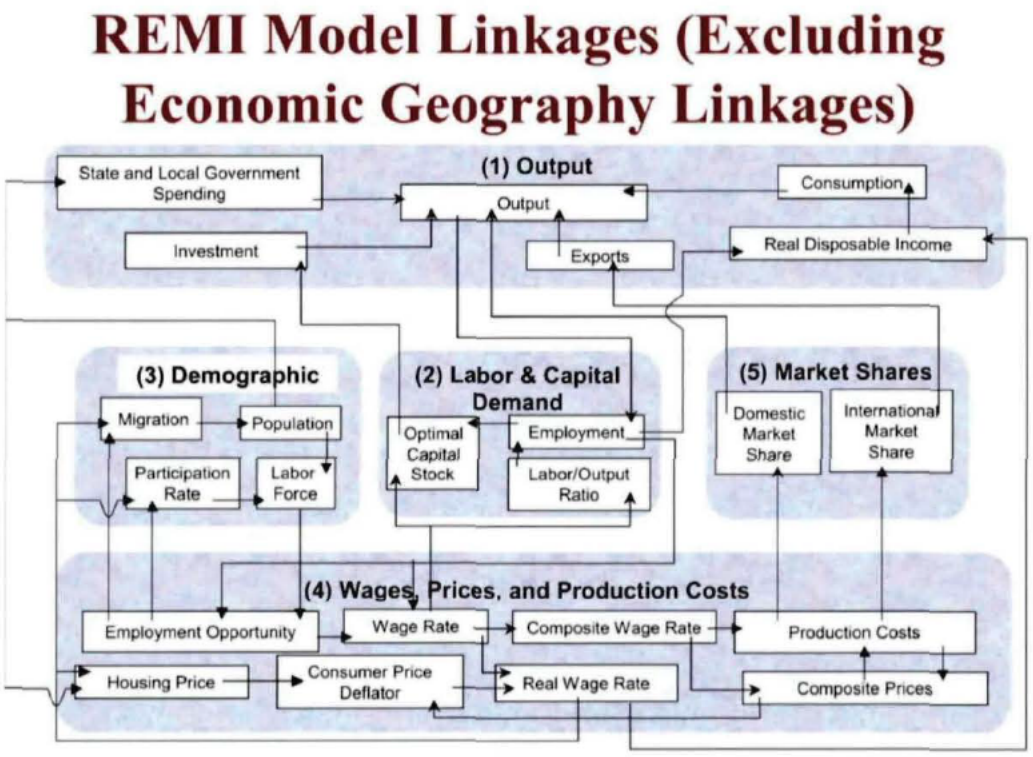
Eastern Montana Counties

Carter	Powder River
Custer	Prairie
Daniels	Richland
Dawson	Roosevelt
Fallon	Rosebud
Garfield	Sheridan
McCone	Valley
Phillips	Wibaux

Figure 2.2
Policy Analysis with the REMI Model



The use of the model to derive the results of this study is illustrated graphically in Figure 2.2. First, a baseline projection of the economy is produced using the model, utilizing inputs and assumptions which extrapolate growth and conditions of recent history. The model is then used a second time, with identical inputs – except that in this alternative scenario, the activity associated with coal development (including rail) is added. Thus the Otter Creek development is an input that ultimately produces a different economy, reflecting not only the addition of the production, employment, and expenditures of the project, but how the rest of the economy reacts to those changes. The difference between the baseline and alternative scenarios of the economy represents the economic impact of Otter Creek coal development.



The model utilizes historical data on production, prices, trade flows, migration and technological change to calibrate the relationship between five basic blocks of the regional economy as depicted above: output, labor and capital demand, population and labor force, wages and prices, and market shares. The changes in production, labor demand and intermediate demand caused by the construction and operation of Otter Creek causes these blocks of the economy to react and adjust to a new equilibrium. As described above, the difference between the baseline and the alternate scenario is the ultimate impact of coal development.

The essential philosophy of the model is that regions throughout the country compete for investment, jobs, and people. When events occur in a region they set off a chain reaction of actions causing dollar flows toward better investment and production opportunities, followed over time by a flow of workers and households toward employment opportunities and higher wages The model embodies an 82-sector input-output matrix that describes the technological interdependence of production sectors of the economy, as well as extensive trade and capital flow data to determine the share of each sector's demand that can be met by local production.

The model is extremely well suited for the analysis described in this report. As seen in several of the energy studies listed in the references section, it has been used for similar analyses of energy-related investment and opportunities.

As powerful and flexible as the model is, the answers it provides are only as good as the questions posed to it. The majority of work in this study is carefully crafting the inputs used to construct a scenario of the Montana economy that faithfully represents all of the investments and production that encompass Otter Creek coal development. We now turn to this task.

3. The Direct Economic Contribution of Otter Creek Construction and Operations

A careful specification of the scale and timing of the investments and income flows that would occur if Otter Creek coal is developed is a critical first step in understanding how that development would ultimately impact economic activity in Montana Using publicly available information, we have assembled a scenario of coal investment and operations that is (i) operationally and financially feasible, (ii) consistent with the coal production potential of the Otter Creek tracts, and (iii) consistent with mining developments planned or conducted elsewhere. While the precise spending and timing of actual development that unfolds in the coming years will doubtless deviate from this scenario, it faithfully represents the scale of the investment that is under consideration.

The greenfield development of even a small portion of the estimated 1 3 billion ton Otter Creek coal reserves is a major undertaking In order to transform a single tract of the approximately 19,200 acres of public and private land in Powder River County from its current agricultural use into an operating coal mine facility, years of contractual, regulatory, engineering, and legal challenges must be addressed and hundreds of millions of dollars expended. Infrastructure to support the mine must also be planned, approved, and constructed, including significant new construction in the railroad network. The overall project would represent one of the largest industrial developments in Montana's modern history

In this section we detail a development scenario for mining permitting, construction, and operations In the next section we describe the investments and income flows associated with the rail transport of Otter Creek coal. Jointly these activities represent sizable one-time and continuing income flows to the economy of the state How those new flows ultimately impact jobs and income in Montana – the central research question of this report – is then assessed using the REMI model as a tool, and the development scenario developed here as the main input.

3.1 The Permitting Phase

Broadly speaking, the permitting, or pre-construction phase of coal development in Otter Creek has been underway since the Montana Land Board voted to support opening the land to coal development in 2009. Significant resources have been expended for land acquisition, engineering and testing, planning, and for legal and lobbying services Perhaps the most significant and visible of these is the $85.8 million lease payment made by Arch Coal to the state of Montana in 2010

Many of these expenditures represent net new income flows to the Montana economy that are attributable to coal development in Otter Creek. Thus it is appropriate to include them as part of the direct economic contributions of the mining development and operation

The lease payments from Arch Coal to Great Northern Properties, mineral rights owners of the privately held half of the Otter Creek properties, represent a significant investment in coal development From the standpoint of the Montana economy, however, those payments have largely been directed outside the state Thus there is no direct impact of this private lease arrangement

The $85.6 million payment to the state of Montana, on the other hand, was a (one-time) new income stream to the state. It enabled, among other things, a fiscally strapped Legislature to reduce cuts to programs in the 2011-12 biennium that might otherwise have been made. However, it occurred before the beginning of the study period of this project (2012). Its impacts are embedded in the baseline projection of the economy – but not in our estimates of the economic changes caused by development

The new income flows that were included in this analysis are the costs of the extensive engineering, environmental, and legal analyses and support services that have begun and are expected to continue as part of the preparation of the mining permit application. This creates a demand for approximately $4 million per year for professional and technical services in the state economy during the period 2012-2017.

3.2 The Construction Phase

It is assumed for purpose of this analysis that construction of the mine will commence in the year 2015 and will continue for two years While the actual date is dependent upon the outcomes of regulatory and/or legal proceedings whose timelines and outcomes are unknown in advance, this construction scenario is consistent with a careful and thorough review of all the relevant permit applications. Events that push back the start date for construction will alter the timing, but not the size, of the ultimate economic impacts.

Construction of the railroad (with the exception of the rail spur that serves the new mine's loading facilities) is considered in the next section. For the mine facility's construction phase there are two broad categories of expenditures equipment and facilities Equipment includes the dragline, shovels, haul trucks, water trucks, drills, dozers, and other equipment Facilities include an office, maintenance shop, warehouse, wash bay, power/water system, power station, road and site preparation, coal storage, coal processing plant, and rail spur and loading loop

This study had access to three categories of information which could be used to create a construction scenario for the Otter Creek mine. These were·

(i) The Montana Otter Creek Coal Valuation study prepared by Norwest Corporation in 2009 presented construction estimates for the development of two Otter Creek tracts as part of an "income approach" to estimate of

the value of coal leases;

(ii) Construction estimates for other surface mining projects, most notably the Rosemont Copper project in Arizona;

(iii) Conversations with Mike Rowlands, director of Otter Creek Operations for Arch Coal.

This information can be summarized as follows.

Norwest Valuation Study. The Norwest study developed a detailed cost plan for development of two Otter Creek tracts as part of an income approach to lease valuation. Their estimates were based upon an independent engineering analysis and prevailing prices for materials and equipment. The model for one of their tracts, termed LMU5 (logical mining unit) in the report, is close in scale to what is studied in this report. The Norwest study estimates $591.2 million in equipment expenditures and $123.6 million in facilities spending

Rosemont Copper Project. The development of a 15,000 acre site in Pima County, Arizona, was studied by Arizona State University in 2009 based on a detailed feasibility study made available for the project While not a description of Otter Creek development, its estimate of $897 2 million in total construction costs for the greenfield development of a surface mine provide some support for the scale of this project

Arch Coal. Mike Rowlands, director of Otter Creek Operations for Arch Coal, was able to share his estimates of construction costs associated with Otter Creek coal development in several conversations. His estimates of equipment costs, in particular, were informed by the existence of draglines and other major equipment items that are available internally within the company

Priced in terms of the value of 2012 dollars, we have estimated the broad categories of construction phase expenditures associated with Otter Creek coal development as equipment expenditures, $400 million, and facilities expenditures, $200 million

3.3 The Operations Phase

It is projected that the development of Otter Creek coal resources envisioned in this study will create an operating mine that will ultimately produce 20 million tons of coal annually, using a year-round workforce of 300 employees with an additional 50 contractors. Production is assumed to commence in 2017, ramping up to full production levels by year 2009

New surface mining operations such as the projected Otter Creek mine are capital intensive, with very high levels of productivity per worker. Jobs are projected to pay in the neighborhood of $78,000 per year, not including sizable benefits

There are significant ongoing purchases from vendors of a wide range of items – from electricity to legal services – that have important ramifications for the Montana economy as a result of coal operations The subsequent impacts of these and other income flows due to coal operations are derived from the REMI model One purchase, however – rail transportation services – is large and important enough to be considered in its own right. We turn to that subject in the next section.

4. Construction and Operation of the Tongue River Railroad

4.1 Overview

A rail connection with the BNSF mainline in Miles City is an integral component of the Otter Creek Coal Project. This rail line would provide access to domestic and export markets for coal mined in the Ashland area and other nearby sites.

The Tongue River Railroad was first proposed in the 1970s but was never built. It began as a roughly 90-mile line from Miles City to Ashland. In the 1990s, the original project was expanded to extend the rail line south to connect with Decker (now Cloud Peak) mine at the Montana-Wyoming border. In mid-2011 a large landowner from the Birney area purchased one-third of the proposed railroad and said that the tracks would never cross his land. This effectively nullified the extension south of Ashland. Currently the railroad permits are owned in roughly equal parts by Mars, Inc , BNSF, and Arch Coal.

Then, in late 2011 the Ninth Circuit Court of Appeals in San Francisco ruled that the environmental impact statements were deficient in certain areas and construction could not proceed.

The following paragraphs describe features of the proposed Tongue River Railroad. They are based on the original environmental impact statement, the Ninth Circuit's ruling, and discussions with knowledgeable railroad experts

The proposed railroad would proceed southeast from Miles City and generally follow the Tongue River to Ashland. For the first 70 miles it would be west of the river on the opposite bank from Highway 332 About 10 miles north of Ashland the railroad would cross the Tongue River and proceed directly south An approximately 20-mile spur line would connect the Otter Creek mine with the terminus in Ashland The overall ruling grade of 0 2 percent makes this line very efficient in terms of fuel consumption.

The rail line would occupy an average right-of-way of 200 feet. There would be about four microwave towers linked to a centralized traffic control board in Miles City which would be the primary communication and signaling facilities. There would be either construction or rehabilitation of an interchange yard in Miles City and the construction of a maintenance facility in Ashland. The construction period would be about three years, with the actual construction season being seven or eight months of the year The rail line would require the construction of six sidings and 12 bridges.

The trains would require a three-person crew, and Miles City would be terminal location for these crews A 110 car train with each hopper car holding 100 tons of coal would have a capacity of 11,000 tons. The trains could operate 24 hours a day and 350 days per year. Extracting 20 million tons of coal a year would require about 1,800 round trips

per year—or approximate 5.1 per day. Since each round trip requires two trains (one loaded, one empty), extracting 20 million tons per year would be associated with about ten trains per day. The maximum allowable speed on the Tongue River Railroad would be 40 miles per hour

Two maintenance crews would service the proposed railroad One crew would be headquartered in Miles City and the other in Ashland. These crews would perform daily maintenance chores as well as cleaning, oiling, and adjusting the switches.

The Tongue River Basin is sparsely populated and semiarid with a mostly agricultural base Livestock is the dominant agricultural product and most of the land is used for grazing. Only a small portion of the land is used for crops. Only a very small portion of the cropland is irrigated. Dry land farming and irrigated cropland are concentrated in the valley floor near the Tongue River.

4.2 Construction Costs

The major components of railroad construction costs are:

- Acquisition of the right-of-way For the most part, the right-of way would be approximately 200-feet wide Sidings and signal devices might require greater width in certain locations.
- Materials and labor. These costs are usually computed as the cost per track foot multiplied by the length of the railroad.
- Construction grade The average grade of the entire railroad will be an important determinant of fuel costs The local topology will determine the amount of cut and fill needed to provide an evenly sloped surface between the starting and ending points of the proposed railroad.
- Road crossings. The costs of road crossings is determined by the number of road crossings, the material used at each crossing, the crossing length (i e. road width), and the type of protection needed (gates, lights, etc.).
- Stream crossings. Depending on the size of the stream, either culverts will be placed under the roadway, a short span bridge built (about 23 feet per span), or a long span bridge (less than 120 feet per span) built.

According to a technical railway website, "A single track freight line with a few locomotives and simple signaling, running across a flat, geologically sound, sparsely populated landscape in a developing country might be built for as little as US$ 2 million per kilometer." (www railway-technical com/finance/shtml) This converts to approximately $3.3 million per mile

A Texas railroad consultant estimated average construction costs to be about $4.0 million per mile including centralized traffic control and other communications

equipment For the proposed 89-mile Tongue River Railroad, this yields total construction costs of about $356 million.

The engineering department of the BNSF railroad independently estimated construction costs of the Tongue River Railroad to be about $471 million, or approximately $5 3 million per mile We chose the BNSF calculation because the engineers are most familiar with the route and terrain associated with the Tongue River Railroad. Construction is assumed to commence in 2015 and continue for three years.

4.3 Railroad Operations

The operations of a coal mine in southeastern Montana will introduce significant new demand for rail transport From the point of view of the economy, demand for rail transport that originates from a customer in one location is ultimately met by a combination of the local network (self supply) and networks and facilities elsewhere. From the point of view of the Montana economy, supplies of rail services from elsewhere that meet demand originating locally are essentially imports.

Based on mileage calculations to west coast port facilities, and based on an industry average transportation charge of $ 03 per ton mile for coal transport, we project that Otter Creek coal production will generate just over a billion dollars of demand for rail transport annually That new demand results in new business and higher rail employment for all regions of the state.

5. The Economic Impact of Otter Creek Coal Development

5 1 Impacts Summary

The scenario of coal development, including additions to the railroad network, described in the previous two sections represents significant new income and expenditure streams for the Montana economy. As these projects are carried out, and as the facilities go into operation, the economy of the region, and the state as a whole, can be expected to change significantly. We have analyzed these changes using the REMI model, and we detail our findings in this section of the report

All of the economic impacts described below are total impacts – which include the spending, production, and income of coal miners, as well as those involved with coal transport, and any new jobs in other industries ultimately induced by their spending. As described in section 2 of this report, these impacts are the difference between a "coal" and "no coal" scenario for any given year.

As we describe below, the changes in the economy evolve over time, for two primary reasons First, the nature of the project changes significantly when facilities are completed and the operations of the mine commence. Specifically, the construction jobs associated with mine and railroad construction do not continue when capital improvements are complete. The second change in economic impacts over time is caused by population migration. The high wage jobs represent an attractive opportunity for non-residents to move to the region. This migration occurs gradually, and over time increases the population and the workforce.

For readability, we present tables in this section detailing impacts for two points in time. the peak construction year (2016) and the first year of the operations-only period (2019). These two time points are termed the "Construction" and "Operations" impacts, respectively. We also present several charts that describe the impacts visually for the entire project period. Detailed impacts for all years can be found in the Appendix.

Summary of Findings

This study finds that as a result of Otter Creek coal development, the state economy is significantly larger, more prosperous, and more populous than would otherwise be the case Specifically, we find that as a result of the development of the first of the three Otter Creek tracts, ultimately producing 20 million tons of coal, that.

- 2,648 jobs would be created during the peak year of the construction phase as the mine facilities and the railroad are built, with most new jobs created in eastern Montana;

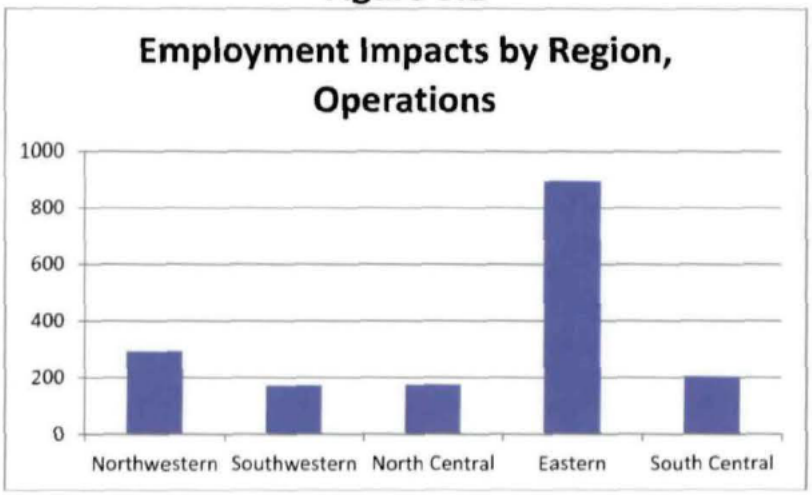
- The impacts on income received by Montana households would be similarly substantial. $103.5 million of new personal income, and $87.7 million in after-tax income, would occur during the peak construction year statewide. In eastern Montana, total household earnings would increase more than 6 percent;
- As a result of the continuing operations of the mine, 1,740 new permanent, year-round jobs would be created in the Montana economy, increasing household income by $125.4 million per year;
- Job increases would occur across a wide spectrum of industries, and, largely due to rail operations, in most regions of the state;
- Overall state population would be more than 2,800 higher, and school-aged population more than 560 higher, due to the operations of the mine.
- Mine operations would increase state and local tax revenue by more than $91.6 million per year, due to both coal specific taxes as well as growth in the overall base for Montana's other taxes.

Table 5.1

Impacts Summary

	Impacts by Phase	
Category	Construction	Operations
Total Employment	2,648 Jobs	1,740 Jobs
Private Sector	2,372 Jobs	1,338 Jobs
Personal Income	$103.5 million	$125.4 million
Disposable Personal Income	$87.7 million	$167.9 million
Population	1,025 people	2,843 people
State tax revenues	$23.5 million	$91.6 million

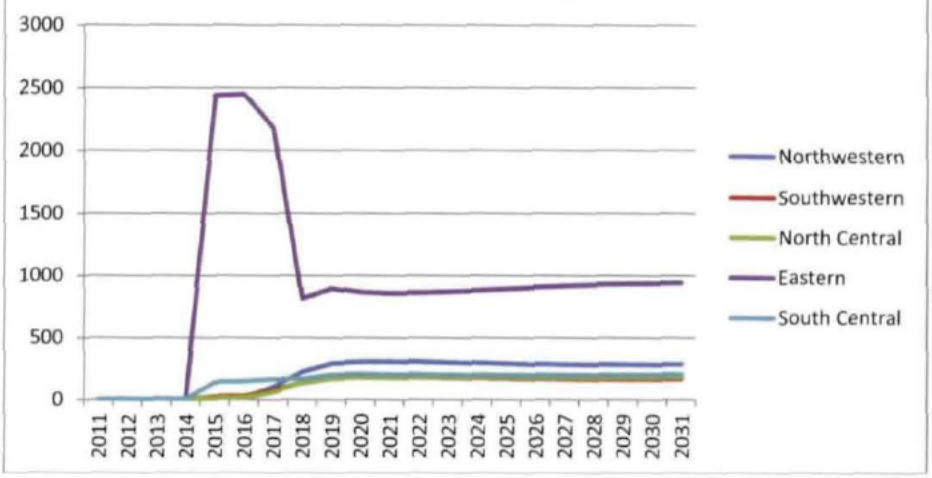
Figure 5.1



5.2 Employment Impacts

Coal development ultimately will result in a significantly higher number of jobs, both in the eastern Montana region as well as the state as a whole. The construction phase job totals peak at almost 2,650 jobs, with about 90 percent of those additional jobs created in the private sector. As shown in Figure 5.2, most of the construction phase jobs created are in eastern Montana. The next most impacted region of Montana in terms of new jobs is the south central portion of the state, which includes Billings.

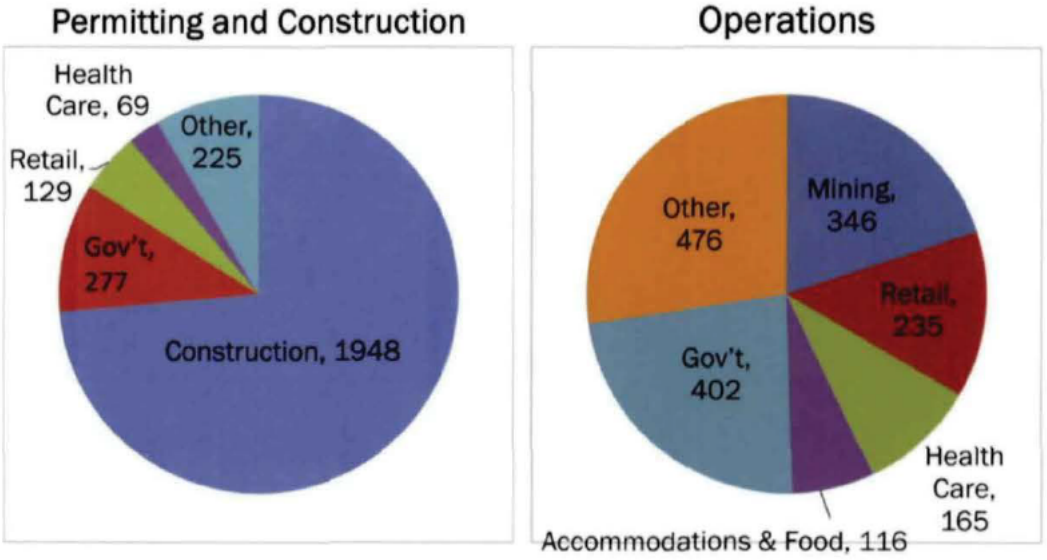
Figure 5.2
Employment Impacts by Region, 2011-2031



As the figure shows, while the construction phase jobs only persist during the period when the mine facilities and rail lines are being built, the operations jobs are permanent additions to the Montana economy. The employment impacts drift up modestly over time as population and demographic dynamics unfold. At the first year of operations, 1,740 new permanent jobs are added to the state economy due to Otter Creek coal operations.

Some insights can be made on the nature of these jobs if we examine the different industries and occupations they represent. As shown in Figure 5.3, the composition of the job impacts changes significantly after the construction phase is over. Nearly three quarters of all of the jobs created by coal development during the construction phase of the project are in the construction industry itself. Smaller, yet significant, impacts are seen in Government, Retail Trade, Health Care, and other industries as the spending of construction and other workers propagates through the regional economy.

Figure 5.3
Employment Impacts by Industry



When the operations phase is underway, the composition of the jobs impacts changes. This reflects not only the addition of the mining jobs themselves, but also the population- related increases in local public school employment (included in Government), health care jobs and such businesses as retail and restaurants. These impacts demonstrate the importance of the induced jobs created as the direct impacts of mining and railroad jobs impact services and government in the state.

A second way to look at the job impacts of coal development is by examining the impacts by occupation. The U.S. Bureau of Labor Statistics classifies each job in the economy into 23 major categories, from white collar management to blue collar production occupations. Figure 5.4 again shows that the most profound job impacts of coal development in the construction phase of the project is in the construction and extraction occupations, comprising nearly half of all jobs created. When looking at occupations, however, the job impacts are more varied in all phases of the project. There are significant management jobs involved in construction and permitting, as well as jobs in sales and administrative support, maintenance jobs and jobs in other occupations. The full list of job impacts by occupations is shown in Table 5.2.

In the operations phase, job impacts spread out across a larger number of occupations. The largest impacts are on sales and administrative support positions, construction occupations, transportation occupations, and management.

Figure 5.4
Employment Impacts by Occupation

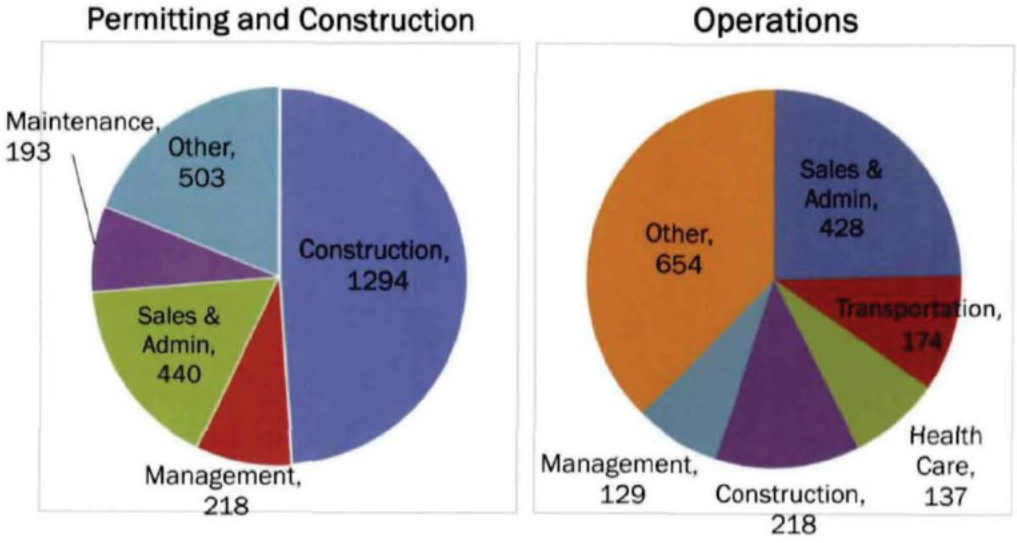


Table 5.2
Employment Impacts by Occupation

Occupation	Job Impacts by Phase	
	Construction	Operations
Management, business, financial occupations	218	129
Computer, math, architect, engineer occupations	49	49
Life, physical, social science occupations	10	16
Community, social service occupations	4	10
Legal occupations	10	15
Education, training, library occupations	8	17
Arts, design, entertainment, sports, media occupations	7	13
Health care occupations	65	137
Protective service occupations	74	110
Food preparation, serving related-occupations	59	124
Building, grounds, personal care, service occupations	60	106
Sales, office, administrative occupations	440	428
Farm, fishing, forestry occupations	2	2
Construction, extraction occupations	1,294	218
Installation, maintenance, repair occupations	193	122
Production occupations	49	71
Transportation, material moving occupations	107	174
TOTAL	2,648	1,740

5.3 Income and Compensation Impacts

The income impacts attributable to the development of Otter Creek coal are substantial, whether measured against the income of the entire state, or against the much smaller income base of eastern Montana. Both mining and railroad jobs pay wages significantly above the state average, and even though every job created by coal development is not a high paying job, the increased income due to the project is substantial.

Since income is measured in dollars, and the impacts of coal development occur in the future, it is important to take into account the effect of wage and price inflation when reporting these results. All impacts measured in dollars in this report are calculated according to their purchasing power in year the 2012. Thus with inflation, a dollar amount of income realized in, say, year 2019 would yield a somewhat smaller amount

Table 5.3
Personal Income Impact, Millions of Dollars

Category	Income Impacts by Phase	
	Construction	Operations
Total Earnings by Place of Work	$123.0	$119.4
Total Wage and Salary Disbursements	81.9	88.1
Supplements to Wages and Salaries	21.0	25.5
Employer contributions for employee pension and insurance funds	13.5	16.3
Employer contributions for government social insurance	7.5	9.2
Proprietors' income with inventory valuation and capital consumption adjustments	20.2	5.8
Less: Contributions for government social insurance	15.8	18.3
Employee and self-employed contributions for government social insurance	8.3	9.1
Employer contributions for government social insurance	7.5	9.2
Plus: Adjustment for residence*	-1.7	-1.2
Gross earnings flows into Montana	2.2	2.1
Gross earnings flows out of Montana	3.9	3.3
Equals: Net earnings by place of residence	105.6	99.9
Plus: Rent, interest, and dividends	5.8	19.0
Plus: Personal current transfer receipts	-7.8	6.6
Equals: Personal Income	103.5	125.4
Less: Personal current taxes	15.7	-42.4
Equals: Disposable personal income	87.7	167.9

* Total earnings data are derived from records of employers who are located in Montana. Since some Montana workers are employed by out-of-state firms, and some Montana firms employ workers from other states, the adjustment for residence nets out these two impacts to produce an estimate of Montana residents' income.

of purchasing power in 2012, and the inflation correction (which reduces it) reflects that fact.

As shown in Table 5.3, there is considerably more to personal income – the income received by Montana households – than the wages and salaries workers receive from employment. Most – but not all – of the income impacts listed in the table for both the construction and operations phase of the project are connected to employment. Total earnings are $123 million higher during the construction phase of the project, including benefits and an additional $20.2 million earned by business owners during the same year due to coal development. Even some categories of so-called non-earned income, such as dividends, interest, and rent are positively impacted by coal development, largely through the population impacts of the project.

The U.S. Bureau of Economic Analysis defines personal income as wages and benefits net of social security contributions, but prior to paying personal income tax. The impact on personal income is $105.6 million during the peak year of the construction phase, and falls only slightly to just shy of $100 million per year during the operations phase. The very small decrease, despite the much fewer number of jobs when construction is over, reflects the high paying nature of the rail and mining jobs that commence with mine operation.

After tax, or disposable personal income, impacts actually are higher during the operations phase, at about $168 million per year. This is because of the treatment of the severance taxes paid to state government during mining operations. As described in section 3, these taxes are assumed to be used to finance state expenditures with a slightly lower personal tax rate. As shown in the table, the net effect of this tax decline with the increase base is a $42.4 million decrease in personal tax payments (to both the state and federal government).

The earnings and income impacts of coal development are significant. With the construction phase concentrated in less populous eastern Montana, the additional income attributable to coal development in the last year of construction (2017) for this single project represents more than 3.5 percent of total income for the entire region. In the operations phase of the project, the average earnings per new job added ($68,600) exceeds the state average by a sufficient margin to actually raise the total compensation per job in the entire state economy (Table 5.4). It is clear that in terms of income, coal development is an important event.

Table 5.4
Compensation Impacts

Category	Units	Compensation Impacts by Phase	
		Construction	Operations
Wage and Salary Disbursements	$ Millions	81.9	88.1
Compensation	$ Millions	102.9	113.6
Earnings by Place of Work	$ Millions	123.0	119.4
Average Annual Wage Rate	$ Thousands	0.003	0.054
Average Annual Compensation Rate	$ Thousands	0.001	0.071
Average Annual Earnings Rate	$ Thousands	0.010	0.060

Note: Compensation includes cash and non-cash employee benefits, including health, retirement, and other employer-funded programs. Earnings includes employee compensation and proprietor's income. All compensation is measured on a place-of-work basis.

5.4 Output Impacts

A third aspect of the impact of coal development on the Montana economy can be evaluated by examining the impacts on economic output. This is particularly relevant for capital-intensive industries whose employment impacts may understate their reaction to changes that occur as a result of new coal activity. Net output is measured in inflation-corrected dollars, using value added (revenues minus costs) by industry.

Table 5.5 reveals that the impact on economic output is almost 60 percent higher during mining operations than during the construction phase of the project, even as the total employment impact falls after construction. This occurs as the two most capital intensive industries – mining and rail transport – ramp up as mining operations commence. The table clearly reveals the outsized impact contribution of mining's value added during the operations phase.

These output gains are substantial, especially as measured against the comparatively smaller regional economy of eastern Montana. Whereas the overall output increase of $231.1 million per year during the operations phase only represents about 0.4 percent of total state output, $150.3 million of that change comes from producers located in eastern Montana. Mining operations at this single facility in Powder River County are thus responsible for more than 4 percent of total economic output of the entire region.

Table 5.5
Gross Domestic Product Impacts
(Private Sector, $ Millions)

Industry	GDP Impacts by Phase	
	Construction	Operations
Forestry, Fishing, Related Activities, and Other	0.0	0.0
Mining	(0.3)	138.9
Utilities	0.1	2.4
Construction	110.7	6.4
Manufacturing	0.5	0.4
Wholesale Trade	5.0	9.1
Retail Trade	7.1	14.8
Transportation and Warehousing	(0.0)	10.1
Information	0.1	0.4
Finance and Insurance	0.4	1.4
Real Estate and Rental and Leasing	1.8	6.0
Professional and Technical Services	1.8	2.9
Management of Companies and Enterprises	(0.0)	(0.0)
Administrative and Waste Services	1.0	2.0
Educational Services	0.0	0.2
Health Care and Social Assistance	4.9	12.0
Arts, Entertainment, and Recreation	0.1	0.4
Accommodation and Food Services	1.4	3.1
Other Services, except Public Administration	1.7	2.8
Total	136.3	213.1

5.5 Population Impacts

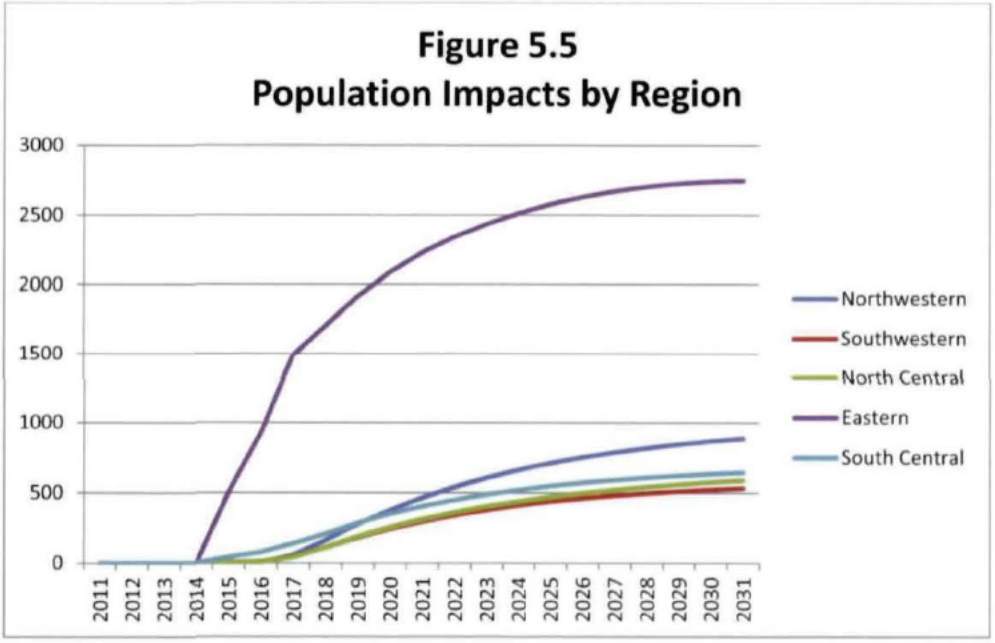
The economic opportunity represented by a large scale energy investment paying compensation per job substantially in excess of the Montana average is attractive to potential workers. As has actually occurred in the wake of other significant capital

investments that create high paying jobs – e.g., Colstrip in the 1980s – we can expect to see a significant increase in the population of southeastern Montana resulting from coal development. A second, less pronounced, draw for new migrants to the state could result from the ability of state government to meet its obligations with slightly lower personal taxes – making up the difference with severance taxes collected from the new mine. This effectively increases the after-tax wage of every Montana job, making state jobs slightly more attractive than the "no coal" scenario situation.

Population changes take time to develop, for two reasons. First, as an empirical matter, years typically pass before increased opportunity induces a nonresident household to relocate. This is due in part to the expense and complexity of moving families. A second reason is that children born to those who migrate may not show up until years after the move. This is especially prevalent since mobility is prominent for those in prime child-bearing ages groups.

For these reasons, the population impacts of coal development in Otter Creek given in summary Table 5.1 at the beginning of this section significantly understate the changes in population that the development will eventually produce.

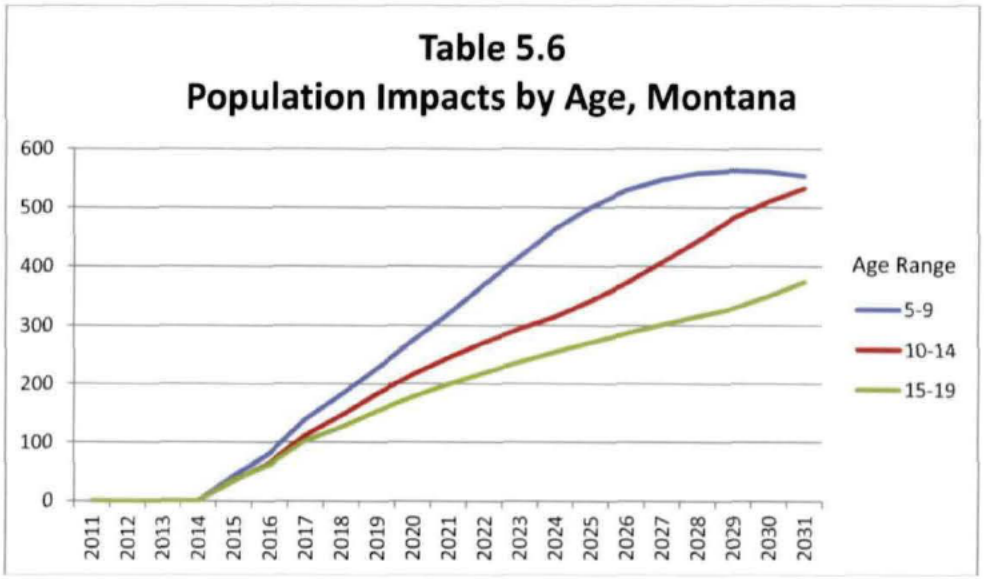
Figure 5.5
Population Impacts by Region



As is clear from Figure 5.5 above, the population impacts grow significantly beyond year 2019, which is the first year of full mine operation reported in the overall impacts summary. Indeed, by year 2031 mining operations will ultimately be responsible for the addition of almost 5,400 more people throughout the state, with roughly half living in eastern Montana. This gradual increase in population will create additional demand for housing, health care, consumer goods, and government services.

Since younger people are more mobile, population migration has particular impacts on the younger aged cohorts. Of particular interest to rural school districts in the slower growing areas of the state is the impact of coal development on the school-aged population.

Table 5.6
Population Impacts by Age, Montana



The statewide impacts are shown in Figure 5.6 above for three five-year age cohorts. These correspond roughly to elementary, middle school, and high school populations. These population impacts build over time, such that in year 2031 we would expect the total increase to approach 1,500. This could stabilize or increase the demand for public schooling in the affected communities.

5.6 Summary

This section has examined in detail the changes that can be expected to occur in the Montana and the eastern Montana economies as a result of coal development in Powder River County. Not only is the development of the coal and rail infrastructure and facilities responsible for almost 2,700 jobs and more than $100 million in personal income in the peak construction year of the projects, but the operations of the mine will create 1,740 permanent, high-paying jobs across the state. By any measure, these are significant impacts that help create a more productive, prosperous, and populous state economy.

6. Conclusion

The research question posed by this study is "What would the economy of Montana look like if Otter Creek coal development takes place?" It is a hypothetical question – we have no special insight on the prospects for those investments, from either an economic or a political standpoint. Yet in a policy and political environment where the contributions of coal development to the state economy are poorly understood or perhaps taken for granted, it deserves to be carefully analyzed and answered.

Using a state-of-the-art policy analysis model of the Montana economy that has been peer-reviewed and used in dozens of other studies, we have carefully examined the contribution made to both the economy of eastern Montana as well as to the state economy as a whole by the proposed Otter Creek mine. Our study has revealed the footprint of this single facility in Powder River County to be substantial. Comparing the status quo economy to one that would exist if the construction and operations of the mine took place as envisioned, we find that:

- 2,648 jobs, including 2,372 private sector jobs,
- more than $103 million of personal income received by Montanans, and
- $136 million in net output produced in Montana

would be created and sustained annually throughout the construction period for both the mine and the railroad. Almost three-quarters of these new jobs would be in the state's hard-hit construction industries.

When the mine goes into operation and ramps up to the 20 million tons of annual production envisioned, there will be:

- 1,740 permanent jobs, including 1,338 private sector jobs,
- more than $125.4 million in annual personal income,
- 2,843 more people, and
- almost $92 million in additional annual state tax revenues

in the Montana economy that are attributable to Otter Creek operations. To state it another way, without Otter Creek, the Montana economy will be smaller, less prosperous, and less populous by these amounts.

There are several aspects of Otter Creek coal development that lead directly to this impressive result. First, the facility will pay wages and benefits to its workforce that are substantially above the state and regional average. When employees spend part of their money in the local and state economy, many other jobs are supported. Second, the operation of the facility is a boon to another high-paying industry with a significant presence in Montana, namely, the railroad. Finally, the project involves a huge capital

investment – well in excess of $1 billion – to be committed to the equipment, facilities, rail, and other support infrastructure in the state.

Finally, the product produced by Otter Creek – high quality coal delivered to domestic and overseas markets – does not displace or crowd out other Montana producers. Thus it's activities add to, rather than supplant or replace, other activities in the economy. The uses and demand for electricity worldwide continue to grow, and the prospects for the state with the nation's largest coal reserves to take advantage of the opportunity are very good.

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APPENDIX

REMI Tables

Otter Creek Summary
Economic Summary

C:\Users\Pat.Barkey\Documents\REMI\PI+ Montana Regions v1.3.5 (Build 2599)\Workbooks\Otter Creek with RR and taxes.rwb
Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Economic Summary

Category	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total Employment	Individuals (Jobs)	+6	+6	+6	+2,626	+2,648	+2,585	+1,481	+1,740	+1,740	+1,739
Total Employment as % of Nation	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Private Non-Farm Employment	Individuals (Jobs)	+5	+5	+5	+2,364	+2,372	+2,246	+1,175	+1,338	+1,337	+1,333
Private Non-Farm Employment as % of N	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Gross Domestic Product	Millions of Fixed (2005) I	+0	+0	+0	+121	+123	+149	+134	+180	+179	+179
Gross Domestic Product (GDP) as % of N	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Output	Millions of Fixed (2005) I	+0	+0	+0	+212	+214	+267	+251	+342	+343	+343
Value Added	Millions of Fixed (2005) I	+0	+0	+0	+121	+123	+149	+134	+180	+179	+179
Personal Income	Millions of Current Dolla	+0	+0	+0	+96	+112	+152	+125	+144	+151	+157
Personal Income as % of Nation	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Disposable Personal Income	Millions of Current Dolla	+0	+0	+0	+82	+95	+156	+161	+193	+201	+208
Disposable Personal Income as % of Nati	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
PCE-Price Index	2005=100 (Nation)	0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Real Disposable Personal Income	Millions of Fixed (2005) I	+0	+0	+0	+64	+71	+115	+116	+136	+139	+140
Real Disposable Personal Income as % of	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Population	Individuals	+0	+1	+1	+559	+1,025	+1,770	+2,289	+2,843	+3,308	+3,701
Population as % of Nation	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0

Otter Creek Summary
Economic Summary

C:\Users\Pat.Barkey\Documents\REMI\PI+ Montana Regions v1.3.5 (Build 2599)\Workbooks\Otter Creek with RR and taxes.rwb
Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Economic Summary

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
+1,736	+1,735	+1,736	+1,738	+1,743	+1,750	+1,758	+1,768	+1,776	+1,787	+1,795	+1,805	+1,810	+1,813	+1,813
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+1,327	+1,325	+1,324	+1,325	+1,330	+1,336	+1,344	+1,353	+1,361	+1,371	+1,380	+1,390	+1,396	+1,400	+1,402
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+178	+178	+179	+179	+180	+180	+181	+182	+184	+185	+186	+188	+190	+191	+192
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+343	+344	+345	+345	+347	+348	+349	+351	+353	+355	+357	+359	+361	+363	+364
+178	+178	+179	+179	+180	+180	+181	+182	+184	+185	+186	+188	+190	+191	+192
+162	+168	+175	+181	+188	+196	+204	+213	+223	+234	+245	+258	+271	+283	+297
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+215	+223	+231	+239	+247	+256	+266	+277	+288	+301	+314	+328	+342	+356	+372
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+142	+143	+144	+146	+147	+148	+150	+151	+153	+155	+158	+160	+162	+164	+167
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+4,031	+4,310	+4,546	+4,745	+4,913	+5,054	+5,171	+5,266	+5,341	+5,398	+5,437	+5,462	+5,472	+5,468	+5,453
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0

Otter Creek Summary

Personal Income

C:\Users\Pat.Barkey\Documents\REMI\PI+ Montana Regions v1.3.5 (Build 2599)\Workbooks\Otter Creek with RR and taxes.rwb
Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Personal Income

Category	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total Earnings by Place of Work	Millions of Fixed (2012) [	+0	+0	+0	+114	+123	+154	+109	+119	+116	+112
Total Wage and Salary Disbursements	Millions of Fixed (2012) [	+0	+0	+0	+74	+82	+108	+81	+88	+86	+83
Supplements to Wages and Salaries	Millions of Fixed (2012) [	+0	+0	+0	+19	+21	+28	+22	+25	+26	+26
Employer contributions for employee pe	Millions of Fixed (2012) [	+0	+0	+0	+12	+13	+18	+14	+16	+16	+16
Employer contributions for government	Millions of Fixed (2012) [	+0	+0	+0	+7	+8	+10	+8	+9	+9	+9
Proprietors' income with inventory valua	Millions of Fixed (2012) [	+0	+0	+0	+21	+20	+17	+6	+6	+4	+3
Less: Contributions for Government Socia	Millions of Fixed (2012) [	+0	+0	+0	+14	+16	+21	+16	+18	+18	+18
Employee and Self-Employed Contributio	Millions of Fixed (2012) [	+0	+0	+0	+7	+8	+11	+8	+9	+9	+9
Employer contributions for government s	Millions of Fixed (2012) [	+0	+0	+0	+7	+8	+10	+8	+9	+9	+9
Plus: Adjustment for Residence	Millions of Fixed (2012) [	0	0	0	-2	-2	-2	-1	-1	-1	-1
Gross In	Millions of Fixed (2012) [	+0	+0	+0	+2	+2	+3	+2	+2	+2	+2
Gross Out	Millions of Fixed (2012) [	+0	+0	+0	+4	+4	+5	+3	+3	+3	+3
Equals: Net Earnings by Place of Residenc	Millions of Fixed (2012) [	+0	+0	+0	+98	+106	+131	+92	+100	+96	+93
Plus: Rental, Personal Interest, and Perso	Millions of Fixed (2012) [	+0	+0	+0	+3	+6	+11	+15	+19	+22	+25
Plus: Personal Current Transfer Receipts	Millions of Fixed (2012) [	0	0	0	-10	-8	-4	+5	+7	+9	+12
Equals: Personal Income	Millions of Fixed (2012) [	+0	+0	+0	+91	+103	+138	+111	+125	+128	+130
Less: Personal current taxes	Millions of Fixed (2012) [	+0	+0	+0	+14	+16	-4	-32	-42	-42	-43
Equals: Disposable personal income	Millions of Fixed (2012) [	+0	+0	+0	+77	+88	+141	+144	+168	+171	+173

Otter Creek Summary

Personal Income

C:\Users\Pat.Barkey\Documents\REMI\PI+ Montana Regions v1.3.5 (Build 2599)\Workbooks\Otter Creek with RR and taxes.rwb
Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Personal Income

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
+108	+105	+103	+101	+99	+98	+97	+97	+97	+97	+98	+99	+99	+100	+100
+81	+79	+77	+76	+75	+74	+73	+73	+73	+74	+74	+74	+75	+75	+76
+26	+26	+26	+26	+26	+26	+27	+27	+27	+27	+28	+28	+28	+28	+29
+17	+17	+17	+17	+17	+17	+17	+17	+17	+17	+18	+18	+18	+18	+18
+9	+9	+9	+9	+9	+10	+10	+10	+10	+10	+10	+10	+10	+10	+10
+2	+1	0	-1	-2	-3	-3	-3	-3	-4	-4	-4	-4	-4	-4
+18	+17	+17	+17	+17	+17	+17	+17	+17	+17	+18	+18	+18	+18	+18
+8	+8	+8	+8	+8	+8	+8	+8	+8	+8	+8	+8	+8	+8	+8
+9	+9	+9	+9	+9	+10	+10	+10	+10	+10	+10	+10	+10	+10	+10
-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2
+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3
+90	+87	+84	+82	+81	+80	+79	+79	+79	+79	+79	+80	+80	+81	+81
+28	+30	+32	+34	+36	+37	+39	+40	+42	+43	+44	+46	+47	+48	+50
+14	+16	+17	+19	+20	+21	+22	+23	+24	+25	+27	+28	+29	+30	+31
+132	+133	+134	+135	+137	+138	+140	+142	+144	+147	+150	+153	+156	+159	+162
-43	-43	-43	-43	-43	-43	-43	-42	-42	-42	-42	-41	-41	-41	-41
+174	+176	+177	+178	+179	+181	+182	+185	+187	+189	+192	+195	+198	+200	+203

Otter Creek Summary

Employment | Industry | Private Non-Farm | Private Non-Farm Employment | Sector Level

C:\Users\Pat.Barkey\Documents\REMI\PI+ Montana Regions v1.3.5 (Build 2599)\Workbooks\Otter Creek with RR and taxes.rwb
Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Sector Level

Category	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Forestry, Fishing, Related Activities, and (	Individuals (Jobs)	+0	0	0	+0	+0	+0	+0	+0	+0	+0
Mining	Individuals (Jobs)	0	0	0	-1	-3	+346	+345	+346	+335	+326
Utilities	Individuals (Jobs)	+0	+0	0	+1	+0	+2	+4	+6	+5	+5
Construction	Individuals (Jobs)	+0	+0	+0	+1,978	+1,948	+1,218	+50	+79	+89	+94
Manufacturing	Individuals (Jobs)	+0	+0	+0	+5	+4	+3	+2	+3	+3	+3
Wholesale Trade	Individuals (Jobs)	+0	+0	+0	+31	+41	+60	+60	+66	+63	+60
Retail Trade	Individuals (Jobs)	+0	+0	+0	+106	+129	+208	+213	+235	+230	+226
Transportation and Warehousing	Individuals (Jobs)	+0	0	0	+0	0	0	+47	+51	+50	+48
Information	Individuals (Jobs)	+0	+0	+0	+1	+1	+1	+2	+3	+2	+2
Finance and Insurance	Individuals (Jobs)	+0	+0	0	+2	+2	+4	+6	+7	+7	+7
Real Estate and Rental and Leasing	Individuals (Jobs)	+0	+0	+0	+14	+12	+26	+35	+45	+45	+43
Professional and Technical Services	Individuals (Jobs)	+4	+4	+4	+27	+30	+34	+37	+44	+43	+42
Management of Companies and Enterprise	Individuals (Jobs)	0	0	0	0	0	0	0	0	0	0
Administrative and Waste Services	Individuals (Jobs)	+0	+0	+0	+25	+25	+33	+34	+43	+43	+43
Educational Services	Individuals (Jobs)	+0	+0	+0	+1	+1	+3	+5	+7	+8	+8
Health Care and Social Assistance	Individuals (Jobs)	+0	+0	+0	+67	+69	+125	+137	+165	+167	+171
Arts, Entertainment, and Recreation	Individuals (Jobs)	+0	+0	+0	+5	+5	+11	+16	+20	+20	+21
Accommodation and Food Services	Individuals (Jobs)	+0	+0	+0	+47	+54	+87	+95	+116	+125	+134
Other Services, except Public Administrati	Individuals (Jobs)	+0	+0	+0	+55	+54	+84	+87	+103	+101	+99

Otter Creek Summary

Employment | Industry | Private Non-Farm | Private Non-Farm Employment | Sector Level

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Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Sector Level

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
0	0	0	+0	+0	+0	+0	+0	+0	+0	+0	+1	+1	+1	+1
+317	+309	+301	+293	+286	+279	+273	+266	+259	+254	+247	+242	+236	+230	+224
+5	+5	+5	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+6	+5
+95	+96	+95	+96	+97	+98	+101	+103	+105	+108	+110	+114	+117	+119	+121
+3	+3	+3	+3	+3	+4	+4	+4	+4	+4	+4	+5	+5	+5	+5
+58	+55	+54	+52	+51	+50	+49	+48	+47	+46	+45	+45	+44	+43	+43
+222	+220	+217	+216	+215	+214	+213	+213	+213	+214	+215	+215	+215	+215	+214
+47	+46	+45	+45	+44	+43	+43	+42	+42	+41	+41	+40	+39	+39	+38
+3	+3	+3	+3	+3	+4	+4	+4	+4	+5	+5	+5	+5	+5	+5
+7	+7	+8	+8	+9	+9	+10	+11	+11	+12	+12	+13	+13	+14	+14
+42	+40	+39	+38	+37	+37	+37	+37	+37	+37	+37	+38	+38	+38	+38
+41	+41	+40	+41	+41	+42	+43	+44	+45	+46	+47	+48	+49	+50	+51
0	0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+43	+43	+43	+43	+43	+44	+44	+45	+45	+46	+47	+47	+48	+48	+48
+9	+9	+9	+10	+10	+10	+10	+10	+11	+11	+11	+11	+11	+11	+12
+175	+180	+186	+192	+198	+205	+211	+218	+225	+231	+238	+244	+250	+255	+259
+22	+23	+24	+25	+25	+26	+27	+28	+29	+30	+31	+32	+32	+33	+34
+141	+148	+154	+160	+165	+169	+173	+176	+179	+182	+184	+186	+187	+188	+189
+98	+97	+97	+96	+96	+97	+97	+98	+98	+99	+99	+100	+100	+100	+100

Otter Creek Summary

Employment | Industry | Government | State and Local

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Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
State and Local

Category	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
State Government	Individuals (Jobs)	+0	+0	+0	+35	+37	+50	+54	+71	+73	+73
Local Government	Individuals (Jobs)	+0	+0	+0	+228	+240	+289	+251	+331	+331	+334

Otter Creek Summary

Employment | Industry | Government | State and Local

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Region = All Regions
State and Local

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
+73	+73	+73	+73	+73	+72	+72	+72	+72	+73	+73	+73	+73	+73	+73
+335	+337	+339	+340	+341	+342	+342	+343	+343	+343	+342	+342	+341	+340	+338

Otter Creek Summary

Employment | Occupation | Summary Level

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Region = All Regions
Summary Level

Category	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Management, business, financial occupati	Individuals (Jobs)	+1	+1	+1	+217	+218	+196	+105	+129	+129	+129
Computer, math, architect, engineer occu	Individuals (Jobs)	+1	+1	+1	+48	+49	+55	+40	+49	+48	+48
Life, physical, social science occupations	Individuals (Jobs)	+0	+0	+0	+9	+10	+14	+13	+16	+16	+16
Community, social service occupations	Individuals (Jobs)	+0	+0	+0	+4	+4	+7	+8	+10	+11	+11
Legal occupations	Individuals (Jobs)	+0	+0	+0	+10	+10	+12	+12	+15	+15	+15
Education, training, library occupations	Individuals (Jobs)	+0	+0	+0	+8	+8	+12	+13	+17	+17	+18
Arts, design, entertainment, sports, medi	Individuals (Jobs)	+0	+0	+0	+7	+7	+10	+10	+13	+13	+13
Healthcare occupations	Individuals (Jobs)	+0	+0	+0	+62	+65	+107	+113	+137	+138	+140
Protective service occupations	Individuals (Jobs)	+0	+0	+0	+70	+74	+92	+84	+110	+110	+111
Food preparation, serving related occupati	Individuals (Jobs)	+0	+0	+0	+51	+59	+94	+102	+124	+133	+141
Building, grounds, personal care, service c	Individuals (Jobs)	+0	+0	+0	+60	+60	+88	+88	+106	+105	+104
Sales, office, administrative occupations	Individuals (Jobs)	+2	+2	+2	+421	+440	+489	+366	+428	+421	+416
Farm, fishing, forestry occupations	Individuals (Jobs)	+0	+0	+0	+2	+2	+2	+2	+2	+2	+2
Construction, extraction occupations	Individuals (Jobs)	+0	+0	+0	+1,314	+1,294	+955	+192	+218	+220	+220
Installation, maintenance, repair occupati	Individuals (Jobs)	+0	+0	+0	+193	+193	+197	+108	+122	+121	+119
Production occupations	Individuals (Jobs)	+0	+0	+0	+48	+49	+80	+65	+71	+69	+68
Transportation, material moving occupati	Individuals (Jobs)	+0	+0	+0	+105	+107	+174	+160	+174	+170	+167

Otter Creek Summary

Employment | Occupation | Summary Level

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Summary Level

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
+129	+129	+129	+129	+129	+130	+131	+132	+133	+134	+135	+136	+136	+137	+137
+47	+47	+47	+47	+47	+47	+48	+48	+48	+49	+49	+49	+50	+50	+50
+16	+16	+16	+16	+16	+16	+16	+17	+17	+17	+17	+17	+17	+17	+17
+12	+12	+13	+13	+14	+14	+15	+15	+16	+16	+16	+17	+17	+17	+18
+15	+15	+15	+15	+15	+15	+15	+16	+16	+16	+16	+16	+16	+16	+16
+18	+19	+19	+19	+20	+20	+20	+21	+21	+21	+21	+22	+22	+22	+22
+13	+13	+14	+14	+14	+14	+14	+15	+15	+15	+16	+16	+16	+16	+16
+143	+147	+150	+154	+158	+162	+166	+171	+175	+180	+184	+188	+192	+195	+198
+112	+112	+113	+113	+114	+114	+114	+115	+115	+115	+115	+115	+115	+115	+115
+149	+155	+161	+166	+171	+175	+179	+182	+185	+188	+190	+192	+193	+194	+194
+103	+102	+102	+103	+103	+104	+104	+105	+106	+107	+108	+109	+109	+110	+110
+411	+408	+405	+404	+403	+404	+405	+406	+408	+410	+412	+414	+416	+416	+416
+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2
+217	+214	+211	+208	+206	+204	+204	+202	+201	+201	+200	+200	+199	+199	+198
+118	+117	+115	+114	+114	+113	+113	+112	+112	+112	+111	+111	+111	+110	+110
+67	+66	+65	+64	+63	+63	+62	+62	+61	+61	+61	+60	+60	+59	+59
+163	+161	+158	+155	+153	+151	+149	+147	+146	+144	+143	+141	+140	+138	+136

Otter Creek Summary

Gross Domestic Product | Real Gross Value Added by Sector, Fixed Dollars | Private Non-Farm | Sector Level

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Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Sector Level

Category	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Forestry, Fishing, Related Activities, and (	Thousands of Fixed (201	0	0	0	+4	+4	+5	+3	0	-5	-10
Mining	Thousands of Fixed (201	0	-1	-1	-85	-337	+56,511	+95,945	+138,913	+137,041	+136,750
Utilities	Thousands of Fixed (201	+1	+1	+0	+436	+115	+1,069	+1,520	+2,357	+2,249	+2,170
Construction	Thousands of Fixed (201	+12	+17	+20	+110,853	+110,725	+70,549	+4,410	+6,409	+7,243	+7,645
Manufacturing	Thousands of Fixed (201	+0	+1	+0	+467	+450	+365	+290	+367	+361	+347
Wholesale Trade	Thousands of Fixed (201	+6	+6	+6	+3,658	+5,032	+7,675	+8,107	+9,135	+8,955	+8,773
Retail Trade	Thousands of Fixed (201	+12	+13	+14	+5,701	+7,131	+12,010	+12,957	+14,772	+14,677	+14,603
Transportation and Warehousing	Thousands of Fixed (201	+0	0	0	+41	-30	-32	+9,022	+10,099	+10,078	+10,058
Information	Thousands of Fixed (201	+1	+1	+1	+157	+106	+236	+318	+386	+330	+283
Finance and Insurance	Thousands of Fixed (201	+2	+2	+2	+454	+374	+771	+1,115	+1,351	+1,250	+1,157
Real Estate and Rental and Leasing	Thousands of Fixed (201	+8	+8	+8	+2,078	+1,809	+3,639	+4,745	+6,001	+5,858	+5,611
Professional and Technical Services	Thousands of Fixed (201	+232	+232	+233	+1,620	+1,847	+2,139	+2,369	+2,869	+2,841	+2,794
Management of Companies and Enterprise	Thousands of Fixed (201	+0	0	0	-2	-20	-16	-13	-3	-8	-9
Administrative and Waste Services	Thousands of Fixed (201	+5	+5	+5	+980	+1,012	+1,408	+1,608	+2,049	+2,075	+2,087
Educational Services	Thousands of Fixed (201	+0	+0	+0	+25	+30	+75	+118	+155	+170	+182
Health Care and Social Assistance	Thousands of Fixed (201	+12	+11	+12	+4,797	+4,924	+8,963	+9,952	+12,031	+12,168	+12,412
Arts, Entertainment, and Recreation	Thousands of Fixed (201	+0	+0	+0	+94	+89	+205	+289	+363	+372	+379
Accommodation and Food Services	Thousands of Fixed (201	+4	+4	+4	+1,193	+1,353	+2,235	+2,513	+3,118	+3,351	+3,564
Other Services, except Public Administrati	Thousands of Fixed (201	+4	+4	+4	+1,749	+1,718	+2,409	+2,311	+2,752	+2,688	+2,640

Otter Creek Summary

Gross Domestic Product | Real Gross Value Added by Sector, Fixed Dollars | Private Non-Farm | Sector Level

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Region = All Regions
Sector Level

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
-15	-19	-22	-25	-28	-30	-32	-33	-34	-36	-37	-38	-39	-41	-42
+136,466	+136,338	+136,162	+136,064	+136,055	+135,990	+136,094	+136,099	+136,230	+136,430	+136,577	+136,820	+137,094	+137,394	+137,717
+2,117	+2,085	+2,063	+2,050	+2,041	+2,031	+2,024	+2,014	+2,003	+1,990	+1,973	+1,956	+1,936	+1,914	+1,889
+7,801	+7,848	+7,862	+7,885	+7,970	+8,110	+8,305	+8,468	+8,661	+8,901	+9,168	+9,494	+9,813	+10,112	+10,405
+333	+320	+310	+304	+301	+301	+303	+306	+310	+314	+319	+325	+330	+334	+338
+8,615	+8,490	+8,390	+8,311	+8,257	+8,221	+8,204	+8,201	+8,216	+8,253	+8,294	+8,358	+8,412	+8,461	+8,508
+14,556	+14,544	+14,558	+14,598	+14,670	+14,766	+14,889	+15,049	+15,249	+15,481	+15,709	+15,970	+16,199	+16,403	+16,597
+10,048	+10,047	+10,053	+10,063	+10,077	+10,094	+10,112	+10,132	+10,153	+10,175	+10,199	+10,224	+10,251	+10,278	+10,308
+246	+219	+201	+189	+184	+182	+184	+189	+194	+201	+206	+215	+220	+224	+226
+1,076	+1,012	+963	+927	+902	+887	+880	+881	+884	+893	+904	+921	+935	+946	+958
+5,311	+5,001	+4,711	+4,447	+4,218	+4,028	+3,869	+3,745	+3,633	+3,539	+3,447	+3,374	+3,283	+3,181	+3,057
+2,749	+2,720	+2,708	+2,713	+2,734	+2,769	+2,814	+2,869	+2,927	+2,991	+3,058	+3,131	+3,200	+3,265	+3,329
-7	-2	+6	+15	+25	+35	+46	+56	+66	+76	+85	+93	+100	+107	+113
+2,097	+2,112	+2,133	+2,158	+2,188	+2,223	+2,263	+2,308	+2,354	+2,405	+2,455	+2,509	+2,558	+2,603	+2,646
+191	+200	+207	+213	+219	+225	+230	+235	+240	+244	+249	+253	+257	+261	+265
+12,731	+13,123	+13,571	+14,041	+14,544	+15,079	+15,647	+16,257	+16,850	+17,476	+18,093	+18,743	+19,351	+19,906	+20,442
+387	+395	+403	+412	+421	+431	+442	+453	+464	+475	+486	+497	+507	+514	+521
+3,755	+3,929	+4,085	+4,225	+4,351	+4,462	+4,565	+4,663	+4,748	+4,823	+4,889	+4,951	+4,998	+5,032	+5,057
+2,601	+2,574	+2,558	+2,548	+2,547	+2,553	+2,566	+2,588	+2,609	+2,638	+2,667	+2,705	+2,734	+2,757	+2,778

Otter Creek Summary

Industries

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Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Industries

Category	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Employment	Individuals (Jobs)	+6	+6	+6	+2,626	+2,648	+2,585	+1,481	+1,740	+1,740	+1,739
Employment as % of Nation	Percent	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Regional Purchase Coefficient	Proportion	0	0	0	0	0	0	0	0	0	0
Average Annual Wage Rate	Thousands of Current Dc	0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Average Annual Compensation Rate	Thousands of Current Dc	0	0	+0	0	+0	+0	+0	+0	+0	+0
Average Annual Earnings Rate	Thousands of Current Dc	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
Demand	Millions of Fixed (2012) [	+4	+4	+4	+673	+730	+559	+1,292	+1,466	+1,465	+1,461
Imports of Goods and Services	Millions of Fixed (2012) [	+4	+4	+4	+444	+496	+357	+1,177	+1,326	+1,322	+1,318
Self Supply	Millions of Fixed (2012) [	+0	+0	+0	+229	+234	+202	+115	+140	+142	+144
Exports of Goods and Services	Millions of Fixed (2012) [	+0	+0	+0	+19	+17	+111	+179	+261	+259	+258
Output	Millions of Fixed (2012) [	+0	+0	+0	+248	+251	+313	+294	+400	+402	+402
Value Added	Millions of Fixed (2012) [	+0	+0	+0	+141	+144	+175	+157	+210	+209	+209
Wage and Salary Disbursements	Millions of Fixed (2012) [	+0	+0	+0	+74	+82	+108	+81	+88	+86	+83
Compensation	Millions of Fixed (2012) [	+0	+0	+0	+94	+103	+137	+104	+114	+111	+109
Earnings by Place of Work	Millions of Fixed (2012) [	+0	+0	+0	+114	+123	+154	+109	+119	+116	+112
Labor Productivity	Thousands of Fixed (200	0	0	0	0	0	+0	+0	+0	+0	+0
National Deflator	2005=1 (Nation)	0	0	0	0	0	0	0	0	0	0

Otter Creek Summary

Industries

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Regional Simulation 1 compared to Standard Regional Control — Difference
Region = All Regions
Industries

2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
+1,736	+1,735	+1,736	+1,738	+1,743	+1,750	+1,758	+1,768	+1,776	+1,787	+1,795	+1,805	+1,810	+1,813	+1,813
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
+1,458	+1,456	+1,454	+1,453	+1,452	+1,452	+1,453	+1,455	+1,457	+1,460	+1,463	+1,467	+1,470	+1,472	+1,475
+1,313	+1,310	+1,308	+1,305	+1,304	+1,303	+1,302	+1,302	+1,303	+1,304	+1,304	+1,306	+1,307	+1,308	+1,308
+145	+146	+146	+147	+148	+150	+151	+153	+155	+157	+159	+161	+163	+165	+166
+258	+257	+257	+258	+258	+258	+258	+259	+259	+260	+260	+260	+260	+260	+260
+402	+403	+404	+405	+406	+408	+410	+411	+414	+416	+418	+421	+423	+425	+427
+209	+209	+209	+210	+210	+211	+212	+214	+215	+217	+219	+220	+222	+224	+225
+81	+79	+77	+76	+75	+74	+73	+73	+73	+74	+74	+74	+75	+75	+76
+107	+105	+103	+102	+101	+100	+100	+100	+100	+101	+101	+102	+103	+104	+104
+108	+105	+103	+101	+99	+98	+97	+97	+97	+97	+98	+99	+99	+100	+100
+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0	+0
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COAL & ENERGY

Price Report Volume 16, No. 210 Oct. 29, 2014

Market Commentary By Jim Thompson

- **Hanou Energy Consulting figures 5-10 million tons of Powder River Basin coal production was lost to poor rail service in the third quarter on top of another 20-35 million tons of PRB production being lost the previous three quarters.**
- **The mines on the Joint Line of the BNSF and Union Pacific railroads in Wyoming produced 81 million tons during Q3, or 4 million tons more than Q2.**
- **Peabody Energy produced 35.2 million tons of PRB coal in the third quarter, with Arch Coal producing 29.1 million tons and Cloud Peak Energy 21.8 million tons.**
- **Cloud Peak will follow through with its plan to reduce its Cordero mine production by 10 million tons per year in 2015 as it moves a dragline to its Antelope mine.**

"If you want it, here it is, come and get it, mmm, make your mind up fast. If you want it, anytime, I can give it, but you better hurry 'cause it may not last."
Paul McCartney

Hanou Energy Consulting, LLC figures 5-10 million tons of Powder River Basin coal production was lost to poor rail service in the third quarter, "on top of poor performance during the previous three quarters when weather conditions and poor rail service affected another 20-35 million tons of PRB production."

The assessment places the total

See Market Commentary, page 2

CONSOL considers thermal coal MLP as it lauds Bailey growth

By Steve Hooks, *steve.hooks@ihs.com*

Fueled by the successful expansion of its Bailey mine in Northern Appalachia, CONSOL Energy is in the early stages of possibly spinning off its thermal coal assets as a master limited partnership, according to CFO David Khani.

During Tuesday's third-quarter earnings call, Khani fielded a fair amount of questions from analysts about this possibility, but cautioned that such a "monetization" effort is still in the investigation stage, needing the blessing from the company's board. But he was quick to note that CONSOL had much success in the September MLP offering of the so-called CONE Midstream Partners in the Marcellus Shale gas play.

During the quarter, CONSOL, along with its joint venture partner, Noble Energy, successfully launched CONE, an MLP which will own, operate, develop and acquire natural gas gathering and other midstream energy assets in the Marcellus Shale in Pennsylvania and West Virginia.

CONE Midstream Partners LP, which trades on the New York Stock Exchange under the ticker CNNX, launched its initial public offering on September 25, and raised proceeds of $414 million, of which $204 million was returned to CONSOL.

CONSOL is counting on the lessons learned and successes realized from the CONE venture to successfully replicate in the thermal coal MLP.

The timing of such an MLP will be quick. "We have committed to making an announcement before year end," Khani said. "We learned a lot from the CONE structuring process. The investors received it really well."

"Bailey's future is very bright," CONSOL said in its earnings presentation. "Bailey will be a big winner in a post-MATS and carbon constrained world."

CONSOL listed Bailey's Q3 2014 cash cost at $1.55/MMBtu. It has more than 625 million tons of thermal and high-vol met coal reserves, and an annual production capacity of 28 million tons.

The underground mine in Greene County, Pennsylvania, produced 9.6 million tons in the first three quarters of this year, according to MSHA.

"Our marketing plan for our Bailey coal is unfolding as we strategically envisioned," CONSOL President and CEO Nick DeIuliis said. "Since we are rapidly selling out our 2015 Bailey portfolio," the Pittsburgh-based producer has options to market to new customers who appreciate the product's value, he said.

"The Bailey Mine continues to run at a record pace and production is forecasted to be above 12 million tons for 2014," CONSOL said in the earnings statement.

In the third quarter, CONSOL exported 200,000 tons of Bailey high-vol coal to existing end users in Korea and Brazil. "Prices for high-vol remain more stable than other classes of metallurgical coal," CONSOL said. "Customers continue to demand Bailey coal due to its versatility, which allows it to compete as high-vol metallurgical, pulverized coal injection (PCI) and high-Btu thermal coal."

Too, CONSOL executives made the case that all the capex for expansion has been sunk into Bailey, and the upgraded facility is primed for explosive performance. The upgrades include three new coal silos, a new 10,000-ton/hour train loadout and siding, and increased cleaning plant capacity from 6,300 TPH to

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Market Commentary

CONTINUED FROM PAGE 1

volume of production stymied over the past four quarters by rail performance and weather issues at as much as 45 million tons. That's been a problem for the producers, of course, but it's been a major headache for electric utilities as well – one that could still haunt us this coming winter.

Third-quarter production from the PRB was up from the prior quarter – on an annualized basis, by 30 million tons to 428 million tons for the quarter, Hanou Energy noted. Annualized second-quarter production was 398 million tons.

And Hanou Energy continues to project higher production levels by the end of the year – 418 million tons for 2014, which is 10 million tons above 2013.

We'll see whether rail service cooperates. Certainly the PRB is capable of producing as much coal as the utilities require.

The mines on the Joint Line of the BNSF and Union Pacific railroads in Wyoming produced 81 million tons during Q3, or 4.0 million tons higher than Q2. During Q3 Joint Line production was at a 324 million tons per year rate. On an annualized basis, Q2 Joint Line production was 308 million tons.

The Joint Line record year was 2008 when 375 million tons were produced. Demand is down markedly, regardless of transportation issues.

The BNSF-served mines north of Gillette produced 16 million tons during Q3 – 1 million tons higher than the prior quarter. For the same period, the Montana PRB mines produced 2.0 million tons more than the previous quarter – total production of 10 million tons.

Outside the PRB, in Montana's Bull Mountain field, the Signal Peak Energy Bull Mountain longwall mine produced 1.7 million tons of bituminous coal during Q3, or about 900,000 tons lower than Q2. The mine is poised to produce 8.2 million tons in 2014.

Peabody on top

Peabody Energy continues to retain its premier production status among PRB producers with 35.2 million tons produced during Q3. Arch Coal was the second-largest producer with 29.1 million tons, and Cloud Peak Energy was third with 21.8 million tons. Respectively, these producers are projected to produce 140 million, 112 million and 86 million tons in 2014.

It should be noted that Cloud Peak finalized in September its deal to sell its 50% interest in the Decker mine to Ambre Energy.

Peabody also continues to have the largest mine in the PRB as well as in the nation. Its North Antelope-Rochelle mine produced during Q3 28.9 million tons. Arch's Black Thunder mine retains its number two status with 26.5 million tons produced during the same period.

Cloud Peak will follow through with its plan to reduce its Cordero mine production by 10 million tons per year in 2015 as it moves a dragline to its Antelope mine. According to Cloud Peak, the move is necessitated to allow Antelope to continue producing at a 33 million-to-38 million-ton per year clip due to higher strip ratios.

The dragline move will not increase Antelope production by a great amount, however, Hanou Energy pointed out. Thus the PRB will effectively lose 8 million to 10 million tons per year of production capacity in 2015 and beyond.

Combined, Alpha Natural Resources' Belle Ayr and Eagle Butte mines only produced during Q2 at a 32 million-ton per year rate. During Q3 they improved production and produced at an annual rate of 37.2 million tons.

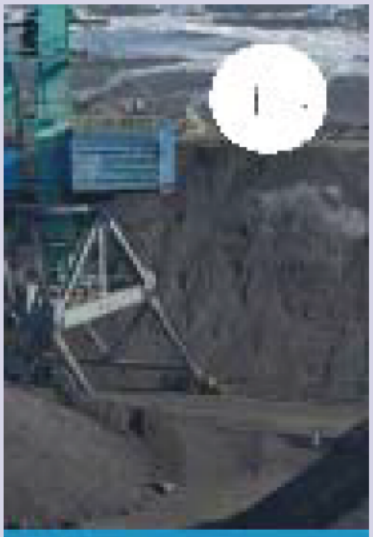
"By the end of 2014, Alpha is likely to only produce around 36 million tons, or 10-12 million tons lower than previous years," John Hanou, president of Hanou Energy, noted.

Westmoreland up

"On the flip side, Westmoreland Coal will likely produce 3.4 million tons more in 2014 than it did in 2013. The company has been and continues to be greatly affected by the rail issues that have plagued the northern corridor of the U.S."

Westmoreland was expected to

SEE MARKET COMMENTARY, PAGE 3



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Market Commentary

CONTINUED FROM PAGE 2

increase production by 3-4 million tons per year as result of a new long-term contract to supply the Centralia power plant in Washington and the fact that its main customers (the Colstrip and Sherburne County power plants) are again producing electricity at capacity.

The issue is transportation.

Hanou Energy and Burnham Coal recently updated their strategic study of the PRB. Available now, their Powder River Basin Coal Supply, Demand and Price Trends 2014–2034 study is regarded as one of the best available analyses of the basin.

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Burnham Coal, LLC is owned and operated by Bob Burnham. Bob can be reached by phone at (303) 517-7826 or by e-mail at bob@burnhamcoal.com. His website is http://burnhamcoal.com.

The accompanying table shows PRB and Bull Mountain coalfield production by company and by mine as reported to MSHA for the period 2008 through Q3 2014. Hanou Energy projections for the remainder of 2014 are also shown.

Powder River/Bull Mountain Production

2008 - 2013, 2014 Projected

By Company/Mine

(Millions of short tons)

Company - Mine	Mine State	Joint Line Access ?	Production Year/Quarter													
			2008	2011	2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	2013	Q1 2014	Q2 2014	Q3 2014	Proj. Q4 2014	Proj. 2014
Alpha															
Belle Ayr	WY	JL	28.7	24.6	24.2	5.1	4.1	4.9	4.2	18.3	3.8	3.2	4.1	4.2	15.4
Eagle Butte	WY	N	20.4	25.4	22.5	4.9	4.7	5.2	5.2	19.9	5.6	4.7	5.1	5.1	20.6
Alpha Total			49.2	49.9	46.7	9.9	8.8	10.1	9.3	38.2	9.4	7.9	9.3	9.3	36.0
Ambre Energy															
Decker	MT	N	3.4	1.5	1.4	0.2	0.4	0.5	0.5	1.6	0.3	0.4	0.7	1.0	2.4
Ambre Total			3.4	1.5	1.4	0.2	0.4	0.5	0.5	1.6	0.3	0.4	0.7	1.0	2.4
Arch															
Black Thunder	WY	JL	88.6	105.0	93.1	24.3	24.3	28.4	23.6	100.7	23.1	24.9	26.5	28.0	102.5
Coal Creek	WY	JL	11.5	10.0	7.6	2.0	2.1	2.3	2.1	8.5	2.4	2.0	2.6	2.7	9.7
Arch Total			100.0	115.0	100.6	26.3	26.4	30.8	25.7	109.2	25.5	26.9	29.1	30.7	112.2
Black Hills															
Wyodak	WY	N	6.0	5.7	4.2	1.1	1.1	1.4	1.0	4.6	1.1	1.1	1.1	1.1	4.3
Black Hills Total			6.0	5.7	4.2	1.1	1.1	1.4	1.0	4.6	1.1	1.1	1.1	1.1	4.3
Cloud Peak															
Antelope	WY	JL	35.8	37.1	34.3	8.1	7.4	8.0	7.9	31.4	8.3	8.1	8.2	9.0	33.6
Cordero Rojo	WY	JL	40.0	39.5	39.2	9.2	8.4	10.1	9.0	36.7	8.4	8.6	8.5	9.0	34.5
Decker	MT	N	3.4	1.5	1.4	0.2	0.4	0.5	0.5	1.6	0.3	0.4	0.3	0.0	1.0
Jacobs Ranch	WY	JL	42.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spring Creek	MT	N	17.9	19.1	17.2	3.5	4.5	5.1	4.7	17.7	3.6	4.0	4.7	4.7	17.0
Cloud Peak Total			139.3	97.1	92.1	21.0	20.6	23.6	22.1	87.3	20.6	21.1	21.8	22.7	86.2
FEnergy/Bolch/Gunvor															
Signal Peak/Bull Mountain	MT	N	0.2	5.1	5.7	1.9	2.4	2.3	2.1	8.7	0.9	2.8	1.7	2.8	8.2
FEnergy/Bolch/Gunvor Total			0.2	5.1	5.7	1.9	2.4	2.3	2.1	8.7	0.9	2.8	1.7	2.8	8.2
Kiewit															
Buckskin	WY	N	26.1	25.1	18.1	3.8	3.7	4.0	3.6	15.0	3.8	3.7	3.8	4.0	15.4
Kiewit Total			26.1	25.1	18.1	3.8	3.7	4.0	3.6	15.0	3.8	3.7	3.8	4.0	15.4
Peabody															
Caballo	WY	JL	31.2	24.1	16.8	2.2	1.8	2.8	2.2	9.0	1.8	1.7	2.3	2.5	8.3
North Antelope-Rochelle	WY	JL	97.6	109.1	107.6	26.4	26.7	29.7	28.2	111.0	29.9	28.5	28.9	29.0	116.3
Rawhide	WY	N	18.4	15.0	14.7	3.3	3.3	3.8	3.8	14.2	3.8	3.8	4.0	4.1	15.6
Peabody Total			147.2	148.2	139.2	31.9	31.8	36.3	34.3	134.2	35.4	33.9	35.2	35.6	140.2
Western Fuels															
Dry Fork	WY	N	5.3	5.8	6.0	1.5	1.2	1.4	1.3	5.4	1.2	1.3	1.5	1.6	5.6
Western Fuels Total			5.3	5.8	6.0	1.5	1.2	1.4	1.3	5.4	1.2	1.3	1.5	1.6	5.6
Westmoreland															
Absaloka	MT	N	6.4	5.1	2.7	0.8	0.7	1.3	1.4	4.2	1.5	1.6	1.8	1.8	6.6
Rosebud	MT	N	13.1	8.8	8.0	2.7	2.0	1.8	1.8	8.2	2.3	1.6	2.6	2.7	9.1
Westmoreland Total			19.4	13.9	10.7	3.5	2.7	3.1	3.2	12.4	3.7	3.1	4.4	4.5	15.8
Joint Line PRB Total			375	349	323	77	75	86	77	315	78	77	81	84	320
Montana PRB Total			44	36	31	7	8	9	9	33	8	8	10	10	36
Wyoming PRB Total			452	426	388	92	89	102	92	375	93	91	97	100	382
PRB Grand Total			496	462	419	99	97	111	101	408	101	99	107	111	418
PRB Annualized Grand Total			496.0			397	386	445	404		405	398	428	442	
Bull Mountain Total			0.2	5.1	5.7	1.9	2.4	2.3	2.1	8.7	0.9	2.8	1.7	2.8	8.2
PRB / Bull Mountain Grand Total			496	467	425	101	99	113	103	417	102	102	109	113	426

Source - MSHA, Hanou Energy Consulting, LLC

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Consol considers ...

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8,200 TPH.

The potential MLP fits CONSOL's profile of "something that's got the bulk of its capital and investment expenditures behind it," as well as a "pure play" asset, DeIuliis said.

The case for Buchanan

CONSOL executives also lauded the performance of the company's mainstay low-vol Buchanan mine in Virginia, although said that a reduced production schedule would remain in place as met coal export markets continue to lack luster.

The longwall operation, which has an annual production capacity of 5.2 million tons, turned out a little over 3 million tons in the first three quarters of this year, according to MSHA.

Buchanan's coal is "sought worldwide," CONSOL said, but executives said that an MLP of CONSOL mines wouldn't include that operation for now, in response to analysts' questions.

"We're a little bit further along on understanding what to do on the (thermal) coal MLP side," Khani said. The company line is "we're poised and prepared to return Buchanan to its historic production levels when that market returns."

CONSOL also noted that "Buchanan is a free option – Buchanan is a sleeping giant for cash flow. Any market improvement will result in a boost to cash," meaning, for example, a $10/ton improvement in market price "is $50 million in cash."

Guidance steady

As for CONSOL's other mainstay mines, Bailey's companion, Enlow Fork – geographically, if not performance-wise -- "continues to mine through very tough geological conditions that are improving, and the company expects to achieve planned production for the year." Enlow Fork produced just under 8 million tons in the first three quarters of 2014, according to MSHA.

Also, "The Harvey Mine saw improved production of 1.1 million tons, for the third quarter, after an equipment change out, and the company expects normal production levels at the mine for the fourth quarter of 2014."

As for guidance, CONSOL said, "the lower end of the low-vol guidance range for 2014 has increased slightly (32.3-32.7 million tons for 2014) to reflect new Atlantic market business, which the company believes will be ongoing. This shift illustrates the expansion of the Buchanan product into new markets."

Firm 2014 pricing is $63.28, CONSOL said. Guidance includes 3.7-3.9 million tons of low-vol Buchanan sales, 1.3 million tons of high-vol and 27.3-27.5 million tons of thermal coal, remaining "relatively flat."

"For 2015, the low-vol guidance was left unchanged from the previous guidance (3.5-5 million tons) on the assumption that pricing will improve from current levels," CONSOL said. High-vol guidance range is 1.9 million tons, and thermal is 25.6-28.1 million tons.

Arch sees improvement in rail service

By Bob Hodge, bob.hodge@ihs.com

It turns out that not all of the railroad news is bad news. At least not according to Arch Coal.

During the company's third-quarter conference call, the situation with the railroads came up – it would have been surprising if it hadn't – and Arch executives said they are seeing signs that things are getting better … better being in the eye of the beholder.

"I would say that we have seen some incremental improvements in the railroad," John Drexler, Arch senior vice president and CFO, said Tuesday. "From second quarter to third quarter we saw a couple of million tons of improvement in our volume. We would expect to continue to see that gradual improvement as we move through the fourth quarter."

Not that everything is peachy. Drexler said that July got off to a rough start rail-wise, but things continually improved as the quarter rolled on. He said that October has also not been the best month, but like in the third quarter he expects the railroads' performance to improve and Arch will see "another step up in volume."

Drexler said the improvements have not come as quickly as the company would like, but they have come and he expects the improvement will continue into next year.

"We're reading everything that everybody else is about the delayed improvements in the railroad, but with our conversations with all the railroads, particularly the western railroads, we're confident with the progress they're making and in terms of capital spending," Drexler said.

More crews and more power takes time, he said, but the railroads improved shipments by 5% from the second quarter to the third.

"Will it be fully resolved in 2015? I think we should wait on that," Drexler added.

Paul Lang, Arch executive vice president and COO, said that the Q2-to-Q3 improvement was actually better than Arch expected. As for the tough start to the fourth quarter, he said that the company doesn't need 5% improvement every quarter to get to a point where it feels better about the rail service.

"I'd like to see what we need to see is sustained incremental 1%, 2%, 3% improvement to get where we need to be," Lang said.

All that said, because of the faulty rail service Arch said stockpiles are as low as they have been since 2006 and that could make for a "more dynamic market in 2015."

Arch CEO John Eaves said that pent-up demand could help to partially offset the plant closures that are expected in the coming years.

"Longer-term of course, the coal industry will be impacted by plant closures stemming from aggressive EPA regulations. We estimate that 60 gigawatts of coal generating capacity will likely

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Arch sees...

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retire by 2018, nearly a third of those plants are already closed," Eaves said.

"In 2015, we anticipate approximately 20 gigawatts will close, affecting up to 25 million tons of demand on a gross basis, but that's if we consider restocking needs and the potential for generators to run their remaining coal plants harder to meet the demand serviced by those shut down plants."

GRU in market for spot, term coal, casts wide net

Gainesville (FL) Regional Utilities is in the market for a broad range of coals and issued an RFP that provides potential suppliers a great deal of flexibility, both in coal type and term length.

The utility indicated in its tender that inventories are below target, so despite a maintenance outage from October 25 until December, it will purchase spot coal supply of about 100,000 tons or nine unit trains of spot coal for delivery in the fourth quarter.

In any case, proposals are due November 7. Proposals will be valid for 30 days.

GRU's Deerhaven generating station unit #2 is projected to consume an approximate average of 550,000 tons annually during 2015 and 2016. In addition to the aforementioned spot requirement, the RFP seeks proposals for short- or long-term supply of all or any part of the approximately 1 million tons required for unit #2 supply for calendar years 2015 and 2016.

Suppliers may independently bid the Q4 spot requirement as a separate proposal or include the 2014 tons in one term contract for 2014-2016 requirements. Suppliers may also bid on one year of the 2015 and 2016 calendar years or submit one proposal for the entire 2015-2016 time period.

Suppliers may propose to supply all or any portion of the annual requirements for the 2015-2016 calendar years, including proposals for supply in one or more quarters of 2015. Proposals may include spot supply for any single month of 2015.

GRU projects that it will need to purchase about 200,000 tons of compliance coal for unit #2 during the first and second quarters of 2015. Beyond that, the utility's projected annual coal requirements are

- up to 550,000 tons of 1.5-3.0 lbs. SO2/MMBtu product for delivery from January 2015 through December 2016
- up to 550,000 tons of 3.0-4.5 lbs. SO2/MMBtu product for delivery during the same time frame
- up to 550,000 tons of 3.0-4.5 lbs. SO2/MMBtu product again for delivery from January 2015 through December 2016
- and up to 75,000 tons of 1.5-3.0 lbs. SO2/MMBtu product for delivery from November of this year through January of next year.

GRU anticipates the use of three basic coal qualities in the 2014-2016 time period. Compliance coal (1.2 lbs. SO2 max.) is used at Deerhaven for startup, shut down and as emergency backup in the event of outages preventing the use of the dry scrubber. A minimum of three trains (37,500 tons) of compliance coal will be required for delivery in Q4 or the first quarter of 2015.

GRU will accept proposals for compliance coal supply of any volume up to 50,000 tons for delivery in Q4 or in the first quarter of 2015.

GRU's normal operating coal or "Performance Coal" is less than 1% sulfur by weight as received. About six trains of Performance Coal will be required for Q4.

GRU will also accept proposals for "C" grade coal with up to 4.5 Lbs. SO2/MMBtu. The quality may be used in blends with the normal minus-1% "B" coal. There is no separate requirement for the "C" grade coal. Both coal grades will be used to meet the same annual requirement of about 550,000 tons.

Additional GRU specs are: 12,000 to 13,000 Btu/lb. (11,000 min.), 4.5 lbs. SO2 max., 6.0-13.0% ash (14.0% max.), 6.0-10.0% moisture (14.0% max.) and 30.0-35.0% vols.

Proposals can be submitted by e-mail, as an attachment, to fuels@gru.com or may be faxed to (352) 334-2786. A hard copy should be sent to:

GRU – Coal Supply RFP 2014-2016
Thomas Foxx Jr.
Fuels Manager
P.O. Box 147117, Station A-137
301 SE 4th Ave,
Gainesville, FL 32601.

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DP&L seeks proposals for coal to supply Ohio River plants

Dayton Power & Light is in the market for coal for use at its Ohio River generating stations. DP&L wants proposals on up to 250,000 tons per quarter for all four quarters of 2015 and on a total of up to 1 million tons for calendar year 2016.

Proposals are due November 5.

For 2015, each quarterly offer must be independent of offers for the other quarters. For example, if a seller offers coal for all four quarters, DP&L may purchase coal for only Q1. Calendar year 2016 offers must be independent from the 2015 quarterly offers.

Proposals with alternative quantities will be considered. DP&L said it is interested in offers of all types of coal.

DP&L wants fixed price offers, FOB barge. The utility also requests, as an option included in any offer a fixed price for delivery of the coal during the first, second, third and fourth quarters of 2015 and calendar year 2016, FOB vessel New Orleans.

DP&L is a part of AES, and it seems likely that the inclusion of New Orleans as a potential coal destination reflects the company's desire to check international arbs. Coal could be considered for delivery to AES' facility in Chile, for instance, it would seem.

Proposals may be submitted by email to DPLCoalRFP@aes.com or may be mailed to Fuel Procurement, Dayton Power & Light, 1065 Woodman Dr., Dayton, OH 45432. Suppliers interested in submitting a proposal may submit questions via email to DPLCoalRFP@aes.com.

Poor met markets bite Canada's Teck

Lower coking coal prices continued to have a negative impact on Teck Resources' profits and cash flow in the third quarter.

However, the company said high performance at its mines and cost containment efforts helped minimize the losses.

Canada's largest coal producer reported $159 million of adjusted profit in the third quarter, or $0.28/share. The results are down 37% from adjusted profit of $252 million or $0.44/share in the same period last year. Revenue at $2.25 billion was almost 11% lower compared to $2.52 billion in the third quarter a year ago. EBITDA was $651 million in the third quarter compared with $815 million a year ago.

Teck produced 6.8 million metric tonnes of coal in Q3, up by 1 million tonnes over the same period a year ago. Sales totaled 6.7 million tonnes, down from 7.5 million tonnes in Q3 of last year.

The realized coal price in Q3 was $110/tonne versus $139/tonne in the same period of 2013.

In January-September Teck produced 19.9 million tonnes of coal, an improvement over 18.9 million tonnes a year ago. Coal sales in the nine-month period totaled 19.7 million tonnes, down from 20.4 million tonnes in the same period of 2013.

"Our profits and cash flows continue to be negatively affected by lower steelmaking coal prices. Coal prices in US dollar terms were similar to the second quarter of this year, but $29 per tonne lower than the same period a year ago. While demand from our customers remains robust, increased production from Australia has put pressure on prices in 2014," Teck said in its quarterly earnings statement.

Teck has agreements in place to sell 6.3 million tonnes of coal in the fourth quarter based on $119/tonne for its highest-quality product. The company expects sales in the fourth quarter, including spot sales, to be at or above 6.5 million tonnes. Full year 2014 sales are expected to total 26.2 million tonnes.

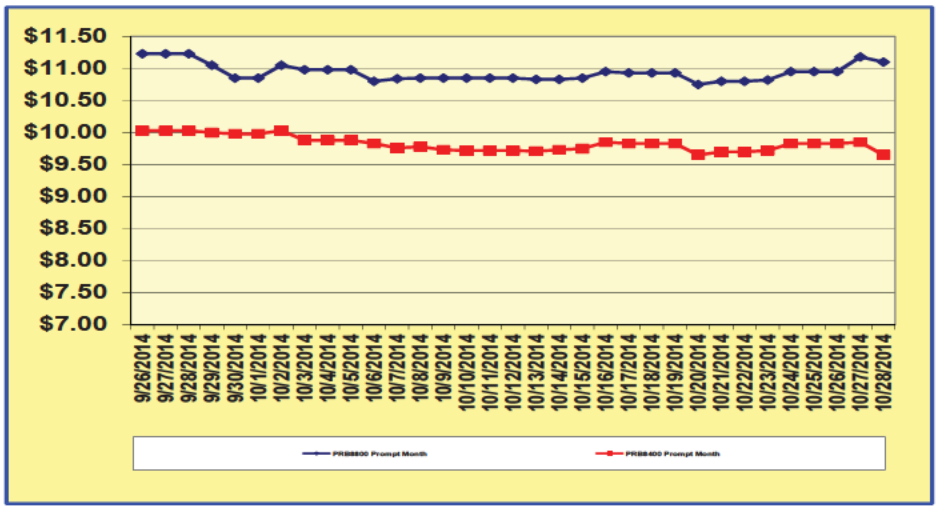
Teck said all six of its coal mines had positive cash margins in the third quarter.

"Our cost reduction program, which began in the second half of 2012, continues to exceed our initial goals with $590m of annualized reductions to date. Over the nine months to September, at 10 of our 13 operations we have managed to maintain or reduce unit costs while increasing throughput," Teck said.

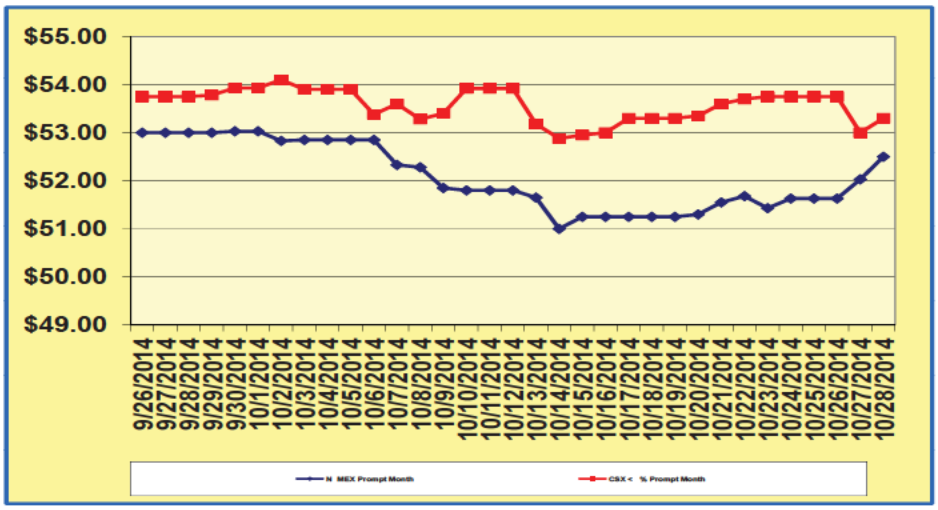


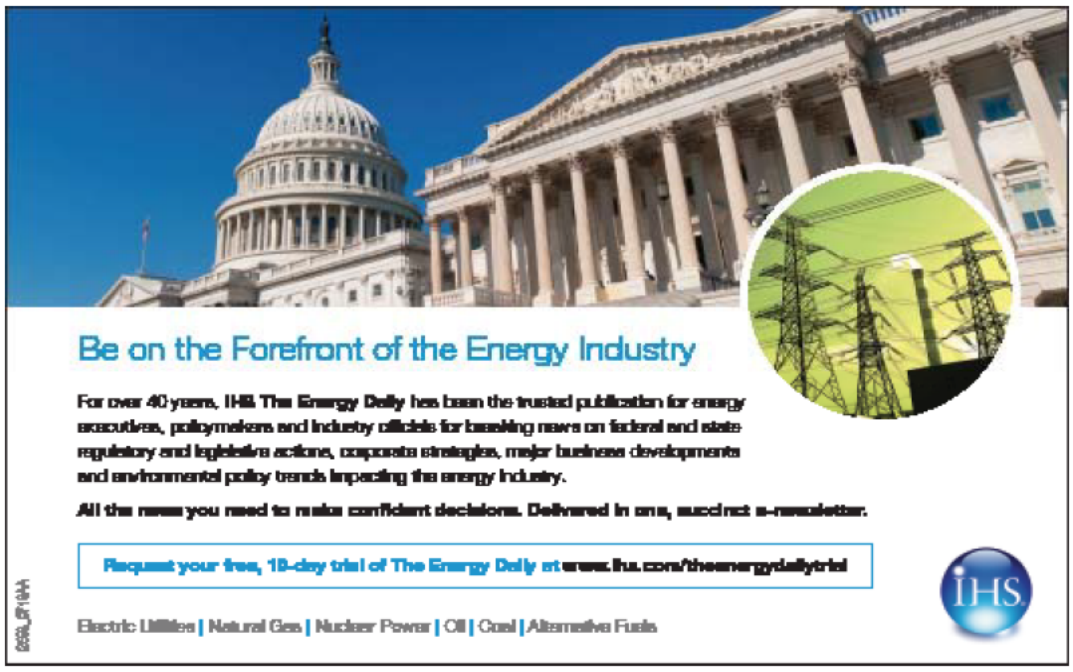
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Prompt Month for PRB 8800 and PRB 8400 Coals



Prompt Month for CSX < 1% & NYMEX Coals





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Month Codes: Jan-F; Feb-G; Mar-H; Apr-J; May-K; Jun-M; Jul-N; Aug-Q; Sep-U; Oct-V; Nov-X; Dec-Z

OTC NYMEX Coal

(12,000 Btu/lb., 1% sulfur)

Term	Vol	Price	Bid	Offer
X14	5B	$0.00	$51.35	$52.35
Z14	5B	$52.50	$52.00	$53.00
Q115	5B	$0.00	$53.25	$54.25
Q215	5B	$0.00	$53.90	$54.90
Q315	5B	$0.00	$55.10	$56.10
Q415	5B	$0.00	$56.15	$57.15
Q116	5B	$0.00	$56.65	$57.65
Q216	5B	$0.00	$57.15	$58.15
Q316	5B	$0.00	$57.65	$58.65
CY15	5B	$0.00	$54.60	$55.60
CY16	5B	$0.00	$57.40	$58.40

OTC PRB 8800

(at 0.8 lbs. SO2)

Term	Vol	Price	Bid	Offer
X14	1T	$0.00	$10.65	$11.05
Z14	1T	$11.10	$10.95	$11.35
Z14	1T	$11.10	$0.00	$0.00
Q115	1T	$0.00	$11.55	$11.95
Q215	1T	$0.00	$12.10	$12.50
Q315	1T	$0.00	$12.40	$12.80
Q415	1T	$0.00	$12.70	$13.10
Q116	1T	$0.00	$13.10	$13.50
Q216	1T	$0.00	$13.50	$13.90
Q316	1T	$0.00	$13.90	$14.30
CY15	1T	$0.00	$12.19	$12.59
CY16	1T	$0.00	$13.69	$14.09

CSX-BSK < 1%

Term	Vol	Price	Bid	Offer
X14	1T	$0.00	$53.00	$54.00
Z14	5K	$53.25	$52.75	$53.75
Q115	10K	$55.50	$54.70	$55.70
Q115	5K	$55.40	$0.00	$0.00
Q115	40K	$55.10	$0.00	$0.00
Q215	1T	$0.00	$55.15	$56.15
Q315	1T	$0.00	$55.95	$56.95
Q415	1T	$0.00	$56.80	$57.80
Q116	1T	$0.00	$57.40	$58.40
Q216	1T	$0.00	$57.95	$58.95
Q316	1T	$0.00	$58.55	$59.55
CY15	1T	$0.00	$55.65	$56.65
CY16	1T	$0.00	$58.25	$59.25

Hill Daily Index ©

Quality	Hill Price	Hill Index	Last Trades
NYMEX Current Quarter, Plus One	$51.25	213.99	09/25/14
NYMEX Current Quarter, Plus Two	$55.25	230.69	10/22/14
NYMEX Next Calendar Year	$57.00	238.00	10/23/14
PRB 8,800 Current Quarter, Plus One	$12.40	278.03	10/23/14
PRB 8,800 Current Quarter, Plus Two	$12.35	276.91	10/03/14
PRB 8,800 Next Calendar Year	$12.40	278.03	10/23/14
PRB 8,400 Current Quarter, Plus One	$10.50	303.47	06/10/14
PRB 8,400 Current Quarter, Plus Two	$0.00	0.00	07/15/13
PRB 8,400 Next Calendar Year	$0.00	0.00	07/15/13
CSX <1% sulfur Current Quarter, Plus One	$55.33	212.81	10/28/14
CSX <1% sulfur Current Quarter, Plus Two	$55.88	214.92	10/23/14
CSX <1% sulfur Next Calendar Year	$55.33	212.81	10/28/14
CSX compliance Current Quarter, Plus One	$0.00	0.00	03/09/11
CSX compliance Next Calendar Year	$0.00	0.00	10/15/07
NS <1% sulfur Current Quarter, Plus One	$63.50	244.23	12/05/13
NS <1% sulfur Next Calendar Year	$63.50	244.23	12/05/13
NS compliance Current Quarter, Plus One	$0.00	0.00	12/09/10
NS compliance Next Calendar Year	$0.00	0.00	12/19/11

All prices are based exclusively on latest actual trades, and are indexed against market as of 12/28/99, when NYMEX-spec coal had been traded most recently at $23.95/ton, 8,800 Btu/lb. Powder River Basin coal at $4.46/ton and 8,400 Btu/lb. PRB coal at $3.46/ ton. The eastern rail index is measured against an arbitrary price of $26.00/ton. "Hill Index" reflects weighted average of prices recorded on most recent trading day. On days when no trades occur, published index remains at previous level. "Mid-market" reflects mid-point of current bid/ask values.

OTC Broker Index

October 28, 2014

	NYMEX look-alike	CSX 12,500 -1% sulfur	PRB 8,400	PRB 8,800
Prompt Month	52.50 0.47	53.30 0.30	9.65 -0.20	11.10 -0.08
Prompt Quarter	53.75 -0.20	55.15 -0.41	9.79 -0.27	11.90 -0.03

NYMEX Futures

Term	Last	Open Hig..	Open Low	Most Recent Settle	Prev. Day Total Vol
Natural Gas (Henry Hub)					
X14	3.650	3.665	3.616	3.649	2069
Z14	3.741	3.749	3.696	3.731	18690
Crude Oil					
Z14	82.180	82.720	81.440	81.420	60626
F14	81.890	82.400	81.130	81.120	11248

Price Markers

NAPP 13,000 Btu/lb., 3.4 lbs SO2/MMBtu, $58.00/ton (RAIL)
ILB 11,800 Btu/lb., 4.8 lbs. SO2/MMBtu, $41.50/ton

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TS – 13

Tuesday, October 28, 2014 3:46 PM ET Extra

OSM increases Signal Peak's coal footprint with environmental review decision

Article
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By Christopher Coats

The U.S. Office of Surface Mining Reclamation and Enforcement announced that there would be no significant environmental impact from Signal Peak Energy LLC's plans to expand its Bull Mountain coal mine into federal lands. In a decision released earlier in October, the agency found that "the project does not violate any known federal, state, local or tribal law or requirement imposed for the protection of the environment."

Users Also Read

The company's plans to expand the Montana mine had previously been the target of a legal challenge by Northern Plains Resource Council Inc., which filed suit to block expansion efforts, alleging that the U.S. Bureau of Land Management's approval of the plan violated the National Environmental Policy Act by not requiring an environmental impact statement, or EIS.

The OSM's environmental decision essentially removes the need for an EIS, which would require a more thorough analysis of the project's environmental impact. The expansion would allow Signal Peak to mine additional coal from the lease and adjacent state and private tracts, adding nine years to the lifespan of the project. The expansion would increase the mine from five to 14 longwall panels.

The federal proposal would allow 100 million more tons of coal to be mined relative to the no action alternative, the OSM said.

Located in Musselshell and Yellowstone counties between the Musselshell and Yellowstone rivers, approximately 30 miles north of Billings and 20 miles southeast of Roundup, the highly productive longwall mine produced 8.7 million tons of coal in 2013, according to U.S. Mine Safety and Health Administration data. In July, the Bull Mountain No. 1 mine reported production of roughly 2.8 million tons for the second quarter, which registered as the highest quarterly total in the history of the mine.

Signal Peak is a partnership between Boich Cos. LLC, FirstEnergy Corp. and Gunvor Group Ltd. The mine is operated by Signal Peak Energy. When Gunvor acquired a one-third stake in Signal Peak in October 2011, the owners said they hoped eventually to increase the mine's production to 15 million tons per year.

The OSM did grant approval for an extension for public testimony, setting a new deadline for Nov. 10. Adam Beitman of the Sierra Club said the group intends to make use of the one-week extension to prepare comments regarding the environmental assessment and will take issue with the "failure to prepare an EIS."

TS – 14

Friday, November 28, 2014 2:02 PM ET Exclusive

Vote set for private equity firm to take over Ambre Energy's US operations

Article
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By Darren Epps

Ambre Energy Ltd. shareholders are expected to approve a deal allowing mining-focused private equity firmResource Capital Funds, or RCF, to purchase all of the Australian-based company's North American operations, an Ambre spokesman said.

Shareholders will vote on the deal in mid-December. Ambre spokesman Brian Gard said he would be "really surprised" if the deal did not move ahead. RCF is proposing to buy the assets, which operate under Ambre's Ambre Energy North America Inc. subsidiary, mostly in exchange for paying Ambre's roughly $18 million debt to Korean utilities.

"Since 2011, RCF has continued to demonstrate its firm commitment to Ambre's U.S. coal mines and export projects by offering to purchase all of Ambre's North American businesses from Ambre Energy Limited, the Australian parent company," Gard said. "This transaction resolves any funding uncertainty that may have been associated with the Australian ownership structure and provides security of funding from a single strong financial backer moving forward."

Gard said Ambre's Utah-based management team will remain in place. RCF is based in Denver.

Ambre's U.S. operations include the Decker coal mine in Montana and the Black Butte mine in Wyoming it co-owns with Anadarko Petroleum Corp. Anadarko did not respond to a request for comment on the potential ownership change.

Ambre's success under RCF likely hinges on its two proposed coal export projects in the Pacific Northwest. The Morrow Pacific project in Oregon was denied a key permit, and the Millennium Bulk Terminals operation in Washington state is under environmental review. Arch Coal Inc., Ambre's partner in the Millennium project, did not respond to a request for comment.

Environmental groups seized on the news as a sign that U.S. coal export proposals are destined to fail.

"From the recent carbon pollution agreement between China and the U.S. to the freefalling coal export prices around the world, it's clear that coal exports are a losing proposition," said Cesia Kearns, campaign director for Power Past Coal. "Northwest families have known all along that dirty, dangerous coal is the wrong choice for our region. Communities from British Columbia, the Pacific Northwest, Gulf of Mexico and around the world will continue to fight coal export companies until we protect our health and safety for good from these shortsighted projects."

In a phone interview, Bruce Nilles, senior campaign director for the Sierra Club's Beyond Coal campaign, said he does not foresee any of the proposed coal export projects in the Pacific Northwest earning approval simply because the governors of Washington and Oregon are against coal. Washington Gov. Jay Inslee and Oregon Gov. John Kitzhaber have urged President Barack Obama's Council on Environmental Quality to examine greenhouse gas emissions and other air-quality impacts stemming from federal coal leasing and export.

"Maybe I'm overly optimistic, but if you think about big infrastructure projects that get built, show me a place where those projects get built that are not supported by the governor. It just doesn't happen," Nilles said. "Gov. Inslee is

one of the best climate champs we have out there. We have that beautiful, thin blue line of Washington, Oregon and California."

TS – 15

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Monday, March 23, 2015

US OTC thermal coal prices down on light activity

Houston—Brokers reported only a pair of physical trades Monday on the US over-the-counter thermal coal market as the markets continued to be illiquid and near-term prices flat.

The financial Central Appalachia rail (CSX) contract (12,500 Btu/lb) for fourth quarter traded first at $45.75/st for 5,000 st/month, then later twice at $46/st, also for 5,000 st/month.

The Q4 CSX financial contract last traded Thursday at $46.40/st, according to Platts data.

A broker also reported a Norfolk Southern 1% sulfur trade for one (11,000 st) train delivered in the back-half of 2015 to Kenova/Thacker. The NS contract's last reported trade was April 30, 2014, for May-June coal delivery for $64.25/st, according to Platts data.

"The CSX and NS have the same specs," the broker said.

(continued on page 6)

Patriot Coal temporarily idles two West Virginia mines

Houston—Patriot Coal said Monday it has temporarily idled coal production at the Samples surface thermal coal mine and Winchester underground metallurgical coal mine at its Paint Creek Complex near Cabin Creek in southern West Virginia.

Patriot Coal said Monday it has temporarily idled coal production at the Samples surface thermal coal mine and Winchester underground metallurgical coal mine at its Paint Creek Complex near Cabin Creek in southern West Virginia.

Production stopped Sunday, the company said in a statement, and will resume in three to four weeks after the complex's coal stockpiles are more in line with demand, an official said. Processing and shipping of coal to customers from on-site stockpiles will continue throughout the idle period.

(continued on page 7)

Correction

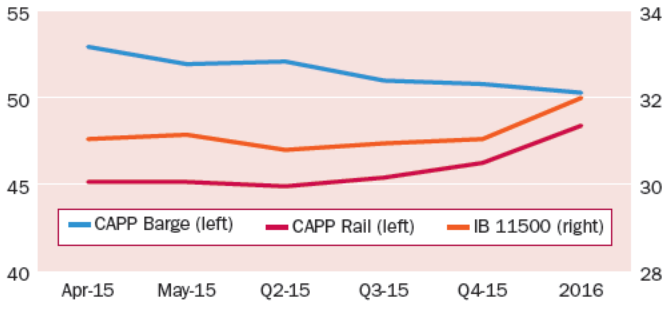
In a story that ran on page 10 in Coal Trader March 18, "USGC petcoke producers face transportation odds against Saudi refiners," the discount expected by cement buyers for purchasing Saudi petcoke was incorrect. The expected discount is $10/mt.

Platts Daily OTC Assessments, trade date Mar 23 ($/st)

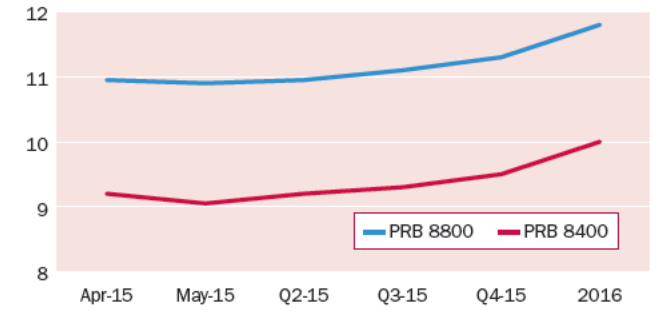
	CAPP rail (CSX) OTC		CAPP barge OTC		CIF ARA ($/mt)	
Apr 15	45.15	-0.10	52.95	-0.10	58.20	0.20
May 15	45.15	-0.20	51.95	-0.10	57.00	0.00
Q2 15	44.90	-0.55	52.10	-0.20	57.35	0.25
Q3 15	45.40	-0.55	51.00	-0.20	56.75	0.20
Q4 15	46.25	-0.50	50.80	-0.20	57.80	0.15
CY-16	48.40	-0.30	50.30	-1.70	57.35	0.15
	PRB 8,800 OTC		**PRB 8,400 OTC**		**IB 11,500 OTC**	
Apr 15	10.95	-0.10	9.20	-0.10	31.05	0.00
May 15	10.90	-0.10	9.05	-0.10	31.15	0.00
Q2 15	10.95	-0.05	9.20	0.00	30.80	0.00
Q3 15	11.10	-0.05	9.30	-0.10	30.95	-0.50
Q4 15	11.30	-0.05	9.50	-0.10	31.05	-0.50
CY-16	11.80	-0.05	10.00	-0.10	32.00	-0.50

See Platts Methodology and Specifications Guide at Platts.com for details.

CAPP/IB Forward Curve ($/st)



PRB Forward Curve ($/st)



Inside this issue

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- AEP to review options for its barge business 4
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- UK Jan wood pellet imports more than double on year 9

Arch Coal takes 'step forward' on Otter Creek, but deficiencies remain: Montana

Houston—Arch Coal took a "step forward" but still has deficiencies in its proposal to develop the Otter Creek mine project, a Montana Department of Environmental Quality official said Monday about the company's proposed 7,639-acre surface mine in the southeastern part of the state.

"We identified deficiencies across the board, across all disciplines," said Chris Yde, supervisor for the state DEQ's Coal and Uranium Program. "This is not uncommon due to the size of the application and the size of the project."

Some of the deficiencies are clerical, others are the need for more in-depth clarification of data provided by Otter Creek Operations, a subsidiary of St. Louis-based Arch, which submitted the second round application in November, Yde said.

The proposed Otter Creek mine, with reserves of 1.4 billion st, would produce 20 million st/year of subbituminous coal for 60 years, Otter Creek has said. The project also will need US Surface Transportation Board approval to build a 42-mile rail line called the Tongue River Railroad, which would connect the mine with BNSF Railway's mainline.

The STB is currently conducting an environmental impact statement for the proposed rail line, which Arch, BNSF and billionaire candy executive Forrest Mars Jr. will own. Yde expects the EIS to be completed by December.

The DEQ found fault with Otter Creek's lack of reference to the presence of "culturally significant plant species" in the area, among other items, according to the agency's response letter.

Proposed mine near 'very good coal reserve'

The Otter Creek mine would be located on a "very good coal reserve" near agricultural lands and Native American cultural sites, Yde said.

"Otter Creek tracts have a history of opposition, bringing people to the table and saying, 'we really don't want this development,'" Yde said. "That's been there since the 1970s. It's near and dear to a lot of people's hearts."

Arch could resubmit its application to address the defi-

Platts Daily Metallurgical Coal Assessments, March 23

Atlantic Coking Coal ($/mt)

	FOB US East Coast	Change	VM	Ash	S
Low Vol HCC	107.000	0.000	19%	8%	0.80%
High Vol A	109.250	0.000	32%	7%	0.85%
High Vol B	103.000	0.000	34%	8%	0.95%

US low-vol HCC Penalties & Premia; Differentials ($/mt)

	Within Min-Max	% of US low-vol HCC FOB USEC assessment price	Net value ($/mt)
Per 1% CSR	50-64%	0.50%	0.54
	40-49%	0.25%	0.27
Per 0.1% S	0.70-1.05%	0.75%	0.80
	1.06-1.25%	1.25%	1.34
Per 1% TM (as received)	6-11%	1.00%	1.07
Per 1% Ash	5-10%	1.25%	1.34

Detailed methodology and specifications are found here: http://platts.com/IM.Platts.Content/MethodologyReferences/MethodologySpecs/metcoalmethod.pdf

Dry Bulk Freight Assessments, March 23

	Freight Rate ($/mt)	Change
Capesize		
Queensland-Rotterdam	6.85	0.00
Queensland-Japan	4.95	0.00
New South Wales-Korea	6.55	0.00
Bolivar-Rotterdam	4.65	0.00
Roberts Bank-Japan	6.00	-0.05
Richards Bay-Rotterdam	3.85	0.00
Panamax		
Richards Bay-Rotterdam	8.00	0.00
Bolivar-Rotterdam	8.50	0.00
USEC-China	20.50	0.00
USEC-India	18.50	0.00
USEC-Rotterdam	7.50	0.00
USEC-Brazil	5.50	0.00
Mobile-Rotterdam	9.50	0.00
Mobile-Taranto	11.00	0.00
Roberts Bank-Rotterdam	14.00	-0.20
Roberts Bank-Japan	9.00	-0.05
Queensland-Rotterdam	11.90	-0.15
New South Wales-Rotterdam	11.00	-0.15

OTC Broker Index, trade date Mar 23 ($/st)

Coal Product Specifications	Feb Final Monthly Average	Mar Final Monthly Average	Apr Daily Assessment	Daily Change	Q2 2015 Assessment	Daily Change	Q1 Average
NYMEX look-alike – 12,000 Btu/lb. -1%	46.82	49.62	52.95	-0.10	52.10	-0.20	53.70
CSX BS/K – 12,500 Btu/lb. -1%	49.86	45.50	45.15	-0.10	44.90	-0.55	54.37
PRB – 8,800 Btu/lb.	12.20	10.31	10.95	-0.10	10.95	-0.05	12.42
PRB – 8,400 Btu/lb.	9.29	8.60	9.20	-0.10	9.20	0.00	10.22
Illinois Basin 11,500 OTC	36.08	32.01	31.05	0.00	30.80	0.00	35.99
CAPP 1% vs. Compliance spread	1.75	1.75	1.75	0.00	1.75	0.00	1.75

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ciencies as early as the third quarter, Yde said.

"I don't know if it's going to happen — they're going to have to make a concentrated effort to get it done," he said. "But I think we're going to see a response by the end of the year."

Arch to move forward with permit process

Arch spokeswoman Logan Bonacorsi said in an email that the company had received the DEQ's comments and plans to move forward.

"This is a routine and expected part of the permitting process and Otter Creek Coal is reviewing the comments and will respond in a timely fashion," Bonacorsi wrote.

The mine's coal measures roughly 8,650 Btu/lb, with 0.3% sulfur and a somewhat elevated sodium content that averages 6-7%, according to Otter Creek.

The mine has a strip ratio between 3:1 and 4:1, meaning roughly three to four cubic yards of overburden — material like rock and dirt — must be removed to mine one cubic yard of coal. The coal seam averages 70 feet, according to Otter Creek.

Mined coal could be exported through the proposed Millennium Bulk Terminal in Washington, which also is going through an EIS process that is expected to be completed by the end of the year.

— Jeffrey McDonald

AEP to shut six coal-fired plants by the end of May

Houston—American Electric Power will shut six coal-fired power plants by the end of May across four Appalachian states, with four more retirements set for this year, a utility official said Monday.

Tammy Ridout, AEP's manager of media relations, said AEP sent Worker Adjustment and Retraining Notification Act, or WARN, notices on March 16 to employees at the Kanawha River, Philip Sporn and Kammer plants in West Virginia; the Glen Lyn plant in Virginia; the Muskingum River plant in Ohio; and the Tanners Creek plant in Indiana, which said those facilities will cease operations by May 31.

The closings, Ridout said, are part of the utility's compliance plan for new US Environmental Protection Agency regulations, primarily the Mercury and Air Toxics Standard rule that begins in June.

Because AEP said in 2011 it planned to close 14 plants in the years to come, including the six slated to cease generation by June, Ridout said the utility has made plans to "get rid of as much coal as possible" in the retiring plants' stockpiles.

She could not confirm if any or how much of the coal stockpiles at the six retiring facilities would remain after generation stops, or if the utility had plans for any remaining coal that is not burned.

Coal Trader Spark Spreads

Coal

	—Plus transport—		——Plus SO2——	
	$/st	$/MMBtu	$/st	$/MMBtu
CAPP barge OTC spark	59.20	2.47	60.60	2.53
CAPP rail (CSX) OTC spark	57.15	2.29	61.60	2.46
PRB 8,800 OTC spark	22.70	1.29	23.19	1.32

Emission Allowances

	SO2 G1	SO2 G2	NOx
Current vintage	70.00	237.50	120.00

	Cincinnati	Atlanta	Kansas City
Natural Gas ($/MMBtu)	2.62	2.69	2.55
Electricity ($/MWh)	30.62	27.25	40.94

Generating Hub ($/MWh)

	Gas	Coal Alone	Coal Plus: SO2
Cincinnati	20.92	24.67	25.25
Atlanta	21.48	22.86	24.64
Kansas City	20.40	12.90	13.18

Spark Spreads Hub

	Gas	Coal Alone	Coal Plus: SO2
Cincinnati	9.70	5.95	5.37
Atlanta	5.77	4.39	2.61
Kansas City	20.54	28.04	27.76

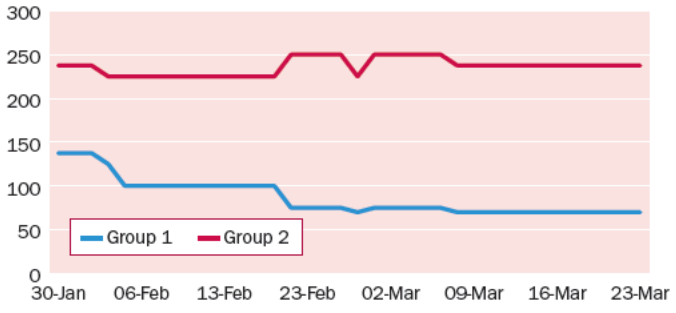
Assumptions: Heat rate of 10,000 Btu/kWh (34% efficiency) for typical coal plant, 8,000 Btu/kWh (45%) for typical gas plant. "Without controls" assumes neither SO2 nor NOx controls. Assumed NOx rate: with controls, 0.15 lb/MMBtu; without controls, 0.60 lb/MMBtu

Coals are: CAPP barge OTC (12,000 Btu/lb, 1.67 lb SO2/MMBtu), barged to Cincinnati at $6.25/st ; CAPP rail (CSX) OTC 12,500 Btu/lb, 1.5 lb SO2/MMBtu), railed to Atlanta at $12/st; PRB 8,800 OTC (8,800 Btu/lb, 0.8 lb SO2/MMBtu), railed to Kansas City at $11.75/st

Daily CSAPR allowance assessments, Mar 23 ($/st)

	2015 Range	Mid	2016 Range	Mid
SO_2 Group 1	50.00-90.00	70.00	45.00-85.00	65.00
SO_2 Group 2	175.00-300.00	237.50	170.00-295.00	232.50
NOx Annual	110.00-130.00	120.00	105.00-125.00	115.00
NOx Seasonal	110.00-150.00	130.00	105.00-145.00	125.00

CSAPR vintage 2015 SO_2 allowances ($/st)



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12 coal-fired plants to retire by the end of 2016

Other coal-fired plants on the AEP's list to retire this year are Clinch River, Unit 3, in Virginia; Big Sandy, Unit 2, in Kentucky; and the Beckjord Generating Station and Picway, Unit 5, in Ohio. Announced 2016 retirements include Northeastern Station, Unit 4, in Oklahoma, and Welsh, Unit 2, in Texas.

The 12 coal-fired plants scheduled for retirements by the end of 2016 combined generate 6,586 MW.

In 2012, AEP retired the Philip Sporn Plant, Unit 5, in New Haven, West Virginia, and the Conesville Plant, Unit 3, in Conesville, Ohio.

AEP said in a statement that it has spent more than $7 billion on compliance from 1990 through 2011 to reduce emissions from coal-fueled plants and it estimates the cost of complying with new regulations will be an additional $3 billion to $3.5 billion between 2013 and 2020.

— Jim Levesque

AEP to review 'strategic' options for competitive barge transportation business

Louisville, Kentucky—American Electric Power has retained Morgan Stanley & Co. to explore "strategic alternatives" for its competitive barge transportation subsidiary, AEP River Operations LLC, a major coal hauler to the utility's merchant power plants, AEP said Monday.

The move comes less than three months since Columbus, Ohio-based AEP hired Goldman Sachs to evaluate options, including a possible sale, of 11,000 MW of merchant coal and natural gas generation formerly owned by AEP Ohio, an AEP subsidiary.

In a statement, AEP said it is committed to completing the River Operations review "as promptly as practicable," although there are no assurances that any particular alternative will be pursued or that any transaction will occur.

River Operations, headquartered in Chesterfield, Missouri, a St. Louis suburb, also has operations in Paducah, Kentucky, and in Convent, Algiers and Belle Chase, Louisiana.

AEP spokeswoman Tammy Ridout said in an email that River Operations delivers bulk commodities including coal, grain, steel, ores and other products and owns 58 towboats, 2,269 barges and has 1,090 employees.

In all, it delivers about 45 million tons of products annually, including about 10 million st of thermal coal to AEP's unregulated power plants.

The Morgan Stanley review does not include the captive business that hauls coal to AEP's regulated power plants, Ridout said. Cook Coal Terminal on the Ohio River at Metropolis, Illinois, is part of that business.

The captive business delivers about 21 million st of coal annually and has 12 towboats, 509 barges and about 250 employees, Ridout said.

NYMEX Henry Hub gas futures contract, Mar 23

	Settlement	High	Low	+/-	Volume
Apr 2015	2.733	2.756	2.691	-5.3	145544
May 2015	2.760	2.782	2.717	-4.3	91072
Jun 2015	2.807	2.826	2.764	-4.1	25893
Jul 2015	2.864	2.882	2.822	-4.2	31005
Aug 2015	2.886	2.902	2.842	-3.8	16857
Sep 2015	2.882	2.898	2.836	-3.6	10009
Oct 2015	2.908	2.923	2.862	-3.5	23485
Nov 2015	2.999	3.011	2.956	-2.8	4993
Dec 2015	3.155	3.172	3.115	-2.5	3622
Jan 2016	3.270	3.285	3.232	-2.5	9457
Feb 2016	3.257	3.257	3.221	-2.4	608
Mar 2016	3.202	3.207	3.168	-2.3	3771
Apr 2016	3.055	3.068	3.029	-1.3	2711

Natural gas futures commentary

NYMEX April gas futures drop as 'seasonal pattern' emerges: analyst

Houston—The NYMEX April natural gas futures contract fell 5.3 cents to a $2.733/MMBtu close as the market reacted to milder weather forecasts and continued high natural gas production.

While Monday's temperature forecast looks higher than Friday's "subtracting some late heating demand from the market balance, the price weakness seems more predicated upon the seasonal pattern, with tapering storage withdrawals setting the stage for the swing to net injections," Citi Futures Perspective analyst Tim Evans said in an email.

WSI's 11- to 15-day forecast calls for below-normal temperatures around the Great Lakes and along the East Coast from Maine to northern Pennsylvania and New Jersey. Above-normal temperatures are forecast for most of the Gulf Coast, Southeast and West.

Aaron Calder, Gelber & Associates analyst, said weather is becoming less important to the market as spring takes hold.

"We expect the upcoming shoulder season to be fairly extreme in terms of temperature shift against normal," Calder said in an email. "April is forecasted to start much colder than normal before a sudden and drastic shift into warmer-than-normal [weather]. While this will add some volatility to the market, it won't be near the demand swings that we would see during winter or summer."

When normal temperatures are about 70 degrees Fahrenheit, a shift of 15 degrees higher or lower creates little demand, Calder noted.

Natural gas production in the contiguous US hit a year-to-date high of 73.3 Bcf/d over the weekend, Platts unit Bentek Energy reported Monday, while production in the Northeast hit an all-time high of 19.9 Bcf/d.

— Mark Watson

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Future of AEP's merchant plants unknown

The potential River Operations divestiture is expected to spawn more speculation about the future of AEP's merchant plants. Goldman's analysis includes AEP's full or partial ownership in the Gavin, Stuart, Zimmer, Cardinal and Conesville plants in Ohio, as well as the Waterford and Darby gas plants in Ohio and Lawrenceburg gas plant in Indiana.

The Goldman review is expected to be completed later this year.

Some analysts believe the spinoff of AEP's competitive generation became more likely when the Ohio Public Utilities Commission on February 25 denied AEP's request for a power purchase agreement related to its roughly 400 MW ownership of coal-fired generation in Ohio Valley Electric Corp.

AEP, which has a broader PPA pending before the commission, insists it has not made a final decision on the future of the merchant plants.

AEP's regulated plants burned about 40.6 million st of coal and its competitive plants about 16.1 st of coal, for a total of 57.7 million st in 2014.

The company owns nearly 38,000 MW of generating capacity, of which nearly 23,000 MW is coal-fired.

AEP plans to retire some 6,000 MW of coal capacity this year to comply with US Environmental Protection Agency rules.

— Bob Matyi

Missouri muni Sikeston doubles coal stocks to 40-day supply on improved rail

Louisville, Kentucky—Improved rail deliveries have helped the city-owned electric utility in Sikeston, Missouri, rebuild a coal inventory that had dwindled to about 20 days late last year, a utility official said Monday.

"Our stockpile has corrected itself," Rick Landers, manager of the city's 235-MW coal-fired power plant, said in an interview. "We are not seeing delivery problems."

Landers estimated Sikeston currently has about a 40-day coal supply. The muni buys coal from the low-sulfur Powder River Basin and BNSF Railway transports it to Sikeston.

Typically, Sikeston aims to keep a 30- to 45-day supply of coal on hand.

Sikeston was among a number of coal-burning utilities, mainly in the Midwest, that experienced delivery problems with the railroad for much of last year. This year, so far, things have been noticeably different.

"We've had no delivery issues in the fourth quarter of 2014 and first quarter of 2015," Landers said. "At this point, I can't say anything bad about Burlington Northern, nor do I want to."

Platts Physical Thermal Coal Assessments, Mar 23

	CV (kcal/kg)	Basis	Sulfur	$/mt	Change
FOB US East Coast	6,500	NAR	1%	63.50	0.25
FOB USGC Eastern Coal	6,000	NAR	3%	48.00	0.00
FOB USGC Western Coal	5,000	GAR	0.5%	46.75	-0.25
FOB Canada/USWC	5,000	GAR	0.5%	56.25	0.00

*Note: Loading 14-45 day basis

Daily 90-Day Prices

CIF ARA	6,000	NAR	1%	59.40	0.65

See Platts Methodology and Specifications Guide at Platts.com for details.

Platts Daily OTC Assessment Rationales

CAPP Barge OTC: There were no trades Monday for the front-month, physically-settled CAPP barge OTC contract. Platts assessed the contract price at $52.95/st, down 10 cents from Friday, based on broker marks.

The above commentary applies to the following market data code: CTNM001

CAPP Rail (CSX) OTC: There were no physical trades Monday for the front-month CAPP rail (CSX) OTC contract. Platts assessed the CSX contract at $45.15/st, down 10 cents from Friday, based on broker marks.

The above commentary applies to the following market data code: CAKM001

PRB 8,800 OTC: There was one physical trade reported Monday for one 15,000 st train in the front-month PRB 8,800 OTC contract. Platts assessed the contract price at $10.95/st, down 10 cents from Friday, based on that physical trade and broker marks.

The above commentary applies to the following market data code: CTAM001

Plant has burned as much as 1 million st/year

The city's baseload plant has burned as much as 1 million st/year in past years. It is becoming more difficult, though, to project the plant's likely coal demand each year.

"In the past, we have maxed out at about a million tons a year," he said. "But if you're participating in a regional market with a [regional transmission organization], with the market dictating your generation, how do you know how much coal you [will] burn a year?"

Over the past 15 years, the plant's annual capacity factor has varied from 84% to 92%, according to Landers.

The single-unit plant went into commercial operation in 1981 and is expected to be compliant with the US Environmental Protection Agency's new Mercury and Air Toxics Standards rule that takes effect in April.

With spring having arrived and temperatures in the 60s in the Sikeston area, Landers said the utility is not planning to purchase more coal anytime soon. "We're fine," he said.

This month, the plant is being taken out of service for scheduled maintenance that is expected to last several weeks. While it is offline, Sikeston will buy power to supply its roughly 9,000 residential and business customers.

— Bob Matyi

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Subscriber notes

Platts proposes to rename coal products in OTC Broker Index
Platts is proposing to change the name of the US over-the-counter thermal coal products listed in the OTC Broker Index table to match the names of the same products listed in the Platts Daily OTC Assessment table, both of which are printed daily in Coal Trader.

Platts proposes to implement this change effective June 26, 2015.

The proposed name changes to the OTC Broker Index would be as follows:
NYMEX look-alike - 12,000 Btu/lb. -1% would be renamed CAPP barge OTC
CSX BS/K - 12,500 Btu/lb. -1% would be renamed CAPP rail (CSX) OTC
PRB - 8,800 Btu/lb. would be renamed PRB 8,800 OTC
PRB - 8,400 Btu/lb. would be renamed PRB 8,400 OTC

Please address questions or comments by March 31 to coal@platts.com and pricegroup@platts.com.

Platts to publish CME Group open interest for OTC coal products
Effective June 26, Platts will publish the open interest for the front-month CAPP barge, CAPP rail (CSX), PRB 8,800 Btu/lb coal futures contracts as listed by the CME Group, as well as the total CME open interest for each contract and all terms, in the daily OTC Broker Index table in Platts Coal Trader.

The open interest data will lag by one day due to the fact it becomes available each day after Coal Trader's daily publishing deadline.

Please address any questions or comments to coal@platts.com and pricegroup@platts.com.

Platts proposes to stop publishing second trailing final monthly average
Platts proposes to stop publishing the second trailing final monthly average for the over-the-counter coal products and the CAPP 1% vs. Compliance Spread listed in the daily OTC Broker Index table in Coal Trader, effective June 26.

Platts is proposing to eliminate the second trailing final monthly average because it does not believe there is sufficient market interest in its continued publication. In addition, Platts would like to add in its place content it believes would be more relevant to market participants.

Please address any questions or comments by March 31 to coal@platts.com and pricegroup@platts.com.

Platts to publish front-month, front-quarter averages for OTC coal
Effective June 26, Platts will publish a daily average of the front-month and front-quarter price assessments for each of the five over-the-counter coal products it currently assesses in the OTC Broker Index table in Platts Coal Trader.

For example, on March 5, Platts would publish the average of the April daily assessments published from February 26 through March 5. On the same date, Platts would publish the average of the front-quarter (which will be the third calendar quarter) daily assessments published from February 26 to March 5.

The daily front-month and front-quarter averages will show the direction of the underlying prices through the course of the referenced period, providing market participants with more visibility as to the direction of the final monthly settle for both terms.

Please address questions or comments to coal@platts.com and pricegroup@platts.com.

Platts to discontinue compliance coal spread
Platts will discontinue listing the CAPP 1% vs. compliance coal spread currently listed in the daily OTC Broker Index table in Platts Coal Trader effective June 26, 2015.

Due to evolving market conditions, there is no longer a premium for low sulfur Central Appalachia thermal coal, as the spread was envisioned to illustrate. Over-the-counter trades for compliance coal have not been reported since February 2012, when the spread last showed a change. The affected code is CTMM001.

Please address any questions or comments to coal@platts.com and pricegroup@platts.com.

US OTC ... *from page 1*

"The difference is the delivery point. Generally, most people use the CSX, but there is a premium for NS as well, because getting it on the NS is more difficult."

The NS contract carries a $2 premium for the back-half of 2015 and "maybe $1" for Cal 2016 compared with the CSX contract, the broker said. Platts assessed the front-month CSX contract at $45.15/st, down 10 cents from Friday, based on an average of broker marks.

The CAPP barge contract continues to be 'quiet'

The CAPP barge contract continued to be "quiet," the broker said. The physically settled contract, which traded 58 times in March 2014, has traded only twice through Monday, according to Platts data.

Platts assessed the CAPP barge contract Monday at $52.95/st, down 10 cents from Friday, based on an average of broker marks.

The front-month April Powder River Basin 8,800 Btu/lb contract traded once physically for one train (15,000 st) at $10.95/st.

Platts assessed the PRB 8,800 contract at $10.95/st, down 10 cents from Friday, based on that physical trade and an average of broker marks.

— Jeffrey McDonald

Platts Podcast

Import restrictions drag down coal trade in China

China has been mostly inactive in the spot market after the Lunar New Year holiday. Platts associate editors for thermal coal Arusha Das and Mia Corazon Aureus analyze the impact of China's weak demand on the Asian coal trade, Indonesia's plan to ramp up production this year, and the buying pattern shift in India's coal market.

http://www.platts.com/podcasts-detail/spotlight/2015/march/asia-coal-0313

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Patriot Coal ... *from page 1*

Officials said in the statement that the mines were idled in response to high coal inventory levels driven by a combination of a CSX rail service disruption in February and continued weakness in demand for coal.

Janine Orf, vice president of investor relations at Patriot, said the February 16 derailment of a CSX oil train in Mount Carbon, West Virginia, and ensuing fire shut down rail service for 10 days on the main East Coast corridor connecting the mines to the export port at Newport News, Virginia.

CSX did not return a call seeking comment Monday.

Appalachian thermal coal markets 'hit hard'

Appalachian thermal coal markets have been particularly hard hit over recent months by the combined impacts of coal-fired plant closures driven by US Environmental Protection Agency emission regulations, low-cost natural gas and diminished export opportunities, Patriot said in the statement.

Combined, the two mines in the Paint Creek Complex produced 2.4 million st in 2013, Orf said.

US Mine Safety and Health Administration data showed that the Samples mine produced 2.6 million st in 2014, up about 1 million st from 2013. The Winchester mine produced 928,812 st in 2014, down about 33,000 st from 2013.

About 400 employees work at Paint Creek, and about 35 positions were permanently eliminated at the Samples mine on Sunday, Patriot said.

Paint Creek is one of Patriot's eight coal mining complexes in West Virginia. In November 2013, Patriot idled the Logan County complex, and production there is still stopped, Orf said. The Guyan mine in the Logan County complex produced 1.8 million st of thermal coal in 2013.

— Jim Levesque

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BIOMASS WEEKLY SUPPLEMENT

Monday, March 23, 2015

Spot industrial wood pellet market inches higher as local supply tightens

London—Spot prices of Northwest Europe-delivered industrial wood pellets edged higher to break an 18-week bear-run Friday, with traders observing that local supplies of certified material were starting to dry up.

Platts Friday assessed the weekly price of CIF NW Europe 'I2' industrial wood pellets basis 17 GJ/mt for delivery within the next 7-45 days, March 27-May 4 at $170.75/mt, up 25 cents on the week.

An overhang of tonnage from the residential pellet market has heaped pressure on industrial pellet prices this winter, with buyers taking advantage of the weakening euro to procure volumes at considerable discounts to dollar-denominated larger transatlantic shipments. However, sources said availability of small coasters was now diminishing.

"European supply of pellets certified for Drax use seem to be running out for Q2, we can't find anything," one utility trader commented. "It looks like buyers will have to turn to Handysizes which would be a big jump from the levels shown earlier."

A spot Handysize cargo of US-origin pellets was being offered at $172/mt, with one generator understood to be expressing interest and starting negotiations on delivery windows.

"I'm not sure they're happy with the price on offer and there's no bid as yet but they're looking at it," one trader said.

In comparison, March and April delivery coasters of pellets from Iberia and the Baltic region had previously been offered at around €139-€140/mt CIF ARA which at Friday morning's exchange rate converted to $148.71-$149.85/mt.

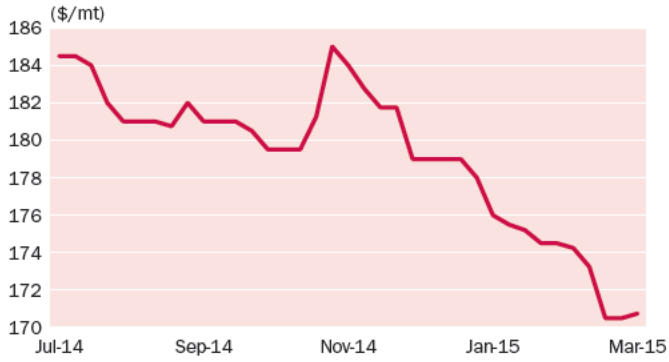
Further out, Q4 coasters were heard offered in the high €140s/mt and low €150s/mt.

A second utility source said European industrial pellet demand remained strong for the rest of the year, while delays in some pellet production projects in the US may keep supply tighter.

Industrial Wood Pellet Price Assessment, March 20, 2015

	Net CV (GJ/t)	$/mt	Chg	Eur/mt	Chg
CIF NW Europe (45 day)	17	170.75	0.25	158.20	-3.81

CIF NW Europe Industrial Wood Pellet 17GJ/mt Spot Prices



Prices before August 15, 2014 are indicative.
Source: Platts

UK Wood Pellet Prompt Spreads, March 20, 2015

	30% (GBP/MWh)	Chg	35% (GBP/MWh)	Chg	40% (GBP/MWh)	Chg	30% (Eur/MWh)	Chg	35% (Eur/MWh)	Chg	40% (Eur/MWh)	Chg
100% dedicated (ROC x 1.5)	31.03	0.76	42.57	0.64	51.22	0.55	42.89	0.45	58.85	0.07	70.80	-0.24
100% conversion (ROC x 1)	9.73	0.76	21.27	0.64	29.92	0.55	13.45	0.87	29.40	0.48	41.36	0.19
85-100% co-fired (ROC x 0.9)	5.47	0.76	17.01	0.64	25.66	0.55	7.56	0.96	23.51	0.56	35.47	0.27
50-85% co-fired (ROC x 0.6)	-7.31	0.76	4.23	0.64	12.88	0.55	-10.11	1.20	5.85	0.82	17.80	0.51
Up to 50% co-fired (ROC x 0.3)	-20.08	0.76	-8.54	0.64	0.11	0.55	-27.76	1.46	-11.81	1.06	0.15	0.77
Wood Pellet Cost – adjusted												
Prompt 45-day	80.77	-0.81	69.23	-0.69	60.58	-0.60	111.65	-2.72	95.70	-2.32	83.74	-2.03
Monthly Average ROC auction price* (GBP)												
March	42.59	0.00										

*Provided by NFPA Ltd

Dutch sustainability criteria agreement

Meanwhile in the wake of an agreement finally being reached on biomass sustainability criteria in the Netherlands, market sources said it was still too early to pinpoint what the implications would be for consumers and producers of wood pellets.

One trader described the new requirement to enforce full forest level certification for woody biomass as "pretty stringent."

He added that while the measures would likely cut out some supply from the market, "on the other hand there is a grace period of five years, so that should be more than enough for small holders to get certified if they want to."

Most traders interviewed said they believed Dutch co-firing of pellets would not resume before Q1 2016.

— Gareth Carpenter

UK Jan wood pellet imports more than double on year to 448,532 mt

London—The UK imported 448,532 mt of wood pellets in January, down 22% on the month but up more than double year on year, according to customs data last week.

The main reason for the year-on-year growth was the commissioning of Drax Power's second 645-MW biomass conversion unit last year, traders have said.

The US delivered 234,248 mt to the UK in January, down 27% month on month but 68% higher on the year.

Of the shipments arriving from the US, 100,090 mt was delivered to the port of Tyne, 108,986 mt to Immingham and 25,152 mt to Hull.

Canada was the second largest pellet shipper to the UK in January, sending 116,655 mt, increasing more than threefold on-year and at a seven-month high.

Canadian imports were split between Immingham (93,604 mt) and Hull (23,050 mt).

Pellet volumes from Portugal and Latvia in January were steady at 42,114 mt and 40,310 mt respectively, both above their monthly averages for 2014.

— Gareth Carpenter

Canadian wood pellet Jan exports up 32% on-year

London—Canadian wood pellet exports in January increased 32% year on year but fell 4% from December to 124,381 mt, according to Statistics Canada data last week.

The amount exported was slightly below the monthly average for 2014 of 136,464 mt.

The vast majority of Canada's January exports found a home in the UK — the largest consumer of industrial pellets in the world — with a five-month high of 93,451 mt delivered, up 94% on-year and 9% higher on-month.

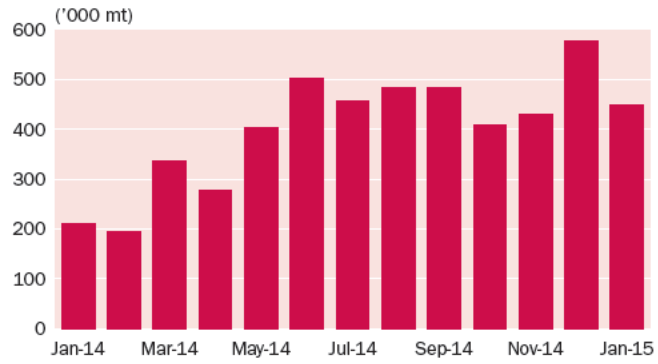
Japan was the only destination which upped its intake of Canadian pellets, taking 10,385 mt during the month, up 35% on December.

Canadian volumes to the US dipped 25% month on month to 13,529 mt while those destined for South Korea fell 14% from December to 5,936 mt.

Sources had said that a recent batch of spot tenders from South Korean generating companies may cause some Canadian volumes to be diverted westward from the European market, although it is understood that at current market prices, the majority of the awarded tonnage will go to local Asian suppliers such as Vietnam.

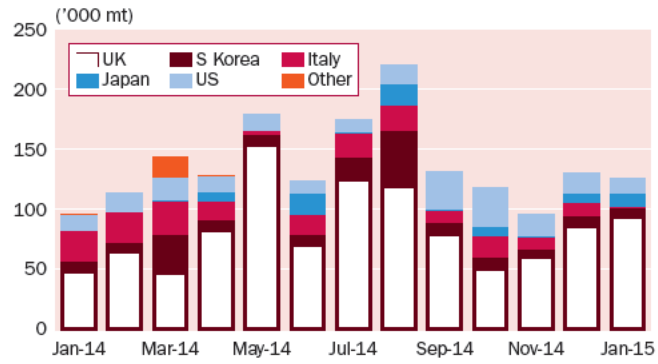
— Gareth Carpenter

UK wood pellet imports



Source: BTS Ltd

Canada wood pellet exports



Source: Statistics Canada

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Volume 15 / Issue 55 / Thursday, March 19, 2015

CCI 1, CCI 8 thermal coal prices fall to fresh record lows

Perth, Hunan—Benchmark prices for 5,500 kcal/kg NAR quality thermal coal in China's domestic and seaborne spot markets fell to new lows in the 18-month history of the Platts/Fenwei Energy price assessments for this grade, according to market sources Thursday.

At the close of Asia trade, the Platts/Fenwei Energy, China Coal Index (CCI) 1 price for 5,500 kcal/kg NAR domestic thermal coal traded at Qinhuangdao port in north China was assessed at Yuan 457/mt FOB ($74.24/mt) including 17% VAT, and down Yuan 2.50 on-day.

This price nets back to $63.45/mt without Chinese VAT, and has surpassed the CCI 1 assessment's previous

(continued on page 9)

CIF ARA thermal market dips, utility buying maintains backwardation

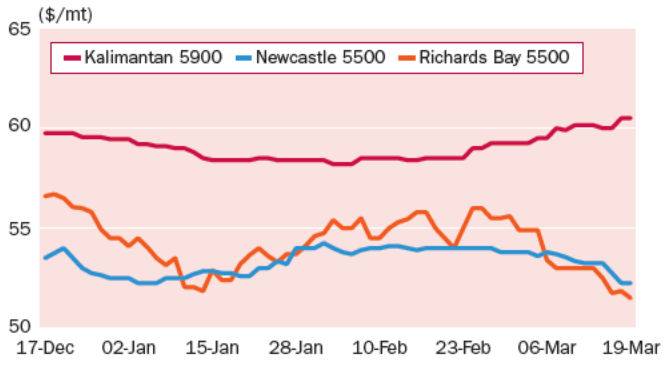
London—Spot Europe-delivered physical thermal coal traded a touch lower Thursday, with sources saying the backwardation in the prompt market was being caused by some generators looking to buy back the odd shipment as they had reduced their stocks during a recent downward trend.

Platts assessed the price of CIF ARA physical thermal coal basis 6,000 kcal/kg NAR and for delivery within the next 15-60 day period at $60.40/mt, edging down 25 cents on the day.

A Northwest European utility-trader was heard buying an April DES Rotterdam 50,000 mt multi-origin cargo at $60.40/mt on the globalCOAL screen. Sources said the

(continued on page 10)

Daily Coal Price Trends (Physical)



Source: Platts

China Coal Index Physical Coal Benchmark Prices, March 19

	CV (kcal/kg)	Basis	$/mt	Chg	Yuan/mt	Chg
CCI 1 (FOB Qinhuangdao)	5,500	NAR	74.36	-0.29	**457.00***	-2.50
CCI 2 (FOB Qinhuangdao)	5,000	NAR	62.97	-0.22	**387.00***	-2.00
CCI 7 (CFR South China)	4,700	NAR	**52.50**	-0.15	322.67	-1.42
CCI 8 (CFR South China)	5,500	NAR	**58.40**	-0.10	358.93	-1.17

*includes VAT at 17%

Platts Physical Thermal Coal Assessments, March 19

		CV (kcal/kg)	Basis	$/mt	Chg
Daily Prompt Prices					
FOB Newcastle	**20% ash**	**5,500**	**NAR**	**52.25**	**0.00**
— *Ash Differential (net value)**				0.44	
FOB Newcastle		6,300	GAR	59.50	-0.90
FOB Kalimantan	Geared Supramax	4,200	GAR	34.00	0.10
FOB Kalimantan	Geared Supramax	3,800	GAR	27.00	0.00
CFR India West	Capesize	6,000	NAR	67.00	0.10
CFR India West	Gearless Panamax	5,500	NAR	60.85	0.10
CFR India West	Gearless Panamax	5,000	GAR	55.80	0.00
CFR India West	Gearless Panamax	4,200	GAR	42.05	0.10
CFR India West	Geared Supramax	3,800	GAR	35.35	0.25
CFR India East	Capesize	6,000	NAR	67.10	0.10
CFR India East	Gearless Panamax	5,500	NAR	61.10	0.10
CFR India East	Gearless Panamax	5,000	GAR	55.00	0.00
CFR India East	Gearless Panamax	4,200	GAR	41.00	0.10
CFR India East	Geared Supramax	3,800	GAR	34.00	0.50
CIF ARA		6,000	NAR	60.40	-0.25
FOB Richards Bay		6,000	NAR	60.10	-1.10
FOB Richards Bay		5,500	NAR	51.50	-0.35

*Per 1% Ash (air dried)

Daily 90-Day Prices					
CIF ARA		6,000	NAR	59.05	-0.60
FOB Richards Bay		6,000	NAR	58.85	-1.15
FOB Newcastle		6,300	GAR	57.50	-1.45
FOB Kalimantan		5,900	GAR	60.50	0.00
FOB Kalimantan		5,000	GAR	48.00	0.00
FOB ARA Barge		6,000	NAR	61.55	-0.60
Weekly 90-day Prices (March 13)					
FOB Barge ARA ^		6,000	NAR	63.77	-1.67
FOB Colombia		6,000	NAR	58.75	0.30
Poland Baltic		6,000	NAR	55.75	-2.20
Russian Baltic		6,000	NAR	55.80	-2.15
CIF Turkey		6,000	NAR	70.00	1.00
FOB Gladstone		6,500	GAR	64.25	-0.50
FOB Qinhuangdao		6,200	GAR	82.00	-1.45
Russia Pacific		6,300	GAR	57.75	1.25
CIF Japan		6,080	NAR	65.50	0.80
CIF Korea West		6,080	NAR	64.00	0.50

^ Weekly average

Inside this issue

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CIF ARA Cal-16 falls to fresh record low following volatile euro

London—The year-ahead Europe-delivered CIF ARA Cal-16 thermal coal swaps contract dropped to fresh record lows Thursday after opening higher earlier in the day amid a weaker euro currency during a volatile trading session, sources said.

Platts assessed the CIF ARA Cal-16 swap at $57.50/mt, down 75 cents on the day and at a fresh low for the year-ahead contract since Platts started assessing the CIF ARA market in 2007.

The front-quarter CIF ARA Q2-15 contract was assessed at $57.10/mt, down 60 cents from Wednesday and at its lowest since January 26.

Market sources said CIF ARA swaps continued to mirror moves in the UK natural gas market and euro-dollar exchange, which opened stronger at the start of the trading day but eased lower in the latter half of the session as the euro fell from intraday highs.

"I think the support from this morning was the big move up in the euro overnight but then that fell away and so the rally ran out of steam," a London-based trader said.

The CIF ARA Cal-16 contract traded up to $58.95/mt, up 70 cents from Wednesday's close, before easing lower and settling within the $58.20/mt-$58.50/mt range for most of the session.

However, in the afternoon, the Cal-16 slipped below $58/mt, dipping under the recent record lows reached Monday.

"It goes quickly these days, [prices] can fall 30 to 50 cents in just three trades," a utility trader said.

He said that the all-time record low trade for the CIF ARA Cal-16 was at $57.30/mt, recently reported happening on Tuesday.

The euro-dollar exchange rate rose as high as $1.07218 Thursday but fell to $1.06345 by 1700 London time, down from Wednesday's $1.06641.

FOB Richards Bay swaps drop $1

Meanwhile, the South African FOB Richards Bay dropped $1 Thursday amid the general bearishness in the coal market.

A London-based investment bank trader said that the fall in Australian FOB Newcastle coal prices, which occurred after news filtered out of a possible settlement of the annual Japanese supply contract negotiations at $69/mt FOB, could have translated into lower values for the FOB Richards Bay prices, which until recently had mostly been following the movement of CIF ARA prices.

The front-quarter Q2-15 implied freight spread was marked at minus $0.50/mt, up 50 cents from Wednesday, and the year-ahead Cal-16 differential was at $1.95/mt, 15 cents higher.

Platts assessed the FOB Richards Bay Q2-15 contract at $57.60/mt, $1.10 down from Wednesday, and the Cal-16 at $55.55/mt, down 90 cents on-day.

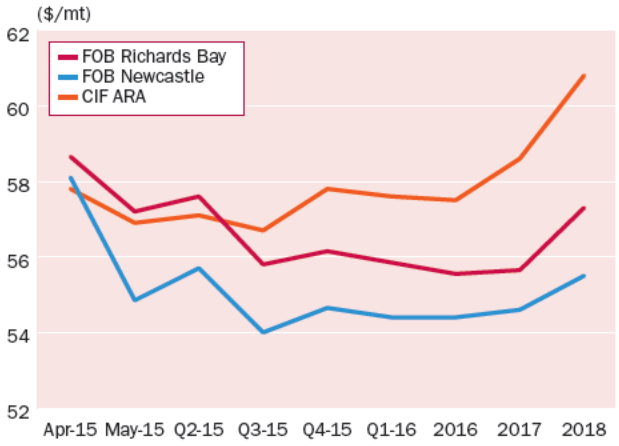
— Jaime Concha

Platts Forward Curve Coal, March 19

	Bid	Ask	Midpoint*	Change*
CIF ARA				
Apr 15	57.65	57.95	57.80	-0.80
May 15	56.75	57.05	56.90	-0.45
Q2 2015	56.95	57.25	57.10	-0.60
Q3 2015	56.55	56.85	56.70	-0.70
Q4 2015	57.65	57.95	57.80	-0.70
Q1 2016	57.45	57.75	57.60	-0.65
2016	57.35	57.65	57.50	-0.75
2017	58.45	58.75	58.60	-0.85
2018	60.65	60.95	60.80	-0.95
FOB Richards Bay				
Apr 15	58.50	58.80	58.65	-0.95
May 15	57.05	57.35	57.20	-1.20
Q2 2015	57.45	57.75	57.60	-1.10
Q3 2015	55.65	55.95	55.80	-0.80
Q4 2015	56.00	56.30	56.15	-0.80
Q1 2016	55.70	56.00	55.85	-0.75
2016	55.40	55.70	55.55	-0.90
2017	55.50	55.80	55.65	-0.90
2018	57.15	57.45	57.30	-0.50
FOB Newcastle				
Apr 15	57.85	58.35	58.10	0.20
May 15	54.60	55.10	54.85	-1.00
Q2 2015	55.45	55.95	55.70	-0.65
Q3 2015	53.75	54.25	54.00	-0.55
Q4 2015	54.40	54.90	54.65	-0.55
Q1 2016	54.15	54.65	54.40	-0.45
2016	53.90	54.90	54.40	-0.45
2017	54.10	55.10	54.60	-1.00
2018	55.00	56.00	55.50	-1.00

* fields are calculated

Platts Forward Curve Coal



Graph created using Platts Forward Curve – Coal data.

The forward curve in coal will provide nine assessments comprising two prompt months, four prompt quarters and three calendar years.

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Thin buying interest in Indian thermal coal market amid high stocks

Singapore, New Delhi—There was limited interest for imported thermal coal in the Indian market Thursday, amid ample availability of domestic coal and port stocks, sources said.

The closing of the financial year on March 31 also subdued demand for seaborne cargoes, they added.

A Singapore-based trader said many buyers had already fulfilled their requirements and would only return to the market for shipments beginning April onwards.

An India-based trader pegged the price of South African 5,500 kcal/kg NAR coal at $53/mt FOB, or around $60/mt CFR East Coast India, on Panamax vessels. However, he noted that this grade was not getting much interest apart from a couple of inquiries for April-loading cargoes.

Prices of South African coal have been falling, the trader said, and some end-users were deferring shipments.

The Singapore-based trader placed the price of South African 5,500 kcal/kg NAR coal and 6,000 kcal/kg NAR coal at $52-$53/mt FOB and $61-$62/mt FOB, respectively.

On delivered price basis, sources said offers for Panamax shipments of South African 5,500 kcal/kg NAR coal were at around $60-$61/mt CFR East Coast India and South African 6,000 kcal/kg NAR coal was at $66-$67/mt CFR on Capesize vessels.

Platts assessed the 30-60 day price of 5,500 kcal/kg NAR coal at $60.85/mt CFR India West and $61.10/mt CFR East, both up 10 cents from Wednesday.

Indonesian coal

Meanwhile, the Singapore-based trader said Supramax shipments of 4,200 kcal/kg GAR coal from East Kalimantan loading in April were being offered at $34-$34.25/mt FOB.

The India-based trader said Indian demand for low-CV coal was "pretty low" and buying interest for 4,200 kcal/kg GAR coal was at $33/mt FOB on geared vessel basis.

He added that there were many inquiries and negotiations taking place, but very few indicated firm buying interest.

Stocks at the ports and good availability of local coal reduced buying interest for imported cargoes, the trader said, adding that he was skeptical of anyone willing to take a long-term position anticipating a price rise.

"I don't see any sign of an increase in demand. It's very risky [to take a position]," he said.

The source also noted that inquiries for the mid-CV grades compared with the low-CV coal grades were relatively better.

A major Indonesian coal producer said he had received inquiries for grades between 4,400 kcal/kg GAR and 5,000 kcal/kg GAR coal, adding it had been hard to sell low-rank coal such as 4,200 kcal/kg GAR coals.

"Indian buyers are quite picky right now with the types of coal [they take]," he added, now that FOB prices and freight rates have softened.

The India-based trader pointed out that deals were also

Dark Spreads, March 19

	($/MWh)	Change	(Eur/MWh)	Change
German Dark Spreads (35% efficiency)				
Month-Ahead	8.63	-0.05	8.13	-0.03
Month-Ahead +1	7.36	-0.19	6.92	-0.17
Quarter-Ahead	8.76	-0.03	8.25	0.00
Quarter-Ahead +1	10.41	0.17	9.80	0.18
Year-Ahead	10.67	0.14	10.04	0.15
Year-Ahead + 1	9.21	0.29	8.67	0.29
Year-Ahead + 2	7.83	0.33	7.37	0.32
German Clean Dark Spreads (35% efficiency)				
Month-Ahead	1.69	0.03	1.59	0.03
Month-Ahead +1	0.41	-0.11	0.38	-0.11
Quarter-Ahead	1.81	0.05	1.71	0.05
Quarter-Ahead +1	3.47	0.25	3.26	0.24
Year-Ahead	3.64	0.21	3.43	0.21
Year-Ahead + 1	2.07	0.37	1.94	0.34
Year-Ahead + 2	0.69	0.41	0.65	0.39
UK Dark Spreads (35% efficiency)				
Month-Ahead	39.00	0.07	36.71	0.14
Month-Ahead +1	38.26	0.21	36.01	0.27
Quarter-Ahead	38.48	0.14	36.22	0.20
Quarter-Ahead +1	38.79	0.04	36.51	0.10
Season-Ahead	38.64	0.09	36.36	0.14
UK Clean Dark Spreads (35% efficiency)				
Month-Ahead	32.05	0.14	30.17	0.19
Month-Ahead +1	31.32	0.30	29.47	0.32
Quarter-Ahead	31.53	0.21	29.68	0.26
Quarter-Ahead +1	31.84	0.11	29.97	0.16
Season-Ahead	31.69	0.16	29.82	0.20
	($/MWh)	**Change**	**(GBP/MWh)**	**Change**
UK Clean Dark Spreads CPS (35% efficiency)				
Month-Ahead	6.15	0.07	4.17	0.03
Month-Ahead+1	5.41	0.22	3.67	0.13
Quarter-Ahead	5.63	0.14	3.82	0.08
Quarter-Ahead+1	5.94	0.03	4.03	0.01
Season-Ahead	5.63	0.14	3.82	0.08
UK Dark Spread (35% efficiency)*				
Dark Spread	39.00	0.07	26.48	-0.03
Clean Spread	32.05	0.14	21.76	0.03

* Uses CIF ARA 15-60 day forward basis physical price

Heat Rate (Minimum efficiency to pay fuel cost)		
	(Btu/kWh)	**(%)**
Gas, UK	12725	26.83%
Gas, Germany	4892	69.79%

Carbon-Adjusted		
	($/mt)	**Change**
CIF ARA	76.05	-0.42

Platts Daily Assessments for US Thermal Coal Exports, Mar 18

	($/mt)	Change
FOB US East Coast (6,500 NAR, 1% sulfur)	63.50	0.00
FOB USGC Eastern Coal (6,000 NAR, 3% sulfur)	47.75	-0.25
FOB USGC Western Coal (5,000 GAR, 0.5% sulfur)	47.25	0.00
FOB Canada/USWC (5,000 GAR, 0.5% sulfur)	56.75	0.00

*14-45 day basis, see methodology for further details.

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CFR ECI 6,000 NAR



Source: Platts

limited by credit problems. Power distributors were late in paying national power companies, thus delaying payments to suppliers as well, he said.

Russian coal

A south India-based end-user source said that his firm had bought a Panamax shipment of 5,700 kcal/kg GAR Russian coal for April delivery at around $63/mt CFR East Coast India.

Russian coal has low ash and volatile matter of around 37%. It is comparable to Indonesian coal in specifications and its price is attractive currently due to low freight, said sources.

The first trader said Indian buyers were evaluating Russian coal offers but said South African coal prices were down and were still more preferable than Russian material.

— Mia Corazon Aureus, Sapna Dogra

Weak China demand weighs on Indonesian thermal coal prices

Singapore—Improved availability of domestic thermal coal in India and a sluggish Chinese economy weighed on buying sentiment for Indonesian coal Thursday.

The availability of domestically produced coal in India has improved in recent days through e-auctions, said a trader in India.

There are adequate stockpiles available at Indian ports too, he said, adding there were limited deals being concluded for imported material.

"A lot of local traders are offering from stockpiles at ports," he said.

An Indonesian producer said his company was currently selling only to existing customers and no additional demand was seen.

A sluggish Chinese economy was also impacting demand, another Indonesian producer said. Chinese demand has been weak as electricity consumption has slowed, falling 10% year on year in February, he said.

Major Chinese miners were also lowering offers considerably, keeping end-users away from imported material, sources said. The market remains oversupplied, especially for lower grade coal, they said.

Offers for April-loading Supramax cargoes of 3,800 kcal/kg NAR — or 4,200 kcal/kg GAR — coal were at $34-$34.50/mt FOB.

Bids were at $35/mt FOB but on Panamaxes, the FOB prices for which are usually $1-$1.50/mt higher than Supramax shipments, an end-user in China said.

An Indonesian producer said he was offering May-loading Supramax cargoes of 4,200 kcal/kg GAR coal with 0.15%-0.2% sulfur and 5% ash at $35/mt FOB.

Dry Bulk Freight Assessments, March 19

	Freight Rate ($/mt)	Change
Capesize		
Australia-China	4.95	0.10
Queensland-Rotterdam	6.85	0.05
Queensland-Japan	4.95	0.10
New South Wales-Rotterdam	7.15	0.05
New South Wales-Korea	6.55	0.10
Bolivar-Rotterdam	4.70	-0.05
Roberts Bank-Japan	6.05	-0.10
Richards Bay-Rotterdam	3.85	-0.05
Virtual	0.30	0.85
Differential	3.55	-0.90
Panamax		
Richards Bay-India West	9.00	0.00
Kalimantan-India West	6.30	0.00
Richards Bay-India East	9.10	0.00
Kalimantan-India East	5.25	0.00
Richards Bay-Rotterdam	8.00	0.00
Richards Bay-Spanish Med	8.75	0.00
Richards Bay-Jorf Lasfar	7.00	0.00
Bolivar-Rotterdam	8.50	0.00
USEC-China	20.50	0.00
USEC-India	18.50	0.00
USEC-Rotterdam	8.00	0.00
USEC-Brazil	5.50	0.00
Mobile-Rotterdam	10.25	0.25
Mobile-Taranto	11.75	0.25
Roberts Bank-Rotterdam	14.15	-0.05
Roberts Bank-Japan	9.00	-0.05
Australia-China	8.00	-0.10
Australia-India	9.90	-0.10
Queensland-Rotterdam	12.00	-0.05
Queensland-Iskenderun	11.05	-0.05
New South Wales-Rotterdam	11.10	-0.05

Metallurgical Coke 62% CSR

	$/mt	Change	% Chg
CFR India	178.50	-0.50	-0.28
FOB North China	166.50	-0.50	-0.30
	Yuan/mt		
DDP North China (weekly)	1030.00	-5.00	-0.48

Platts Physical Thermal Coal Assessments, March 19

Daily Prompt Prices	CV (kcal/kg)	Basis	$/mt	Chg	Yuan/mt	Chg
CFR South China	5,500	NAR	58.00	0.00	356.47	-0.55
FOB Qinhuangdao	5,500	NAR	63.46	-0.22	390.00	-2.00

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Recent heards in the thermal coal market

Date	Grade of coal	Details
19-Mar-15	CFR ECI 5,700 GAR	TRADE: Russian, Panamax for April at $63/mt: Indian source
19-Mar-15	CFR S China 5,500 NAR	OFFER: April Australian 130,000 mt cargo at $58.75/mt: market source in Singapore
19-Mar-15	CFR S China 5,500 NAR	OFFER: Capesize for May at $58.50/mt: trader
19-Mar-15	CFR S China 5,500 NAR	OFFER: Capesize for May at $59/mt: trader
19-Mar-15	FOB Newcastle 5,500 NAR	OFFER: Capesize for May at $52.30-52.50/mt: trader
19-Mar-15	FOB Kalimantan 4,200 GAR	OFFER: Supramax for May, 0.15-0.2% sulfur, 5% ash at $35/mt: producer
19-Mar-15	FOB Kalimantan 4,200 GAR	OFFER: Supramax for April at $34-34.25/mt: trader
19-Mar-15	FOB Kalimantan 4,700 NAR	BID/OFFER: Panamax for April, blended at $46/mt vs $48.20/mt: end-user
19-Mar-15	FOB Kalimantan 4,700 NAR	BID/OFFER: Branded, Panamax for April at $47-47.50/mt vs $49-49.50/mt: trader
19-Mar-15	FOB Kalimantan 4,900 GAR	OFFER: Branded, Panamax for Q2 at $48/mt: trader
19-Mar-15	FOB Kalimantan 5,000 GAR	OFFER: Single mine, Supramax for April at $47-48/mt: trader
19-Mar-15	FOB Kalimantan 5,000 GAR	OFFER: Panamax for April, blended at $47-48/mt: producer
19-Mar-15	FOB Kalimantan 5,000 GAR	OFFER: Panamax for April, single-mine at $47-48/mt: producer
18-Mar-15	FOB Kalimantan 5,800 GAR	BID/OFFER: Panamax for April at $59/mt vs $62-63/mt: trader
18-Mar-15	FOB Kalimantan 5,800 GAR	TRADE: Some Panamaxes for April at around $62/mt: producer

Recent Coal Trade Transactions

Following is a table of recent international steam coal trade transactions. Date noted is the date of reported trade. Quantity in metric tons. Prices in US $/mt, unless stated otherwise.

Date	Buyer	Supplier	Tonnage	Price (mt)	Details
Steam coal					
19-Mar-15	Unknown	Unknown	50,000 mt	$57.50/mt FOB	South African coal, June
19-Mar-15	NW Europe utility-trader	Unknown	50,000 mt	$60.40/mt DES R	Multi-origin coal, April
19-Mar-15	Unknown	Unknown	25,000 mt	$59.70/mt	Australian coal, April
19-Mar-15	Unknown	Unknown	25,000 mt	$60/mt FOB	Australian coal, April
17-Mar-15	Unknown	Unknown	25,000 mt	$65.45/mt FOB	Australian coal, April
17-Mar-15	Unknown	Unknown	25,000 mt	$65.75/mt FOB	Australian coal, April
17-Mar-15	Unknown	Unknown	25,000 mt	$67.50/mt FOB	Australian coal, April
16-Mar-15	NW Europe utility-trader	Unknown	50,000 mt	$60.80/mt DES AR	Multi-origin coal, May
16-Mar-15	Unknown	Unknown	30,000 mt	$67.75/mt FOB	Australian coal, April
13-Mar-15	Unknown	Unknown	50,000 mt	$63.90/mt DES A	Multi-origin coal, April
13-Mar-15	Unknown	Unknown	25,000 mt	$67/mt FOB	Australian coal, April
12-Mar-15	Unknown	Unknown	50,000 mt	$62/mt FOB (EFP)	South African coal, May

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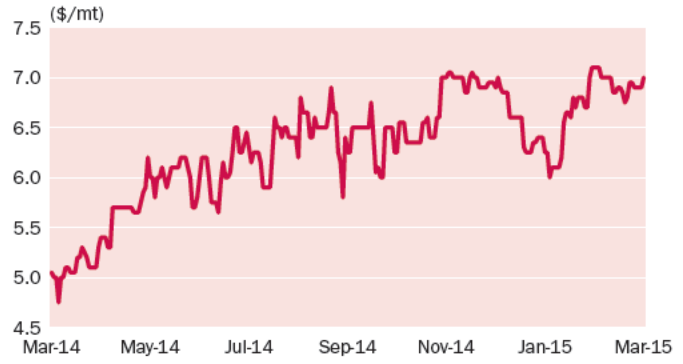
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Spread between FOB Kalimantan 4,200 GAR and 3,800 GAR YTD



Source: Platts

"With the expected increase in Chinese hydropower output from late April onwards, demand is likely to remain subdued," he said. However, he believed prices had bottomed and further downside was unlikely.

Indians preferring mid-CV coal

A major Indonesian coal producer said sellers were also willing to hold on to their cargoes rather than sell at a loss.

Supply of good quality single mine medium-grade coal was tight, the end-user in China said, adding offers for April-loading Supramax cargoes of blended 4,700 kcal/kg NAR — or 5,000 kcal/kg GAR — coal were at $48.20/mt FOB, while bids were at $46/mt FOB.

The second Indonesian producer said offers for April-loading Panamax cargoes of blended 5,000 kcal/kg GAR coal were at $47-$48/mt FOB.

Indian buying was currently skewed towards medium-grade coal on increased demand from some state-run power plants, he said.

Platts assessed the daily 90-day prices for FOB Kalimantan 5,000 kcal/kg GAR coal at $48/mt and FOB Kalimantan 5,900 kcal/kg GAR coal at $60.50/mt, both stable on the day.

The price of FOB Kalimantan 4,200 kcal/kg GAR coal was assessed at $34/mt, up 10 cents/mt day on day and FOB Kalimantan 3,800 kcal/kg GAR at $27/mt, unchanged from Wednesday.

— Arusha Das, Mia Corazon Aureus

S Korea Feb thermal coal imports up 12% on-month to 8.32 million mt

London—A significant increase in Australian shipments helped lift South Korea's February thermal coal imports to 8.32 million mt, up 12% on-month and 13% higher on-year, according to customs data Thursday.

The total was split between 7.21 million mt of bituminous coal and 503,175 mt of sub-bituminous material.

Platts Daily Metallurgical Coal Assessments, March 19

Asia-Pacific Coking Coal ($/mt)

	FOB Australia	CFR China	CFR India	Change Australia	Change China	Change India
HCC Peak Downs Region	101.75	109.75	111.65	+0.10	0.00	0.00
Premium Low Vol	**100.50**	**108.50**	**110.40**	**+0.10**	**0.00**	**0.00**
HCC 64 Mid Vol	**91.25**	**99.25**	**101.15**	**-0.15**	**-0.25**	**-0.25**
Low Vol PCI	90.00	98.00	99.90	+0.10	0.00	0.00
Low Vol 12 Ash PCI	84.50	92.50	94.40	+0.60	+0.50	+0.50
Semi Soft	76.50	84.50	86.40	-0.40	-0.50	-0.50
Met Coke	-	-	178.50	-	-	-0.50

North China Prompt Port Stock Prices

	Ex-stock Jingtang (Yuan/mt, incl VAT)	CFR Jingtang equivalent ($/mt)**
Premium Low Vol*	860.00	111.00
HCC 64 Mid Vol*	810.00	104.26

*weekly (assessed March 13), 20-day delivery from date.
:**ex-stock price, net of port charges, import tax and VAT

Atlantic Coking Coal ($/mt)

	FOB US East Coast	Change	VM	Ash	S
Low Vol HCC	107.000	-2.000	19%	8%	0.80%
High Vol A	109.000	-1.000	32%	7%	0.85%
High Vol B	102.500	-2.000	34%	8%	0.95%

Detailed methodology and specifications are found here: http://platts.com/IM.Platts.Content/MethodologyReferences/MethodologySpecs/metcoalmethod.pdf

HCC Assessed Specifications

	CSR	VM	Ash	S	P	TM	Fluidity
Premium Low Vol	71%	21.5%	9.3%	0.50%	0.045%	9.7%	500
HCC Peak Downs Region	74%	20.7%	10.5%	0.60%	0.030%	9.5%	400
HCC 64 Mid Vol	64%	25.5%	9.0%	0.60%	0.050%	9.5%	1,700

Penalties & Premia: Differentials ($/mt)

	Within Min-Max	% of Premium Low Vol FOB Australia assessment price	Net Value ($/mt)
Per 1% CSR	60-71%	0.50%	0.50
Per 1% VM (air dried)	18-27%	0.50%	0.50
Per 1% TM (as received)	8-11%	1.00%	1.01
Per 1% Ash (air dried)	7-10.5%	1.25%	1.26
Per 0.1%S (air dried)	0.3-1%	1.00%	1.01

US low-vol HCC Penalties & Premia; Differentials ($/mt)

	Within Min-Max	% of US low-vol HCC FOB USEC assessment price	Net value ($/mt)
Per 1% CSR	50-64%	0.50%	0.54
	40-49%	0.25%	0.27
Per 0.1% S	0.70-1.05%	0.75%	0.80
	1.06-1.25%	1.25%	1.34
Per 1% TM (as received)	6-11%	1.00%	1.07
Per 1% Ash	5-10%	1.25%	1.34

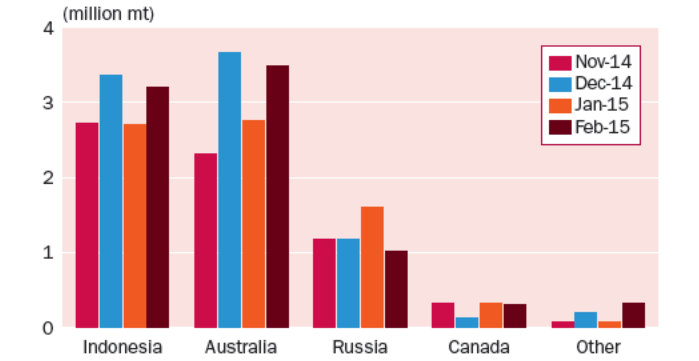
The assessed price of HCC Peak Downs® originates with Platts and is based on price information for a range of HCCs with a CSR> 67% normalized to the standard of HCC Peak Downs® (CSR 74%). Peak Downs® is a registered trade mark of BM Alliance Coal Operations Pty Limited "BMA". This price assessment is not affiliated with or sponsored by BMA in any way.

Coking coal swaps assessment, March 19

Platts Premium Low Vol FOB Australia	$/mt	Change	% Chg
Apr 15	99.000	-0.75	-0.75
May 15	98.250	-0.75	-0.76
Jun 15	96.750	-0.75	-0.75
Q2 2015	97.750	-0.75	-0.76
Q3 2015	97.750	-0.75	-0.76
Q4 2015	97.500	-1.00	-1.00
2016	99.000	-0.25	-0.25

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South Korea thermal coal imports by origin



Source: BTS Ltd

Thermal volumes delivered from Australia in February rose 26% month on month to 3.48 million mt, but down 3% year on year.

A weakening of the Chinese market for imported thermal coal recently has caused shippers of Australian coal to look to place their product in other Asia-Pacific regions.

South Korea's receipts of Indonesian thermal coal rose 18% month on month to 3.21 million mt, which was 9% higher year on year.

In the first two months of 2015, South Korea imported 15.77 million mt of thermal coal, little changed year on year.

— Gareth Carpenter

Stocks held by six Chinese power generators down 0.7% on-week

Hunan, China—Combined coal stocks held by six major power generation companies in eastern and southern China averaged 13.557 million mt in the week ended Tuesday, down 0.7% on the week, Qinhuangdao Port said in a weekly report Thursday.

Based on the current rate of coal burn, the stocks held by Zhejiang Power, Shanghai Power, Guangdong Power (Yudean), Guodian, Datang and Huaneng will be able to meet an average 22.93 days of consumption, down 4.92 days week on week, the report said.

The six utilities consumed a combined 4.139 million mt of coal, averaging 591,400 mt/day, in the week to Tuesday, up 19.9% on-week.

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Zhejiang Power, Shanghai Power and Guangdong Power are regional power generation companies while the other three are national power generation companies.

— Reggie Le

Latest CIF ARA thermal coal selloff 'overdone': SocGen

London—The latest decline in Europe-delivered CIF ARA thermal coal derivatives prices is overdone and current year-ahead price levels are too low to appropriately reflect the supply-demand balance, according to a research note issued by Societe Generale.

However, while pinning the hopes for a price recovery on a China- and India-led material increase in demand may be legitimate in the long term, in the short to medium term, the situation will not improve enough to sustain higher coal prices, the French investment bank said late Wednesday.

Year-ahead CIF ARA prices broke through the $80/mt threshold in the third quarter of 2014 and have since hit lows not seen since Platts started financial coal assessments in 2007.

SocGen said that while the principal driver of the decrease in coal prices was weak fundamentals, "current prices also seem to reflect new global dynamics whereby a mix of low oil prices, a strong dollar and weak EM currencies, low growth and deflation pose as large a threat to coal prices as the current physical oversupply does."

It added that China was continuing to introduce new policies and legislation calling for lower coal consumption and the country's coal imports decreased year on year in 2014 for the first time in many years.

Meanwhile, the publication of the Modi government's first budget in India was pragmatic rather than reform-oriented and as a result, successful implementation of the budget ideas would likely propel India to a sustainable growth path in the longer term while the short-term situation "remains a worry," SocGen said.

SocGen left its CIF ARA 2016 thermal coal price forecast unchanged at $72.10/mt. At Wednesday's market close, Platts assessed the CIF ARA Cal-16 swap at $58.25/mt, just above its record low close of $57.60/mt of earlier this week.

— Gareth Carpenter

Adani faces fresh legal challenge in Queensland's Carmichael project

Brisbane—Indian trading and logistics company Adani is facing yet another legal challenge in its effort to develop a mega-mine in Queensland's coal-rich Galilee Basin, this time over environmental rules.

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The Mackay Conservation Group, which is opposing Adani's 60 million mt/year Carmichael thermal coal project, has launched new court proceedings claiming a July 2014 Australian government approval for the mine was a "major breach of its own environmental regulations," MCG coordinator Ellen Roberts said Thursday.

MCG began court proceedings in January against federal environment minister Greg Hunt's approval of the Carmichael project on the grounds that it did not consider the environmental impact of potential greenhouse gas emissions from coal produced from the mine.

This week, however, MCG changed its appeal to address Adani's track record on environmental issues at some of its projects in India.

Before the Carmichael mine was approved, environmental group Greenpeace said Adani had been taken to court a number of times in India relating to the operation of a power plant in Gujarat.

Roberts said Adani had a history of clearing mangroves and interfering with the tidal operations of creeks near its Indian projects.

Adani did not respond to requests for a comment Thursday, but in its response to the January court action initiated by MCG, it said it had undertaken a three-year environmental assessment study for the Carmichael mine and asked all parties to make submissions during the period.

"This legal challenge initiated by Mackay Conservation Group, and funded by GetUp, is an act designed to frustrate progress on an approved project and reflects dissatisfaction with the minister's decision rather than a genuine concern in regards to the assessment process," Adani said at the time.

Hunt said that he was aware of concerns around some Adani projects outside Australia, but that he was satisfied the company had complied with all environmental requirements for the Carmichael mine.

The federal court will hear the case over August 10-11 in Sydney.

— Angie Kay

Ukraine coal reserves at power plants down 36.1% on month

Kiev—Coal reserves at Ukraine's coal-burning power plants as of March 17 fell 535,000 mt, or 36.1%, to 949,000 mt from 1.484 million mt February 16, grid operator UkrEnergo said Thursday.

The power plants also had 110,050 mt of fuel oil in stocks as of March 17, down from 110,330 mt February 16, UkrEnergo said.

UkrEnergo regularly reports on fuel oil stocks with coal stocks because some Ukrainian power plants use fuel oil to initiate the burning of coal.

Coal stocks fell as fossil-fuel burning power plants produced more power to meet increased demand from domestic consumers over the past month due to a scheduled repair of a nuclear power reactor.

Ukraine's nuclear power producer EnergoAtom shut down the 1,000 MW reactor No.5 at Zaporizhia NPP February 26, while the same day restarting the smaller 440 MW reactor No.1 at Rivne NPP.

Ukraine's overall power consumption fell to 21,550 MW as of March 17, down from 22,700 MW February 16, according to UkrEnergo.

As of March 17, the country's nuclear power plants operated at 9,897 MW, down from 11,023 MW a month ago. Fossil fuel-burning power plants operated at 9,551 MW, down from 9,747 MW. Hydropower plants operated at 2,919 MW, up from 2,640 MW, with wind-powered plants at 286 MW, up from 270 MW, the company said.

Ukraine has been facing coal shortages since June 2014 as a result of its armed conflict with pro-Russian separatist groups in Donetsk and Luhansk, the country's main coal-producing regions.

In January through February, Ukraine's coal extraction fell 54.5% year on year to 6.35 million mt.

In 2014, Ukraine's coal output fell 22.3% year on year to about 65 million mt, according to the energy and coal industry ministry.

— Alexander Bor

Anglo American signs Q2 coking coal at $109.50/mt; all eyes on PCI

Singapore—Anglo American has become the latest major metallurgical coal producer to agree to a Q2 term price of $109.50/mt FOB with Japanese steelmakers this week, market sources said, effectively sealing this price as a coking coal benchmark reference for other miners to follow.

The price is $7.50/mt lower than the Q1 2015 Asian benchmark of $117/mt FOB.

A spokeswoman for Anglo American, in Brisbane, would not comment on pricing issues.

There had been some doubt as to whether Anglo American would follow the same price level, given the unclear circumstances of the first few settlements by Rio Tinto and Peabody, and given the fact that Anglo American's initial offer had been substantially higher, at $116/mt.

A number of market participants believe that Rio Tinto and Peabody followed a spot deal agreed between BHP Billiton and Nippon Steel & Sumitomo Metal Corporation, rather than a price reflecting substantial contracted volumes.

Platts was unable to fully verify this version of events.

The attention will now turn to PCI contract talks, which are expected to be agreed between Peabody and South Korean steel producer Posco before the end of the week.

For Q1 2015, Peabody's prestigious Coppabella low-vol

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PCI had been agreed at $99/mt, and mid-vol PCI brand Century at $88/mt, both numbers unchanged from the fourth quarter of 2014.

In Q1, PCI was priced at 84.6% of the premium HCC benchmark. Assuming this spread holds this coming quarter, Q2 PCI can be predicted to settle at $92.60/mt FOB.

— Julien Hall

Asia met coal market broadly stable, Chinese demand still slack

Singapore—The Asia metallurgical coal market traded broadly stable on slack Chinese demand Thursday, though supply for certain categories appeared to be facing some tightness.

Premium low-vol hard coking coal was unchanged day on day at $108.50/mt CFR China Thursday. This equated to $100.50/mt FOB Australia netting back with Panamax freight. Prices for second-tier, mid-vol HCC fell 25 cents day on day to $99.50/mt CFR China.

Overall market sentiment was dampened by expectations of further falls in local Chinese coal prices. But some buying interest was seen from steelmakers in East China. Two such end-users were heard actively scouring for premium and tier-two hard coking coal shipments.

This follows increased spot trading seen daily since late last week. "The price trend has certainly been downwards, but there's still some latent demand," an Australia-based mining source said, adding that some participants were expecting domestic coal prices to be nearing a bottom. Certain coal segments like mid-tier HCC were also suffering from a relative lack of supply, said a large East China-based steelmaker.

An offer was heard for a Capesize cargo of Rangal-type 61-63% CSR HCC, with prompt laycan, at $109/mt CFR China.

In the PCI segment, a deal was heard done Thursday for a half-Capesize shipment of Australian PCI with 19-21% VM and 9-10% ash, for end-April, at $93/mt CFR China.

Meanwhile, Chinese export metallurgical coke price saw a slight decline on oversupply of cargoes and absence of Japanese demand for April laycans.

Platts assessed Chinese 62% CSR and 12.5% ash coke 50 cents lower day on day at $166.50/mt FOB Tianjin.

Spot trade into Vietnam

A spot trade was heard done into Vietnam in the last two days for a 62/60% CSR coke cargo of 10,000 mt, with an end-March laycan at $166/mt FOB Tiajin. The small volume and uncommon trade route means that a premium is imposed on the buyer, one trader said.

Meanwhile, at least two tenders seeking Chinese coke were expected to be awarded. The first is a tender from a Malaysian end-user for a 35,000-mt cargo of 62/60% CSR, 12% ash, 25-90 mm material for early April.

Several traders were heard taking part, with the top three most competitive offers now under consideration. While one source was heard offering at $168-$169/mt FOB, another trading source said the lowest offers were at $160-$163/mt FOB Tianjin.

Another ongoing tender, which ends March 25, was for three 30,000-mt shipments of minimum 65% CSR coke by a state-owned Indian steelmaker.

However, sources said that certain restrictive conditions such as mandatory discharge port analysis and low phosphorous requirement might limit the number of offers submitted.

There would likely be minimal Japanese demand for coke this month on steel output cuts and sufficient coke stocks, two Japanese sources said Friday.

"The continued weak Chinese steel pricing is hitting Japanese prices," one trader said. "There won't be any buying for April."

— Julien Hall, Edwin Yeo, Kenneth Foo

CCI 1, CCI 8 thermal coal prices fall to fresh record lows...*from page 1*

lowest price of Yuan 469/mt FOB Qinhuangdao that it touched on two previous occasions — March 6 this year, and on August 20, 2014.

The Platts/Fenwei CCI 8 price assessment for 5,500 kcal/kg NAR calorific value imported thermal coal delivered to ports in southern China such as Fangcheng and Guangzhou also broke fresh lows Thursday, when it was assessed at $58.40/mt CFR South China.

This was down 10 cents from Wednesday's CCI 8 price assessment at $58.50/mt CFR and also its previous lowest point since Platts and Fenwei Energy started this joint price assessment in October 2013.

This delivered price becomes $61.90/mt CFR South China for Australian thermal coal — the dominant origin for the delivered China market — with the addition of China's 6% import tax.

Import tax is supposed to be paid by importers on the delivered CFR price of imported Australian cargoes, though its $3.50/mt cost has been pushed back to Australian coal shippers, and has contributed to depressed FOB prices at Newcastle port.

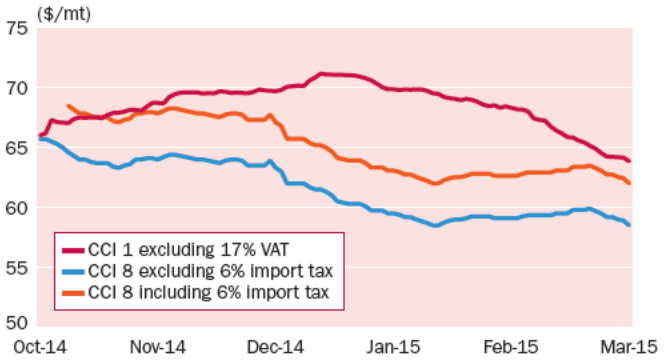
The tariff has the effect of narrowing the arbitrage between CFR South China and FOB Qinhuangdao 5,500 kcal/kg NAR prices to only $1.55/mt before port charges for Australian cargoes and excluding coastal freight costs for domestic coal, according to Platts calculations.

Dwindling import business

A number of Chinese importers are considering their futures in the traded market for imported thermal coal, and are instead looking to build up their business in the domestic coal market.

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CCI1 ex-VAT & CCI8 prices



Source: Platts

"We have plans to expand our domestic coal businesses in light of the dwindling overseas businesses," a Beijing-based trader said.

"Fast-slipping domestic coal prices have basically barred imported coal," he said.

At north China's hub for trading domestic thermal coal, prices edged lower on continued aggressive price cutting by Chinese coal producers trying to win market share off each other.

Shanxi 5,500 kcal/kg NAR coal traded at Yuan 455-Yuan 460/mt FOB Qinhuangdao and an offer for a cargo of this grade with 0.8% sulfur was heard offered at Yuan 450/mt, said market sources in China.

For 5,000 kcal/kg NAR material at this port, Shanxi coal was heard to trade at Yuan 380-Yuan 385/mt FOB, and bids are becoming scarce, said market sources.

Suppliers of Australian coal seem to have remained optimistic about a recovery in the Chinese market and offers for Q2-delivery cargoes of 5,500 kcal/kg NAR thermal coal remain at $52.50/mt FOB Newcastle.

"They [Australian suppliers] will eventually come back to reality about the Chinese market, once the contract talks between Australia and Japan conclude this week or next week," a Singapore-based trader said.

A May-loading FOB Newcastle cargo of this grade was heard offered at $51.50/mt to very few bids from China, and CFR South China offer prices were heard at $58-$58.50/mt to buying interest at only $57/mt, said several sources.

A Beijing-based trader was offered an April-loading, 4,700 kcal/kg NAR thermal coal at $49.50/mt FOB but buying interest remained weak at $47-$47.50/mt FOB, and $52/mt CFR South China basis.

At the close of Asia trade, the Platts/Fenwei CCI 2 price was assessed at Yuan 387/mt, down Yuan 2 on day, and the CCI 7 price for imported 4,700 kcal/kg NAR thermal coal was assessed at $52.50/mt, 15 cents lower on the day.

Platts assessed the FOB price of Newcastle 5,500 kcal/kg NAR thermal coal with typical ash of 20% at $52.25/mt, steady day on day.

— Mike Cooper, Mia Corazon Aureus, Reggie Le

CIF ARA thermal market dips, utility buying maintains backwardation...*from page 1*

trade represented a $1.75/mt premium to financial derivative levels.

Earlier this week, spot DES ARA cargoes have been commanding index-linked premiums of up to $2.25/mt, raising eyebrows in a market that has fallen around $3 in seven days.

One utility trading source said that some European generators may have overestimated how much they could reduce their stockpiles by in the first quarter and were now getting caught out in their attempts to replenish.

"It's almost like a seasonal factor — people have [understood] that we are on a downward trend so they've tried to lower inventories a little bit toward the end of Q1, then find they're having to pay up if they over-calculated," he commented.

Sources said that the impending hike in the UK's Carbon Price Support mechanism was also fuelling spot buying. Some players were heard looking for coal that would arrive in ARA by March 20 in order to transport it to their plants before the increased tax rate applies on April 1.

"I expect we'll start to see the heat go out of this dynamic over the next couple of days," one trading source said.

While one trader said that thermal sales for cargoes discharging directly in the UK were commanding very attractive premiums, another said that some utilities had sold off their very prompt March cargoes to take advantage of this arbitrage and were then buying back cargoes for delivery in April or May.

Buyers' and sellers' differing price ideas for spot cargoes continued on the whole to thwart trading activity, with sources saying that while buyers were posting competitive bids in a market that has been in a downtrend recently, sellers were for the most part not keen to show available tonnage.

Richards Bay 6,000 NAR breaks dry run

The South African 6,000 kcal/kg NAR market finally broke its recent dry run which stretches back to March 12, trading lower.

A June 50,000 mt parcel traded at $57.50/mt late in the session on globalCOAL, 75 cents down on the day's most competitive bid posted earlier.

Sources said that falling coal quality at many South African mines had severely tightened the availability of 6,000 kcal/kg NAR coal. One source said availability of cargoes of a 5,700 kcal/kg NAR South African product were slowly increasing.

Platts assessed the price of Richards Bay thermal coal basis 6,000 kcal/kg NAR and for loading within the next 7-45 days at $60.10/mt, down $1.10.

Traded levels of prompt Australian Newcastle 6,000 kcal/kg NAR coal on the globalCOAL screen continued to slide down Thursday, with the April contract breaching

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the $60/mt barrier, having transacted higher than $70/mt little more than two weeks ago.

Two April 25,000 mt cargoes went through at $60/mt and $59.70/mt while a same-sized June parcel was done at $56/mt, all on screen.

One source said that the rapid decline in Newcastle front-end pricing was likely connected to the rumored conclusion of annual FY2015-2016 thermal coal contract talks between Australian producers and Japanese utilities.

Platts assessed the Newcastle 6,300 kcal/kg GAR price at $59.50/mt, down 90 cents on the day.

— Gareth Carpenter

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PETCOKE SUPPLEMENT

Thursday, March 19, 2015

Few USGC petcoke spot deals as downward pressures continue

Orlando, Florida—Participants at a major US petcoke conference this week in Florida reported fewer spot deals in the market than they would have expected for this time of year.

Prices have held steady despite downward pressures, said conference attendees gathered in Orlando, Florida, for the annual Jacobs Consultancy Petcoke Conference

"The price should be $10 less from my perspective," said one Italian fuel buyer. "I think in the next month it will come down."

Freight prices continue to rise gradually while CIF ARA thermal coal prices came down to $60.65/mt, helping to create downward pressure on spot petcoke prices. However, both buyers and sellers were surprised at the lack of action.

"Traders are doing everything they can to bring the market down," a refining source said. "To me, because of the nature of the product, I would much rather it got down fast."

The refiner reported a 50,000 mt high-sulfur cargo sold at $51.75/mt from the USGC to Mexico for early May loading.

There were fewer spot cargoes than expected during the first quarter, a second USGC refining source said.

"People were expecting more volume to be out there for purchase," he said. "We've done some maintenance activities that were planned. We haven't had as many spot cargoes."

Europe high-sulfur market inactive: trader

A European trader agreed, saying he had not heard that any cargoes were available, but he also noted that he had not heard anyone asking for cargoes either.

"Europe is not active in the high-sulfur market," he said.

Based on the reported deal and other reported market interest, Platts assessed 6% and greater sulfur petcoke FOB USGC at $50-$53/mt, up $2 on the lower leg and unchanged on the higher leg.

The spread between mid- and high-sulfur petcoke out of the USGC also continued narrowing as refineries that would typically make higher sulfur petcoke have been moving into more mid-sulfur blends. Lighter, Canadian crudes are continuing to be an increasing part of the mix and flooding the mid-sulfur market, the refining source said.

"Mid-sulfur has collapsed down on the high sulfur price," the refining source said. "It used to be a $10 spread — now it's $5-$6."

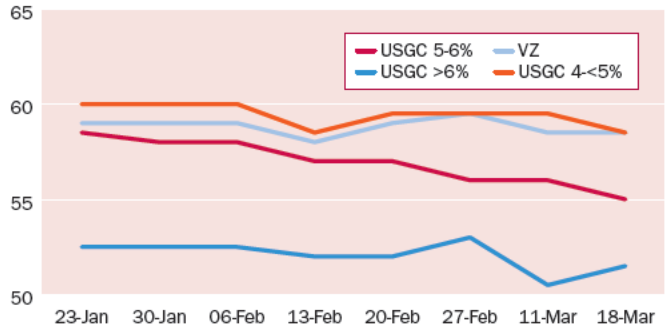
Platts assessed 4%-5% sulfur petcoke at $57-$60/mt, down $1 on each leg from last week's assessment, and assessed 5%-6% sulfur at $54-$56/mt, also down $1 on each leg, as

Platts weekly spot price petcoke assessments

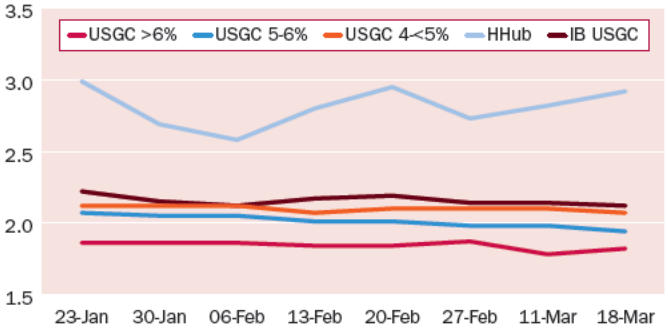
Origin	Sulfur	Platts symbol	$/mt
Americas			
FOB US Gulf Coast	>6%	CPAAA00	50.00–53.00
FOB US Gulf Coast	5% – 6%	CPAGF00	54.00–56.00
FOB US Gulf Coast	4% – <5%	CPAAF00	57.00–60.00
FOB Venezuela	4%	CPAAD00	57.00–60.00
FOB US West Coast	>=2.5%	CPAAC00	65.00–82.00
FOB US West Coast	<2.5%	CPAGG00	92.00–102.00
International			
CIF Turkey	5%	CPAGH00	75.50
CFR India West	6.5%	CPAGJ00	75.00
CFR India East	6.5%	CPAGK00	76.00

Source: Platts

Gulf of Mexico weekly petcoke assessments ($/mt)



USGC fuel price comparison ($/MMBtu)



USGC fuel comparison

	CV kcal/kg	Platts symbol	$/mt
Coal			
Illinois Basin FOB USGC	6000 NAR	CSDAB00	47.75
Natural gas			
		Platts symbol	**$/MMBtu**
NYMEX Henry Hub		HHHM001	2.92

the spread narrowed further between high and mid-sulfur petcoke out of the USGC.

In Venezuela, there were no reported deals. Despite the country's efforts to offload petcoke to bring in revenues for the cash-strapped government, the country's troubles have gotten "slightly worse," the USGC refining source said.

Platts assessed 4% sulfur petcoke out of Venezuela at $57-$60/mt, unchanged from the previous week.

USWC petcoke volumes down

In the West, the supply of low-sulfur petcoke continued to be stressed despite news Monday that a tentative agreement had been reached with the United Steelworkers that could end a walkout at the Tesoro Golden Eagle Refinery in Martinez, California.

Supplies of less than 2.5% sulfur petcoke had been cut by as much as 75% by the walkout and an explosion that slowed production indefinitely at ExxonMobil's Torrance facility, near Los Angeles, industry sources have said.

The situation led to what a European trader said was a "panic for end users on low sulfur petcoke."

The trader said he might be able to purchase a cargo at $96-$97/mt.

The shortage of low-sulfur petcoke led to two deals reported last week for 1.75% maximum sulfur petcoke, the first a shipment of 30,000 mt for $97.50/mt and the second trade for $107/mt.

In total, the tender received three bids above $105/mt, two between $100-$105/mt and two between $90-$100/mt, a refining source said this week.

"It was the market at the time," said a different refining source familiar with the transaction. "It's going to go back to more typical now that this is all flattened out."

Platts assessed the less than 2.5% sulfur petcoke off the USWC at $92-$102/mt, up $7 on the lower leg and $10 on the higher leg, based on the newly reported bids and a survey of industry sources, and assessed greater than 2.5% sulfur at $65-$82/mt, down $7 on the lower leg and up $7 on the higher leg. The lower end of the range reflects petcoke with sulfur as high as 6.5%.

— Jeffrey McDonald

Indian petcoke buyers' low price expectations deter deals

New Delhi—An impasse between buyers and sellers is deterring activity in the Indian imported fuel-grade petcoke market due to the yawning gap between their respective price expectations, sources said this week.

Platts assessed the weekly 30-60 day prices of fuel-grade petcoke with 6.5% sulfur at $76/mt CFR India East and $75/mt CFR India West, both unchanged from last week.

A south India-based trading source said that about a fortnight ago, he had sold a prompt Supramax shipment of

Europe fuel price comparison

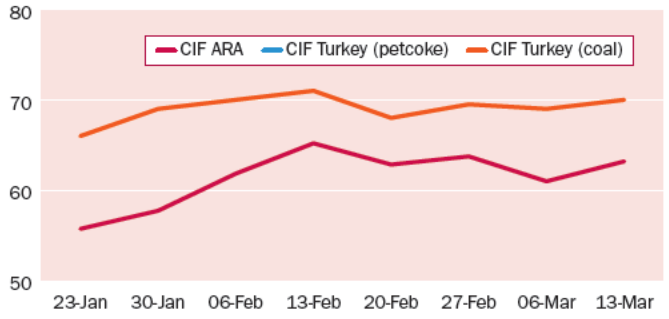
	Type	CV kcal/kg	Platts symbol	$/mt
CIF Turkey	Petcoke (cv-adjusted)*	6000 NAR	CPAGL00	60.40
CIF Turkey	Coal	6000 NAR	CTCMT04	70.00
CIF ARA	Coal	6000 NAR	CSARM01	60.65

*Mid-sulfur (5.5%) 7,500 kcal/kg NAR petcoke adjusted to a 6,000 kcal/kg NAR pricing basis

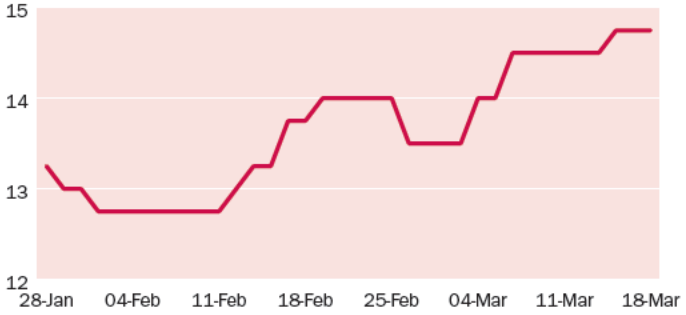
Shipping

	Cargo Size (kt)	Platts symbol	$/mt
USGC Houston to Aliaga, Turkey	50	CIPHT00	14.75

Europe fuel price comparison ($/mt)



Shipping rate: Supramax USGC Houston to Aliaga, Turkey ($/mt)



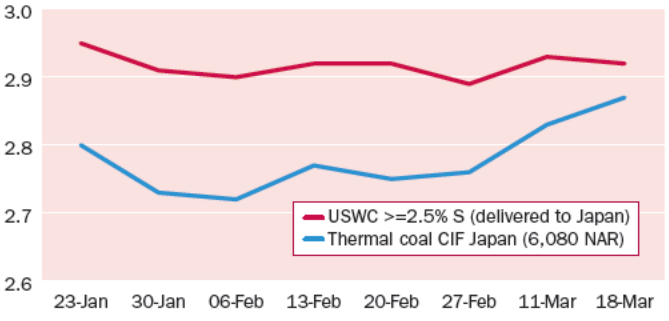
Pacific fuel price comparison

	Type	CV kcal/kg	Platts symbol	$/mt
CIF Japan	Coal	6080 NAR	CSAGD00	65.50
US West Coast \>=2.5% Sulfur	Petcoke	7600 NAR	CPAAC00	73.50

Shipping

	Cargo Size (kt)	Platts symbol	$/mt
Roberts Bank-Japan	70	CDRBK00	9.05

Pacific fuel price comparison ($/MMBtu)



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US petcoke with 6%-7% sulfur at $79.40/mt CFR west coast on a two-port discharge basis. The vessel is currently on its way, he said.

He added that offers were in the range of $79-$80/mt CFR but buyers' expectations were in the low $70s/mt CFR.

"But deals in the low $70s/mt CFR are possible only in dreams," he said.

A north India-based trader said he had offered a Panamax cargo of US Gulf petcoke with 6.5% sulfur at $78/mt CFR west coast for end-April loading.

He said that he expected to close the deal next week though he too agreed that buyers were aiming for very low numbers.

Lower crude prices affecting petcoke

Since crude oil prices are falling, Indian buyers' price expectations are still low, he said.

There was a bid from an Indian buyer at $75/mt CFR east coast for a Panamax cargo of US Gulf petcoke with 6%-7% sulfur, but he said he doubted whether a deal could be done at that price.

However, an end-user in Northern India said there were offers at $75/mt CFR, which were negotiable.

He said the FOB price was around $53/mt and the freight rate was at around $22-23/mt from the US Gulf to India, adding that offer prices of $78-$79/mt CFR were too high.

Another north India-based end-user said he had received offers at around $75-$77/mt CFR but he was not keen to buy imported petcoke due to congestion and logistics constraints on the east coast of India.

A west India-based end-user said there were offers in the range of $75-$77/mt CFR but buyers were looking at $72-$74/mt CFR.

The source declined to share the details of a shipment of US Gulf petcoke with 6.5% sulfur that he had recently bought but said there were plenty of offers and many cement companies were showing buying interest.

The first trader from south India agreed that there was ample supply and believed a "realistic price" was in the high $70s/mt CFR, adding that "India had become the largest importer of fuel grade petcoke in the world."

Last year, India imported 4.28 million mt of non-calcined US petcoke, up 74% on the previous year, according to Census Burea data.

Saudi petcoke deal reported

Meanwhile, sources said that a Supramax shipment of petcoke with more than 8% sulfur from Jubail in Saudi Arabia was bought by an Indian cement company for March loading and for delivery to east coast India.

However, the price and other details were not immediately available.

The first trader said that Saudi petcoke offers were at around $67/mt CFR Supramax basis, which are negotiable by up to 50 cents, but end-users in India are expecting prices of $65-$66/mt CFR for this material.

— Sapna Dogra

Delivered Turkey mid-sulfur petcoke prices stable amid quiet market

London—Prices for mid-sulfur (4%-5.5% sulfur content dry basis) fuel-grade petroleum coke in Turkey were unchanged last week, following most market participants being away at an industry conference, sources said.

Platts assessed the CIF Turkey mid-sulfur 4%-5.5% sulfur content at $75.50/mt, stable week on week.

Turkish market sources said it was a quiet week, with a Turkish cement company source noting that there was a lack of offers due to most participants still being away from the market after the industry gathering, which took place at the end of last week.

A European trader who attended the industry conference said there was a market consensus that petcoke price direction was bearish, a conclusion that both buyers and sellers of petcoke shared.

He said that despite freight rates slowly rising, there is an opinion in the market that the FOB prices should absorb the rise and sellers will offer lower prices.

"If India can pressure the market into selling at a lower level, even if it is for high sulfur material, then why can't Turkey [do the same]?" he said.

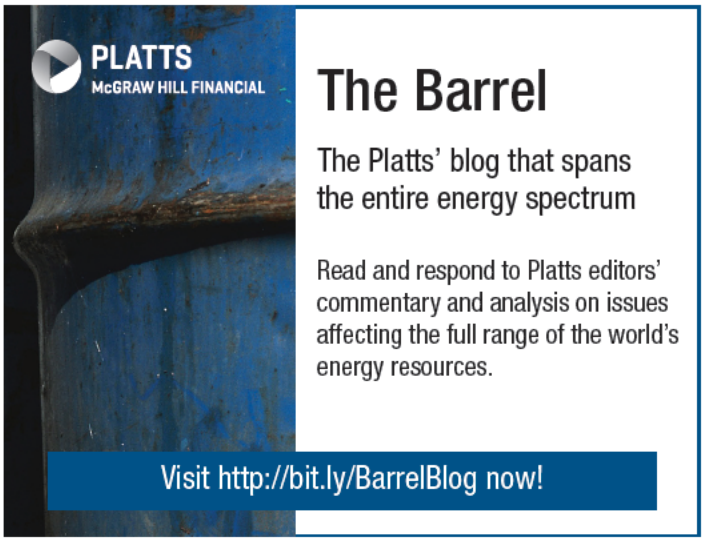
The trader said Venezuelan cargoes were continuing to load with no issues, which allowed mid-sulfur petcoke prices to remain stable.

However he noted that many participants continued to be wary of disruptions in shipments from the South American country.

Expectation of downward trend

A Turkish procurement manager said mid-sulfur petcoke had consolidated at around the $75/mt CIF level for several weeks, but he expected a downward trend to emerge due to the continued strength in the US dollar.

The Turkish Lira-US dollar exchange rate has dropped



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REFINING ECONOMICS

over 10% since the start of the year, closing at $0.38290 at 1700 London time Tuesday.

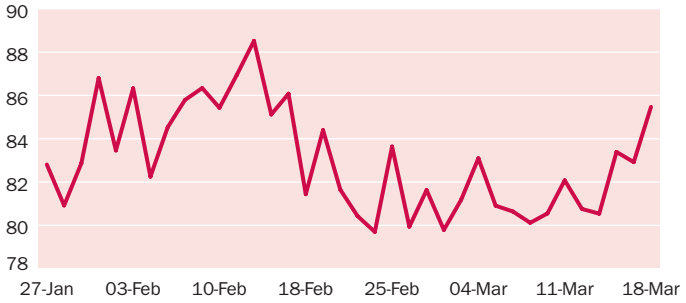
Shipping sources said that there is still a "Turkey-shaped hole" in the market, as demand for petcoke at the start of 2015 has been lackluster.

The rise in freight rate prices in the Houston-Aliaga route was due to delays in Houston due to fog recently, meaning charterers had to find spot replacement ships, shipping sources said.

Platts assessed the Houston-to-Aliaga, Turkey, petcoke route, basis 50,000 mt, at $14.75/mt Tuesday, 25 cents higher week on week.

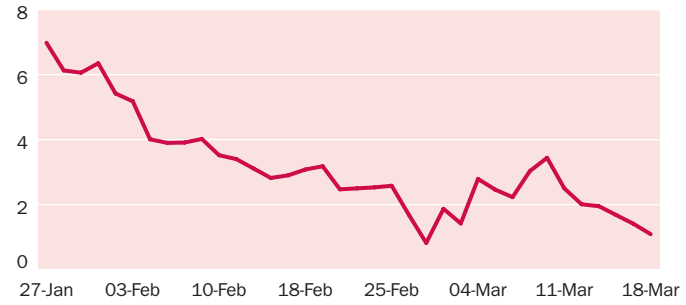
— Jaime Concha

Fuel oil No. 6 (3% Sulfur) USGC vs. Dated Brent spread (%)



Source: Platts

Light vs heavy (Maya) spread ($/barrel)



Source: Platts

USGC crude differentials rise on wider spreads, Motiva labor dispute

Houston—Cash differentials for offshore US Gulf Coast crude benchmarks Light Louisiana Sweet and Mars Wednesday reached their highest points in over a year on a wider NYMEX crude/ICE Brent spread and news that Shell Motiva's refinery workers would vote on a new labor agreement this week.

April Light Louisiana Sweet — the Gulf Coast light sweet crude benchmark — increased by $1.50/b to be assessed at WTI plus $8.10/b, after last trading at WTI plus $8/b. It was

Platts North America refinery maintenance

Refinery	Capacity (barrels/day)	Owner	Country	Start date	End date	Event
PADD 3						
Pasadena	106,000	Petrobras	US	7-Sep-14	8-Sep-15	MT
Chalmette	200,700	MULTIPLE	US	15-Dec-14	NA	MT
Alliance	260,000	Phillips 6	US	3-Jan-15	NA	MT
Galveston Bay	451,000	MULTIPLE	US	13-Jan-15	NA	MT
Borger	146,000	MULTIPLE	US	15-Mar-15	27-Mar-15	MT
Lake Charles	239,000	Phillips 6	US	17-Mar-15	NA	MT
Deer Park	340,000	MULTIPLE	US	1-Feb-15	NA	LB
Houston	90,000	Valero	US	1-Jan-14	31-May-15	EX
Port Arthur	290,000	Valero	US	1-Jan-15	1-Sep-15	EX
Mckee	168,000	Valero	US	1-Jun-15	1-Jun-15	EX
St Charles	270,000	Valero	US	1-Oct-15	31-Mar-16	UP
Corpus Christi	115,000	Valero	US	1-Jan-16	1-Mar-16	UP
PADD 5						
Martinez	165,000	Shell	US	6-Sep-14	NA	MT
Los Angeles	139,000	Phillips 6	US	8-Jan-15	NA	MT
Carson	266,000	Tesoro	US	9-Jan-15	NA	MT
Golden Eagle	166,000	Tesoro	US	12-Jan-15	NA	MT
Torrance	149,500	Exxon Mobi	US	19-Jan-15	NA	MT
San Francisco	76,000	Phillips 6	US	25-Jan-15	NA	MT
Anacortes	120,000	TESORO	US	1-Feb-15	NA	LB
Bakersfield	70,000	Alon	US	8-Nov-12	1-Jun-16	ID

*CL = Closure/EX = Expansion/ID = Idle/LB = Labor/MT = Maintenance/PO = PowerOutage/RC = Run Cuts/RS = Restart/SL = Sale/UP = Upgrade/WT = Weather

Source: Platts Custom Data. For more information please contact oiltracker@platts.com

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then bid at WTI plus $8.05/b. LLS was assessed at its highest point since January 24, 2014, when it was WTI plus $9.75/b.

The April Mars differential was $1.30/b higher at WTI plus $5.55/b, after it was heard to trade last at WTI plus $5.50/b and then was bid there late.

The Mars differential at WTI plus $5.55/b is its strongest since January 23, when it was WTI plus $7.30/b.

Providing support for the differentials, the May NYMEX crude/ICE Brent spread finished wider by 86 cents/b to finish at $9.29/b, as of Platts 3:15 pm EDT assessment. The spread traded over $9.50/b wider earlier in the day before narrowing slightly.

A wider NYMEX crude/ICE Brent spread typically indicates that US crude differentials should increase in order for WTI-based crudes to keep pace with Brent-based crudes.

Also contributing to the day's gains, sources said, was that differentials rose on the prospect of increased demand stemming from news Wednesday that Motiva refinery workers represented by the United Steelworkers reached an agreement with management on local issues and are voting to sign the new contract this week.

— David Arno

USGC petcoke producers face transport odds against Saudi refiners

Orlando, Florida—US Gulf Coast petcoke producers could have a tough time competing with Saudi Arabian refiners for sales of high-sulfur petcoke to India and Egypt once a second large refinery gets up to speed in the north, industry sources say.

The Saudi plants at Jubail and Yanbu could begin producing more than 4 million mt of high sulfur, 7.5% to high-8% sulfur, petcoke and will have a transportation advantage to India and Egypt.

"There's not enough petcoke in Saudi to meet the demand," a US-based aluminum producer said. "They're getting great numbers in Saudi."

With Saudi-to-India freight rates as low as $6/mt, more Saudi petcoke is expected to begin arriving in India by summer, the aluminum source said.

Some challenges have been experienced with the conveyor system at Jubail, but those problems have been slowly solved, a US trading source said.

The Jubail refinery, also known as SATORP, a joint venture between Saudi Aramco and Total, is expected to ship out between three and five cargoes per month, he said.

Yanbu petcoke production expected to start in May

At the Yanbu facility, a joint venture between Saudi Aramco and Sinopec, production is expected to begin in May with two cargoes initially, but that could ramp up to the same production levels as Jubail.

A global cement buyer said his company would consider buying from the Saudi plants if prices could be discounted at least 10 cents for the high-sulfur petcoke.

"We could theoretically use that quality, but we would need to invest in machinery that would remove the sulfur," he said. "If we received a significant discount, then it could provide a return on our investment."

A USGC refining source agreed that the Saudis will have a significant transportation advantage, but also questioned whether the Saudi petcoke would require more maintenance.

"I think there's going to be a learning curve to be able to run Saudi coke," he said. "The question is, how are you going to manage the high sulfur?"

— Jeffrey McDonald

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TS – 17

Peabody projections show lucrative Chinese market for PRB coal

Platts Coal Trader December 6, 2010

Powder River Basin coal sold to Chinese utilities could fetch a $12-per-short-ton premium over prices currently paid for PRB coal by US power generators, according to data Peabody Energy sent to analysts this week.

The St. Louis-based coal producer projects it could send Cal 2011 8,800-Btu coal to the Chinese port city of Guangzhou at a price of $96.28 before a 17% value-added-tax is applied. The price includes $58.71 in transportation costs, which leaves a mine mouth "net back" of $26.02/st for the company, compared to what Peabody said was the current market price of $13.65/st. The wide difference shows that even if some of Peabody's assumptions are optimistic and the projected premium is not that large, there would still be a substantial price advantage from exporting PRB to China.

The projections, obtained by Platts after being sent to analysts late Wednesday, come as the clamor to build new coal export capacity along the US West Coast reaches a fever pitch. The numbers Peabody provided to analysts suggested its 8,800-Btu PRB product would competitive in the Qinhuangdao market, pricing below the current benchmark by 0.35 cents/kcal — a 14% margin.

Multiple companies, including Peabody, are exploring the possibility of building coal terminals to relieve congestion at Westshore Terminals outside Vancouver. The Canadian coal-loading facility has seen a rapid increase of US coal bound for Asian utilities and expects to handle more than 6 million st this year versus 2 million st in 2009.

"As interest in a West Coast US terminal increases, we've been fielding more questions regarding PRB to China (delivery into Southeastern Guangzhou) netbacks," Christina Morrow, Peabody's vice president for investor relations, wrote in the e-mail to analysts accompanying the price projections.

Morrow characterized the prices as a "sample calculation for your consideration, based on a calendar 2011 delivery," with a spreadsheet that included cells with alterable price points, according to the e-mail. Analysts said such updates are rarely sent out by companies. A Peabody spokeswoman said Morrow was not immediately available for comment.

Peabody broke down transportation costs from the US to China that included $22/st in ocean freight costs; $27/st in rail costs; a $3.75 rail fuel adjustment; $6/st transload cost; a $2/st other category including demurrage and $2.89/st in customs duties.

It projected that the delivered price to Guangzhou would

be 2.12 cents/kcal versus 2.47 cents/kcal for Qinhuangdao 5,800 kcal/kg coal at a market price of $130 and delivered price of $143.60.

The Qinhuangdao price projected by Peabody was above the Platts assessment of $126.40/mt for FOB Qinhuangdao 6,200 kcal/kg for 90-day delivery on December 3; the PRB projection of $13.65/st for 8,800 Btu was above Platts assessed price of $13.50/st for Cal 2011 delivery on December 3.

— Peter Gartrell, John Miller

TS – 18

Arch CEO sees $20 range for PRB coal to Asia

Platts Coal Trader1/31/11

Arch Coal hinted Friday that Powder River Basin coal bound for Asia could fetch north of $20/short ton, possibly reinforcing hypothetical price points Peabody Energy released to industry analysts in December.

"The number on the pure math could certainly have twos in front of them and depending on what happens in the world, maybe more than that — but we'll just have to see," CEO Steven Leer said in response to a question about the prices Arch expects to see when it sends coal through newly acquired capacity at export terminals along the Pacific Coast.

Arch snapped up rights to ship 2 million st of coal this year through Ridley Terminals in Prince Rupert, British Columbia, more than 2,000 miles from its flagship Black Thunder mine, which produces low-sulfur PRB 8,800-Btu/lb coal in northeastern Wyoming. Leer said the company considers the coal comparable to Indonesian coals that have similar heating values and walks back the price from there.

Platts on Friday assessed Kalimantan 5,000-kcal/kg coal at $79/mt GAR for FOB delivery, or roughly $86.90/st for 9,000-Btu/lb coal. The OTC mine mouth price for PRB 8,800 coal for Q2 delivery was $14.50 on Thursday, according to Platts assessments.

"Almost all energy commodities — domestic pricing and international pricing — they are related but they don't follow the same path," Leer said.

Peabody released a spreadsheet in December for analysts to use as a guideline that predicted netbacks to the mine of $26.02/st delivered price to Guangzhou, China, for PRB coal sent through a US port.

One issue many industry officials have brought up about the Ridley deal is the cost of shipping the coal to the port, which Arch acknowledged would have an important effect on the final price. The company has some agreements already in place, Leer said.

"The rail has a significant impact on the final pricing or netback and we'll certainly pay attention to it so we didn't enter the Ridley agreement without some understanding of what those rail pricings would be," he said.

The rails, however, are likely a relatively minor concern to Arch, which believes supply shortfalls will give strength to international markets compared with what it described as "modest" growth in US markets.

Leer made clear during the call that Arch's domestic mines will be looking past US borders to take advantage of higher prices. The company also has invested in Longview Terminals, a proposed export facility in southwestern Washington that could begin shipping coal in 2012.

"We're feeling very good about where we're sitting and all the pieces are coming together," Leer said. "Expect us to continue to expand our export capability really for every basin."

— Peter Gartrell

TS – 19

Wednesday, March 07, 2012 4:10 PM ET

WoodMac sees half of US coal production exported by 2030

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By Dan Lowrey

A new report by energy consultant Wood Mackenzie predicts the U.S. will export about 500 million tons of coal, or roughly half its current annual production, by 2030 due to low domestic demand and booming gas production.

The explosion of unconventional gas production in the U.S. and increased oil production due to a tight oil market are changing the country's role in the global energy equation, WoodMac said. They are allowing the U.S. to reduce its dependence on foreign energy sources. By 2019, shale gas is expected to account for more than half of U.S. gas production. All of those factors are affecting how the country uses coal, the report said.

"Unconventional gas and tight oil, combined with tighter environmental regulations on power plants, are reducing the demand for thermal coal," WoodMac analyst James Brick said in a March 7 news release. "Low-cost coal resources that might have targeted the US power sector will increasingly be placed in the export market. Much of it is expected to go to Asia, as China's rapid economic development requires significant amounts of energy."

U.S. coal producers are already scrambling to open up additional capacity at export terminals and build new ones to get their product to emerging markets. The U.S. Energy Information Administration expects coal exports to remain strong in 2012 after crossing the 100 million-ton mark in 2011 to reach an estimated 107.3 million tons. Metallurgical, or coking coal, used in steel production, represented about two-thirds of U.S. exports.

In addition to huge amounts of coal, WoodMac predicts the U.S. will export 3.2 Bcf/d of LNG and "possibly" more than 2.5 million barrels of oil products per day by 2030, transforming its role from energy importer to becoming an important global energy player.

"Historically, the US accounted for such a large percentage of global oil imports that its relationship with certain oil producers was symbiotic," Brick said. "The US needed foreign oil and many of the exporting nations needed the revenue. Today, increased production from unconventional gas and tight oil, coupled with lower demand of coal and oil, will allow the US to export LNG, coal and potentially oil products."

WoodMac expects oil imports will be more than 3.3 million bbl/d lower in 2030 than in 2010 due to market penetration of biofuels and lower demand for oil as a renewable fuel standard (RFS) and corporate average fuel economy (CAFE) standards increase the efficiency of the U.S. vehicle fleet.

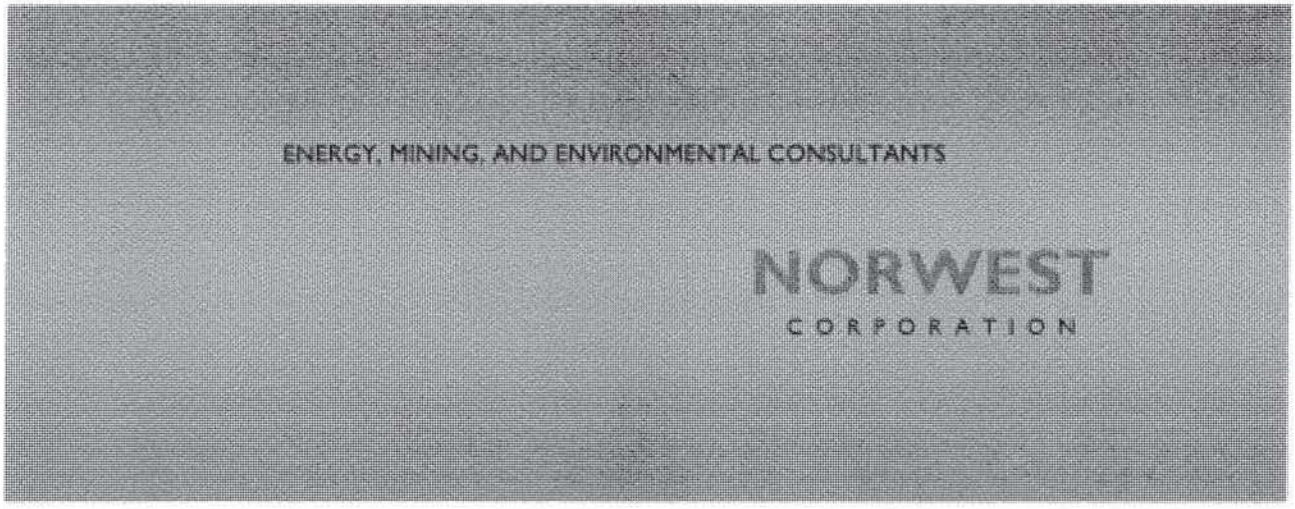
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TS – 20

EXHIBIT 3

OTTER CREEK PROPERTY SUMMARY REPORT

Volume I of II



OTTER CREEK PROPERTY SUMMARY REPORT

Volume I of II

Submitted to:
GREAT NORTHERN PROPERTIES, L.P.

and:
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

July 12, 2006

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EXECUTIVE SUMMARY

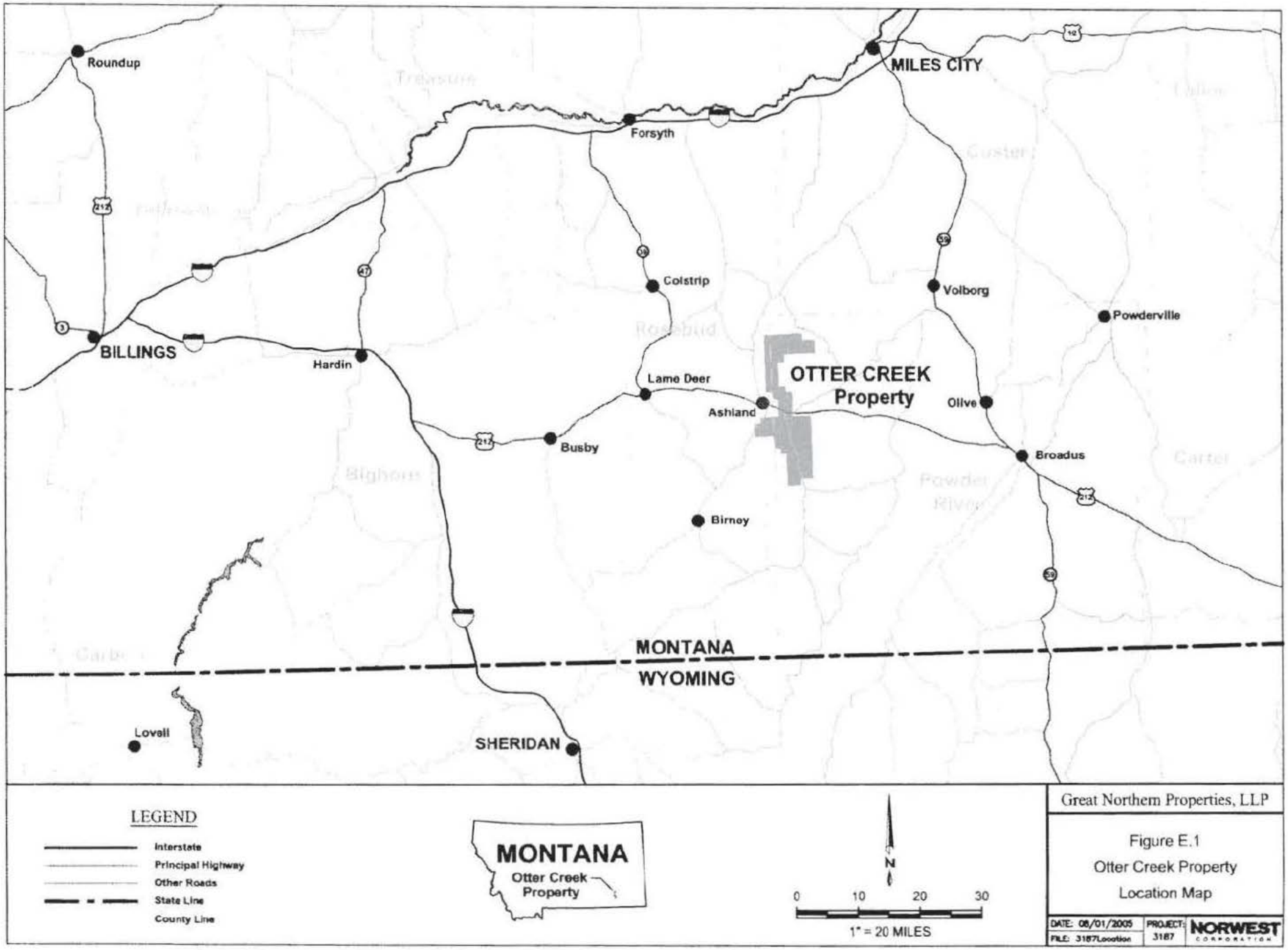
Norwest Corporation (Norwest) was contracted by Great Northern Properties L.P. (GNP) to analyze and interpret existing data regarding coal properties controlled by GNP and the State of Montana, collectively referred to as the Otter Creek Property. The Otter Creek Property covers a large area within Powder River and Rosebud counties, Montana. The tract trends north to south and encompasses over 100 square miles of land.

The overall project objectives consisted of updating the geologic model and resource estimates, identifying specific logical mining units (LMUs), preparing documents that describe each LMU in terms of geology, available resources, coal quality, mineability, strip ratio and range of expected mining costs. An additional objective of this study was to assess the vertical variation of sodium in the Knoblock Seam and to assess the opportunity for selective mining in order to minimize variations in coal quality.

The Otter Creek Property is located in the Ashland coalfield east of Billings, Montana. The Otter Creek Property is located in Rosebud and Powder River Counties, Montana. The general location of the property is shown on Figure E.1.

GNP coal resources are located within the boundaries of the Custer National Forest and comprise alternating sections of property held in fee by GNP and public domain property held by the State of Montana.

The coal resources of the Otter Creek Property have been the subject of several investigations starting in the mid 1970's. This has resulted in numerous data sets developed by several corporate and government entities.


Roundup
MILES CITY
Forsyth
Colstrip
Volborg
Powderville
BILLINGS
Hardin
Lame Deer
OTTER CREEK
Property
Ashland
Olive
Busby
Broadus
Birney
MONTANA
WYOMING
Lovell
SHERIDAN
LEGEND
Interstate
Principal Highway
Other Roads
State Line
County Line
MONTANA
Otter Creek
Property
N
0
10
20
30
1" = 20 MILES
Great Northern Properties, LLP
Figure E.1
Otter Creek Property
Location Map
DATE: 08/01/2005
FILE: 3187Location
PROJECT: 3187
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The geologic data collected during the various programs amounted to more than 460 drill holes – these were utilized to characterize this resource.

The quantity of drilling that has been completed on the Otter Creek Property is sufficient to reasonably estimate overall coal tonnages in most areas within the property. The overall in-place resources are estimated at about 4.3 billion tons.

The coal averages 8,500 to 8,600 BTU/lb on an as-received basis. The high moisture content, which averages 27.5% to 28.0%, is fairly typical of Powder River Basin coals. The sulfur content of the coal is very low and with few exceptions the coal is classified as compliance coal, producing less than 1.2 pounds of SO_2/million BTU. The ash content of the coal is also low. The sodium content of the ash is considered high and averages between 6.0 and 7.0 percent.

Mine planning indicated the six discrete LMUs which are summarized in the table below.

Table E.1 LMU Summaries

LMU	Recoverable Tons (millions)	Moisture % (As-received)	Ash % (Dry Basis)	Sulfur % (Dry Basis)	Btu/lb (Dry Basis)	Sodium in Ash % (Dry Basis)
1	346	28.6	6.9	0.3	11,940	6.8-6.9
2	556	28.2	7.8-8.6	0.3-0.4	11,800-11,900	5.7-6.4
3	241	24.3	6.8	0.3	12,000	8.8
4	266	27.4	6.8	0.3	11,700-12,000	7.0-7.9
5	901	28.4	7.0-8.5	0.3	11,800-12,000	6.4-7.1
6	507	28.7	7.2-8.3	0.3	12,600	8.7-8.3

The coal quality data was analyzed to identify vertical variability within each major bench of the Knoblock seam. This indicated the following:

- An inverse relationship exists where the sodium content of the coal ash generally increases as the ash content decreases.
- Sulfur content however, is elevated in the top portion of the Upper Knoblock seam.
- Ash content is the highest in the top portions of all of the coal benches.
- The Upper Knoblock Seam is generally slightly lower in ash content and higher in Sodium Oxide than the lower portions of the Knoblock Seam.

Coal quality control programs and blending will likely be required during mining operations in order to maintain consistent product quality.

All LMUs are amenable to surface mining using draglines and truck-shovel fleets for overburden removal. These techniques are used at other mines in the region including Absaloka, Decker, Rosebud, and Spring Creek Mines. The smaller LMUs will require 70 to 80 cubic yard (CY) capacity draglines while the larger LMUs will need 110 to 120 CY draglines. The combined LMUs will require two draglines. For LMUs 1 through 4, the truck-shovel fleet will consist of 25 to 30 CY hydraulic excavators or shovels and 190 to 240 ton trucks.

When it is necessary to meet the customer's coal specifications, if may be possible to selectively mine the coal to improve the coal quality. The selective mining process removes zones within each seam that are usually higher in sulfur or sodium thereby resulting in a higher quality product.

The following table lists the production rates selected for the LMUs:

Table E.2 Production Rate by LMU

LMU	Yearly Production Rate (Tons)
1	8,500,000
2	12,700,000
3	6,000,000
4	6,000,000
5	21,200,000
6	12,000,000

Norwest developed an indicative mining cost estimate[1] for each LMU based on unit mining costs derived from actual and projected mining costs from mines having similar mining conditions. The average life-of-mine costs for the six LMU range from $6.69 per ton to $7.65 per ton. We also developed scoping capital costs for each LMU.

Montana coal, the Northern PRB, is noted for its heating value that is higher than most of the Southern PRB mines, its varying sulfur levels and its higher sodium levels. The sodium content of Otter

[1] Norwest recommends that additional engineering be performed to further refine the operating (and capital) costs.

Creek coal ranges from 5.8% to 8.8% and is high in comparison to other coals in the western US. but about the same as other Montana PRB mines. For example: coals from the southern Powder River Basin of Wyoming typically average 1.2% sodium while currently produced coals from Colorado average about 2.5% sodium. Sodium in ash can cause slagging problems in certain types of boilers in electric generating plants. As a result, most plants avoid burning high sodium coals. However, we have identified ten power plants within the competitive area for Otter Creek which currently accept higher sodium coals. These plants would likely constitute the initial target market for Otter Creek coals. The information and data used to assess the marketing is derived from FERC data. It is, from our experience, the best data available but not much audited for accuracy of reporting nor input into their database and perhaps even suspect. Nevertheless, we were able to estimate current FOB prices for coal similar to Otter Creek.

It should be noted that the volume of coal shipped from Montana to the high sodium-accepting power plants is only about 20 million tons per year. Careful effort developing a solid market strategy will be necessary to determine how best to nudge into this market without destroying whatever price discipline, if any, currently exists. All Montana mines have been operating for many years and are experiencing higher stripping ratios in the range of 3-4:1 at Spring Creek, climbing up to 9:1 and higher at Decker. These higher strip ratios put these mines at a disadvantage with respect to Otter Creek's projected operating costs, as they each must move more waste to uncover the same amount of coal as at Otter Creek. This higher cost, however, will be offset by Otter Creek's higher capital recovery / depreciation costs.

At present there are no established transportation links to the Otter Creek property. We assessed the options of rail and truck transportation to the rail spur to the line at Colstrip, located about 38 rail miles distant. From Colstrip the trains would continue on to their final destination. While the rail option has a higher initial capital, this is offset in only a few years by the reduced transportation costs. Therefore, we recommend the rail alternative.

INTRODUCTION AND OBJECTIVES

Great Northern Properties L.P. (GNP) has contracted Norwest Corporation (Norwest) to analyze and interpret existing data regarding coal properties controlled by GNP and the State of Montana, collectively referred to as the Otter Creek Property. The Otter Creek Property covers a very large area within Powder River and Rosebud counties, Montana. The tract trends north to south and encompasses over 100 square miles of land.

The overall project objectives consisted of updating the geologic model and resource estimates, identifying specific LMU's, and to prepare documents that describe each LMU in terms of geology, available resources, coal quality, mineability, strip ratio and range of expected mining costs. An additional objective of this study was to assess the vertical variation of sodium in the Knoblock Seam and to assess the opportunity for selective mining in order to minimize variations in coal quality.

As part of this study, Norwest was required to build independent geologic and coal quality models. The key geologic components and tasks associated with preparing the models and satisfying the objectives of the study were established as follows:

- Prepare and merge two separate drill hole databases into one consolidated stratigraphic and coal quality database.
- Construct correlation charts to ensure that the merged data sets conform to the same stratigraphic nomenclature and that seam correlations were correctly identified.
- Prepare digital surfaces of the seam structure, thickness and basic coal quality parameters.
- Upon completion of the digital surfaces, prepare maps locating the position of the seam outcrop, subcrop and weathered surfaces.
- Create a geologic model of the coal resource area and calculate the coal tonnage and overburden volumes of the in-place resource.
- Identify the quality distribution of the coal both laterally and vertically within the seams.
- Assist with identifying LMU's that could be developed within the property.

This report summarizes the geologic modeling, resource estimates and coal quality characteristics. This information will form the basis of future LMU delineation and mineability studies.

GEOLOGY AND COAL RESOURCES

LOCATION, TOPOGRAPHY AND LAND USE

The Otter Creek Property is located in the Ashland coalfield east of Billings, Montana. Access to the property from Billings is available by traveling east on Interstate Highway 90 to the town of Crow Agency in the Crow Indian Reservation. From that point access is provided by traveling east on U. S. Highway 212 to a point four miles east of Ashland, Montana. Final access to and through the property is provided by traveling south on Otter Creek Road, an improved all-weather dirt road that leads from Highway 212 to the town of Otter, Montana at the south end of the Otter Creek Property as shown in Figure 2.1. Numerous unimproved dirt (2-track) roads provide local access within the Otter Creek Property.

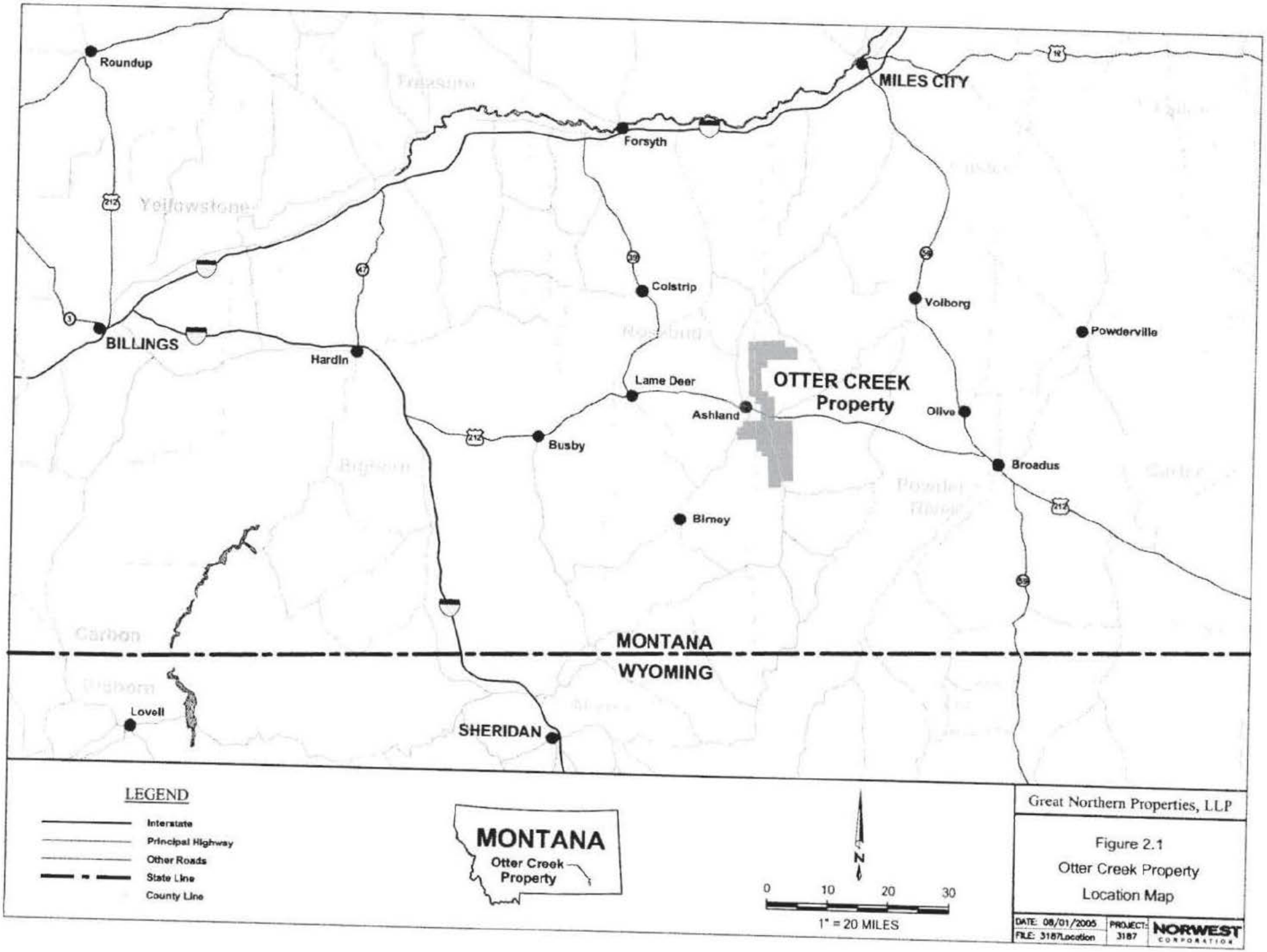
The Otter Creek Property is located in Rosebud and Powder River Counties, Montana. It is within the boundaries of the Custer National Forest but is comprised of alternating sections of property held in fee by GNP and public domain property held by the State of Montana. Coal ownership is illustrated in Appendix A, Map A2.1.

Topography in the area of the Otter Creek Property is characterized by rolling hills separated by broad valley regions. The rolling hills are covered by plains grasses and provide excellent rangeland for ranching and habitat for wildlife. Elevations within the property area range from less than 3,000 feet above sea level along Otter Creek that flows in a general north-south direction through the center of the property, to over 3,400 feet on the bluffs that flank Otter Creek.

DATA AND METHODOLOGY

Data Sources

The coal resources of the Otter Creek Property have been the subject of several investigations starting in the mid 1970's. This has resulted in numerous data sets developed by several corporate and government entities. Early investigations include drilling conducted by the Montana Bureau of Mines and Geology, Consolidation Coal Company, City Services, and GNP.


Roundup
MILES CITY
Forsyth
Colstrip
Volborg
Powderville
BILLINGS
Hardin
Lame Deer
OTTER CREEK
Property
Ashland
Olive
Busby
Broadus
Birney
MONTANA
WYOMING
Lovell
SHERIDAN
LEGEND
Interstate
Principal Highway
Other Roads
State Line
County Line
MONTANA
Otter Creek
Property
N
0
10
20
30
1" = 20 MILES
Great Northern Properties, LLP
Figure 2.1
Otter Creek Property
Location Map
DATE: 08/01/2005
FILE: 3187Location
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Most recently, in 2004, Kennecott Energy and the State of Montana initiated an exploration program that included the drilling of 54 holes of which 42 were core drilled providing for coal samples that were analyzed for their quality.

In addition to the drill hole data, regional geologic information was used from published reports by the U. S. Geological Survey.

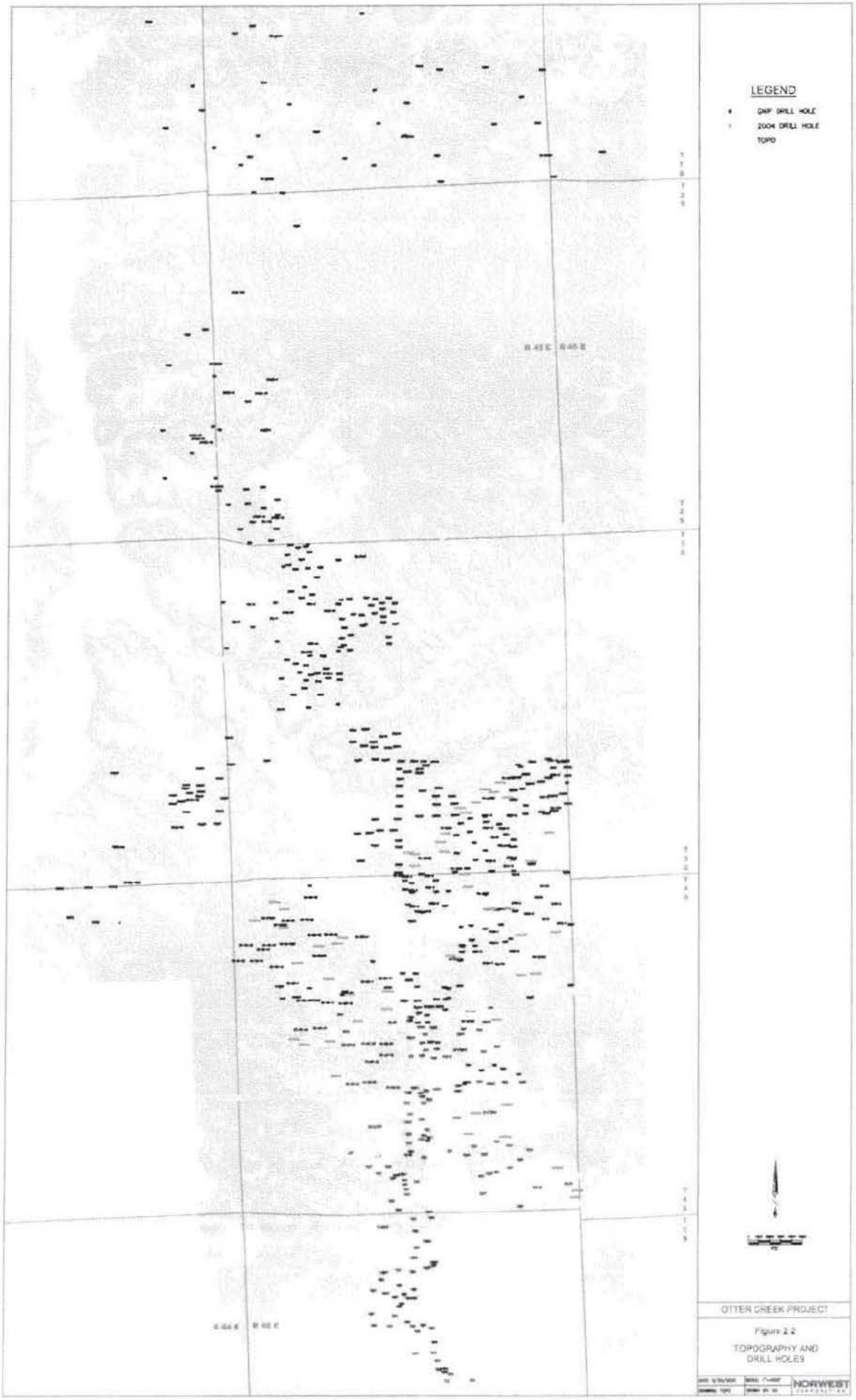
Nature of Geologic and Coal Quality Data

The geologic data collected during the programs described above have been provided to Norwest in electronic format. Several database files have been made available that contain pertinent information regarding the drill holes including hole location information, down-hole information including seam intercepts, coal thickness, in-seam rock partings, and coal quality data. In addition to this information, electronic copies of drill cutting and geophysical log records have been provided for many of the drill holes.

The exploration programs that have been conducted on the Otter Creek Property have provided extensive drill hole data that defines the coal resource potential of the property. The distribution of the drill holes that have been completed on the Otter Creek Property to date are shown in Figure 2.2 and Map A2.2.

All of the information provided to Norwest has been used to assess the accuracy of the data and to evaluate the resource potential of the Otter Creek Property.

As illustrated, over 460 drill holes have been utilized to characterize this resource. The distribution of drill holes across the property is uneven, with many concentrated in the central and southern portions of the property and generally fewer holes and more widespread coverage in the north. Additionally, there are many areas throughout the property that will require substantial drilling to accurately delineate the coal subcrop and burned zones.


LEGEND
QNF DRILL HOLE
2004 DRILL HOLE
TOPO
OTTER CREEK PROJECT
Figure 2.2
TOPOGRAPHY AND
DRILL HOLES
NORWEST

Data Accuracy and Adequacy

Although the data provided to Norwest was in electronic format, it was in several different forms such as drill cutting/core logs, scanned geophysical logs, digital "las" files and tabulated drill hole data. This has allowed Norwest to make cross checks between the data represented on the cutting/core logs and geophysical logs with the various files of tabulated drill hole data. Where available, the data on the drill logs were compared against the tabulated data. This comparison indicated that the tabulated drill hole data were accurate and represented the data provided on the drill logs in their various forms.

The coal seam correlation and nomenclature used in the various data files were compared and checked to insure that the final data files were consistent in the seam correlation and in the naming of the seams present.

Geophysical logs were provided in electronic (las) format for holes drilled in 2004. Plots of these logs were prepared using Norwest's "Pinnacle" in-house geologic software. Top and bottom depths of the coal seams shown on the logs were determined by selecting the mid-point on the deflection of the resistivity and gamma-gamma density log traces. These depths were compared with those listed on the tabulated data and it was found that the resulting coal thickness measurements listed on the tabulated data understate the coal thickness by an average of 1.5%. This suggests that the coal thickness measurements used in this report are slightly on the conservative side.

It is important to point out that the most reliable method of measuring coal thickness penetrated in a drill hole is through the analysis of geophysical logs. Coal thickness derived from core measurement is usually limited in accuracy by frequent crushing of the core and by core loss.

Methodology

After all drill hole data had been checked for accuracy, it was combined into two master Excel files. One file contained coal depth and thickness information and the other file contained coal quality data. These files were then used to develop the geologic model utilizing Carlson Engineering's SurvCADD XML modeling software.

GEOLOGY AND MODELING RESULTS

The data files created by Norwest, described above, plus published data on coal deposits of the region enabled the development of a digital geologic model that accurately characterizes the coal resources present within the Otter Creek Property. The following section describes the coal deposit contained within the Otter Creek Property and the geologic model generated that represents these deposits.

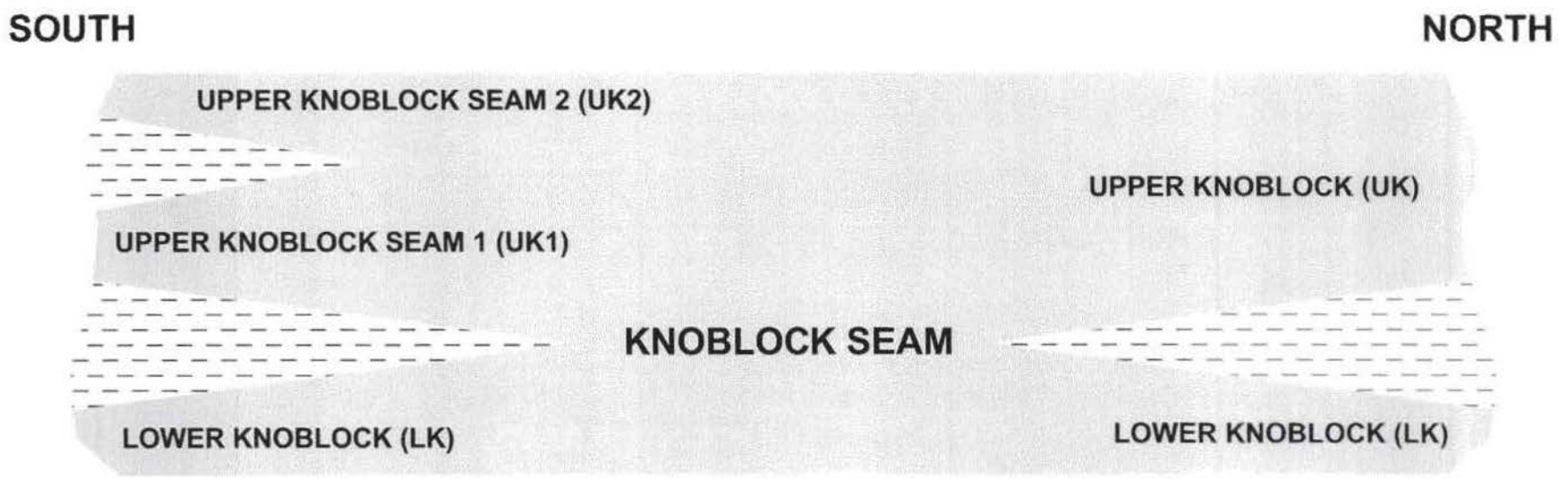
Structure and Overburden

The Otter Creek Property lies in a region of the Powder River Basin that is structurally stable. No known faulting is present that dissects the coal seams within the property. The coal beds are nearly flat or gently dipping more as the result of depositional loading rather than tectonic deformation. The coal beds within the Otter Creek Property are very flat-lying having an average dip of one degree or less. Maps A2.3, Knoblock Seam Top Structure, and A2.4, Knoblock Seam Bottom Structure, illustrate the gently rolling structure of the property. These drawings, along with others that illustrate the geologic model, are presented in Appendix A of this report.

Stratigraphy

The coal seams of economic interest within the Otter Creek Property are contained within the Tongue River member of the Fort Union Formation of middle Paleocene age. The primary coal seam within the Otter Creek Property is the Knoblock (K) seam. This coal seam ranges in thickness from 19 feet to 75 feet and averages approximately 59 feet. The seam splits into two sub-seams, the Upper Knoblock (UK) and the Lower Knoblock (LK), in the southern and northern portions of the property. The Upper Knoblock splits again into two sub-seams in the extreme southern portion of the property. The upper sub-seam of this split is called the Upper Knoblock 2 (UK2) seam while the lower sub-seam is called the Upper Knoblock 1 (UK1) seam. Figure 2.3 below illustrates the relationship of the coal seam splits. The correlation of the sub-seams in the areas where the Knoblock splits is well defined by the drilling that has been completed.

Map A2.5 Drill Hole Correlation Charts, located in Appendix A, illustrates the relationship of the sub-seams within the property. It is important to point out that the thickness represented on the Isopach map represents the same interval used in the quality modeling for a given drill hole. Intervals of bone coal near the top or bottom of the coal seam were excluded in the thickness used to develop the Isopach map.



Great Northern Properties, LLP

Figure 2.3
Otter Creek Property
Generalized Cross-Section

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FILE: KnoblockSeamXSec

The Knoblock seam is thickest in the central area of the Otter Creek Property as shown on Map A2.6 Knoblock/UK/UK2 Seam Isopach. Also shown on this map is the thickness and extent of the Upper Knoblock 1 and 2 seams. In the northern area of the Otter Creek Property where the Knoblock seam is split into two sub-seams (UK and LK), the thickness of the parting or interburden that separates the two sub-seams generally increases in a northerly direction. Likewise, in the southern portion of the property, this interburden increases in thickness in a southerly direction. Map A2.7, illustrates the thickness of this interburden. The coal thickness of the Upper Knoblock 1 seam, the Lower of the sub-seams formed by the splitting of the Upper Knoblock seam in the extreme northern and southern portions of the property, is illustrated on Map A2.8, Upper Knoblock Seam 1 Isopach. The thickness of the interburden that separates the Upper Knoblock 1 seam from the Upper Knoblock 2 seam is illustrated on Map A2.9. The thickness of the Lower Knoblock seam, present in both the northern and southern portions of the Otter Creek Property, is illustrated on Map A2.10.

The coal seams present are covered by overburden consisting of interbedded fine-grained sandstones and mudstones. The thickness of the overburden is variable due to topography in the area. The overburden thickness has been modeled by subtracting the elevation of the top of the coal seam from the topographic elevation. This overburden thickness is illustrated on Map A2.11 Knoblock Seam Overburden Isopach.

Outcrop, Zone of Weathering and Burned Coal

Outcrops of the Knoblock seam and sub-seams are present on both sides of Otter Creek, which flows in a northerly direction through the center of the property and exits the property's western boundary near the town of Ashland. A zone of weathered or burned coal normally exists where the seam is found at near-surface depths. This zone of weathering was identified from observations recorded in drill hole lithologic logs. The zone's thickness is variable and ranges from as little as five feet in the southern portion of the property to over 150 feet in the northern portion of the property. After the zone of weathering had been identified in all of the drill holes, the zone was modeled by preparing a thickness grid. This thickness grid was then subtracted from the surface topography which resulted in an elevation grid representing this "weathered surface". The "weathered surface" is illustrated on Map A2.3, Drill Hole Location Map and Coal Seam

Correlation Cross-Sections. Where the modeled zone of weathering intersected the coal seam, the limit of that coal seam was trimmed to the base of the weathered zone to form a subcrop line. This subcrop line was transferred onto the resource maps that were used in calculating the tonnage of in-place coal resources. Of particular note is that for each coal bench or seam, two weathering lines were generated, one representing the intersection of the weathered surface with the top of the seam and the other the seam base. The importance of the two lines is the fact that with coals of this thickness, there are many instances when only top portions of the seam may be weathered while the lower portions are not.

In addition, after delineating the subcrop limits by the method described above, Norwest overlaid the prior representation of a burn line which was provided by GNP. It is apparent that this burn line was generated by sketching a representation of the burn area through drill holes which encountered coal burn and those that encountered un-weathered coal. It is expected that this "burn line" was determined through inspection of aerial photographs, though this has not been verified by Norwest.

Norwest compared the "zones of weathering" with the GNP "burn line". In general, the areas and lines compared well. It should be clearly noted that across the property the depth of weathering and areas of "burned" coal has been delineated to highly varying degrees of accuracy, based on the variable drill hole density. In-place resource estimations and in-place stripping ratios are very sensitive and dependent upon the degree of confidence of this weathering or burn zone. Prior to actual development of these properties, substantial amounts of additional drilling is warranted to verify the actual weathering limits.

RESOURCE ESTIMATION

The quantity of drilling that has been completed on the Otter Creek Property is sufficient to reasonably estimate overall coal tonnages in most areas within the property. Several areas, particularly in the north, warrant additional drilling. Norwest's estimates of resources are presented in two categories of tonnage within the property boundaries. These categories are referred to as *in-place resources* and *speculative resources*. Map A2.12 presents the in-place resources and associated coal quality by section. Also illustrated on this drawing are the subcrop line of the base of the Knoblock coal and the GNP burn line.

In-place resources as defined by Norwest include all resources that are delimited by the burn line and exist within a high degree of confidence resulting from a certain drill hole density, while the speculative resources are those that are projected between the GNP burn line and the projected subcrop line of the Lower Knoblock Seam. These speculative resources would consist of areas that may contain partially burned or oxidized coal. The areas containing these speculative resources are illustrated by shading on Maps A2.12 and A2.13. Norwest believes that it is very likely that substantial resources of this type exist but will require additional drilling to verify tonnage and specific locations.

Coal resources were calculated by measuring the volume of coal represented by the coal seam thickness intervals shown on the coal seam Isopach maps, limited by the subcrop lines formed by the intersection of the coal seam and the zone of weathering. The volume of coal was then converted to tons of coal by multiplying the volume by the factor of 77.6 pounds of coal per cubic foot. Table 2.1, Otter Creek Property, Coal Resource Summary found below, summarizes the coal resources classified by ownership. It provides the defined tons which are limited by the weathering zone on Map 2.3. Table 2.1 also lists speculative resources that represent resources that may be oxidized or partially burned. Again, additional outcrop drilling is needed to define this category of resources.

Table 2.1 represents the summary of an in-depth analysis of the coal resources present within the Otter Creek Property. Several detailed tables were generated in the analysis process, copies of which can be found in Appendix B. Included within these tables are detailed classifications of resources according to the USGS Circular 891, illustrating the Measured, Indicated and Inferred categories of reliability. Map A2.14 illustrates the data distribution and the resource classification areas.

Coal resources were calculated for the three prime mining tracts; Otter Creek Tract 1, Otter Creek Tract 2 and Otter Creek Tract3. Table 2.2, Otter Creek Property - Resource Summary of Tracts 1, 2, and 3 summaries the coal resources by tract and by landowner within each tract. With the exception of one small 162 acre tract, all the coal is controlled by GNP or the State of Montana. Figure 2.4, Coal Ownership Map, Otter Creek Tracts 1,2, and 3 show the location of these the prime development tracts.

Otter Creek Property Resource Summary
Table 2.1, Total, Inplace and Speculative Resources

Ownereship	Total Resources				In-place Resources			Speculative Resources		
	Acres	Waste (bcy)	Coal Tons	In-Place Ratio (CY/ton)	Acres	Waste (bcy)	Coal Tons	Acres	Waste (bcy)	Coal Tons
Total	62,034	16,201,971,882	4,324,951,299	3.7	51,305	14,326,037,698	3,767,763,101	10,729	1,875,934,183	557,188,198
Sate of Montana	12,551	3,669,435,534	1,056,225,648	3.5	10,742	3,357,323,849	948,900,268	1,809	312,111,685	107,325,380
Great Norhtern Properties	30,565	8,131,739,475	2,210,372,841	3.7	25,207	7,201,172,150	1,944,144,965	5,358	930,567,325	266,227,876
Other (Federal, Private, etc.)	18,918	4,400,796,872	1,058,352,810	4.2	15,356	3,767,541,699	874,717,868	3,562	633,255,173	183,634,942

TRACT 1

Location		Coal Ownership Summary					Total Resources										Speculative Resources			Inplace Resources		
T/R	SECTION	Coal Ownership	Acres	GNP	State of Montana	Private	Waste (bcy)	Coal Tons	In-Place Ratio (CY/ton)	Moisture (%) EQ Basis	Moisture (%) AR Basis	Dry Basis (%) Ash (%)	Dry Basis (%) Sulfur (%)	Dry Basis (%) BTU/lb	MAF Basis BTU/lb	% In Ash Sodium	Acres	Waste (bcy)	Coal Tons	Acres	Waste (bcy)	Coal Tons
R45T3	25	GNP	528	528	0	0	152,485,920	53,218,190	2.9	25.13	25.95	7.15	0.27	11,909	12,828	4.40	0	-	-	528	152,485,920	53,218,190
R45T3	26	MONTANA	527	0	527	0	107,923,001	36,905,509	2.9	24.53	25.44	6.80	0.26	12,036	12,842	4.78	278	41,869,117	17,805,734	360	66,113,884	19,099,775
R45T3	27	GNP	643	643	0	0	59,650,338	8,238,115	4.6	24.37	25.12	5.82	0.26	11,956	12,832	6.55	231	39,616,338	5,238,315	0	0	0
R45T3	34	MONTANA	630	0	630	0	137,066,620	47,390,265	2.9	24.36	25.49	5.92	0.26	11,893	12,774	7.25	307	57,814,580	19,166,099	323	79,252,036	28,224,167
R45T3	35	GNP	627	627	0	0	113,788,928	55,933,488	2.0	24.04	24.37	5.88	0.26	11,939	12,820	7.13	0	-	-	627	113,788,928	55,933,488
R45T3	36	MONTANA	631	0	631	0	249,730,539	87,792,375	2.7	24.32	25.19	6.78	0.29	11,960	12,856	7.63	0	-	-	631	249,730,539	87,792,375
R45T4	1	GNP	617	617	0	0	177,660,645	52,677,035	2.9	23.87	25.04	5.91	0.26	11,921	12,805	7.52	0	-	-	617	177,660,645	52,677,035
R45T4	2	MONTANA	583	0	583	0	117,723,552	39,687,149	3.0	24.03	25.20	6.78	0.25	11,924	12,791	7.75	131	25,680,952	5,400,542	452	92,063,190	34,446,586
R45T4	3	GNP	613	613	0	0	106,092,945	43,214,341	2.5	24.46	25.52	6.95	0.26	11,845	12,738	8.06	303	79,236,959	17,347,777	309	76,855,986	30,866,564
GRAND TOTAL			5,089	3,128	2,471	0	1,364,134,985	435,257,236	3.0	24.36	25.58	6.89	0.26	11,936	12,818	6.82	1,148	184,170,861	52,898,457	4,837	1,189,964,924	372,298,799
TOTAL GNP			3,128				952,681,474	343,291,939	2.8	24.40	25.63	6.97	0.26	11,918	12,811	6.66	434	68,985,897	20,889,942	3,281	823,686,477	332,005,967
TOTAL STATE OF MONTANA			2,471				811,442,511	191,975,297	3.2	24.31	25.83	6.79	0.26	11,959	12,829	7.02	714	125,284,964	42,372,415	1,736	489,155,447	198,802,865

TRACT 2

Location		Coal Ownership Summary					Total Resources										Speculative Resources			Inplace Resources		
T/R	SECTION	Coal Ownership	Acres	GNP	State of Montana	Private	Waste (bcy)	Coal Tons	In-Place Ratio (CY/ton)	Moisture (%) EQ Basis	Moisture (%) AR Basis	Dry Basis (%) Ash (%)	Dry Basis (%) Sulfur (%)	Dry Basis (%) BTU/lb	MAF Basis BTU/lb	% In Ash Sodium	Acres	Waste (bcy)	Coal Tons	Acres	Waste (bcy)	Coal Tons
R44T4	10	State of Montana	412	0	412	0	88,191,746	23,300,534	3.8	24.04	25.29	7.06	0.30	11,786	12,580	7.48	338	68,753,296	18,379,849	74	19,438,442	3,920,685
R44T4	11	GNP	674	674	0	0	174,420,347	59,309,462	2.9	24.51	25.42	6.89	0.27	11,950	12,836	7.09	72	14,582,126	5,002,514	601	159,838,221	54,306,948
R44T4	12	State of Montana	968	0	968	0	156,970,946	73,258,900	2.1	24.55	25.47	6.79	0.26	12,000	12,880	8.20	0	-	-	968	156,970,946	73,258,900
R44T4	13	GNP	465	465	0	0	211,586,429	55,500,331	3.8	24.25	25.31	6.70	0.26	12,027	12,888	8.06	0	-	-	465	211,586,429	55,500,331
R44T4	14	State of Montana	469	0	469	0	154,326,247	57,340,481	2.7	24.06	25.23	6.56	0.27	12,071	12,816	8.36	9	-	-	469	154,326,247	57,340,481
R44T4	15	GNP	360	360	0	0	85,129,096	33,099,266	2.7	24.07	25.14	6.79	0.29	12,064	12,868	7.97	43	7,340,368	3,770,207	317	47,788,704	29,329,059
R44T4	22	GNP	120	120	0	0	12,145,372	13,536,056	0.9	24.12	27.67	7.83	0.32	11,811	12,828	7.16	0	-	-	120	12,145,372	13,536,056
R44T4	23	State of Montana	201	0	201	0	29,361,763	23,180,243	1.3	24.12	27.69	7.82	0.32	11,904	12,845	7.13	0	-	-	0	29,361,763	23,180,243
R44T4	24	OTHER	162	0	0	162	18,951,890	18,165,693	1.1	24.14	27.54	7.85	0.32	11,872	12,840	6.38	0	-	-	0	18,951,890	18,165,693
R44T4	25	GNP	674	674	0	0	218,664,617	60,099,553	2.8	24.14	25.02	7.18	0.30	11,978	12,884	7.06	0	-	-	674	218,664,617	60,099,553
R44T4	24	State of Montana	198	0	198	0	327,847,427	67,268,794	4.9	24.18	28.36	7.13	0.28	11,874	12,880	7.18	0	-	-	198	327,847,427	67,268,794
R44T4	26	GNP	715	715	0	0	398,764,963	70,723,718	4.1	24.16	28.53	7.75	0.30	11,900	12,886	6.40	0	-	-	715	398,764,963	70,723,718
R44T4	26	State of Montana	525	0	525	0	193,348,695	71,587,040	2.7	24.15	29.06	8.15	0.32	11,880	12,871	7.29	32	6,137,950	1,168,718	493	187,210,745	70,418,322
R44T4	35	GNP	167	167	0	0	26,788,546	8,002,514	3.0	24.15	25.39	8.24	0.31	11,879	12,841	6.05	48	5,564,849	1,453,301	119	21,213,196	6,549,007
R44T4	36	State of Montana	186	0	186	0	73,707,442	18,580,529	3.9	24.16	28.65	7.31	0.30	11,923	12,881	6.97	8	-	-	186	73,707,442	12,580,027
GRAND TOTAL			6,889	3,175	3,363	162	2,831,811,314	878,067,031	3.9	24.17	28.35	7.21	0.29	11,955	12,894	7.22	534	101,367,711	29,774,486	6,185	1,926,443,903	647,282,576
TOTAL GNP			2,114				975,467,898	330,971,221	3.0	24.13	25.46	5.44	9.21	9,058	9,746	5.57	184	27,477,363	8,229,868	2,811	952,610,496	322,746,132
TOTAL STATE OF MONTANA			3,963				1,023,771,566	329,928,111	3.1	24.23	29.30	7.21	0.29	11,998	12,899	7.21	371	73,880,348	20,548,387	2,962	949,881,216	388,371,758
TOTAL PRIVATE			162				18,951,890	18,165,693	1.1	24.14	27.54	7.85	0.32	11,872	12,840	6.38	0	0	0	162	18,951,890	18,165,693

TRACT 3

Location		Coal Ownership Summary					Total Resources										Speculative Resources			Inplace Resources		
T/R	SECTION	Coal Ownership	Acres	GNP	State of Montana	Private	Waste (bcy)	Coal Tons	In-Place Ratio (CY/ton)	Moisture (%) EQ Basis	Moisture (%) AR Basis	Dry Basis (%) Ash (%)	Dry Basis (%) Sulfur (%)	Dry Basis (%) BTU/lb	MAF Basis BTU/lb	% In Ash Sodium	Acres	Waste (bcy)	Coal Tons	Acres	Waste (bcy)	Coal Tons
R45T4	5	GNP	560	560	0	0	133,456,165	49,181,085	2.7	24.38	25.83	6.87	0.29	11,999	12,853	7.80	249	43,146,272	16,584,928	611	90,498,892	32,596,160
R45T4	6	State of Montana	626	0	626	0	226,901,070	63,360,089	3.5	24.32	25.89	6.77	0.27	12,051	12,921	9.06	41	7,995,128	3,825,558	585	218,905,942	60,026,561
R45T4	7	GNP	513	513	0	0	167,658,176	57,411,209	3.4	24.27	26.56	6.77	0.26	11,973	12,840	9.24	0	-	-	513	167,658,176	57,411,209
R45T4	8	State of Montana	662	0	662	0	158,931,292	63,378,970	3.5	24.30	27.02	6.73	0.27	12,048	12,913	8.54	50	2,366,187	536,047	563	153,805,105	63,180,923
R45T4	9	GNP	396	396	0	0	56,270,881	28,967,478	2.0	24.31	27.56	6.51	0.23	12,015	12,880	8.23	91	10,305,574	6,151,225	304	45,764,137	22,546,257
R45T4	10	GNP	39	39	0	0	5,165,052	1,701,842	3.0	24.17	27.30	5.80	0.25	11,879	12,843	7.00	37	4,965,052	1,584,575	2	200,000	117,267
R45T4	15	GNP	126	126	0	0	14,146,515	11,396,001	1.2	24.15	25.01	6.96	0.29	12,096	12,977	7.37	0	-	-	126	14,146,515	11,396,001
R45T4	16	State of Montana	476	0	476	0	69,441,137	42,877,806	1.5	24.21	27.62	6.90	0.27	12,066	12,912	8.19	0	-	-	476	69,441,137	47,321,805
R45T4	17	GNP	424	424	0	0	123,029,818	47,905,166	2.6	24.29	27.42	6.83	0.26	11,994	12,914	8.62	0	-	-	424	123,029,818	47,950,165
R45T4	18	State of Montana	540	0	540	0	354,430,493	71,311,566	5.0	24.23	28.93	6.90	0.26	11,971	12,946	9.01	0	-	-	540	354,430,493	71,311,566
R45T4	20	State of Montana	586	0	586	0	206,907,819	61,448,020	3.4	24.21	27.27	7.47	0.30	11,950	12,896	7.06	0	-	-	586	206,907,819	61,448,020
R45T4	21	GNP	640	640	0	0	163,781,896	72,065,955	2.3	24.18	27.15	6.79	0.30	11,917	12,814	6.82	0	-	-	640	163,781,896	72,065,955
R45T4	22	State of Montana	161	0	161	0	26,009,924	18,945,018	1.4	24.15	27.35	6.22	0.34	11,811	12,799	7.11	0	-	-	161	26,009,924	18,945,018
GRAND TOTAL			5,863	2,791	3,062	0	1,735,393,876	594,984,636	2.9	24.26	27.11	7.06	0.28	11,973	12,868	8.19	426	68,599,212	28,282,311	5,454	1,666,994,664	566,540,527
TOTAL GNP			2,791	2,791	0	0	896,737,343	268,086,867	3.3	24.26	27.10	7.18	0.28	11,838	12,838	8.62	178	50,127,896	24,590,728	2,414	638,108,445	244,396,142
TOTAL STATE OF MONTANA			3,062	0	3,062	0	1,838,656,536	326,898,870	3.2	24.25	27.13	6.87	0.27	12,002	12,892	8.10	51	10,981,314	4,901,585	3,041	1,028,795,221	322,144,385

GRAND TOTALS FOR TRACT 1, TRACT 2 AND TRACT 3

GRAND TOTAL	13,181	9,094	8,926	162	5,961,540,177	1,796,219,104	3.6	24.25	27.94	7.07	0.28	11,957	12,855	7.49	2,111	364,226,965	120,095,222	16,070	4,697,313,793	1,599,123,882
TOTAL GNP	9,994				2,388,916,675	842,952,028	2.8	24.25	25.33	6.43	8.25	10,802	11,417	6.67	976	154,991,256	53,112,538	8,118	2,213,925,417	789,839,172
TOTAL STATE OF MONTANA	8,925				2,674,071,813	847,101,383	3.2	24.25	27.90	7.02	0.28	11,974	12,889	7.60	1,135	209,235,727	66,982,387	7,790	2,464,835,686	750,119,017
TOTAL PRIVATE	162				18,551,890	16,165,693	1.1	24.14	27.54	7.85	0.32	11,872	12,840	6.38	0	0	0	162	18,551,890	16,165,693

COAL QUALITY

The coal resources contained within the Otter Creek Property are sub-bituminous in rank. Quality data have been made available through the analysis of core samples from 115 drill holes completed on the Otter Creek Property in the various drilling programs since the early 1970's. These data have defined the quality of the coal present within the property. The quality database contains proximate analysis, ultimate analysis, mineral analysis of ash, and in some cases equilibrium moisture analysis and density.

Quality Modeling

In general, core samples of coal from a given drill hole were sampled and analyzed in zones ranging from less than one foot to as much as ten feet in thickness. In some cases, these samples were combined to produce a physical composite. Because not all holes had physical composite samples, calculated mathematical composites were used for each of the drill holes containing quality data. These calculated values were double-weighted for both interval thickness and density. Where physical density data were not available for a sample this value was calculated using a linear regression analysis of the ash/density relationship of all samples having both data sets. A comparison of several physical composites with calculated composites of the same interval was made which validated that the composite method was accurate. Numerous tables of coal quality data were generated in the process of reducing the quality data. These intermediate stage tables are presented as back-up material and can be found in Appendix C.

The Knoblock coal averages 8,500 to 8,600 BTU/lb on an as-received basis. The high moisture content, which averages 27.5% to 28.0%, is fairly typical of Powder River Basin coals. The sulfur content of the coal is very low and with few exceptions the coal is classified as compliance coal, producing less than 1.2 pounds of SO_2/million BTU. The ash content of the coal is also low. Table 2.3 Otter Creek Property Coal Quality Summary, lists the statistics for selected parameters by seam.

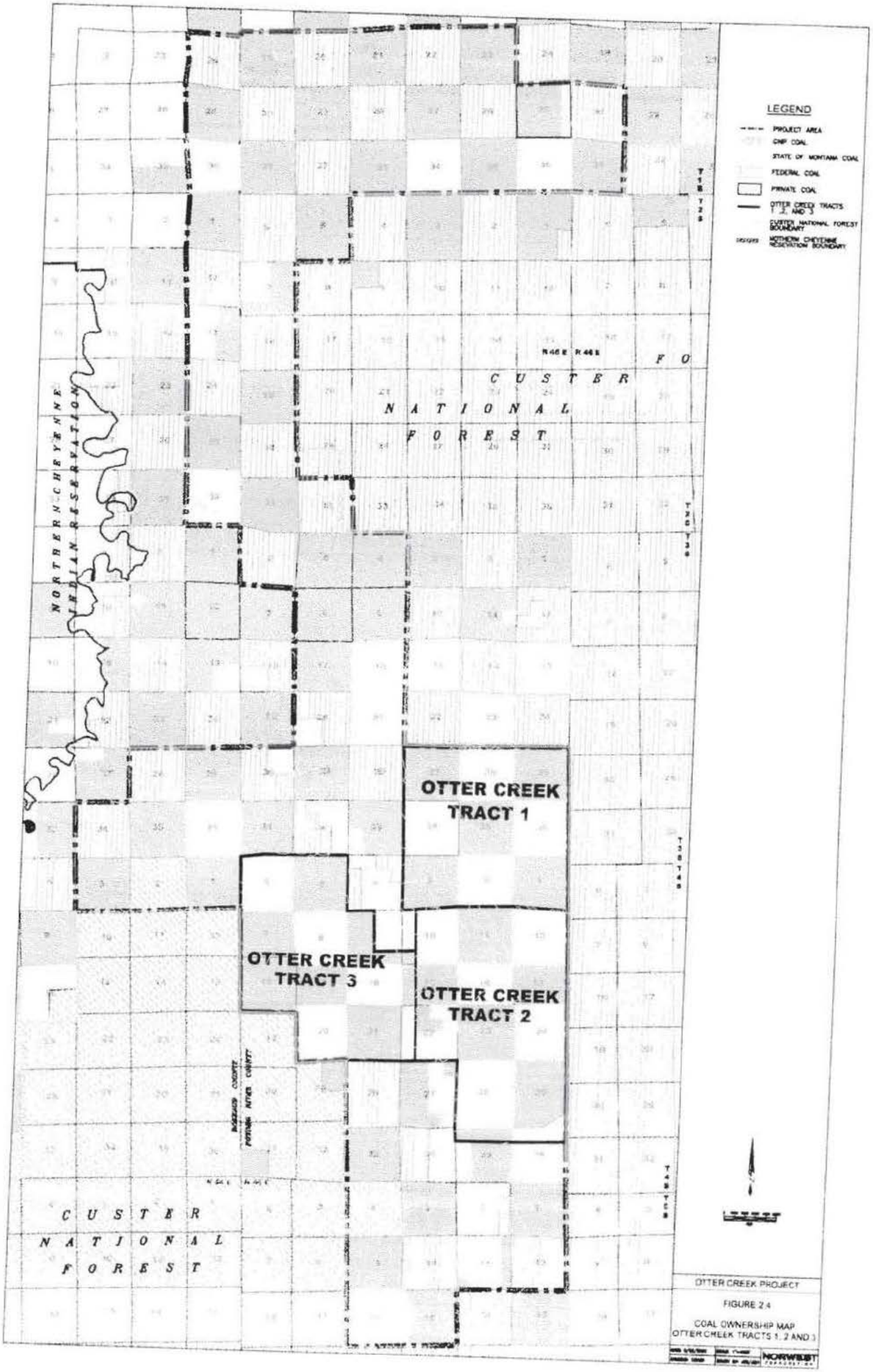

LEGEND
PROJECT AREA
CNP COAL
STATE OF MONTANA COAL
FEDERAL COAL
PRIVATE COAL
OTTER CREEK TRACTS 1, 2, AND 3
CUSTER NATIONAL FOREST BOUNDARY
NORTHERN CHEYENNE RESERVATION BOUNDARY
CUSTER
NATIONAL
FOREST
NORTHERN CHEYENNE INDIAN RESERVATION
OTTER CREEK TRACT 1
OTTER CREEK TRACT 3
OTTER CREEK TRACT 2
CUSTER
NATIONAL
FOREST
OTTER CREEK PROJECT
FIGURE 2.4
COAL OWNERSHIP MAP
OTTER CREEK TRACTS 1, 2 AND 3
NORTHWEST

TABLE 2.3: OTTER CREEK PROPERTY COAL QUALITY SUMMARY

Upper Knoblock Seam											
		AS Received					Lb SO2/		Lb NaO/	Dry	MAF
	Thickness	Moisture	Ash	Density	BTU/Lb	Sulfur	mmBTU	NaO	mm BTU	BTU/Lb	BTU/Lb
Min	2.0	22.39	3.32	1.22	6,798	0.12	0.29	0.73	0.00	9,345	11,238
Max	51.5	31.21	21.01	1.41	9,310	1.58	26.59	10.46	3.21	12,327	13,154
Mean	35.4	27.28	5.50	1.24	8,651	0.27	1.04	6.61	0.37	11,906	12,847
St. Dev.	16.6	2.29	5.70	0.06	979	0.48	11.87	2.82	1.39	1,334	1,083
Knoblock Seam											
		AS Received					Lb SO2/		Lb NaO/	Dry	MAF
	Thickness	Moisture	Ash	Density	BTU/Lb	Sulfur	mmBTU	NaO	mm BTU	BTU/Lb	BTU/Lb
Min	3.6	24.21	3.48	1.22	5,806	0.09	0.20	0.02	0.00	8,896	10,235
Max	72.2	36.35	33.73	1.55	9,372	0.77	2.40	10.96	40.99	12,748	14,189
Mean	60.5	28.04	5.09	1.24	8,594	0.20	0.47	7.03	0.49	11,946	12,843
St. Dev.	11.4	2.99	7.10	0.08	883	0.24	0.71	2.56	11.11	1,174	765
Lower Knoblock Seam											
		AS Received					Lb SO2/		Lb NaO/	Dry	MAF
	Thickness	Moisture	Ash	Density	BTU/Lb	Sulfur	mmBTU	NaO	mm BTU	BTU/Lb	BTU/Lb
Min	10.2	25.46	4.05	1.23	5,233	0.16	0.37	3.57	0.26	7,152	8,423
Max	22.7	31.10	18.99	1.39	8,804	0.46	3.67	10.46	2.94	12,191	13,207
Mean	16.4	27.68	6.97	1.26	8,325	0.27	0.80	6.01	0.56	11,534	12,702
St. Dev.	3.8	1.96	6.39	0.07	881	0.09	1.22	2.36	0.85	1,244	715

As shown on Table 2.3, the sodium content of the ash is considered high and averages between 6.0 and 7.0 percent. An inverse relationship exists in Powder River Basin coals where the sodium content of the coal ash generally increases as the ash content decreases. This relationship is strongly evident in the data regarding this coal. The higher sodium values are not surprising because of the low average ash content of the coals.

The calculated composite quality data were used to generate a quality model of the coal resources found within the property. This is important to identify the lateral variability in quality over the property and to visualize the spacing of data. Maps A2.15 and A2.16 illustrate the distribution of the in-place moisture of the Knoblock coal benches on an as-received quality basis. The moisture content of the coal shows little variability in all of the seams.

One noteworthy point is the lack of quality data in the northern portion of the property. The area north of the north half of Township 2 South, the area where the Knoblock seam splits into the Upper and Lower Knoblock seams, has no quality data. Core drill holes will need to be completed to characterize the quality of the coal in this area.

The ash content of the coal on a dry basis has been modeled and is shown on Maps A2.17 and A2.18. As can be seen on Map A2.17, the ash content of the Knoblock and Upper Knoblock seams is uniformly low but Map A2.18 shows a high ash zone (26.5%) in the Lower Knoblock seam. This zone is a one-drill hole anomaly and may be an isolated zone that is likely to be not representative of the ash content throughout the area.

The sulfur content of the coal is shown on Maps A2.19 and A2.20. Both these maps illustrate the consistently low nature of the sulfur content within the property.

The calorific value of the coal on a dry basis has been modeled and is illustrated on Maps A2.21 and A2.22. The MAF BTU value has also been modeled and is illustrated on Maps A2.23 and A2.24. These maps demonstrate the consistent nature of the coal regarding its heat value content. The only exception to this is a one drill hole anomaly in both the MAF and Dry BTU of the Lower Knoblock seam in the same area that showed elevated ash content. Because the MAF BTU is lower than adjacent holes the coal in this drill hole may be oxidized.

The sodium content in the coal ash has been modeled and is illustrated on Map A2.25 Knoblock/Upper Knoblock Sodium and Map A2.26 Lower Knoblock Sodium. Both of these maps show greater lateral variability than is shown on any of the other parameters modeled. A comparison of the maps regarding dry ash content, Maps A2.17 and A2.18 with the sodium content, Maps A2.25 and A2.26 show the areas having low ash coincide with the areas having the highest sodium content. The area of high ash illustrated on Map A2.18 is shown to have much lower sodium content (2.0%) than any holes surrounding it. It is evident from these data that when this coal property is mined, care in blending will be required to minimize the variability in the sodium content of the coal that would be produced. In addition, it is evident that additional drilling data will be required to implement coal quality programs.

Limited data were available regarding the equilibrium moisture of the coal. These data were used to model the variability in the equilibrium moisture and are illustrated on Map 2.27. Most of the equilibrium moisture data are from drill holes in the southern portion of the property but north of the zone where the Knoblock and Lower Knoblock split apart. The equilibrium moisture shows little variability but more data should be collected regarding this, particularly in the northern portion of the property.

Vertical Variability

The coal quality data was analyzed to identify vertical variability within each major bench of the Knoblock seam. This was done in two ways. First, a statistical approach was taken to assess variability in a general sense. Secondly, quality plots were generated for each hole in order to visually review the distribution of quality parameters from each individual drill hole.

For the statistical approach the coal quality data from each hole and seam were classified as to the relative position in each coal bench; the roof coal (the upper most sample in the drill hole), the upper half of the seam below the roof coal (the samples below the roof coal sample through the middle sample within the seam), the lower half of the seam above the floor coal (samples extending below the mid point of the seam down to but not including the bottom sample in the seam), and the floor coal (the lowest sample within the seam). These samples were then statistically analyzed. A summary of this investigation is presented in Table 2.4 Otter Creek Property - Coal Quality Vertical Comparison.

TABLE 2.4: OTTER CREEK PROPERTY - COAL QUALITY VERTICAL COMPARISON

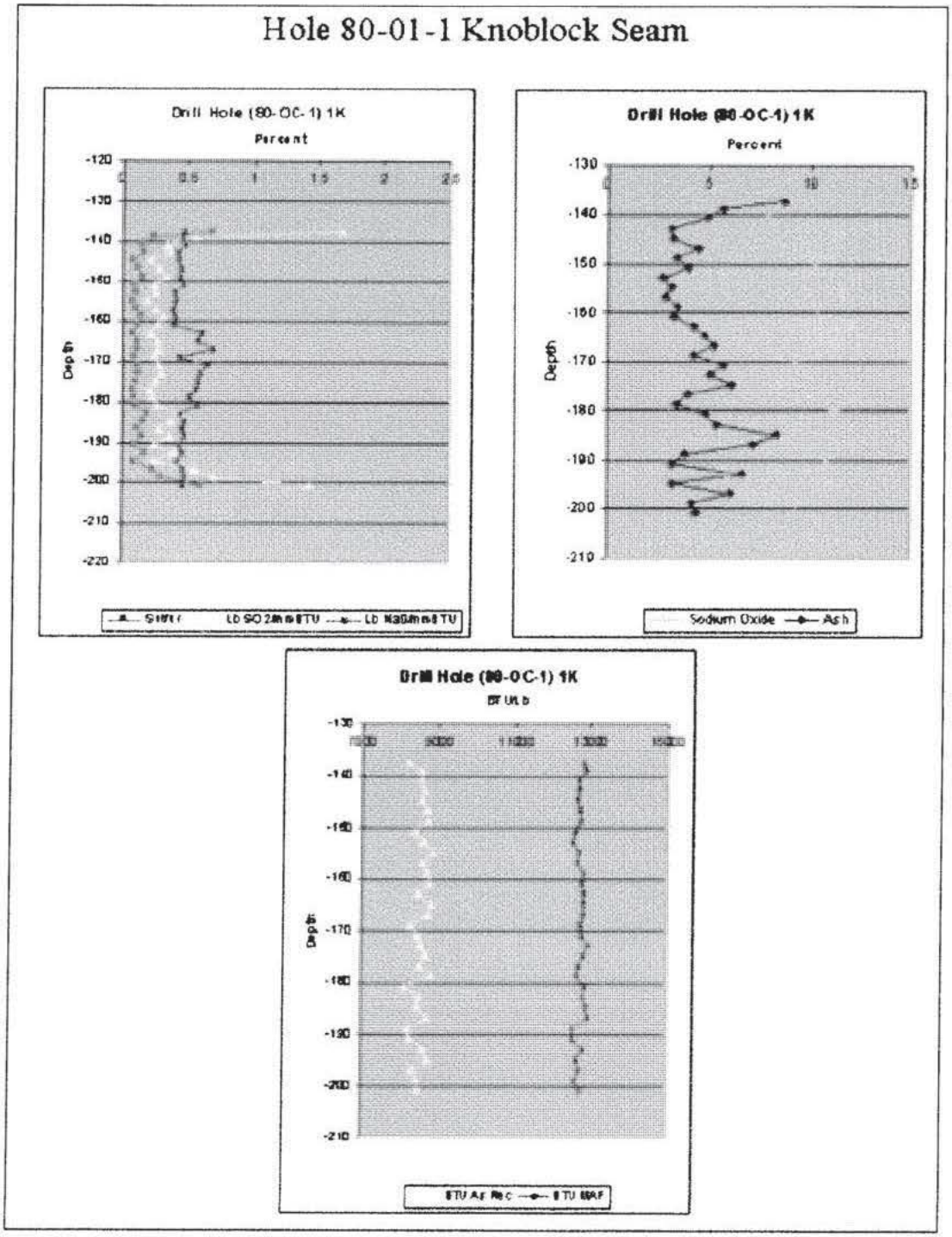
	Thickness	AS Received					Lb SO_2/ mmBTU	NaO	Lb NaO/ mm BTU	Dry BTU/Lb	MAF BTU/Lb
		Moisture	Ash	Density	BTU/Lb	Sulfur					
Upper Knoblock Seam Quality Data											
Roof Coal	2.30	26.48	8.83	1.28	8,282	0.89	8.49	4.65	1.06	11,310	12,489
Upper 1/2 Below	18.91	27.49	4.64	1.23	8,736	0.22	0.51	6.74	0.31	12,051	12,869
Lower 1/2 Above	16.86	27.08	6.04	1.25	8,611	0.25	0.62	6.71	0.34	11,821	12,872
Floor Coal	1.79	27.97	4.96	1.24	8,615	0.25	0.58	6.90	0.33	11,966	12,841
Knoblock Seam Quality Data											
Roof Coal	2.43	26.75	9.50	1.29	8,211	0.47	1.22	5.54	2.87	11,242	12,785
Upper 1/2 Below	29.70	28.19	4.42	1.23	8,642	0.15	0.36	7.56	0.37	12,032	12,822
Lower 1/2 Above	25.14	27.97	5.27	1.24	8,597	0.19	0.44	6.60	0.38	11,938	12,871
Floor Coal	1.99	28.35	7.16	1.26	8,338	0.54	1.34	6.47	0.78	11,664	12,885
Lower Knoblock Seam Quality Data											
Roof Coal	1.97	25.74	9.80	1.29	8,315	0.35	0.86	4.32	0.47	11,217	12,899
Upper 1/2 Below	8.59	27.95	6.17	1.25	8,270	0.19	0.55	5.79	0.52	11,497	12,566
Lower 1/2 Above	4.86	27.80	7.61	1.27	8,335	0.29	1.05	6.91	0.70	11,576	12,756
Floor Coal	1.40	28.41	5.47	1.24	8,642	0.61	1.40	6.71	0.41	12,077	13,070

This comparison indicates the following:

- An increase in ash content in the roof and floor samples of all seams.
- The lower half of the Knoblock seam has a tendency to have higher ash content than the upper half.
- The Lower Knoblock is also higher in ash than the upper half of the Knoblock seam. This is not surprising because that portion of higher ash Knoblock is correlative to the Lower Knoblock seam.
- Correspondingly, the sodium oxide content is generally lower in the top portions of the benches and increases downward
- The lower ash portions of the seams generally contain the highest sodium oxide levels.
- The roof coal, due to its reduced calorific values, demonstrates elevated LB SO_2/mmBTU values.

The second way in which the quality data was reviewed vertically was to plot graphs of selected quality parameters with depth. Up to three graphs were generated for each drill hole containing quality data and have been plotted for a comparison of the vertical quality variation within each drill hole. Figure 2.5, Example Graphs of Coal Quality by Drill hole, illustrates how this quality data has been prepared. Similar graphs for all holes containing quality data are found in Appendix D. These graphs illustrate the tendency for the coal seams to have higher ash content in their roof and floor and as a result they also tend to have lower BTU value in these zones. The inverse relationship between the ash content and the sodium content in the ash is also very evident in most of these graphs.

Figure 2.5 Example Coal Quality Vertical Distribution



Summary Conclusions and Opportunities Related to Blending
The primary conclusions derived from the lateral coal quality modeling and the review of the vertical variability of coal quality parameters are as follows:

- The coal averages 8,500 to 8,600 BTU/lb of coal on an as-received basis.
- Moisture content which averages 27.5% to 28.0% is fairly typical of Powder River Basin coals.
- The sodium content of the ash is considered high and averages between 6.0 and 7.0 percent.
- An inverse relationship exists where the sodium content of the coal ash generally increases as the ash content decreases.
- The sulfur content of the coal generally is consistently low, averaging approximately 0.27 % and with few exceptions, the coal is classified as compliance coal which produces less than 1.2 pounds of SO_2/million BTU.
- Sulfur content however, is elevated in the top portion of the Upper Knoblock seam.
- Ash content is the highest in the top portions of all of the coal benches.
- The Upper Knoblock Seam is generally slightly lower in ash content and higher in Sodium Oxide than the lower portions of the Knoblock Seam.
- Coal quality control programs and blending will need to be implemented during mining operations in order to maintain consistent product qualities.
- The opportunities for blending will need to be assessed on specific mining block areas as opposed to generalities applied to the entire Otter Creek project area.

MINING EVALUATION

Based on advice from GNP and the State of Montana, Norwest's focused our evaluation on the southern portion of the property because it is the most attractive for development from both resource and land control perspective. In this southern area, GNP and the State of Montana control the majority of the coal resources. In addition, the exploration drill hole density provides sufficient data to do a good evaluation of this property.

Norwest mining engineers evaluated the mineability of the Otter Creek coal resources by considering the topography, surface features, overburden depths, the thickness and dip of coal seams, the strip ratios, and coal outcrop lines. The geological investigation produced a series of maps showing these features and can be found in Appendix A to this report.

LOGICAL MINING UNITS

Norwest divided the southern portion of the Otter Creek reserve into a total of six LMUs. An LMU is an area of land in which the coal resources can be developed in an efficient, economical, and orderly manner as a unit with due regard to conservation of coal reserves and other resources. An LMU may consist of Federal leaseholds, private land, state lands combined under the effective control of a single operator that can be developed and operated as a single operation.

For the this study, each LMU has the following properties;

- Minimum of 200 million tons (Mt) of coal
- Maximum in-situ stripping ratio of 5:1 (five cubic yards of waste per ton of coal)
- Can be developed and operated as a single operation
- Can be separated from adjacent LMUs by physical boundaries such as stream channels, ridge lines or other naturally occurring barriers
- Sufficient resources for a minimum of a 40 year life.

In reality, all identified LMUs have more than 200 million tons of coal in-place, so that high-production, long-term mine plans could be developed. Reserves of this size are more likely to be attractive to major coal producers and energy project sponsors interested in

developing these resources. Table 3.1, LMU Reserves lists six LMUs with their related resource information. The LMUs are shown on Figure 3.1, LMU Map[2].

LMU 1 – Area A1
This LMU is located in Township 3S, Range 45 E, Sections 25, 26, 33, 34, 35 and 26 and Township 4S, Range 45 E, Sections 1, 2, and 3 and comprises the A1 mining area. It covers approximately 3,500 acres. At a maximum in-place strip ratio of 5:1, this LMU contains 355 million tons in two main seams. The average effective strip ratio, assuming 95% recovery, is 3.0:1 in place. Heat content averages 12,820 Btu (air dried basis), while sodium in ash averages 6.9 %.

There is a possible alluvial valley floor (AVF) lying on the south side of this LMU that contains 9 million tons of coal. This is shown separately to recognize that mining could possibly be restricted from this area, should it be classified as an AVF by the State.

Mining operations would primarily follow the strike of the coal outcrop, i.e., in a north-south and a northeast-southwest direction and advance easterly from the outcrop to the lease boundary. In the northern most portion of this LMU (Area A1), mining cuts are oriented north-south and northeast-south to take advantage of coal outcrop.

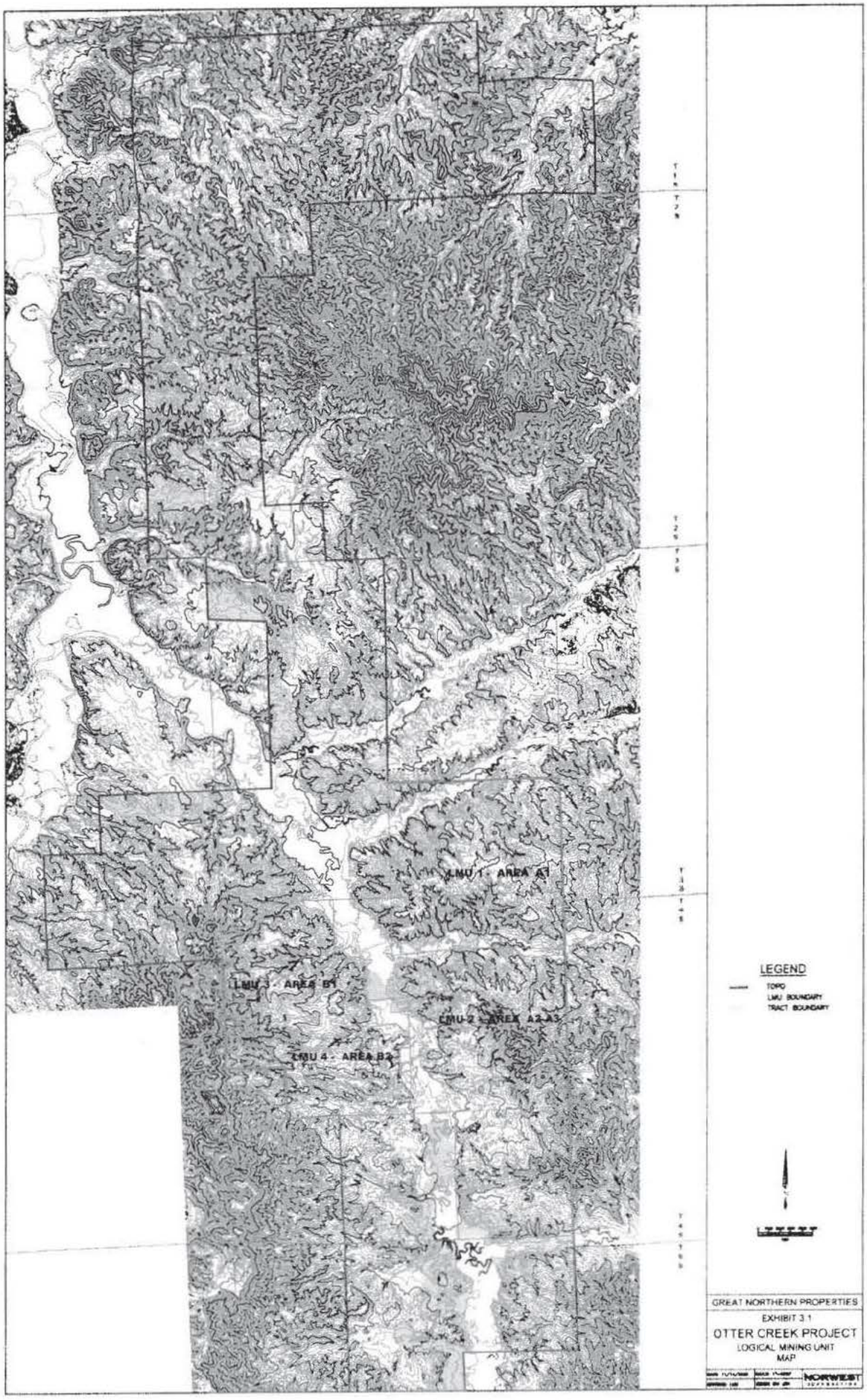
LMU 2 – Area A2 – A3
This LMU borders on the south of LMU 1 and lies primarily within Township 4S, R45E Sections 1, 2 10, 11, 12, 13, 14, 15, 22, 23, 24, 25 ,26, 35 and 36. It covers 5,000 acres and contains 510 million tons of coal at an average effective strip ratio of 2.8:1. Average heating content is 11,956 Btu (air dried basis), and sodium in ash averages 7.2%.

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[2] Please note that only LMUs 1 through 4 are actually indicated on Figure 3.1. LMU 5 is a combination of LMUs 1 and 2 while LMU 6 is a combination of LMUs 3 and 4.

Table 3.1 Great Northern Properties LMU Reserves

		Coal			IN-SITU COAL QUALITY									Annual
	Waste		In-Situ	Recoverable	Equilibrated	As Received	DRY			Moisture - Ash	Sodium	Stripping Ratio		Production
Mine Block	Volumes (bcy)	Volumes (bcy)	Tons (tons)	Tons (tons)	Moisture (%)	Moisture (%)	Ash (%)	Sulfur (%)	Btu (btu/lb)	Free Btu (btu/lb)	in the Ash (%)	Virgin (bcy : ton)	Effective (bcy : ton)	40 Year Mine Life
LMU 1 AREA A1														
AREA A1 MAIN PIT	1,018,011,620	338,808,787	354,936,064	337,189,261	24.35	28.61	6.89	0.26	11,936	12,819	6.91	**2.87**	**3.02**	**8.4**
AREA A1 1 AVF	8,896,612	8,527,977	8,933,909	8,487,213	24.51	28.53	6.93	0.26	11,956	12,844	7.21	**1.00**	**1.05**	**0.2**
TOTAL AREA A1	**1,026,910,233**	**347,336,744**	**363,869,973**	**345,676,475**	**24.36**	**28.61**	**6.89**	**0.26**	**11,936**	**12,820**	**6.92**	**2.82**	**2.97**	**8.6**
LMU 2 AREA A2 AND A3														
AREA A2 and AREA A3	1,479,564,664	309,314,665	533,538,043	506,880,141	24.18	28.26	7.18	0.23	11,966	12,876	7.26	**2.77**	**2.92**	**12.7**
AREA A2 AVF	46,593,276	40,029,643	41,935,054	39,838,302	24.21	27.84	7.45	0.30	11,917	12,847	6.87	**1.11**	**1.17**	**1.0**
AREA A3 AVF	13,702,141	8,936,841	9,362,236	8,894,125	23.52	26.91	7.49	0.31	11,575	12,511	6.90	**1.46**	**1.54**	**0.2**
TOTAL AREA A2 AND A3 COMBINED	**1,539,860,082**	**558,281,151**	**584,855,334**	**555,612,567**	**24.17**	**28.21**	**7.21**	**0.29**	**11,956**	**12,868**	**7.19**	**2.63**	**2.77**	**13.9**
LMU 3 AREA B1														
AREA B1	777,596,175	**242,865,305**	**253,587,614**	**240,908,233**	**24.30**	**26.84**	**6.77**	**0.27**	**12,012**	**12,881**	**8.74**	**3.07**	**3.23**	**6.0**
LMU 4 AREA B2														
AREA B2	596,618,818	239,853,272	251,270,288	238,706,773	24.21	27.40	7.38	0.29	11,932	12,854	7.68	**2.37**	**2.50**	**6.8**
AREA B2 AVF	12,373,233	27,620,278	28,935,004	27,488,254	24.15	27.63	7.63	0.32	11,895	12,836	6.82	**1.12**	**1.18**	**0.7**
TOTAL AREA B2	**628,992,051**	**267,473,550**	**280,205,291**	**266,195,027**	**24.20**	**27.42**	**7.40**	**0.30**	**11,928**	**12,853**	**7.59**	**2.24**		**6.7**
LMU 5 AREA A1, A2 AND A3														
AREA A1 and AREA A2	2,197,575,285	848,123,432	888,494,108	844,069,402	24.25	28.40	7.07	0.28	11,954	12,853	7.12	**2.81**	**2.96**	**21.1**
AREA A3 AVF	13,702,141	8,936,843	9,362,236	8,894,125	23.52	26.91	7.49	0.31	11,575	12,511	4.90	**1.46**	**1.54**	**0.2**
AREA A2 AVF	46,593,276	40,029,643	41,935,054	39,838,302	24.21	27.84	7.45	0.30	11,917	12,847	6.87	**1.11**	**1.17**	**1.0**
AREA A1 AVF	8,896,612	8,527,977	8,933,909	8,487,213	24.51	28.53	6.93	0.26	11,956	12,844	7.21	**1.00**	**1.05**	**0.2**
TOTAL AREA A1 AND A2 COMBINED	2,586,778,315	**905,617,895**	**948,725,307**	**901,289,042**	**24.24**	**28.36**	**7.09**	**0.28**	**11,949**	**12,849**	**7.09**	**2.71**	**2.85**	**22.5**
LMU 6AREA B1 AND B2														
AREA B1 AND B2	1,374,214,993	481,918,577	564,857,901	479,615,006	24.25	27.12	7.07	0.28	11,972	12,868	8.21	2.72	2.87	12.8
AREA B2 AVF	12,373,233	27,620,278	28,935,004	27,488,254	24.15	27.63	7.63	0.32	11,895	12,836	6.82	1.12	1.18	0.7
TOTAL AREA B1 AND B2 COMBINED	1,406,588,226	**509,538,856**	**533,792,905**	**507,103,260**	**24.24**	**27.17**	**7.13**	**0.28**	**11,964**	**12,865**	**8.07**	**2.64**	**2.77**	**12.7**


LMU 1 - AREA A1
LMU 3 - AREA B1
LMU 2 - AREA A2 A3
LMU 4 - AREA B2
LEGEND
TOPO
LMU BOUNDARY
TRACT BOUNDARY
GREAT NORTHERN PROPERTIES
EXHIBIT 3.1
OTTER CREEK PROJECT
LOGICAL MINING UNIT
MAP
NORWEST

There are two possible AVFs[3], one lying on the north side and one lying on the west side of this LMU. These potential AVFs contain 40 million tons and 9 million tons of coal, respectively.

Mining operations are primarily oriented north-south and east-west in this LMU.

LMU 3 – Area B1
This LMU is located west of LMUs 1 and 2 and lies within Township 3S, R45E Sections 5, 6, 7, 8, 9, 17 and 18. It covers 2,400 acres and contains 254 million tons of coal at an average effective strip ratio of 3.2:1. Average heating content is 12,012 Btu (air dried basis), and sodium in ash averages 8.7%.

There are no likely AVFs found adjacent to this block.

Mining operations are primarily oriented northwest-southeast along the strike of the coal in this LMU.

LMU 4 – Area B2
This LMU borders on the south of LMU 3 and lies primarily within Township 3S, R45E Sections 15, 16, 17, 18, 20, 21, and 22. It covers 2,300 acres and contains 251 million tons of coal at an average effective strip ratio of 2.4:1. Average heating content is 11,932Btu (air dried basis), and sodium in ash averages 7.7%.

There is one potential AVF lying on the east side of this LMU; this is estimated to contain 29 million tons of coal.

Mining operations are primarily oriented northwest-southeast along the strike of the coal in this LMU.

LMU 5 – Area A1 and A2 Combined
This LMU combines the resources of Area A1 and A2 and is located in Township 4S, R45W and Township 3S, R45E. It covers a total 7,000 acres and contains 751 million tons of coal at an average effective strip ratio of 2.8:1. Average heating content is 11,969Btu (air dried basis), and sodium in ash averages 7.4%.

[3] All AVFs are shown separately to recognize that mining could possibly be restricted from this area, should it be classified as an AVF by the State.

There are three potential AVFs: one lying south of Area A1; one lying north of Area A2; and one lying west of Area A2. These potential AVFs contains a total of 51 million tons of coal.

LMU 6 – Area B1 and B2 Combined
This LMU combines the resources of Area B1 and B2 and is located in Township 3S, R45E. It covers a total 4,700 acres and contains 505 million tons of coal at an average effective strip ratio of 2.9:1. Average heating content is 11,972Btu (air dried basis), and sodium in ash averages 8.2%.

There is one possible AVF lying east of Area B2. This potential AVF contains a total of 29 million tons of coal.

COAL QUALITY

Figure A.2 is a cross-section depicting the coal seams in relation to the surface of the land. A summary of coal quality by seam and seam thickness for each LMU is found in Table 3.2, LMU Coal Quality by Seam. This table shows that the quality of the Upper and Lower Knoblock Seams are nearly identical with only minor variations in any of the parameters.

MINING APPROACH

All LMUs are amenable to surface mining using draglines and truck-shovel fleets for overburden removal. These techniques are used at other mines in the region including Absaloka, Decker, Rosebud, and Spring Creek Mines. Large walking draglines working with large (850 hp) push dozers usually remove up to 150 feet of the overburden above the upper coal seam. Overburden greater than 150 feet in thickness and thick interburden are moved using truck-shovel fleets. For thin interburden, large wheel loaders, large push dozers and wheel scrapers can be used effectively. Drilling and blasting is generally required to fragment the overburden and thick interburdens. This eases the digging of this material and increases the equipment productivity.

For each LMU, the dragline was sized according to the accepted mining industry rule of thumb i.e. by dividing the largest annual dragline removal requirements by a dragline productivity factor of 250,000 bank cubic yards (BCY) per cubic yard of dragline bucket capacity. For example: An LMU requiring a maximum annual dragline volume of 30 million BCY would require a dragline having a bucket capacity of 120 cubic yards (CY). Therefore, the smaller LMUs will require 70 to 80 CY draglines while the larger

Table 3.2 Great Northern Properties LMU Coal Quality by Seam

LMU - MINE BLOCK		Seam	Seam Thickness (feet)	IN-SITU COAL QUALITY				
				As Received Moisture (%)	DRY			Sodium in the Ash (%)
					Ash (%)	Sulfur (%)	Btu (btu/lb)	
LMU - 1	AREA A1	UK2	42.08	28.60	6.90	0.26	11,934	6.94
		LK	18.11	28.63	6.88	0.26	11,940	6.83
LMU - 2	AREA A2 - A3	UK2	37.08	28.35	7.75	0.28	11,888	5.87
		UK1	4.80	28.39	8.51	0.28	11,795	6.44
		LK	15.06	28.10	8.59	0.39	11,837	5.69
LMU - 3	AREA B1	UK2	44.30	24.30	6.77	0.27	12,012	8.75
		LK	19.33	24.30	6.78	0.27	12,011	8.72
LMU - 4	AREA B2	UK2	46.87	27.38	6.82	0.28	12,002	7.94
		LK	17.63	27.43	8.86	0.32	11,743	6.97
LMU - 5	AREA A1, A2 AND A3 COMBINED	UK2	43.42	28.39	6.99	0.27	11,960	7.13
		UK1	4.80	28.39	8.51	0.28	11,795	6.44
		LK	18.66	28.34	7.30	0.29	11,934	7.04
LMU - 6	AREA B1 AND B2 COMBINED	UK2	45.61	28.65	7.18	0.29	12,674	8.73
		LK	18.54	28.82	8.32	0.31	12,605	8.29

LMUs will need 110 to 120 CY draglines. The combined LMUs will require two draglines. For LMUs 1 through 4, the truck-shovel fleet will consist of 25 to 30 CY hydraulic excavators or shovels and 190 to 240 ton trucks.

Coal, when exposed the top surface of the seam, will need to be cleaned using a rubber tired dozer, or grader to scrape away any remaining loose overburden/interburden or oxidized coal. In addition, the upper portions (6 inches to 1 foot) of both the Upper and Lower Knoblock may need to be removed and wasted to help reduce the sulfur content of the shipped product. One mine in the area (Rosebud) currently is utilizing a pavement cutting machine to remove this top layer of coal and process significantly reduces the sulfur content in their shipped coal.

Coal will be loaded by mining shovels, larger front end loaders or hydraulic excavators into large capacity (up to 320 tons) bottom or rear dump trucks and hauled to a coal handling system. The coal will be crushed in multiple stages to a minus 2 inches product, the size required by most thermal coal customers, and placed into a stockpile or loaded into unit trains for shipment to customers, primarily in the Midwest.

When it is necessary to meet the customer's coal specifications, if may be possible to selectively mine the coal to improve the coal quality. The selective mining process removes zones within each seam that are usually higher in sulfur or sodium thereby resulting in a higher quality product.

As an alternate to truck haulage to the coal handling plant, additional studies may indicate that it is more cost-effective to crush the coal at the mining face, using portable hopper/crushers, and then load the crushed product directly onto overland conveyors for transport to a processing plant or unit train loadout facility.

The general mining sequence for each of the LMUs is shown on Figure 3.2, LMU Mine Plan Layout Map. Table 3.3 lists the production rates selected for the LMUs.

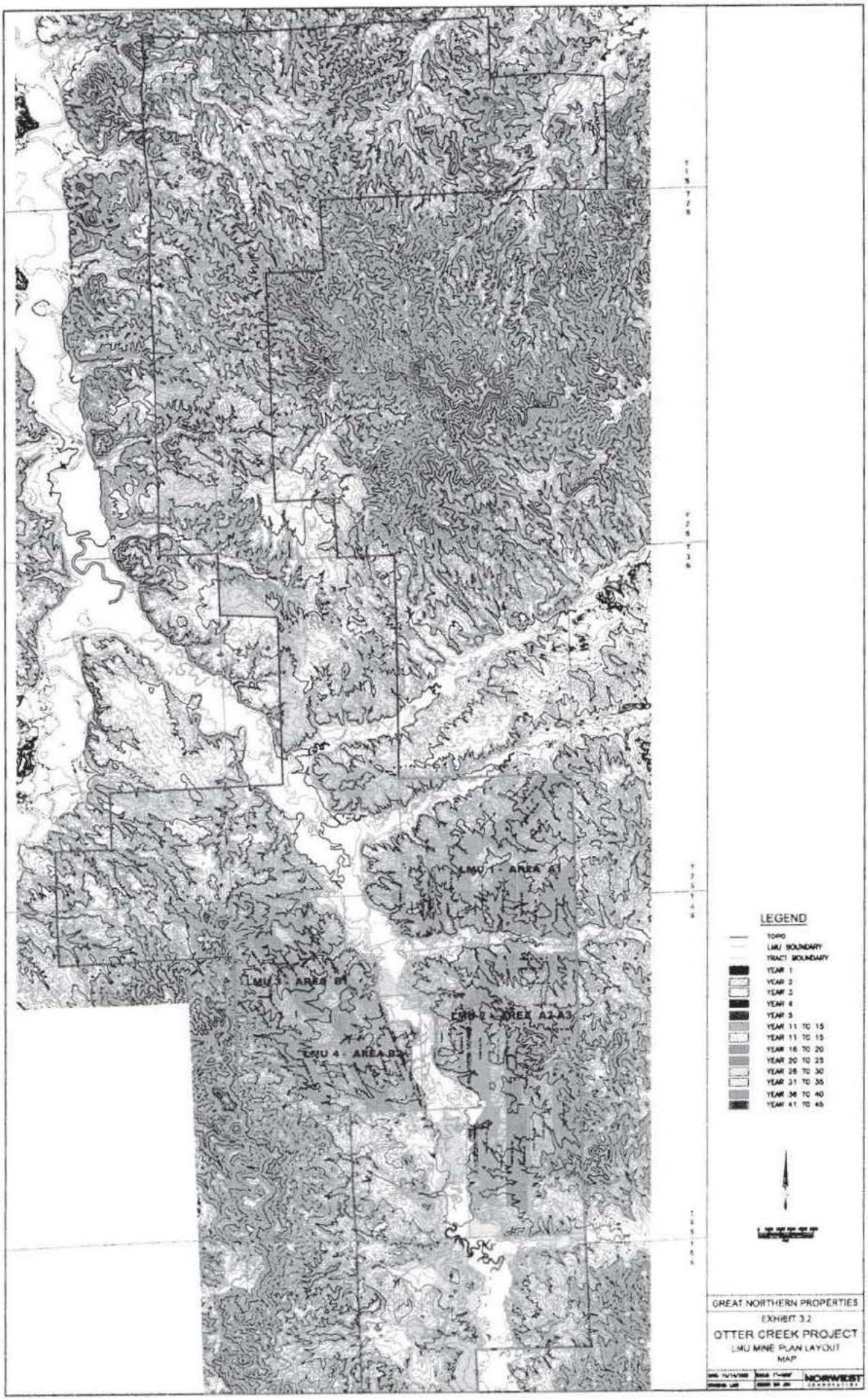

LMU 1 - AREA A1
LMU 3 - AREA B1
LMU 2 - AREA A2-A3
LMU 4 - AREA B2
LEGEND
TOPO
LMU BOUNDARY
TRACT BOUNDARY
YEAR 1
YEAR 2
YEAR 3
YEAR 4
YEAR 5
YEAR 11 TO 15
YEAR 11 TO 15
YEAR 16 TO 20
YEAR 20 TO 25
YEAR 26 TO 30
YEAR 31 TO 35
YEAR 36 TO 40
YEAR 41 TO 45
GREAT NORTHERN PROPERTIES
EXHIBIT 3.2
OTTER CREEK PROJECT
LMU MINE PLAN LAYOUT
MAP
NORWEST

Table 3.3 Production Rate by LMU

LMU	Yearly Production Rate (Tons)
1	8,500,000
2	12,700,000
3	6,000,000
4	6,000,000
5	21,200,000
6	12,000,000

Mining Cost Estimate

Norwest developed a mining cost estimate for each LMU. Mining costs were based on an assessment of the volumes of waste and coal that would be moved over the life of the mine. When using dragline mining systems, as the overburden depths increase, some of the in-situ overburden needs to be moved twice (rehandled) by the dragline. Rehandle can range from 0% to 50% of the in-situ waste material – for the purpose of this study Norwest estimated the dragline rehandle at 25% of the dragline waste volumes (maximum 150 feet of overburden) and truck-shovel rehandle was estimated at 5%. All in-situ waste volumes were increased to reflect the appropriate rehandle percentage by material type. Table 3.4 LMU Mine Plan Volumes show the coal and overburden removal requirement in annual and 5 year increments for each LMU.

Mining costs were calculated based on unit mining costs derived from actual and projected mining costs from mines having similar mining conditions. The estimated final waste volumes and coal tons shown in Table 3.4 where used as inputs to the economic model. Tables 3.5 through 3.10 show the estimated mining costs for the individual LMUs. The average life-of-mine costs for the six LMU range from $6.69 per ton to $7.65 per ton.

Mining capital was estimated for each LMU. Table 3.11, Capital Expenditures shows the projected capital expenditures for development, mine infrastructure, coal handling plant, overburden and coal loading trucks and shovels, reclamation equipment and various support equipment including rubber tired dozers, graders, large dozers, water trucks, overburden and coal drills.

Table 3.4 Great Northern Properties LMU Mine Plan Volumes

	Units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 to 10	Year 11 to 15	Year 16 to 20	Year 21 to 25	Year 26 to 30	Year 31 to 35	Year 36 to 40	Year 41 to 45	TOTALS
LMU 1 - AREA A1															
Coal Tons	TONS	3,580,000	8,500,000	8,500,000	8,500,000	8,500,000	42,500,000	42,500,000	42,500,000	42,500,000	42,500,000	42,500,000	42,400,000	100,000	335,080,000
In-Situ Dragline Volumes	BCY	5,780,000	16,500,000	20,400,000	18,300,000	18,900,000	104,000,000	104,600,000	92,200,000	94,300,000	98,300,000	100,100,000	101,800,000	200,000	775,380,000
In-Situ Truck-Shovel Volumes	BCY	200,000	600,000	2,200,000	1,200,000	3,100,000	26,900,000	33,700,000	15,500,000	19,500,000	34,800,000	70,000,000	48,600,000	0	256,300,000
Dragline Volumes with Rehandle	BCY	7,125,000	20,625,000	25,500,000	21,875,000	23,625,000	130,000,000	130,750,000	115,250,000	117,875,000	123,875,000	125,125,000	127,250,000	250,000	969,125,000
Truck-Shovel Volumes with Rehandle	BCY	310,000	630,000	2,310,000	1,260,000	3,255,000	28,245,000	35,385,000	16,275,000	20,475,000	36,540,000	73,500,000	51,030,000	0	269,115,000
Effective Strip Ratio	BCY ; TON	2.10	2.50	3.27	2.84	3.16	3.72	3.91	3.09	3.26	3.75	4.67	4.29	2.50	3.70
	BCY														
LMU 2 - AREA A2 - A3															
Coal Tons	TONS	5,100,000	12,700,000	12,700,000	12,700,000	12,700,000	63,500,000	63,500,000	63,500,000	63,600,000	63,500,000	63,500,000	61,300,000	200,000	495,500,000
In-Situ Dragline Volumes	BCY	5,300,000	17,800,000	22,900,000	24,400,000	25,900,000	130,400,000	133,000,000	131,100,000	142,100,000	144,800,000	143,600,000	139,700,000	300,000	1,059,500,000
In-Situ Truck-Shovel Volumes	BCY	400,000	700,000	1,800,000	2,300,000	4,200,000	28,100,000	34,700,000	35,500,000	58,300,000	68,600,000	73,100,000	109,700,000	200,000	409,600,000
Dragline Volumes with Rehandle	BCY	6,625,000	22,250,000	27,500,000	30,500,000	31,250,000	163,000,000	166,250,000	163,875,000	177,625,000	181,000,000	179,500,000	174,625,000	375,000	1,324,375,000
Truck-Shovel Volumes with Rehandle	BCY	420,000	755,000	1,995,000	3,565,000	8,588,000	39,100,000	40,470,000	61,095,000	73,165,000	98,290,000	162,295,000	132,190,000	210,000	622,130,000
Effective Strip Ratio	BCY ; TON	1.38	1.81	2.32	2.68	3.14	3.18	3.26	3.54	3.94	4.40	5.38	5.01	2.93	3.90
LMU 3 - AREA B1															
Coal Tons	TONS	2,400,000	6,000,000	6,000,000	6,000,000	6,000,000	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000	700,000	237,100,000
In-Situ Dragline Volumes	BCY	5,200,000	13,400,000	14,240,000	14,140,000	13,028,000	66,804,000	78,960,000	89,028,000	91,968,000	100,412,000	111,592,000	121,344,000	3,184,000	731,320,000
In-Situ Truck-Shovel Volumes	BCY	100,000	300,000	823,810	823,810	928,571	7,576,190	15,742,857	23,080,952	26,323,810	45,919,048	52,284,762	68,438,095	1,885,714	244,147,619
Dragline Volumes with Rehandle	BCY	6,500,000	16,750,000	17,800,000	17,675,000	16,285,000	83,505,000	98,725,000	111,285,000	114,960,000	125,515,000	139,490,000	151,680,000	3,980,000	914,150,000
Truck-Shovel Volumes with Rehandle	BCY	105,000	315,000	865,000	865,000	975,000	7,955,000	16,530,000	24,235,000	27,640,000	48,215,000	54,815,000	71,860,000	1,980,000	256,355,000
Effective Strip Ratio	BCY ; TON	2.75	2.84	3.11	3.09	2.88	3.05	3.84	4.52	4.75	6.12	6.48	7.45	8.51	4.94
LMU 4 - AREA B2															
Coal Tons	TONS	2,400,000	6,000,000	6,000,000	6,000,000	6,000,000	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000	30,000,000	1,600,000	238,000,000
In-Situ Dragline Volumes	BCY	4,500,000	7,300,000	7,400,000	8,700,000	9,000,000	51,900,000	55,300,000	62,200,000	62,200,000	61,800,000	71,200,000	73,700,000	3,600,000	478,900,000
In-Situ Truck-Shovel Volumes	BCY	100,000	300,000	400,000	600,000	400,000	3,100,000	7,000,000	13,700,000	11,300,000	13,400,000	25,800,000	43,500,000	5,000,000	124,600,000
Dragline Volumes with Rehandle	BCY	5,625,000	9,125,000	9,250,000	10,875,000	11,250,000	64,875,000	69,125,000	77,750,000	77,750,000	77,250,000	89,000,000	92,125,000	4,500,000	598,500,000
Truck-Shovel Volumes with Rehandle	BCY	105,000	315,000	420,000	630,000	420,000	3,255,000	7,350,000	14,385,000	11,865,000	14,070,000	27,090,000	45,675,000	5,250,000	130,830,000
Effective Strip Ratio	BCY ; TON	2.39	1.57	1.61	1.92	1.95	2.27	2.55	3.07	2.99	3.04	3.87	4.59	6.09	3.96
LMU 5 - AREA A1, A2 AND A3															
Coal Tons	TONS	8,600,000	21,200,000	21,200,000	21,200,000	21,200,000	106,000,000	106,000,000	106,000,000	106,100,000	106,000,000	106,000,000	103,700,000	300,000	833,500,000
In-Situ Dragline Volumes	BCY	11,000,000	34,300,000	42,600,000	42,700,000	43,900,000	234,680,000	237,600,000	223,300,000	236,400,000	243,100,000	243,700,000	241,500,000	500,000	1,834,800,000
In-Situ Truck-Shovel Volumes	BCY	600,000	1,100,000	2,200,000	2,700,000	4,600,000	30,200,000	36,900,000	37,600,000	60,400,000	62,700,000	75,200,000	111,800,000	200,000	426,200,000
Dragline Volumes with Rehandle	BCY	13,750,000	42,875,000	53,000,000	53,375,000	54,875,000	293,000,000	297,000,000	279,125,000	295,500,000	303,875,000	304,625,000	301,875,000	625,000	2,293,500,000
Truck-Shovel Volumes with Rehandle	BCY	630,000	1,385,000	4,305,000	4,825,000	11,835,000	67,345,000	75,855,000	77,370,000	93,640,000	134,830,000	235,795,000	183,220,000	210,000	891,245,000
Effective Strip Ratio	BCY ; TON	1.67	2.09	2.76	2.75	3.15	3.40	3.52	3.36	3.67	4.14	5.18	4.68	2.78	3.82
LMU 6 - AREA B1 AND B2 COMBINED															
Coal Tons	TONS	4,800,000	12,000,000	12,000,000	12,000,000	12,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	60,000,000	2,300,000	475,100,000
In-Situ Dragline Volumes	BCY	9,700,000	20,700,000	21,640,000	22,840,000	22,028,000	118,704,000	134,260,000	151,228,000	154,168,000	170,212,000	182,792,000	195,044,000	4,784,000	1,210,120,000
In-Situ Truck-Shovel Volumes	BCY	200,000	600,000	1,223,810	1,423,810	1,328,571	10,676,190	22,742,857	36,780,952	37,623,810	59,319,048	78,004,762	111,938,095	6,885,714	368,747,619
Dragline Volumes with Rehandle	BCY	12,125,000	25,875,000	27,050,000	28,550,000	27,535,000	148,380,000	167,850,000	189,035,000	192,710,000	212,765,000	228,490,000	243,805,000	8,480,000	1,512,650,000
Truck-Shovel Volumes with Rehandle	BCY	210,000	630,000	1,285,000	1,495,000	1,395,000	11,210,000	23,880,000	38,620,000	39,505,000	62,285,000	81,905,000	117,535,000	7,230,000	387,185,000
Effective Strip Ratio	BCY ; TON	2.57	2.21	2.56	2.50	2.41	2.66	3.20	3.79	3.87	4.58	5.17	6.02	6.83	4.00

Table 3.5 LMU 1 – A2 Mine Cost Model

	Basis	Units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 To 10	Year 11 To 15	Year 16 To 20	Year 21 To 25	Year 26 To 30	Year 31 To 35	Year 36 To 40	Year 41 +	Totals
PRODUCTION																
Tons Produced (000s)		tons/y	1,684	8,947	8,947	8,947	8,947	44,737	44,737	44,737	44,737	44,737	44,737	44,633	211	332,737
Tons Sold (000s)	95.0%	Recovery	1,600	8,500	8,500	8,500	8,500	42,500	42,500	42,500	42,500	42,500	42,500	42,400	200	316,100
BCY - DRAGLINE Produced (000s)			7,125	19,000	24,500	22,750	24,750	123,125	121,875	126,625	124,375	122,125	125,750	127,000	375	969,375
BCY - TRUCK/SHOVEL Produced (000s)			210	420	1,365	1,890	3,360	14,280	24,495	31,505	32,235	40,530	68,955	49,560	210	269,115
Total Units (BCY+ tons)			10,835	27,920	34,165	33,140	36,610	179,905	188,840	200,730	199,110	205,155	237,235	218,960	795	1,575,590
Strip Ratio (BCY /ROM Ton)			2.10	2.28	3.04	2.90	3.31	3.21	3.46	3.72	3.60	3.83	4.38	4.16	2.93	2.75
BTU/lb (HR)			11,818	11,885	11,960	11,906	11,884	11,953	11,954	11,935	11,913	11,902	11,998	11,927	11,925	11,936
Sulfur % (DB)			0.25	0.25	0.26	0.25	0.26	0.26	0.26	0.26	0.27	0.27	0.26	0.25	0.24	0.26
LbSO2/MBTU			0.42	0.43	0.43	0.43	0.43	0.43	0.44	0.43	0.45	0.46	0.44	0.42	0.40	0.44
Sodium to Ash%			8.38	8.38	8.38	8.38	8.38	8.38	8.38	8.38	8.38	8.38	8.38	8.38	8.38	8.38
CASH PRODUCTION COSTS																
Controllable Costs																
Labor, Materials and Supplies																
OB Removal Dragline	0.100	$/BCY	2,138	5,700	7,350	6,825	7,425	36,938	36,563	37,988	37,313	36,638	35,725	38,100	113	290,813
OB Truck - Shovel	0.400	$/BCY	84	168	546	756	1,344	5,712	9,798	12,642	12,894	16,212	27,594	19,824	84	107,646
Drilling & Explosives	0.225	$/UNIT	1,194	6,111	9,529	9,259	10,023	49,421	51,367	54,003	53,646	54,976	62,034	57,990	219	425,792
Coal Loading - Haulage	0.250	$/TON	675	2,125	2,125	2,125	2,125	10,625	10,625	10,625	10,625	10,625	10,625	10,600	50	83,775
Other Support Equipment	0.200	$/TON	540	1,700	1,700	1,700	1,700	8,500	8,500	8,500	8,500	8,500	8,500	8,480	40	67,020
Other Supplies & Services	0.100	$/TON	160	850	850	850	850	4,250	4,250	4,250	4,250	4,250	4,250	4,240	20	33,510
Coal Handling Plant	0.200	$/TON	700	1,700	1,700	1,700	1,700	8,500	8,500	8,500	8,500	8,500	8,500	8,480	40	67,020
Reclamation	0.09	$/TON	115	765	765	765	765	3,825	3,825	3,825	3,825	3,825	3,825	3,816	18	30,159
Total Controllable Costs			**5,356**	**21,119**	**24,565**	**23,980**	**25,932**	**127,771**	**133,435**	**140,332**	**139,553**	**143,526**	**165,053**	**151,530**	**984**	**1,103,734**
$/SALES TON			**2.39**	**2.48**	**2.89**	**2.82**	**3.05**	**3.01**	**3.14**	**3.30**	**3.28**	**3.38**	**3.84**	**3.57**	**2.52**	**3.29**
NON-CONTROLLABLE COSTS																
Black Lung Tax	0.308	$/Ton	1,076	2,618	2,618	2,618	2,618	13,090	13,090	13,090	13,090	13,090	13,090	13,059	62	101,211
Severance Tax	15.0%	% of Revenue	2,949	7,162	7,162	7,162	7,162	35,808	35,808	35,958	35,808	35,808	35,808	35,724	169	282,339
Gross Receipts Tax	5.0%	% of Revenue	983	2,387	2,387	2,387	2,387	11,936	11,936	11,936	11,936	11,936	11,936	11,908	56	94,113
Reclamation Fee	0.350	$/Ton	1,225	2,975	2,975	2,975	2,975	14,875	14,875	14,875	14,875	14,875	14,875	14,846	70	117,285
Reclamation Bonding (premium)	150	$000s	150	150	150	150	150	150	150	150	150	150	150	150	150	1,950
General Insurance	0.010	$/Unit	108	279	341	331	366	1,799	1,888	2,007	1,991	2,052	2,372	2,190	8	15,734
Corporate Overhead + Joint Facilities	0.090	$/Unit	975	2,513	3,093	2,983	3,295	16,191	16,996	18,066	17,920	18,464	21,351	19,706	71	141,625
Other	0.050	$/Unit	542	1,396	1,718	1,657	1,831	8,995	9,442	10,037	9,956	10,258	11,862	10,948	39	78,680
Total Non-Controllable Cash Costs			**8,018**	**19,480**	**20,447**	**20,263**	**20,783**	**102,845**	**104,186**	**105,569**	**105,726**	**106,633**	**111,445**	**108,525**	**614**	**834,936**
$/SALES TON			**2.29**	**2.25**	**2.41**	**2.38**	**2.45**	**2.42**	**2.45**	**2.49**	**2.49**	**2.51**	**2.62**	**2.56**	**3.12**	**2.49**
TOTAL CASH COSTS			**16,366**	**40,589**	**45,011**	**44,243**	**46,715**	**230,616**	**237,621**	**246,301**	**245,279**	**250,158**	**276,498**	**260,056**	**1,208**	**1,938,670**
$/SALES TON			4.68	4.70	5.30	5.21	5.50	5.43	5.59	5.80	5.77	5.89	6.46	6.13	6.04	5.78
NON-CASH COSTS																
Depreciation		$/Unit	12,205	12,205	12,205	12,205	12,205	61,025	61,025	61,025	38,275	38,275	38,275	38,275		397,200
Total Non-Cash Costs			**12,205**	**12,205**	**12,205**	**12,205**	**12,205**	**61,025**	**61,025**	**61,025**	**38,275**	**38,275**	**38,275**	**38,275**	**0**	**397,200**
$/SALES TON			**3.49**	**1.44**	**1.44**	**1.44**	**1.44**	**1.44**	**1.44**	**1.44**	**0.90**	**0.90**	**0.90**	**0.90**	-	**1.26**
TOTAL MINING COSTS			**28,571**	**52,864**	**57,216**	**56,448**	**58,920**	**291,641**	**298,646**	**307,326**	**283,554**	**288,433**	**314,773**	**298,331**	**1,208**	**2,335,870**
$/SALES TON			**8.16**	**6.21**	**6.73**	**6.64**	**6.93**	**6.86**	**7.03**	**7.23**	**6.67**	**6.79**	**7.36**	**7.04**	**6.04**	**6.97**
CAPITAL																
Land Acquisition	-															-
Permitting - Engineering	**3,000**															
Exploration Drilling	**2,000**															
Mine Facilities	**9,000**															
Coal Hauling Plant	**20,000**															
Miscellaneous Equipment and supplies	**3,000**															
Dragline - 70 cyd	-															
Dragline - 110 cyd	**44,000**															
30 cyd Rock Shovel	**4,300**															
30 cyd Rock Shovel	-															-
210 to 240 Ton Rock Trucks	**13,800**															
20 cyd Coal Excavator	**6,400**															-
290 to 320 Coal Bottom Dump Trucks	**19,200**															-
Mobile Equipment	**13,300**															
Reclamation Equipment	**4,200**															

Table 3.6 LMU 2 -A2-A3 Mine Cost Model

	Basis	Units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 To 10	Year 11 To 15	Year 16 To 20	Year 21 To 25	Year 26 To 30	Year 31 To 35	Year 36 To 40	Year 41 +	Totals
PRODUCTION																
Tons Produced (000s)		tons/yr	5,368	13,368	13,368	13,368	13,368	66,842	66,842	66,842	66,947	66,842	66,842	64,526	211	524,737
Tons Sold (000s)	95.0%	Recovery	5,100	12,700	12,700	12,700	12,700	63,500	63,500	63,500	63,600	63,500	63,500	61,300	200	498,500
BCY - DRAGLINE Produced (000s)			11,750	34,000	43,325	44,125	52,250	236,625	241,500	249,875	248,500	246,500	255,875	246,875	375	1,911,375
BCY - TRUCK/SHOVEL Produced (000s)			420	755	1,995	3,565	8,580	39,100	40,470	61,095	73,165	98,290	162,295	132,190	210	622,130
Total Units (BCY+ tons)			17,270	47,455	57,820	60,390	73,330	339,225	345,470	374,470	385,265	408,290	481,670	440,365	785	3,032,005
Strip Ratio (BCY/ROM Ton)			2.39	2.74	3.55	3.76	4.79	4.34	4.44	4.90	5.06	5.43	6.59	6.18	2.93	5.08
BTU/lb (Dll)			11,955	11,978	11,971	12,005	11,993	11,992	11,938	11,970	11,970	11,977	11,978	11,974	11,981	11,973
Sulfur % (Dll)			0.30	0.30	0.30	0.29	0.30	0.30	0.29	0.28	0.28	0.28	0.28	0.28	0.26	0.29
LbSO2/MBTU			0.51	0.50	0.50	0.49	0.50	0.49	0.48	0.47	0.47	0.47	0.47	0.47	0.43	0.48
Sodium in Ash%			7.60	7.76	7.77	7.89	7.22	7.18	7.20	7.32	7.31	7.34	7.25	7.26	7.36	7.31
CASH PRODUCTION COSTS																
Controlable Costs																
Materials and Supplies																
OB Removal Dragline	0.300	$/BCY	3,525	10,200	12,998	13,238	15,675	70,988	72,450	74,963	74,550	73,950	76,763	74,063	113	573,413
OB Truck) - Shovel	0.460	$/BCY	168	802	798	1,426	3,432	15,640	16,188	24,438	29,266	39,316	64,918	52,876	84	248,852
Drilling & Explosives	0.220	$/UNIT	7,112	13,793	16,529	16,839	19,273	74,585	76,031	78,554	78,141	77,543	80,356	77,655	3,707	620,117
Coal Loading - Haulage	0.250	$/TON	5,275	3,175	3,175	3,175	3,175	15,875	15,875	15,875	15,900	15,875	15,875	15,325	50	124,625
Other Support Equipment	0.200	$/TON	1,020	2,540	2,540	2,540	2,540	12,700	12,700	12,700	12,720	12,700	12,700	12,260	40	99,700
Other Supplies & Services	0.100	$/TON	510	1,270	1,270	1,270	1,270	6,350	6,350	6,350	6,360	6,350	6,350	6,130	20	49,850
Coal Handling Plant	0.200	$/TON	1,020	2,540	2,540	2,540	2,540	12,700	12,700	12,700	12,720	12,700	12,700	12,260	40	99,700
Reclamation	0.09	$/TON	38	68	160	321	772	3,519	3,642	5,499	6,585	8,846	14,607	11,897	19	55,992
Total Controllable Costs			14,667	33,888	39,969	41,348	48,677	212,356	215,937	231,078	236,242	247,280	284,268	262,465	4,072	1,872,249
$/SALES TON			2.88	2.67	3.15	3.26	3.83	3.34	3.40	3.64	3.71	3.89	4.48	4.28	20.36	3.76
NON-CONTROLLABLE COSTS																
Black Lung Tax	0.550	$/Ton	1,571	3,912	3,912	3,912	3,912	19,558	19,558	19,558	19,589	19,558	19,558	18,880	62	154,538
Severance Tax	15.0%	% of Revenue	4,297	10,700	10,700	10,700	10,700	53,502	53,502	53,502	53,586	53,502	53,502	51,648	169	420,011
Gross Receipts Tax	5.0%	% of Revenue	1,432	3,567	3,567	3,567	3,567	17,834	17,834	17,834	17,862	17,834	17,834	17,216	56	140,004
Reclamation Fees	0.350	$/Ton	1,785	4,445	4,445	4,445	4,445	22,225	22,225	22,225	22,260	22,225	22,225	21,455	70	174,475
Reclamation Bonding (premium)	150	$000s	150	150	150	150	150	150	150	150	150	150	150	150	150	1,950
General Insurance	0.010	$/Unit	173	475	578	604	735	3,392	3,455	3,745	3,853	4,083	4,817	4,404	8	30,320
Corporate Overhead + Joint Facilities	0.090	$/Unit	1,554	4,271	5,204	5,435	6,618	30,530	31,092	33,702	34,674	36,746	43,350	39,633	71	272,880
Other	0.050	$/Unit	864	2,373	2,891	3,020	3,677	16,961	17,274	18,724	19,263	20,415	24,084	22,018	39	151,600
Total Non-Controllable Cash Costs			11,826	29,892	31,447	31,832	33,803	164,153	165,089	169,439	171,237	174,512	185,519	175,405	624	1,344,779
$/SALES TON			2.32	2.35	2.48	2.51	2.66	2.59	2.60	2.67	2.69	2.75	2.92	2.86	3.12	2.70
TOTAL CASH COSTS			26,493	63,780	71,416	73,181	82,480	376,509	381,026	400,517	407,479	421,793	469,787	437,870	4,696	3,217,027
$/SALES TON			5.19	5.02	5.62	5.76	6.49	5.93	6.00	6.31	6.41	6.64	7.40	7.14	23.48	6.45
NON-CASH COSTS							-									
Depreciation		$/Unit	18,905	18,905	18,905	18,905	18,905	94,525	94,525	94,525	55,025	55,025	55,025	55,025		598,200
Total Non-Cash Costs			18,905	18,905	18,905	18,905	18,905	94,525	94,525	94,525	55,025	55,025	55,025	55,025	0	598,200
$/SALES TON			3.71	1.49	1.49	1.49	1.49	1.49	1.49	1.49	0.87	0.87	0.87	0.90	-	1.20
TOTAL MINING COSTS			45,398	82,685	90,321	92,086	101,385	471,034	475,551	495,042	462,504	476,818	524,812	492,895	4,696	3,815,227
$/SALES TON			8.90	6.51	7.11	7.25	7.98	7.42	7.49	7.80	7.27	7.51	8.26	8.04	23.48	7.65
CAPITAL																
Land Acquisition	-															-
Permiting - Engineering	3,000															
Exploration Drilling	2,800															
Mine Facilities	21,000															
Coal Hanling Plant	57,000															
Miscellaneous Equipment and supplies	3,000															
Dragline - 70 cyd	-															
Dragline - 110 cyd	92,000															
30 cyd Rock Shovel	8,600															
30 cyd Rock Shovel	-															-
210 to 240 Ton Rock Trucks	27,600															
20 cyd Coal Excavators	6,400															-
290 to 320 Coal Bottom Dump Trucks	25,600															-
Mobile Equipment	15,646															
Reclamation Equipment	4,200															

Table 3.7 LMU 3 - B2 Mine Cost Model

	Basis	Units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 To 10	Year 11 To 15	Year 16 To 20	Year 21 To 25	Year 26 To 30	Year 31 To 35	Year 36 To 40	Year 41 +	Totals
PRODUCTION																
Tons Produced (000s)		tons/yr	2,526	6,316	6,316	6,316	6,316	31,579	31,579	31,579	31,579	31,579	31,579	31,579	237	249,579
Tons Sold (000s)	95.0%	Recovery	2,400	6,000	6,000	6,000	6,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	700	237,100
BCY - DRAGLINE Produced (000s)			6,500	16,750	17,250	17,125	13,625	77,125	83,875	88,625	89,000	88,875	86,250	81,500	2,000	670,500
BCY - TRUCK/SHOVEL Produced (000s)			105	315	865	865	975	7,955	16,530	24,235	27,640	48,215	54,815	71,860	1,959	256,355
Total Units (BCY+ tons)			9,005	23,065	24,115	23,990	22,600	115,080	130,405	142,860	146,640	167,090	171,065	185,360	4,888	1,163,955
Strip Ratio (BCY /ROM Ton)			2.75	2.84	3.02	3.00	2.77	2.84	3.35	3.76	3.89	4.57	4.70	5.11	5.69	2.69
BTU/lb (DB)			12,030	12,007	12,005	12,010	12,019	12,045	12,058	12,023	12,015	11,984	11,976	11,984	11,988	12,012
Sulfur % (DB)			0.29	0.26	0.26	0.26	0.26	0.25	0.28	0.27	0.26	0.26	0.26	0.25	0.25	0.27
Lb SO2/MBTU			0.49	0.43	0.44	0.44	0.43	0.41	0.46	0.45	0.44	0.43	0.43	0.41	0.42	0.44
Sodium in Ash%			8.19	7.49	7.46	7.46	7.22	7.90	8.72	8.78	9.04	9.28	9.37	9.20	9.26	8.73
CASH PRODUCTION COSTS																
Controlable Costs																
Labor, Materials and Supplies																
OB Removal Dragline	0.300	$/BCY	1,950	5,025	5,175	5,138	4,088	23,138	25,163	26,588	26,700	26,663	25,875	24,450	600	201,150
OB Truck - Shovel	0.400	$/BCY	42	126	346	346	390	3,182	6,612	9,694	11,056	19,286	21,926	28,744	792	102,542
Drilling & Explosives	0.220	$/UNIT	2,537	6,464	6,695	6,667	6,361	32,265	35,636	38,377	39,208	43,707	44,582	47,287	1,192	310,977
Coal Loading - Haulage	0.250	$/TON	600	1,500	1,500	1,500	1,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	175	59,275
Other Support Equipment	0.200	$/TON	480	1,200	1,200	1,200	1,200	6,000	6,000	6,000	6,000	6,000	6,000	6,000	140	47,420
Other Supplies & Services	0.100	$/TON	240	600	600	600	600	3,000	3,000	3,000	3,000	3,000	3,000	3,000	70	23,710
Coal Handling Plant	0.200	$/TON	480	1,200	1,200	1,200	1,200	6,000	6,000	6,000	6,000	6,000	6,000	6,000	140	47,420
Reclamation	0.09	$/TON	216	540	540	540	540	2,700	2,700	2,700	2,700	2,700	2,700	2,700	63	21,339
Total Controllable Costs			**6,545**	**16,655**	**17,256**	**17,191**	**16,479**	**83,784**	**92,611**	**99,858**	**102,164**	**114,856**	**117,583**	**125,681**	**3,172**	**813,833**
$/SALES TON			**2.73**	**2.78**	**2.88**	**2.87**	**2.75**	**2.79**	**3.09**	**3.33**	**3.41**	**3.83**	**3.92**	**4.19**	**4.53**	**3.43**
NON-CONTROLLABLE COSTS																
Black Lung Tax	0.31	$/Ton	739	1,848	1,848	1,848	1,848	9,240	9,240	9,240	9,240	9,240	9,240	9,240	216	73,027
Severance Tax	15.0%	% of Revenue	2,022	5,055	5,055	5,055	5,055	25,277	25,277	25,277	25,277	25,277	25,277	25,277	590	199,769
Gross Receipts Tax	5.0%	% of Revenue	674	1,685	1,685	1,685	1,685	8,426	8,426	8,426	8,426	8,426	8,426	8,426	197	66,590
Reclamation Fees	0.350	$/Ton	840	2,100	2,100	2,100	2,100	10,500	10,500	10,500	10,500	10,500	10,500	10,500	245	82,985
Reclamation Bonding (premium)	150	$000s	150	150	150	150	150	150	150	150	150	150	150	150	150	1,950
General Insurance	0.010	$/Unit	90	231	241	240	226	1,151	1,304	1,429	1,466	1,671	1,711	1,834	47	11,640
Corporate Overhead + Joint Facilities	0.090	$/Unit	810	2,076	2,170	2,159	2,034	10,357	11,736	12,857	13,198	15,038	15,396	16,502	421	104,756
Other	0.050	$/Unit	450	1,153	1,206	1,200	1,130	5,754	6,520	7,143	7,332	8,355	8,553	9,168	234	58,198
Total Non-Controllable Cash Costs			**5,776**	**14,258**	**14,456**	**14,437**	**11,228**	**70,854**	**73,153**	**75,021**	**75,588**	**78,656**	**79,252**	**81,096**	**2,099**	**598,913**
$/SALES TON			**2.41**	**2.38**	**2.41**	**2.41**	**2.37**	**2.36**	**2.44**	**2.50**	**2.52**	**2.62**	**2.64**	**2.70**	**3.00**	**2.53**
TOTAL CASH COSTS			**12,321**	**30,953**	**31,711**	**31,628**	**30,707**	**154,638**	**165,764**	**174,879**	**177,752**	**193,511**	**196,834**	**206,777**	**5,271**	1,412,747
$/SALES TON			5.13	5.16	5.29	5.27	5.12	5.15	5.51	5.83	5.93	6.45	6.56	6.89	7.53	5.96
NON-CASH COSTS																
Depreciation		$/Unit	10,005	10,005	10,005	10,005	10,005	50,025	50,025	50,025	30,775	30,775	30,775	30,775		323,200
Total Non-Cash Costs			**10,005**	**10,005**	**10,005**	**10,005**	**10,005**	**50,025**	**50,025**	**50,025**	**30,775**	**30,775**	**30,775**	**30,775**	**0**	323,200
$/SALES TON			**4.17**	**1.67**	**1.67**	**1.67**	**1.67**	**1.67**	**1.67**	**1.67**	**1.03**	**1.03**	**1.03**	**1.03**	-	**1.36**
TOTAL MINING COSTS			**22,326**	**40,958**	**41,716**	**41,633**	**40,712**	**204,663**	**215,789**	**224,904**	**208,527**	**224,286**	**227,609**	**237,552**	**5,271**	1,735,947
$/SALES TON			**9.30**	**6.83**	**6.95**	**6.94**	**6.79**	**6.82**	**7.19**	**7.50**	**6.95**	**7.48**	**7.59**	**7.92**	**7.53**	**7.32**
CAPITAL																
Land Acquisition	-															-
Permitting - Engineering	**3,000**															
Exploration Drilling	**2,000**															
Mine Facilities	**9,000**															
Coal Hanling Plant	**22,000**															
Miscellaneous Equipment and supplies	**3,000**															
Dragline - 70 cyd	**16,000**															
Dragline - 110 cyd	-															
30 cyd Rock Shovel	-															
50 cyd Rock Shovel	**3,800**															-
210 to 240 Ton Rock Trucks	**12,600**															
20 cyd Coal Excavators	**3,200**															-
290 to 320 Coal Bottom Dump Trucks	**12,800**															-
Mobile Equipment	**12,640**															
Reclamation Equipment	**4,200**															

Table 3.8 LMU 4 - B2 Mine Cost Model

	Basis	Units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 To 10	Year 11 To 15	Year 16 To 20	Year 21 To 25	Year 26 To 30	Year 31 To 35	Year 36 To 40	Year 41 +	Totals
PRODUCTION																
Tons Produced (000s)		tons/yr	2,526	6,316	6,316	6,316	6,316	31,579	31,579	31,579	31,579	31,579	31,579	31,579	1,684	250,526
Tons Sold (000s)	95.0%	Recovery	2,400	6,000	6,000	6,000	6,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	1,600	238,000
BCY - DRAGLINE Produced (000s)			5,625	9,125	9,250	10,875	11,250	64,875	69,125	77,750	77,750	77,250	89,000	92,125	4,500	598,500
BCY - TRUCK/SHOVEL Produced (000s)			105	315	420	630	420	5,295	7,350	10,385	11,865	14,070	27,090	45,675	5,250	130,850
Total Units (BCY+ tons)			8,130	15,440	15,670	17,505	17,670	98,130	106,475	122,135	119,615	121,320	146,090	167,800	11,350	967,350
Strip Ratio (BCY /ROM Ton)			2.39	1.57	1.61	1.92	1.95	2.27	2.55	3.07	2.99	3.04	3.87	4.59	6.09	2.39
BTU/lb (DB)			12,033	12,042	11,995	11,879	11,926	11,915	11,870	11,955	11,923	11,934	11,951	11,941	11,946	11,932
Sulfur % (DB)			0.29	0.29	0.30	0.32	0.31	0.30	0.31	0.27	0.29	0.30	0.29	0.28	0.27	0.29
LbSO2/MBTU			0.48	0.48	0.50	0.54	0.51	0.51	0.53	0.45	0.49	0.50	0.48	0.47	0.45	0.49
Sodium in Ash%			7.41	7.45	7.44	7.14	7.25	7.83	8.13	8.02	7.58	7.68	7.24	7.52	8.30	7.68
CASH PRODUCTION COSTS																
Controllable Costs																
Labor, Materials and Supplies																
OB Removal Dragline	0.300	$/BCY	1,688	2,738	2,775	3,263	3,375	19,463	20,738	23,325	23,325	23,175	26,700	27,638	1,350	179,550
OB Truck - Shovel	0.400	$/BCY	42	126	168	252	168	1,302	2,940	5,754	4,746	5,628	10,836	18,270	2,100	52,332
Drilling & Explosives	0.220	$/UNIT	2,544	4,786	4,817	5,241	5,277	28,536	30,372	33,817	33,263	33,638	19,087	43,863	2,869	267,928
Coal Loading - Haulage	0.250	$/TON	600	1,500	1,500	1,500	1,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	400	69,500
Other Support Equipment	0.200	$/TON	480	1,200	1,200	1,200	1,200	6,000	6,000	6,000	6,000	6,000	6,000	6,000	320	47,600
Other Supplies & Services	0.100	$/TON	240	600	600	600	600	3,000	3,000	3,000	3,000	3,000	3,000	3,000	160	23,800
Coal Handling Plant	0.200	$/TON	480	1,200	1,200	1,200	1,200	6,000	6,000	6,000	6,000	6,000	6,000	6,000	320	47,600
Reclamation	0.09	$/TON	216	540	540	540	540	2,700	2,700	2,700	2,700	2,700	2,700	2,700	144	21,420
Total Controllable Costs			6,090	12,690	12,820	13,795	13,860	74,500	79,249	88,096	86,534	87,641	101,823	114,971	7,862	699,730
$/SALES TON			2.54	2.11	2.14	2.30	2.31	2.48	2.64	2.94	2.88	2.92	3.39	3.83	4.79	2.94
NON-CONTROLLABLE COSTS																
Black Lung Tax	0.308	$/Ton	739	1,848	1,848	1,848	1,848	9,240	9,240	9,240	9,240	9,240	9,240	9,240	493	71,304
Severance Tax	15.0%	% of Revenue	2,022	5,055	5,055	5,055	5,055	25,277	25,277	25,277	25,277	25,277	25,277	25,277	1,348	200,527
Gross Receipts Tax	5.0%	% of Revenue	674	1,685	1,685	1,685	1,685	8,426	8,426	8,426	8,426	8,426	8,426	8,426	449	66,842
Reclamation Fees	0.350	$/Ton	840	2,100	2,100	2,100	2,100	10,500	10,500	10,500	10,500	10,500	10,500	10,500	560	83,300
Reclamation Bonding (premium)	150	$000s	150	150	150	150	150	150	150	150	150	150	150	150	150	1,950
General Insurance	0.010	$/Unit	81	154	157	175	177	981	1,065	1,221	1,196	1,213	1,461	1,678	114	9,673
Corporate Overhead + Joint Facilities	0.090	$/Unit	732	1,390	1,410	1,575	1,590	8,832	9,583	10,992	10,765	10,919	13,148	15,102	1,022	87,060
Other	0.050	$/Unit	407	772	784	875	884	4,907	5,324	6,107	5,981	6,066	7,305	8,390	568	48,367
Total Non-Controllable Cash Costs			5,645	13,154	13,189	13,464	13,489	68,312	69,563	71,912	71,534	71,790	75,506	78,762	4,703	571,023
$/SALES TON			2.35	2.19	2.20	2.24	2.25	2.28	2.32	2.40	2.38	2.39	2.52	2.63	2.94	2.40
TOTAL CASH COSTS			11,735	25,844	26,009	27,259	27,349	142,812	148,813	160,008	158,068	159,431	177,329	193,733	12,564	1,270,753
$/SALES TON			4.89	4.31	4.33	4.54	4.56	4.76	4.96	5.33	5.27	5.31	5.91	6.46	7.73	5.34
NON-CASH COSTS																
Depreciation		$/Unit	10,255	10,255	10,255	10,255	10,255	51,275	51,275	51,275	30,775	30,775	30,775	30,775		328,200
Total Non-Cash Costs			10,255	10,255	10,255	10,255	10,255	51,275	51,275	51,275	30,775	30,775	30,775	30,775	0	328,200
$/SALES TON			4.27	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.03	1.03	1.03	1.03	-	1.38
TOTAL MINING COSTS			21,990	36,099	36,264	37,514	37,604	194,087	200,088	211,283	188,843	190,206	208,104	224,508	12,564	1,598,953
$/SALES TON			9.16	6.02	6.04	6.25	6.27	6.47	6.67	7.04	6.29	6.34	6.94	7.48	7.73	6.72
CAPITAL																
Land Acquisition	-															-
Permitting - Engineering	3,000															
Exploration Drilling	2,000															
Mine Facilities	14,000															
Coal Hanling Plant	12,000															
Miscellaneous Equipment and supplies	3,000															
Dragline - 70 cyd	38,000															
Dragline - 110 cyd	-															
30 cyd Rock Shovel	-															
30 cyd Rock Shovel	3,800															-
210 to 240 Ton Rock Trucks	12,600															
30 cyd Coal Excavators	8,200															-
290 to 320 Coal Bottom Dump Trucks	12,800															-
Mobile Equipment	12,600															
Reclamation Equipment	4,200															

Table 3. 9 LMU 5-A1-A2-A3 Mine Cost Model

	Basis	Units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 To 10	Year 11 To 15	Year 16 To 20	Year 21 To 25	Year 26 To 30	Year 31 To 35	Year 36 To 40	Year 41 +	Totals
PRODUCTION																
Tons Produced (000s)		tons/yr	9,053	22,316	22,316	22,316	22,316	111,579	111,579	111,579	111,684	111,579	111,579	109,158	316	877,368
Tons Sold (000s)	95.0%	Recovery	8,600	21,200	21,200	21,200	21,200	106,000	106,000	106,000	106,160	106,000	106,000	103,700	300	833,500
BCY - DRAGLINE Produced (000s)			18,875	54,625	68,625	67,000	75,875	366,625	372,250	365,125	366,375	369,375	381,000	374,125	625	2,880,500
BCY - TRUCK/SHOVEL Produced (000s)			630	1,385	4,395	4,825	11,855	67,345	75,855	77,370	93,640	134,850	235,795	183,220	210	891,245
Total Units (BCY+ tons)			28,195	77,210	94,130	93,025	108,910	539,970	554,105	548,495	566,115	610,205	722,795	661,045	1,135	4,605,245
Strip Ratio (BCY /ROM Ton)			2.27	2.64	3.44	3.39	4.14	4.09	4.23	4.17	4.34	4.76	5.82	5.37	2.78	5.28
BTU/lb (DB)			11,900	11,940	11,967	11,965	11,949	11,976	11,943	11,956	11,947	11,946	11,986	11,955	11,958	11,958
Sulfur % (DB)			0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.27	0.28	0.28	0.27	0.27	0.25	0.28
LbSO2/MBTU			0.48	0.47	0.47	0.46	0.47	0.47	0.46	0.45	0.46	0.47	0.46	0.45	0.43	0.46
Sodium in Ash%			7.92	7.94	7.58	8.01	7.61	7.18	6.96	6.97	6.89	6.68	7.54	7.42	7.36	7.14
CASH PRODUCTION COSTS																
Controlable Costs																
Labor, Materials and Supplies																
OB Removal Dragline	0.300	$/BCY	5,663	16,388	20,588	20,100	22,763	109,988	111,675	109,538	109,913	110,813	114,300	112,238	188	864,150
OB Truck) - Shovel	0.400	$/BCY	252	554	1,722	1,930	4,734	26,938	30,342	30,948	37,456	53,932	94,318	73,288	84	356,498
Drilling & Explosives	0.220	$/UNIT	8,175	21,896	25,618	25,175	28,870	143,341	146,450	145,216	149,116	158,792	183,562	169,445	319	1,206,175
Coal Loading - Haulage	0.250	$/TON	2,150	5,300	5,300	5,300	5,300	26,500	26,500	26,500	26,525	26,500	26,500	25,925	75	208,375
Other Support Equipment	0.200	$/TON	1,720	4,240	4,240	4,240	4,240	21,200	21,200	21,200	21,220	21,200	21,200	20,740	60	166,700
Other Supplies & Services	0.100	$/TON	860	2,120	2,120	2,120	2,120	10,600	10,600	10,600	10,610	10,600	10,600	10,370	30	83,350
Coal Handling Plant	0.200	$/TON	1,720	4,240	4,240	4,240	4,240	21,200	21,200	21,200	21,220	21,200	21,200	20,740	60	166,700
Reclamation	0.09	$/TON	774	1,908	1,908	1,908	1,908	9,540	9,540	9,540	9,549	9,540	9,540	9,333	27	75,015
Total Controllable Costs			**21,313**	**56,645**	**65,736**	**65,213**	**74,174**	**369,306**	**377,507**	**374,742**	**385,608**	**412,577**	**481,220**	**442,078**	**843**	**3,126,963**
$/SALES TON			**2.48**	**2.67**	**3.10**	**3.08**	**3.50**	**3.48**	**3.56**	**3.54**	**3.63**	**3.89**	**4.54**	**4.26**	**2.81**	**3.75**
NON-CONTROLLABLE COSTS																
Black Lung Tax	0.308	$/Ton	2,649	6,530	6,530	6,530	6,530	32,648	32,648	32,648	32,679	32,648	32,648	31,940	92	256,718
Severance Tax	15.0%	% of Revenue	7,266	17,862	17,862	17,862	17,862	89,310	89,310	89,310	89,395	89,310	89,310	87,372	253	702,265
Gross Receipts Tax	5.0%	% of Revenue	2,415	5,954	5,954	5,954	5,954	29,770	29,770	29,770	29,798	29,770	29,770	29,124	84	234,088
Reclamation Fees	0.350	$/Ton	3,010	7,420	7,420	7,420	7,420	37,100	37,100	37,100	37,135	37,100	37,100	36,295	105	291,725
Reclamation Bonding (premium)	150	$000s	150	150	150	150	150	150	150	150	150	150	150	150	150	1,950
General Insurance	0.010	$/Unit	281	772	941	930	1,089	5,400	5,541	5,485	5,661	6,102	7,228	6,610	11	46,052
Corporate Overhead + Joint Facilities	0.090	$/Unit	2,529	6,949	8,472	8,372	9,802	48,597	49,869	49,365	50,950	54,918	65,057	59,494	102	414,472
Other	0.050	$/Unit	1,405	3,861	4,707	4,651	5,446	26,999	27,705	27,425	28,306	30,510	36,140	33,052	57	230,262
Total Non-Controllable Cash Costs			**19,686**	**49,497**	**52,035**	**51,869**	**54,252**	**269,974**	**272,094**	**271,253**	**274,074**	**280,509**	**297,398**	**284,038**	**855**	2,177,534
$/SALES TON			**2.29**	**2.33**	**2.45**	**2.45**	**2.56**	**2.55**	**2.57**	**2.56**	**2.58**	**2.65**	**2.81**	**2.74**	**2.85**	**2.61**
TOTAL CASH COSTS			**40,999**	**106,142**	**117,771**	**117,082**	**128,426**	**639,280**	**649,602**	**645,994**	**659,682**	**693,086**	**778,618**	**726,116**	**1,697**	5,304,497
$/SALES TON			4.77	5.01	5.56	5.52	6.06	6.03	6.13	6.09	6.22	6.54	7.35	7.00	5.66	6.36
NON-CASH COSTS																
Depreciation		$/Unit	25,845	25,845	25,845	25,845	25,845	129,225	129,225	129,225	75,975	75,975	75,975	75,975		820,800
Total Non-Cash Costs			**25,845**	**25,845**	**25,845**	**25,845**	**25,845**	**129,225**	**129,225**	**129,225**	**75,975**	**75,975**	**75,975**	**75,975**	**0**	820,800
$/SALES TON			**3.01**	**1.22**	**1.22**	**1.22**	**1.22**	**1.22**	**1.22**	**1.22**	**0.72**	**0.72**	**0.72**	**0.73**	**-**	**0.98**
TOTAL MINING COSTS			**66,844**	**131,987**	**143,616**	**142,927**	**151,271**	**768,505**	**778,827**	**775,219**	**735,657**	**769,061**	**854,593**	**802,091**	**1,697**	6,125,297
$/SALES TON			**7.77**	**6.23**	**6.77**	**6.74**	**7.28**	**7.25**	**7.35**	**7.31**	**6.93**	**7.26**	**8.06**	**7.73**	**5.66**	**7.35**
CAPITAL																
Land Acquisition	-															-
Permiting - Engineering	3,000															
Exploration Drilling	2,000															
Mine Facilities	15,000															
Coal Hanling Plant	52,000															
Miscellaneous Equipment and supplies	1,000															
Dragline - 70 cyd	-															
Dragline - 110 cyd	138,000															
30 cyd Rock Shovel	8,600															
30 cyd Rock Shovel	-															-
210 to 240 Ton Rock Trucks	27,600															
26 cyd Coal Excavators	9,600															-
290 to 320 Coal Bottom Dump Trucks	44,800															-
Mobile Equipment	12,560															
Reclamation Equipment	8,400															

Table 3.10 LMU 6 B1-B2 Mine Cost Model

	Basis	Units	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6 To 10	Year 11 To 15	Year 16 To 20	Year 21 To 25	Year 26 To 30	Year 31 To 35	Year 36 To 40	Year 41 +	Totals
PRODUCTION																
Tons Produced (000s)		Total/yr	5,053	12,632	12,632	12,632	12,632	63,158	63,158	63,158	63,158	63,158	63,158	63,158	2,421	500,105
Tons Sold (000s)	95.0%	Recovery	4,800	12,000	12,000	12,000	12,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	2,300	475,100
BCY - DRAGLINE Produced (000s)			12,125	25,875	26,500	28,000	26,875	142,000	153,000	166,375	166,750	166,125	175,250	173,625	6,500	1,269,000
BCY - TRUCK/SHOVEL Produced (000s)			210	630	1,285	1,495	1,395	11,210	23,880	38,620	39,505	62,285	61,905	117,535	7,230	367,185
Total Units (BCY+ tons)			17,135	38,505	39,785	41,495	40,270	213,210	236,880	264,995	266,255	288,410	317,155	351,160	16,030	2,131,285
Strip Ratio (BCY /ROM Ton)			2.57	2.23	2.32	2.46	2.36	2.55	2.95	3.42	3.44	3.81	4.29	4.85	5.97	2.54
BTU/lb (DB)			12,031	12,031	12,031	12,031	12,031	12,031	12,031	12,031	12,031	12,031	12,031	12,031	12,031	
Sulfur % (DB)			0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	
LbSO2/MBTU			0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	
Sodium in Ash%			7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	7.80	
CASH PRODUCTION COSTS																
Controllable Costs																
Labor, Materials and Supplies																
OB Removal Dragline	0.300	$/BCY	3,638	7,763	7,950	8,400	8,063	42,600	45,900	49,913	50,025	49,838	52,575	52,088	1,950	380,700
OB Trucks - Shovel	0.400	$/BCY	84	252	514	598	558	4,484	9,552	15,448	15,802	24,914	32,762	47,014	2,892	154,874
Drilling & Explosives	0.220	$/UNIT	4,881	11,250	11,532	11,908	11,638	60,801	66,008	72,194	72,471	77,545	83,669	91,158	4,059	578,906
Coal Loading - Haulage	0.250	$/TON	1,200	3,000	3,000	3,000	3,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	575	118,775
Other Support Equipment	0.200	$/TON	960	2,400	2,400	2,400	2,400	12,000	12,000	12,000	12,000	12,000	12,000	12,000	460	95,020
Other Supplies & Services	0.100	$/TON	480	1,200	1,200	1,200	1,200	6,000	6,000	6,000	6,000	6,000	6,000	6,000	230	47,510
Coal Handling Plant	0.200	$/TON	960	2,400	2,400	2,400	2,400	12,000	12,000	12,000	12,000	12,000	12,000	12,000	460	95,020
Reclamation	0.09	$/TON	432	1,080	1,080	1,080	1,080	5,400	5,400	5,400	5,400	5,400	5,400	5,400	207	42,759
Total Controllable Costs			**12,635**	**29,345**	**30,076**	**30,986**	**30,339**	**158,285**	**171,860**	**187,954**	**188,698**	**202,496**	**219,406**	**240,651**	**10,833**	**1,513,564**
$/SALES TON			**2.63**	**2.45**	**2.51**	**2.58**	**2.53**	**2.64**	**2.86**	**3.13**	**3.14**	**3.37**	**3.66**	**4.01**	**4.71**	**3.19**
NON-CONTROLLABLE COSTS																
Black Lung Tax	0.308	$/Ton	1,478	3,696	3,696	3,696	3,696	18,480	18,480	18,480	18,480	18,480	18,480	18,480	708	146,311
Severance Tax	15.0%	% of Revenue	4,044	10,111	10,111	10,111	10,111	50,553	50,553	50,553	50,553	50,553	50,553	50,553	1,938	400,296
Gross Receipts Tax	3.0%	% of Revenue	1,348	3,370	3,370	3,370	3,370	16,851	16,851	16,851	16,851	16,851	16,851	16,851	646	133,432
Reclamation Fees	0.150	$/Ton	1,680	4,200	4,200	4,200	4,200	21,000	21,000	21,000	21,000	21,000	21,000	21,000	805	166,285
Reclamation Bonding (premium)	150	$000s	150	150	150	150	150	150	150	150	150	150	150	150	150	1,950
General Insurance	0.030	$/Unit	171	385	398	415	403	2,132	2,369	2,650	2,663	2,884	3,172	3,512	160	21,313
Corporate Overhead + Joint Facilities	0.090	$/Unit	1,542	3,465	3,581	3,735	3,624	19,189	21,319	23,850	23,963	25,957	28,546	31,604	1,443	191,816
Other	0.050	$/Unit	857	1,925	1,989	2,075	2,014	10,661	11,844	13,250	13,313	14,421	15,858	17,558	802	106,564
Total Non-Controllable Cash Costs			**11,271**	**27,303**	**27,495**	**27,751**	**27,567**	**139,016**	**142,566**	**146,783**	**146,972**	**150,296**	**154,607**	**159,708**	**6,652**	**1,167,986**
$/SALES TON			**2.35**	**2.28**	**2.29**	**2.31**	**2.30**	**2.32**	**2.38**	**2.45**	**2.45**	**2.50**	**2.58**	**2.66**	**2.89**	**2.46**
TOTAL CASH COSTS			**23,906**	**56,647**	**57,570**	**58,737**	**57,906**	**297,300**	**314,426**	**334,737**	**335,670**	**352,792**	**374,013**	**400,359**	**17,485**	2,681,550
$/SALES TON			4.98	4.72	4.80	4.89	4.83	4.96	5.24	5.58	5.59	5.88	6.23	6.67	7.60	5.64
NON-CASH COSTS								-								
Depreciation		$/Unit	15,633	15,633	15,633	15,633	15,633	78,163	78,163	78,163	46,163	46,163	46,163	46,163		497,300
Total Non-Cash Costs			**15,633**	**15,633**	**15,633**	**15,633**	**15,633**	**78,163**	**78,163**	**78,163**	**46,163**	**46,163**	**46,163**	**46,163**	**0**	497,300
$/SALES TON			**3.26**	**1.30**	**1.30**	**1.30**	**1.30**	**1.30**	**1.30**	**1.30**	**0.77**	**0.77**	**0.77**	**0.77**	-	**1.05**
TOTAL MINING COSTS			**39,538**	**72,280**	**73,203**	**74,369**	**73,539**	**375,463**	**392,589**	**412,900**	**381,833**	**398,954**	**420,176**	**446,522**	**17,485**	3,178,850
$/SALES TON			**8.24**	**6.02**	**6.10**	**6.20**	**6.13**	**6.26**	**6.54**	**6.88**	**6.36**	**6.65**	**7.00**	**7.44**	**7.60**	**6.69**
CAPITAL																
Land Acquisition	-															-
Permitting - Engineering	**3,000**															
Exploration Drilling	**2,000**															
Mine Facilities	**9,000**															
Coal Hanling Plant	**35,000**															
Miscellaneous Equipment and supplies	**3,000**															
Dragline - 70 cyd	**76,000**															
Dragline - 110 cyd	-															
30 cyd Rock Shovel	**4,300**															
30 cyd Rock Shovel	-															-
210 to 240 Ton Rock Trucks	**13,800**															
20 cyd Coal Excavators	**6,400**															-
290 to 320 Coal Bottom Dump Trucks	**25,600**															-
Mobile Equipment	**19,560**															
Reclamation Equipment	**4,200**															

Table 3.11 Great Northern Properties Captial Expenditures

INITIAL EQUIPMENT REQUIREMENTS

EQUIPMENT	LMU 1 AREA A1	LMU 2 AREA A2-A3	LMU 3 AREA A1-A2-A3	LMU 4 AREA B1	LMU 5 AREA B2	LMU 6 AREA B1 -B2	EQUIPMENT COSTS/UNIT
Dragline - 70 cyd				1	1	2	$38,000
Dragline - 110 cyd	1	2	3				$46,000
Coal -Shovel 20 cyd	2	2	3	1	1	2	$3,200
Rock-Shovel 30 cyd	1	2	2			1	$4,300
Rock Shovel 20 cyd				1	1		$3,800
OB Trucks - 210 ton				6	6		$2,100
OB Trucks - 240 ton	6	12	12			6	$2,300
Coal Trucks - 320 ton	6	8	14	4	4	8	$3,200
R.T. Dozers	2	2	3	1	1	2	$700
Dozers	3	3	4	3	3	4	$1,800
Water Trucks	2	2	3	2	2	3	$720
Motor Graders	2	2	3	2	2	3	$1,400
Coal Handling Plant	1	1	1	1	1	1	Varied
Mine Facilities	1	1	1	1	1	1	Varied
OB-Coal Drills	1	2	3	1	1	2	$2,300
Rec - Scrapers	2	2	4	2	2	2	$1,250
Rec - Dozers	1	1	2	1	1	1	$1,800

INITIAL CAPITAL COSTS

Capital x (000's)	LMU 1 AREA A1	LMU 2 AREA A2-A3	LMU 3 AREA A1-A2-A3	LMU 4 AREA B1	LMU 5 AREA B2	LMU 6 AREA B1 -B2
Land Acquisition						
Permitting - Engineering	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Exploration Drilling	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
Mine Facilities	$9,000	$21,000	$15,000	$9,000	$14,000	$9,000
Coal Handling Plant	$28,000	$37,000	$52,000	$22,000	$22,000	$35,000
Miscellaneous Equipment and supplies	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Dragline - 70 cyd	$0	$0	$0	$38,000	$38,000	$76,000
Dragline - 110 cyd	$46,000	$92,000	$138,000	$0	$0	$0
30 cyd Rock Shovel	$4,300	$8,600	$8,600	$0	$0	$4,300
30 cyd Rock Shovel	$0	$0	$0	$3,800	$3,800	$0
210 to 240 Ton Rock Trucks	$13,800	$27,600	$27,600	$12,600	$12,600	$13,800
20 cyd Coal Excavators	$6,400	$6,400	$9,600	$3,200	$3,200	$6,400
290 to 320 Coal Bottom Dump Trucks	$19,200	$25,600	$44,800	$12,800	$12,800	$25,600
Mobile Equipment	$13,340	$15,640	$22,560	$12,640	$12,640	$19,560
Reclamation Equipment	$4,300	$4,300	$8,600	$4,300	$4,300	$4,300
TOTAL CAPITAL	**$154,240**	**$248,040**	**$336,560**	**$128,240**	**$133,240**	**$203,860**

MARKETING

ELECTRIC UTILITIES

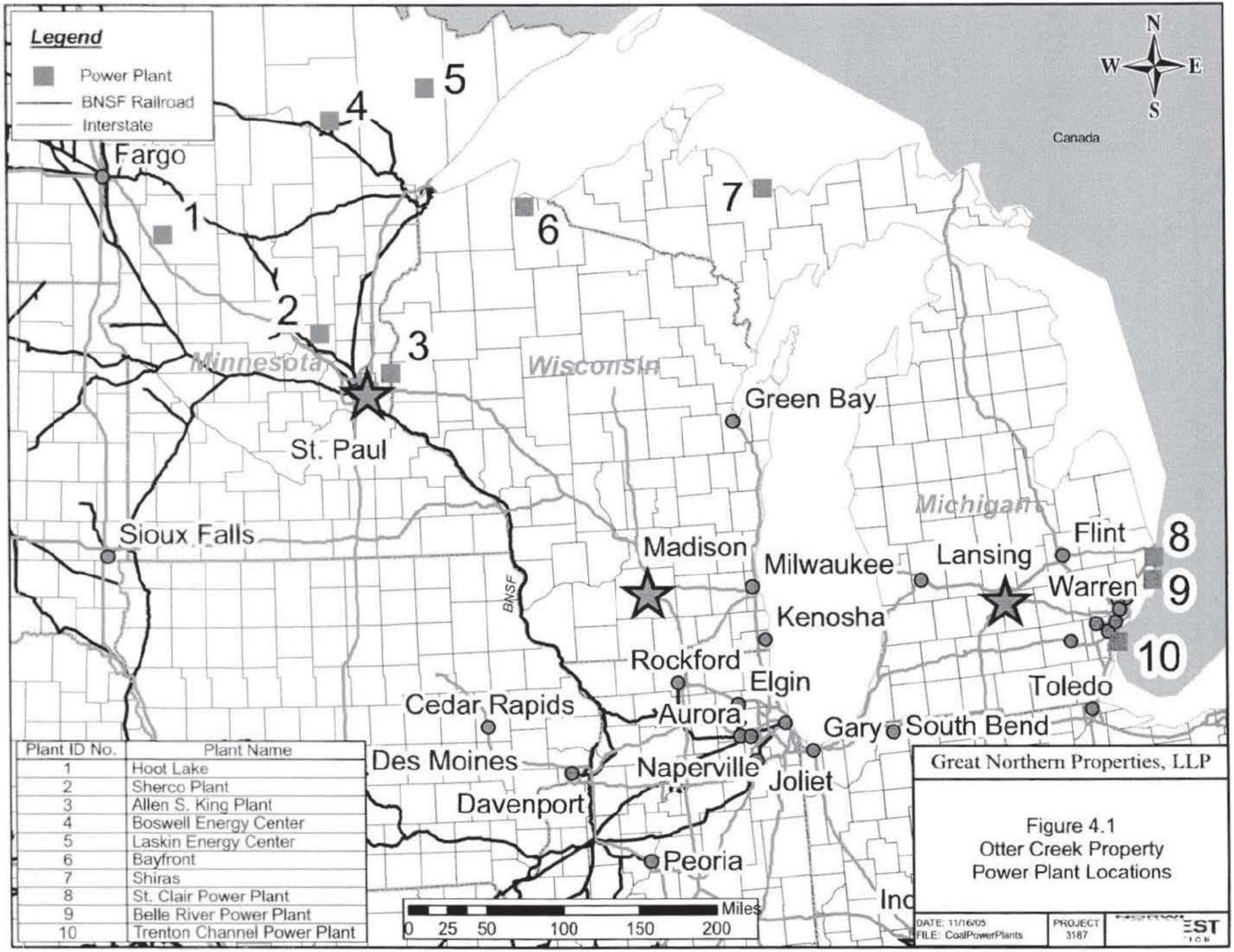
Montana coal, the Northern PRB, is noted for its higher heating value that most of the Southern PRB mines, its varying sulfur levels and its higher sodium levels. The sodium content of Otter Creek coal ranges from 5.8% to 8.8% and is high in comparison to other coals in the western US. but about the same as other Montana PRB mines. For example: coals from the southern Powder River Basin of Wyoming typically average 1.2% sodium while currently produced coals from Colorado average about 2.5% sodium. Sodium in ash can cause slagging problems in certain types of boilers in electric generating plants. Higher sodium levels generally create greater slagging problems. As a result, most plants avoid burning high sodium coals. Exceptions include the following ten plants which are within the competitive area for Otter Creek currently accept higher sodium coals:

1. St. Clair - Detroit Edison
2. Bell River – Detroit Edison
3. Trenton Channel – Detroit Edison
4. Shiras – Marquette Board of Light & Power
5. Clay-Boswell – Minnesota Power
6. Hoot Lake – Otter Tail Corp.
7. Syl Laskin – Minnesota Power
8. King – Northern States Power
9. Sherburne County – Northern States Power
10. Bay Front (or Bayfront) – Northern States Power

The plants shown in the table would likely constitute the initial target market for Otter Creek coals. The plants are shown on Figure 4.1 numbered from the closest to the most distant plants. Total 2004 volume to these ten plants totaled 20.3 million tons in 2004. Through July of 2005 the annualized total consumption decreased to 16.1 million tons. The difference in consumption rates appears to be due to the intrusion of coal from the Southern PRB. In Table 4.1 below coal quality and delivered prices (discussed below) are also shown.

Table 4.1 Otter Creek Prices of Coal to Potential Customers

					2004 FERC data										2005 FERC through July 2005									
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
	Company Name	Plant Name	State	Source	Quantity - K tons	Btu Content - #	Sulfur %	Ash %	Cost - cents/MBtu	$ / ton	Miles	Rate	Barge $/ton	FOB O.C.	Quantity - K tons	Btu Content - #	Sulfur %	Ash %	Cost - cents/MBtu	$ / ton	Barge $/ton	FOB O.C.	Contract / Spot	Cents/ MBtu
1	Otter Tail Corporation	Hoot Lake	MN	Spring Creek	442	9,258	0.38	4.6	143.38	$ 26.55	600	$ 0.021	$ 12.60	$ 13.95	341	9,247	0.37	4.8	158.42	$ 29.30	$ 12.60	$ 16.70	C-12/07	$ 10.00
2	No States / So MNMuni Pwr Agy	Sherburne County 3	MN	Absaloka	5,851	8,704	0.64	9.2	95.58	$ 16.64	700	$ 0.020	$ 14.00	$ 2.64	912	8,716	0.63	9.2	115.65	$ 20.16	$ 14.00	$ 6.16	S&C-06/07	$ 5.85
3	Northern States Power	King	MN	Absaloka	351	8,727	0.63	9.07	113.66	$ 19.84	750	$ 0.020	$ 15.00	$ 4.84	164	8,708	0.58	9.1	115.36	$ 20.09	$ 15.00	$ 5.09	C-12/06	$ 4.84
4	Minnesota Power	Clay Boswell	MN	Decker	777	9,417	0.37	4.5	97.14	$ 18.30	750	$ 0.019	$ 14.25	$ 4.05	555	9,444	0.40	4.5	105.07	$ 19.85	$ 14.25	$ 5.60	C	$ 5.32
4	Minnesota Power	Clay Boswell	MN	Spring Creek	867	9,273	0.34	4.2	100.12	$ 18.57	750	$ 0.019	$ 14.25	$ 4.32	693	9,211	0.36	4.5	106.08	$ 19.54	$ 14.25	$ 5.29	C	$ 5.03
4	Minnesota Power	Clay Boswell	MN	Rosebud	2,083	8,773	0.70	8.9	97.02	$ 17.02	750	$ 0.019	$ 14.25	$ 2.77	1,503	8,693	0.72	9.1	100.89	$ 17.54	$ 14.25	$ 3.29	C	$ 3.13
5	Minnesota Power	Syl Laskin	MN	Decker	408	9,468	0.37	4.4	106.07	$ 20.09	800	$ 0.019	$ 15.20	$ 4.89	265	9,413	0.37	4.3	117.79	$ 22.17	$ 15.20	$ 6.97	C	$ 6.63
6	Northern States Power	Bayfront	WI	Decker	55	9,465	0.32	4.1	153.39	$ 29.04	800	$ 0.019	$ 19.20	$ 9.84	34	9,487	0.32	3.9	151.63	$ 28.77	$ 19.20	$ 9.57	S	$ 9.09
7	Marquette Rd of Light and Power	Shiras	MI	Spring Creek	197	9,321	0.32	4.1	133.61	$ 24.91	800	$ 0.019	$ 19.70	$ 5.21	64	9,309	0.31	4.3	142.35	$ 26.50	$ 19.70	$ 6.80	C	$ 6.46
8	Detroit Edison	St Clair	MI	Decker	2,552	9,515	0.37	4.5	146.04	$ 27.79	800	$ 0.019	$ 21.70	$ 6.09	1,036	9,478	0.38	4.4	125.36	$ 23.75	$ 21.70	$ 2.05	S	$ 1.95
8	Detroit Edison	St Clair	MI	Spring Creek	1,458	9,330	0.33	4.1	91.36	$ 17.05	800	$ 0.019	$ 17.05	$ -	772	9,295	0.32	4.3	96.41	$ 17.92	$ 17.05	$ 0.88	C-12/06	$ 0.83
9	Detroit Edison	Belle River	MI	Decker	2,452	9,515	0.37	4.5	146.03	$ 27.79	800	$ 0.019	$ 21.70	$ 6.09	996	9,477	0.38	4.4	125.61	$ 23.81	$ 21.70	$ 2.11	S	$ 2.00
9	Detroit Edison	Belle River	MI	Spring Creek	1,401	9,330	0.33	4.1	91.36	$ 17.05	800	$ 0.019	$ 17.05	$ -	742	9,296	0.32	4.3	96.80	$ 18.00	$ 17.05	$ 0.95	C-12/05	$ 0.90
10	Detroit Edison	Trenton Channel	MI	KY, PA & WY	1,418	10,850	0.68	6.0	135.25	$ 29.35	800	$ 0.019	$ 17.30	$ 12.05	1,310					$ -				$ -
	Sub Total				20,312									$ 4.61	16,092	annualized total						$ 3.82		$ 3.53
	Other **potential customers**:																							
	Consumers Energy	B.C. Cobb		Rosebud	929	9,045	0.50	6.7	128.28	$ 23.21					464	9,004	0.47	6.8	$ 128.23					
		Colstrip		Rosebud	6,378										3,867	8,495	0.67	9.5						
	Salt River Project	Coronado	AZ	Spring Creek	71	10,850	0.68	6.0	135.25	$ 29.35					167	9,327	0.32	4.0	$ 144.15				C&S	
	TVA	GRT Terminal		Spring Creek	243										262									
	Montana-Dakota Utilities	Heskett		Rosebud	79	8,678	0.49	7.3	123.96	$ 21.51					83	8,678	0.77	9.4	$ 136.13				spot	
	Consumers Energy	J.C. Weadock		Rosebud	239	9,034	0.50	6.7	123.77	$ 22.36					302	9,008	0.48	6.8	$ 118.50				C-12/09	
	KP&L, A Western Resources Co	Lawrence	KS	Spring Creek	246	8,979	0.33	6.90	108.75	$ 19.53					-									
	Montana-Dakota Utilities	Lewis & Clark		Rosebud	15	8,700	0.72	9.0	127.20	$ 22.13					3	8,700	0.72	9.0	$ 139.70					
	Wisconsin Power & Light	Nelson Dewey		Spring Creek	307	9,354	0.32	4.0	112.00	$ 20.95					240	9,362	0.32	4.1	$ 127.99					
	Wisconsin Power & Light	Presque Isle		Spring Creek	466	9,103	0.28	4.4	110.64	$ 20.14					274	9,059	0.28	4.9	$ 117.21					
	Northern Indiana Public Service	Rollin Shahfer		Spring Creek	55	9,257	0.32	4.2	148.30	$ 27.46					39	9,330	0.35	4.1	$ 167.17					
	United Power Association	Stanton		Spring Creek	266	9,228	0.49	7.3	100.59	$ 18.56					442	9,285	0.33	5.4	$ 96.76	C				
	KP&L, A Western Resources Co	Tecumseh	KS	Spring Creek	105	8,979	0.33	6.9	108.80	$ 19.54					-									
	Monongahela Power	Willow Island		Spring Creek	8	11,586	1.33	8.0	179.02	$ 41.48					-									
	Sub-Total			-	9,407										10,529									
	Total				29,719										26,621									
	Total ex Colstrip				23,341										19,992									
	11/16/2005 15:03																							
															Annualized									
	Absaloka				6,262										6,142									
	Rosebud				9,723										10,665									
	Decker				6,244										4,947									
	Spring Creek				6,452										7,135									



Plant ID No.	Plant Name
1	Hoot Lake
2	Sherco Plant
3	Allen S. King Plant
4	Boswell Energy Center
5	Laskin Energy Center
6	Bayfront
7	Shiras
8	St. Clair Power Plant
9	Belle River Power Plant
10	Trenton Channel Power Plant

The data in this table is derived from FERC data. It is, from our experience, the best data available but not much audited for accuracy of reporting nor input into their database. Columns 'J' and 'T', for instance, show the delivered price per million Btus. When we subtract our best estimate of loadout, rail, and in some cases loadout to barge and barge transportation costs, the resulting FOB mine prices vary widely and are, in some cases, negative. Averaging these resulting prices, as shown at the bottom of columns 'Q' & 'W', produces apparently unrealistic FOB prices. In further work on the mine feasibility, special focus should be directed to these elements.

Note that the column titled Contract/Spot in Table 4.1 indicates whether a power plant is being supplied via contracts or spot sales. We anticipate that the new prices on expiring contracts will be increased by $4.00 to $7.00 per ton plus any increased rail or barge costs. The spot market sales in 2005 to Detroit Edison's lakeside plants shows an upturn of about $5.50 per ton over 2004 spot prices.

The volume of coal shipped from Montana to the high sodium-accepting power plants is only about 20 million tpy. Careful effort developing a solid market strategy will be necessary to determine how best to nudge into this market without destroying whatever price discipline, if any, currently exists.

The second group of power plants in Table 4.1 are (or were) also served by Montana mines neighboring Otter Creek, including Rosebud, Absaloka, Decker, and Spring Creek

All these mines have been operating for many years and are experiencing higher stripping ratios in the range of 3-4:1 at Spring Creek, climbing up to 9:1 and higher at Decker. These higher strip ratios put these mines at a disadvantage with respect to Otter Creek's projected operating costs, as they each must move more waste to uncover the same amount of coal as at Otter Creek. This higher cost, however, will be offset by Otter Creek's higher capital recovery / depreciation costs.

SYNFUEL PLANTS

Another important potential market for GNP coal is synthetic fuels. Very few properties contain such a huge coal reserve and at such an attractive stripping ratio (less than 3:1). Otter Creek could be considered an ideal property for a large scale synfuel plant.

This would probably entail attracting a large energy company with adequate financial capability to construct a mine mouth conversion plant at Otter Creek. Companies like Shell Oil, ConocoPhillips, Chevron-Texaco and ExxonMobil fit this profile. They would possibly be attracted by the large reserve base of Otter Creek.

TRANSPORTATION

At present there are no established transportation links to the Otter Creek property. Barring more rapid than anticipated construction of the Dakota Minnesota & Eastern railway, the product coal would likely get to market by rail or truck/rail.

RAIL

Sized product coal would be loaded at the mine into trains which would travel via a rail spur to the line at Colstrip, located about 38 rail miles distant. From Colstrip the trains would continue on to their final destination, a power plant among those shown in the prior figure and table. This alternative would require the construction of:

- Typical coal crushing, storage and loadout facilities at the mine to accommodate 12,000-ton unit trains
- A 38-mile rail spur from the mine to Colstrip to connect to the mainline.

Normally, the construction cost of the spur would be funded by the BNSF with the cost then rolled into the freight tariff. Alternatively, the construction cost could be funded by the mining company(ies) who should receive a corresponding (slight) tariff reduction to cover the railroad's avoided capital cost. The construction cost of the rail spur to Colstrip is estimated to be about $78 million[4].

Working on the assumption that the construction would be funded by the railroad, we estimate the freight rate to be 21 mills per ton/mile for a hypothetical 600 haul to the nearest power plant. The freight cost for the 600 mile journey would cost optimistically about $12.60/ton.

TRUCK/RAIL

Sized product coal would be loaded at the mine into trucks which would travel about 50 miles on existing highways (including the towns of Ashland and Lame Deer) to the nearest access point to the mainline at Colstrip where the coal would be transferred onto

[4] Based on the work performed by TransSystems Corporation (included in the "Tongue River Feasibility Report" prepared by Resource Data International, dated October 1997). Norwest escalated the 1997 capital cost estimates by 2.5% per year.

trains for the final leg to the recipient power plant. This alternative is more complex and would require the construction of:

Coal crushing, storage and loadout facilities at the mine to accommodate the loading of highway trucks with capacity of about 40 tons.

Truck unloading, storage and loadout facilities at Colstrip to accommodate the loading of unit trains.

The construction cost of the unloading, storage and loadout facilities at Colstrip is estimated to be between $5-10 million. Assuming a work schedule of 350 working days per year, 24 hours per day, about 30 trucks per hour would be needed to move the production of 10 million tons per year. This is equivalent to one loaded truck every two minutes.

The budget trucking rate for the 50-mile haul to Colstrip is $0.16/ton mile[5]. Therefore, the cost of the leg to Colstrip would be about $6.40/ton. The balance of the 600 mile journey would cost $11.87/ton for a total of $18.27/ton delivered to the power plant.

CONCLUSION

Norwest does not believe that trucking the coal to Colstrip is a viable option for the following reasons:

Unacceptable Environmental and Social Impacts
As stated above, a loaded truck would pass through the communities of Ashland and Lame Deer about every two minutes. However, every two minutes an empty truck would also pass through the towns. This means that, on average, a coal truck would pass through the towns every minute of the day and night.

Norwest believes the impacts of this traffic on local schools and other aspects of the communities would be unacceptable and that approvals would not be granted.

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[5] Provided on September 29, 2005 by Mr. Ken Moizer, Sales Director, Savage Industries, a coal transportation company.

Unattractive Economics

The higher road transportation cost ($5.67/ton) results in a yearly penalty of about $56.7 million which means that the $77 million capital cost of the rail spur (plus the $5-10 million cost of the additional facilities at Colstrip) would be offset in less than two years.

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Friday, February 27, 2015 3:21 PM ET Exclusive

Global coal exports in 2014 exceed demand, a gap expected to widen in 2015

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By Rohan Somwanshi

Global coal exports from the top seven shipping countries reached about 1.24 billion tonnes in 2014, easily outstripping the collective demand for seaborne coal from China, Japan, India, South Korea and Europe, which take in the bulk of the world's coal imports, according to an analysis of data from each country by SNL Energy.

The four Asian countries and Europe together imported 980.8 million tonnes of coal in 2014, leaving 193.6 million tonnes of seaborne coal for much smaller consumers. Analysts say the picture is clearly one of an oversupplied coal market.

The next-largest coal importer, Taiwan, took in 52.28 million tonnes of coal in 2014, according to *The Tex Report*. Meanwhile, Brazil's energy intensive, growing economy, imports less than 20 million tonnes of coal per year.

The global seaborne coal trade is again expected to increase in 2015, with the gap between exports and imports to widen further through the year, according to Australia's Office of the Chief Economist, or the OCE.

Combined coal exports in 2014 from Australia, Indonesia, Russia, the U.S., Colombia, South Africa and Canada were just ahead of an earlier projection made by Australia's Bureau of Resources and Energy Economics, or BREE.

An analysis of data from major coal export ports indicates the world's leading coal exporter, Indonesia, missed its coal export target, while higher than expected volumes came from Australia, Russia, the U.S. and Colombia, each of which easily surpassed their 2014 export target predictions. Still, Australia and Indonesia together shipped out 789.5 million tonnes of coal in 2014, higher than the total combined volume shipped by the next top five coal exporting countries.

Tools

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BHP Billiton Ltd. (BHP-ASX)	$ 24.45	(0.35%)
Drummond Co. Inc.	Birmingham, Alabama	
Peabody Energy Corp. (BTU)	$ 6.35	(2.01%)

Last Updated: 3/25/2015

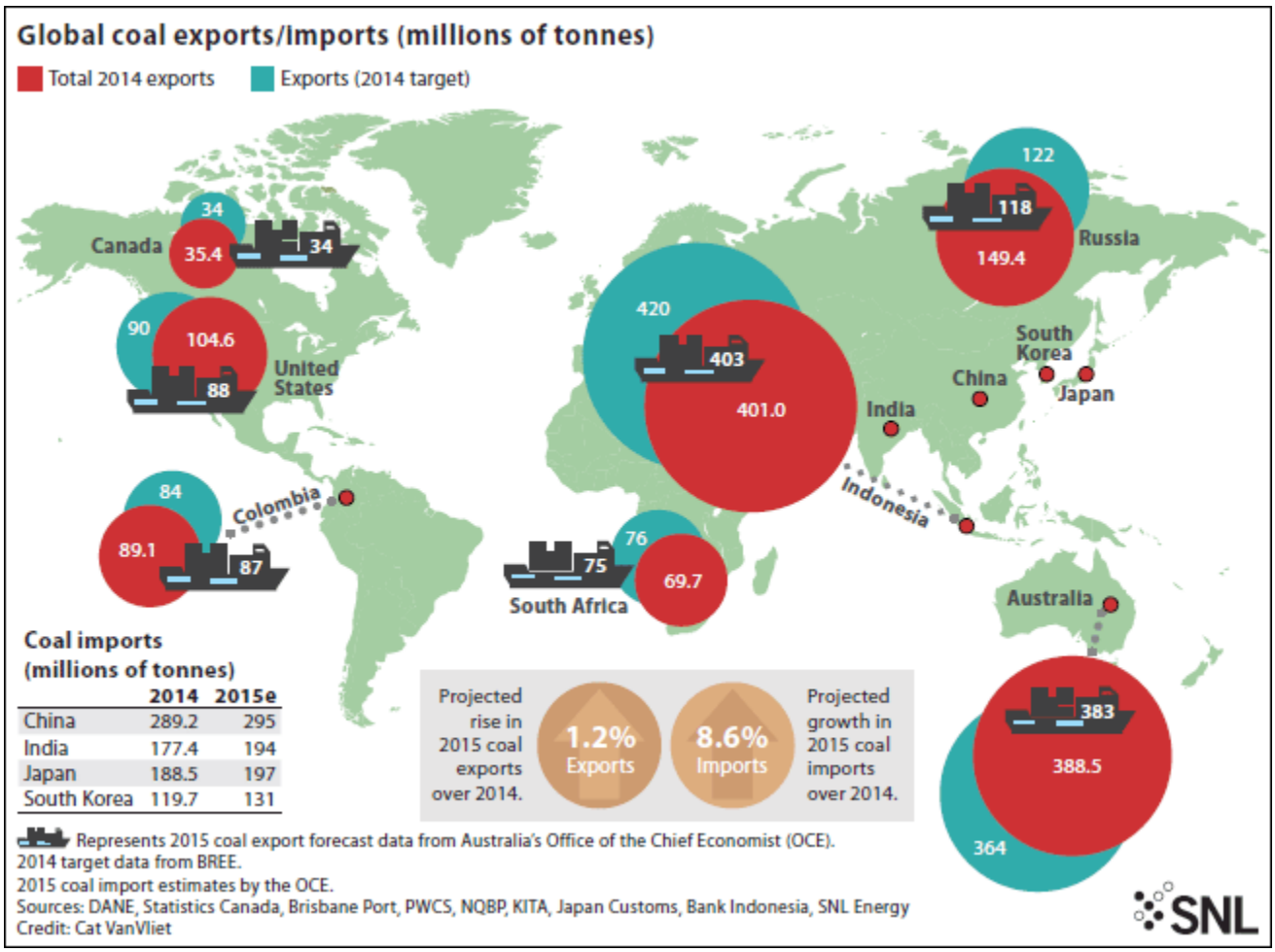
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Russia exports benefiting from a weak ruble

In 2014, Russian coal exports were 149.4 million tonnes, according to data from *PortNews*, likely spurred on by a weaker Russian currency. Russia's coal exports to Germany in 2014 were at their highest rate since 2006, *Russia Today* reported, citing Germany's Federal Statistics Office. It was also reported that Turkey was importing more coal from Russia, on the back of a weakened Russian ruble.

The OCE estimated Russia will export 118 million tonnes of coal in 2015.

According to recent U.S. Census data that measured exports of anthracite, bituminous, coke, semicoke, coking, petroleum coke and subbituminous coal varieties, total coal exports from the U.S. reached 104.6 million tonnes in 2014. The U.S. Energy Information Administration had pegged total coal exports for the year at about 90 million tonnes.

Mark Gresswell, director and chief analyst at HDR, told SNL Energy that 2015 could be challenging for U.S. thermal coal exporters.

"Not only are they [U.S. thermal coal producers] competing with strong supply growth from competition in Indonesia, Australia and Russia, and weak demand growth in their key market of Europe, but the strength of the U.S. dollar has also made their competitors more cost-competitive, which will keep them in the market and put further pressure on U.S. exporters," Gresswell said.

"In 2014, U.S. thermal exports fell by a third, from 46 [million tons] in 2013 to 31 [million tons] in 2014 and I expect them to fall further again in 2015. It should be noted however, that historically, the U.S. has been a marginal supplier in the seaborne market, generally entering the market when other suppliers cannot meet demand (and therefore prices are higher) and then exiting the market when competition has risen and prices have fallen. Since 2005, average annual U.S. thermal coal exports have been 30 [million tonnes], so the 2014 figure is really just a reversion to the average after a few bumper years," Gresswell said.

According to Gresswell, U.S. coking coal exporters were in a better position cost wise than U.S. thermal coal exporters.

"While we think that 2015 will remain challenging from a demand perspective, there has been 25-30 [million tonnes] of coking coal production closures announced globally, and as this filters through it will help the market stabilize. U.S. coking coal exporters seem to be better positioned from a cost perspective relative to U.S. thermal coal exporters, so we don't expect much change in coking coal exports in 2015 from the US — possibly a decline of 2-3 [million tonnes], but nothing more unless there is a dramatic collapse in price, which is not our base case scenario."

Colombia, which like the U.S., is a major coal supplier to Europe, also exported more coal in 2014 than what BREE estimated. Colombia exported 89.1 million tonnes of coal in 2014, according to the DANE statistics agency. The growth comes despite an export ban imposed on Drummond Co. Inc., the country's second-largest coal producer. The OCE estimates Colombia will ship 87 million tonnes of coal into seaborne markets in 2015.

Largest exporter misses export targets

Indonesia, the world's largest coal exporter, fell 19 million tonnes short of its 2014 estimate. The country exported 401 million tonnes of coal in 2014, according to data from Bank Indonesia. The OCE estimates that Indonesia will ship 403 million tonnes of coal in the current year, but the Indonesian Coal Mining Association said outbound shipments could be cut to 350 million tonnes in 2015.

South Africa also missed its 2014 coal export estimate. The African country exported 69.7 million tonnes of coal in 2014, according to collected data. While the OCE said that South Africa may export 75 million tonnes of coal in 2015, an industry expert said exporters will be lucky if shipments reach 70 million tonnes. "[South African coal] mines are decreasing production/exports, new mines are not happening (no investment), we're just part of the global coal debacle, just as the other producers," the expert told SNL Energy.

Australian producers have benefited from a falling currency that has helped exports remain strong. Data collected from major ports in Australia showed the country exported 388.5 million tonnes of coal in 2014, compared to 364 million tonnes estimated by BREE. Coal exports in 2015 are estimated at 383 million tonnes by the OCE.

A recent category 5 cyclone had a less severe impact on coal mining operations in Australia than what a cyclone with similar wind speed intensity caused in 2011. The 2011 cyclone caused widespread mine closures, including those of Peabody Energy Corp. and BHP Billiton Ltd. At the time, coking coal prices soared to$330/tonne. Since then, prices have now sharply declined by 65.2% to $117/tonne.

In the short term, Gresswell expects coking coal markets, led by Australia, to struggle more than the thermal coal markets.

"There is not much steel production growth expected anywhere in the world for the next 5 years, with Chinese exports flooding the market due to domestic over-capacity. India, the Middle East, South East Asia, Brazil and Africa will all increase steel production in the next few years, but only incrementally. Given that Australia is still expanding coking coal exports, we are less bullish on coking coal markets than thermal coal for the short-mid-term," Gresswell told SNL Energy.

For coking coal prices to grow at any magnitude, the demand has to be driven by China, which has accounted for the vast majority of demand growth in the past five years and is by far the world's largest consumer, Gresswell said.

Analyst: Market underestimating global thermal coal demand

China's total coal imports reached 289.2 million tonnes in 2014, according to *China Coal Resource*. The country is expected to ship in 295 million tonnes of coal in 2015, the OCE said. As markets have grown more uncertain due to growing Chinese curtailments on coal consumption and imports, the focus on other Asian markets has increased.

Outlook for thermal coal demand elsewhere in Asia looks strong, particularly starting from 2016, Gresswell said.

"Pretty much every Asian country has significant new coal-fired power generation capacity scheduled to commence operations from 2015-20, and the vast majority of this will require imported coal. India, which is already the world's second largest importer of thermal coal and is on track to become the largest, will drive this growth and probably pass 200 [million tonnes] of thermal coal imports by next year [2016], if not 2015. I think the market is underestimating the demand side for thermal coal for the next 5 years," Gresswell said.

India's coal imports are rising at a faster rate in recent years, braced by a growing economy and energy demand. The country imported 177.4 million tonnes of coal in 2014, according to mjunction. For 2015, Indian coal imports are estimated at 194 million tonnes, a 27.6% increase from 152 million tonnes in 2013.

Two other Asian countries that are increasingly depending on coal imports are Japan and South Korea. Japan imported 188.5 million tonnes of coal in 2014. With imports expected to increase to 197 million tonnes in 2015, Japan will keep a slender lead over India as the second-largest coal importing market. South Korean coal imports could rise to an estimated 131 million tonnes in 2015 from 119.7 million tonnes in 2014, data from the OCE and Korea International Trade Association indicated.

Article revised at 9:16 a.m. ET on March 2, 2015, to correct BREE's 2014 export target tonnage for Russia. Article revised at 4:14 p.m. ET on March 10, 2015, to add additional data on exports from Australia impacting total global 2014 exports.

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Tuesday, February 17, 2015 11:06 AM ET Exclusive

Analyst: Sporadic coal mine closures not enough to rebalance oversupplied market

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By Rohan Somwanshi

Sporadic coal mine closures seen in 2014 are not significant enough to permanently impact coal prices and rebalance the oversupplied market, a senior principal analyst at Wood Mackenzie told SNL Energy, signaling that oversupply may continue to spell trouble for coal producers in 2015 and beyond.

It will require "very significant rationalization" of excess production to help rebalance the coal markets, Andy Roberts said. "The amount of rationalization required to rebalance markets is unlikely to occur in just one year. However, price volatility is still possible as a result of temporary shortages due to infrastructure problems, weather and the like."

Wood Mackenzie in its last forecast estimated coal overcapacity to double in 2015 from 2014 levels, Roberts said, adding that the volume included new capacity that has a very high probability of entering production in 2015.

However, since Wood Mackenzie released its forecasts, global economic growth has weakened, a factor that will be taken into account for estimating overcapacity levels in 2015, Roberts said. "It is fair to say that with slower economic growth and the limited rationalization we have seen thus far in 2015, there is a good chance that overcapacity will have grown, not lessened. We aren't prepared at this time to specify an actual number."

In a report issued in December 2014, Deutsche Bank expected global seaborne thermal coal oversupply to more than triple in 2015 from 2014, stretching over a multiyear period as the growth in demand for thermal coal in China falls into a recession.

Thermal coal exports in 2015 are expected to reach 1.08 billion tonnes, compared to 1.07 billion tonnes in 2014, Deutsche Bank said in its "Commodities Outlook 2015" report. On the other hand, demand for thermal coal in 2015 is projected to decline to 1.05 billion tonnes from 2014 levels. The bank predicted thermal coal supply to exceed demand by 30 million tonnes in 2015, a figure that could reach 68 million tonnes in 2019.

Asked when the supply gut could ease and bring balance to the global seaborne coal trade, Roberts replied that Wood Mackenzie previously projected the market to balance between 2018 and 2021, depending on whether new mines are eventually delayed. "With weakening demand, a balanced market could occur later. Still, if suppliers rationalize production in the face of extended low prices then the market could balance much sooner."

He continued: "The impact of some of the production cuts announced [in 2014] will be greater in 2015 given that the cuts will impact the entire year rather than just the portion of the year that was impacted in 2014. Still, it is important to note that the announced production cuts do not all impact the seaborne market."

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Alpha Natural Resources Inc. (ANR)	$ 0.92	4.47%
CONSOL Energy Inc. (CNX)	$ 29.02	2.54%
James River Coal Co. (JRCCQ)	$ 0.03	(14.55%)

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Thermal coal production cuts announced for 2015 may translate into approximately 30 million tonnes getting off from the seaborne market, with the cuts coming mostly from U.S. producers, such as Alpha Natural Resources Inc.,CONSOL Energy Inc., James River Coal Co. and Patriot Coal Corp., and from other producers in Australia and Indonesia, such as Peabody Energy Corp.

Lower coal prices and excess supply recently forced Indonesian coal miner Garda Tujuh Buana to suspend production, Reuters reported Feb. 13. "To control costs and protect our market it was decided by the board of directors to shut down the mining activity for at least three months," Reuters quoted the company CEO as saying. The Indonesian Coal Mining Association said in the report that difficult conditions were forcing other low-rank coal producers out of the market.

China, the strongest engine of growth in thermal coal, saw its net coal imports decline in 2014, extending worries for global coal exporters facing tough market conditions. China has imposed several restrictions on coal usage and imports in order to combat air pollution, as well as to support its domestic coal mining industry. The Chinese government could extend more restrictions on thermal coal in 2015 and beyond, Deutsche Bank analysts wrote in the report.

The bank lowered its assumptions for China's net thermal coal imports to 190 million tonnes in 2015 from 210 million tonnes in 2014, saying the domestic production will primarily meet the demand rather than coal imports.

Another major consumer of thermal coal is Europe, which is expected to see its imports decline steadily after 2014. Europe imported an estimated 213 million tonnes of thermal coal in 2014. Coal imports are set to decline to 211 million tonnes in 2015, reaching 160 million tonnes in 2019.

Coal import growth in India in the longer term could increase in the wake of government initiatives to boost economic growth, Deutsche Bank said. India is considered the next big driver of coal markets.

India's thermal coal imports are expected to grow to 163 million tonnes in 2015, recording a 5% increase from 2014. Japan, South Korea and Taiwan could import a combined 324 million tonnes of thermal coal in 2015.

Indonesia is expected to continue to remain the world's largest thermal coal-exporting country, shipping an estimated 420 million tonnes of coal in 2015. Australian thermal coal exports in 2015 are estimated at 214 million tonnes, a 6% increase over 2014, according to Deutsche Bank.

The oversupply in global seaborne metallurgical coal markets may appear similar to the situation with thermal coal. The bank said oversupply in met coal markets is expected to more than double in 2015 from 2014. The surplus in the seaborne coking coal trade in 2014 was limited to 5 million tonnes, mostly due to supply cutsand lower exports, particularly out of the U.S.

Despite several coking coal closure announcements that amounted to nearly 27 million tonnes in 2014, global markets need a further 10 million tonnes of curtailments in order to achieve a balance in 2015, Deutsche Bank analysts said. However, lower oil prices and weak currencies could possibly delay the required cuts in coking coal.

Deutsche Bank said another round of supply cuts is required, mostly from U.S. producers and possibly from Indonesia, which could offset additional volumes from Australia, Russia and Mozambique. U.S. met coal exports in 2015 are estimated to fall 22% to 35 million tonnes from 45 million tonnes in 2014.

Met coal shipments out of Australia are projected to grow to 188 million tonnes in 2015. Total seaborne global coking coal supply in 2015 could reach 320 million tonnes, 11 million tonnes more than the demand estimated for the year.

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Wednesday, February 11, 2015 1:52 PM ET

Global shipping index falls to record low as China cuts coal imports

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By Kalayaan Teodoro

The Baltic Dry Index, which measures changes in the cost of shipping raw materials, fell to a record low of 553 points due to decreased interest from China, Bloomberg News reported Feb. 11.

U.K.-based Baltic Exchange produces the index by contacting shipping brokers and assessing price levels for goods such as metals, grains and fossil fuels. The previous low was 554 points, set in July and August of 1986, according to the report.

China is the world's leading coal consumer, with a global coal demand share of 49.4%. Imports of the fuel have tapered off as the country enacted several initiatives to reduce coal use on pollution concerns. According to data obtained by SNL Energy, China's total coal imports reached 259.2 million tonnes in the January-November 2014 period, compared to 330 million tonnes in 2013.

U.S. coal industry leaders have said they were targeting Asia coal export opportunities, with China being perceived as a wild card.

Tools

Sources

Bloomberg News: Shipping Measure Collapses to Record Amid Lack of Coal to China

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Analyst: Illinois Basin stable, but not immune to coal market weakness

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By Darren Epps

Tools

Oversupplied domestic coal markets may be an overhang in the near term — even in the stable Illinois Basin — due to ongoing headwinds in the coal export market, according to an Oct. 8 note from J.P. Morgan.

In initiating coverage of Alliance Resource Partners LP with a "neutral" rating, J.P. Morgan analyst Spiro Dounis said the Illinois Basin is "among the most stable" due to the utilization of scrubbers among almost all utilities burning Illinois Basin coal, mitigating headwinds from environmental scrutiny. Dounis said sales contracts in the region tend to be more long term than in Appalachia.

But not even Illinois Basin coal is protected from the current weakness in the domestic coal market, according to J.P. Morgan.

"While the outlook for ILB coal appears stronger than other basins, the region is not immune from the challenged coal market," Dounis said. "Export markets have been crucial in balancing supply-demand in the US; however, depressed international prices appear to have closed the door on new export contracts and could create domestic oversupply."

The stability of the Illinois Basin is buoyed by utilities such as Southern Co. committing to the product in lieu of Central Appalachian coal. Southern can burn high-sulfur Illinois Basin coal thanks to spending billions of dollars on environmental controls to comply with existing and upcoming regulations, including the U.S. EPA's Mercury and Air Toxics Standards, or MATS.

Alliance is purchasing and funding development of reserves, constructing surface facilities and making equity investments in Illinois Basin coal operator White Oak Resources LLC's new mine in Illinois, which won part of Southern's recent coal solicitation. J.P. Morgan said almost 30% of Alliance's revenues are derived from theTennessee Valley Authority and Louisville Gas and Electric Co.

In an illustration of the difficulties facing Central Appalachian thermal coal producers, Illinois Basin coal is about $20/ton cheaper than Central Appalachian coal, Southern's director of coal services said at a recent industry conference, which represents "hundreds of millions of dollars" in savings. J.P. Morgan said Illinois Basin coal is competitive when natural gas prices are above $3.50/MMBtu, compared to $4.50/MMBtu for Central Appalachian coal.

Unable to secure new coal sales commitments, Alliance announced Sept. 27 that it planned to close its Pontiki complex in Central Appalachia. J.P. Morgan said the closure of Pontiki was "an example of a pullback that ultimately should have positive implications for cash flow." Alliance can redirect cash flows toward higher-growth regions such as the Illinois Basin or Northern Appalachia, J.P. Morgan said.

"We do not anticipate a revolutionary shift away from coal usage as a primary fuel source for electric generation," Dounis said in the note. "Instead, we believe environmental regulation and competitive natural gas prices will slowly chip away at market share. Any shift in attitude toward coal that would reverse this trend would be a positive."

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Tuesday, October 28, 2014 4:05 PM ET

Report: US banks will not fund Australian coal terminal expansion

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By Rohan Somwanshi

U.S.-based banks Citigroup Inc. and Morgan Stanley are not planning on lending financial support to the expansion of the Abbot Point coal terminal in Australia, a project that could export up to 330 million tonnes of coal per year,*The Sydney Morning Herald* reported Oct. 28.

The banks have confirmed their stance on not getting involved in the project to people opposing the port expansion and related coal projects in the Galilee Basin, the report added. India-based Adani Group and GVK have massive projects in the coal-rich basin.

"Citi is not involved and does not plan to be involved in any financing for the Abbot Point expansion," Valerie Smith, director of corporate sustainability at Citigroup, was quoted as saying in a letter set to be released by the Rainforest Action Network. According to the *Morning Herald* report, Francesco Liberti, executive director for risk management at Morgan Stanley, conveyed a similar message in a separate letter, saying, "Morgan Stanley will not lend to or invest in the expansion of Abbot Point."

Two other U.S.-based banks, JP Morgan Chase & Co. and Goldman Sachs Group Inc., may also stay away from the projects, the report said.

The expansion has been criticized for the planned dredging of at least 3 million tonnes at a site near the Great Barrier Reef.

Adani has not sought financing for the expansion project from the four U.S. banks, according to an Adani spokesman. "The premise that institutions who have not been asked to provide funding, have no insight into our projects, and have not studied the details, have declined to or distanced themselves from involvement is rejected," the publication quoted the spokesman as saying.

A GVK spokesman said the Abbot Point expansion "will not impact the outstanding universal value of the Great Barrier Reef." Port developers in September agreed to consider dumping dredging waste on an onshore site following widespread opposition.

The report said the expansion's overall viability will depend on whether Australian banks extend financial support to the project. A recent report from the Institute for Energy Economics and Financial Analysis said the proposed coal and associated projects in the Galilee Basin face an increasingly risky financial proposition and could fail to proceed without the support of the four major banks in Australia.

In a separate report, Reuters said Adani appointed Morgan Stanley to help sell a stake in Abbot Point in an effort to raise A$7 billion in capital. The funds from the sale would be used to help expand the port.

As of Oct. 27, US$1 was equivalent to A$1.14.

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TS – 31

Monday, February 09, 2015 4:44 PM ET Exclusive

US coal exports finish 2014 below 100 million tons, but CEOs remain resolute

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By Darren Epps

Even as final figures revealed that 2014 U.S. coal exports tumbled to their lowest point since 2010, coal CEOs gathered at an industry conference said they are targeting the international market to grow their respective companies and help overcome an uninspiring domestic market.

Coal industry leaders at the Coaltrans USA conference in Miami acknowledged weakness across all international thermal coal and metallurgical coal markets, a persistent theme amid several somber presentations during the two-day event Feb. 5-6. According to the latest SNL Energy data sourced from the U.S. Department of Commerce, Bureau of the Census, the U.S. exported just 88.30 million tonnes, or 97.33 million tons, in 2014, down 17.3% compared to 2013. U.S. coal exports peaked in 2012 at 125.75 million tons, according to U.S. Energy Information Administration data.

US coal exports
Shipments by type of coal (tonnes)

	2014	2013	Change (%)
Bituminous	24,433,216	34,574,917	-29.3
Subbituminous	5,866,357	11,337,730	-48.3
Metallurgical	57,194,380	59,582,877	-4.0
Anthracite	282,889	691,098	-59.1
Other coal	523,869	552,094	-5.1
Total	**88,300,711**	**106,738,716**	**-17.3**

As of Feb. 9, 2015.
Source: SNL Energy

SNL

December 2014 coal exports totaled 6.30 million tonnes, down 26.5% compared to December 2013. It was the worst month for U.S. coal exports since October 2010.

Arch Coal Inc. President and CEO John Eaves acknowledged that price weakness on the international market is unlikely to change significantly in 2015. He projected coal exports to tumble another 10 million to 15 million tons in 2015 due to shaky world economies, oversupply and weak currenciescompared to the strong U.S. dollar.

But Eaves, along with Cloud Peak Energy Inc. President and CEO Colin Marshall and Alpha Natural Resources Inc.Chairman and CEO Kevin Crutchfield, said they believe the U.S. will eventually become a more significant participant in the world market, helping offset the wave of domestic coal-fired power plant retirements.

"The U.S. is going to be a bigger player. I know it seems difficult for all of us today, given where API prices are [into Europe], given where Newcastle prices are and given where the benchmark prices are. It's tough," Eaves said. "But one way to grow our industry is to participate in international markets. It won't be without ebbs and flows. But I do think, long term, it provides a real opportunity for the U.S. coal industry."

Tools

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Arch Coal Inc. (ACI)	$ 0.96	(7.58%)
Alpha Natural Resources Inc. (ANR)	$ 0.96	4.03%
Cloud Peak Energy Inc. (CLD)	$ 6.24	(4.15%)

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The opportunity, more specifically, is in South Korea, Taiwan, India, Vietnam and Japan. In a departure from otherwise gloomy outlooks at the conference, coal industry leaders expressed optimism in most of Asia, with China seen as a wild card.

US coal exports
Shipments by type of coal (tonnes)

	December 2014	December 2013	Change (%)
Bituminous	1,584,088	2,979,817	-46.8
Subbituminous	368,223	979,076	-62.4
Metallurgical	4,308,188	4,543,957	-5.2
Anthracite	2,866	32,366	-91.1
Other coal	32,045	30,920	3.6
Total	**6,295,410**	**8,566,136**	**-26.5**

As of Feb. 9, 2015.
Source: SNL Energy

The CEOs said India is showing strength for both thermal coal and met coal. South Korea is likely to increase coal imports significantly by 2018, and Vietnam is beginning to emerge as a market player.

"We understand thermal markets are going to be a roller coaster ride," Marshall said. "At the moment, they are low. But only two years ago they were an awful lot higher. That's the way they work, and you need to acknowledge that when you set up your company to address this market. We see the international markets growing, and domestically we see things as flat."

On the supply side, Eaves and Marshall said Indonesia — the top thermal coal exporter in the world — will see its coal quality degrade and its domestic market grow, potentially precluding continued growth in exports.

"When you look at Indonesia's growth, it will be with lower-rate coal," Eaves said. "It makes the Powder River Basin look like rocket fuel."

Not all coal industry observers share the bullish outlook for international markets. Energy research firm Wood Mackenzie said it does not see sufficient global coal production volume exiting to balance the market and support a price recovery, putting higher-cost U.S. producers at a greater risk of closures in 2015. But Wood Mackenzie said it sees long-term strength in coal demand fundamentals and the negative price environment "will persist through 2015 but not forever."

Citigroup Global Markets Inc. recently lowered its global coal forecast for 2015 and 2016, saying currency changes are pushing down supply costs and cheaper oil is threatening coal demand in the Atlantic Basin.

An independent coal market analyst specializing in the geopolitics of energy told SNL Energy that coal's market share in Europe will "inevitably decrease" in 2015 and beyond, but the impact will vary from country to country. Eaves said he sees met coal demand into Europe as stable.

Representatives from numerous coal companies stressed that they are focusing on conserving cash — reducing capital expenditures and cutting dividends are two methods — to prepare for what they believe is an inevitable recovery in coal demand, even if it takes years.

"We all know that, historically, these markets tend to overcorrect and they do it pretty quickly," Eaves said. "The goal for this industry and Arch Coal is to make sure we're prepared so when this correction happens, we can capitalize."

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Wednesday, February 11, 2015 2:56 PM ET Exclusive

Coal industry looks to 2016 for relief from low natural gas prices

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By Darren Epps

Coal industry leaders are conceding that low natural gas prices will likely impact utility requests for coal in 2015, but a pullback in drilling is lifting hopes for a price recovery in 2016 and beyond.

Low natural gas prices are battering most coal basins, and coal officials at the Coaltrans USA conference in Miami acknowledged that they are unlikely to see much relief this year, one of many headwinds facing the industry. Some utilities are reporting strong inventory levels amid a more mild winter than a year ago.

March natural gas futures last traded at $2.786/MMBtu, which makes most coal outside of the Powder River Basin uneconomic. CONSOL Energy Inc. Chief Commercial Officer James Grech said at the conference that, in power markets, natural gas typically sets the price ceiling. The floor, however, is usually set by coal producers as they battle for market share underneath the price cap set by gas.

"That price floor seems to be going down into the basement at the moment," he said. "I don't know how low that floor is going to go."

But Grech outlined a scenario where gas prices begin to move in late 2016 and into 2017 due to new gas generation, industrial growth and LNG exports increasing demand.

The time frame seems distant for frustrated coal producers, Grech acknowledged, but he noted that CONSOL, a coal and natural gas producer, sees another dynamic that may accelerate the increase in gas prices.

Marcellus Shale wells have what Grech called "a rather impressive" decline rate over a year. They average more than a 60% decline in production after their first year, he said, then another 30% decline after the second year.

"What does that mean? You have to keep drilling and keep drilling to keep the volumes up," he said. "Now, we're seeing a significant pullback in drilling this year, and that will impact 2016 volumes."

The impact is unlikely to take place sooner because so many wells were drilled in 2014, Grech said. Adequate takeaway capacity does not yet exist to handle the flood of gas, pushing prices down.

"The supply will come off quickly, but we won't start seeing that until 2016, maybe the front end of the year," he said. "Hopefully, that may give us that transition to later in 2016 and into 2017 and 2018, when all the takeaway capacity comes on and this load growth occurs for gas and we start seeing more strength in gas pricing. Hopefully, in turn, that correlates to strength in coal pricing."

Citing an Energy Ventures Analysis Inc. study, Murray Energy Corp. founder Robert Murray said during a presentation that a demand increase to 102.2 Bcf/d from 71.4 Bcf/d by 2020 will send natural gas prices soaring to $6.62/MMBtu over that time frame.

Arch Coal Inc. President and CEO John Eaves said he has not seen any impact on the PRB from the fall in natural gas prices. PRB demand is not typically impacted until natural gas prices are around $2.50/MMBtu to $2.75/MMBtu, he said.

Cloud Peak Energy Inc. President and CEO Colin Marshall noted that the fall in natural gas prices may help eliminate fuel surcharges on the railroads, lowering the cost of delivery.

Still, PRB coal prices remain weak. According to SNL Energy over-the-counter market survey data, prompt-quarter PRB 8,800 Btu/lb coal was priced at $9.85/ton as of Feb. 10, down from $12.29/ton at the start of the year.

In an interview following his presentation, Marshall said the OTC market is "very thin" and can get moved by a trade of just 15,000 tons of coal.

"It's interesting because it bounces all over the place, but it's the best we've got," he said. "Certainly, when we look at bidding stuff, we look in relation to the OTC. But it's more of a starting point for the conversation."

Marshall acknowledged that low gas prices may slightly reduce the number of utility RFPs in 2015. Only "a tiny amount" of physical coal is currently being traded, he said, but early February is typically slow.

"What will be interesting is when the gas drops off, whenever that is," he said. "We heard about the 60% decline rate. When the drilling stops, gas has to slow up at some stage. When that happens, if you're a utility, you might want to make sure you bought enough coal to make yourself comfortable."

TS – 33

Tuesday, February 10, 2015 4:12 PM ET Exclusive

In interview, Cloud Peak CEO makes case for coal export business strategy

Article
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By Darren Epps

Tools

In a wide-ranging interview, Cloud Peak Energy Inc. President and CEO Colin Marshall told SNL Energy that he believes the decision to secure significant coal export terminal capacity in a down market will prove to be lucrative and the proposed facilities in the Pacific Northwest will be constructed.

Marshall, speaking after his recent presentation at the Coaltrans USA conference in Miami, candidly acknowledged the challenges facing Cloud Peak and other prospective Powder River Basin coal exporters as they work to grow the industry through the international market as domestic demand wanes.



Colin Marshall, Cloud Peak Energy President and CEO
Source: Cloud Peak Energy

Current international prices are woeful, the result of oversupply stemming from mine investments during the pricing peak in 2011. Opposition to proposed coal terminals in Washington state, particularly from Native American tribe Lummi Nation, threaten to preclude construction. And some U.S. politicians are pushing to change the application of royalty rates to account for more exported coal.

Marshall remains undeterred. Cloud Peak, a pure-play PRB coal producer with three large thermal coal mines, is a favorite pick in the investor community thanks to its strong balance sheet and stable domestic book. The company has outperformed some of its larger competitors, partly due to resisting any deals at the top of the market in 2011.

The windfall may take years, but Marshall is confident in greater PRB coal exports to Asia. The company secured additional space at Canada's Westshore Terminals LP in August 2014 through a deal with a Westmoreland Coal Co. unit. Cloud Peak secured a throughput option agreement in 2013 for 16 million tonnes of capacity per year through the proposed Gateway Pacific Terminal and an option for up to 7 million tonnes per year at the proposed Millennium Bulk Terminals.

"At the moment, I'd say our investors are worried about the liability we're taking on to do the exports," Marshall said. "Some shareholders may say, 'Hang on, how smart is that?' Time will tell. Thankfully, we got that space at the bottom of the market. As soon as prices go up a bit, it will be a good decision. Until then, it's not such a good decision. But we think it's the right thing to do because we believe international supply will be stagnating and demand will be going up.

"We've managed our business to make it so we can take on that risk. We're not betting the farm, but it might mean for a couple of years, we incur some losses. When the prices go up, our shareholders will be in position to enjoy the benefits on many more tons. People have very short memories. Two years ago, we made $50 million on 3 to 4 million tons of exports. We'd like to do that again. It will happen. It's just a question of when."

Bullish on South Korea, Japan

Echoing a presentation by Arch Coal Inc. President and CEO John Eaves, Marshall stressed that Japan and South Korea are constructing coal-fired power plants and remain concerned about the degradation of Indonesian coal.

Marshall noted that some are saying the heating quality of recent Indonesian coal has tumbled to 6,000 Btu/lb. Coal from Cloud Peak's Spring Creek mine in Montana is 9,283 Btu/lb.

Cloud Peak's reserves, obtained through agreements with the Crow Tribe of Indians, are located near Spring Creek, and development would ideally coincide with the opening of a Pacific Northwest coal export terminal.

Still, some industry observers are less bullish on international prices and U.S. coal exports, citing continued Australian and Indonesian supply and suddenly stagnant demand from China, which just experienced a strong hydro year.

Environmental groups have even questioned the need for Gateway Pacific and Millennium, citing a lack of price support for North American coal exports to the Pacific Rim.

"[The Japanese and Koreans] are very keen that the U.S. develop these ports. They're looking 30, 40 years out," Marshall said. "They are saying, 'Where is the coal coming from?' They would rather not be dependent on Russia and they can see issues with Indonesia, particularly if the quality keeps going down."

Terminal review moving forward despite protests

The Lummi Nation is threatening to derail SSA Marine's Gateway Pacific project at Cherry Point, which would export 48 million tonnes per year at maximum capacity. The Lummi urged the U.S. Army Corps of Engineers to reject a permit for Gateway Pacific, saying the facility would violate treaty rights and cause irreparable damage to crab and salmon fisheries.

But the Army Corps declined to halt the environmental review process, saying in a Feb. 3 letter that it needs more detailed information on the Lummi's specific use of the project waters. For project supporters, the Corps' letter marked a victory in what has been a contentious process.

"It's a complex process that has an awful lot of emotion and politics in it," Marshall said. "It will take a long time. We'll see how it goes. It's not certain. But if you look at the environmental, the technical and the economical aspects, it absolutely should go ahead. You couldn't find a better place to put a terminal. It's a designated industrial zone.

"It's better to dig coal at our mines and give jobs to the Crow Tribe and royalties to the state rather than rampage through some Indonesian forests. The coal will be burned. Everyone is clear about that. It's whether America wants to have the benefits or not."

Proposed royalty change 'a bizarre tax law'

Some U.S. politicians, Marshall said, are showing their opposition to coal through potential rule changes like reform of the federal coal leasing program. Following criticism from Sens. Ron Wyden, D-Ore., and Lisa Murkowski, R-Alaska, the U.S. Office of Natural Resources Revenue proposed a rule that would value coal on the gross proceeds received from the first arm's-length sale. The senators pointed to a report that claimed the government could have lost as much as $100 million in tax revenue on coal exports to Asia.

Coal opponents say the rule will close a so-called loophole that allowed coal producers to circumvent higher export royalties by selling to in-house affiliates. Critics of the rule, citing the small portion of coal currently exported from federal land, say the potential changes are meant to create more opposition to Millennium and Gateway Pacific.

"If I sell the coal to you and you export it, that's fine. But if we take on the risk and the demurrage and things like that, then somehow we're cheating to not pay royalties on any margin we might make? It actually is completely inconsistent," Marshall said. "Unfortunately, it's a complex issue, and it's very easy to write that a big nasty coal corporation is cheating the American public. It's easy to write the headline.

"You don't have to look very far to realize it would be completely inconsistent and a bizarre tax law to apply royalties to a logistics profit. This came from Sen. Wyden and his mates. They don't like coal."

Marshall said coal opponents also fail to note that coal companies likely overpay for federal coal leases, since they do not know the minimum price ahead of the auction.

"This has taught me how the process works in terms of politics and using committees and reports. It's not exactly a lesson in transparency," he said. "There are people who are told to get the answer and they have to twist pretty hard to get there."

TS – 34

Wednesday, November 12, 2014 8:02 AM ET Exclusive

From $2 to $296M, coal acquisitions hit furious pace as new players arrive

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By Darren Epps

The precipitous decline in the value of coal assets is allowing lesser-known companies to acquire substantial operations as the larger players work to ensure adequate liquidity during a sustained market downturn.

The U.S. saw five announced coal deals during the last two weeks in October, continuing a yearlong trend in the industry. In numerous cases, smaller, private companies like Blackhawk Mining LLC, UGM Holdings Pty. Ltd. andCambrian Coal Corp. acquired coal assets from larger entities, not quite the consolidation some once expected in the industry. The emergence of a new class of buyers is offering sellers an option in a downtrodden market.

In an interview, Brean Capital LLC analyst Lucas Pipes said private equity is largely funding the coal deals. Other analysts said the public companies, some of them burdened by deteriorating market cap, simply cannot absorb more debt or obtain quality financing.

"You really need a clean slate in terms of the balance sheet," Pipes said.

Lesser-known entities like Metals Finance Ltd. and Opes Resources Inc. struck multimillion-dollar deals in 2014, but larger companies with strong balance sheets also seized available assets.

Private coal operator Murray Energy Corp., lauded by Moody's for its stable, long-term deals and lack of exposure to the metallurgical coal market, followed its major 2013 acquisition of five CONSOL Energy Inc. mines with another deal, also with CONSOL, to boost reserves in the Illinois Basin. CONSOL executives said they sold the reserves to Murray for slightly less than $30 million in cash proceeds.

Tools

Related Companies

Blackhawk Mining LLC	Pikeville, Kentucky	
Alpha Natural Resources Inc. (ANR)	$ 0.92	4.47%
Cambrian Coal Corp.	Draffin, Kentucky	

Last Updated: 3/25/2015 More>>

Sources

Transcript: Alpha Natural Resources Inc (ANR) *10/30/2014*

Transcript: Peabody Energy Corp. (BTU) *10/20/2014*

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A snapshot of US-related coal deals announced in 2014

Buyer name/Seller name	Deal announce-ment date	Acquisition	Acquisition price
LC Energy Holdings LLC/Lily Group Inc.	Jan. 28	Company acquisition in bankruptcy court	$9 million "credit bid"
UGM Holdings Pty. Ltd./Arch Coal Inc.	Feb. 10	Highwall equipment subsidiary ADDCAR Systems LLC	$21 million
Blackhawk Mining LLC/Arch Coal Inc.	March 5	Hazard mining subsidiary in Central App	$26.3 million, prior to post-closing adjustments
Metals Finance Ltd./Texas and Oklahoma Coal Co. Ltd.	March 6	Acquired company	A$11.1 million
JW Resources Inc./Appolo Fuels Inc.	March 24	Includes 43 million tons of reserves in Central App	Not disclosed
Not identified/Oxford Resource Partners LP	April 16	Illinois Basin assets	$2 million
Revelation Energy LLC/Alliance Resource Partners LP	May	Pontiki complex in Central App	Operating expense gain of $4.4 million
Alabama State Port Authority/Walter Energy Inc.	May 2	Blue Creek Terminal, 60 acres of land	$25 million
Blaze Energy Corp./Kentucky Diversified Fuels LLC	May 19	Eastern Kentucky coal reserves	Not disclosed
Opes Resources Inc./James River Coal Co.	May 23	McCoy Elkhorn mining complex assets	$3.1 million, assumption of liabilities
Marshall Resources Inc./James River Coal Co.	May 23	McCoy Elkhorn mining complex assets	$444,970 in cash and liabilities
Hallador Energy Co./Vectren Corp.	July 1	Vectren Fuels subsidiary in Illinois Basin	$296 million in cash, plus $24 million change in working capital
Corsa Coal Corp./OAO Severstal	July 15	PBS Coals subsidiary in Pennsylvania	$140 million enterprise value
Cloud Peak Energy Inc./Westmoreland Coal Co.	Aug. 8	Capacity at Westshore Terminals	$37 million
Blackhawk Mining LLC/James River Coal Co.	Aug. 21	Hampden, Hazard and Triad coal complexes	$52 million
The Cline Group LLC/Glencore Plc	Aug. 25	75% interest in Donkin coal project	Not disclosed
Ambre Energy Ltd./Cloud Peak Energy Inc.	Sept. 4	Cloud Peak's share of Decker coal mine	$66.7 million in outstanding reclamation and lease bonds, access at coal terminal
Westmoreland Coal Co./Oxford Resource Partners LP	Oct. 16	Oxford's general partner	$30 million, mine fee coal reserves in exchange for units
Oxford Resource Partners LP/Consol of Ohio	Oct. 17	Consol's share of Harrison Resources LLC	$3.6 million total consideration
Cambrian Coal Corp./TECO Energy Inc.	Oct. 20	TECO Coal Corp. and subsidiaries	$120 million, future contingent consideration of $50 million
Murray Energy Corp./CONSOL Energy Inc.	Oct. 28	Illinois Basin coal reserves and other property	Slightly less than $30 million of cash proceeds
Rosebud Mining Co./Alpha Natural Resources Inc.	Oct. 30	Pennsylvania-based subsidiary AMFIRE Mining Co. LLC	$86 million

As of Nov. 10, 2014.
Source: SNL Energy

SNL

In October, Westmoreland Coal Co., which doubled its coal production in 2013 with the acquisition of Sherritt International Corp.'s operating coal assets, announcedplans to acquire the general partner of Oxford Resource Partners LP and enter the master limited partnership space.

Westmoreland, like Murray, built its strategy around supplying thermal coal to nearby baseload plants. At the close of trading Nov. 11, Westmoreland shares were up more than 92% year-to-date.

Hallador Energy Co., once a small Illinois Basin coal operator, tripled the size of its company with the acquisition of Vectren Corp.'s coal-mining subsidiary for $296 million, plus a $24 million change in working capital for a total price of $320 million.

Not everyone willing to sell

When TECO Energy Inc. sold its coal business for nearly half of its book value, one analyst said it almost did not matter — investors would have been happy to see the business simply shut down. Russian steelmaking and mining group OAO Severstal sold its Pennsylvania-based PBS Coals Ltd. subsidiary to Corsa Coal Corp.for an enterprise value of $140 million, about one-tenth of the $1.3 billion Severstal paid when it acquired the company in 2008.

And in Canada, an 80% stake in a Canadian coal mine cost less than a loaf of bread. Up Energy Development Group Ltd. paid $2 — but assumed liabilities — for the stake in Grande Cache Coal Corp.

A strong buyer's market is, in some cases, hampering the effort by publicly traded coal companies to boost liquidity. Numerous assets, like SunCoke Energy Inc.'s coal-mining business and the remaining James River Coal Co. operations following its bankruptcy filing, remain on the market amid a sharp downturn in the industry.

"Unfortunately," Pipes said, "it is very hard to receive substantial value for assets in this environment."

Value is particularly challenging in the beleaguered Central Appalachia region, where thermal coal operations are losing market share to the Illinois Basin and met coal mines are struggling to compete in a depressed global market.

An SNL Energy analysis of some recent publicly announced transactions finds coal reserves in Central Appalachia are being purchased on average at less than 40 cents per ton, down dramatically from a few years ago when reserves in the region were commanding prices 8x as high.

Alan Stagg, president of Stagg Resource Consultants Inc., which provides coal asset valuation services, said at a recent industry conference that his two rules for potential buyers are to be in the lower-third of the cost range and the upper-third of the quality range. Due to advances in scrubbing technology, however, Central Appalachia's low-sulfur coal is no longer considered high quality.

"Over the last several decades, the concept of quality has changed," Stagg said. "There is nowhere more evident than Central Appalachia. For a long time, Central Appalachia kept its position because of the low-sulfur content of its coal. That quality concept has changed. Low-sulfur coal plus $2.75 will get you a cup of coffee at Starbucks, basically."

Appalachian coal producer Alpha Natural Resources Inc. announced a deal with Rosebud Mining Co. on Oct. 30 for a Northern Appalachia subsidiary, but Alpha has yet to announce any deals for its Central Appalachia assets in 2014.

"Simply put, Central App asset sales are pretty challenging right now," Alpha Chairman and CEO Kevin Crutchfield said during the company's third-quarter earnings call. "There are plenty of buyers out there, but not at valuations that we think makes sense to us. So, why do it?"

More deals coming?

Despite tumbling valuations, the combination of motivated sellers and buyers willing to place a small bet on a recovery should keep the acquisition market hot in the fourth quarter and into 2015.

In addition to SunCoke and James River, Cliffs Natural Resources Inc. has reportedly taken steps to put its U.S. coal assets up for sale. Russian metals and mining giant Mechel OAO also is reportedly looking to sell its Mechel Bluestone coking coal properties in West Virginia.

CONSOL is targeting $1 billion in noncore asset sales over the next five years and Alabama-based Walter Energy Inc. is aiming for $250 million in sales. Chris Cline, principal owner of Foresight Energy LP, is on track to acquire a majority interest in the Donkin coal project in Canada.

Peabody Energy Corp. is still willing to sell its Wilkie Creek mine in Australia after a deal with former billionaire Nathan Tinkler's Singapore-based Bentley Resources Pte. Ltd. fell apart in August. Peabody still received a $5 million nonrefundable payment, according to company Chairman and CEO Gregory Boyce.

Boyce said Peabody has sold about $175 million in assets since June 2013, mostly reserves in the U.S. and Australia.

"We've been pursuing the sale of some noncore operating assets. But the market is pretty challenged and, given the decline in the market conditions over the last 12 months, we've said before we're not really looking to sell assets at the low cycle valuations," Boyce said during the company's third-quarter earnings call. "We are not wanting to go out and sell at the bottom of the cycle."

Exhibit T

PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC.—RAIL CONSTRUCTION AND OPERATION—IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF MICHAEL A. NELSON IN SUPPORT OF NORTHERN PLAINS RESOURCE COUNCIL AND ROCKER SIX COMMENTS ON TRRC'S APPLICATION

I. QUALIFICATIONS

My name is Michael A. Nelson. I am an independent transportation systems analyst and have conducted, directed or participated in numerous consulting assignments and research projects in the general field of transportation. My office is in Dalton, Massachusetts.

I have 36 years of experience in matters related to freight railroad service and regulation. During the past 31 years I have provided testimony before this Board and its predecessor regarding a wide range of railroad issues. Of particular relevance to this statement, in Docket No. FD 33407, I analyzed (on behalf of the Mid-States Coalition for Progress ("MSC"), a group of landowners) the proposal by the Dakota, Minnesota and Eastern Railroad ("DME") to construct an extension of its line to serve mines in the Powder River Basin ("PRB"), with a particular focus on the financial viability of the project and related public interest considerations. Although my analysis concluded correctly that the DME project was not financially viable, and applicants' pursuit of the project eventually was terminated, I also developed information and provided oral testimony on behalf of a group of landowners regarding the DME project in land condemnation

proceedings initiated by DME in Wyoming. In addition, for a group of major electric utilities I directed the identification and evaluation of alternative alignments and strategies (other than the DME project) for creating a new railroad line across Nebraska to move coal from mines in the PRB to markets in the central United States. More recently, I have contributed to written comments submitted in several Board proceedings, and provided oral testimony at the March 2014 public hearing in Docket No. EP 711 (revised competitive switching rules), pertaining to the attainment of "revenue adequacy" by the Class I railroads and the implications of that attainment for rail regulatory practices.

From this and other work I have extensive familiarity with rail construction projects, the Board's past practices regarding public convenience and necessity ("PC&N")/financial fitness issues in construction applications, and important aspects of the new environment of carrier financial health in which the Board will consider TRRC's application.

I received my bachelor's degree from the Massachusetts Institute of Technology in 1977. In 1978, I received two master's degrees from MIT, one in Civil Engineering (Transportation Systems) and one from the Alfred P. Sloan School of Management, with concentrations in economics, operations research, transportation systems analysis and public sector management. Prior to February 1984, I was a Senior Research Associate at Charles River Associates, an economic consulting firm.

II. INTRODUCTION AND SUMMARY

I have been asked by the Northern Plains Resource Council ("NPRC") to describe and comment on the public interest considerations raised by TRRC's application for Board authority to construct what TRRC has styled as a new "alignment" of the Tongue River Railroad project first proposed to the Interstate Commerce Commission ("ICC") in 1983.

My testimony begins by reviewing aspects of the Board's past practices regarding PC&N/financial fitness issues in construction applications. I provide new information, including judicial comments from a condemnation proceeding resulting from the Board's approval of a rail construction project, that highlight important consequences of the Board's past practices. I also review new circumstances surrounding the Board's consideration of TRRC's application that stem from the attainment of revenue adequacy by the Class I rail industry. Both of these considerations should lead the Board to give increased weight to financial fitness issues in TRRC's application and in the future.

I then review the financial analysis of the project conducted by applicants, and conclude that the applicants' own evidence demonstrates that the project is not financially viable. Undertaking this project would violate the principles of efficient railroad management that the Board, by statute, is supposed to enforce. As a result of these and other considerations, I conclude that the proposed TRRC project is inconsistent with the public interest, and is precisely the type of investment that the Board should keep out of the railroad investment base.

In addition to issues related to financial viability, I identify and discuss three broader public interest considerations that also weigh heavily against the proposed project. These include discrimination, overlaps with Burlington Northern Santa Fe Railway's ("BNSF") Northern Corridor service problems that already have burdened interstate commerce and the Board, and aspects of the project that appear to undermine or circumvent the Board's authority.

I conclude that the factors addressed herein individually and collectively indicate that the Board should deny the application. Within this conclusion, a review of the way a denial would be consistent with the general concept of allowing market forces to guide the future development of the Otter Creek tract is presented.

III. PC&N/FINANCIAL FITNESS ISSUES

In its decision on the transportation merits of the DME construction application,[1] the Board described in considerable detail its understanding and intended application of the guidance it had been provided by the Interstate Commerce Commission Termination Act ("ICCTA") regarding PC&N and financial fitness issues in construction applications. It specifically cited the requirement that an application be approved unless it is found to be inconsistent with PC&N.[2]

In assessing the PC&N aspects of the DME application, the Board applied a standard that the project not put at risk the ability of the applicants to serve its current traffic,[3] and used net income as the basis for determining financial fitness.[4] While the record in that proceeding contained conflicting evidence regarding some of the major determinants of net income (including the volumes of coal the project would serve and the rates it would be able to achieve),[5] the Board explicitly relied on the proposition that "the financial markets" ultimately will determine whether the project proceeds to construction, and that there was "no reason" to hold the project back from finding that out.[6]

In now assessing the PC&N aspects of the TRRC application, the Board is operating under statutory requirements that are unchanged, but is doing so under conditions that are materially different in at least two key respects from those prevailing at the time of the DME application. First, there is new information, including guidance provided by the U.S. District Court (District of Wyoming), that identifies good reasons why condemnation authority should

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[1] *Dakota, Minn. & E. R.R.Corp., –Constr. Into the Powder River Basin* – Finance Docket No. 33407, 1998 WL 398189 (ST.B., 1998) [hereinafter *DME Decision*].
[2] *Id.* at 17.
[3] *Id.* at 18.
[4] *Id.* at 43.
[5] In general, DME had claimed aggressively optimistic values for these parameters, while my analysis (submitted on behalf of MSC) concluded that in many specific instances those values were plainly erroneous or unrealistic. My analysis concluded that the project lacked economic viability and therefore was unlikely to be constructed.
[6] *DME Decision*, *supra* note 1 at 44.

not be held or exercised in furtherance of rail construction projects that lack economic soundness or a reasonable likelihood of proceeding. Second, the attainment of revenue adequacy by the Class I railroads as a group has introduced a new path — commonly understood and addressed in other regulated industries — through which a rail investment may inflict tangible harms on existing rail customers. As described in further detail below, these considerations are directly relevant to any determination by the Board regarding the inconsistency of the proposed TRRC project with PC&N.

A. New Information

In the aftermath of the Board's approval of the DME construction project, and notwithstanding the Board's recognition of the possibility that the project might not actually be constructed, DME elected to pursue condemnation proceedings against several landowners in Wyoming who owned parcels along DME's planned route. I was asked by a group of those landowners to explain to the Court my analysis of the project, including my conclusion that it lacked economic viability and therefore was unlikely to be constructed. On the eve of the Court's ruling on the condemnations, DME voluntarily and unilaterally dismissed its condemnation action.

In a subsequent order, the Court stated:

> [T]here can be no question that Plaintiffs' action in dismissing their condemnation case was a complete vindication of the position taken by Defendants . . . that Plaintiffs could not provide the Court with reasonable assurances that the railroad would be built in the foreseeable future. Plaintiffs admitted as much in their Notice of Dismissal, in which they acknowledged that "DM&E cannot say that there is a reasonable probability that it will proceed with its Powder River Basin project in the immediate term."[7]

[7] *Dakota, Minn. & E.R.R. Corp. v. 46.271 Acres of Land, More or Less, Located in Campbell County, State of Wyoming*, No. 07-CV-144-D, at ¶ 11 (D. Wyo. Jul. 20, 2011).

The Court then highlighted "for the benefit of its judicial colleagues" some of the tangible harms that arose from this condemnation process, beginning with:

> [T]he money [Defendants] spent to defend their property rights from what, in the Court's view, was an abuse of the condemnation process. Plaintiffs initiated this condemnation action for a project that was always speculative, at best. By their conduct, Plaintiffs have squandered not only a great deal of the Defendants' hard-earned money, but also a great deal of this Court's time.[8]

To this I would add my understanding that the willingness of Defendants to spend substantial sums to defend their property rights reflects in part the economic harms to their farms, ranches, etc. posed by the uncertainty surrounding the project. A railroad holding condemnation authority for a project that might not be built unavoidably interferes with land use planning and investments that farmers, ranchers and others normally would undertake to ensure the most productive use of their land.[9]

Overall, this new information documents tangible harms that counteract the proposition that no harm is likely to result if the Board awards construction authority for a project whose benefits are marginal, speculative or ill-defined, and waits for the market to determine its viability. Even under ICCTA, the Board should recognize that there are real costs to society that stem from its approval of a speculative construction project. In this light, to be confident that a project is not inconsistent with the public interest, the Board should be giving careful consideration to financial fitness issues, and should refrain from approving a project if its benefits are uncertain and/or there is not a reasonable likelihood that it will actually be constructed.[10]

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[8] *Id*. at ¶ 13.

[9] I note that the uncertainty created by Board approval of rail construction projects of dubious financial merit conflicts with the established and important public benefit the Board otherwise seeks to provide by reducing uncertainty (i.e., via its declaratory order process).

[10] Although the Board has a clear mandate to support the interstate rail network, its public interest responsibilities regularly cause it to give meaningful weight to non-rail interests. In construction projects and some merger/acquisition cases, for example, meaningful conditions routinely are imposed to address environmental and

B. Harm to Existing Customers

In the past, the potential for harm to existing rail customers from a construction project stemmed primarily from the possibility that the project would not produce the anticipated level of benefits relative to costs, thereby sapping the carrier's financial resources and its ability to provide adequate service to existing customers and traffic. With the growth in size and improvement in financial condition of the major railroads, the overall significance of this form of harm likely has diminished. However, the attainment of revenue adequacy by the Class I railroads as a group has introduced a new avenue through which a rail investment may inflict tangible harms on existing rail customers.

The attainment of revenue adequacy alters the composition of objectives the statute directs the Board to pursue. As stated in 49 U.S.C. § 10704(a)(2), the Board's mandate to make "an adequate and continuing effort" to improve carrier financial performance comes to an end at the point where carrier earnings match the revenue adequacy level.

By statute, the revenue adequacy level is calculated as the simple product of the Board-determined cost of capital and the railroad net investment base. Policy goals that remain operative for the Board beyond that point include things like maximizing reliance on competition, minimizing concentrations of market power, and enforcing railroad accountability. In this context, it is easy to see how a carrier approaching or exceeding the revenue adequacy level could become receptive to investments in projects it otherwise would reject as unsound. Even a "bad" project increases the investment base, thereby inflating the earnings that can be

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neighborhood impacts. Even where the existence of future rail service hangs in the balance, the Board in other contexts has recognized that tangible non-rail right-of-way ("ROW") uses may trump nebulous rail projects. *See, example.g.*, *Chelsea Prop. Owners – Abandonment-Portion of the Consol. Rail Corp.'s W. 30th St. Secondary Track in New York, Ny,* Docket No. AB-167 (SUB 1094)A, 2004 WL 504237 (S.T.B., Mar. 12, 2004)(declining to take steps to encourage negotiations regarding a potential Offer of Financial Assistance (OFA) to restore rail service on the Manhattan "Highline," thereby enabling the facility to be redeveloped and used for non-rail purposes).

generated without causing the Board to adopt pro-competitive priorities. [redacted] However, for any project that doesn't generate increased earnings sufficient to cover its own cost of capital, such increased earnings arise from increased differential pricing applied to customers and traffic unrelated to the project.

To those familiar with the history of the rail industry, the prospect of the Board needing to sharpen its pencil on rail investments due to the excessive differential pricing and earnings they may produce is probably counter-intuitive. However, this general issue has been explored in the economic literature for more than half a century, and is a mainstream consideration in industries where regulatory actions are guided by the application of an allowed rate-of-return to an investment base.[12] In the revenue adequate environment the Class I rail industry has achieved, it is essential that the Board take decisive steps to protect existing customers from artificial increases in differential pricing potentially caused by acceptance of unsound projects into the investment base. It would be inconsistent with the public interest for the Board to do otherwise.

IV. FINANCIAL ANALYSES

I have reviewed project financial information provided by applicants, [redacted] My

[redacted]

[12] *See* Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520, 552 (I.C.C. Aug. 8, 1985) (citing Harvey Averch, & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, AM. ECON. REV. 1052–69 (Dec. 1962). As a result of this seminal work, the tendency of regulated firms to engage in excessive accumulation of capital in order to expand profits is widely known as the "Averch-Johnson effect." To see that controlling this tendency has become a well-accepted aspect of real-world applications of rate-of-return standards, the Board need only scan the qualifications of AAR witness Villadsen submitted in Appendix C of her verified statement accompanying AAR's Opening Comments in Docket No. EP 664 (Sub-No. 2) submitted September 5, 2014. "Prudence" is highlighted near the top of the list of her areas of expertise in regulatory finance, and examples of prudence reviews conducted for electric and gas utilities in five different states are itemized in the description of her experience.

comments regarding this information are made in the context of the statutory standards for honest, economical, and efficient management of railroads [redacted] Each of these issues are addressed below.

[redacted]

[13] [redacted]

[redacted]

In analyzing an infrastructure investment, it is essential that the benefits and costs of the project be assessed relative to the situation that would exist in the absence of the project (commonly referenced as the "null", or "no-build" alternative), and not rely on a simple "before-and-after" comparison. This ensures that the project is properly evaluated on the basis of the impacts it actually produces, and is not credited (or burdened) on the basis of things that would happen anyway.

[redacted]

[redacted]

[redacted]

[redacted]

[17] Such benefits could only be ascribed to the project if Otter Creek were uniquely able to satisfy a market segment that could not be satisfied by alternative producers due to such factors as coal characteristics, etc. Applicants have provided no justification for differentiating Otter Creek coal in this manner.

C. Technological Alternatives

[redacted] From analyzing transportation alternatives for several coal-fired generating stations, I am familiar with many such options for local movement of large volumes of coal. These include everything from trucks and barges to overland conveyors and coal slurry pipelines.

Consideration of technological alternatives is particularly important in light of the difficult topography the proposed TRRC line would have to traverse. [redacted] If a new rail line would not be the low cost option for moving coal from Otter Creek to viable rail service, it would not be in the public interest (or in the legitimate private interests of BNSF and Arch) for one to be constructed.

[redacted]

V. BROADER PUBLIC INTEREST CONSIDERATIONS

I have identified three additional public interest considerations that the Board should take into account in its assessment of the TRRC application. These include:

1. Discrimination
2. Overlaps with chronic service problems BNSF has experienced in its Northern Corridor, and
3. The undermining or circumventing of past Board decisions.

Each of these issues are discussed below.

A. Discrimination

The application does not explain why it would be in BNSF's interest [redacted] to construct what is in effect a long spur to serve a single (potential) customer, the Otter Creek mine. Applicants have acknowledged that development activities associated with other potential mining tracts along the right-of way ("ROW") of the new line have been terminated, and although they seek authority to construct trackage that in the future might hypothetically be used to serve other customers, they have stated there is no foreseeable need for such construction to occur.[21]

If BNSF were to spend large sums to construct a long spur to serve a single mine at Otter Creek, it would be highly anomalous in the context of available information regarding BNSF's practices at other PRB mines. While BNSF (along with Chicago & Northwestern ("CNW")/ Western Railroad Properties, Inc. ("WRPI") and its successor, Union Pacific ("UP"), on the Wyoming Joint Line) have paid for construction of extensive main and branch line trackage in the PRB, virtually all such trackage serves multiple mines. The "Division of Ownership"

[21] *See* TRRC Response to STB Request for More Information 4–5 (Feb. 6, 2013) (stating that other mines are speculative); Bobb V.S. at 4; Blumenfeld V.S. at 5. ("[A]t this time no mines have been developed in [the Ashland] area and no party has announced any intention to develop any mines in that area.").

between the railroad(s) and mines on trackage that only serves individual mines normally occurs very close to the point of departure from the main or branch line (in many cases apparently at or very near the limit of the main or branch line ROW). [redacted] Whether or not the Board concludes that the different treatment proposed for Otter Creek constitutes discrimination as defined in Section 10741(a)(1), there is no discernible rationale for BNSF to expend substantial resources to, in effect, subsidize access to rail service for Otter Creek relative to the degree of support it provides for other mine sites. If anything, the TRRC project should be viewed as detrimental to the public interest in this regard, since it results in the expenditure of unnecessary resources in the transportation of coal, and therefore is contrary to the national rail transportation policy goal of fostering "sound economic conditions in transportation."[23]

B. Northern Corridor Service Problems

Beginning in the fourth quarter of 2013, BNSF has acknowledged the existence of significant service problems concentrated in its Northern Corridor, which encompasses the area of the TRRC project. Notwithstanding BNSF's initial claims that the problems were transitory and resulted from a combination of unanticipated traffic and bad weather,[24] they have proven to be chronic, and have not yet been fully resolved. This is a substantial public interest issue, as the Board operates under a fundamental mandate "to ensure . . . a sound rail transportation

[redacted]

[23] 49 U.S.C. § 10101(5).

[24] *See*, *e.g.*, Letter from Carl Ice, President & CEO of BNSF, to Chairman Daniel Elliot & Vice Chairman Ann Begeman of the STB (Mar. 12, 2014), *available at* http://www.stb.dot.gov/peakletters1.nsf/7b7a1a7001f4b5d285257c78005a09c0/c9ac42f5db6b736685257ca500635762/$FILE/03-12-2014%20STB%20Elliott%20&%20Begeman.pdf.

system,"[25] which is backed by a statutory ability to order the introduction of competition as needed to ensure the provision of efficient routes and adequate service.[26]

Given the achievement of revenue adequacy by the Class I railroads, which ensures the availability to rail management of needed resources, it is difficult to avoid concluding that BNSF management, historically, has either elected to put insufficient resources into the Northern Corridor, or has not ensured the efficient use of the resources it has provided. The most recent letter from Warren Buffett to shareholders of Berkshire Hathaway corroborates this by highlighting substantial investments that BNSF needs to make and now is making to be able to provide adequate service.[27]

Overlaying the TRRC project on the Northern Corridor service situation would appear to compound the resource issues (and service problems) in at least two respects. First, the project would draw substantial capital and management resources away from the Corridor and into the construction of a line that serves only traffic from a single point (Indeed, pursuit of this project already has consumed tens of millions of dollars and substantial management resources from BNSF during the approximate time when the Northern Corridor service problems were developing). Second, the arduous nature of the topography the planned line traverses would cause the movements it serves to consume disproportionately high levels of crew time, locomotive hours and potentially other resources whose short supply by BNSF apparently has contributed to the Northern Corridor problems. In short, the Board reasonably can expect that pursuit of the project by BNSF would exacerbate Northern Corridor service issues.

[25] 49 U.S.C. § 10101(4).
[26] *Id.* § 10705.
[27] Letter from Warren E. Buffet to the Shareholders of Berkshire Hathaway Inc. (Feb. 27, 2005), *available at* http://www.berkshirehathaway.com/letters/2014ltr.pdf.

C. Undermining of Board Authority and Jurisdiction

Historically, the Board has established a clear track record regarding the exclusivity of its jurisdiction over matters pertaining to the interstate rail network. BNSF and Berkshire Hathaway had recent and direct experience with this when the Board imposed sanctions on BNSF as a result of Berkshire's failure to obtain the Board authority required by Section 11323 prior to its acquisition of BNSF.[28] Here, BNSF has plainly acknowledged that the requirements of Section 11323 also are applicable to its involvement with TRRC.[29] However, notwithstanding this acknowledgement, I am aware of no document provided by applicants or available from the Board's website verifying that BNSF ever applied for the required Board authority, or that the Board ever granted it. Nevertheless, BNSF now comes before the Board as a partial owner and controlling operator of TRRC seeking to implement substantial changes in TRRC's plans.

From an economic and public interest perspective, the prior approval necessitated by Section 11323 is crucial in the context of the high levels of concentration and formidable barriers to entry faced by potential new carriers in most rail markets. If control of potential or actual new competitors by a dominant incumbent carrier is not subjected to meaningful scrutiny and limitation, it is virtually certain that effective market entry will be materially hindered. The incumbent's private interests may be served by transactions that enable it to preserve its exercise of market power by taking control when upstart firms arise, but the public interest goals of relying on competition "to the maximum extent possible"[30] and avoiding "undue concentrations

[28] *W. Coal Traffic League – Petition for Declaratory Order*, Finance Docket No. 35506, 42571 EB (S.T.B., July 25, 2013).
[29] On page 13 of the December 2012 Application there appears a specific statement that "…BNSF plans to shortly submit an application to the STB seeking authority to acquire control of TRRC under 49 U.S.C. § 11323(a)(3)."
[30] 49 U.S.C. § 10101(1).

of market power"[31] would inevitably be stymied. These considerations are too important for the Board to tolerate any type of "open season" on independent carriers.

This is especially true in BNSF's Northern Corridor, where past competition between parallel carriers has been replaced by BNSF's virtual monopoly, and the incentives of an independent carrier to satisfy market needs are particularly valuable. For example, if new export markets hypothetically did materialize for Montana coal, market forces would increase economic pressure for more competitive supply options – of the type BNSF experienced firsthand when the Wyoming PRB Joint Line was created – and carriers holding independent access to Montana mines and mining tracts would be in short supply. Even if export growth does not occur, BNSF's chronic service problems in the Northern Corridor hypothetically could result in the opening of competitive access through regulatory means. Even within Montana, an independent TRRC hypothetically could identify ways to move Montana coal and other products to Montana users, applying competitive pressure on BNSF as envisioned in Section 10101(1). The prior approval requirement enables the Board to consider such possibilities, which are central to several of its mandates, and weigh them against whatever legitimate benefits might be alleged to flow from common control. Absent prior approval from the Board, it would be plainly inconsistent with the public interest and the statute for BNSF to go around on its own acquiring and exercising control over independent carriers.

Ultimately, the Board needs to determine whether BNSF did or didn't get the message from Docket No. FD 35506. If BNSF again acted outside of the requirements of Section 11323 when it obtained ownership interest in TRRC and/or operating control over TRRC, it has done so at its own peril. As observed recently by the Acting Chairman, "it is the Board's duty to hold accountable those that knowingly and willingly avoid our oversight for their own convenience

[31] *Id.* § 10101(12).

and gain. Rest assured that in the future I will be vigilant to detect and address actions that do not align with the statute and the relevant Board regulations."[32]

VI. CONCLUSION

The evidence indicates that the proposed project is inconsistent with the public interest because it lacks financial viability. In the environment of rail revenue adequacy, investment in such a project would be harmful to existing shippers because of the opportunity it provides for the railroad to increase differential pricing from such shippers and shield resulting increases in earnings from regulatory scrutiny. Its construction would not be justified by the benefits BNSF would receive, and therefore would constitute noneconomic and inefficient management by BNSF in conflict with statutory requirements. These and additional public interest problems described herein indicate that Board should deny the application.

For this project, such a denial would not prevent — and indeed would facilitate — achievement of the Board's oft-stated intent to provide an opportunity for the market to decide whether a project should be undertaken. Here, Arch is in the business of maximizing the spread between the sales it can achieve and the costs of producing its coal and getting it to market. If building a new rail line to Colstrip is the low-cost way of getting their coal to market, they can pursue that as a spur. If it is not the low-cost way, Arch can pursue other methods, as they would at any potential mine site.

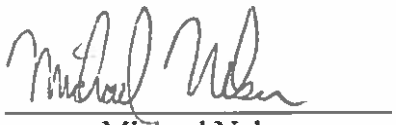
In this way, a denial would not preclude the possibility the Otter Creek tract would be developed, or that coal from Otter Creek would move on BNSF, if it is economically rational to do so. Rather, it would show that the Board is prepared to give meaningful attention to proposals for expensive projects of dubious merit that do not satisfy statutory criteria for efficient

[32] *Union Pac. R.R. Co. – Operation Exemption – In Bexar & Wilson Cntys., Tex.*, Finance Docket No. 35776 , 44294 EB, at 5 (S.T.B., Mar. 2, 2015).

management, and to make sure that the bill for such projects is not ultimately sent to the railroad's captive customers through the mechanism of revenue adequacy computations. Applying meaningful scrutiny to borderline capital projects that potentially could "game" the regulatory system is no more and no less than is done in other industries to ensure "prudence" where the application of an allowed rate of return to an investment base plays a meaningful role in determining regulatory constraints. Here, Arch is in the best position to determine whether and how to get coal out of this isolated tract, and a Board denial will leave them free to do so, while protecting captive rail customers against increases in differential pricing that would be inconsistent with the public interest.

VERIFICATION

I, Michael Nelson, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.



Michael Nelson

Dated this 24th day of March, 2015.

MN – 1

HIGHLY CONFIDENTAL

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HIGHLY CONFIDENTAL

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BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 30186

TONGUE RIVER RAILROAD COMPANY, INC. – RAIL CONSTRUCTION AND OPERATION – IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF
STEVAN B. BOBB

My name is Stevan B. Bobb. Since December 2011, I have been President of Tongue River Railroad Company, Inc. ("TRRC"). I also am Group Vice President, Coal Marketing for BNSF Railway Company ("BNSF"), a position I have held since the spring of 2006. I joined BNSF's predecessor, the Burlington Northern Railroad, in 1987 and have been employed continuously by the railroad since that date. Following some early work in information systems and marketing support, my career has been spent primarily in line marketing positions. I have a B.S. in Agriculture from North Dakota State University.

Since becoming President of TRRC, I have been involved in the general oversight of the Tongue River Railroad project.

I. Proposed Refinements to Approved Rail Line from Miles City, MT to South of Ashland, MT

TRRC currently intends to construct and operate an approximately 83-mile line between Miles City, MT and south of Ashland, MT with two termination points – one that proceeds up the Tongue River Valley to the previously proposed Montco Mine ("Terminus Point 1") and the

other that extends up the Otter Creek drainage ("Terminus Point 2") – that was previously authorized in this docket number in 1986 by the Interstate Commerce Commission ("ICC"), the predecessor of the Surface Transportation Board ("STB" or "Board"), as modified by certain refinements to the rail line ("Refinements"). TRRC does not intend to construct any rail line south of Terminus Point 1 that was the subject of its applications in the TRRC II[1] and TRRC III[2] proceedings.

Most of the Refinements to the approved Miles City to south of Ashland rail line that TRRC intends to construct were considered by the Board in the TRRC III proceeding. Those Refinements as well as the environmental, social and economic benefits that result from them are described in the September 5, 1998 *Analysis of Potential Changed Circumstances Related to the Environment and Proposed Action along the Original 89 Miles of the Tongue River Railroad approved in 1986: 1985 to 1988* by Radian International LLC., et al. (hereafter "1998 Radian Report") which was attached as an exhibit to the Reply of Tongue River Railroad to Comments of the Scope of the Supplement to the Final Environmental Impact Statement filed on September 8, 1998 in Finance Docket 30186 (Sub-No. 3).

Based upon additional engineering work undertaken in the last few years, TRRC has refined the alignment of the approved Miles City to south of Ashland rail line in some additional ways that were not presented in the TRRC III proceeding. The additional Refinements are:

1. From Milepost 0.0 to Milepost 1.1, TRRC has further refined the geometry of "WYE" connection of the Tongue River Railroad with the main line of BNSF at Miles City,

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[1] The TRRC II proceeding is Finance Docket No. 30186 (Sub-No. 2), *Tongue River Railroad Company – Rail Construction and Operations – Ashland to Decker, Montana.*

[2] The TRRC III proceeding is Finance Docket No. 30186 (Sub-No. 3), *Tongue River Railroad Company, Inc. – Construction and Operation – Western Alignment.*

Montana. These Refinements slightly adjust the radius of the curves that connect the Tongue River Railroad to the BNSF mainline and shift the centerline of the Tongue River Railroad so that it is approximately 50 feet to 60 feet farther away from the hatchery facilities at the Miles City Fish Hatchery. The current proposed Refinements compared to the alignment considered in the Final Environmental Impact Statement ("EIS") served on October 13, 2006 in the TRRC III proceeding are shown on a map included in Exhibit C to the revised application.

2. From Milepost 69.9 to Terminus Point 2 (hereafter "Otter Creek Spur"), refine the proposed centerline of the rail line based upon more detailed analysis. The current proposed refinements somewhat reduce the cut and fill quantities and result in a flatter operating grade. The current proposed Refinements to the Otter Creek Spur compared to the alignment considered in the Final EIS served on October 13, 2006 in the TRRC III proceeding are shown on a map included in Exhibit C to the revised application.

The Refinements to the rail line approved in 1986 generate environmental, social and/or economic benefits that I describe below. In sum, those benefits include the following:

- Shorten the line by six miles
- Move it away from the facilities at the Miles City Fish Hatchery
- Reduce curvature
- Facilitate operations and maintenance

A. Environmental Advantages

The rail line, as refined, has environmental advantages over the rail line approved in 1986. It is six miles shorter than the approved rail line and has less curvature thus lowering operating costs and resulting in improved velocity. Fuel usage and air emissions are reduced as well. Moreover, the rail line, as refined, will require fewer acres of land to be acquired for the

railroad right-of-way and, consequently, fewer acres of vegetation and wildlife habitat will be lost if the rail line, as refined, is constructed in lieu of the rail line approved in 1986. The rail line, as refined, also locates the line further west of the Tongue River and, as a result, impacts to the river valley will be reduced.

B. Economic Advantages

As discussed above, approval to construct and operate the rail line subject to the proposed refinements will result in a rail line that is six miles shorter than the rail line as approved in 1986. This will reduce the energy expenditures associated with the operation of the rail line, as refined. The economic benefits that will result include annual reductions in locomotive maintenance costs, car maintenance costs, fuel costs, and mainline track maintenance. These benefits are estimated to yield annual reductions in cost as compared to the costs associated with the rail line approved in 1986 in each year of operation. In addition, the rail line, as approved, will offer significant track maintenance savings due to its fewer curves.

C. Operating Advantages

The proposed Refinements to the approved rail line also will yield significant operating advantages. Operating unit coal trains over the rail line, as refined, will be more efficient than operations over the rail line approved in 1986 because the new route as refined contains fewer curves. In fact, there is some question whether the unit coal trains we would expect to operate over the line once it is constructed could efficiently operate over the alignment with sharper curves that was approved in 1986, when shorter trains were envisioned.

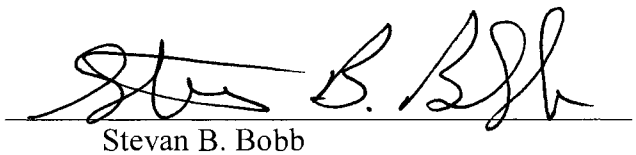
II. Public Convenience and Necessity

In this docket number, the Board's predecessor has already concluded that the construction of the approved TRRC rail line from Miles City, MT to south of Ashland, MT is consistent with public convenience and necessity. In approving the rail line in 1986, the ICC explained that "[t]he evidence of record shows a need for rail transportation to serve coal mines in the Tongue River Valley. This is a provident and necessary expenditure that will give shippers new rail service to their benefit and to the benefit of the public as well."[3] The same justifications continue to exist for the approved Miles City to south of Ashland rail line as TRRC proposes to refine it.

[3] Finance Docket No. 30186, *Tongue River R.R. – Rail Construction and Operation – In Custer, Power River and Rosebud Counties, MT* at 10 (ICC served May 9, 1986) (hereafter "1986 Decision").

VERIFICATION

I, Stevan B. Bobb, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.



Stevan B. Bobb

Dated this 24 day of September, 2012

BEFORE THE

SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC. – RAIL CONSTRUCTION AND OPERATION – IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF ANDREW BLUMENFELD IN SUPPORT OF TONGUE RIVER RAILROAD COMPANY'S REPLY TO PETITION TO REVOKE SUPPLEMENTAL APPLICATION

My name is Andrew Blumenfeld. I am Vice President of Analysis and Strategy for Arch Coal, Inc. ("Arch"). My business address is One CityPlace Drive, Suite 300, St. Louis, MO 63141. I am very familiar with the Otter Creek mine, which is a greenfield coal mining project owned and controlled by a subsidiary of Arch that is currently in the preliminary permitting process. The Otter Creek mine, and with other coal resources in the Ashland, MT area, could be developed for production in the coming years. I am also generally familiar with the Tongue River Railroad project and the December 17, 2012 Supplemental Application for Construction and Operation Authority (hereafter "Application") filed at the Surface Transportation Board by the Tongue River Railroad Company, which is owned by an entity in which Arch has invested.

I am providing this verified statement in response to the January 7, 2013 Petition to Revoke Supplemental Application submitted by Northern Plains Resource Council and Rocker Six Cattle Company (jointly, "NPRC"), as well as the November 2012 report prepared for NPRC by Power Consulting Inc. ("Power Report") and the Verified Statement of Mr. Gerald W. Fauth III, another consultant, which are attached as support for NPRC's Petition.

I. The Application Does Not Misrepresent the Destination Market for Ashland/Otter Creek Coal

NPRC, the Power Report and Mr. Fauth claim that the Application misrepresents the destination market for the coal to be transported from the Ashland/Otter Creek area by failing to acknowledge that the majority of that coal will be exported through coal export facilities that have been proposed for construction in Oregon and Washington rather than to power plants in the Upper Midwest, as has been the case since the TRRC line was first proposed in the 1980's. I agree generally with the proposition that the market for coal is dynamic and, over time, markets evolve and demand shifts. These market forces have a profound effect on product demand and mining and shipping priorities. However, I do not agree that it is a foregone conclusion, as the Powers Report and Mr. Fauth assert, that virtually all of the coal transported from the Otter Creek mine or the Ashland area will be exported to Asia through port facilities that have been proposed for development in Oregon and Washington. Some percentage of the coal may well be exported, as the TRRC Application states. However, it is far from a certainty that all or most of the coal will be exported from the Oregon and Washington facilities that they describe. There are several reasons for this.

A. Otter Creek/Ashland Coal Will be Competitive in the Domestic Coal Market

There remains a significant anticipated domestic market for Montana coal as has historically been the case and Otter Creek/Ashland coal will compete in that domestic market when the coal is developed. Today, almost twice as much Montana coal is used domestically as opposed to exported, according to the Energy Information Administration. *See* Energy Information Administration, Annual Coal Distribution Report, 2011 at http://www.eia.gov/coal/distribution/annual/ (showing that almost twice as much Montana coal was

distributed domestically than was exported in 2011). Consistent with this historic pattern, I anticipate that the coal mined at Otter Creek will be highly competitive with PRB coal mined elsewhere in Montana and Wyoming and used today at numerous generating plants in the Upper Midwest, including facilities operated by Detroit Edison and Minnesota Power.

The cost to extract the Otter Creek coal, and other coal in the Ashland area, is relatively low which should allow such coal to compete for market share in the domestic coal market. The coal in the Ashland area is relatively shallow in the ground and the ratio of coal to overburden is lower than other operating mines in the region. Assuming a modest rate of production volume as indicated in the Application, this coal can be efficiently and cheaply extracted through the mining process for an extended period of time.

Although the proposed Colstrip Alignment for the TRRC line generally angles northwesterly, this does not mean that it would be uneconomic to use that route to transport Otter Creek coal eastbound. The primary objective for the rail spur is to connect the coal resource to the mainline of the BNSF. The additional mileage to move Otter Creek/Ashland coal to destinations in the Upper Midwest via Colstrip is not significant, adding only an additional 38 miles from Otter Creek to Miles City versus alternative routings for the railroad between Otter Creek and Miles City that have previously been under consideration. This additional mileage is de minimis in terms of the transportation cost and will not offset the significant extraction cost advantages enjoyed by Otter Creek/Ashland area coal in comparison to coal from many other Montana and Wyoming mines.

B. Export Opportunities are Also Present

While some percentage of the coal may be exported, it is uncertain that it would be exported from the Longview, Cherry Point or other export facilities that have been proposed for

Washington and Oregon, as Mr. Fauth and the Powers Report argue will be the case. That is because these facilities remain in the proposal stage and have not yet been permitted. These projects have generated opposition from certain groups, making uncertain whether final approval will be forthcoming or the timing of any such approval.

Further, export of coal from Otter Creek/Ashland does not necessarily mean that the coal will move westbound. It is possible that some of the coal may travel east for export to Europe from existing facilities, for example, at Superior, Wisconsin. Montana coal is already exported to Europe from that Lake Superior port and the volume is expected to increase in the future. See http://www.midwestenergy.com/about.php

C. Market Forces Will Determine How the Coal Will be Used

Market forces will determine how much coal from the Otter Creek/Ashland area will be used domestically, or exported from West Coast ports or Great Lakes ports, several years from now, when that coal becomes available for transportation following the permitting and development/construction phases for the TRRC and the mines. Those market forces are quite dynamic, and will vary based on several factors, including new technologies (such as liquefaction) that can affect the attractiveness of coal as an energy source and the price of natural gas, which has been low for several years but which is trending upward. Indeed, recent industry analyses have consistently revealed that PRB coal is currently competitive with natural gas and the upwardly trending prices of natural gas suggest this competition will continue and improve into the foreseeable future. Thus, what Mr. Fauth and Mr. Power describe as a declining market for domestic use of coal could transform to a growing domestic market in the next few years. The Application therefore correctly observes that the coal will be available for domestic use and export, and that market forces will dictate its use.

II. The Application Does Not Misstate the Volumes that Might Be Transported

Mr. Fauth claims that TRRC has understated in its Application the potential volumes of coal that it might transport, both in estimating that up to 20 million tons of Otter Creek coal will be transported and in failing to account for coal that might be transported from other Ashland area mines. However, the Application properly predicts the volume of coal to be transported from the Otter Creek mine. As indicated in the Application, Arch estimates that it intends to mine 20 million tons/year at that site, a volume estimate Arch has consistently maintained. The Application thus correctly presented a volume estimate based on Arch's plans for the Otter Creek mine.

The Application also notes that other mines may be developed in the Ashland area. *See* Application at 29. However, at this time no mines have been developed in that area and no party has announced any intention to develop any mines in that area.

VERIFICATION

I, Andrew Blumenfeld, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

Andrew Blumenfeld

Dated this 25th day of January, 2013.

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HIGHLY CONFIDENTAL

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March 12, 2014

The Honorable Daniel R. Elliott, Chairman
The Honorable Ann D. Begeman, Vice Chairman
United States Surface Transportation Board
395 E Street, S.W.
Washington, D.C. 20423

Dear Chairman Elliott and Vice Chairman Begeman:

I write to update you on BNSF's network performance and status of our hiring, capital and service goals following my meeting with you and the members of your staff on February 18, 2014. As I relayed in our discussions, BNSF's top priority after safety is addressing our network service issues; and we are committed to providing a transparent view into current service levels for those who rely on our network during this challenging period.

Overall Service Performance

As we discussed when we met last month, BNSF's service in the fourth quarter of 2013 and the first quarter of 2014 has fallen short of our customer's expectations and our own high standards. Velocity across our network was impacted by substantial, concentrated, and, in many cases, unanticipated growth in volume, most pronounced in the grain and crude business traveling across our Northern Corridor. In addition, we faced a series of extreme weather events that significantly disrupted our operations. These elements resulted in compounding reductions to our overall network velocity, extending the time for our service recovery. As a result, we are holding trains for longer periods around our network, which further taxes critical resources such as locomotives and crews. Efforts to bring additional resources on line—detailed below—are tracking well against the aggressive goals we have set for ourselves. However, since we met in February, we have unfortunately seen further degradation in certain key service measures, which is reflected in the enclosed deck. In particular, the system-wide number of Past-Due Ag cars has increased. While we forecasted a short-term increase prior to decreases starting in the second quarter, the increase we have experienced has unfortunately outpaced the forecast we shared in February. This degradation is driven by a continuing tight supply of non-shuttle Ag cars due to delays in cars returning from the Chicago gateway and continued slow turn times on BNSF. Countermeasures have included putting additional non-shuttle Ag cars in-service to counteract these slow turn times.

We recognize the severe impact that our reduced network velocity is having on our customers and their business. As I expressed in our February meeting, BNSF is committed to restoring service levels as quickly as possible. To accomplish this, we are refocusing on the actions that are core to running a safe, high velocity railroad that delivers excellent service. Every one of our employees is intensely focused on taking advantage of every bit of existing capacity on the network that is available to us—making every move count. In addition to the measures we are taking to improve velocity and service in the short term, we are undertaking in 2014 our largest, single year capital investment in our company's history. Our capital investment to increase capacity and maintain existing capacity to its highest level is essential to obtaining long-term sustained velocity that translates into reliable service for our freight customers.

Amtrak Performance

The service challenges we have outlined for the Board have had a corresponding impact on Amtrak trains, particularly the Empire Builder, that also rely on the fluidity of our network. As we discussed, the Empire Builder train, particularly on the route along the east end of our Northern Transcon, has experienced severe service interruptions that have degraded On-Time Performance and Hours Late measures. Amtrak has now resumed normal Eastbound and Westbound operations on the Devils Lake Subdivision in North Dakota on March 1, and will no longer be diverted on the KO Subdivision. However, the route between Seattle and Everett, WA has been subject to four mudslides since February 17, which result in 48-hour moratoriums on occupied passenger trains following each event. Avalanche-caused outages in Montana near Essex and adjacent to Glacier National Park began March 2, and were immediately followed by three more events through March 6, in some areas depositing over seven feet of snow and debris across the tracks. We work with the National Park Service to mitigate avalanche risk on a case-by-case basis and when the risk has reached the highest level. This has necessitated the busing of passengers between Shelby and Whitefish, while trains operate without passengers through the affected area. Both Eastbound and Westbound traffic is impacted and we have not seen improvement since our February 18th meeting. BNSF is committed to returning to the performance levels for Amtrak that we have historically provided. We have implemented a series of countermeasures, as circumstances require, including directional running with freight flows, rapid responders, supplementing service with busing around avalanche risk areas, and 24-hour support staffing. In addition, the measures detailed above that BNSF is taking in the short-term, as well as our long-term capital investment program, will improve velocity across our network with corresponding benefits to Amtrak service.

Regular Update

At our meeting last month, BNSF agreed to provide the Board with regular written updates on our progress towards improving service. I am attaching to this letter the first such update, which provides reporting on key service and recovery metrics, including snapshots of velocity metrics for the overall network and each of our major regions and past due cars. It also describes our progress against our investment goals in locomotives, crew and capital investment to maintain and expand our network infrastructure capacity to handle the growing volume at the service levels our customers expect.

In addition to these overall metrics, we know that in the state of North Dakota there are particular concerns about our service and as a result, I am also providing specific data focused on North Dakota for the Board's information.

We will update for the Board all of the data provided on a biweekly basis. In addition, we will continue our weekly calls between the STB staff and Bob Lease, our Vice President of Service Design and Performance and other members of our operating team.

Conclusion

Please be assured that, after safety, restoring service is our most important mission in 2014, and all of our employees are dedicated to it. We appreciate this opportunity to provide insights into the current challenges that we are facing and to provide updates on our progress while we work our way back to reliable service levels across our network.

Sincerely,



Carl R. Ice
President & CEO

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Berkshire's Performance vs. the S&P 500

Year	Annual Percentage Change in Per-Share Book Value of Berkshire	in Per-Share Market Value of Berkshire	in S&P 500 with Dividends Included
1965	23.8	49.5	10.0
1966	20.3	(3.4)	(11.7)
1967	11.0	13.3	30.9
1968	19.0	77.8	11.0
1969	16.2	19.4	(8.4)
1970	12.0	(4.6)	3.9
1971	16.4	80.5	14.6
1972	21.7	8.1	18.9
1973	4.7	(2.5)	(14.8)
1974	5.5	(48.7)	(26.4)
1975	21.9	2.5	37.2
1976	59.3	129.3	23.6
1977	31.9	46.8	(7.4)
1978	24.0	14.5	6.4
1979	35.7	102.5	18.2
1980	19.3	32.8	32.3
1981	31.4	31.8	(5.0)
1982	40.0	38.4	21.4
1983	32.3	69.0	22.4
1984	13.6	(2.7)	6.1
1985	48.2	93.7	31.6
1986	26.1	14.2	18.6
1987	19.5	4.6	5.1
1988	20.1	59.3	16.6
1989	44.4	84.6	31.7
1990	7.4	(23.1)	(3.1)
1991	39.6	35.6	30.5
1992	20.3	29.8	7.6
1993	14.3	38.9	10.1
1994	13.9	25.0	1.3
1995	43.1	57.4	37.6
1996	31.8	6.2	23.0
1997	34.1	34.9	33.4
1998	48.3	52.2	28.6
1999	0.5	(19.9)	21.0
2000	6.5	26.6	(9.1)
2001	(6.2)	6.5	(11.9)
2002	10.0	(3.8)	(22.1)
2003	21.0	15.8	28.7
2004	10.5	4.3	10.9
2005	6.4	0.8	4.9
2006	18.4	24.1	15.8
2007	11.0	28.7	5.5
2008	(9.6)	(31.8)	(37.0)
2009	19.8	2.7	26.5
2010	13.0	21.4	15.1
2011	4.6	(4.7)	2.1
2012	14.4	16.8	16.0
2013	18.2	32.7	32.4
2014	8.3	27.0	13.7
Compounded Annual Gain – 1965-2014	19.4%	21.6%	9.9%
Overall Gain – 1964-2014	751,113%	1,826,163%	11,196%

Notes: Data are for calendar years with these exceptions: 1965 and 1966, year ended 9/30; 1967, 15 months ended 12/31. Starting in 1979, accounting rules required insurance companies to value the equity securities they hold at market rather than at the lower of cost or market, which was previously the requirement. In this table, Berkshire's results through 1978 have been restated to conform to the changed rules. In all other respects, the results are calculated using the numbers originally reported. The S&P 500 numbers are **pre-tax** whereas the Berkshire numbers are **after-tax**. If a corporation such as Berkshire were simply to have owned the S&P 500 and accrued the appropriate taxes, its results would have lagged the S&P 500 in years when that index showed a positive return, but would have exceeded the S&P 500 in years when the index showed a negative return. Over the years, the tax costs would have caused the aggregate lag to be substantial.

A note to readers: Fifty years ago, today's management took charge at Berkshire. For this Golden Anniversary, Warren Buffett and Charlie Munger each wrote his views of what has happened at Berkshire during the past 50 years and what each expects during the next 50. Neither changed a word of his commentary after reading what the other had written. Warren's thoughts begin on page 24 and Charlie's on page 39. Shareholders, particularly new ones, may find it useful to read those letters before reading the report on 2014, which begins below.

BERKSHIRE HATHAWAY INC.

To the Shareholders of Berkshire Hathaway Inc.:

Berkshire's gain in net worth during 2014 was $18.3 billion, which increased the per-share book value of both our Class A and Class B stock by 8.3%. Over the last 50 years (that is, since present management took over), per-share book value has grown from $19 to $146,186, a rate of 19.4% compounded annually.*

During our tenure, we have consistently compared the yearly performance of the S&P 500 to the change in Berkshire's per-share book value. We've done that because book value has been a crude, but useful, *tracking device* for the number that really counts: intrinsic business value.

In our early decades, the relationship between book value and intrinsic value was much closer than it is now. That was true because Berkshire's assets were then largely securities whose values were continuously restated to reflect their current market prices. In Wall Street parlance, most of the assets involved in the calculation of book value were "marked to market."

Today, our emphasis has shifted in a major way to owning and operating large businesses. Many of these are worth far more than their cost-based carrying value. But that amount is *never* revalued upward no matter how much the value of these companies has increased. Consequently, the gap between Berkshire's intrinsic value and its book value has materially widened.

With that in mind, we have added a new set of data – the historical record of Berkshire's stock price – to the performance table on the facing page. Market prices, let me stress, have their limitations in the short term. Monthly or yearly movements of stocks are often erratic and not indicative of changes in intrinsic value. Over time, however, stock prices and intrinsic value almost invariably converge. Charlie Munger, Berkshire Vice Chairman and my partner, and I believe that has been true at Berkshire: In our view, the increase in Berkshire's per-share intrinsic value over the past 50 years is roughly equal to the 1,826,163% gain in market price of the company's shares.

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* All per-share figures used in this report apply to Berkshire's A shares. Figures for the B shares are 1/1500th of those shown for A.

The Year at Berkshire

It was a good year for Berkshire on all major fronts, except one. Here are the important developments:

- Our "Powerhouse Five" – a collection of Berkshire's largest non-insurance businesses – had a record $12.4 billion of pre-tax earnings in 2014, up $1.6 billion from 2013.* The companies in this sainted group are Berkshire Hathaway Energy (formerly MidAmerican Energy), BNSF, IMC (I've called it Iscar in the past), Lubrizol and Marmon.

  Of the five, only Berkshire Hathaway Energy, then earning $393 million, was owned by us a decade ago. Subsequently we purchased another three of the five on an all-cash basis. In acquiring the fifth, BNSF, we paid about 70% of the cost in cash and, for the remainder, issued Berkshire shares that increased the number outstanding by 6.1%. In other words, the $12 billion gain in annual earnings delivered Berkshire by the five companies over the ten-year span has been accompanied by only minor dilution. That satisfies our goal of not simply increasing earnings, but making sure we also increase *per-share* results.

  If the U.S. economy continues to improve in 2015, we expect earnings of our Powerhouse Five to improve as well. The gain could reach $1 billion, in part because of bolt-on acquisitions by the group that have already closed or are under contract.

- Our bad news from 2014 comes from our group of five as well and is unrelated to earnings. During the year, BNSF disappointed many of its customers. These shippers depend on us, and service failures can badly hurt their businesses.

  BNSF is, by far, Berkshire's most important non-insurance subsidiary and, to improve its performance, we will spend $6 billion on plant and equipment in 2015. That sum is nearly 50% more than any other railroad has spent in a single year and is a truly extraordinary amount, whether compared to revenues, earnings or depreciation charges.

  Though weather, which was particularly severe last year, will always cause railroads a variety of operating problems, our responsibility is to do *whatever it takes* to restore our service to industry-leading levels. That can't be done overnight: The extensive work required to increase system capacity sometimes disrupts operations while it is underway. Recently, however, our outsized expenditures are beginning to show results. During the last three months, BNSF's performance metrics have materially improved from last year's figures.

- Our many dozens of smaller non-insurance businesses earned $5.1 billion last year, up from $4.7 billion in 2013. Here, as with our Powerhouse Five, we expect further gains in 2015. Within this group, we have two companies that last year earned between $400 million and $600 million, six that earned between $250 million and $400 million, and seven that earned between $100 million and $250 million. This collection of businesses will increase in both number and earnings. Our ambitions have no finish line.

- Berkshire's huge and growing insurance operation again operated at an underwriting profit in 2014 – that makes 12 years in a row – and increased its float. During that 12-year stretch, our float – money that doesn't belong to us but that we can invest for Berkshire's benefit – has grown from $41 billion to $84 billion. Though neither that gain nor the size of our float is reflected in Berkshire's earnings, float generates significant investment income because of the assets it allows us to hold.

* Throughout this letter, as well as in the "Golden Anniversary" letters included later in this report, all earnings are stated on a pre-tax basis unless otherwise designated.

Meanwhile, our underwriting profit totaled $24 billion during the twelve-year period, including $2.7 billion earned in 2014. And all of this began with our 1967 purchase of National Indemnity for $8.6 *million*.

- While Charlie and I search for new businesses to buy, our many subsidiaries are regularly making bolt-on acquisitions. Last year was particularly fruitful: We contracted for 31 bolt-ons, scheduled to cost $7.8 billion in aggregate. The size of these transactions ranged from $400,000 to $2.9 billion. However, the largest acquisition, Duracell, will not close until the second half of this year. It will then be placed under Marmon's jurisdiction.

  Charlie and I encourage bolt-ons, *if* they are sensibly-priced. (Most deals offered us aren't.) They deploy capital in activities that fit with our existing businesses and that will be managed by our corps of expert managers. This means no more work for us, yet more earnings, a combination we find particularly appealing. We will make many more of these bolt-on deals in future years.

- Two years ago my friend, Jorge Paulo Lemann, asked Berkshire to join his 3G Capital group in the acquisition of Heinz. My affirmative response was a no-brainer: I knew immediately that this partnership would work well from both a personal and financial standpoint. And it most definitely has.

  I'm not embarrassed to admit that Heinz is run far better under Alex Behring, Chairman, and Bernardo Hees, CEO, than would be the case if I were in charge. They hold themselves to extraordinarily high performance standards and are never satisfied, even when their results far exceed those of competitors.

  We expect to partner with 3G in more activities. Sometimes our participation will only involve a financing role, as was the case in the recent acquisition of Tim Hortons by Burger King. Our favored arrangement, however, will usually be to link up as a *permanent* equity partner (who, in some cases, contributes to the financing of the deal as well). Whatever the structure, we feel good when working with Jorge Paulo.

  Berkshire also has fine partnerships with Mars and Leucadia, and we may form new ones with them or with other partners. Our participation in any joint activities, whether as a financing or equity partner, will be limited to friendly transactions.

- In October, we contracted to buy Van Tuyl Automotive, a group of 78 automobile dealerships that is exceptionally well-run. Larry Van Tuyl, the company's owner, and I met some years ago. He then decided that if he were ever to sell his company, its home should be Berkshire. Our purchase was recently completed, and we are now "car guys."

  Larry and his dad, Cecil, spent 62 years building the group, following a strategy that made owner-partners of all local managers. Creating this mutuality of interests proved over and over to be a winner. Van Tuyl is now the fifth-largest automotive group in the country, with per-dealership sales figures that are outstanding.

  In recent years, Jeff Rachor has worked alongside Larry, a successful arrangement that will continue. There are about 17,000 dealerships in the country, and ownership transfers always require approval by the relevant auto manufacturer. Berkshire's job is to perform in a manner that will cause manufacturers to welcome further purchases by us. If we do this – and if we can buy dealerships at sensible prices – we will build a business that before long will be multiples the size of Van Tuyl's $9 billion of sales.

  With the acquisition of Van Tuyl, Berkshire now owns 9½ companies that would be listed on the Fortune 500 were they independent (Heinz is the ½). That leaves 490½ fish in the sea. Our lines are out.

- Our subsidiaries spent a record $15 billion on plant and equipment during 2014, well over twice their depreciation charges. About 90% of that money was spent in the United States. Though we will always invest abroad as well, the mother lode of opportunities runs through America. The treasures that have been uncovered up to now are dwarfed by those still untapped. Through dumb luck, Charlie and I were born in the United States, and we are forever grateful for the staggering advantages this accident of birth has given us.

- Berkshire's yearend employees – including those at Heinz – totaled a record 340,499, up 9,754 from last year. The increase, I am proud to say, included no gain at headquarters (where 25 people work). No sense going crazy.

- Berkshire increased its ownership interest last year in each of its "Big Four" investments – American Express, Coca-Cola, IBM and Wells Fargo. We purchased additional shares of IBM (increasing our ownership to 7.8% versus 6.3% at yearend 2013). Meanwhile, stock repurchases at Coca-Cola, American Express and Wells Fargo raised our percentage ownership of each. Our equity in Coca-Cola grew from 9.1% to 9.2%, our interest in American Express increased from 14.2% to 14.8% and our ownership of Wells Fargo grew from 9.2% to 9.4%. And, if you think tenths of a percent aren't important, ponder this math: For the four companies in aggregate, each increase of one-tenth of a percent in our ownership raises Berkshire's portion of their annual earnings by $50 million.

  These four investees possess excellent businesses and are run by managers who are both talented and shareholder-oriented. At Berkshire, we much prefer owning a non-controlling but substantial portion of a wonderful company to owning 100% of a so-so business. It's better to have a partial interest in the Hope Diamond than to own all of a rhinestone.

  If Berkshire's yearend holdings are used as the marker, our portion of the "Big Four's" 2014 earnings before discontinued operations amounted to $4.7 billion (compared to $3.3 billion only three years ago). In the earnings we report to you, however, we include only the dividends we receive – about $1.6 billion last year. (Again, three years ago the dividends were $862 million.) But make no mistake: The $3.1 billion of these companies' earnings we don't report are every bit as valuable to us as the portion Berkshire records.

  The earnings these investees retain are often used for repurchases of their own stock – a move that enhances Berkshire's share of future earnings without requiring us to lay out a dime. Their retained earnings also fund business opportunities that usually turn out to be advantageous. All that leads us to expect that the per-share earnings of these four investees, in aggregate, will grow substantially over time (though 2015 will be a tough year for the group, in part because of the strong dollar). If the expected gains materialize, dividends to Berkshire will increase and, even more important, so will our unrealized capital gains. (For the package of four, our unrealized gains already totaled $42 billion at yearend.)

  Our flexibility in capital allocation – our willingness to invest large sums passively in non-controlled businesses – gives us a significant advantage over companies that limit themselves to acquisitions they can operate. Our appetite for *either* operating businesses or passive investments doubles our chances of finding sensible uses for Berkshire's endless gusher of cash.

- I've mentioned in the past that my experience in business helps me as an investor and that my investment experience has made me a better businessman. Each pursuit teaches lessons that are applicable to the other. And some truths can only be fully learned through experience. (In Fred Schwed's wonderful book, *Where Are the Customers' Yachts?*, a Peter Arno cartoon depicts a puzzled Adam looking at an eager Eve, while a caption says, "There are certain things that cannot be adequately explained to a virgin either by words or pictures." If you haven't read Schwed's book, buy a copy at our annual meeting. Its wisdom and humor are truly priceless.)

Among Arno's "certain things," I would include two separate skills, the evaluation of investments and the management of businesses. I therefore think it's worthwhile for Todd Combs and Ted Weschler, our two investment managers, to each have oversight of at least one of our businesses. A sensible opportunity for them to do so opened up a few months ago when we agreed to purchase two companies that, though smaller than we would normally acquire, have excellent economic characteristics. Combined, the two earn $100 million annually on about $125 million of net tangible assets.

I've asked Todd and Ted to each take on one as Chairman, in which role they will function in the very limited way that I do with our larger subsidiaries. This arrangement will save me a minor amount of work and, more important, make the two of them even better investors than they already are (which is to say among the best).

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Late in 2009, amidst the gloom of the Great Recession, we agreed to buy BNSF, the largest purchase in Berkshire's history. At the time, I called the transaction an "all-in wager on the economic future of the United States."

That kind of commitment was nothing new for us. We've been making similar wagers ever since Buffett Partnership Ltd. acquired control of Berkshire in 1965. For good reason, too: Charlie and I have always considered a "bet" on ever-rising U.S. prosperity to be very close to a sure thing.

Indeed, who has ever benefited during the past 238 years by betting *against* America? If you compare our country's present condition to that existing in 1776, you have to rub your eyes in wonder. In my lifetime alone, *real* per-capita U.S. output has *sextupled*. My parents could not have dreamed in 1930 of the world their son would see. Though the preachers of pessimism prattle endlessly about America's problems, I've never seen one who wishes to emigrate (though I can think of a few for whom I would happily buy a one-way ticket).

The dynamism embedded in our market economy will continue to work its magic. Gains won't come in a smooth or uninterrupted manner; they never have. And we will regularly grumble about our government. But, most assuredly, America's best days lie ahead.

With this tailwind working for us, Charlie and I hope to build Berkshire's per-share intrinsic value by (1) constantly improving the basic earning power of our many subsidiaries; (2) further increasing their earnings through bolt-on acquisitions; (3) benefiting from the growth of our investees; (4) repurchasing Berkshire shares when they are available at a meaningful discount from intrinsic value; and (5) making an occasional large acquisition. We will also try to maximize results for *you* by rarely, if ever, issuing Berkshire shares.

Those building blocks rest on a rock-solid foundation. A century hence, BNSF and Berkshire Hathaway Energy will still be playing vital roles in our economy. Homes and autos will remain central to the lives of most families. Insurance will continue to be essential for both businesses and individuals. Looking ahead, Charlie and I see a world made to order for Berkshire. We feel fortunate to be entrusted with its management.

Intrinsic Business Value

As much as Charlie and I talk about intrinsic business value, we cannot tell you precisely what that number is for Berkshire shares (nor, in fact, for any other stock). In our 2010 annual report, however, we laid out the three elements – one of them qualitative – that we believe are the keys to a sensible estimate of Berkshire's intrinsic value. That discussion is reproduced in full on pages 123-124.

Here is an update of the two quantitative factors: In 2014 our per-share investments increased 8.4% to $140,123, and our earnings from businesses other than insurance and investments increased 19% to $10,847 per share.

Since 1970, our per-share investments have increased at a rate of 19% compounded annually, and our earnings figure has grown at a 20.6% clip. It is no coincidence that the price of Berkshire stock over the ensuing 44 years has increased at a rate very similar to that of our two measures of value. Charlie and I like to see gains in both sectors, but our main focus is to build operating earnings. That's why we were pleased to exchange our Phillips 66 and Graham Holdings stock for operating businesses last year and to contract with Procter and Gamble to acquire Duracell by means of a similar exchange set to close in 2015.

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Now, let's examine the four major sectors of our operations. Each has vastly different balance sheet and income characteristics from the others. So we'll present them as four separate businesses, which is how Charlie and I view them (though there are important and *enduring* advantages to having them all under one roof). Our goal is to provide you with the information we would wish to have if our positions were reversed, with you being the reporting manager and we the absentee shareholders. (But don't get any ideas!)

Insurance

Let's look first at insurance, Berkshire's core operation. That industry has been the engine that has propelled our expansion since 1967, when we acquired National Indemnity and its sister company, National Fire & Marine, for $8.6 million. Though that purchase had monumental consequences for Berkshire, its execution was simplicity itself.

Jack Ringwalt, a friend of mine who was the controlling shareholder of the two companies, came to my office saying he would like to sell. Fifteen minutes later, we had a deal. Neither of Jack's companies had ever had an audit by a public accounting firm, and I didn't ask for one. My reasoning: (1) Jack was honest and (2) He was also a bit quirky and likely to walk away if the deal became at all complicated.

On pages 128-129, we reproduce the 1½-page purchase agreement we used to finalize the transaction. That contract was homemade: Neither side used a lawyer. Per page, this has to be Berkshire's best deal: National Indemnity today has GAAP (generally accepted accounting principles) net worth of $111 billion, which exceeds that of any other insurer in the world.

One reason we were attracted to the property-casualty business was its financial characteristics: P/C insurers receive premiums upfront and pay claims later. In extreme cases, such as those arising from certain workers' compensation accidents, payments can stretch over many decades. This collect-now, pay-later model leaves P/C companies holding large sums – money we call "float" – that will eventually go to others. Meanwhile, insurers get to invest this float for their benefit. Though individual policies and claims come and go, the amount of float an insurer holds usually remains fairly stable in relation to premium volume. Consequently, as our business grows, so does our float. And *how* we have grown, as the following table shows:

Year	*Float (in $ millions)*
1970	$ 39
1980	237
1990	1,632
2000	27,871
2010	65,832
2014	83,921

Further gains in float will be tough to achieve. On the plus side, GEICO and our new commercial insurance operation are almost certain to grow at a good clip. National Indemnity's reinsurance division, however, is party to a number of run-off contracts whose float drifts downward. If we do in time experience a decline in float, it will be *very* gradual – at the outside no more than 3% in any year. The nature of our insurance contracts is such that we can *never* be subject to immediate demands for sums that are large compared to our cash resources. This strength is a key pillar in Berkshire's economic fortress.

If our premiums exceed the total of our expenses and eventual losses, we register an underwriting profit that adds to the investment income our float produces. When such a profit is earned, we enjoy the use of free money – and, better yet, get *paid* for holding it.

Unfortunately, the wish of all insurers to achieve this happy result creates intense competition, so vigorous indeed that it frequently causes the P/C industry as a whole to operate at a significant underwriting *loss*. This loss, in effect, is what the industry pays to hold its float. Competitive dynamics almost guarantee that the insurance industry, despite the float income all its companies enjoy, will continue its dismal record of earning subnormal returns on tangible net worth as compared to other American businesses. The prolonged period of low interest rates our country is now dealing with causes earnings on float to decrease, thereby exacerbating the profit problems of the industry.

As noted in the first section of this report, Berkshire has now operated at an underwriting profit for twelve consecutive years, our pre-tax gain for the period having totaled $24 billion. Looking ahead, I believe we will continue to underwrite profitably in most years. Doing so is the daily focus of *all* of our insurance managers, who know that while float is valuable, its benefits can be drowned by poor underwriting results. That message is given at least lip service by all insurers; at Berkshire it is a religion.

So how does our float affect intrinsic value? When Berkshire's *book* value is calculated, the *full* amount of our float is deducted as a *liability*, just as if we had to pay it out tomorrow and could not replenish it. But to think of float as strictly a liability is incorrect; it should instead be viewed as a revolving fund. Daily, we pay old claims and related expenses – a huge $22.7 billion to more than six million claimants in 2014 – and that reduces float. Just as surely, we each day write new business and thereby generate new claims that add to float.

If our revolving float is both costless and long-enduring, which I believe it will be, the true value of this liability is *dramatically* less than the accounting liability. Owing $1 that in effect will never leave the premises – because new business is almost certain to deliver a substitute – is worlds different from owing $1 that will go out the door tomorrow and not be replaced. The two types of liabilities are treated as equals, however, under GAAP.

A partial offset to this overstated liability is a $15.5 billion "goodwill" asset that we incurred in buying our insurance companies and that increases book value. In very large part, this goodwill represents the price we paid for the float-generating capabilities of our insurance operations. The cost of the goodwill, however, has *no* bearing on its true value. For example, if an insurance company sustains large and prolonged underwriting losses, *any* goodwill asset carried on the books should be deemed valueless, whatever its original cost.

Fortunately, that does not describe Berkshire. Charlie and I believe the true economic value of our insurance goodwill – what we would happily pay for float *of similar quality* were we to purchase an insurance operation possessing it – to be *far* in excess of its historic carrying value. Under present accounting rules (with which we agree) this excess value will *never* be entered on our books. But I can assure you that it's real. That's one reason – a huge reason – why we believe Berkshire's intrinsic business value substantially exceeds its book value.

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Berkshire's attractive insurance economics exist only because we have some terrific managers running disciplined operations that possess hard-to-replicate business models. Let me tell you about the major units.

First by float size is the Berkshire Hathaway Reinsurance Group, managed by Ajit Jain. Ajit insures risks that no one else has the desire or the capital to take on. His operation combines capacity, speed, decisiveness and, most important, brains in a manner unique in the insurance business. Yet he never exposes Berkshire to risks that are inappropriate in relation to our resources.

Indeed, we are *far* more conservative in avoiding risk than most large insurers. For example, if the insurance industry should experience a $250 billion loss from some mega-catastrophe – a loss about triple anything it has ever experienced – Berkshire as a whole would likely record a significant profit for the year because of its many streams of earnings. We would also remain awash in cash and be looking for large opportunities in a market that might well have gone into shock. Meanwhile, other major insurers and reinsurers would be far in the red, if not facing insolvency.

Ajit's underwriting skills are unmatched. His mind, moreover, is an idea factory that is always looking for more lines of business he can add to his current assortment. Last year I told you about his formation of Berkshire Hathaway Specialty Insurance ("BHSI"). This initiative took us into commercial insurance, where we were instantly welcomed by both major insurance brokers and corporate risk managers throughout America. Previously, we had written only a few specialized lines of commercial insurance.

BHSI is led by Peter Eastwood, an experienced underwriter who is widely respected in the insurance world. During 2014, Peter expanded his talented group, moving into both international business and new lines of insurance. We repeat last year's prediction that BHSI will be a major asset for Berkshire, one that will generate volume in the billions within a few years.

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We have another reinsurance powerhouse in General Re, managed by Tad Montross.

At bottom, a sound insurance operation needs to adhere to four disciplines. It must (1) understand *all* exposures that might cause a policy to incur losses; (2) conservatively assess the likelihood of any exposure actually causing a loss and the probable cost if it does; (3) set a premium that, on average, will deliver a profit after both prospective loss costs and operating expenses are covered; and (4) be willing to walk away if the appropriate premium can't be obtained.

Many insurers pass the first three tests and flunk the fourth. They simply can't turn their back on business that is being eagerly written by their competitors. That old line, "The other guy is doing it, so we must as well," spells trouble in any business, but in none more so than insurance.

Tad has observed all four of the insurance commandments, and it shows in his results. General Re's huge float has been considerably better than cost-free under his leadership, and we expect that, on average, to continue. We are particularly enthusiastic about General Re's international life reinsurance business, which has grown consistently and profitably since we acquired the company in 1998.

It can be remembered that soon after we purchased General Re, it was beset by problems that caused commentators – and me as well, briefly – to believe I had made a huge mistake. That day is long gone. General Re is now a gem.

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Finally, there is GEICO, the insurer on which I cut my teeth 64 years ago. GEICO is managed by Tony Nicely, who joined the company at 18 and completed 53 years of service in 2014. Tony became CEO in 1993, and since then the company has been flying. There is *no* better manager than Tony.

When I was first introduced to GEICO in January 1951, I was blown away by the huge cost advantage the company enjoyed compared to the expenses borne by the giants of the industry. It was clear to me that GEICO would succeed because it *deserved* to succeed. No one *likes* to buy auto insurance. Almost everyone, though, likes to drive. The insurance consequently needed is a major expenditure for most families. Savings matter to them – and *only* a low-cost operation can deliver these. Indeed, at least 40% of the people reading this letter can save money by insuring with GEICO. So stop reading and go to geico.com or call 800-368-2734.

GEICO's cost advantage is the factor that has enabled the company to gobble up market share year after year. (We ended 2014 at 10.8% compared to 2.5% in 1995, when Berkshire acquired control of GEICO.) The company's low costs create a moat – an *enduring* one – that competitors are unable to cross. Our gecko never tires of telling Americans how GEICO can save them important money. The gecko, I should add, has one particularly endearing quality – he works without pay. Unlike a human spokesperson, he never gets a swelled head from his fame nor does he have an agent to constantly remind us how valuable he is. I love the little guy.

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In addition to our three major insurance operations, we own a group of smaller companies, most of them plying their trade in odd corners of the insurance world. In aggregate, these companies are a growing operation that consistently delivers an underwriting profit. Indeed, over the past decade, they have earned $2.95 billion from underwriting while growing their float from $1.7 billion to $8.6 billion. Charlie and I treasure these companies and their managers.

	Underwriting Profit		*Yearend Float*	
			(in millions)	
Insurance Operations	*2014*	*2013*	*2014*	*2013*
BH Reinsurance	$ 606	$1,294	$42,454	$37,231
General Re	277	283	19,280	20,013
GEICO	1,159	1,127	13,569	12,566
Other Primary	626	385	8,618	7,430
	$2,668	$3,089	$83,921	$77,240

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Simply put, insurance is the sale of promises. The "customer" pays money now; the insurer promises to pay money in the future should certain unwanted events occur.

Sometimes, the promise will not be tested for decades. (Think of life insurance bought by people in their 20s.) Therefore, both the ability and willingness of the insurer to pay, even if economic chaos prevails when payment time arrives, is all-important.

Berkshire's promises have no equal, a fact affirmed in recent years by certain of the world's largest and most sophisticated P/C insurers, who wished to shed themselves of huge and exceptionally long-lived liabilities. That is, these insurers wished to "cede" these liabilities – most of them potential losses from asbestos claims – to a reinsurer. They needed the right one, though: If a reinsurer fails to pay a loss, the original insurer is still on the hook for it. Choosing a reinsurer, therefore, that down the road proves to be financially strapped or a bad actor threatens the original insurer with getting huge liabilities right back in its lap.

Last year, our premier position in reinsurance was reaffirmed by our writing a policy carrying a $3 billion single premium. I believe that the policy's size has only been exceeded by our 2007 transaction with Lloyd's, in which the premium was $7.1 billion.

In fact, I know of only eight P/C policies in history that had a single premium exceeding $1 billion. And, yes, all eight were written by Berkshire. Certain of these contracts will require us to make substantial payments 50 years or more from now. When major insurers have needed an unquestionable promise that payments of this type will be made, Berkshire has been the party – the *only* party – to call.

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Berkshire's great managers, premier financial strength and a variety of business models protected by wide moats amount to something unique in the insurance world. This assemblage of strengths is a huge asset for Berkshire shareholders that will only get more valuable with time.

Regulated, Capital-Intensive Businesses

We have two major operations, BNSF and Berkshire Hathaway Energy ("BHE"), that share important characteristics distinguishing them from our other businesses. Consequently, we assign them their own section in this letter and split out their combined financial statistics in our GAAP balance sheet and income statement.

A key characteristic of both companies is their huge investment in very long-lived, regulated assets, with these partially funded by large amounts of long-term debt that is *not* guaranteed by Berkshire. Our credit is in fact not needed because each company has earning power that even under terrible economic conditions will far exceed its interest requirements. Last year, for example, BNSF's interest coverage was more than 8:1. (Our definition of coverage is pre-tax earnings/interest, *not* EBITDA/interest, a commonly used measure we view as seriously flawed.)

At BHE, meanwhile, two factors ensure the company's ability to service its debt under all circumstances. The first is common to all utilities: recession-resistant earnings, which result from these companies offering an essential service on an exclusive basis. The second is enjoyed by few other utilities: a great diversity of earnings streams, which shield us from being seriously harmed by any single regulatory body. Recently, we have further broadened that base through our $3 billion (Canadian) acquisition of AltaLink, an electric transmission system serving 85% of Alberta's population. This multitude of profit streams, supplemented by the inherent advantage of being owned by a strong parent, has enabled BHE and its utility subsidiaries to significantly lower their cost of debt. This economic fact benefits both us *and* our customers.

Every day, our two subsidiaries power the American economy in major ways:

- BNSF carries about 15% (measured by ton-miles) of *all* inter-city freight, whether it is transported by truck, rail, water, air, or pipeline. Indeed, we move more ton-miles of goods than *anyone* else, a fact establishing BNSF as the most important artery in our economy's circulatory system.

  BNSF, like all railroads, also moves its cargo in an extraordinarily fuel-efficient and environmentally friendly way, carrying a ton of freight about 500 miles on a single gallon of diesel fuel. Trucks taking on the same job guzzle about four times as much fuel.

- BHE's utilities serve regulated retail customers in eleven states. No utility company stretches further. In addition, we are a leader in renewables: From a standing start ten years ago, BHE now accounts for 6% of the country's wind generation capacity and 7% of its solar generation capacity. Beyond these businesses, BHE owns two large pipelines that deliver 8% of our country's natural gas consumption; the recently-purchased electric transmission operation in Canada; and major electric businesses in the U.K. and Philippines. And the beat goes on: We will continue to buy and build utility operations throughout the world for decades to come.

  BHE can make these investments because it retains *all* of its earnings. In fact, last year the company retained more dollars of earnings – by far – than any other American electric utility. We and our regulators see this 100% retention policy as an important advantage – one almost certain to distinguish BHE from other utilities for many years to come.

When BHE completes certain renewables projects that are underway, the company's renewables portfolio will have cost $15 billion. In addition, we have conventional projects in the works that will also cost many billions. We relish making such commitments as long as they promise reasonable returns – and, on that front, we put a large amount of trust in future regulation.

Our confidence is justified both by our past experience and by the knowledge that society will forever need massive investments in both transportation and energy. It is in the self-interest of governments to treat capital providers in a manner that will ensure the continued flow of funds to essential projects. It is concomitantly in our self-interest to conduct our operations in a way that earns the approval of our regulators and the people they represent.

Last year we fully met this objective at BHE, just as we have in every year of our ownership. Our rates remain low, our customer satisfaction is high and our record for employee safety is among the best in the industry.

The story at BNSF, however – as I noted earlier – was not good in 2014, a year in which the railroad disappointed many of its customers. This problem occurred despite the record capital expenditures that BNSF has made in recent years, with those having far exceeded the outlays made by Union Pacific, our principal competitor.

The two railroads are of roughly equal size measured by revenues, though we carry considerably more freight (measured either by carloads or ton-miles). But our service problems exceeded Union Pacific's last year, and we lost market share as a result. Moreover, U.P.'s earnings beat ours by a record amount. Clearly, we have a lot of work to do.

We are wasting no time: As I also mentioned earlier, we will spend $6 billion in 2015 on improving our railroad's operation. That will amount to about 26% of estimated revenues (a calculation that serves as the industry's yardstick). Outlays of this magnitude are largely unheard of among railroads. For us, this percentage compares to our average of 18% in 2009-2013 and to U.P.'s projection for the near future of 16-17%. Our huge investments will soon lead to a system with greater capacity and much better service. Improved profits should follow.

Here are the key figures for Berkshire Hathaway Energy and BNSF:

Berkshire Hathaway Energy (89.9% owned)	*Earnings (in millions)*		
	2014	*2013*	*2012*
U.K. utilities	$ 527	$ 362	$ 429
Iowa utility	298	230	236
Nevada utilities	549	—	—
PacifiCorp (primarily Oregon and Utah)	1,010	982	737
Gas Pipelines (Northern Natural and Kern River)	379	385	383
HomeServices	139	139	82
Other (net)	236	4	91
Operating earnings before corporate interest and taxes	3,138	2,102	1,958
Interest	427	296	314
Income taxes	616	170	172
Net earnings	$ 2,095	$ 1,636	$ 1,472
Earnings applicable to Berkshire	$ 1,882	$ 1,470	$ 1,323

BNSF	*Earnings (in millions)*		
	2014	*2013*	*2012*
Revenues	$23,239	$22,014	$20,835
Operating expenses	16,237	15,357	14,835
Operating earnings before interest and taxes	7,002	6,657	6,000
Interest (net)	833	729	623
Income taxes	2,300	2,135	2,005
Net earnings	$ 3,869	$ 3,793	$ 3,372

Manufacturing, Service and Retailing Operations

Our activities in this part of Berkshire cover the waterfront. Let's look, though, at a summary balance sheet and earnings statement for the entire group.

Balance Sheet 12/31/14 (in millions)

Assets		*Liabilities and Equity*	
Cash and equivalents	$ 5,765	Notes payable	$ 965
Accounts and notes receivable	8,264	Other current liabilities	9,734
Inventory	10,236	Total current liabilities	10,699
Other current assets	1,117		
Total current assets	25,382		
		Deferred taxes	3,801
Goodwill and other intangibles	28,107	Term debt and other liabilities	4,269
Fixed assets	13,806	Non-controlling interests	492
Other assets	3,793	Berkshire equity	51,827
	$71,088		$71,088

Earnings Statement (in millions)

	2014	*2013**	*2012**
Revenues	$97,689	$93,472	$81,432
Operating expenses	90,788	87,208	75,734
Interest expense	109	104	112
Pre-tax earnings	6,792	6,160	5,586
Income taxes and non-controlling interests	2,324	2,283	2,229
Net earnings	$ 4,468	$ 3,877	$ 3,357

*Earnings for 2012 and 2013 have been restated to exclude Marmon's leasing operations, which are now included in the Finance and Financial Products section.

Our income and expense data conforming to GAAP is on page 49. In contrast, the operating expense figures above are non-GAAP and exclude some purchase-accounting items (primarily the amortization of certain intangible assets). We present the data in this manner because Charlie and I believe the adjusted numbers more accurately reflect the true economic expenses and profits of the businesses aggregated in the table than do GAAP figures.

I won't explain all of the adjustments – some are tiny and arcane – but serious investors should understand the disparate nature of intangible assets. Some truly deplete over time, while others *in no way* lose value. For software, as a big example, amortization charges are very real expenses. The concept of making charges against other intangibles, such as the amortization of customer relationships, however, arises through purchase-accounting rules and clearly does not reflect reality. GAAP accounting draws no distinction between the two types of charges. Both, that is, are recorded as expenses when earnings are calculated – even though from an investor's viewpoint they could not be more different.

In the GAAP-compliant figures we show on page 49, amortization charges of $1.15 billion have been deducted as expenses. We would call about 20% of these "real," the rest not. The "non-real" charges, once non-existent at Berkshire, have become significant because of the many acquisitions we have made. Non-real amortization charges will almost certainly rise further as we acquire more companies.

The GAAP-compliant table on page 67 gives you the current status of our intangible assets. We now have $7.4 billion left to amortize, of which $4.1 billion will be charged over the next five years. Eventually, of course, every dollar of non-real costs becomes entirely charged off. When that happens, reported earnings increase even if true earnings are flat.

Depreciation charges, we want to emphasize, are different: Every dime of depreciation expense we report is a real cost. That's true, moreover, at most other companies. When CEOs tout EBITDA as a valuation guide, wire them up for a polygraph test.

Our public reports of earnings will, of course, continue to conform to GAAP. To embrace reality, however, you should remember to add back most of the amortization charges we report.

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To get back to our many manufacturing, service and retailing operations, they sell products ranging from lollipops to jet airplanes. Some of this sector's businesses, measured by earnings on unleveraged net *tangible* assets, enjoy terrific economics, producing profits that run from 25% after-tax to far more than 100%. Others generate good returns in the area of 12% to 20%. A few, however, have very poor returns, the result of some serious mistakes I made in my job of capital allocation. I was not misled: I simply was wrong in my evaluation of the economic dynamics of the company or the industry in which it operates.

Fortunately, my blunders normally involved relatively small acquisitions. Our large buys have generally worked out well and, in a few cases, more than well. I have not, nonetheless, made my last mistake in purchasing either businesses or stocks. Not everything works out as planned.

Viewed as a single entity, the companies in this group are an excellent business. They employed an average of $24 billion of net tangible assets during 2014 and, despite their holding large quantities of excess cash and using little leverage, earned 18.7% after-tax on that capital.

Of course, a business with terrific economics can be a bad investment if it is bought for too high a price. We have paid substantial premiums to net tangible assets for most of our businesses, a cost that is reflected in the large figure we show for goodwill. Overall, however, we are getting a decent return on the capital we have deployed in this sector. Furthermore, the intrinsic value of these businesses, in aggregate, exceeds their carrying value by a good margin, and that premium is likely to widen. Even so, the difference between intrinsic value and carrying value in both the insurance and regulated-industry segments is *far* greater. It is there that the truly big winners reside.

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We have far too many companies in this group to comment on them individually. Moreover, their competitors – both current and potential – read this report. In a few of our businesses we might be disadvantaged if others knew our numbers. In some of our operations that are not of a size material to an evaluation of Berkshire, therefore, we only disclose what is required. You can find a good bit of detail about many of our operations, however, on pages 97-100.

Finance and Financial Products

This year we include in this section Marmon's very sizable leasing operations, whose wares are railcars, containers and cranes. We have also restated the previous two years to reflect that change. Why have we made it? At one time there was a large minority ownership at Marmon, and I felt it was more understandable to include all of the company's operations in one place. Today we own virtually 100% of Marmon, which makes me think you will gain more insight into our various businesses if we include Marmon's leasing operations under this heading. (The figures for the many dozens of Marmon's other businesses remain in the previous section.)

Our other leasing and rental operations are conducted by CORT (furniture) and XTRA (semi-trailers). These companies are industry leaders and have substantially increased their earnings as the American economy has gained strength. Both companies have invested more money in new equipment than have many of their competitors, and that's paying off.

Kevin Clayton has again delivered an industry-leading performance at Clayton Homes, the largest home builder in America. Last year, Clayton sold 30,871 homes, about 45% of the manufactured homes bought by Americans. When we purchased Clayton in 2003 for $1.7 billion, its share was 14%.

Key to Clayton's earnings is the company's $13 billion mortgage portfolio. During the financial panic of 2008 and 2009, when funding for the industry dried up, Clayton was able to keep lending because of Berkshire's backing. In fact, we continued during that period to finance our competitors' retail sales as well as our own.

Many of Clayton's borrowers have low incomes and mediocre FICO scores. But thanks to the company's sensible lending practices, its portfolio performed well during the recession, meaning a very high percentage of our borrowers kept their homes. Our blue-collar borrowers, in many cases, proved much better credit risks than their higher-income brethren.

At Marmon's railroad-car operation, lease rates have improved substantially over the past few years. The nature of this business, however, is that only 20% or so of our leases expire annually. Consequently, improved pricing only gradually works its way into our revenue stream. The trend, though, is strong. Our 105,000-car fleet consists largely of tank cars, but only 8% of those transport crude oil.

One further fact about our rail operation is important for you to know: Unlike many other lessors, we manufacture our own tank cars, about 6,000 of them in a good year. We do not book *any* profit when we transfer cars from our manufacturing division to our leasing division. Our fleet is consequently placed on our books at a "bargain" price. The difference between that figure and a "retail" price is only slowly reflected in our earnings through smaller annual depreciation charges that we enjoy over the 30-year life of the car. Because of that fact as well as others, Marmon's rail fleet is worth considerably more than the $5 billion figure at which it is carried on our books.

Here's the earnings recap for this sector:

	2014	*2013*	*2012*
		(in millions)	
Berkadia (our 50% share)	$ 122	$ 80	$ 35
Clayton	558	416	255
CORT	36	40	42
Marmon – Containers and Cranes	238	226	246
Marmon – Railcars	442	353	299
XTRA	147	125	106
Net financial income*	296	324	410
	$ 1,839	$ 1,564	$ 1,393

* Excludes capital gains or losses

Investments

Below we list our fifteen common stock investments that at yearend had the largest market value.

*Shares***	*Company*	*Percentage of Company Owned*	*12/31/14* *Cost**	*Market*
			(in millions)	
151,610,700	American Express Company	14.8	$ 1,287	$ 14,106
400,000,000	The Coca-Cola Company	9.2	1,299	16,888
18,513,482	DaVita HealthCare Partners Inc.	8.6	843	1,402
15,430,586	Deere & Company	4.5	1,253	1,365
24,617,939	DIRECTV	4.9	1,454	2,134
13,062,594	The Goldman Sachs Group, Inc.	3.0	750	2,532
76,971,817	International Business Machines Corp.	7.8	13,157	12,349
24,669,778	Moody's Corporation	12.1	248	2,364
20,060,390	Munich Re	11.8	2,990	4,023
52,477,678	The Procter & Gamble Company	1.9	336	4,683 ***
22,169,930	Sanofi	1.7	1,721	2,032
96,890,665	U.S. Bancorp	5.4	3,033	4,355
43,387,980	USG Corporation	30.0	836	1,214
67,707,544	Wal-Mart Stores, Inc.	2.1	3,798	5,815
483,470,853	Wells Fargo & Company	9.4	11,871	26,504
	Others		10,180	15,704
	Total Common Stocks Carried at Market		$55,056	$ 117,470

*This is our actual purchase price and also our tax basis; GAAP "cost" differs in a few cases because of write-ups or write-downs that have been required under GAAP rules.

**Excludes shares held by pension funds of Berkshire subsidiaries.

***Held under contract of sale for this amount.

Berkshire has one major equity position that is not included in the table: We can buy 700 million shares of Bank of America at any time prior to September 2021 for $5 billion. At yearend these shares were worth $12.5 billion. We are likely to purchase the shares just before expiration of our option. In the meantime, it is important for you to realize that Bank of America is, in effect, our fourth largest equity investment – and one we value highly.

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Attentive readers will notice that Tesco, which last year appeared in the list of our largest common stock investments, is now absent. An attentive *investor*, I'm embarrassed to report, would have sold Tesco shares earlier. I made a big mistake with this investment by dawdling.

At the end of 2012 we owned 415 million shares of Tesco, then and now the leading food retailer in the U.K. and an important grocer in other countries as well. Our cost for this investment was $2.3 billion, and the market value was a similar amount.

In 2013, I soured somewhat on the company's then-management and sold 114 million shares, realizing a profit of $43 million. My leisurely pace in making sales would prove expensive. Charlie calls this sort of behavior "thumb-sucking." (Considering what my delay cost us, he is being kind.)

During 2014, Tesco's problems worsened by the month. The company's market share fell, its margins contracted and accounting problems surfaced. In the world of business, bad news often surfaces serially: You see a cockroach in your kitchen; as the days go by, you meet his relatives.

We sold Tesco shares throughout the year and are now out of the position. (The company, we should mention, has hired new management, and we wish them well.) Our after-tax loss from this investment was $444 million, about 1/5 of 1% of Berkshire's net worth. In the past 50 years, we have only once realized an investment loss that at the time of sale cost us 2% of our net worth. Twice, we experienced 1% losses. All three of these losses occurred in the 1974-1975 period, when we sold stocks that were very cheap in order to buy others we believed to be even cheaper.

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Our investment results have been helped by a terrific tailwind. During the 1964-2014 period, the S&P 500 rose from 84 to 2,059, which, with reinvested dividends, generated the overall return of 11,196% shown on page 2. Concurrently, the purchasing power of the dollar declined a staggering 87%. That decrease means that it now takes $1 to buy what could be bought for 13¢ in 1965 (as measured by the Consumer Price Index).

There is an important message for investors in that disparate performance between stocks and dollars. Think back to our 2011 annual report, in which we defined investing as "the transfer to others of purchasing power now with the reasoned expectation of receiving more purchasing power – *after taxes have been paid on nominal gains* – in the future."

The unconventional, but inescapable, conclusion to be drawn from the past fifty years is that it has been *far* safer to invest in a diversified collection of American businesses than to invest in securities – Treasuries, for example – whose values have been tied to American currency. That was also true in the preceding half-century, a period including the Great Depression and two world wars. Investors should heed this history. To one degree or another it is almost certain to be repeated during the next century.

Stock prices will always be far more *volatile* than cash-equivalent holdings. *Over the long term*, however, currency-denominated instruments are *riskier* investments – *far* riskier investments – than widely-diversified stock portfolios that are bought over time and that are owned in a manner invoking only token fees and commissions. That lesson has not customarily been taught in business schools, where volatility is almost universally used as a proxy for risk. Though this pedagogic assumption makes for easy teaching, it is dead wrong: Volatility is *far* from synonymous with risk. Popular formulas that equate the two terms lead students, investors and CEOs astray.

It is true, of course, that owning equities for a day or a week or a year is far riskier (in both nominal and purchasing-power terms) than leaving funds in cash-equivalents. That is relevant to certain investors – say, investment banks – whose viability can be threatened by declines in asset prices and which might be forced to sell securities during depressed markets. Additionally, any party that might have meaningful near-term needs for funds should keep appropriate sums in Treasuries or insured bank deposits.

For the great majority of investors, however, who can – and *should* – invest with a multi-decade horizon, quotational declines are unimportant. Their focus should remain fixed on attaining significant gains in purchasing power over their investing lifetime. For them, a diversified equity portfolio, *bought over time*, will prove far less risky than dollar-based securities.

If the investor, instead, fears price volatility, erroneously viewing it as a measure of risk, he may, ironically, end up doing some very risky things. Recall, if you will, the pundits who six years ago bemoaned falling stock prices and advised investing in "safe" Treasury bills or bank certificates of deposit. People who heeded this sermon are now earning a pittance on sums they had previously expected would finance a pleasant retirement. (The S&P 500 was then below 700; now it is about 2,100.) If not for their fear of meaningless price volatility, these investors could have assured themselves of a good income for life by simply buying a very low-cost index fund whose dividends would trend upward over the years and whose principal would grow as well (with many ups and downs, to be sure).

Investors, of course, can, *by their own behavior*, make stock ownership highly risky. And many do. Active trading, attempts to "time" market movements, inadequate diversification, the payment of high and unnecessary fees to managers and advisors, and the use of borrowed money can destroy the decent returns that a life-long owner of equities would otherwise enjoy. Indeed, borrowed money has *no* place in the investor's tool kit: *Anything* can happen *anytime* in markets. And no advisor, economist, or TV commentator – and definitely not Charlie nor I – can tell you when chaos will occur. Market forecasters will fill your ear but will never fill your wallet.

The commission of the investment sins listed above is not limited to "the little guy." Huge institutional investors, viewed as a group, have long underperformed the unsophisticated index-fund investor who simply sits tight for decades. A major reason has been fees: Many institutions pay substantial sums to consultants who, in turn, recommend high-fee managers. And that is a fool's game.

There are a few investment managers, of course, who are very good – though in the short run, it's difficult to determine whether a great record is due to luck or talent. Most advisors, however, are far better at generating high fees than they are at generating high returns. In truth, their core competence is salesmanship. Rather than listen to their siren songs, investors – large and small – should instead read Jack Bogle's *The Little Book of Common Sense Investing*.

Decades ago, Ben Graham pinpointed the blame for investment failure, using a quote from Shakespeare: "The fault, dear Brutus, is not in our stars, but in ourselves."

The Annual Meeting

The annual meeting will be held on Saturday, May 2nd at the CenturyLink Center. Last year's attendance of 39,000 set a record, and we expect a further increase this year as we celebrate our Golden Anniversary. Be there when the doors open at 7 a.m.

Berkshire's talented Carrie Sova will again be in charge. Carrie joined us six years ago at the age of 24 as a secretary. Then, four years ago, I asked her to take charge of the meeting – a huge undertaking, requiring a multitude of skills – and she jumped at the chance. Carrie is unflappable, ingenious and expert at bringing out the best in the hundreds who work with her. She is aided by our entire home office crew who enjoy pitching in to make the weekend fun and informative for our owners.

And, yes, we also try to sell our visiting shareholders our products while they're here. In fact, this year we will substantially increase the hours available for purchases, opening for business at the CenturyLink on Friday, May 1st, from noon to 5 p.m. as well as the usual 7 a.m. to 4 p.m. on meeting day. So bring a smile to Charlie's face and do some serious shopping.

Get up early on Saturday morning. At 6:20 a.m., Norman and Jake, two Texas longhorns each weighing about a ton, will proceed down 10th Street to the CenturyLink. Aboard them will be a couple of our Justin Boot executives, who do double duty as cowboys. Following the steers will be four horses pulling a Wells Fargo stagecoach. Berkshire already markets planes, trains and automobiles. Adding steers and stagecoaches to our portfolio should seal our reputation as America's all-purpose transportation company.

At about 7:30 a.m. on Saturday, we will have our fourth International Newspaper Tossing Challenge. Our target again will be a Clayton Home porch, located precisely 35 feet from the throwing line. When I was a teenager – in my one brief flirtation with honest labor – I tossed about 500,000 papers. So I think I'm pretty good. Challenge me! Humiliate me! Knock me down a peg! I'll buy a Dilly Bar for anyone who lands his or her throw closer to the doorstep than I do. The papers will run 36 to 42 pages, and you must fold them yourself (no rubber bands allowed). I'll present a special prize to the 12-or-under contestant who makes the best toss. Deb Bosanek will be the judge.

At 8:30 a.m., a new Berkshire movie will be shown. An hour later, we will start the question-and-answer period, which (with a break for lunch at CenturyLink's stands) will last until 3:30 p.m. After a short recess, Charlie and I will convene the annual meeting at 3:45 p.m. This business session typically lasts only a half hour or so.

Your venue for shopping will be the 194,300-square-foot hall that adjoins the meeting and in which products from dozens of Berkshire subsidiaries will be for sale. If you don't get your shopping done on Friday, slip out while Charlie's talking on Saturday and binge on our bargains. Check the terrific BNSF railroad layout also. Even though I'm 84, it still excites me.

Last year you did your part as a shopper, and most of our businesses racked up record sales. In a nine-hour period on Saturday, we sold 1,385 pairs of Justin boots (that's a pair every 23 seconds), 13,440 pounds of See's candy, 7,276 pairs of Wells Lamont work gloves and 10,000 bottles of Heinz ketchup. Heinz has a new mustard product, so both mustard and ketchup will be available this year. (Buy both!) Now that we are open for business on Friday as well, we expect new records in every precinct.

Brooks, our running-shoe company, will again have a special commemorative shoe to offer at the meeting. After you purchase a pair, wear them the next day at our third annual "Berkshire 5K," an 8 a.m. race starting at the CenturyLink. Full details for participating will be included in the Visitor's Guide that will be sent to you with your credentials for the meeting. Entrants in the race will find themselves running alongside many of Berkshire's managers, directors and associates. (Charlie and I, however, will sleep in.)

A GEICO booth in the shopping area will be staffed by a number of the company's top counselors from around the country. Stop by for a quote. In most cases, GEICO will be able to give you a shareholder discount (usually 8%). This special offer is permitted by 44 of the 51 jurisdictions in which we operate. (One supplemental point: The discount is not additive if you qualify for another discount, such as that available to certain groups.) Bring the details of your existing insurance and check out our price. We can save many of you real money.

Be sure to visit the Bookworm. It will carry about 35 books and DVDs, among them a couple of new titles. Last year, many shareholders purchased Max Olson's compilation of Berkshire letters going back to 1965, and he has produced an updated edition for the meeting. We also expect to be selling an inexpensive book commemorating our fifty years. It's currently a work in process, but I expect it to contain a wide variety of historical material, including documents from the 19th Century.

An attachment to the proxy material that is enclosed with this report explains how you can obtain the credential you will need for admission to both the meeting and other events. Airlines have sometimes jacked up prices for the Berkshire weekend. If you are coming from far away, compare the cost of flying to Kansas City vs. Omaha. The drive between the two cities is about 2½ hours, and it may be that Kansas City can save you significant money, particularly if you had planned to rent a car in Omaha. The savings for a couple could run to $1,000 or more. Spend that money with us.

At Nebraska Furniture Mart, located on a 77-acre site on 72nd Street between Dodge and Pacific, we will again be having "Berkshire Weekend" discount pricing. Last year in the week surrounding the meeting, the store did a record $40,481,817 of business. (An average week for NFM's Omaha store is about $9 million.)

To obtain the Berkshire discount at NFM, you must make your purchases between Tuesday, April 28th and Monday, May 4th inclusive, and also present your meeting credential. The period's special pricing will even apply to the products of several prestigious manufacturers that normally have ironclad rules against discounting but which, in the spirit of our shareholder weekend, have made an exception for you. We appreciate their cooperation. NFM is open from 10 a.m. to 9 p.m. Monday through Friday, 10 a.m. to 9:30 p.m. on Saturday and 10 a.m. to 8 p.m. on Sunday. From 5:30 p.m. to 8 p.m. on Saturday, NFM is having a picnic to which you are all invited.

At Borsheims, we will again have two shareholder-only events. The first will be a cocktail reception from 6 p.m. to 9 p.m. on Friday, May 1st. The second, the main gala, will be held on Sunday, May 3rd, from 9 a.m. to 4 p.m. On Saturday, we will remain open until 6 p.m. In recent years, our three-day volume has far exceeded our sales in all of December, normally a jeweler's best month.

We will have huge crowds at Borsheims throughout the weekend. For your convenience, therefore, shareholder prices will be available from Monday, April 27th through Saturday, May 9th. During that period, please identify yourself as a shareholder by presenting your meeting credentials or a brokerage statement that shows you are a Berkshire holder.

On Sunday, in the mall outside of Borsheims, Norman Beck, a remarkable magician from Dallas, will bewilder onlookers. Additionally, we will have Bob Hamman and Sharon Osberg, two of the world's top bridge experts, available to play bridge with our shareholders on Sunday afternoon. Don't play them for money.

My friend, Ariel Hsing, will be in the mall as well on Sunday, taking on challengers at table tennis. I met Ariel when she was nine and even then I was unable to score a point against her. Now, she's a sophomore at Princeton, having already represented the United States in the 2012 Olympics. If you don't mind embarrassing yourself, test your skills against her, beginning at 1 p.m. Bill Gates and I will lead off and try to soften her up.

Gorat's and Piccolo's will again be open exclusively for Berkshire shareholders on Sunday, May 3rd. Both will be serving until 10 p.m., with Gorat's opening at 1 p.m. and Piccolo's opening at 4 p.m. These restaurants are my favorites, and I will eat at both of them on Sunday evening. Remember: To make a reservation at Gorat's, call 402-551-3733 on April 1st (*but not before*); for Piccolo's, call 402-346-2865. At Piccolo's, order a giant root beer float for dessert. Only sissies get the small one.

We will again have the same three financial journalists lead the question-and-answer period at the meeting, asking Charlie and me questions that shareholders have submitted to them by e-mail. The journalists and their e-mail addresses are: Carol Loomis, who retired last year after sixty years at Fortune, but remains *the* expert on business and financial matters, and who may be e-mailed at loomisbrk@gmail.com; Becky Quick, of CNBC, at BerkshireQuestions@cnbc.com; and Andrew Ross Sorkin, of The New York Times, at arsorkin@nytimes.com.

From the questions submitted, each journalist will choose the six he or she decides are the most interesting and important. The journalists have told me your question has the best chance of being selected if you keep it concise, avoid sending it in at the last moment, make it Berkshire-related and include no more than two questions in any e-mail you send them. (In your e-mail, let the journalist know if you would like your name mentioned if your question is asked.)

We will also have a panel of three analysts who follow Berkshire. This year the insurance specialist will be Gary Ransom of Dowling & Partners. Questions that deal with our non-insurance operations will come from Jonathan Brandt of Ruane, Cunniff & Goldfarb and Gregg Warren of Morningstar. Our hope is that the analysts and journalists will ask questions that add to our owners' understanding and knowledge of their investment.

Neither Charlie nor I will get so much as a clue about the questions headed our way. Some will be tough, for sure, and that's the way we like it. All told we expect at least 54 questions, which will allow for six from each analyst and journalist and for 18 from the audience. (Last year we had 62 in total.) The questioners from the audience will be chosen by means of 11 drawings that will take place at 8:15 a.m. on the morning of the annual meeting. Each of the 11 microphones installed in the arena and main overflow room will host, so to speak, a drawing.

While I'm on the subject of our owners' gaining knowledge, let me remind you that Charlie and I believe all shareholders should simultaneously have access to new information that Berkshire releases and should also have adequate time to analyze it. That's why we try to issue financial data late on Fridays or early on Saturdays and why our annual meeting is always held on a Saturday. We do not talk one-on-one to large institutional investors or analysts, treating them instead as we do all other shareholders.

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We get terrific help at meeting time from literally thousands of Omaha residents and businesses who want you to enjoy yourselves. This year, because we expect record attendance, we have worried about a shortage of hotel rooms. To deal with that possible problem, Airbnb is making a special effort to obtain listings for the period around meeting time and is likely to have a wide array of accommodations to offer. Airbnb's services may be especially helpful to shareholders who expect to spend only a single night in Omaha and are aware that last year a few hotels required guests to pay for a minimum of three nights. That gets expensive. Those people on a tight budget should check the Airbnb website.

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For good reason, I regularly extol the accomplishments of our operating managers. They are truly All-Stars who run their businesses as if they were the only asset owned by their families. I believe the mindset of our managers also to be as shareholder-oriented as can be found in the universe of large publicly-owned companies. Most of our managers have no financial need to work. The joy of hitting business "home runs" means as much to them as their paycheck.

Equally important, however, are the 24 men and women who work with me at our corporate office. This group efficiently deals with a multitude of SEC and other regulatory requirements, files a 24,100-page Federal income tax return and oversees the filing of 3,400 state tax returns, responds to countless shareholder and media inquiries, gets out the annual report, prepares for the country's largest annual meeting, coordinates the Board's activities – and the list goes on and on.

They handle all of these business tasks cheerfully and with unbelievable efficiency, making my life easy and pleasant. Their efforts go beyond activities strictly related to Berkshire: Last year they dealt with the 40 universities (selected from 200 applicants) who sent students to Omaha for a Q&A day with me. They also handle all kinds of requests that I receive, arrange my travel, and even get me hamburgers and french fries (smothered in Heinz ketchup, of course) for lunch. No CEO has it better; I truly do feel like tap dancing to work every day.

Last year, for the annual report, we dropped our 48-year-old "no pictures" policy – who says I'm not flexible? – and ran a photo of our remarkable home-office crew that was taken at our Christmas lunch. I didn't warn the gang of the public exposure they were to receive, so they didn't have on their Sunday best. This year was a different story: On the facing page you will see what our group looks like when they think someone will be noticing. However they dress, their performance is mind-boggling.

Come meet them on May 2nd and enjoy our Woodstock for Capitalists.

February 27, 2015

Warren E. Buffett
Chairman of the Board

BERKSHIRE HATHAWAY INC.

ACQUISITION CRITERIA

We are eager to hear *from principals or their representatives* about businesses that meet all of the following criteria:

(1) Large purchases (at least $75 million of pre-tax earnings unless the business will fit into one of our existing units),
(2) Demonstrated consistent earning power (future projections are of no interest to us, nor are "turnaround" situations),
(3) Businesses earning good returns on equity while employing little or no debt,
(4) Management in place (we can't supply it),
(5) Simple businesses (if there's lots of technology, we won't understand it),
(6) An offering price (we don't want to waste our time or that of the seller by talking, even preliminarily, about a transaction when price is unknown).

The larger the company, the greater will be our interest: We would like to make an acquisition in the $5-20 billion range. *We are not interested, however, in receiving suggestions about purchases we might make in the general stock market.*

We will not engage in unfriendly takeovers. We can promise complete confidentiality and a very fast answer – customarily within five minutes – as to whether we're interested. We prefer to buy for cash, but will consider issuing stock when we receive as much in intrinsic business value as we give. *We don't participate in auctions*.

Charlie and I frequently get approached about acquisitions that don't come close to meeting our tests: We've found that if you advertise an interest in buying collies, a lot of people will call hoping to sell you their cocker spaniels. A line from a country song expresses our feeling about new ventures, turnarounds, or auction-like sales: "When the phone don't ring, you'll know it's me."



Berkshire – Past, Present and Future

In the Beginning

On May 6, 1964, Berkshire Hathaway, then run by a man named Seabury Stanton, sent a letter to its shareholders offering to buy 225,000 shares of its stock for $11.375 per share. I had expected the letter; I was surprised by the price.

Berkshire then had 1,583,680 shares outstanding. About 7% of these were owned by Buffett Partnership Ltd. ("BPL"), an investing entity that I managed and in which I had virtually all of my net worth. Shortly before the tender offer was mailed, Stanton had asked me at what price BPL would sell its holdings. I answered $11.50, and he said, "Fine, we have a deal." Then came Berkshire's letter, offering an eighth of a point less. I bristled at Stanton's behavior and didn't tender.

That was a monumentally stupid decision.

Berkshire was then a northern textile manufacturer mired in a terrible business. The industry in which it operated was heading south, both metaphorically and physically. And Berkshire, for a variety of reasons, was unable to change course.

That was true even though the industry's problems had long been widely understood. Berkshire's own Board minutes of July 29, 1954, laid out the grim facts: "The textile industry in New England started going out of business forty years ago. During the war years this trend was stopped. The trend must continue until supply and demand have been balanced."

About a year after that board meeting, Berkshire Fine Spinning Associates and Hathaway Manufacturing – both with roots in the 19th Century – joined forces, taking the name we bear today. With its fourteen plants and 10,000 employees, the merged company became the giant of New England textiles. What the two managements viewed as a merger agreement, however, soon morphed into a suicide pact. During the seven years following the consolidation, Berkshire operated at an overall loss, and its net worth shrunk by 37%.

Meanwhile, the company closed nine plants, sometimes using the liquidation proceeds to repurchase shares. And that pattern caught my attention.

I purchased BPL's first shares of Berkshire in December 1962, anticipating more closings and more repurchases. The stock was then selling for $7.50, a wide discount from per-share working capital of $10.25 and book value of $20.20. Buying the stock at that price was like picking up a discarded cigar butt that had one puff remaining in it. Though the stub might be ugly and soggy, the puff would be free. Once that momentary pleasure was enjoyed, however, no more could be expected.

Berkshire thereafter stuck to the script: It soon closed another two plants, and in that May 1964 move, set out to repurchase shares with the shutdown proceeds. The price that Stanton offered was 50% above the cost of our original purchases. There it was – my free puff, just waiting for me, after which I could look elsewhere for other discarded butts.

Instead, irritated by Stanton's chiseling, I ignored his offer and began to aggressively buy more Berkshire shares.

By April 1965, BPL owned 392,633 shares (out of 1,017,547 then outstanding) and at an early-May board meeting we formally took control of the company. Through Seabury's and my childish behavior – after all, what was an eighth of a point to either of us? – he lost his job, and I found myself with more than 25% of BPL's capital invested in a terrible business about which I knew very little. I became the dog who caught the car.

Because of Berkshire's operating losses and share repurchases, its net worth at the end of fiscal 1964 had fallen to $22 million from $55 million at the time of the 1955 merger. The full $22 million was required by the textile operation: The company had no excess cash and owed its bank $2.5 million. (Berkshire's 1964 annual report is reproduced on pages 130-142.)

For a time I got lucky: Berkshire immediately enjoyed two years of good operating conditions. Better yet, its earnings in those years were free of income tax because it possessed a large loss carry-forward that had arisen from the disastrous results in earlier years.

Then the honeymoon ended. During the 18 years following 1966, we struggled unremittingly with the textile business, all to no avail. But stubbornness – stupidity? – has its limits. In 1985, I finally threw in the towel and closed the operation.

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Undeterred by my first mistake of committing much of BPL's resources to a dying business, I quickly compounded the error. Indeed, my second blunder was far more serious than the first, eventually becoming the most costly in my career.

Early in 1967, I had Berkshire pay $8.6 million to buy National Indemnity Company ("NICO"), a small but promising Omaha-based insurer. (A tiny sister company was also included in the deal.) Insurance was in my sweet spot: I understood and liked the industry.

Jack Ringwalt, the owner of NICO, was a long-time friend who wanted to sell to me – me, personally. In no way was his offer intended for Berkshire. So why did I purchase NICO for Berkshire rather than for BPL? I've had 48 years to think about that question, and I've yet to come up with a good answer. I simply made a colossal mistake.

If BPL had been the purchaser, my partners and I would have owned 100% of a fine business, destined to form the base for building the company Berkshire has become. Moreover, our growth would not have been impeded for nearly two decades by the unproductive funds imprisoned in the textile operation. Finally, our subsequent acquisitions would have been owned in their entirety by my partners and me rather than being 39%-owned by the legacy shareholders of Berkshire, to whom we had no obligation. Despite these facts staring me in the face, I opted to marry 100% of an excellent business (NICO) to a 61%-owned terrible business (Berkshire Hathaway), a decision that eventually diverted $100 billion or so from BPL partners to a collection of strangers.

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One more confession and then I'll go on to more pleasant topics: Can you believe that in 1975 I bought Waumbec Mills, another New England textile company? Of course, the purchase price was a "bargain" based on the assets we received and the *projected* synergies with Berkshire's existing textile business. Nevertheless – surprise, surprise – Waumbec was a disaster, with the mill having to be closed down not many years later.

And now some good news: The northern textile industry is finally extinct. You need no longer panic if you hear that I've been spotted wandering around New England.

Charlie Straightens Me Out

My cigar-butt strategy worked very well while I was managing small sums. Indeed, the many dozens of free puffs I obtained in the 1950s made that decade by far the best of my life for both relative and absolute investment performance.

Even then, however, I made a few exceptions to cigar butts, the most important being GEICO. Thanks to a 1951 conversation I had with Lorimer Davidson, a wonderful man who later became CEO of the company, I learned that GEICO was a terrific business and promptly put 65% of my $9,800 net worth into its shares. Most of my gains in those early years, though, came from investments in mediocre companies that traded at bargain prices. Ben Graham had taught me that technique, and it worked.

But a major weakness in this approach gradually became apparent: Cigar-butt investing was scalable only to a point. With large sums, it would never work well.

In addition, though marginal businesses purchased at cheap prices may be attractive as short-term investments, they are the wrong foundation on which to build a large and enduring enterprise. Selecting a marriage partner clearly requires more demanding criteria than does dating. (Berkshire, it should be noted, would have been a highly satisfactory "date": If we had taken Seabury Stanton's $11.375 offer for our shares, BPL's weighted annual return on its Berkshire investment would have been about 40%.)

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It took Charlie Munger to break my cigar-butt habits and set the course for building a business that could combine huge size with satisfactory profits. Charlie had grown up a few hundred feet from where I now live and as a youth had worked, as did I, in my grandfather's grocery store. Nevertheless, it was 1959 before I met Charlie, long after he had left Omaha to make Los Angeles his home. I was then 28 and he was 35. The Omaha doctor who introduced us predicted that we would hit it off – and we did.

If you've attended our annual meetings, you know Charlie has a wide-ranging brilliance, a prodigious memory, and some firm opinions. I'm not exactly wishy-washy myself, and we sometimes don't agree. In 56 years, however, we've never had an argument. When we differ, Charlie usually ends the conversation by saying: "Warren, think it over and you'll agree with me because you're smart and I'm right."

What most of you do *not* know about Charlie is that architecture is among his passions. Though he began his career as a practicing lawyer (with his time billed at $15 per hour), Charlie made his first real money in his 30s by designing and building five apartment projects near Los Angeles. Concurrently, he designed the house that he lives in today – some 55 years later. (Like me, Charlie can't be budged if he is happy in his surroundings.) In recent years, Charlie has designed large dorm complexes at Stanford and the University of Michigan and today, at age 91, is working on another major project.

From my perspective, though, Charlie's most important architectural feat was the design of today's Berkshire. The blueprint he gave me was simple: Forget what you know about buying fair businesses at wonderful prices; instead, buy wonderful businesses at fair prices.

Altering my behavior is not an easy task (ask my family). I had enjoyed reasonable success without Charlie's input, so why should I listen to a lawyer who had never spent a day in business school (when – ahem – *I* had attended *three*). But Charlie never tired of repeating his maxims about business and investing to me, and his logic was irrefutable. Consequently, Berkshire has been built to Charlie's blueprint. My role has been that of general contractor, with the CEOs of Berkshire's subsidiaries doing the real work as sub-contractors.

The year 1972 was a turning point for Berkshire (though not without occasional backsliding on my part – remember my 1975 purchase of Waumbec). We had the opportunity then to buy See's Candy for Blue Chip Stamps, a company in which Charlie, I and Berkshire had major stakes, and which was later merged into Berkshire.

See's was a legendary West Coast manufacturer and retailer of boxed chocolates, then annually earning about $4 million pre-tax while utilizing only $8 million of net tangible assets. Moreover, the company had a huge asset that did not appear on its balance sheet: a broad and durable competitive advantage that gave it significant pricing power. That strength was virtually certain to give See's major gains in earnings over time. Better yet, these would materialize with only minor amounts of incremental investment. In other words, See's could be expected to gush cash for decades to come.

The family controlling See's wanted $30 million for the business, and Charlie rightly said it was worth that much. But I didn't want to pay more than $25 million and wasn't all that enthusiastic even at that figure. (A price that was three times net tangible assets made me gulp.) My misguided caution could have scuttled a terrific purchase. But, luckily, the sellers decided to take our $25 million bid.

To date, See's has earned $1.9 billion pre-tax, with its growth having required added investment of only $40 million. See's has thus been able to distribute huge sums that have helped Berkshire buy other businesses that, in turn, have themselves produced large distributable profits. (Envision rabbits breeding.) Additionally, through watching See's in action, I gained a business education about the value of powerful brands that opened my eyes to many other profitable investments.

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Even with Charlie's blueprint, I have made plenty of mistakes since Waumbec. The most gruesome was Dexter Shoe. When we purchased the company in 1993, it had a terrific record and in no way looked to me like a cigar butt. Its competitive strengths, however, were soon to evaporate because of foreign competition. And I simply didn't see that coming.

Consequently, Berkshire paid $433 million for Dexter and, rather promptly, its value went to zero. GAAP accounting, however, doesn't come close to recording the magnitude of my error. The fact is that I gave Berkshire stock to the sellers of Dexter rather than cash, and the shares I used for the purchase are now worth about $5.7 billion. As a financial disaster, this one deserves a spot in the Guinness Book of World Records.

Several of my subsequent errors also involved the use of Berkshire shares to purchase businesses whose earnings were destined to simply limp along. Mistakes of that kind are deadly. Trading shares of a wonderful business – which Berkshire most certainly is – for ownership of a so-so business irreparably destroys value.

We've also suffered financially when this mistake has been committed by companies whose shares Berkshire has owned (with the errors sometimes occurring while I was serving as a director). Too often CEOs seem blind to an elementary reality: The intrinsic value of the shares you give in an acquisition must not be greater than the intrinsic value of the business you receive.

I've yet to see an investment banker quantify this all-important math when he is presenting a stock-for-stock deal to the board of a potential acquirer. Instead, the banker's focus will be on describing "customary" premiums-to-market-price that are currently being paid for acquisitions – an absolutely asinine way to evaluate the attractiveness of an acquisition – or whether the deal will increase the acquirer's earnings-per-share (which in itself should be far from determinative). In striving to achieve the desired per-share number, a panting CEO and his "helpers" will often conjure up fanciful "synergies." (As a director of 19 companies over the years, I've never heard "dis-synergies" mentioned, though I've witnessed plenty of these once deals have closed.) Post mortems of acquisitions, in which reality is honestly compared to the original projections, are rare in American boardrooms. They should instead be standard practice.

I can promise you that long after I'm gone, Berkshire's CEO and Board will carefully make intrinsic value calculations before issuing shares in any acquisitions. You can't get rich trading a hundred-dollar bill for eight tens (even if your advisor has handed you an expensive "fairness" opinion endorsing that swap).

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Overall, Berkshire's acquisitions have worked out well – and *very* well in the case of a few large ones. So, too, have our investments in marketable securities. The latter are always valued on our balance sheet at their market prices so any gains – including those unrealized – are immediately reflected in our net worth. But the businesses we buy outright are never revalued upward on our balance sheet, even when we could sell them for many billions of dollars more than their carrying value. The unrecorded gains in the value of Berkshire's subsidiaries have become huge, with these growing at a particularly fast pace in the last decade.

Listening to Charlie has paid off.

Berkshire Today

Berkshire is now a sprawling conglomerate, constantly trying to sprawl further.

Conglomerates, it should be acknowledged, have a terrible reputation with investors. And they richly deserve it. Let me first explain why they are in the doghouse, and then I will go on to describe why the conglomerate form brings huge and enduring advantages to Berkshire.

Since I entered the business world, conglomerates have enjoyed several periods of extreme popularity, the silliest of which occurred in the late 1960s. The drill for conglomerate CEOs then was simple: By personality, promotion or dubious accounting – and often by all three – these managers drove a fledgling conglomerate's stock to, say, 20 times earnings and then issued shares as fast as possible to acquire another business selling at ten-or-so times earnings. They immediately applied "pooling" accounting to the acquisition, which – with not a dime's worth of change in the underlying businesses – automatically increased per-share earnings, and used the rise as proof of managerial genius. They next explained to investors that this sort of talent justified the maintenance, or even the enhancement, of the acquirer's p/e multiple. And, finally, they promised to endlessly repeat this procedure and thereby create ever-increasing per-share earnings.

Wall Street's love affair with this hocus-pocus intensified as the 1960s rolled by. The Street's denizens are always ready to suspend disbelief when dubious maneuvers are used to manufacture rising per-share earnings, particularly if these acrobatics produce mergers that generate huge fees for investment bankers. Auditors willingly sprinkled their holy water on the conglomerates' accounting and sometimes even made suggestions as to how to further juice the numbers. For many, gushers of easy money washed away ethical sensitivities.

Since the per-share earnings gains of an expanding conglomerate came from exploiting p/e differences, its CEO had to search for businesses selling at low multiples of earnings. These, of course, were characteristically mediocre businesses with poor long-term prospects. This incentive to bottom-fish usually led to a conglomerate's collection of underlying businesses becoming more and more junky. That mattered little to investors: It was deal velocity and pooling accounting they looked to for increased earnings.

The resulting firestorm of merger activity was fanned by an adoring press. Companies such as ITT, Litton Industries, Gulf & Western, and LTV were lionized, and their CEOs became celebrities. (These once-famous conglomerates are now long gone. As Yogi Berra said, "Every Napoleon meets his Watergate.")

Back then, accounting shenanigans of all sorts – many of them ridiculously transparent – were excused or overlooked. Indeed, having an accounting wizard at the helm of an expanding conglomerate was viewed as a huge plus: Shareholders in those instances could be sure that *reported* earnings would never disappoint, no matter how bad the operating realities of the business might become.

In the late 1960s, I attended a meeting at which an acquisitive CEO bragged of his "bold, imaginative accounting." Most of the analysts listening responded with approving nods, seeing themselves as having found a manager whose forecasts were certain to be met, whatever the business results might be.

Eventually, however, the clock struck twelve, and everything turned to pumpkins and mice. Once again, it became evident that business models based on the serial issuances of overpriced shares – just like chain-letter models – most assuredly redistribute wealth, but in no way create it. Both phenomena, nevertheless, periodically blossom in our country – they are every promoter's dream – though often they appear in a carefully-crafted disguise. The ending is always the same: Money flows from the gullible to the fraudster. And with stocks, unlike chain letters, the sums hijacked can be staggering.

At both BPL and Berkshire, we have *never* invested in companies that are hell-bent on issuing shares. That behavior is one of the surest indicators of a promotion-minded management, weak accounting, a stock that is overpriced and – all too often – outright dishonesty.

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So what do Charlie and I find so attractive about Berkshire's conglomerate structure? To put the case simply: If the conglomerate form is used judiciously, it is an ideal structure for maximizing long-term capital growth.

One of the heralded virtues of capitalism is that it efficiently allocates funds. The argument is that markets will direct investment to promising businesses and deny it to those destined to wither. That is true: With all its excesses, market-driven allocation of capital is usually far superior to any alternative.

Nevertheless, there are often obstacles to the rational movement of capital. As those 1954 Berkshire minutes made clear, capital withdrawals within the textile industry that should have been obvious were delayed for decades because of the vain hopes and self-interest of managements. Indeed, I myself delayed abandoning our obsolete textile mills for far too long.

A CEO with capital employed in a declining operation seldom elects to massively redeploy that capital into unrelated activities. A move of that kind would usually require that long-time associates be fired and mistakes be admitted. Moreover, it's unlikely *that* CEO would be the manager you would wish to handle the redeployment job even if he or she was inclined to undertake it.

At the shareholder level, taxes and frictional costs weigh heavily on individual investors when they attempt to reallocate capital among businesses and industries. Even tax-free institutional investors face major costs as they move capital because they usually need intermediaries to do this job. A lot of mouths with expensive tastes then clamor to be fed – among them investment bankers, accountants, consultants, lawyers and such capital-reallocators as leveraged buyout operators. Money-shufflers don't come cheap.

In contrast, a conglomerate such as Berkshire is perfectly positioned to allocate capital rationally and at minimal cost. Of course, form itself is no guarantee of success: We have made plenty of mistakes, and we will make more. Our structural advantages, however, are formidable.

At Berkshire, we can – without incurring taxes or much in the way of other costs – move huge sums from businesses that have limited opportunities for incremental investment to other sectors with greater promise. Moreover, we are free of historical biases created by lifelong association with a given industry and are not subject to pressures from colleagues having a vested interest in maintaining the status quo. That's important: If horses had controlled investment decisions, there would have been no auto industry.

Another major advantage we possess is the ability to buy *pieces* of wonderful businesses – a.k.a. common stocks. That's not a course of action open to most managements. Over our history, this strategic alternative has proved to be very helpful; a broad range of options always sharpens decision-making. The businesses we are offered by the stock market every day – in small pieces, to be sure – are often far more attractive than the businesses we are concurrently being offered in their entirety. Additionally, the gains we've realized from marketable securities have helped us make certain large acquisitions that would otherwise have been beyond our financial capabilities.

In effect, the world is Berkshire's oyster – a world offering us a range of opportunities far beyond those realistically open to most companies. We are limited, of course, to businesses whose economic prospects we can evaluate. And that's a serious limitation: Charlie and I have no idea what a great many companies will look like ten years from now. But that limitation is much smaller than that borne by an executive whose experience has been confined to a single industry. On top of that, we can profitably scale to a *far* larger size than the many businesses that are constrained by the limited potential of the single industry in which they operate.

I mentioned earlier that See's Candy had produced huge earnings compared to its modest capital requirements. We would have loved, of course, to intelligently use those funds to expand our candy operation. But our many attempts to do so were largely futile. So, without incurring tax inefficiencies or frictional costs, we have used the excess funds generated by See's to help purchase other businesses. If See's had remained a stand-alone company, its earnings would have had to be distributed to investors to redeploy, sometimes after being heavily depleted by large taxes and, almost always, by significant frictional and agency costs.

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Berkshire has one further advantage that has become increasingly important over the years: We are now the home of choice for the owners and managers of many outstanding businesses.

Families that own successful businesses have multiple options when they contemplate sale. Frequently, the best decision is to do nothing. There are worse things in life than having a prosperous business that one understands well. But sitting tight is seldom recommended by Wall Street. (Don't ask the barber whether you need a haircut.)

When one part of a family wishes to sell while others wish to continue, a public offering often makes sense. But, when owners wish to cash out entirely, they usually consider one of two paths.

The first is sale to a competitor who is salivating at the possibility of wringing "synergies" from the combining of the two companies. This buyer invariably contemplates getting rid of large numbers of the seller's associates, the very people who have helped the owner build his business. A caring owner, however – and there are plenty of them – usually does not want to leave his long-time associates sadly singing the old country song: "*She got the goldmine, I got the shaft.*"

The second choice for sellers is the Wall Street buyer. For some years, these purchasers accurately called themselves "leveraged buyout firms." When that term got a bad name in the early 1990s – remember RJR and *Barbarians at the Gate*? – these buyers hastily relabeled themselves "private-equity."

The name may have changed but that was all: Equity is dramatically *reduced* and debt is piled on in virtually all private-equity purchases. Indeed, the amount that a private-equity purchaser offers to the seller is in part determined by the buyer assessing the *maximum* amount of debt that can be placed on the acquired company.

Later, if things go well and equity begins to build, leveraged buy-out shops will often seek to re-leverage with new borrowings. They then typically use part of the proceeds to pay a huge dividend that drives equity sharply downward, sometimes even to a negative figure.

In truth, "equity" is a dirty word for many private-equity buyers; what they love is debt. And, because debt is currently so inexpensive, these buyers can frequently pay top dollar. Later, the business will be resold, often to another leveraged buyer. In effect, the business becomes a piece of merchandise.

Berkshire offers a third choice to the business owner who wishes to sell: a permanent home, in which the company's people and culture will be retained (though, occasionally, management changes will be needed). Beyond that, any business we acquire dramatically increases its financial strength and ability to grow. Its days of dealing with banks and Wall Street analysts are also forever ended.

Some sellers don't care about these matters. But, when sellers do, Berkshire does not have a lot of competition.

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Sometimes pundits propose that Berkshire spin-off certain of its businesses. These suggestions make no sense. Our companies are worth more as part of Berkshire than as separate entities. One reason is our ability to move funds between businesses or into new ventures instantly and without tax. In addition, certain costs duplicate themselves, in full or part, if operations are separated. Here's the most obvious example: Berkshire incurs nominal costs for its single board of directors; were our dozens of subsidiaries to be split off, the overall cost for directors would soar. So, too, would regulatory and administration expenditures.

Finally, there are sometimes important tax efficiencies for Subsidiary A because we own Subsidiary B. For example, certain tax credits that are available to our utilities are currently realizable only because we generate huge amounts of taxable income at other Berkshire operations. That gives Berkshire Hathaway Energy a major advantage over most public-utility companies in developing wind and solar projects.

Investment bankers, being paid as they are for action, constantly urge acquirers to pay 20% to 50% premiums over market price for publicly-held businesses. The bankers tell the buyer that the premium is justified for "control value" and for the wonderful things that are going to happen once the acquirer's CEO takes charge. (What acquisition-hungry manager will challenge *that* assertion?)

A few years later, bankers – bearing straight faces – again appear and just as earnestly urge spinning off the earlier acquisition in order to "unlock shareholder value." Spin-offs, of course, strip the owning company of its purported "control value" without any compensating payment. The bankers explain that the spun-off company will flourish because its management will be more entrepreneurial, having been freed from the smothering bureaucracy of the parent company. (So much for that talented CEO we met earlier.)

If the divesting company later wishes to reacquire the spun-off operation, it presumably would again be urged by its bankers to pay a hefty "control" premium for the privilege. (Mental "flexibility" of this sort by the banking fraternity has prompted the saying that fees too often lead to transactions rather than transactions leading to fees.)

It's possible, of course, that someday a spin-off or sale at Berkshire would be required by regulators. Berkshire carried out such a spin-off in 1979, when new regulations for bank holding companies forced us to divest a bank we owned in Rockford, Illinois.

Voluntary spin-offs, though, make no sense for us: We would lose control value, capital-allocation flexibility and, in some cases, important tax advantages. The CEOs who brilliantly run our subsidiaries now would have difficulty in being as effective if running a spun-off operation, given the operating and financial advantages derived from Berkshire's ownership. Moreover, the parent and the spun-off operations, once separated, would likely incur moderately greater costs than existed when they were combined.

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Before I depart the subject of spin-offs, let's look at a lesson to be learned from a conglomerate mentioned earlier: LTV. I'll summarize here, but those who enjoy a good financial story should read the piece about Jimmy Ling that ran in the October 1982 issue of *D Magazine*. Look it up on the Internet.

Through a lot of corporate razzle-dazzle, Ling had taken LTV from sales of only $36 million in 1965 to number 14 on the Fortune 500 list just two years later. Ling, it should be noted, had never displayed any managerial skills. But Charlie told me long ago to never underestimate the man who overestimates himself. And Ling had no peer in that respect.

Ling's strategy, which he labeled "project redeployment," was to buy a large company and then partially spin off its various divisions. In LTV's 1966 annual report, he explained the magic that would follow: "Most importantly, acquisitions must meet the test of the 2 plus 2 equals 5 (or 6) formula." The press, the public and Wall Street loved this sort of talk.

In 1967 Ling bought Wilson & Co., a huge meatpacker that also had interests in golf equipment and pharmaceuticals. Soon after, he split the parent into three businesses, Wilson & Co. (meatpacking), Wilson Sporting Goods and Wilson Pharmaceuticals, each of which was to be partially spun off. These companies quickly became known on Wall Street as Meatball, Golf Ball and Goof Ball.

Soon thereafter, it became clear that, like Icarus, Ling had flown too close to the sun. By the early 1970s, Ling's empire was melting, and he himself had been spun off from LTV . . . that is, *fired*.

Periodically, financial markets will become divorced from reality – you can count on that. More Jimmy Lings will appear. They will look and sound authoritative. The press will hang on their every word. Bankers will fight for their business. What they are saying will recently have "worked." Their early followers will be feeling very clever. Our suggestion: Whatever their line, never forget that 2+2 will always equal 4. And when someone tells you how old-fashioned that math is --- zip up your wallet, take a vacation and come back in a few years to buy stocks at cheap prices.

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Today Berkshire possesses (1) an unmatched collection of businesses, most of them now enjoying favorable economic prospects; (2) a cadre of outstanding managers who, with few exceptions, are unusually devoted to both the subsidiary they operate *and* to Berkshire; (3) an extraordinary diversity of earnings, premier financial strength and oceans of liquidity that we will maintain under *all* circumstances; (4) a first-choice ranking among many owners and managers who are contemplating sale of their businesses and (5) in a point related to the preceding item, a culture, distinctive in many ways from that of most large companies, that we have worked 50 years to develop and that is now rock-solid.

These strengths provide us a wonderful foundation on which to build.

The Next 50 Years at Berkshire

Now let's take a look at the road ahead. Bear in mind that if I had attempted 50 years ago to gauge what was coming, certain of my predictions would have been far off the mark. With that warning, I will tell you what I would say to my family today if they asked me about Berkshire's future.

- First and definitely foremost, I believe that the chance of permanent capital loss for patient Berkshire shareholders is as low as can be found among single-company investments. That's because our per-share *intrinsic business value* is almost certain to advance over time.

  This cheery prediction comes, however, with an important caution: If an investor's entry point into Berkshire stock is unusually high – at a price, say, approaching double book value, which Berkshire shares have occasionally reached – it may well be many years before the investor can realize a profit. In other words, a sound investment can morph into a rash speculation if it is bought at an elevated price. Berkshire is not exempt from this truth.

  Purchases of Berkshire that investors make at a price modestly above the level at which the company would repurchase its shares, however, should produce gains within a reasonable period of time. Berkshire's directors will only authorize repurchases at a price they believe to be *well below* intrinsic value. (In our view, that is an essential criterion for repurchases that is often ignored by other managements.)

  For those investors who plan to sell within a year or two after their purchase, I can offer *no* assurances, whatever the entry price. Movements of the general stock market during such abbreviated periods will likely be far more important in determining your results than the concomitant change in the intrinsic value of your Berkshire shares. As Ben Graham said many decades ago: "In the short-term the market is a voting machine; in the long-run it acts as a weighing machine." Occasionally, the voting decisions of investors – amateurs and professionals alike – border on lunacy.

  Since I know of no way to reliably predict market movements, I recommend that you purchase Berkshire shares *only* if you expect to hold them for at least five years. Those who seek short-term profits should look elsewhere.

  Another warning: Berkshire shares should not be purchased with borrowed money. There have been three times since 1965 when our stock has fallen about 50% from its high point. Someday, something close to this kind of drop will happen again, and no one knows when. Berkshire will almost certainly be a satisfactory holding for *investors*. But it could well be a disastrous choice for speculators employing leverage.

- I believe the chance of any event causing Berkshire to experience financial problems is essentially zero. We will always be prepared for the thousand-year flood; in fact, if it occurs we will be selling life jackets to the unprepared. Berkshire played an important role as a "first responder" during the 2008-2009 meltdown, and we have since more than doubled the strength of our balance sheet and our earnings potential. Your company is the Gibraltar of American business and will remain so.

  Financial staying power requires a company to maintain three strengths under *all* circumstances: (1) a large and reliable stream of earnings; (2) massive liquid assets and (3) *no* significant near-term cash requirements. Ignoring that last necessity is what usually leads companies to experience unexpected problems: Too often, CEOs of profitable companies feel they will always be able to refund maturing obligations, however large these are. In 2008-2009, many managements learned how perilous that mindset can be.

  Here's how we will *always* stand on the three essentials. First, our earnings stream is huge and comes from a vast array of businesses. Our shareholders now own many large companies that have durable competitive advantages, and we will acquire more of those in the future. Our diversification assures Berkshire's continued profitability, even if a catastrophe causes insurance losses that far exceed any previously experienced.

Next up is cash. At a healthy business, cash is sometimes thought of as something to be minimized – as an unproductive asset that acts as a drag on such markers as return on equity. Cash, though, is to a business as oxygen is to an individual: never thought about when it is present, the only thing in mind when it is absent.

American business provided a case study of that in 2008. In September of that year, many long-prosperous companies suddenly wondered whether their checks would bounce in the days ahead. Overnight, their financial oxygen disappeared.

At Berkshire, our "breathing" went uninterrupted. Indeed, in a three-week period spanning late September and early October, we supplied $15.6 *billion* of fresh money to American businesses.

We could do that because we always maintain at least $20 billion – and usually far more – in cash equivalents. And by that we mean U.S. Treasury bills, not other substitutes for cash that are claimed to deliver liquidity and actually do so, *except* when it is truly needed. When bills come due, only cash is legal tender. Don't leave home without it.

Finally – getting to our third point – we will never engage in operating or investment practices that can result in sudden demands for large sums. That means we will not expose Berkshire to short-term debt maturities of size nor enter into derivative contracts or other business arrangements that could require large collateral calls.

Some years ago, we became a party to certain derivative contracts that we believed were significantly mispriced and that had only minor collateral requirements. These have proved to be quite profitable. Recently, however, newly-written derivative contracts have required full collateralization. And that ended our interest in derivatives, regardless of what profit potential they might offer. We have not, for some years, written these contracts, except for a few needed for operational purposes at our utility businesses.

Moreover, we will not write insurance contracts that give policyholders the right to cash out at their option. Many *life* insurance products contain redemption features that make them susceptible to a "run" in times of extreme panic. Contracts of that sort, however, do not exist in the property-casualty world that we inhabit. If our premium volume should shrink, our float would decline – but only at a very slow pace.

The reason for our conservatism, which may impress some people as extreme, is that it is entirely predictable that people will occasionally panic, but not at all predictable when this will happen. Though practically all days are relatively uneventful, tomorrow is *always* uncertain. (I felt no special apprehension on December 6, 1941 or September 10, 2001.) And if you can't predict what tomorrow will bring, you must be prepared for whatever it does.

A CEO who is 64 and plans to retire at 65 may have his own special calculus in evaluating risks that have only a tiny chance of happening in a given year. He may, in fact, be "right" 99% of the time. Those odds, however, hold no appeal for us. We will never play financial Russian roulette with the funds you've entrusted to us, even if the metaphorical gun has 100 chambers and only one bullet. In our view, it is madness to risk losing what you *need* in pursuing what you simply *desire*.

- Despite our conservatism, I think we will be able *every* year to build the underlying per-share earning power of Berkshire. That does *not* mean operating earnings will increase each year – far from it. The U.S. economy will ebb and flow – though mostly flow – and, when it weakens, so will our current earnings. But we will continue to achieve organic gains, make bolt-on acquisitions and enter new fields. I believe, therefore, that Berkshire will annually add to its *underlying* earning power.

  In some years the gains will be substantial, and at other times they will be minor. Markets, competition, and chance will determine when opportunities come our way. Through it all, Berkshire will keep moving forward, powered by the array of solid businesses we now possess and the new companies we will purchase. In most years, moreover, our country's economy will provide a strong tailwind for business. We are blessed to have the United States as our home field.

- The bad news is that Berkshire's long-term gains – measured by percentages, not by dollars – cannot be dramatic and *will not come close* to those achieved in the past 50 years. The numbers have become too big. I think Berkshire will outperform the average American company, but our advantage, if any, won't be great.

  Eventually – probably between ten and twenty years from now – Berkshire's earnings and capital resources will reach a level that will not allow management to intelligently reinvest all of the company's earnings. At that time our directors will need to determine whether the best method to distribute the excess earnings is through dividends, share repurchases or both. If Berkshire shares are selling below intrinsic business value, massive repurchases will almost certainly be the best choice. You can be comfortable that your directors will make the right decision.

- No company will be more shareholder-minded than Berkshire. For more than 30 years, we have annually reaffirmed our Shareholder Principles (see page 117), always leading off with: "Although our form is corporate, our attitude is partnership." This covenant with you is etched in stone.

  We have an extraordinarily knowledgeable and business-oriented board of directors ready to carry out that promise of partnership. None took the job for the money: In an arrangement almost non-existent elsewhere, our directors are paid only token fees. They receive their rewards instead through ownership of Berkshire shares and the satisfaction that comes from being good stewards of an important enterprise.

  The shares that they and their families own – which, in many cases, are worth very substantial sums – were *purchased* in the market (rather than their materializing through options or grants). In addition, unlike almost all other sizable public companies, we carry no directors and officers liability insurance. At Berkshire, directors walk in your shoes.

  To further ensure continuation of our culture, I have suggested that my son, Howard, succeed me as a *non-executive* Chairman. My only reason for this wish is to make change easier if the wrong CEO should ever be employed and there occurs a need for the Chairman to move forcefully. I can assure you that this problem has a *very* low probability of arising at Berkshire – likely as low as at any public company. In my service on the boards of nineteen public companies, however, I've seen how hard it is to replace a mediocre CEO if that person is also Chairman. (The deed usually gets done, but almost always very late.)

  If elected, Howard will receive no pay and will spend no time at the job other than that required of all directors. He will simply be a safety valve to whom any director can go if he or she has concerns about the CEO and wishes to learn if other directors are expressing doubts as well. Should multiple directors be apprehensive, Howard's chairmanship will allow the matter to be promptly and properly addressed.

- Choosing the right CEO is all-important and is a subject that commands much time at Berkshire board meetings. Managing Berkshire is primarily a job of capital allocation, coupled with the selection and retention of outstanding managers to captain our operating subsidiaries. Obviously, the job also requires the replacement of a subsidiary's CEO when that is called for. These duties require Berkshire's CEO to be a rational, calm and decisive individual who has a broad understanding of business and good insights into human behavior. It's important as well that he knows his limits. (As Tom Watson, Sr. of IBM said, "I'm no genius, but I'm smart in spots and I stay around those spots.")

  Character is crucial: A Berkshire CEO must be "all in" for the company, not for himself. (I'm using male pronouns to avoid awkward wording, but gender should never decide who becomes CEO.) He can't help but earn money far in excess of any possible need for it. But it's important that neither ego nor avarice motivate him to reach for pay matching his most lavishly-compensated peers, even if his achievements far exceed theirs. A CEO's behavior has a huge impact on managers down the line: If it's clear to them that shareholders' interests are paramount to him, they will, with few exceptions, also embrace that way of thinking.

My successor will need one other particular strength: the ability to fight off the ABCs of business decay, which are arrogance, bureaucracy and complacency. When these corporate cancers metastasize, even the strongest of companies can falter. The examples available to prove the point are legion, but to maintain friendships I will exhume only cases from the distant past.

In their glory days, General Motors, IBM, Sears Roebuck and U.S. Steel sat atop huge industries. Their strengths seemed unassailable. But the destructive behavior I deplored above eventually led each of them to fall to depths that their CEOs and directors had not long before thought impossible. Their one-time financial strength and their historical earning power proved no defense.

Only a vigilant and determined CEO can ward off such debilitating forces as Berkshire grows ever larger. He must never forget Charlie's plea: "Tell me where I'm going to die, so I'll never go there." If our non-economic values were to be lost, much of Berkshire's economic value would collapse as well. "Tone at the top" will be key to maintaining Berkshire's special culture.

Fortunately, the structure our future CEOs will need to be successful is firmly in place. The extraordinary delegation of authority now existing at Berkshire is the ideal antidote to bureaucracy. In an operating sense, Berkshire is not a giant company but rather a collection of large companies. At headquarters, we have never had a committee nor have we ever required our subsidiaries to submit budgets (though many use them as an important internal tool). We don't have a legal office nor departments that other companies take for granted: human relations, public relations, investor relations, strategy, acquisitions, you name it.

We do, of course, have an active audit function; no sense being a damned fool. To an unusual degree, however, we trust our managers to run their operations with a keen sense of stewardship. After all, they were doing exactly that before we acquired their businesses. With only occasional exceptions, furthermore, our trust produces better results than would be achieved by streams of directives, endless reviews and layers of bureaucracy. Charlie and I try to interact with our managers in a manner consistent with what we would wish for, if the positions were reversed.

- Our directors believe that our future CEOs should come from internal candidates whom the Berkshire board has grown to know well. Our directors also believe that an incoming CEO should be relatively young, so that he or she can have a long run in the job. Berkshire will operate best if its CEOs average well over ten years at the helm. (It's hard to teach a new dog old tricks.) And they are not likely to retire at 65 either (or have you noticed?).

  In both Berkshire's business acquisitions and large, tailored investment moves, it is important that our counterparties be both familiar with and feel comfortable with Berkshire's CEO. Developing confidence of that sort and cementing relationships takes time. The payoff, though, can be huge.

  Both the board and I believe we now have the right person to succeed me as CEO – a successor ready to assume the job the day after I die or step down. In certain important respects, this person will do a better job than I am doing.

- Investments will always be of great importance to Berkshire and will be handled by several specialists. They will report to the CEO because their investment decisions, in a broad way, will need to be coordinated with Berkshire's operating and acquisition programs. Overall, though, our investment managers will enjoy great autonomy. In this area, too, we are in fine shape for decades to come. Todd Combs and Ted Weschler, each of whom has spent several years on Berkshire's investment team, are first-rate in all respects and can be of particular help to the CEO in evaluating acquisitions.

  All told, Berkshire is ideally positioned for life after Charlie and I leave the scene. We have the right people in place – the right directors, managers and prospective successors to those managers. Our culture, furthermore, is embedded throughout their ranks. Our system is also regenerative. To a large degree, both good and bad cultures self-select to perpetuate themselves. For very good reasons, business owners and operating managers with values similar to ours will continue to be attracted to Berkshire as a one-of-a-kind and *permanent* home.

- I would be remiss if I didn't salute another key constituency that makes Berkshire special: our shareholders. Berkshire truly has an owner base unlike that of any other giant corporation. That fact was demonstrated in spades at last year's annual meeting, where the shareholders were offered a proxy resolution:

  > RESOLVED: Whereas the corporation has more money than it needs and since the owners unlike Warren are not multi billionaires, the board shall consider paying a meaningful annual dividend on the shares.

  The sponsoring shareholder of that resolution never showed up at the meeting, so his motion was not officially proposed. Nevertheless, the proxy votes had been tallied, and they were enlightening.

  Not surprisingly, the A shares – owned by relatively few shareholders, each with a large economic interest – voted "no" on the dividend question by a margin of 89 to 1.

  The remarkable vote was that of our B shareholders. They number in the hundreds of thousands – perhaps even totaling one million – and they voted 660,759,855 "no" and 13,927,026 "yes," a ratio of about 47 to 1.

  Our directors recommended a "no" vote but the company did not otherwise attempt to influence shareholders. Nevertheless, 98% of the shares voting said, in effect, "Don't send us a dividend but instead reinvest all of the earnings." To have our fellow owners – large and small – be so in sync with our managerial philosophy is both remarkable and rewarding.

  I am a lucky fellow to have you as partners.

  Warren E. Buffett

Vice Chairman's Thoughts – Past and Future

To the shareholders of Berkshire Hathaway Inc.:

I closely watched the 50-year history of Berkshire's uncommon success under Warren Buffett. And it now seems appropriate that I independently supplement whatever celebratory comment comes from him. I will try to do five things.

(1) Describe the management system and policies that caused a small and unfixably-doomed commodity textile business to morph into the mighty Berkshire that now exists,

(2) Explain how the management system and policies came into being,

(3) Explain, to some extent, why Berkshire did so well,

(4) Predict whether abnormally good results would continue if Buffett were soon to depart, and

(5) Consider whether Berkshire's great results over the last 50 years have implications that may prove useful elsewhere.

The management system and policies of Berkshire under Buffett (herein together called "the Berkshire system") were fixed early and are described below:

(1) Berkshire would be a diffuse conglomerate, averse only to activities about which it could not make useful predictions.
(2) Its top company would do almost all business through separately incorporated subsidiaries whose CEOs would operate with very extreme autonomy.
(3) There would be almost nothing at conglomerate headquarters except a tiny office suite containing a Chairman, a CFO, and a few assistants who mostly helped the CFO with auditing, internal control, etc.
(4) Berkshire subsidiaries would always prominently include casualty insurers. Those insurers as a group would be expected to produce, in due course, dependable underwriting gains while also producing substantial "float" (from unpaid insurance liabilities) for investment.
(5) There would be no significant system-wide personnel system, stock option system, other incentive system, retirement system, or the like, because the subsidiaries would have their own systems, often different.
(6) Berkshire's Chairman would reserve only a few activities for himself.

    (i) He would manage almost all security investments, with these normally residing in Berkshire's casualty insurers.

    (ii) He would choose all CEOs of important subsidiaries, and he would fix their compensation and obtain from each a private recommendation for a successor in case one was suddenly needed.

    (iii) He would deploy most cash not needed in subsidiaries after they had increased their competitive advantage, with the ideal deployment being the use of that cash to acquire new subsidiaries.

    (iv) He would make himself promptly available for almost any contact wanted by any subsidiary's CEO, and he would require almost no additional contact.

    (v) He would write a long, logical, and useful letter for inclusion in his annual report, designed as he would wish it to be if he were only a passive shareholder, and he would be available for hours of answering questions at annual shareholders' meetings.

    (vi) He would try to be an exemplar in a culture that would work well for customers, shareholders, and other incumbents for a long time, both before and after his departure.

    (vii) His first priority would be reservation of much time for quiet reading and thinking, particularly that which might advance his determined learning, no matter how old he became; and

(viii) He would also spend much time in enthusiastically admiring what others were accomplishing.

(7) New subsidiaries would usually be bought with cash, not newly issued stock.

(8) Berkshire would not pay dividends so long as more than one dollar of market value for shareholders was being created by each dollar of retained earnings.

(9) In buying a new subsidiary, Berkshire would seek to pay a fair price for a good business that the Chairman could pretty well understand. Berkshire would also want a good CEO in place, one expected to remain for a long time and to manage well without need for help from headquarters.

(10) In choosing CEOs of subsidiaries, Berkshire would try to secure trustworthiness, skill, energy, and love for the business and circumstances the CEO was in.

(11) As an important matter of preferred conduct, Berkshire would almost never sell a subsidiary.

(12) Berkshire would almost never transfer a subsidiary's CEO to another unrelated subsidiary.

(13) Berkshire would never force the CEO of a subsidiary to retire on account of mere age.

(14) Berkshire would have little debt outstanding as it tried to maintain (i) virtually perfect creditworthiness under all conditions and (ii) easy availability of cash and credit for deployment in times presenting unusual opportunities.

(15) Berkshire would always be user-friendly to a prospective seller of a large business. An offer of such a business would get prompt attention. No one but the Chairman and one or two others at Berkshire would ever know about the offer if it did not lead to a transaction. And they would never tell outsiders about it.

Both the elements of the Berkshire system and their collected size are quite unusual. No other large corporation I know of has half of such elements in place.

How did Berkshire happen to get a corporate personality so different from the norm?

Well, Buffett, even when only 34 years old, controlled about 45% of Berkshire's shares and was completely trusted by all the other big shareholders. He could install whatever system he wanted. And he did so, creating the Berkshire system.

Almost every element was chosen because Buffett believed that, under him, it would help maximize Berkshire's achievement. He was not trying to create a one-type-fits-all system for other corporations. Indeed, Berkshire's subsidiaries were not required to use the Berkshire system in their own operations. And some flourished while using different systems.

What was Buffett aiming at as he designed the Berkshire system?

Well, over the years I diagnosed several important themes:

(1) He particularly wanted continuous maximization of the rationality, skills, and devotion of the most important people in the system, starting with himself.
(2) He wanted win/win results everywhere--in gaining loyalty by giving it, for instance.
(3) He wanted decisions that maximized long-term results, seeking these from decision makers who usually stayed long enough in place to bear the consequences of decisions.
(4) He wanted to minimize the bad effects that would almost inevitably come from a large bureaucracy at headquarters.
(5) He wanted to personally contribute, like Professor Ben Graham, to the spread of wisdom attained.

When Buffett developed the Berkshire system, did he foresee all the benefits that followed? No. Buffett stumbled into some benefits through practice evolution. But, when he saw useful consequences, he strengthened their causes.

Why did Berkshire under Buffett do so well?

Only four large factors occur to me:

(1) The constructive peculiarities of Buffett,
(2) The constructive peculiarities of the Berkshire system,
(3) Good luck, and
(4) The weirdly intense, contagious devotion of some shareholders and other admirers, including some in the press.

I believe all four factors were present and helpful. But the heavy freight was carried by the constructive peculiarities, the weird devotion, and their interactions.

In particular, Buffett's decision to limit his activities to a few kinds and to maximize his attention to them, and to keep doing so for 50 years, was a lollapalooza. Buffett succeeded for the same reason Roger Federer became good at tennis.

Buffett was, in effect, using the winning method of the famous basketball coach, John Wooden, who won most regularly after he had learned to assign virtually all playing time to his seven best players. That way, opponents always faced his best players, instead of his second best. And, with the extra playing time, the best players improved more than was normal.

And Buffett much out-Woodened Wooden, because in his case the exercise of skill was concentrated in one person, not seven, and his skill improved and improved as he got older and older during 50 years, instead of deteriorating like the skill of a basketball player does.

Moreover, by concentrating so much power and authority in the often-long-serving CEOs of important subsidiaries, Buffett was also creating strong Wooden-type effects there. And such effects enhanced the skills of the CEOs and the achievements of the subsidiaries.

Then, as the Berkshire system bestowed much-desired autonomy on many subsidiaries and their CEOs, and Berkshire became successful and well known, these outcomes attracted both more and better subsidiaries into Berkshire, and better CEOs as well.

And the better subsidiaries and CEOs then required less attention from headquarters, creating what is often called a "virtuous circle."

How well did it work out for Berkshire to always include casualty insurers as important subsidiaries?

Marvelously well. Berkshire's ambitions were unreasonably extreme and, even so, it got what it wanted.

Casualty insurers often invest in common stocks with a value amounting roughly to their shareholders' equity, as did Berkshire's insurance subsidiaries. And the S&P 500 Index produced about 10% per annum, pre-tax, during the last 50 years, creating a significant tailwind.

And, in the early decades of the Buffett era, common stocks within Berkshire's insurance subsidiaries greatly outperformed the index, exactly as Buffett expected. And, later, when both the large size of Berkshire's stockholdings and income tax considerations caused the index-beating part of returns to fade to insignificance (perhaps not forever), other and better advantage came. Ajit Jain created out of nothing an immense reinsurance business that produced both a huge "float" and a large underwriting gain. And all of GEICO came into Berkshire, followed by a quadrupling of GEICO's market share. And the rest of Berkshire's insurance operations hugely improved, largely by dint of reputational advantage, underwriting discipline, finding and staying within good niches, and recruiting and holding outstanding people.

Then, later, as Berkshire's nearly unique and quite dependable corporate personality and large size became well known, its insurance subsidiaries got and seized many attractive opportunities, not available to others, to buy privately issued securities. Most of these securities had fixed maturities and produced outstanding results.

Berkshire's marvelous outcome in insurance was not a natural result. Ordinarily, a casualty insurance business is a producer of mediocre results, even when very well managed. And such results are of little use. Berkshire's better outcome was so astoundingly large that I believe that Buffett would now fail to recreate it if he returned to a small base while retaining his smarts and regaining his youth.

Did Berkshire suffer from being a diffuse conglomerate? No, its opportunities were usefully enlarged by a widened area for operation. And bad effects, common elsewhere, were prevented by Buffett's skills.

Why did Berkshire prefer to buy companies with cash, instead of its own stock? Well, it was hard to get anything in exchange for Berkshire stock that was as valuable as what was given up.

Why did Berkshire's acquisition of companies outside the insurance business work out so well for Berkshire shareholders when the normal result in such acquisitions is bad for shareholders of the acquirer?

Well, Berkshire, by design, had methodological advantages to supplement its better opportunities. It never had the equivalent of a "department of acquisitions" under pressure to buy. And it never relied on advice from "helpers" sure to be prejudiced in favor of transactions. And Buffett held self-delusion at bay as he underclaimed expertise while he knew better than most corporate executives what worked and what didn't in business, aided by his long experience as a passive investor. And, finally, even when Berkshire was getting much better opportunities than most others, Buffett often displayed almost inhuman patience and seldom bought. For instance, during his first ten years in control of Berkshire, Buffett saw one business (textiles) move close to death and two new businesses come in, for a net gain of one.

What were the big mistakes made by Berkshire under Buffett? Well, while mistakes of commission were common, almost all huge errors were in not making a purchase, including not purchasing Walmart stock when that was sure to work out enormously well. The errors of omission were of much importance. Berkshire's net worth would now be at least $50 billion higher if it had seized several opportunities it was not quite smart enough to recognize as virtually sure things.

The next to last task on my list was: Predict whether abnormally good results would continue at Berkshire if Buffett were soon to depart.

The answer is yes. Berkshire has in place in its subsidiaries much business momentum grounded in much durable competitive advantage.

Moreover, its railroad and utility subsidiaries now provide much desirable opportunity to invest large sums in new fixed assets. And many subsidiaries are now engaged in making wise "bolt-on" acquisitions.

Provided that most of the Berkshire system remains in place, the combined momentum and opportunity now present is so great that Berkshire would almost surely remain a better-than-normal company for a very long time even if (1) Buffett left tomorrow, (2) his successors were persons of only moderate ability, and (3) Berkshire never again purchased a large business.

But, under this Buffett-soon-leaves assumption, his successors would not be "of only moderate ability." For instance, Ajit Jain and Greg Abel are proven performers who would probably be under-described as "world-class." "World-leading" would be the description I would choose. In some important ways, each is a better business executive than Buffett.

And I believe neither Jain nor Abel would (1) leave Berkshire, no matter what someone else offered or (2) desire much change in the Berkshire system.

Nor do I think that desirable purchases of new businesses would end with Buffett's departure. With Berkshire now so large and the age of activism upon us, I think some desirable acquisition opportunities will come and that Berkshire's $60 billion in cash will constructively decrease.

My final task was to consider whether Berkshire's great results over the last 50 years have implications that may prove useful elsewhere.

The answer is plainly yes. In its early Buffett years, Berkshire had a big task ahead: turning a tiny stash into a large and useful company. And it solved that problem by avoiding bureaucracy and relying much on one thoughtful leader for a long, long time as he kept improving and brought in more people like himself.

Compare this to a typical big-corporation system with much bureaucracy at headquarters and a long succession of CEOs who come in at about age 59, pause little thereafter for quiet thought, and are soon forced out by a fixed retirement age.

I believe that versions of the Berkshire system should be tried more often elsewhere and that the worst attributes of bureaucracy should much more often be treated like the cancers they so much resemble. A good example of bureaucracy fixing was created by George Marshall when he helped win World War II by getting from Congress the right to ignore seniority in choosing generals.

Sincerely,

Charles T. Munger

Exhibit U

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC.—RAIL CONSTRUCTION AND OPERATION—IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF CLINT MCRAE IN SUPPORT OF NORTHERN PLAINS RESOURCE COUNCIL AND ROCKER SIX COMMENTS ON TRRC'S APPLICATION

My name is Clint McRae. My family and I have operated our ranch, Rocker Six Cattle Company, for four generations. The ranch is located in Southeastern Montana, and sits between Rosebud Creek and Tongue River. I have been a member of Northern Plains Resource Council for 25 years. I offer this Verified Statement in support of Northern Plains' comments on TRRC's December 2012 application to construct the Tongue River Railroad from the proposed Otter Creek mine to Colstrip, Montana.

The Tongue River Railroad in one form or another has interfered with our ranch for more than thirty years. In the mid-1980s, the Interstate Commerce Commission ("ICC") gave TRRC the right to build TRR I from the proposed Montco Mine to Miles City, Montana. That route went through our ranch and a number of neighboring ranches. (See Attachment 1).

TRRC was eventually successful in getting a license to extend TRR I from the proposed Montco Mine site south to tie in with an existing railroad near Decker, Montana. TRRC claimed that if the ICC granted a license for the southern extension ("TRR II") it could have the railroad up and running within three years. The ICC granted the permit, placing a three-year time limit on the construction. The ICC also required TRRC to submit quarterly reports on their progress.

The reports TRRC submitted did nothing more than claim that TRRC was lobbying the legislature and doing other busy work. TRRC made no progress in construction. Within that three-year time span, the ICC became the Surface Transportation Board ("Board") and this time limit was removed.

TRRC again tried to modify the line in the mid-1990s with the "Western Alignment" or TRR III, which "refined" the TRR I route through our ranch. The route remained the same until TRRC abandoned it in 2012 in favor of the "Colstrip" alignment, which also runs through our ranch. TRRC chose this route after the Board's scoping hearings closed on the Miles City alignment, which followed the "refined" TRR I. We were the only landowner along the Colstrip Alignment that testified at the scoping meetings; the rest of our neighbors had no idea this latest version of the TRR, the Colstrip Alignment, would cross their property and had no opportunity to testify at the scoping hearings. Notice was not provided for land owners along the Colstrip Alternative as compared to individuals along the Tongue River route that would be similarly affected.

Whether TRR I, the "refined" TRR I, the Miles City Alignment, or the Colstrip Alignment, the Tongue River Railroad has interfered with our ranch going on four decades. Ranching is not an easy business and we need to be efficient to compete in a global market. We have put our business and lives on hold because any improvements we make to the ranch could be severely impacted by TRRC's eminent domain rights. We would not be compensated for these losses. The restrictions TRR proposals have placed on our ranch has caused uncertainty in our future.

One of the projects the railroad has interfered with is improving our pasturing efficiency by cross-fencing larger pastures. This project has been on hold for the last 20 years. This makes

it easier to gather the cattle (less crew and man hours), utilize our grass more efficiently, and run more cattle without hurting the ground. Currently, our summer pasture is approximately 15 square miles, or about 11,520 acres. It takes a crew of eight to ten horseback riders over the course of three full days to gather this pasture. It is not flat; it is timbered and rough, which makes gathering this pasture a very time and energy intensive task. If we could cross-fence this pasture, we could break the pasture into quarters and have a much smaller area from which to gather the cattle.

Additionally, we could rest and rotate grazing of these new parcels. In other words, we could graze one parcel while allowing another to rest, growing much more forage to be grazed the following year. This is a very efficient system that maximizes the potential for grazing without hurting one of our most important resources, grass. To create this system we would need to build several miles of fencing, dividing either our summer pasture or a neighboring pasture into quarters. The threat of this railroad and all the alternatives presented thus far prevents us from building the cross-fencing necessary to be competitive and efficient.

Since cross-fencing our larger pastures has been on hold for 20 years, we have been compounding annual costs with hiring and putting crews on horseback to gather cattle. We are not getting even grazing of our pastures and cannot maximize cattle numbers. If these improvements were constructed, we could gather the same amount of cattle with a fraction of the time and labor that we spend now. Our pastures would be better utilized for grazing, our cattle breeding conception rates would improve, and we would buy less bull seed stock which is extremely expensive.

Waiting for the railroad's permitting and construction has also stalled our plans to install several miles of pipelines to fill water tanks throughout the ranch. We want to use the pipelines

and tanks to lure cattle from the lower riparian areas to the uplands where they congregate less. The benefit is more evenly distributed grazing of pastures, which preserves the grass, making the ranch more competitive and efficient. Ideally we would construct 13-15 total miles of pipeline from electric wells into different pastures. These pipeline projects are designed through the Natural Resources Conservation Service, and are designed with well depth, static water level in the well, elevation of pumping water along with length of line and topography. We do not want to spend the money to install the wells, dig trenches for the pipelines, and then lay the pipe because the railroad could use its eminent domain rights and wreck the system.

A railroad is also a barrier, an obstacle, and if we cross-fenced our larger pastures, the railroad would bisect these fence-lines. We would have portions of grazing land on one side of the tracks and the water source on the other. The railroad would not drill replacement wells for use on the "dry" side of the railroad nor would they reimburse the cost of construction. This is a significant cost that we would have to absorb. In two areas of our operation, the proposed routes would bisect these pipelines. If the railroad grade were constructed over these lines, the pipe eventually would need replacing. The railroad would not let us shut down train traffic while we used a backhoe to dig through the railroad grade to replace the pipe. These lines need to be covered to prevent freezing, and as far as I know, no one has had successfully replaced a pipeline under an operating railroad. Because maintenance would require digging under and around the rail, the railroads do not allow it.

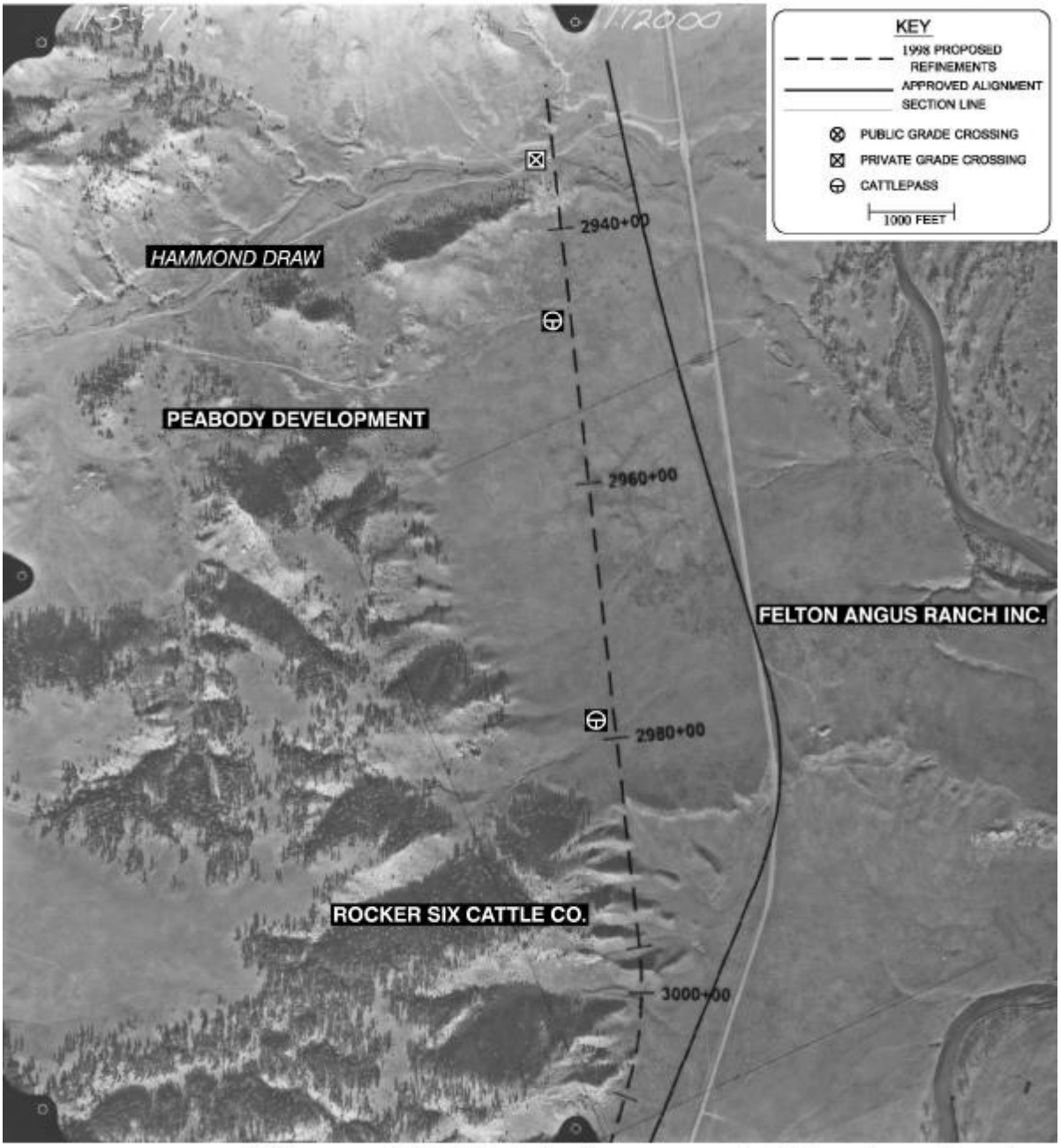
Overall the ranch would operate much more efficiently and we would be better able to compete in the market. Having these projects placed on hold has cost us thousands of dollars in returns.

VERIFICATION

I, Clint McRae, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

Clint McRae

Dated this 20 day of March, 2015.

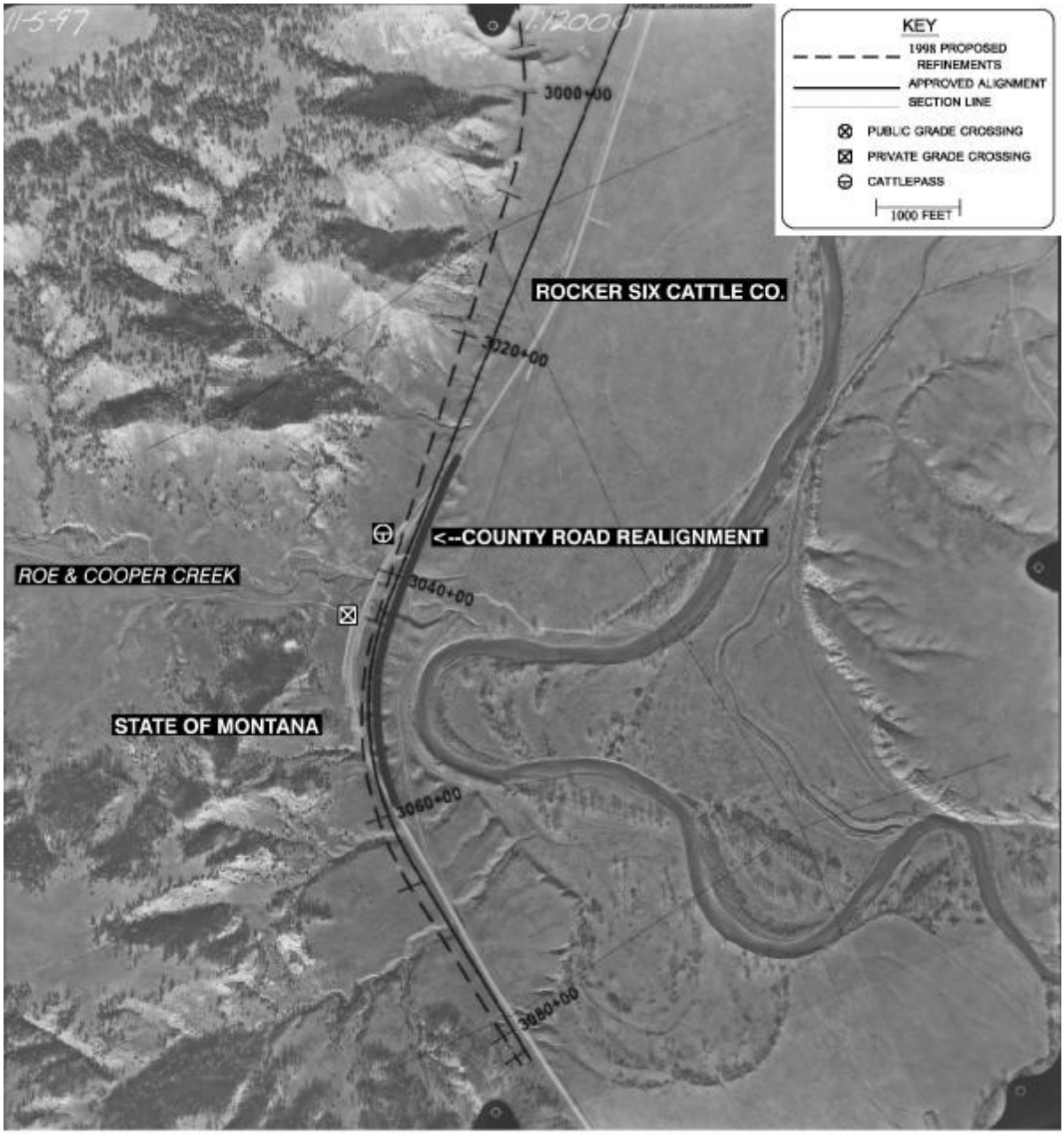


Cattlepass and Private Grade locations are approximated based upon discussions with property owners during the early 1980's and the late 1990's. These locations are subject to change based upon final right-of-way negotiations and agreements

Figure A-41

Aerial Photographs of Alignments

Miles City to Ashland

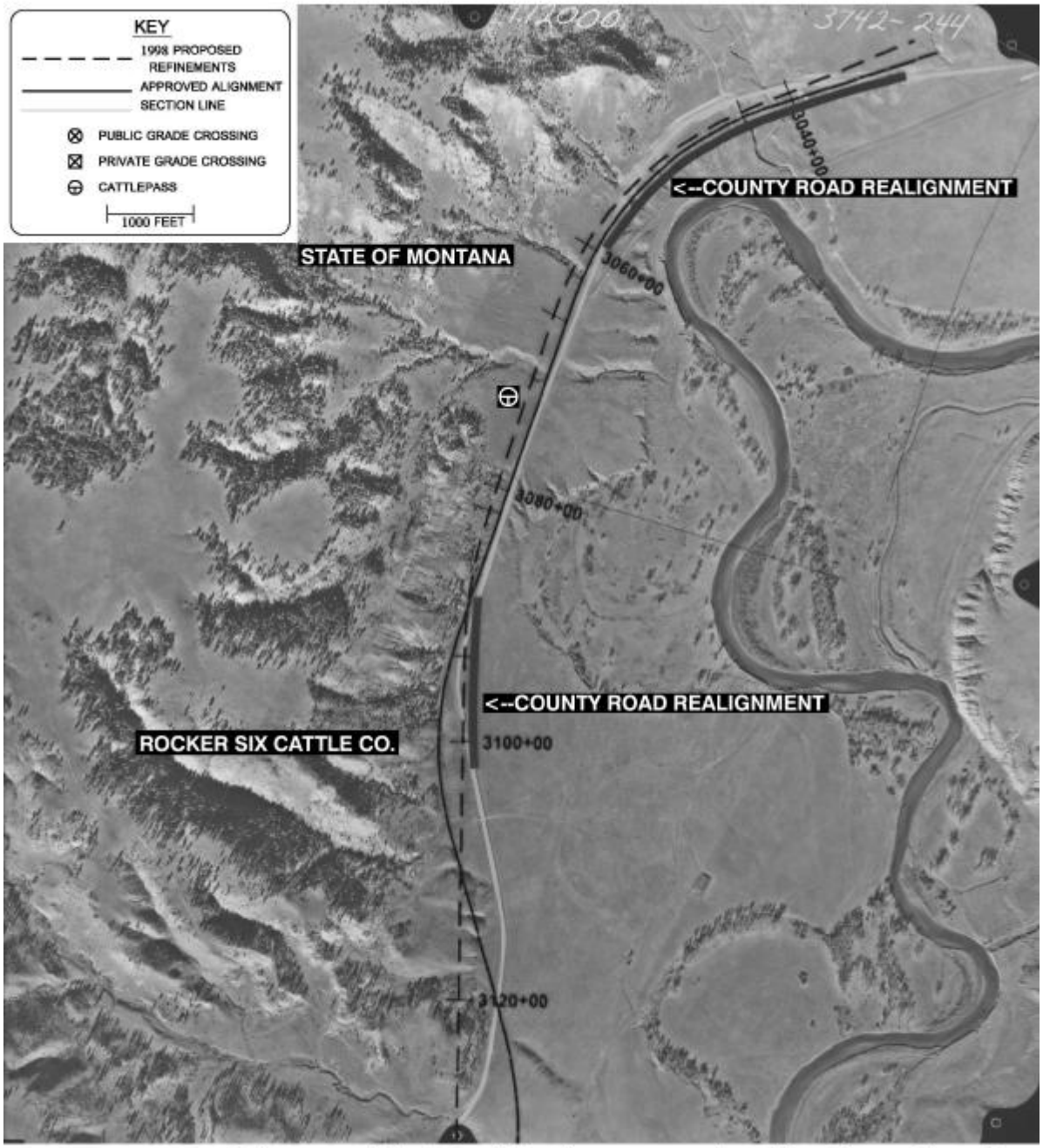


Cattlepass and Private Grade locations are approximated based upon discussions with property owners during the early 1980's and the late 1990's. These locations are subject to change based upon final right-of-way negotiations and agreements

Figure A-42

Aerial Photographs of Alignments

Miles City to Ashland

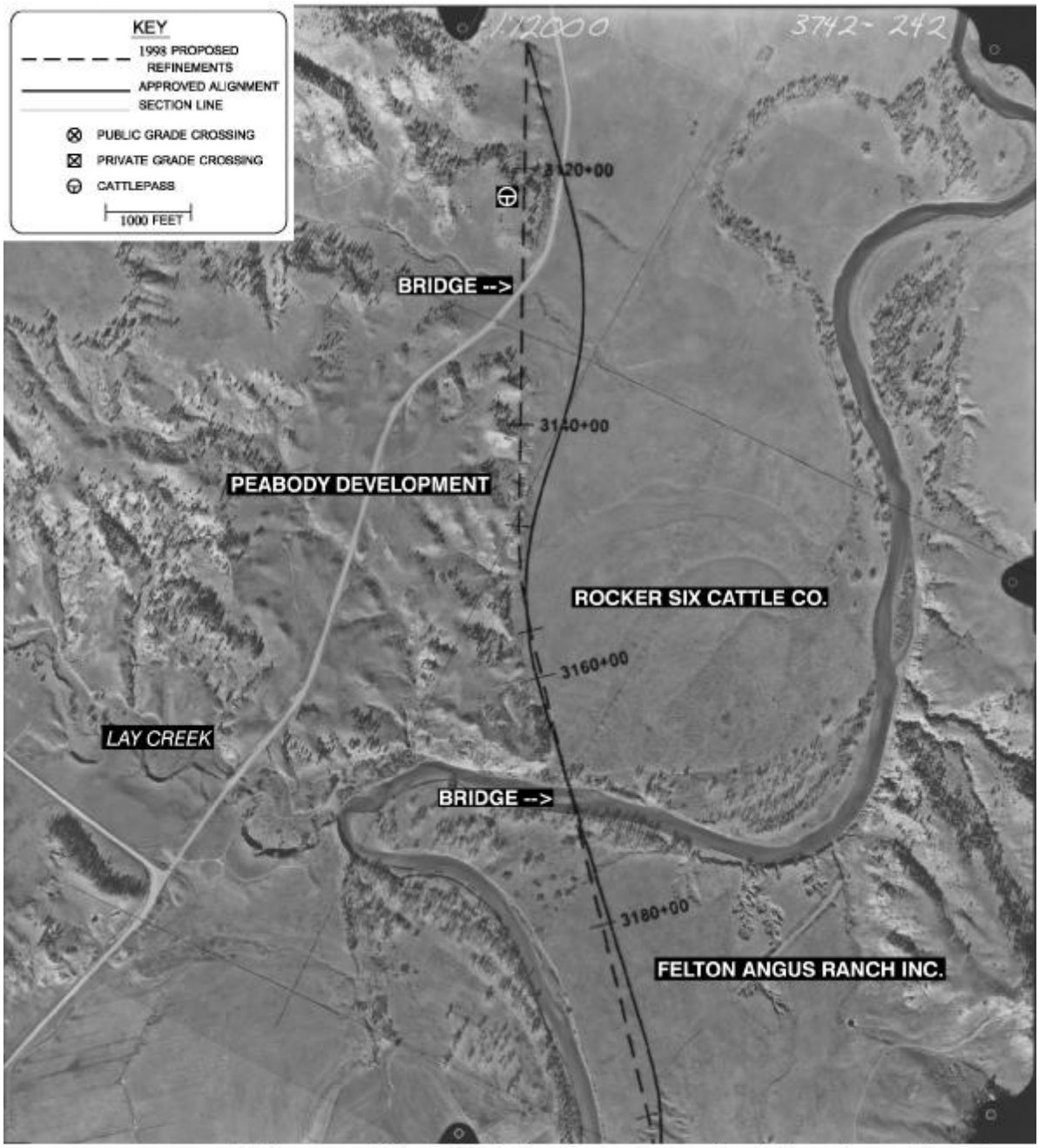


Cattlepass and Private Grade locations are approximated based upon discussions with property owners during the early 1980's and the late 1990's. These locations are subject to change based upon final right-of-way negotiations and agreements

Figure A-43

Aerial Photographs of Alignments

Miles City to Ashland



Cattlepass and Private Grade locations are approximated based upon discussions with property owners during the early 1980's and the late 1990's. These locations are subject to change based upon final right-of-way negotiations and agreements

Figure A-44

Aerial Photographs of Alignments

Miles City to Ashland

Exhibit V

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC.—RAIL CONSTRUCTION AND OPERATION—IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF MARK FIX IN SUPPORT OF NORTHERN PLAINS RESOURCE COUNCIL AND ROCKER SIX COMMENTS ON TRRC'S APPLICATION

My name is Mark Fix. I am one of several ranchers who have been impacted over the last thirty years by proposed development of coal tracts in Ashland, Montana and the railroad that would serve them, the Tongue River Railroad. My wife Debra and I own and operate a 9,700-acre ranch since 1991, a period of about twenty-four years. Of those acres, 7,300 are deeded and we lease the balance from the State of Montana and the Bureau of Land Management. The ranch is located about 20 miles southwest of Miles City, Montana along the Tongue River. My mailing address is 584 Tongue River Road, Miles City, MT 59301. I have been a member of Northern Plains Resource Council for about 23 years. I offer this Verified Statement in support of the Northern Plains Resource Council's comments on the Tongue River Railroad's December 2012 Application.

The original alignment of the Tongue River Railroad (TRR I) approved in the 1980s and the proposed refinement to TRR I ran through my ranch. (See Attachment Fix-1). When my wife and I bought the ranch in 1991, we were told by our realtor that it was highly unlikely the TRR I railroad would ever be built. I did not realize it at the time, but I felt that I was able to buy the property for a discounted price because the TRR was proposed through the ranch.

Shortly after we bought the ranch TRRC approached me to buy a right-of-way across our ranch. A TRRC lawyer and landman came to our house and told us that TRRC has the right of eminent domain and could condemn our property if we could not come to an agreement on selling them the right-of-way. This was a stressful and difficult time for my wife and me. Their right-of-way ran directly along the Tongue River, through my calving pasture, and the Tongue River floodplain. This route would have significantly disrupted the operation of my ranch in several ways. My wife and I were planning to install a series of circle pivots to more efficiently irrigate our land to grow alfalfa. Additionally, TRR was never clear whether they would use a double track, which would seriously alter my use of a parcel of my own land. Finally, the TRRC intended to fence off the railroad tracks which would have cut off my cattle's only access to the river; their only source of fresh drinking water in some of the pastures where the railroad was proposed. I told TRRC I did not agree with their route, however, because they had the right of eminent domain I proposed a different one that would have less impact on my property. The TRR representatives told me that the route I proposed would require moving too much dirt and refused to consider it.

TRRC's representatives later told us that they had altered the proposed route, and moved the track over one half of a mile as is shown in the map I provided. I believe this change was part of the refinements to TRR I proposed with the southern extension of the TRR in the early to mid 1990s known as TRR II and III, although communication was limited and the routes were often unclear. At the time, I had planned to install a circle pivot and irrigate the land where TRR I crossed my land. Installing a circle pivot requires a substantial investment and a great deal of planning. It requires installing a concrete structure and running a pipeline to the pivot. Once installed, the circle pivot irrigates about 120 acres of land.

The TRR I route would have gone right through the middle of the circle pivot I was proposing. The new route was farther North and I could install the circle pivot to the South of the tracks. I was planning to grow alfalfa for hay and this irrigation system would yield about 5 tons per acre. Growing additional alfalfa or hay would be beneficial to my ranch. Not only could I use it to feed my own cattle rather than buying it from a third party, I could also sell the excess for additional revenue.

Because of the size of the investment in installing a circle pivot I wanted to see where the railroad might be built so the pivot would not be torn down in the construction process. I did not want to pay for the pivot twice and decided not to install it given we really did not know when or where the railroad was going to be built. This came at a significant cost. I estimate that I lost about $45,000 per growing season assuming $75 per ton of alfalfa, 5 tons per acres, and 120 acres. After 9 years of waiting to see what would happen with the TRR I gave up and decided to build the pivot. I estimate my losses for those 9 years at $405,000 for which I've never been compensated. Had I known the line was never going to get built I would not have waited to build the circle pivot.

I was also frustrated about the uncertainty regarding the consideration of double tracks and the railroad's failure to address my concern about land between the tracks. My neighbor and I had about three miles of railroad through our property. His three miles contained forty acres that the TRR wanted to buy and our three miles contained eighty acres. The landmen did not mention any decision about double tracks to me, so I had concerns that my acreage was twice as much because they intended to double track the route through my property. The TRR II EIS stated that several double track locations and several set out tracks were required, but no landowner I talked with had any indication that there would be double tracks on their property.

The TRR II EIS showed a deviation to the route on my property. The TRR III EIS showed both the TRR I alignment and the new alignment proposed in TRR II. I did not know if this was an oversight or if both routes were approved and I would be left with a large parcel of land stuck between the two sets of railroad tracks.

TRR never clarified their plans, and never took action to begin construction. As a result, I was concerned a parcel of land between the two tracks would be impossible to utilize efficiently. It would not be cost effective to try to graze a parcel like this and it would be difficult to irrigate that parcel as well, as there is a big hill between the two sets of tracks. There is good hunting on the hill that is between these two sets of tracks and the hunters affectionately refer to it as "Buck Mountain." That may be the only suitable use of the land, but the hunters would need to be careful not to shoot towards trains.

Finally, TRR told us that they intended to place culverts under the railroad grade for my cattle to use to go under the tracks. They assumed this would be a sufficient work around so that they could build a track that would cut off the cattle's access to drinking water. Culverts are extremely problematic, however, as cattle may never learn how to go through the culverts. If the culvert is long enough to go under two sets of tracks, the cattle are even less likely to use it. The possibility of two sets of tracks also means that I could have a train parked on the extra set of tracks, blocking passage across the tracks for incredible amounts of time and requiring me to go an extra mile or more to cross the tracks with my cattle or to access my ranch.

Eminent domain takes away our right to negotiate for a fair market value for the right of way. It is basically a "take it or leave it" situation since we have no recourse other than fighting eminent domain in court, which is costly, time consuming, and we would be unlikely to prevail against the resources of something like the TRRC. Some years ago TRRC offered my neighbor

$100 an acre for his land. The right-of-way crossed about three miles of his ranch so the total offer would have been about $4,000. He did not sell the property since $100 an acre is an incredibly low price. The price may be indicative of agricultural land value at that time, but it does not compensate a landowner for the damages done to the property. It would not cover costs to make the land functional again. For instance, water wells may have to be drilled and installed to provide the cattle with water. The price for prime land near the river would be more than land further away from the river.

My wife and I have had to deal with the uncertainty of the TRR ever since we bought our ranch. TRRC has tried to obtain a right-of-way several times through our property, about every five years or so. We inevitably get a letter to let us know that a landman will be coming or that there were updates to the TRRC's plans. We have spent a lot of time, effort, and money dealing with these issues. I became a party of record during TRR II and III so we would not be left out of the process and to see what was happening. Although TRRC apparently now has no plans to build a railroad through our ranch because it has chosen the Colstrip alignment as the preferred alternative, I am concerned that the company may change its mind once again and decide to build a line through my ranch.

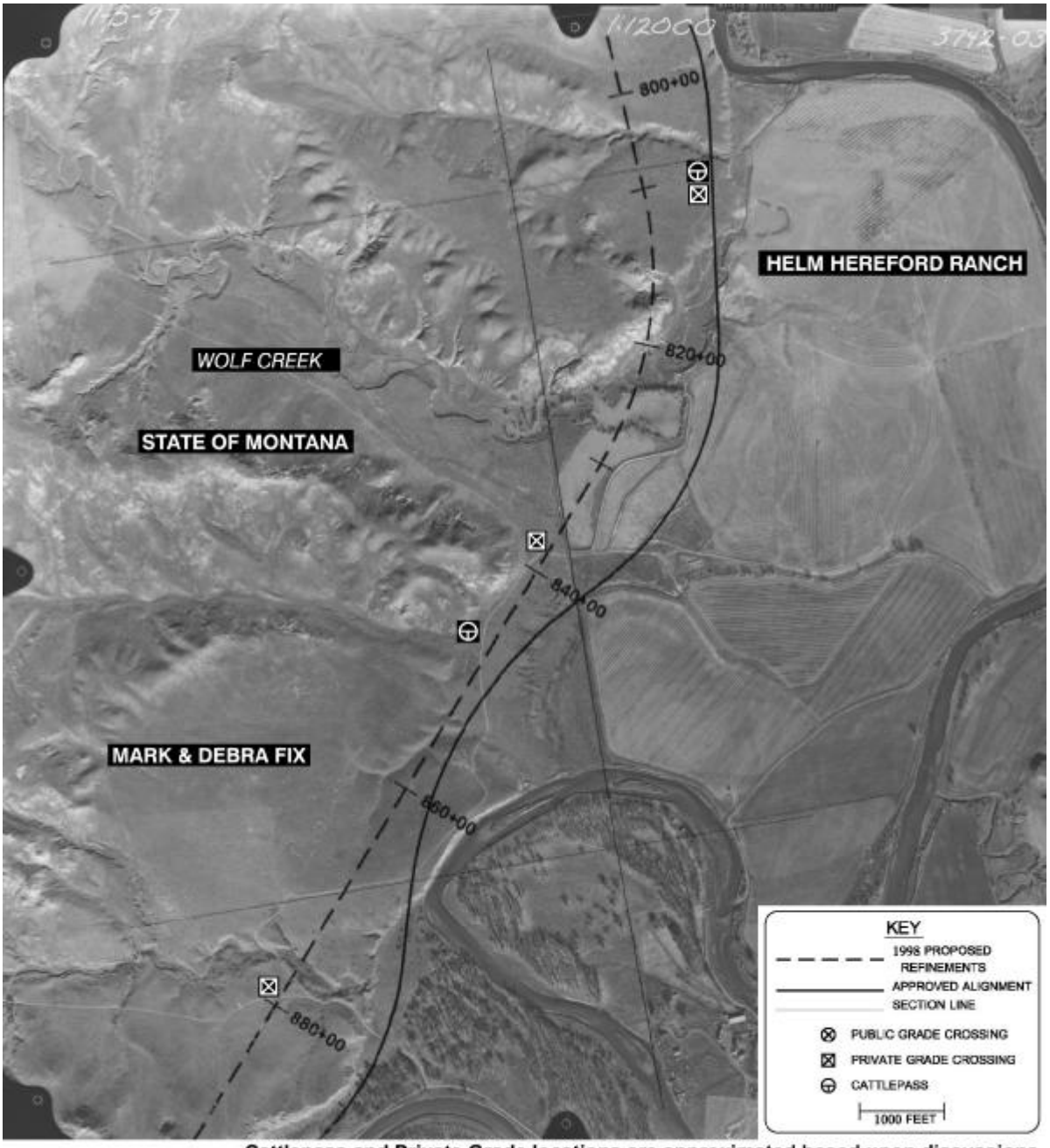
The Board's decision to grant a license for railroads causes real hardship for landowners in the path even if the line is never built. Our ranch is a business and our livelihood; holding it in limbo harms my employees and my family. I had plans to make the best and most efficient use of my ranch possible that have been put on hold for more than a decade because of a railroad that will never get built. The Board should make sure these lines will, in fact, get built and are truly needed before putting us or others through the same kind of ordeal we have had to go through.

VERIFICATION

I, Mark Fix, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

Mark Fix

Dated this 23 day of March, 2015.

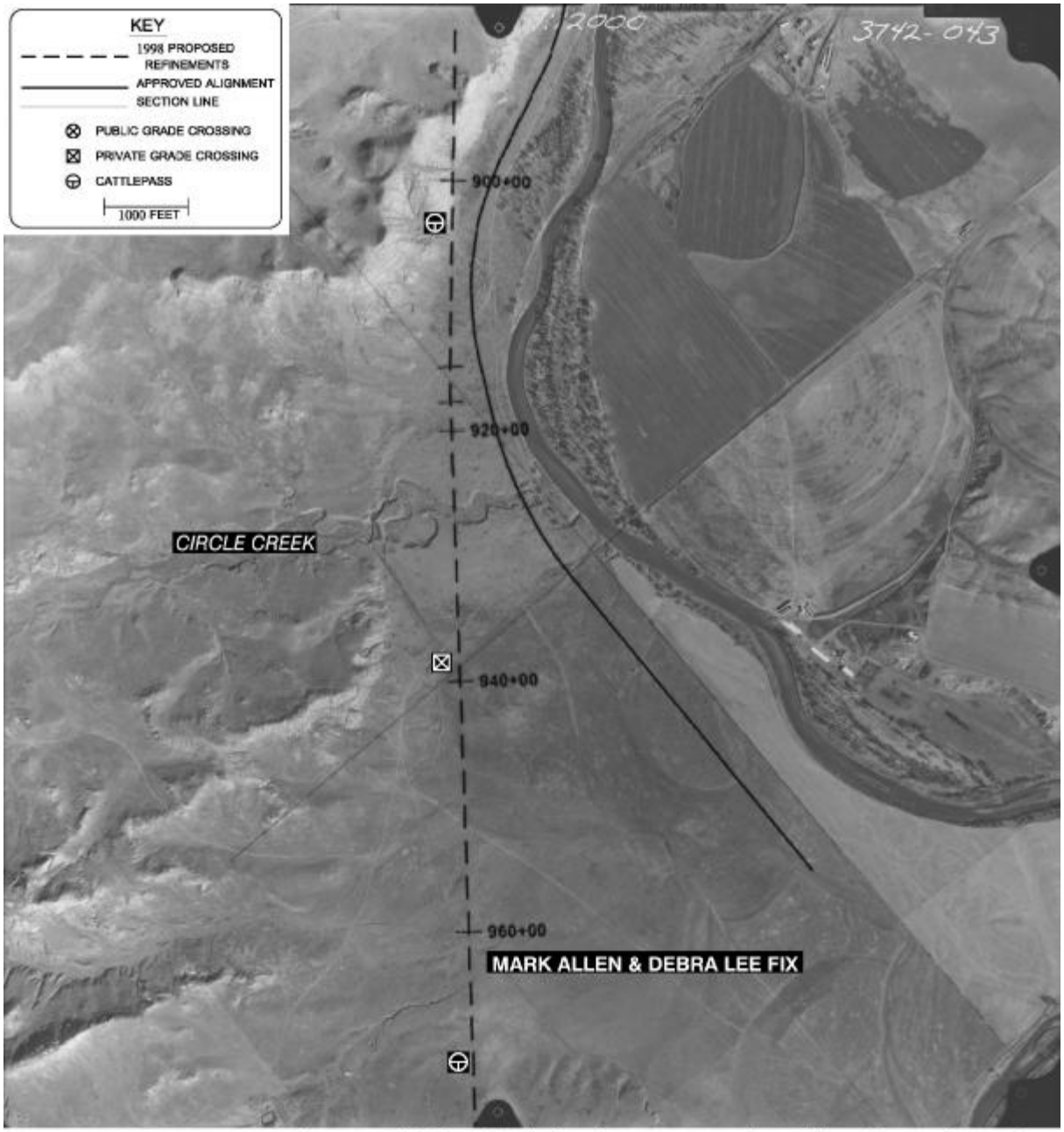


Cattlepass and Private Grade locations are approximated based upon discussions with property owners during the early 1980's and the late 1990's. These locations are subject to change based upon final right-of-way negotiations and agreements

Figure A-11

Aerial Photographs of Alignments

Miles City to Ashland

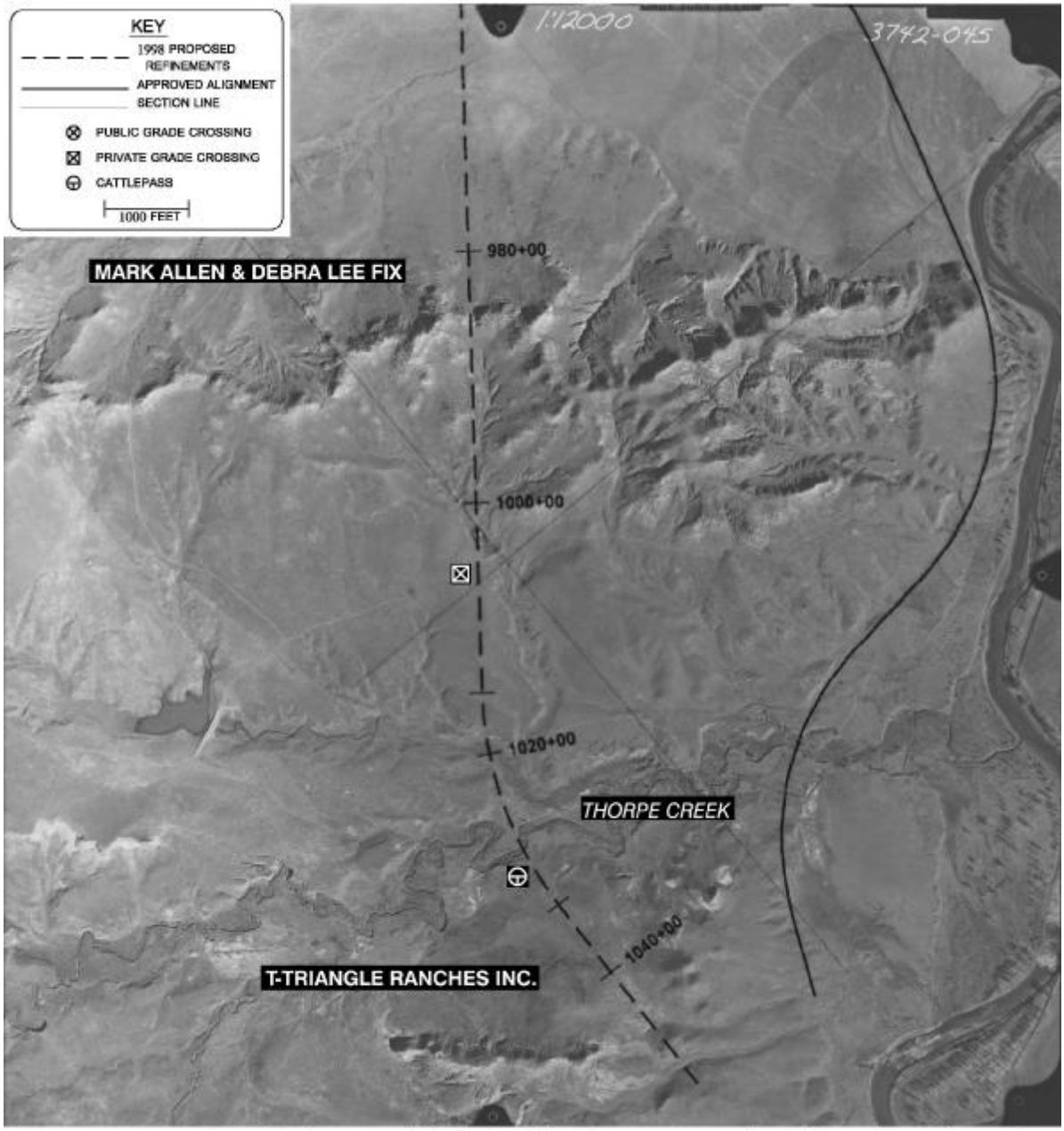


Cattlepass and Private Grade locations are approximated based upon discussions with property owners during the early 1980's and the late 1990's. These locations are subject to change based upon final right-of-way negotiations and agreements

Figure A-12

Aerial Photographs of Alignments

Miles City to Ashland



Cattlepass and Private Grade locations are approximated based upon discussions with property owners during the early 1980's and the late 1990's. These locations are subject to change based upon final right-of-way negotiations and agreements

Figure A-13

Aerial Photographs of Alignments

Miles City to Ashland

Exhibit W

BEFORE THE
SURFACE TRANSPORTATION BOARD

STB FINANCE DOCKET NO. 30186

TONGUE RIVER RAILROAD COMPANY, INC.—RAIL CONSTRUCTION AND OPERATION—IN CUSTER, POWDER RIVER AND ROSEBUD COUNTIES, MT

VERIFIED STATEMENT OF ROGER JACOBS IN SUPPORT OF NORTHERN PLAINS RESOURCE COUNCIL AND ROCKER SIX COMMENTS ON TRRC'S APPLICATION

My name is Roger Jacobs. I am a licensed real estate professional and auctioneer. I am currently employed by Premier Intermountain Properties ("PIP Montana"), which is a firm established by agricultural producers to serve a regional client base of property owners in Montana and Wyoming. PIP Montana represents prospective buyers and sellers of large ranches in the intermountain west, including Montana's Powder River Basin.

I have worked for PIP Montana as a real estate professional since 1985 and have extensive experience representing buyers and sellers of ranch properties. In addition, I have decades of experience in agriculture and livestock. I was born and raised on a farm and ranch in North Dakota and graduated from North Dakota State University with a B.S. in Animal Science. I worked as a regional manager for the American Angus Association and Angus Journal from 1977 to 1983. In 1983, my wife and I started Jacobs Livestock Sales Inc., which is a purebred livestock auction company.

I am offering this Verified Statement on behalf of Northern Plains Resource Council and Rocker Six Cattle Company. The purpose of my testimony is to inform the Surface Transportation Board ("Board") about the serious hardships the Board will create for landowners if it grants the Tongue River Railroad license to construct—even if the line is never built. As the Board knows, when it grants a license to construct a railroad the railroad company gets the right to condemn property along the railroad right of way. This right creates a serious cloud on properties along the railroad's path and in my experience can make it impossible to plan ranch operations or sell the property.

I've seen this happen with ranches along the original Tongue River Railroad route, known as TRR I. In the 1980s, TRRC was given the right to build a railroad in Montana's Powder River Basin that would connect coal reserves in Ashland, Montana to Miles City, Montana. The TRR I route went through a number of ranches, including a ranch called the Ball Ranch, which is located on 22,340 acres southwest of Miles City along eight miles of the Tongue River. The Ball Ranch was an excellent property. It was run as a cow-calf operation with 600 cows, and included a feedlot. It had an excellent irrigation system along with 33 miles of pipeline to tanks in various pastures to ensure cattle were never more than a mile from water. The ranch also had the irrigation capacity to produce corn, hay, and alfalfa. It also had ideal wildlife habitat, with extensive populations of deer, elk, antelope, and game birds, which made it attractive to outdoor enthusiasts.

The Ball Ranch's owners hired me to help them sell the ranch in July of 2012. When I spoke to prospective buyers, I had to disclose the fact that TRRC had the right to build a railroad line through the ranch. Even though that right existed since the mid-

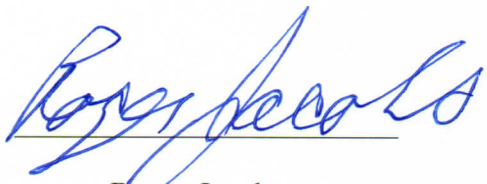
1980s and the future of the railroad line was fairly speculative, the mere mention of TRRC's right to take property within the Ball Ranch made it impossible to sell. Buyers were either completely uninterested in the ranch or were unwilling to pay the value of the ranch without the TRR cloud hanging over it. However, I was able to sell the Ball Ranch once TRRC abandoned its plans to construct TRR I.

In my experience, buyers simply will not buy a ranch when the possibility of a railroad through the property hangs over its future. It's too risky. The railroad could cross irrigation lines, making maintenance difficult or even impossible. Any wells, circle pivots, water tanks, and fencing dividing the pastures that have been built on the property may get destroyed. Dealing with railroad crossings, limited accesses points, waiting at crossings, and the added difficulty of trailing cattle over crossings all add to the cost and difficulty of operating a working ranch. Even if buyers are willing to consider a ranch under these conditions, they are only willing to pay the discounted value of the property, which is typically a price point at which the owner is unwilling to sell.

As the Board knows, TRR I was never built even though TRRC had the authority to build the line as far back as the mid-1980s. Property owners along the TRR I route, including the owners of the Ball Ranch, were never compensated for the interference TRRC's right to condemn created or the loss in property value. The Board needs to consider these real harms in deciding the current TRRC application.

VERIFICATION

I, Roger Jacobs, hereby verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.



Roger Jacobs

Dated this 22 day of March, 2015.

Exhibit X

City Manager
Edwin R. Meece

414 East Callender Street
Livingston, Montana 59047
(406) 222-2005 phone
(406) 222-6823 fax
citymanager@livingstonmontana.org
www.livingstonmontana.org

City of Livingston

Incorporated 1889

Chairman
James Bennett

Vice Chairman
Dorel Hoglund

Commissioners
Adam Stern
Mel Friedman
Jon Reddington

December 8, 2014

Mr. Daniel R. Elliott, Chairman
Surface Transportation Board
395 E. Street SW
Washington DC 20423

SUBJECT: Request to include Livingston, Montana, in the review of proposed Tongue River Railroad

Chairman Elliott:

The City of Livingston, Montana, is bisected by the southern main line of the Montana Rail Link/Burlington Northern Santa Fe railroad companies. It has come to our attention that the development of the Tongue River Railroad, which would connect the existing rail line to the proposed Otter Creek coal mine, would have an impact upon the City of Livingston by increasing rail traffic significantly. The City of Livingston requests that the Surface Transportation Board fully analyze the impacts that construction and operation of the Tongue River Railroad would have on the City of Livingston, and that the board consults with the city as the process moves forward.

Increasing the number of trains through Livingston will exacerbate three issues currently facing our community, including reduced access, potential health concerns from diesel exhaust and coal dust, and additional noise:

- **Access.** Because the city is bisected by the rail line, three railroad crossings – two at grade and one underpass – serve as access points from one side of the city to the other. These crossings are currently stressed with re-routing and congestion issues. Increased rail traffic will increase access issues and bottlenecks for emergency response vehicles, citizens, and businesses.
- **Potential Health Hazards.** Potential health hazards, including exhaust from increased idle time from waiting motor vehicles, increased diesel exhaust from trains themselves, and coal dust from moving trains are a concern for Livingston.
- **Noise.** Many citizens are currently impacted by train and whistle noise due to the central location of the rail line. Residents of Livingston have expressed considerable distress over potential increases in train noise from increased rail traffic.

Finally, the City of Livingston lacks adequate funding for infrastructure upgrades to mitigate impacts caused by rail traffic (underpasses, quiet zones, etc.). We believe it is the responsibility of the Surface Transportation Board – as the regulatory agency for the rail system – to ensure that communities and their taxpayers are not forced to bear these costs, including costs to public health and welfare. Costs associated with mitigating impacts of increased train traffic should be divided fairly between the railroad and taxpayers.

Please consider this request to address the impact of the Tongue River Railroad, and associated increased rail traffic, on the City of Livingston.

Respectfully,

James Bennett
Chairman, City Commission

No: 14-48
Date: September 17, 2014

RESOLUTION
OF THE CITY COUNCIL
CITY OF SANDPOINT

TITLE: A REQUEST TO THE SURFACE TRANSPORTATION BOARD THAT IT INCLUDE THE CITY OF SANDPOINT IN THE TONGUE RIVER RAILROAD ENVIRONMENTAL REVIEW PROCESS AND REQUIRE THE RAILROAD(S) TO SHARE THE COSTS OF NECESSARY INFRASTRUCTURE PROJECTS

WHEREAS: The City of Sandpoint, with a population of approximately 7,500, funnels all rail traffic from Burlington Northern Santa Fe (BNSF), Union Pacific and Montana Rail Link (MRL) railroads;

WHEREAS: The route through the City of Sandpoint represents the easiest way to transport coal from Southeast Montana to the West Coast;

WHEREAS: Arch Coal's proposed Otter Creek Mine in Southeast Montana, the largest proposed new coal strip mine in the contiguous United States, is designed to supply coal to West Coast coal export terminals;

WHEREAS: The proposed Tongue River Railroad (TRR), which is jointly owned by Arch Coal, BNSF, and Forrest Mars, Jr., would be the conduit for transporting coal from Otter Creek to the existing MRL/BNSF line;

WHEREAS: Building the Otter Creek Mine and Tongue River Railroad would therefore lead to increased coal train traffic through the City of Sandpoint, contributing to more frequent traffic delays and increased emergency response times at the at-grade crossings, higher levels of air and noise pollution and degradation of water quality from lost coal and coal dust;

WHEREAS: These impacts will affect the health, public safety, and quality of life of our residents and require infrastructure upgrades to mitigate impacts, such as overpasses, underpasses, and quiet zones;

WHEREAS: The City of Sandpoint lacks the funding to pay for necessary infrastructure projects and will be required to seek public funding for private benefit;

WHEREAS: The Surface Transportation Board (STB) is the sole agency responsible for regulating railroads and has committed to consider the TRR's impacts to down-line communities and the entire rail system in the Environmental Impact Statement (EIS) for the Tongue River Railroad; and

WHEREAS: The STB has the established authority to require railroad companies to help mitigate the cost of infrastructure improvements necessitated by new rail construction.

NOW, THEREFORE, BE IT RESOLVED THAT: The City of Sandpoint believes that building the Tongue River Railroad would affect the health and well-being of Sandpoint residents and require expensive infrastructure projects for which the City lacks adequate funding.

BE IT FURTHER RESOLVED THAT: The City of Sandpoint formally requests that the Surface Transportation Board consult with the Mayor of Sandpoint to properly assess coal train traffic impacts during the Tongue River Railroad EIS process.

BE IT FURTHER RESOLVED THAT: The City of Sandpoint requests the Surface Transportation Board utilize the Tongue River Railroad proceeding to ensure that the costs of increased train traffic are shared fairly by railroad companies and not borne principally by community taxpayers.

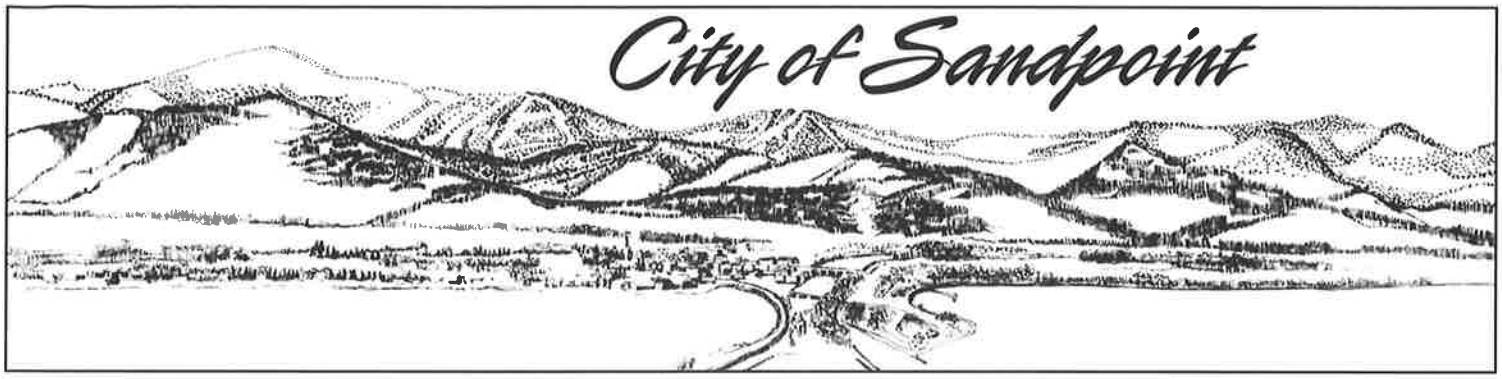
Shelby Rognstad, City Council President
on behalf of Mayor Carrie Logan

ATTEST:

Maree Peck, City Clerk

City Council Members:

			YES	NO	ABSTAIN	ABSENT
1.	Eddy		X			
2.	Rognstad		X			
3.	Aitken					X
4.	Williamson	Second	X			
5.	Camp		X			
6.	Fragoso	Motion	X			



September 18, 2014

Daniel R. Elliott, Chairman
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

Subject: Request to include the City of Sandpoint in the review of the proposed Tongue River Railroad

Chairman Elliott and Members of the Surface Transportation Board,

It has come to our attention that the rail lines that traverse the City of Sandpoint could experience a substantial increase in train traffic from exporting coal from the Powder River Basin to proposed West Coast ports. We understand that the construction of the Tongue River Railroad would contribute significantly to this additional traffic, as it would connect the proposed Otter Creek coal mine to the existing rail lines.

Since these additional coal trains would impact the residents and visitors of Sandpoint by degrading air and water quality, increasing the frequency of traffic delays at crossings, delaying emergency response services, and threatening our local economy, we hereby request that the Surface Transportation Board (STB) consider the City of Sandpoint in your Environmental Impact Statement (EIS) for the Tongue River Railroad and consult with us as the review process moves forward.

We have specific concerns related to increased rail traffic and believe that it is the responsibility of the STB – as the regulatory agency for the rail system – to step in and ensure that communities are not forced to bear the costs of expensive infrastructure upgrades to mitigate impacts (e.g. overpasses, underpasses, quiet zones). The City of Sandpoint lacks adequate funding for these projects, and we strongly believe these costs must be divided fairly between the railroad and taxpayers.

Please consider, and formally include, the City of Sandpoint as you move forward in the review process for the Tongue River Railroad.

Thank you for your consideration. We look forward to hearing from you.

Sincerely,

Carrie Logan
Mayor

c: Deb Miller, STB Vice Chair
Ann D. Begeman, Board Member
Victoria Rutson, Director, STB Office of Environmental Analysis
U.S. Senators Mike Crapo and Jim Risch

SPOKANE CITY COUNCIL
808 W. Spokane Falls Blvd.
Spokane, WA 99201-3335
(509) 625-6255

Ben Stuckart
Council President

August 7, 2014

Daniel R. Elliott, Chairman
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

Subject: Request to include Spokane in the review of the proposed Tongue River Railroad

Dear Chairman Elliott and Members of the Surface Transportation Board,

The rail lines that run through downtown Spokane could experience a substantial increase in train traffic from exporting coal from the Powder River Basin to proposed West Coast ports. We understand that the construction of the Tongue River Railroad would contribute significantly to this additional traffic.

Since these additional coal trains would impact Spokane, I strongly urge the Surface Transportation Board (STB) to consider Spokane in the Environmental Impact Statement (EIS) for the Tongue River Railroad.

We have specific concerns related to increased rail traffic, and believe that it is the responsibility of the Surface Transportation Board to ensure that communities are not forced to bear the costs of expensive safety and infrastructure upgrades to mitigate these community impacts. Our community lacks adequate funding for additional rail infrastructure projects, and we strongly believe the costs and risks must be divided fairly between the railroad and taxpayers.

Please consider including Spokane as you move forward in the review process for the Tongue River Railroad.

Thank you for your consideration.

Sincerely,

Ben Stuckart

Ben Stuckart
President, Spokane Washington City Council

CITY OF STEVENSON

7121 E Loop Road, PO Box 371, Stevenson, WA 98648

March 17, 2015

Daniel R. Elliott, Chairman
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

Subject: Request to include Stevenson in the review of the proposed Tongue River Railroad

Dear Chairman Elliott and Members of the Surface Transportation Board,

The rail lines that run through the City of Stevenson, Washington could experience a substantial increase in train traffic from exporting coal from the Powder River Basin to proposed West Coast ports. We understand that construction of the Tongue River Railroad would contribute significantly to this additional traffic.

Since these additional coal trains would impact Stevenson, we urge the Surface Transportation Board to consider Stevenson in your Environmental Impact Statement for the Tongue River Railroad, and consult with us as the review process moves forward.

We have specific concerns related to increased rail traffic, and believe that it is the responsibility of the Surface Transportation Board to ensure that communities are not forced to bear the costs of expensive safety and infrastructure upgrades to mitigate these community impacts. Our community lacks adequate funding for additional rail infrastructure projects and we believe these costs and risks must be divided fairly between the railroad and taxpayers.

Please consider, and formally include, the City of Stevenson, Washington, as you move forward in the review process for the Tongue River Railroad.

Thank you for your consideration. We look forward to hearing from you.

Sincerely,

Frank Cox, Mayor

Phone (509) 427-5970 Fax (509) 427-8202

Seattle City Council

November 14, 2014

Daniel R. Elliott, Chairman
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

Subject: Request to include Seattle in the review of the proposed Tongue River Railroad

Chairman Elliott and Members of the Surface Transportation Board,

It has come to our attention that the rail lines that traverse Seattle could experience a substantial increase in train traffic from exporting coal from the Powder River Basin to proposed West Coast ports. We understand that the construction of the Tongue River Railroad would contribute significantly to this additional traffic, as it would connect the proposed Otter Creek coal mine to the existing rail line. Communities in and along rail lines, including Seattle, Shoreline, Tukwila, Renton, Kent and Auburn could see 20 or more coal trains rolling through town every day. This would add more than 3,000 noisy, mile-long loaded coal trains traveling through King County rail system every year.

This increased traffic in our area will have significant adverse impacts on our local environment and economy. A single slow-moving coal train can obstruct a rail crossing by six minutes or more. Adding 20 trains to the local area's rail system would mean blocking some crossings by two hours per day. Increased traffic delays at busy rail crossings would clog commuter traffic and could slow response times for emergency responders. Added coal train traffic along the King County rail line would also limit access to neighborhoods, schools, business corridors and ferry terminals close to the train tracks. This could drive away investors for new residential, retail and commercial developments in waterfront and rail-adjacent communities in King County.

Moreover, the wide ranging health dangers of coal dust include exposure to toxic heavy metals like mercury and increased rates of asthma, especially in children. Coal dust would pollute our clean air and water. Burlington Northern Santa Fe (BNSF) railroad studies estimate up to 500 pounds of coal can be lost in the form of dust from each rail car en route. These trains will also emit diesel exhaust, which is associated with asthma, cardiopulmonary disease and increase incidences of cancer.

The City of Seattle has specific concerns related to increased rail traffic, and we contend that it is the responsibility of the STB—as the regulatory agency for the rail system—to step in and ensure that local communities are not forced to bear the costs of expensive infrastructure upgrades to mitigate impacts (e.g. overpasses, underpasses, quiet zones). The City of Seattle lacks adequate funding for these projects, and we strongly believe these costs must be shared by the railroads.

In addition to impacts from the transport itself, the increasing use of coal that these trains facilitate will cause significant adverse impacts on the environment. Mercury and other pollutants from coal-burning power plants travel from Asia to the West Coast of North America where they have been shown to poison our air, water, fish and food supply. Exporting coal promotes deeper global fossil fuel dependence. It delays the urgently needed transition to cleaner alternatives. It makes climate disruption inevitable, including extreme flooding and ocean acidification, impacting our shorelines and Puget Sound.

Since these additional coal trains would impact Seattle, we hereby request that the Surface Transportation Board (STB) consider the City of Seattle in your Environmental Impact Statement (EIS) for the Tongue River Railroad. Please formally include the City of Seattle as you move forward in the review process for the Tongue River Railroad.

Thank you for your consideration. We look forward to hearing from you.

Sincerely,

Council President Tim Burgess

Councilmember Sally Bagshaw

Councilmember Sally Clark

Councilmember Jean Godden

Councilmember Bruce A. Harrell

Councilmember Nick Licata

Councilmember Mike O'Brien

Councilmember Tom Rasmussen

Councilmember Kshama Sawant

Cc: Deb Miller, STB Vice Chair
Ann D. Begeman, Board Member
Victoria Rutson, Director, STB Office of Environmental Analysis
U.S. Senator Maria Cantwell
U.S. Senator Patty Murray

February 10, 2015

Daniel R. Elliott, Chairman
Surface Transportation Board
395 E Street, SW
Washington, DC 20423

RE: Tongue River Railroad – City of Hood River, Oregon

Dear Chairman Elliott and Members of the future Transportation Board:

The City of Hood River Council understands there is an ongoing review process considering the proposed Tongue River Railroad to service the Otter Creek Mine in Western Montana. The railroad line and expansion of coal production will lead to additional rail traffic through The City of Hood River on its way to West Coast ports.

As you will see from enclosed Hood River Resolution 2012-15, the City has significant and varied concerns over the transport of coal through the City and the Columbia River Gorge National Scenic Area. The bottom line is that the City of Hood River opposes coal export projects such as the Tongue River Railroad that entail transporting coal through the Columbia River Gorge and Hood River.

Please carefully consider this information and consult with the City of Hood River as you move through the review process for the Tongue River Railroad

Sincerely,

Paul Blackburn, Mayor
City of Hood River, Oregon