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May 1, 2006



216 454

BY HAND

The Honorable Vernon A. Williams
Secretary
Surface Transportation Board
1925 K Street, N.W.
Washington, D.C. 20423-0001

Re: Ex Parte No. 657 (Sub-No. 1) – Major Issues in Rail Rate Cases

Dear Secretary Williams:

Enclosed for filing in the above-captioned matter please find the original and twenty copies of the Opening Submission of Union Pacific Railroad Company. Also enclosed is a diskette with a copy of the filing in Word format.

I have also enclosed an extra copy to be date-stamped and returned to our messenger.

Thank you for your assistance.

Sincerely,

Linda J. Morgan
Linda J. Morgan

Enclosures

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216 454

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Ex Parte No. 657 (Sub-No. 1)

MAJOR ISSUES IN RAIL RATE CASES

OPENING SUBMISSION OF UNION PACIFIC RAILROAD COMPANY

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*Attorneys for Union Pacific
Railroad Company*

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Contains Color Images

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VERIFIED STATEMENT OF KEVIN NEELS

VERIFIED STATEMENT OF ROBERT L. SANSOM

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Ex Parte No. 657 (Sub-No. 1)

MAJOR ISSUES IN RAIL RATE CASES

OPENING SUBMISSION OF UNION PACIFIC RAILROAD COMPANY

Union Pacific Railroad Company (“UP”) is filing this submission to address the six issues and proposals that the Surface Transportation Board (“Board”) set out in its Notice of Proposed Rulemaking in Ex Parte No. 657 (Sub-No. 1) (STB served Feb. 27, 2006) (“*NPRM*”). We appreciate the opportunity to comment on these important matters.

Before we address the specific proposals, however, it is important to provide some context for our comments. We therefore begin by discussing the nation’s current transportation capacity crisis, what it means for railroads, and how the Board’s actions in this proceeding will affect the response of UP and other railroads to the capacity crisis. We then discuss the specific proposals the Board has made for modifying the application of the stand-alone cost (“SAC”) test. We explain that some of the proposals might improve the test but that others, despite the Board’s good intentions, would not. We also outline several suggestions that we believe will help ensure that rate regulation does not unduly distort market incentives or inappropriately deprive railroads of revenue that could be invested to provide much-needed capacity additions.

UP's opening submission is supported by verified statements from Thomas C. Haley, UP's Assistant Vice President – Network and Capital Planning; Dr. Kevin Neels of the Brattle Group; and Dr. Robert L. Sansom of Energy Ventures Analysis, Inc.

We at UP view this proceeding as particularly important because it is about the transportation of a commodity that is so critical to us and the entire nation. The transportation of coal has been an integral part of UP's heritage, and UP wants it to continue that way. We also understand the critical role that coal plays in promoting the energy independence of our country, and UP wants to continue to do its part in promoting that important objective.

As a stakeholder in the future of coal, UP understands that its role is to provide the capital, to the extent supported by its earnings, for investment in coal transportation capacity. Other stakeholders have similarly important roles. Those who ship coal must be prepared to pay for this capacity investment. And the regulators should not create regulatory barriers that prevent such investment. The outcome of this proceeding must reflect the importance of these various roles to the future of coal and our nation's energy independence.

I. THE NATION'S TRANSPORTATION INFRASTRUCTURE WILL NOT BE ADEQUATE TO HANDLE ALL OF THE ANTICIPATED DEMAND AND REQUIRES MASSIVE INVESTMENT IN NEW CAPACITY.

At the outset, it is important to articulate why this proceeding is so important. The nation faces a transportation capacity crisis that is affecting all transportation modes, including railroads. Resolving this crisis will require massive new investment in transportation capacity.

Railroads face increasing demand for already strained capacity across their entire systems, but there is particular pressure with respect to coal. Demand is booming, especially for coal from Wyoming's Powder River Basin ("PRB"). Railroads will need to earn large amounts of revenue in order to respond to this demand. The costs of just maintaining the existing coal

transportation network are staggering, and railroads would have to make significant new investments to accommodate the anticipated increases in demand. Market signals should tell railroads whether and where to make investment – *i.e.*, how they should allocate investment between coal and other commodities that shippers want to transport by rails – but flaws in the current application of the SAC test are distorting those market signals. The outcome of this proceeding will have an important effect, helping determine whether UP and other railroads will respond to the transportation demand based on market signals from their customers or based instead on distorted incentives arising from misguided regulatory constraints.

A. The Nation Faces A Transportation Capacity Crisis.

This proceeding comes at a critical juncture for our nation’s transportation system. The demand for our surface transportation network has reached unprecedented levels and clearly exceeds what the network can provide. By all accounts, demand will continue to grow. Unless significant investments are made in our transportation network, the nation will face gridlock; our transportation system will be unable to adequately serve the nation’s economy.

Quotes from various members of the transportation sector illustrate the capacity constraint the country faces. “In 23 years, I have never seen a situation where the supply chain is at capacity. It’s busting at the seams,” an executive with a major chemicals firm noted.¹ “None of us can do business the way we did last year. The volumes are simply too high,” according to a representative of a major U.S. port.² “We are out of capacity as a country on virtually every

¹ Randy Schaeffer, manager of rail fleet procurement at Air Products and Chemicals, quoted in William Hoffman, *Capacity’s New Match Game*, Traffic World, May 16, 2005.

² Carolyn Martin, director of customer service, International Transportation Service Terminal (ITS), Port of Long Beach, quoted in Yvonne Smith, *West Coast Bottlenecks Keep Narrowing*, World Trade, Jan. 2005.

segment in the transportation industry at the same time,” according to a well-known transportation consulting firm.³ And Mike Eskew, the Chief Executive Officer of UPS, remarked in a speech to the Houston Forum last month, “What’s shocking, quite frankly, is the inability of our transportation infrastructure to keep up with the normal day-to-day stresses imposed upon it. Our highways, waterways, railroads and aviation networks are simply not keeping up with ordinary demands . . . the American economy risks stagnation without continued investment and infrastructure expansion.”⁴

As these and many similar statements make clear, all freight transportation modes in the United States today are facing capacity challenges. The number of motor vehicle miles traveled has grown some 95 percent since 1980, while the number of highway miles has barely changed, producing ever-increasing gridlock on our highways. Inland waterways face huge maintenance and construction backlogs, and barge supply is erratic. Our ports are increasingly under pressure to accommodate an explosion in international cargo, but communities near the ports fight growth.

Railroads are experiencing similar capacity constraints as traffic has grown. In 9 of the past 10 full quarters, U.S. rail carload traffic has increased compared with the same period in the prior year, and in each of the past four years, year-over-year U.S. rail intermodal traffic has increased.⁵ These growing traffic volumes have resulted in capacity constraints and service

³ Lee Clair, Norbridge Associates, quoted in David Hannon, *Rough Road Ahead for Shippers*, *Purchasing*, Jan. 13, 2005.

⁴ *UPS: Transportation Network Threatens Economic Growth*, *Journal of Commerce*, Mar. 20, 2006.

⁵ Association of American Railroads, Written Testimony of Association of American Railroads at 4, for H. Comm. on Transportation and Infrastructure Subcomm. on Railroads, *Hearing on the U.S. Rail Capacity Crunch*, 109th Cong. (Apr. 26, 2006),

issues throughout the rail network. The days of excess capacity are over. The National Industrial Transportation League testified at a recent Government Accountability Office Rail Regulation Workshop that: “The rail industry is laboring under significant capacity constraints for the first time in over 50 years. . . . We have reached a point where demand has exceeded the industry’s capacity to haul all of this traffic. . . . The inability of the rail industry to meet current demand causes even greater concern for the future.”⁶

Looking into the future, the U.S. Department of Transportation (“DOT”) has projected that by 2020 overall demand for freight rail service (measured in tons) will increase 55 percent (1.3 billion tons) over 1998 levels.⁷ Similarly, the American Association of State Highway and Transportation Officials (“AASHTO”) predicted in a recent report that, with modest economic growth, rail tonnage will grow 44 percent between 2000 and 2020 – from 2,009 million tons to 2,891 million tons – and total freight tonnage will increase by 67 percent – from 15.2 billion tons to 24.5 billion tons.⁸

As demand grows, railroads will have to concentrate increasingly on building new capacity to accommodate as much of that growth as returns allow – while continuing to maintain existing capacity. But if a railroad is not financially self-sustaining over a long period and does not have sufficient revenues, it will not be able to attract the capital necessary either to maintain its existing network or to invest in the expansion of infrastructure required by growing demand.

⁶ National Industrial Transportation League, Written Testimony of National Industrial Transportation League at Government Accountability Office Rail Regulation Workshop (Feb. 27, 2006).

⁷ U.S. Department of Transportation, Freight Analysis Framework, Table 1 (Oct. 2002), http://ops.fhwa.dot.gov/freight/documents/faf_overview.pdf.

⁸ American Association of State Highway and Transportation Officials, Freight-Rail Bottom Line Report 50-51 (2003), <http://freight.transportation.org/doc/FreightRailReport.pdf>.

This point is especially relevant for railroads. In contrast to the extensive government funding for truck, barge, and airline infrastructure over the past 25 years, freight railroads have historically received little government financial assistance for infrastructure construction and maintenance. Instead, freight railroads have financed infrastructure improvements (and equipment investments, such as locomotives) almost exclusively through their own earnings and by borrowing. We build our own highways and then get taxed for owning them. And by any of a variety of measures, railroads are at or near the top among all U.S. industries in terms of capital intensity. As an example, from 1995 to 2004, the average U.S. manufacturer spent 3.5 percent of revenue on capital expenditures. The comparable figure for U.S. freight railroads was 17.8 percent, or more than five times higher.⁹

U.S. freight railroads have been expending, and will continue to expend, enormous resources on improving their infrastructure and operations to alleviate the service and capacity problems they face. From 1980 through 2005, Class I freight railroads invested some \$360 billion in capital and maintenance expenses related to infrastructure and equipment – equivalent, on average, to almost 45 percent of their operating revenue.¹⁰ On a per-mile of road owned basis, these expenditures have been trending sharply higher since 1990.¹¹

Rail capital spending, which is already substantial, must continue to rise. In 2006 Class I railroads will spend more than \$8 billion, up from around \$5.7 billion just four years ago, for laying new track, buying new equipment and improving infrastructure. But even this increased investment will not be enough to handle future growth. AASHTO has voiced serious

⁹ Written Testimony of Association of American Railroads, *supra* note 5, at 12.

¹⁰ *Id.* at 9.

¹¹ *Id.*

concern about the ability of railroads to meet the demand. It concludes that, if rail investment levels are not increased significantly, the freight rail network will experience an investment shortfall of \$53 billion by 2020 just in its attempt to handle existing traffic growth – *i.e.*, to retain current rail market share as demand grows. This figure does not take into account what will be needed to handle projected new demand for rail service.¹²

There is little prospect that the highways will be able to pick up the excess traffic. A recent U.S. Chamber of Commerce report on the highway program stresses that, unless there is a significant new source of funds for the highway trust fund – an unlikely development anytime soon – there will not be enough money to upgrade the existing highway system to handle future growth.¹³ So if we are to have any hope of meeting the transportation needs of the future, the freight rail network must invest in as much capacity as possible to meet the needs of as many shippers as possible.

B. UP And Other Railroads Must Earn Revenue That Will Support Substantial Investments To Meet The Growing Demand For Transportation of Coal.

To achieve the necessary capacity, railroads must be able to invest significantly more than the already massive amounts they have been investing. To make those investments, railroads will need to earn sufficient revenues. Railroads, acting rationally, will invest where returns are highest. Thus, the decision in this proceeding will have a profound effect on whether the necessary investments will be made, how much of the nation's transportation needs will be met, and whether the railroads will have incentives to invest in coal transportation.

¹² See *Freight-Rail Bottom Line Report*, *supra* note 8, at 4.

¹³ National Chamber Foundation, *Future Highway and Public Transportation Finance* (2005).

UP is under particular pressure to generate revenue to invest in response to growth in coal traffic, and coal rates are of key importance in generating this revenue. This proceeding is highly important to UP because it will have an immediate effect on coal rates, and thus on the revenues available to UP to invest in capacity. As we will show, UP's coal franchise earns returns on investment barely above pre-Staggers Act levels. That must change.

The rising demand for transportation of coal is one of the primary reasons that railroads are facing a capacity crunch. Fueled by several significant trends, the demand for Western coal, especially PRB coal, is exploding. Over the ten-year period from 1996 through 2005, the annual coal tonnage moving by rail from southern PRB mines served by UP and BNSF Railway ("BNSF") increased by 59 percent, from 204 million tons to 325 million tons. UP traffic accounts for slightly more than half of this growth. *See* Exhibit 1. UP has supported this increase with massive capital investment in its coal network – more than \$7.0 billion over this period in track and equipment to renew and improve its ability to meet the growing demand for coal transportation. *See* Exhibit 2.

Despite these massive investments, the capacity of UP's network is strained. Since the middle of 2003, UP's network planners have struggled with capacity in critical resource areas – track, terminals, crews, and locomotives– needed to accommodate increased demand and overcome disruptions to service.

There is no respite in sight. In just the next seven years, the demand for rail transportation of southern PRB coal is expected to increase by another 50 percent to an annual volume of 490 million tons by 2012. The National Coal Council recently released a study that sets out a path to increase annual U.S. coal production by 1.3 billion tons per year by 2025 to

meet the nation's energy needs.¹⁴ The conclusion is unavoidable: UP will not be able to accommodate this demand unless it can commit substantial additional capital to its coal business, and that investment must be justified in relation to other investment choices. Simply put, this proceeding will immediately and directly affect where and to what extent UP invests capital in coal transportation.

1. Demand For Transportation Of PRB Coal Is Growing.

As discussed above, demand for PRB coal has grown and is expected to continue growing at a rapid pace. In 1984, when UP and its partners entered the PRB, railroads originated 76 million tons of southern PRB coal. UP expects that railroads may be asked to handle 490 million tons of coal annually from southern PRB mines to electric utilities throughout the United States by 2012.

The most recent projections for southern PRB coal growth are contained in an analysis UP and BNSF commissioned to guide their investment in PRB Joint Line capacity. The two railroads retained CANAC, a leading rail industry consulting firm, to perform a detailed analysis of railroad capacity and investment needs on the Joint Line. CANAC's initial report is attached as Exhibit 3.

The projected increase in demand for PRB coal reflects the combination of a growing demand for electricity generation and the cost advantages of PRB coal. The U.S. Energy Information Administration ("EIA") projects that total electricity consumption in the U.S. will grow from 3,729 billion kilowatt hours in 2004 to 5,208 billion kilowatt hours in 2025.

¹⁴ The National Coal Council, Coal: America's Energy Future 2 (Mar. 2006), <http://nationalcoalcouncil.org/report/NCCReportVol1.pdf>.

Coal-fired plants currently provide approximately 50 percent of electricity generation, and much of the increased consumption is likely be fueled by coal. *See Sansom V.S.* at 5.

No source of fuel for electricity generation has the cost advantage held by PRB coal. Over the past 25 years, the delivered cost of coal to electric generators has consistently been far lower and far less volatile than the delivered cost of oil or natural gas. *See id.* at 1 & Ex. RLS-2. As demand for coal grows, PRB coal is expected to provide the largest incremental share of production because it is the lowest cost fuel option for electricity generation in many areas of the country. *See id.* at 5.

2. UP Faces Capacity Constraints In Key Coal Transportation Corridors And Thus Must Make Substantial Investments To Meet Expected Demand.

The growth in consumption of PRB coal has demanded continual expansion in the resources that UP devotes to these shipments. On the Joint Line in Wyoming, UP and BNSF have had to expand from one track to two, and from two tracks to almost 60 miles of triple-track, with more on the way later this year. But even with that expansion, current demand has consumed the capacity of that line. The need for recovery capacity on the Joint Line was demonstrated in May 2005, when heavy rains and snow mixed with coal dust in the road beds to cause two serious derailments as well as widespread track instability, leading to slow orders. These events revealed the need for massive undercutting work and intensive ongoing track repair efforts, all of which add greatly to costs and eat into the total throughput of the line. Since May 2005 the railroads have been unable to move as much PRB coal as their customers want to consume (and, independently, mines have been unable to produce that much coal). UP found it necessary to declare a force majeure condition and to turn down requests to move coal to new

customers.¹⁵ Unless the stakeholders in the Joint Line find a way to prevent coal dust from being deposited on the Joint Line, UP and BNSF face the need to add significant amounts of capacity to the Joint Line and to perform undercutting on much of the line each year.

UP confronts capacity constraints on other portions of its system that are used by coal trains originating in the southern PRB, as well as those originating in Colorado and the Hanna Basin in Wyoming. As shown on Exhibit TCH-5, coal flows over large swaths of the UP rail network. Virtually all of UP's southern PRB coal flows move east from the PRB across central Nebraska. At Gibbon, Nebraska, approximately 40 percent of UP's PRB traffic continues east toward Omaha/Council Bluffs and Chicago. The other 60 percent heads southeast toward Kansas City, where it splits again for St. Louis or beyond or the south central states. Colorado coal trains also rely on the Nebraska-Council Bluffs-Chicago and Missouri corridors, in addition to UP's Kansas-Pacific line. On each of these routes, coal trains use terminals and line segments that are *already* at or above fluid capacity. See Exhibit TCH-3.

This is the core of UP's system. The Central Corridor lines across Nebraska handle upwards of 40 percent of all UP system traffic. And coal is not the only UP commodity that is growing fast. Large volumes of intermodal and manifest traffic use these corridors, and even more intermodal trains could use these corridors if capacity were available. Indeed, due to volume and traffic composition, UP's Central Corridor route through Nebraska and Iowa is perhaps the most challenging stretch of railroad to operate in the world. This route has extraordinary density – averaging 130-160 trains in many places – and has an exceptionally

¹⁵ UP declared an embargo on the Joint Line effective July 18, 2005. Under this embargo UP is accepting only traffic moving under currently active contracts or common carrier rate items. See http://embargo.railinc.com/index.cfm?content=embargo_view.cfm&no=2005-230.

challenging mix of traffic: about one-third high-speed and service sensitive intermodal and automotive trains, about one-third slower-speed coal and other bulk unit trains, and about one-third manifest trains that have varied operational characteristics. This mix exacerbates capacity demands, since slow-moving coal trains do not mesh well with faster trains when there is little room to pass because of heavy opposing traffic. In short, there is no excess capacity on these routes and acute demands are placed on the capacity that does exist. The coal trains that use these routes must generate enough revenue to cover both their variable costs and the costs of incremental capacity resources needed to accommodate the trains, *and* to compete with other traffic for capacity dollars.

The continued growth in demand for PRB coal will only intensify the demand for limited resources and capital investment. Those demands start on the Joint Line, where all coal trains from southern PRB mines originate. CANAC's independent analysis of the short-term capacity needs on the Joint Line concluded, based on sophisticated, but preliminary, simulations of train operations, that the Joint Line will soon experience gridlock at forecast demand levels if BNSF and UP do not make significant investments in new mainline track. CANAC estimates that the daily volume of loaded and empty trains traversing the line's northern-most segment, between Caballo and Reno Junction, will grow by almost 60 percent, from 44 trains per day to 60-70 trains per day, between 2005 and 2012. The daily volume of trains traversing the line's southern-most segment, from Antelope to Shawnee Junction, will grow by almost 45 percent, from 100 trains per day to 135-150 trains per day, over the same period, if current usage patterns continue. However, BNSF and UP will need to invest in new mainline track long before 2012: CANAC's simulations predict that the railroads will need to add approximately 50 miles of

mainline in order to handle the volumes forecast for 2008.¹⁶ We have already started on those investments.

In addition, the growth in demand for PRB coal transportation and other traffic growth will drive huge capital needs on the core parts of UP's system that coal shares with other traffic flows. UP separately asked CANAC to evaluate the impact of forecast traffic growth on UP's lines between the PRB and the Chicago and St. Louis Gateways, where today's volumes already exceed fluid capacity at several points.¹⁷ CANAC projected dramatic increases in capacity demands on those already-constrained lines.

Although coal is the chief driver of the anticipated growth, other commodities are also contributing to produce this flood of traffic and are calling for capital investment. With parts of the nation's Interstate Highway System approaching gridlock, and truck drivers scarce, UP and other railroads are being called upon to handle unprecedented volumes of intermodal traffic. This new traffic is highly remunerative. In addition, UP has seen premium traffic (such as perishables moving from the West Coast to Eastern markets) move on to its system from the crowded highways – at rates that support UP's investment in the service.

Twenty years ago these profitable traffic opportunities would have been a panacea for UP – they would have helped fill spare capacity and contributed directly to UP's bottom line. Today, however, UP cannot accommodate all this growth in non-coal traffic on top of existing and future PRB coal traffic, even with substantial investments in new capacity. Indeed, there is

¹⁶ CANAC also recommends the addition of 14-20 train landing spots at southern PRB mines to provide sufficient buffer capability and recoverability from outages.

¹⁷ The impairment of the Joint Line beginning in May 2005 has contributed to this strain. The inability to deliver all of the southern PRB coal customers wanted during 2005 has caused 2006 demand to increase to 370 million tons, a 45 million ton increase over 2005.

strong evidence that UP's pursuit of PRB coal opportunities has crowded out what is now more profitable growth in transcontinental manifest and intermodal traffic on UP's Overland Route. We invested in coal capacity instead of in our Sunset Route, where additional capacity is now needed.¹⁸ *See* Haley V.S. at 13-14. A straightforward analysis of UP's revenue and cost data show that UP's coal traffic generates 1.9 mills per revenue ton-mile of contribution (*i.e.*, revenue minus variable costs), which is substantially less than the 3.0 mills per revenue ton-mile generated by agricultural traffic (the next lowest commodity group), and a mere fraction of the 9.8 mills per revenue ton-mile generated by chemical traffic. *See id.* at 12 & Ex. TCH-6.

3. The Additional Resources Needed To Support Present And Future Coal Traffic Are Staggering.

To make room for all of the coal that shippers want UP to handle, the railroad would need to spend hundreds of millions of dollars to add capacity. It would need to make these additions while continually renewing its current capacity – a particular challenge given the extraordinary pounding delivered by heavy coal trains. UP is making innovative operational changes aimed at optimizing capacity, as well as budgeting hundreds of millions of dollars every year in capital spending to expand capacity. The capital needs run the gamut – mainline track capacity; additional sidings and “landing spots” to keep trains out of the way of mainline flows; added run-through capacity in major terminals like North Platte and Kansas City; additional capacity at major engine terminals, shops and other facilities; additional locomotives; and upgrades to track, bridges and other facilities to allow for heavy-haul operations. This is on top of the maintenance and renewal of assets that are wearing out every day and at faster rates under the pounding of heavy coal trains. Hundreds of millions of dollars are needed just to tread water.

¹⁸ If UP adds capacity to the Sunset Route, it would also be able to move 5 to 6 intermodal trains per day from the Central Corridor to the Sunset Route.

UP anticipates that its system will remain under stress indefinitely absent an unexpectedly severe and prolonged downturn in the broader economy.

UP has invested and continues to invest substantial resources in its coal business. However, such investment is a gamble on the future. The coal business has not been providing adequate returns on investment. If UP cannot count on higher returns, the level of investment must decrease. At present, UP stands to earn a return on its recent investment in its coal business of less than 4 percent – significantly below the 12.2 percent cost of capital in 2005.¹⁹ This makes it very difficult to justify the larger investments that will be needed to accommodate the projected increasing demand for coal transportation.

C. Flaws In The Current Application Of The SAC Test Are Distorting UP's Incentives To Invest In Its Coal Business.

One reason for the gap between actual coal revenues and a level of coal revenues necessary to support higher investment is that the SAC test, as currently applied, has become increasingly disconnected from reality. Shippers are using the SAC test to suppress non-abusive, market-driven rates for coal transportation. As a result, application of the test is disrupting market signals that would otherwise tell UP where rail transportation provides the greatest value to shippers. If the flaws in the SAC test are not corrected, application of the test will direct always-limited capital dollars away from investments to serve coal and into investments that yield the highest returns: capacity that will serve unregulated traffic.

The extent to which the current SAC methodology has departed from reality, and the danger this poses for UP's incentives to invest in its coal business, are starkly illustrated by

¹⁹ This calculation is based on UP's past investments in the coal business, which have averaged \$700 million per year for the past 10 years, UP's 2005 coal revenues of about \$2.5 billion, and UP's costs for handling coal in 2005 as measured using URCS. *See* Haley V.S. at 7.

the Board's decision in *Wisconsin Power & Light Co. v. Union Pacific Railroad*, STB Docket No. 42051 (STB served Sept. 13, 2001, modified May 9, 2002) ("*WPL*"). In *WPL*, the Board's application of the SAC test indicated that UP was earning vastly excessive revenue on its entire coal portfolio. That result defies objective reality, and it provides strong evidence that there are fundamental flaws in the current SAC methodology.

The *WPL* case involved PRB coal moving to Wisconsin Power & Light's Edgewater plant in Sheboygan, Wisconsin. The traffic the complainant chose for its stand-alone railroad ("SARR") in *WPL* largely replicated UP's PRB coal business. (For that reason, the *WPL* result provides a good reality check on the current application of SAC.) The SARR was a coal-only railroad that handled nearly all of the PRB coal and a significant portion of the Utah and Colorado coal that UP originated. Significantly, more than 90 percent of the coal in the SARR's traffic group had more than one competitive option (*e.g.*, service from a second railroad or a barge).

The result of the SAC analysis in *WPL* shocked UP, and it should have shocked the Board. According to the Board's SAC analysis, UP's revenues for the traffic handled by the SARR generated a surplus of 20 to 25 percent. In other words, according to the SAC analysis, UP was overcharging by a very substantial amount not only Wisconsin Public & Light, but its entire collection of Western coal customers, including the vast majority that have competitive options.

The SAC result in *WPL* defies reality because it implies that UP is earning vast amounts of excess revenue on its coal business, when all objective evidence indicates that it is not. The *WPL* result implies that UP earned nearly \$1.47 billion in excess revenue from its coal customers between 2000 and 2005. *See* Exhibit 4. In the real world, however, UP is not earning

excess revenues from coal. Instead, UP's coal revenues are not currently sufficient by themselves to justify reinvestment in the coal business. As discussed above, UP has been investing approximately \$700 million per year to sustain and grow its coal business. For UP to generate a return on this capital investment that is just equal to its cost of capital, its coal traffic would have to produce more than \$3.2 billion of revenue per year. However, UP's coal traffic in 2005 actually produced only \$2.5 billion of revenue, and the SAC result in *WPL* says that UP needs far less than that.

The SAC result in *WPL* is also inconsistent with the Board's findings that UP was revenue inadequate in each year between 2000 and 2005. As calculated using the Board's own revenue adequacy methodology, UP sustained an actual revenue shortfall of almost \$4.5 billion during that period. See Exhibit 4. The implied conclusion of the *WPL* decision – that UP earned nearly \$1.47 billion in excess revenue from its coal traffic during the same period – cannot be reconciled with UP's demonstrably inadequate real-world revenues.

The SAC result in *WPL* has implications for UP far beyond that one case. Using current SAC methodology, almost all of UP's captive PRB coal shippers could construct a similar SARR and thus obtain the same SAC result – leading to a Board order capping rates at the 180 percent jurisdictional threshold. Indeed, after UP lost in *WPL*, it saw the handwriting on the wall and agreed to litigate only the jurisdictional threshold issue in a subsequent rate case involving a PRB coal customer. See *Northern States Power Co. Minnesota v. Union Pacific R.R.*, STB Docket No. 42059 (STB served Mar. 9, 2001) at 1 n.2. The SAC result in *WPL* has also enabled other coal customers to pressure UP to agree to rates at below-market levels, based on the threat of a rate complaint.

In a different proceeding, the Board has calculated that, in order to achieve revenue adequacy, UP would need to earn an average of 274 percent of variable costs on its shipments that are moving at rates above 180 percent of variable costs.²⁰ When rate regulation instead caps coal rates for captive shippers at 180 percent of variable costs, the result is a negative effect on incentives to invest, to the detriment of all coal shippers. The effect of such a cap is exceptionally troublesome in the current capacity-constrained environment, in which PRB coal receivers want UP to make additional capital investments so that the railroad can deliver more coal on a faster schedule. Such a result is especially perverse when normal market response to high demand and tight supply situations is for prices to rise. UP will not have the appropriate, market-based incentive to make investments to support its coal business so long as it faces the prospect that regulation will cap its rates at levels that do not permit an adequate return on those investments, while at the same time it can charge higher rates and earn higher returns on traffic not subject to regulation.

The fact that the jurisdictional threshold limits rate prescriptions does not remove the concern with the flaws in current SAC methodology. In a properly conducted SAC analysis, the jurisdictional threshold would rarely, if ever, come into play. We know this because Congress could not have expected the jurisdictional threshold to cap a railroad's rates on its most inelastic traffic at 180 percent of variable costs at a time when the railroad needs to earn an average of 274 percent of variable costs on that traffic. Such a result is flatly inconsistent with Congress's directive that the Board assist rail carriers in attaining revenue adequacy. *See* 49 U.S.C. § 10704(a)(2). That, however, is what happened in *WPL*, and the structure of UP's

²⁰ *Rate Guidelines – Non-Coal Proceedings*, STB Ex Parte No. 347 (Sub-No. 2) (STB served Apr. 25, 2006), Table 1.

network guarantees that, absent a change in SAC methodology, the *WPL* result will be repeated, crippling UP's ability to invest in capacity required to respond to the increasing demand for coal transportation. If UP is to maintain the ability and incentive to make such investments, it is essential that the Board fix the current methodological flaws in its application of the SAC test.

The Board's SAC analysis is not a hypothetical exercise. It directly sets some rates, and it indirectly affects many others, because SAC results influence UP's decisions about tariff rates. In turn, these rate levels directly affect the railroad's decisions about how to allocate capital investment. If not corrected, faulty SAC methodology will drive down investment in coal transportation.

II. THE BOARD'S PROPOSALS WOULD NOT REMEDY BASIC FLAWS IN THE CURRENT APPLICATION OF THE SAC METHODOLOGY.

The Board's proposals appear to be well-intentioned efforts to improve the current application of the SAC methodology. Three of the proposals – the shorter rate analysis period, the use of URCS system-average variable costs, and the reopening standard – would be acceptable to UP with a few clarifications or adjustments. With regard to the other three issues, however, the Board's proposals are inconsistent with the basic principles underlying SAC theory. UP has determined that if the Board had applied these other three proposals in *WPL*, the SAC result would have implied that UP was earning even greater excess revenue on its coal traffic than suggested by the Board's *WPL* decision. This result alone demonstrates that the proposals fail to bring SAC methodology closer to either SAC theory or reality.

In the sections below, we discuss each of the six proposals presented in the NPRM. Where we disagree with the Board's proposed approach and have useful experience with the particular issue, we offer our own proposals for improving the current SAC methodology. We conclude with some brief comments about certain other significant issues that

arise in SAC cases. The Board will need to address such issues on a case-by-case basis if it elects not to address them in this rulemaking.

A. Maximum Rate Determination

The Board's first proposal is to change the current percent reduction approach to maximum rate determination. The percentage reduction approach has not been at issue in the rate cases shippers have brought against UP. In *WPL*, UP's only recent coal rate case in which the Board performed a full SAC analysis, UP rates were capped at the jurisdictional threshold. In *FMC*,²¹ the Board's order required that several non-coal rates be set based on SAC results, but neither party challenged the Board's application of the traditional percentage reduction method.

UP is concerned, however, that the proposals on this subject appear to depart from the concept of differential pricing, which lies at the very core of the approach the agency has properly taken to rate regulation in the past. The Board's MCM proposal relies on the principle that all shippers should bear the same "assigned contribution," on a ton-mile basis, to the costs of constructing and operating the lines at issue, regardless of their relative demand for rail transportation. This approach strongly resembles the "ton-mile method" of cost allocation that the agency rejected long ago when it embraced Constrained Market Pricing ("CMP"). *See Coal Rate Guidelines, Nationwide*, 1 I.C.C.2d 520, 522-23 (1985). The MMM variant proposal, which develops a "maximum contribution" based on "a markup over variable cost," bears a strong resemblance to the "ratio method," which the agency had rejected even earlier. *See id.* at 523 n.6.

²¹ *FMC Wyo. Corp. v. Union Pac. R.R.*, 4 S.T.B. 699 (2000).

The ICC properly rejected the ton-mile and ratio methods because rates derived from those methods “would not reflect demand nor necessarily contribute to achieving revenue adequacy.” *Id.* at 523. Those concerns likewise apply to the use of similar allocation methods to determine maximum rates after performing the other steps of the SAC test.

Apart from articulating these concerns, UP reserves judgment on the maximum rate determination issue until it has had an opportunity to review comments filed by parties with more recent experience dealing with this issue.

B. Revenue Allocation For Cross-Over Traffic

UP appreciates the Board’s effort to improve upon the simplistic “modified straight-mileage prorate” methodology it has used to allocate cross-over traffic revenues in recent cases. The Board’s proposal on this issue, however, has serious flaws and will not solve the fundamental problem with cross-over revenue allocation.

The allocation of revenues from cross-over traffic has become one of the most important issues in SAC cases. Such allocation can have an enormous effect on the outcome of a SAC analysis, producing outcomes that are entirely unrealistic.

Complainants have taken advantage of their ability to pick and choose the portions of the incumbent’s rail network that they wish to replicate (beyond the portions used by the issue traffic), and to populate those segments with large volumes of traffic that traverse far-flung portions of the residual incumbent’s network. UP does not contest the principle that complainants should be able to draw upon non-issue traffic to achieve economies of density for their SARRs. However, complainants’ reliance on cross-over traffic to feed revenue into their SARR systems is out of control. As currently applied, this practice fails to serve the goal of determining whether the revenues generated by the issue traffic exceed SAC costs. In recent cases, complainants have proposed SARRs that rely on cross-over revenue “allocations” for

nearly 100% of their revenues, while postulating networks that represent a tiny fraction of the broader networks needed to originate and terminate all of that cross-over traffic.

Several examples illustrate complainants' extreme reliance on cross-over traffic. In *AEPCO*,²² the complainant posited a SARR that replicated two short segments in the middle of UP's and BNSF's transcontinental mainlines; over 99 percent of the traffic was cross-over traffic.²³ In *Western Fuels/Basin Electric*,²⁴ complainants posited a SARR in which only the issue traffic is handled origin to destination; the remaining traffic moves less than 70 miles on average on the SARR, with one third moving 30 miles or less on-SARR.²⁵ In such cases the *revenue allocation methodology*, rather than any calculation of the costs of building and operating the proposed SARR, virtually dictates the SAC result. In these circumstances, the outcome says essentially nothing about the reasonableness of the rate for the issue traffic.

The Board's proposed rules recognize – correctly – that the only accurate way to assess the full SAC costs of serving the traffic handled by a SARR would be “a full SAC analysis,” *i.e.*, an analysis covering the full costs and revenues of all the traffic the complainant selects for its SARR. The Board rejects this approach on the ground that such an undertaking “would defeat the purpose of using cross-over traffic in the first place.” *NPRM* at 17. The Board concludes that revenues from cross-over traffic should be allocated by, “to the extent practicable, the carrier's relative average costs of providing service over the two segments.” *Id.* at 18.

²² *Arizona Elec. Power Coop. v. Burlington N.&S.F. Ry.*, STB Docket No. 42058.

²³ Joint Supplemental Reply Evidence and Argument of The Burlington Northern & Santa Fe Railway Co. and Union Pacific Railroad Co. at III.A-2, *Arizona Elec. Power Coop. v. Burlington N.&S.F. Ry.*, STB Docket No. 42058, (STB Jan. 26, 2004).

²⁴ *Western Fuels Ass'n v. BNSF Ry.*, STB Docket No. 42088.

²⁵ Reply Evidence and Argument of BNSF Railway Co. at I-3, *Western Fuels Ass'n v. BNSF Ry.*, STB Docket No. 42088 (STB July 20, 2005).

According to the Board, “[b]y focusing on the ratio of actual costs incurred by the carrier, the revenue allocation method should maintain, to the extent possible, the relationship between revenues and costs that would exist in a full SAC analysis.” *Id.* The Board asserts that this “simplified SAC analysis” will approximate a “full SAC analysis.”

This proposal does modestly improve upon past approaches, by more accurately measuring the relative costs associated with the stand-alone and residual incumbent segments traversed by each movement of cross-over traffic. However, the Board’s proposed cost-based approach to revenue allocation remains fundamentally flawed. Indeed, any approach that attempts to allocate the contribution of a particular movement to fixed costs (*i.e.*, revenue in excess of variable costs of moving the traffic) between the stand-alone system and the residual incumbent’s network will be similarly flawed.

First, and most fundamentally, there is no principled basis for allocating *contribution* from a movement among different segments. In the real world, the incumbent’s revenue from any given traffic movement – and, importantly, the contribution to fixed costs generated by that revenue – is *not* split among the segments of the incumbent’s network on which the movement occurs. To be sure, that revenue can be thought of as covering the *variable costs* associated with each portion of the movement – the fuel used to traverse each mile, the labor costs associated with each mile moved, etc. But the *fixed costs* that support the movement are joint and common costs of a shared network that is used and supported by many traffic movements. Any assignment of a portion of the contribution from a particular cross-over movement to offset the fixed costs of a particular segment of the rail line will be arbitrary. Such an allocation would rest on inherently arbitrary choices about (a) how much of the movement’s contribution should be assigned to particular segments of the network and (b) how the fixed cost

burden of any particular segment should be divided among the various movements that traverse that segment.

In substance, any attempt to allocate the contribution from cross-over traffic would amount to an assignment of the incumbent's revenues to specific parts of the joint and common costs it incurs to generate those revenues. Whether the Board chooses to allocate the origin-to-destination revenues earned by the incumbent on the basis of ton-miles, as the previous MSP methodology did, or based on the proportion of average total costs represented by the stand-alone and residual incumbent segments, the allocations have no grounding in reality or railroad economics. *See Neels V.S.* at 3-4.

The Board should not introduce a new arbitrary allocation into the SAC methodology. The ICC adopted the SAC test to overcome the legal error associated with the use of arbitrary maximum rate methodologies – methodologies that have no principled connection to Congress' statutory directive to the agency to assist railroads in earning adequate revenues. *Coal Rate Guidelines*, 1 I.C.C.2d at 523. The agency acknowledged that “[a]ny means of allocating [unattributable] costs among shippers other than actual market demand is arbitrary.” *Id.* at 526. Indeed, the ICC adopted CMP and the SAC test after concluding “that a meaningful rate policy could not be founded on a strictly cost-based approach” and that rates derived from a method that relied on cost allocations “would not . . . necessarily contribute to achieving revenue adequacy.” *Id.* at 523.

The courts have been quick to strike down approaches to rate regulation that rely on arbitrary methodologies. In *San Antonio, Texas v. United States*, 631 F.2d 831 (D.C. Cir. 1980), the court rejected maximum rates based on a formula that allocated fixed costs in proportion to a movement's tons and ton-miles and then allowed railroads to earn a seven

percent increment above fully allocated costs. It explained that, while the agency justified the “seven percent solution” by reference to the statutory mandate to “assist carriers in attaining adequate revenue levels,” the approach had no economic basis and could have justified “a 1%, 21%, 45%, or even a 99% additive.” *Id.* at 850, 851.

Soon thereafter, the ICC abandoned allocation-based approaches to rate regulation in favor of CMP and SAC. When the ICC in a subsequent case departed from CMP and applied a revenue-to-variable-cost benchmark test, the court rejected that approach as arbitrary and unprincipled. *See Burlington N.R.R. v. ICC*, 985 F.2d 589 (D.C. Cir. 1993). The court explained that “while CMP explicitly builds in the idea of revenue adequacy” the benchmark test had “no evident connection to any of the goals that the Commission said CMP/SAC was designed – indeed, well designed – to achieve.” *Id.* at 597-98.

The Board’s ATC proposal introduces into the maximum rate determination process the same type of arbitrary, economically unprincipled approach that courts have repeatedly rejected. It would in substance decree that a carrier’s revenues in excess of variable cost be treated as allocable to discrete segments, and then test the reasonableness of the carrier’s rates based in significant part on precisely that allocation, asking whether the allocated contribution exceeds the calculated fixed costs on the discrete segments. This approach deviates fundamentally from the basic principles of CMP.

Second, apart from the inherent arbitrariness of any allocations of contribution between the stand-alone railroad and the residual incumbent, the cost-based approaches favored by the Board in recent years – including MMP, MSP and the new ATC proposal – result in a bias towards the over-assignment of contribution to the on-SARR segments. This in turn leads to a bias toward finding the challenged rate to be unreasonable, since it inflates the revenue

available to cover the SARR's costs. The Board may not legitimately test the reasonableness of railroad rates using an analysis that is biased in this manner. If it does, it will encourage misallocation of investment in a capacity constrained world.

Under any allocation of revenues that is based on a ratio of costs, the SARR posited by a complainant is assured a healthy allocation of the contribution generated by every one of the cross-over movements – with no consideration of whether the other parts of the incumbent's network upon which the SARR's relies for part of its traffic base could survive on the remainder of the contribution. With such rules in place, complainants naturally choose to replicate only the densest portions of the incumbent's network, and then select a traffic group that achieves high densities on the SARR's network. The unsurprising result is that the aggregated revenue allocations for each movement using those segments will ordinarily appear to “over-recover” the costs of building and operating those segments when they are viewed in isolation.

As Dr. Neels demonstrates in his verified statement, the Board's proposed ATC methodology – like the MSP methodology – substantially over-allocates revenues to the dense segments that complainants generally choose to replicate for their SARRs, and thus under-allocates revenues to the residual incumbent's less-dense segments, which support the cross-over traffic. This bias stems from the focus solely on the *relative costs* of the on- and off-SARR segments, without considering the sources of contribution available to cover the costs of the segments. The dense segments most SARRs replicate carry a large number of separate traffic movements. Even a small margin of contribution earned on each of these movements will add up to a substantial return capable of more than defraying the cost burden of these segments. On less-dense off-SARR segments, by contrast, there are typically far fewer units of traffic earning

contribution. Even though the total cost burden on these segments may be smaller, the amount that each unit of traffic must earn if the segments are to remain viable – as they must in order for the SARR to rely on traffic using them – is disproportionately greater. Stated another way, spreading an amount of contribution that is just sufficient to achieve revenue adequacy across a network of varying densities, solely based on a ratio of the costs of carrying the traffic on different segments – as the ATC and MSP approaches do – will wrongly suggest that the dense segments are earning too much while the less dense segments lose money. *See Neels V.S.* at 9-10.

This bias has dramatic effects on SAC results for SARRs built to handle UP's SPRB traffic. As in the *WPL* case, complainants are almost certain to replicate the densest segments of UP's coal network while leaving to the incumbent the responsibility for handling cross-over traffic on relatively less dense portions of UP's network. Dr. Neels illustrates the biases associated with cost-based allocations using a simplified version of UP's coal network. He demonstrates that if complainants are allowed to test the reasonableness of their rates by allocating to a SARR a cost-based share of UP's coal revenues, they will be able to demonstrate unreasonableness – and demand rate reductions – when no such unreasonableness exists. *See Neels V.S.* at 10-14.

Third, the Board's ATC proposal suffers from a fatal conceptual flaw – it apparently allows the SARR to rely on financial support from traffic that is *not included at all* in the SARR's traffic group. The Board's NPRM indicates that off-SARR segments would have "other" traffic – *i.e.*, traffic not included in the SARR's traffic group – "flowing over those lines that would be expected to contribute to the investment costs." *NPRM* at 17. Moreover, the Board's proposed method for spreading the average total costs of off-SARR segments across the

traffic using those segments would allocate a portion of those costs (probably in most cases a quite significant portion) to that “other” traffic. *See Neels V.S.* at 4-5. As a result, the SARR would gain indirectly the benefits of some contribution earned by a residual incumbent from traffic that is not handled by the SARR. At the same time, there is no test to determine whether, under the cost allocation for the off-SARR segments, the residual incumbent would be left with enough revenue to support the fixed costs of segments on which the SARR’s traffic base depends.

This is impermissible. Far from approximating a “full SAC” analysis of the entire rail network needed to support the SARR’s traffic base, the Board’s proposal would allow the SARR to cross-subsidize its network and operations with contribution from the residual incumbent’s traffic base. The SARR network posited by the complainant would never actually “stand alone,” and the SAC results would be meaningless. *See Neels V.S.* at 5-7.

Fourth, even if the Board’s proposal were applied in a manner that avoided reliance on contribution from non-SARR traffic, it would still fail the basic test for any cross-over revenue allocation methodology. Far from approximating a “full SAC analysis,” the proposal *avoids* all of the important questions that a SAC analysis is supposed to answer, relying instead on simple assumptions about costs. The Board would never calculate any real costs associated with the residual incumbent’s off-SARR investments and operations. Rather, these costs would merely be estimated using URCS system-average costs.

The Board has recently held that complainants may not use the SAC test to challenge the reasonableness of a rate without presenting evidence of the true SAC costs associated with the network they propose. *Arizona Elec. Power Coop. v. Burlington N.&S.F.*

Ry., STB Docket No. 42058 (STB served Mar. 15, 2005) at 11-15.²⁶ But the Board's proposal for allocation of cross-over revenues does exactly that – no one ever develops the SAC costs of the significant off-SARR portion of the network upon which the SARR's traffic base and its very survival depend.

This is all the more egregious given that, in many cases, the off-SARR portion of the network is far more extensive than the portion subjected to detailed SAC cost analysis; this imbalance greatly magnifies the risk of error. In *AEPCO*, for example, complainants relied on 8,7000 off-SARR miles of UP's network to support cross-over traffic moving over the 236 miles of UP's network that complainants proposed to build.²⁷ Yet that SARR, with its high percentage share of intermodal and automotive traffic, operated no ramps and included no classification yards and purportedly earned huge returns on its tiny investment. Even in cases where the SARR's network was more extensive – such as *WPL* – the SAC analysis still relied on assumptions about costs associated with a much larger residual incumbent network: the SARR proposed to build 1,286 route miles, but carried traffic that relied on a total network of more than 6,580 miles.

The fact that the Board's proposed cross-over revenue allocation approach has fundamental flaws does not preclude reliance on cross-over traffic. The problems we have described stem from the allocation of *contribution* to the SARR, rather than the use of cross-over traffic to attain economies of density. The Board could avoid these problems by adopting an

²⁶ See Joint Brief of Respondents Surface Transportation Board & United States of America at 33, *Arizona Elec. Power Coop. v. Burlington N.&S.F. Ry.*, No. 05-1136 (D.C. Cir. Oct. 25, 2005).

²⁷ See Reply Evidence of Union Pacific Railroad Co. Concerning Stand-Alone Costs at Maps 1, *Arizona Elec. Power Coop. v. Burlington N.&S.F. Ry.*, STB Docket No. 42058 (STB May 27, 2003).

approach that allocates to the SARR only that portion of the incumbent's total revenues equal to the incumbent's variable costs avoided as a result of the SARR's operation. This approach is the only one we have seen that is both principled and consistent with the Board's objectives in using the SAC test to assess rate reasonableness. It not only would avoid the inherent problems of attempting to allocate contribution; it also would implement SAC theory by mirroring the outcome of the hypothetical negotiations between the residual incumbent and the SARR that would occur in a contestable world. *See Neels V.S.* at 14-17.

The Board could easily make the requisite allocation by calculating the incumbent's URCS variable costs for the on-SARR portion of the movement, and allocating that amount of revenue to the SARR – leaving the remaining cross-over revenue to support the residual incumbent's network. With such an allocation, the SARR's variable costs would be covered; in addition, assuming the SARR were more efficient than the incumbent, the SARR would also earn some margin that would contribute to its fixed costs. The SARR accordingly would have the opportunity to achieve optimally efficient traffic densities by adding cross-over traffic to its network. It also would have the opportunity to capture some contribution from that traffic to provide further financial support for its network. If certain traffic were particularly attractive, complainants could obtain for the SARR the full contribution available from that traffic by building to the endpoints of the cross-over movement.²⁸

As Dr. Neels explains, the approach we propose is equivalent to the efficient component pricing ("ECP") rule. *See Neels V.S.* at 14. UP recognizes that the Board has

²⁸ Under the Board's proposed approach and its current mileage pro rate, as well as under the approach we propose, railroad defendants have no similar opportunity to correct any bias arising from the revenue allocation methodology.

previously considered and rejected the ECP approach in *Nevada Power*.²⁹ In that case, however, the Board focused on the supposed inappropriateness of assuming that the residual incumbent would undermine the viability of the SARR by making a competitive response to the SARR's entry. The ICC saw this assumption as imposing an impermissible barrier to entry. But as proposed here, allocating a portion of revenues to the SARR based on avoided variable costs assumes no such competitive response, and gives rise to no similar objection. Indeed, an approach to cross-over traffic revenue allocation that avoids allocating any of the incumbent's contribution is the *only* approach that implements CMP and the SAC test in a valid manner.

C. Indexing Operating Expenses

The Board has proposed calculating future SARR productivity using a hybrid of its adjusted and unadjusted Rail Cost Adjustment Factors (RCAF-A and RCAF-U, respectively). Like an incumbent carrier, the Board argues, a SARR may realize productivity gains from improvements in its operations as well as adoption of new technologies. This is incorrect. As the Board and shippers have repeatedly proclaimed, a SARR is an “optimally efficient carrier” that lacks the inefficiencies inherent to incumbent carriers. *See, e.g., AEP Tex. N. Co. v. BNSF Ry.*, STB Docket No. 41191 (Sub-No. 1) (STB served Mar. 17, 2006); *Western Fuels Ass'n & Basin Elec. Power Coop. v. BNSF Ry.*, STB Docket No. 42088 (STB served Mar. 17, 2006); *Duke Energy Corp. v. Norfolk S. Ry.*, STB Docket No. 42069 (STB served Oct. 20, 2004). Unlike an incumbent carrier, a SARR has few opportunities to enhance its productivity after Day 1. It is designed for optimal operations for a known traffic volume and type and with state-of-the-art technology. Accordingly, using the aggregate measure of real railroads' productivity

²⁹ *Bituminous Coal – Hiawatha, Utah, to Moapa, Nevada*, 10 I.C.C.2d 259 (1994).

gains would not accurately reflect a SARR's experience. Although the Board should leave the door open to SARR implementation of new technologies—if a complainant can demonstrate that the savings that result from these technologies will cover their costs—the Board's existing methodology, which uses solely RCAF-U, properly accounts for SARR productivity and should not be revised.

1. Stand-Alone Railroads Lack Opportunities For Continuous Improvement.

Continuous improvement in operations is a primary source of incumbent rail carriers' productivity gains. This may take the form of rail network rationalization to adjust to current or anticipated traffic levels. Line sales, leases, and facility enhancements each represent sources of productivity gains. Additionally, railroads continually adjust their operating procedures to match changing traffic patterns and to reduce work performed. Such opportunities are unavailable to SARRs, which contain none of the sources of inefficiency that incumbent carriers continue to eliminate.

UP faces an ever-changing traffic base and must adjust its network and operations accordingly. For example, UP constantly reviews its network to identify lines for possible sale or lease to third-party operators capable of gathering and delivering carloads to customers more efficiently than UP. UP also routinely adjusts its facilities to reflect changing market and traffic conditions. For example, UP makes ongoing adjustments to its operating procedures.

A significant source of recent and future productivity gains for incumbent carriers is simplification of operations to remove as many train work events as possible. Under its Unified Plan, UP has targeted costly work events for reduction or elimination. UP has designed new service products that resemble unit train operations for bulk and other perishable customers. *See Haley V.S.* at 14-15. By redesigning service plans to reduce the frequency of high-cost

activities and eliminate unproductive tasks, UP and other carriers are improving service and reducing costs.

SARRs do not have these opportunities for productivity gains. By design, SARRs have already achieved optimally efficient operations, in particular through unit coal train operations. Where SARRs operate non-coal traffic, they generally rely upon “hook-and-haul” operations, in which connecting carriers interchange trainloads with the SARR. Thus, a SARR by design avoids handling carload traffic and the associated obligation to provide local switching service and classification yards – precisely where railroads find the most opportunity to become more productive.

With no costly switching activities to perform and no redundant rail lines to operate, a SARR cannot boost its productivity by eliminating such activities and operations. Moreover, a SARR begins life with an optimal design, and it achieves that optimum throughout the forecast period. The SARR’s proponents know exactly how much traffic it will transport in each quarter over each segment, and they specify the optimum design and capacity required for each specific traffic group they expect to transport.³⁰

Blessed with perfect knowledge of future traffic volume and composition, the complainant proposes an operating plan that supplies just enough line capacity, yards, crews, locomotives, and cars, all located or positioned for optimal use. Throughout the entire forecast period, a SARR has no underutilized assets that can be eliminated, resources ripe for redeployment, or inefficient work practices to improve.

³⁰ See, e.g., Opening Evidence of AEP Texas North Co. at I-18, *AEP Tex. N. Co. v. BNSF Ry.*, STB Docket No. 41191 (Sub-No. 1) (Mar. 1, 2004) (“Approximately 189.9 million tons of coal and 8.8 million tons of general freight were identified for inclusion in the [SARR] 2001 traffic group.... Future coal traffic volumes for the [SARR] were projected using the most reliable data available.”).

Because the SARR is designed to operate at an optimal level throughout its life, there is no reason to believe that it will improve its efficiency by year 10 or year 15. The Board suggests that a significant source of SARR productivity gains will be its ability to “learn by doing.” *NPRM* at 21. However, a SARR workforce that is assumed to achieve maximum efficiency throughout the forecast period would not improve productivity through experience. If it did, the Board would have to make an allowance for less than optimally efficient operations during the early years of SARR operations. Instead, complainants posit SARRs that from Day 1 achieve performance metrics that no real-world railroad can match.

2. Technology Offers Little Potential For Productivity Gains For SARRs.

The Board’s suggestion that technological developments might be another source of productivity improvements for a SARR is not well founded. UP’s experience demonstrates that productivity-enhancing technologies come only at a steep price, have many ancillary costs, and deliver productivity benefits only over many years as they are fully deployed. Moreover, many technologies offer savings for the manifest traffic that SARRs choose to avoid. Where the technology could benefit unit train operations and is feasible, then the SARR will adopt it throughout its system at the beginning. This limits or precludes productivity gains that the SARR might enjoy as a result of technology.

Incumbent carriers, in contrast, do not realize instantaneous benefits from new technologies. In most cases, they gain incremental benefits as they phase in new technology over time, *e.g.*, as they replace old equipment. Moreover, incumbent carriers incur ongoing costs and expenditures associated with implementing new technologies. If a complainant posits that a SARR will incorporate new technologies into its system following startup, it must also assume that the SARR will bear the ancillary costs of the improvements, as incumbent carriers do on a

routine basis. This includes, for example, the cost of additional infrastructure required to support the technology and the costs of unforeseen side effects resulting from the use of the technology.

Also of importance, due to their design, SARRs cannot benefit from certain new technologies UP and other railroads are deploying. For example, UP has converted a substantial portion of its switching operations to Remote Control Locomotive (“RCL”) technology, which has boosted productivity by allowing UP gradually to reduce the number of crew members required to perform switching operations as it installs the technology across its entire system. Few SARRs would choose to incorporate RCL technology in their operations because, unlike UP and other incumbent carriers, SARRs perform little, if any, switching.

In the event that a complainant can identify a new, fully-matured technology suitable for implementation following the commencement of SARR operations, it should be permitted to seek reopening to present evidence of savings from use of that new technology. Of course, the Board should require the complainant to include all the costs of deployment as well as the benefits of the technology.

D. Movement-Specific Adjustments to URCS

UP supports the Board’s proposal to simplify variable cost calculations by discontinuing the use of movement-specific adjustments to URCS system-average unit costs, with two important reservations:

First, the Board should make clear that it does not intend to depart from precedent by excluding from variable cost calculations defendants’ costs associated with payments to third parties or to shippers that are not reflected in URCS unit costs.

Second, the Board should allow parties to increase the accuracy of variable cost calculations for the issue traffic by substituting a limited number of readily obtainable and non-controversial movement-specific inputs for values calculated by the URCS Phase III model.³¹

Even if the Board clarifies and modifies its proposal as we suggest, we believe that the Board's use of unadjusted URCS costs will result in lower jurisdictional thresholds than UP could establish using movement-specific adjustments to URCS costs. This is a significant concern for UP. UP's rates to captive coal shippers will likely be capped at the jurisdictional threshold in most SAC cases (as they were in the *WPL* case), unless the Board adopts UP's proposed approach to allocating revenue from cross-over traffic, discussed above, and requires shippers to rely upon more realistic construction and operating costs, as discussed in section G below. The Board is thus incorrect, at least with respect to cases involving UP, if it believes that "disputes over variable costs . . . divert resources from the core issue in these cases." *NPRM* at 26. Variable costs might turn out to be the only issue of concern in cases involving UP – they have in the past.³² We urge the Board to accept our proposals in this proceeding so that variable costs are not determinative of every future rate case for UP. Even if it does not, our interest in minimizing litigation costs and expediting proceedings would still lead us to support this

³¹ UP's proposal to expand the number of movement-specific inputs applies only to the issue traffic and not to any other traffic that would have to be costed in order to allocate cross-over revenue in cases under the *Coal Rate Guidelines*. We also believe that the costs of using movement-specific inputs to develop costs large amounts of non-issue traffic would usually outweigh the benefits from the increased accuracy that would result in cases under *Rate Guidelines – Non-Coal Proceedings*, 1 S.T.B. 1004 (1996), but there are situations in which accuracy may be more important – such as in resolving disputes about whether specific traffic should be included in a comparison group.

³² As discussed above, after UP lost in *WPL*, it agreed to litigate only the jurisdictional threshold issue in the subsequent case filed by Northern States Power.

proposal. However, if UP rates will be limited to the jurisdictional threshold in all future cases, it is even more critical for the Board to modify its proposal in the manner described below.

1. Payments To Third Parties And Shippers

The Board's proposal does not mention the precedent governing defendants' payments to third parties or shippers that provide services related to the issue traffic. The treatment of these payments is often a significant issue in rate cases because defendants often make payments to third parties or shippers that are not captured as costs by URCS. In the past, the Board has recognized that these payments are legitimate expenses that must be included in variable cost calculations. As part of its proposal to use unadjusted URCS costs, the Board should clarify that it does not intend to change its treatment of these payments.

The "payments to third parties" issue arises in several common situations. Defendants sometimes pay a third party to load the trains that carry the issue traffic at the mine or unload them at the shipper's facility. In addition, defendants sometimes pay a third party railroad to complete a haul, even though the defendant retains ultimate responsibility for providing the service. Finally, defendants sometimes pay the shipper to perform plant switching at the shipper's facility.

In these situations, the costs the defendant incurs for the services performed by the third party or the shipper are not reflected as expenses in Schedule 410 of its R-1.³³ Because the costs are not reflected in the railroad's Schedule 410, they are not included in its URCS costs. In other words, these payments to third parties and shippers would not be included in variable cost calculations that rely solely on the URCS Phase III model.

³³ The Board's Uniform System of Accounts instructs railroads to treat these costs as offsets to revenue rather than record them in operating expense accounts. *See* 49 C.F.R. Part 1201, Instructions for Transportation Revenue Account 101.

In many prior cases, the Board has held that these types of payments to third parties and shippers are legitimate costs that must be included in variable cost calculations. *See, e.g., FMC Wyo. Corp. v. Union Pac. R.R.*, 4 S.T.B. 699, 760-61 (2000); *Pub. Serv. Co. of Colo. v. Burlington N.&S.F. Ry.*, STB Docket No. 42057 (STB served June 8, 2004) at 143; *Carolina Power & Light Co. v. Norfolk S. Ry.*, STB Docket No. 42072 (STB served Dec. 23, 2003) at 129; *Tex. Mun. Power Agency v. Burlington N.&S.F. Ry.*, STB Docket No. 42056 (STB served Mar. 24, 2003) at 64; *Pielet Bros. Trading Co. v. Chicago & N.W. Transp. Co.*, ICC Docket No. 39756 (ICC served Aug. 11, 1987) at 3; *Petition of Denver & R.G.W.R.R. & Salt Lake, G.&W. Ry. for Review of a Decision of the Pub. Serv. Comm'n of Utah Pursuant to 49 U.S.C. 11501*, ICC Docket No. 39060 (ICC served Nov. 14, 1985) at 8-9, *aff'd in relevant part sub nom. Utah Power & Light Co. v. ICC*, 747 F.2d 721, 740-41 (D.C. Cir. 1984). UP does not believe that the Board intended to reverse well-established precedent and preclude recovery for these types of costs incurred by defendants. Including these payments to third parties or shippers as a separate element in variable cost calculations is consistent with the Board's effort to make such cost calculations simple, fair, consistent, and accurate.

With respect to the Board's concern for simplicity and fairness, it is relevant that UP maintains the information necessary to include these payments in variable cost calculations. *NPRM* at 23. Other railroads almost certainly maintain similar information. These payments are easy to identify and calculate. Massive discovery will not be required, analysis will not be complex, expensive, or time consuming, and parties and the Board will readily be able to calculate the jurisdictional threshold. *See id.* at 26-27.

With respect to the Board's concern for consistency, these payments are not presently included in URCS system-average unit costs. Thus, including the actual payments in

variable cost calculations does not raise any concern about the effect of departures from system-average costs on system-average variability factors or a concern that the selective replacement of some system-average costs with movement-specific costs will bias the analysis. *See id.* at 24-26.

Finally, with respect to the Board's concern for accuracy, these payments must be included in variable cost calculations in order for the calculations to be accurate. Unless the payments are included, the variable cost calculations will exclude "legitimate costs." *FMC*, 4 S.T.B at 760. These payments must be included to allow for meaningful application of the Board's broader proposal to use the URCS Phase III model. *See NPRM* at 26-27.

The concern for fairness and accuracy is highlighted by the situation presented in UP's pending case against Kansas City Power & Light ("KCPL"). KCPL is challenging UP's rate for moving coal from the PRB to a KCPL plant near Ladue, Missouri. UP's rate covers the entire route, and UP is ultimately responsible for delivering the traffic to KCPL. UP is the only rail carrier that is a party to the rate item that established the challenged rate, but UP pays third-party loaders at certain mines from which it ships coal to KCPL. UP would have to pay the same amount to the third-party loaders even if the Board ordered UP to reduce the rate it charges to KCPL. In these circumstances, it would not be accurate to cost the movement using URCS Phase III as if there were no third-party loaders. If UP could not include the payments it makes to third parties, the rate the Board prescribed would under-compensate UP for the actual costs it incurs to provide service to KCPL.

In addition, UP pays a fixed amount per car to another railroad, Missouri & Northern Arkansas ("MNA"), to complete the haul by handling the traffic between Kansas City and Ladue. Again, UP would have to pay the same amount to MNA even if the Board ordered UP to reduce the rate it charges to KCPL. In this situation as well, it would not be accurate to

cost the movement using the URCS Phase III model as if the movement ended at Kansas City. Nor would it be accurate to cost the movement as if UP itself handled the traffic all the way to Ladue. The most accurate approach, and the one that is consistent with both Board precedent and the proposal to use the URCS Phase III model, would be to develop UP's costs for the portion of the movement between the PRB and Kansas City (including the payments to third-party loaders) and UP's costs any services it provides between Kansas City and Ladue,³⁴ and then add the fee that UP pays MNA for handling the traffic between Kansas City and Ladue. Any other approach would produce a jurisdictional threshold that would severely under-compensate UP for the actual costs it incurs to provide service to KCPL.

The issue of payments to third parties and shippers is likely to arise in many future cases. UP urges the Board to confirm that such payments must be included in variable cost calculations as additions to the costs calculated using the URCS Phase III model.

2. Movement-Specific Inputs

UP understands the Board's proposal to be that parties would calculate variable costs for the issue traffic using movement-specific operating inputs for each of the nine elements used to run the URCS Phase III model. *NPRM* at 26 n.30.³⁵ The Board could make its variable cost calculations more accurate without undermining any of its other objectives if it were to

³⁴ For example, UP provides locomotives and fuel for the movement between Kansas City and Ladue, without charge to MNA. UP also owns the road property between Kansas City and Ladue and maintains a portion of that property that MNA operates over using trackage rights.

³⁵ We understand the Board to be proposing that the parties would use actual movement-specific operating inputs for each of the nine elements. Thus, for example, they would use the actual loaded miles that the issue traffic travels, and not the model-based miles used in the Board's Costed Waybill Sample. *Cf.* Petition of BP Amoco Chemical Co. To Clarify Scope of Proceeding, Or To Broaden It, *Major Issues In Rail Rate Cases*, STB Ex Parte No. 657 (Sub-No. 1) (STB Mar. 27, 2006).

expand slightly the number of movement-specific inputs that parties could use. Specifically, the Board should allow parties to substitute for calculated or system-average inputs the actual (i) number of locomotives; (ii) empty miles; (iii) tare weight of cars; and (iv) railroad and private line car costs. The parties should be able to agree on each of these elements in short order, particularly with the benefit of staff-supervised technical conferences.³⁶

The Board's proposal to use unadjusted URCS system-average costs is likely to result in understatement of UP's actual variable costs, and thus reduce the jurisdictional threshold, in coal rate cases. For example, UP's actual ownership costs for the locomotives used to move coal unit trains are substantially above system-average costs for two reasons. First, UP pays more for those locomotives than the average locomotive in its fleet because vendors charge more for the newer AC-powered units that UP uses for its coal service. Second, UP often operates its coal unit trains using more than the system-average number of locomotives as calculated by URCS. UP's PRB trains typically use at least three locomotives for most or all of their routes, and UP's Utah and Colorado trains often require as many as five locomotives for parts of the route. UP's URCS system-average consist size for unit trains – 2.8 in 2004 – will often understate the consist size used for coal shipments.

In addition, UP's actual road property and maintenance-of-way costs for coal traffic are substantially above system-average costs. As we discussed above, coal trains cause a disproportionate amount of damage to track structure relative to gross ton-miles, and thus coal

³⁶ See Press Release, Surface Transportation Board, Surface Transportation Board Announces Success of 1st Technical Conference in a Major Rail-Rate Case (July 16, 2003); Press Release, Surface Transportation Board, Surface Transportation Board Announces Success of Technical Conference in a Major Rail-Rate Case (Dec. 19, 2003); Press Release, Surface Transportation Board, Surface Transportation Board Announces Success of Technical Conference in a Major Rail-Rate Case (May 14, 2004).

traffic should bear a larger-than-average share of the costs associated with both capitalized and operating maintenance-of-way expense. We believe that UP could present evidence of these above-system-average costs that would meet the Board's previously applied standard for accepting departures from URCS system-average costs – *i.e.*, UP could present “demonstrably superior cost estimating procedures.” *Adoption of the Uniform Railroad Costing System As A General Purpose Costing System For All Regulatory Purposes*, 5 I.C.C.2d 894, 899 n.12 (1989).

UP understands that many of its concerns are not consistent with the Board's proposal to simplify variable cost calculations by relying on unadjusted URCS costs. However, almost all of the concerns the Board has expressed in support of its proposed approach involve the calculation of movement-specific *costs*, not the development of movement-specific *operating statistics*. The Board could address some of UP's concerns without undermining its objectives if it were to expand slightly the number of movement-specific operating inputs used to run the URCS Phase III model.

For example, the URCS Phase III model uses locomotive consist size and the total number of miles in a movement as the two key operating statistics for calculating locomotive ownership costs, locomotive maintenance costs, and locomotive fuel costs. However, the user does not input directly those two key statistics. With respect to consist size, the user inputs the type of movement (single, unit, multiple), and the model then assigns the average locomotive consist size for that type of movement, based on operating statistics contained in the Annual Report R-1. With respect to miles, the user inputs the number of loaded miles, and the model then calculates the number of empty miles, which is either based on operating statistics from the R-1, or, in the case of unit-train movements, presumed to be the same as the number of loaded

miles. Such operating statistics could be developed and used without undermining the Board's proposal to use unadjusted URCS costs.

UP's proposal is consistent with the Board's effort to make variable cost calculations simple, fair, consistent, and accurate. With respect to the Board's concern for simplicity and fairness, UP maintains the information necessary to calculate most movement-specific operating statistics. Other railroads likely maintain similar information. Moreover, the Board has addressed concerns about the time and expense involved in developing movement-specific operating statistics through a recent rulemaking that created the technical conference process. By all reports, this process has been an outstanding success.³⁷ Finally, the Phase III model can readily be altered to accept actual, movement-specific operating statistics.

With respect to the Board's concern for consistency, UP's proposed use of several additional movement-specific operating statistics does not entail departures from system-average costs or system-average variability factors. Parties would continue to use both system-average costs and system-average variability factors – they would simply apply those figures to movement-specific operating characteristics. Similarly, there would be no selective replacement of some system-average costs because parties would continue to use system-average costs.

The use of additional movement-specific operating statistics will only increase the accuracy of the Board's variable cost calculations. The Phase III program already allows parties to tailor the variable cost calculation to the movement at issue in a number of ways, but the modifications to the program that UP suggests will improve even further the accuracy of those calculations. Congress has approved of the use of URCS to calculate system-average unit *costs*,

³⁷ See n.36, *supra*.

but it has never suggested that those costs should be applied to anything other than the actual operating characteristics of challenged movements in jurisdictional threshold calculations.

Finally, UP recognizes that its proposal to use actual car rental costs involves costs rather than operating statistics. Nevertheless, there are good reasons to accept this modest departure from the use of system-average costs. This proposal would not have a significant effect in coal cases because UP's price documents for coal service specify that no allowance will be paid for shipper-supplied equipment. But several cases have demonstrated that the inclusion or exclusion of actual car rental costs can have a dramatic effect on variable cost calculations for non-coal movements. *See FMC*, 4 S.T.B. at 760; *Petition of BP Amoco Chemical Co. To Clarify Scope of Proceeding, Or To Broaden It at 3, Major Issues In Rail Rate Cases*, STB Ex Parte No. 657 (Sub-No. 1) (STB Mar. 27, 2006).

The use of actual car rental costs in variable cost calculations should not be controversial. Because these costs are 100 percent variable, the use of actual costs would not present the URCS variability issues the Board has identified. Moreover, the necessary cost information is readily available, and use of this information will significantly increase the accuracy of cost calculations, at least in non-coal cases.

E. Stand-Alone Cost Analysis Period

In its Comments filed last April in Ex Parte No. 657, UP suggested that the Board explore the possibility of shortening the stand-alone cost analysis period. UP offered this suggestion as one possible way to address the problems created by the use of traffic and revenue forecasts that extend far into the future. UP recognizes that the shorter analysis period might make SAC results worse for railroads: in some recent cases, projected expense growth has outpaced projected revenue growth towards the end of the 20-year analysis period, thus reducing the "surplus" revenue earned by SARRs.

UP looks forward to reviewing the comments filed by others regarding this issue. At this point, however, we are inclined to support the Board's proposal for many of the reasons the Board offered: with a shorter analysis period, SAC results would be more dependent on known market conditions than on uncertain predictions of distant events; use of a shorter period would help reduce the expense and complexity of SAC analysis; and examination of a shorter period is more consistent with the reality that market conditions can change dramatically over time and cause the presumptions underlying a prescription to become obsolete.

F. Standards For Reopening

The Board's proposed standards for reopening appear reasonable. They are consistent with the remand order in *Burlington Northern & Santa Fe Railway v. STB*, 403 F.3d 771 (D.C. Cir. 2005). UP will review any comments filed by others regarding this issue. At this point, however, we are strongly inclined to support the Board's proposal for the reasons the Board offered in the NPRM.

G. Other Significant SAC Issues

UP supports the Board's decision to institute a rulemaking, and it appreciates that the Board has offered proposals that address many of the issues that UP raised in its Comments filed in Ex Parte No. 657 last April. We hope that, after reviewing the comments of UP and others during the course of this proceeding, the Board will discard those proposals that are inconsistent with SAC principles and will adopt rules that better reflect the economic principles underlying SAC methodology.

The Board must recognize, however, that the issues addressed in the NPRM are not the only problem areas that are having a significant systematic impact on the outcomes of SAC cases. As UP described in its Comments last April, the current SAC methodology has allowed shippers to base their SAC analyses on unrealistic assumptions about SARR operating

and construction costs. In those Comments, UP observed that the Board could address some of these concerns if it adhered more closely in practice to the established principle that a SARR's "data on construction and operating costs must be verifiable." *Coal Rate Guidelines*, 1 I.C.C.2d at 543. UP also suggested that a rulemaking on this issue would provide a forum for discussion of how to bring SARR costs more in line with defendants' real-world costs, so that the SAC methodology would focus more closely on "judging the reasonableness of the defendant carrier's pricing." *Arizona Elec. Power Coop. v. Burlington N.&S.F. Ry.*, STB Docket No. 42058 (STB served Aug. 20, 2002) at 7.

The Board's proposals in the NPRM do not address UP's concerns about unrealistic SARR construction and operating costs. The Board may believe that rulemaking is not the best approach to bringing SARR costs more into line with railroads' real-world experience. And UP recognizes that railroads bear responsibilities to bring evidence of real-world costs to the Board's attention in rate cases. Nevertheless, UP urges the Board to provide, as part of this proceeding, a clear statement on this subject. The Board should confirm a complainant's responsibilities to propose and document realistic operating and construction costs for its SARR and the Board's commitment to ensuring that a SARR's data on construction and operating costs are realistic and verifiable. The Board should also make clear that it is prepared to entertain evidence in a specific case regarding the need for a SARR to bear particular unavoidable costs that affect the incumbent's rates.

The use of unrealistically low construction and operating costs can have just as harmful an impact on the outcome of a SAC analysis as the selection of an inappropriate method of allocating cross-over revenues. Correcting one of these flaws but not the other would still leave UP with the prospect that the rates it charges to its most inelastic coal customers will be

inappropriately capped at the 180 percent jurisdictional threshold, rather than at levels determined by market factors. This distortion of market outcomes would affect UP's incentive and ability to invest in the capacity that it needs to accommodate the increasing demands for rail transportation.

Respectfully submitted,

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May 1, 2006

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A handwritten signature in cursive script, reading "Linda J. Morgan", positioned above a horizontal line.

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May 1, 2006

CERTIFICATE OF SERVICE

I, Michael L. Rosenthal, hereby certify that on this 1st day of May, 2006, I caused a copy of the Opening Submission of Union Pacific Railroad Company to be served by first-class mail or a more expeditious method of delivery upon all persons who have filed a notice of intent to participate in STB Ex Parte No. 657 (Sub-No. 1).

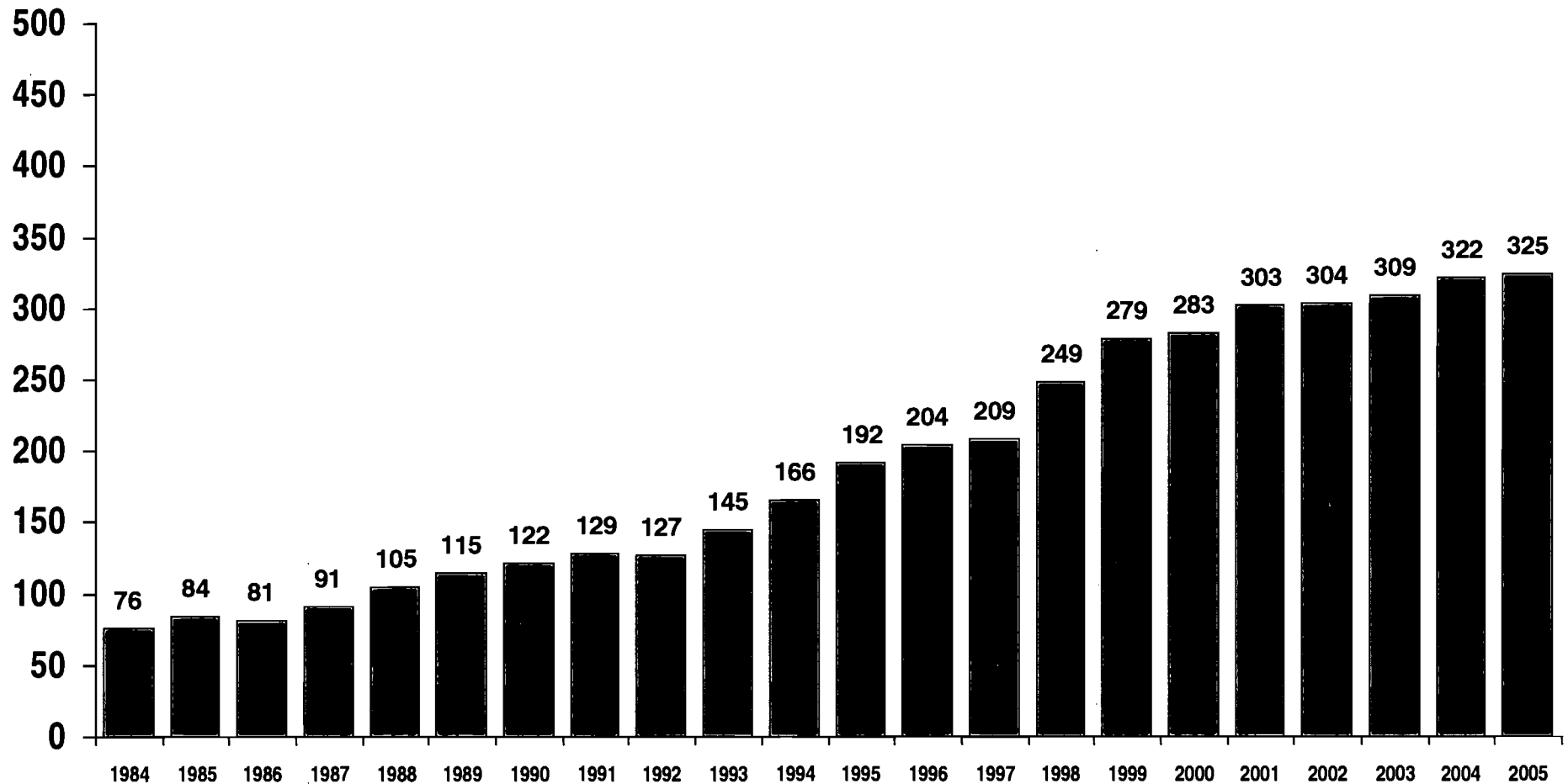
A handwritten signature in black ink, appearing to read "Michael L. Rosenthal", written over a horizontal line.

Michael L. Rosenthal

EXHIBITS

1

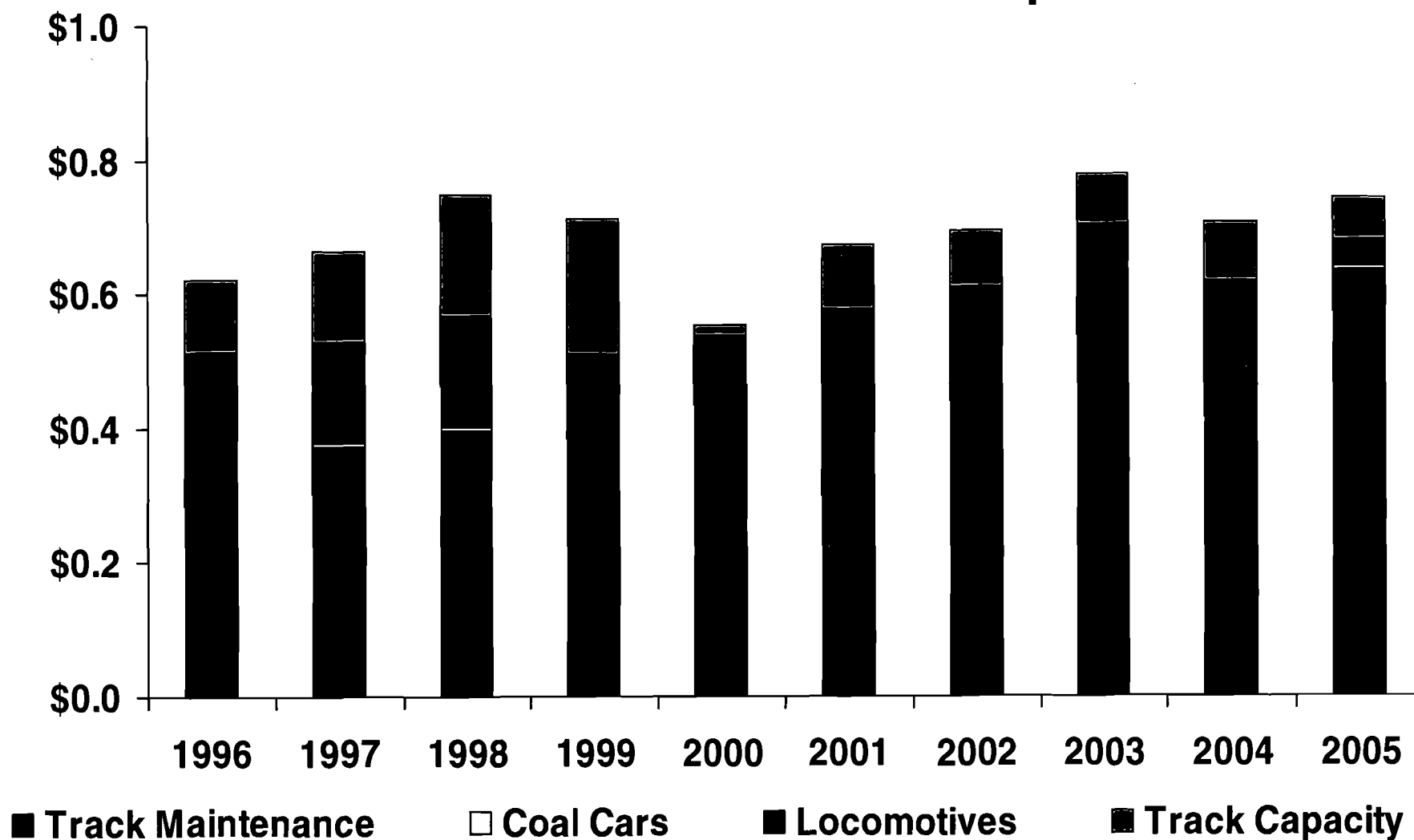
SPRB Joint Line Production Tons (in Millions)



2

Exhibit 2

UP Invests Heavily in the Energy Business 1996 – 2005: Billions of Dollars of Capital Invested



3

Southern Powder River Basin BNSF/UP Joint Line

Towards Sustainable Operations of 500 mmT

Presented by:

**Andrew J. Cebula, P.Eng.
Vice President, Planning & Engineering
CANAC Inc.**

**NCTA 2006 Spring Conference
Napa, CA**

18 April 2006

CANAC

- Located in Montreal, Canada
- The rail operations/consultant subsidiary of Savage Services Corp. of Salt Lake City, UT
- A knowledge based rail solution company specializing in railroad capacity planning, training, engineering, design & construction
- Over 30 years experience

CANAC - Background in the PRB

- 1991:** Development of a phased double track implementation plan
- 1994:** Short, medium and long term action plans
- 1996:** Recommended integrated mainline and minesite operations plan
- 1999:** Analyzed the sustainable operations of the Joint Line as an integrated system
- Mine production
 - Mine-Railroad Interface
 - Railroad Operations
- 2006:** Continued growth expected towards 500 mmT
Integrated minesite-railroad-track maintenance operation

Update from 1999 Analysis

- Key to growth was to ensure and maintain mainline fluidity with a steady flow of trains to the minesites
- Required the construction of additional mainline (railroads) and train landing spots (minesites)

Update from 1999 Analysis

Railroads:

- To achieve 350 mmT target level, recommended completion of triple track on south end (Walker to Shawnee Jct – 14 miles)
 - Completed Spring 2005
- Shortly thereafter, recommended triple track from Reno Jct south
 - Completion Summer 2006 (MP 40 – MP 58)
- Increased train size (1999 to 2006 – average 10% more coal per train), resulted in operational productivity gains on the Joint Line
 - 60 loadings per day in 1999 would have paced 293 mmT
 - 60 loadings per day in 2005 paced at 324 mmT

Update from 1999 Analysis

Minesites:

At 350 mmT target level, additional 20 minesite train landing spots needed for fluid operation

- **As of 1st Q 2006, 14 spots built**
- **Internal mine process changes/enhancements during this period has contributed to train processing productivity gains within certain facilities**

2005 – 2006 Mandate

**Evaluate the operational and infrastructure needs
for the next 5 to 7 years (to Year 2012)**

Phased Approach:

Phase 1: Minesite

Phase 2: Railroads (mainline)

Minesites

September - October:

Initial series of meetings with the producers and railroads

October - November:

Producer meetings to develop 5-7 year projections

December - February:

Individual facility evaluations - operational processes

Development of operational needs - based on projections

February - May:

Complexity of integrating minesite operations with mainline operations, mainline track maintenance, and logistical train flows

Railroads

December - January:

Develop incremental mainline operations/simulation process based on tonnages moved out of minesites

January - April:

Mainline operational evaluation and simulation (including maintenance)

Develop & refine mainline infrastructure needs based on incremental tonnage projections (towards 500 mmT)

April - May:

Phased (tonnage based) mainline testing and recommendations integrated with logistical minesite interaction under track maintenance practices, and increased tonnages

Joint Line Projections

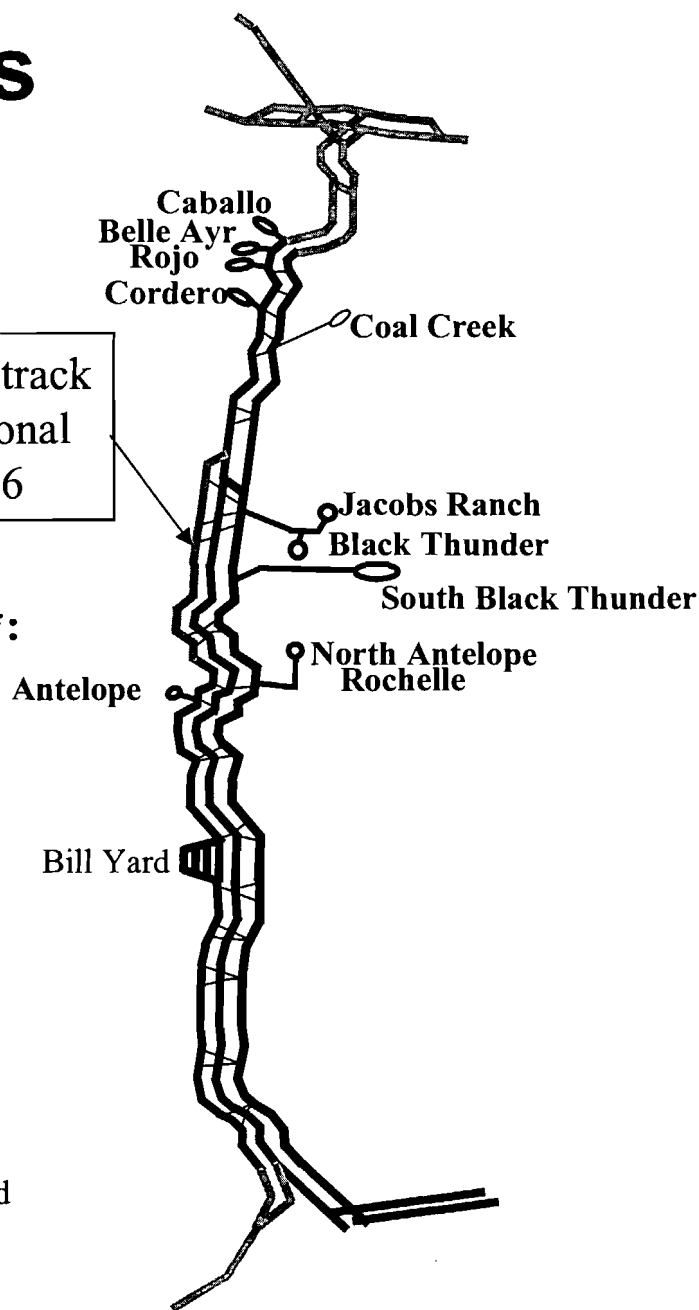
Looking back at CANAC's 1999 study, projections & actuals were:

<u>Year</u>	<u>Projection</u> (mmT)	<u>Actual</u> (mmT)
1999	282.5	279
2004	359.0	322.1

The following are CANAC's 2006 projections*:

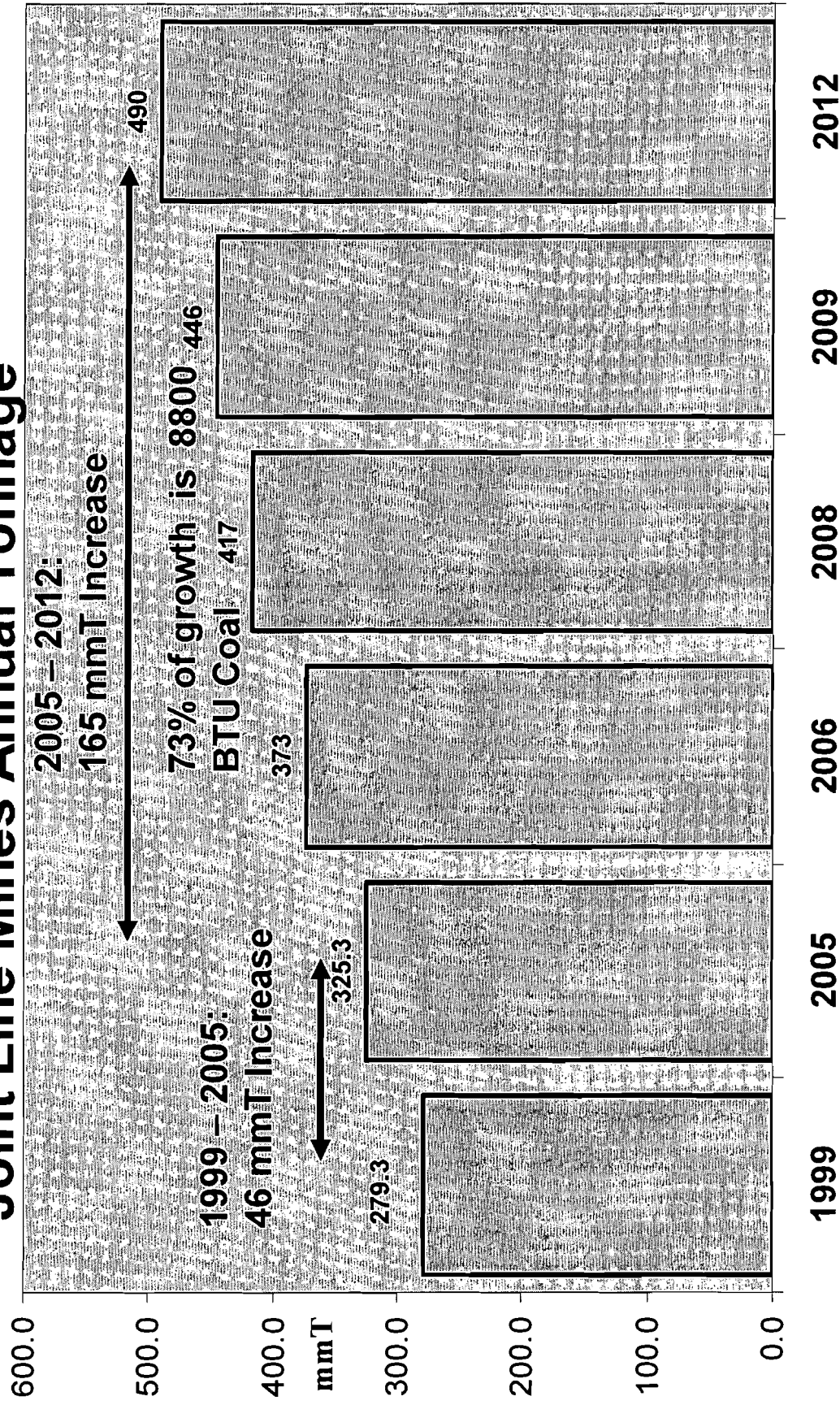
2005	325.3
2006	373
2007	403
2008	417
2009	446
2010	474
2011	485
2012	490

* Projections based on producers meetings (under optimistic and & ideal market conditions)



Outlook

Joint Line Mines Annual Tonnage



Current Operation - 1st Q 2006

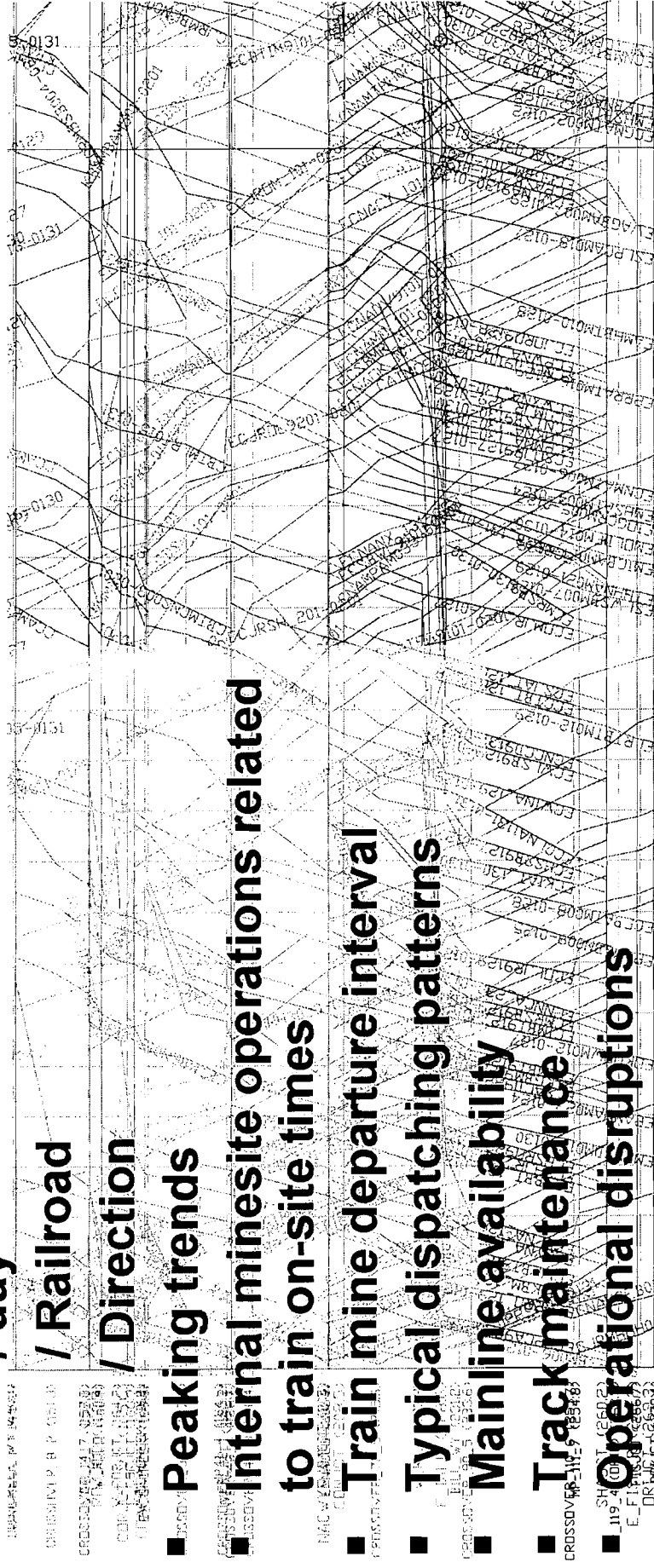
Producer projection for Y2006: 370-373 mm Tons

**1st Q 2006: 85.2 million tons
345.5 mmT pace for year**

**Comparison with 1st Q 2005:
84.4 million tons
342.3 mmT pace**

Complexity of Operations

- Trains / mine / day
- Railroad / Direction
- Peaking trends
- Internal minesite operations related to train on-site times
- Train mine departure interval
- Typical dispatching patterns
- Mainline availability
- Track maintenance
- Operational disruptions



02/01/05 00:00	02/01/05 01:00	02/01/05 02:00	02/01/05 03:00	02/01/05 04:00	02/01/05 05:00	02/01/05 06:00	02/01/05 07:00	02/01/05 08:00	02/01/05 09:00	02/01/05 10:00	02/01/05 11:00	02/01/05 12:00	02/01/05 13:00	02/01/05 14:00	02/01/05 15:00	02/01/05 16:00	02/01/05 17:00	02/01/05 18:00	02/01/05 19:00	02/01/05 20:00	02/01/05 21:00	02/01/05 22:00	02/01/05 23:00	02/02/05 00:00	02/02/05 01:00	02/02/05 02:00	02/02/05 03:00
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Joint Line Daily Trains

North End: Coal Loads & Empty Trains

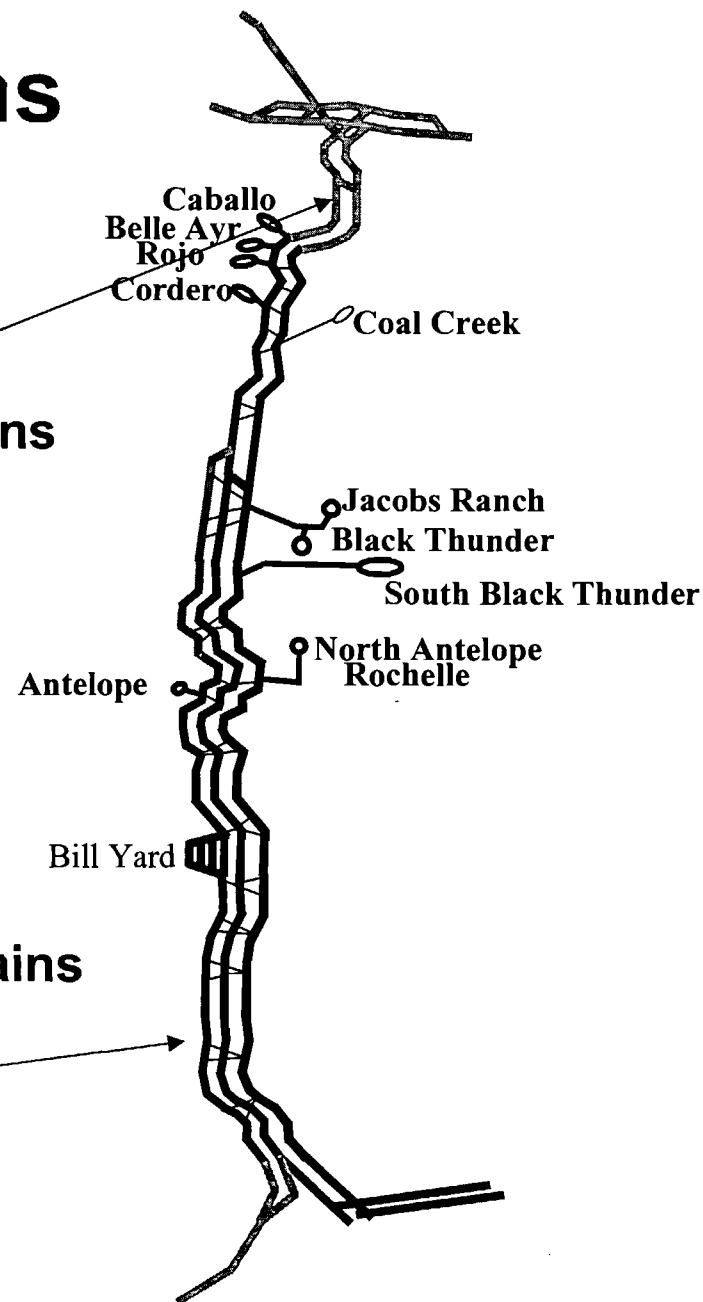
2005 – 44

2012 – 60-70

South End: Coal Loads & Empty Trains

2005 – 100

2012 – 135-150+



Railroad Maintenance Practices

- **Daily normal track maintenance on-going throughout the year**
- **Key to tonnage growth is the integration of major work programs (April to Nov/Dec) - undercutting, track work, etc. throughout Joint Line operations**

Key Minesite Recommendations

Protection of train loadings – need sufficient landing spots at minesites for buffer capability and recoverability from outages

Facilities with train buffer capability, and built in redundancy will benefit by protecting train loadings

At projected higher tonnages and volumes, train bunching (fleeting) & variability will be common

Mine operations / integrated with mainline operations (track maintenance workblocks):

Recommendation of something in the range of 14 to 20 additional train landing spots at mines

Key Railroad Recommendations

2006 mainline capacity threshold increased with third main south of Reno Jct

(Complete triple track operation between Reno Jct and Shawnee Jct).

Mainline Tonnage Based Incremental Ramp-Up

Short Term

At the 417 mmT pace, need in the range of approx. 50 miles of additional mainline (specifics being tested/simulated):

- *construction of a 4th main over Logan Hill*
- *construction of 3rd main at north end*

Key Railroad Recommendations

Medium Term (beyond 417 to 490 mmT pace):

Analysis In-progress:

Minesite integration/complexity of mainline operations & track maintenance programs at higher tonnages

Looking at additional segments of:

- triple track north of Reno Jct &
- quadruple track south of Reno Jct

Summary – Preliminary Findings

- Heaviest tonnage line in the world with record tonnages being set - records will continue to be set
- World class operation continues to raise the bar in terms of **throughput capability, capacity and track maintenance** throughout the railroad industry
- Train volume growth and operational variability:
 - Additional capacity needed to accommodate throughput and buffer capabilities for this growth
 - Short-term railroad track expansion currently being refined (in the range of 50 miles)
 - Medium-term railroad track expansion being developed
 - Continued minesite landing spots construction recommendation (in the range of 14-20 spots)

Q & A

4

Exhibit 4

UP Revenue Shortfall and the WPL SAC Result Dollars (in thousands)

		2000 a/	2001 a/	2002 a/	2003 a/	2004 a/	2005 a/
Net Average Investment Base		\$19,958,816	\$19,768,540	\$20,056,343	\$20,550,494	\$21,266,619	\$22,070,053
Actual Net Railway Operating Income		\$1,384,117	\$1,508,262	\$1,732,201	\$1,492,593	\$964,776	\$1,398,344
WPL Adj. Net Railway Operating Income:	EWRR Revenue b/	\$933,178	\$1,009,937	\$1,046,855	\$1,063,848	\$1,083,435	\$1,111,719
	SAC Rate Reduction c/	14.4%	25.3%	25.4%	25.1%	24.6%	25.1%
	SAC Revenue Reduction	\$134,378	\$255,514	\$265,901	\$267,026	\$266,525	\$279,041
Implied Cumulative Excess Rev.		\$134,378	\$389,892	\$655,793	\$922,819	\$1,189,344	\$1,468,385
Annual Cost of Capital		11.0%	10.2%	9.8%	9.4%	10.1%	12.2% d/
Target Net Railway Operating Income		\$2,195,470	\$2,016,391	\$1,965,522	\$1,931,746	\$2,147,929	\$2,692,546
Actual Shortfall		(\$811,353)	(\$508,129)	(\$233,321)	(\$439,153)	(\$1,183,153)	(\$1,294,202)
Cumulative Shortfall		(\$811,353)	(\$1,319,482)	(\$1,552,802)	(\$1,991,956)	(\$3,175,108)	(\$4,469,311)

- a/ Schedule 250 data as filed by UPRR.
b/ Docket 42051 WPL v. UP served 9/13/01 at 24 Table 2.
c/ Id. Served 5/14/02 Revised Table 3 "SAC Rate Reduction".
d/ As calculated by AAR in Ex Parte No. 558 (Sub-No. 8).

Note: Schedule 250 is a supplemental schedule filed approximately 30 days after the R-1; therefore it is not bound in the R-1 report.

VERIFIED STATEMENT

OF

THOMAS C. HALEY

My name is Thomas C. Haley. I am Assistant Vice President - Network and Capital Planning for Union Pacific Railroad Company ("UP"). I have held this position since 1998. I have had significant responsibilities for UP's network planning functions since 1996. I hold an MBA in finance and transportation from Indiana University.

Network and Capital Planning ("Network Planning") is responsible for assessing the resources needed by the railroad to handle present and future demand. We have our fingers on the pulse of the network's capacity to handle existing traffic and future growth in traffic – which depends not only on the overall amount of traffic the network is called upon to handle, but the timing of that traffic (including weekly and seasonal peaks), its location and its operational and service characteristics. We plan the resources needed to handle anticipated growth – including crews, locomotives, mainline capacity and terminal infrastructure. And, increasingly as the railroad's spare capacity has been consumed, we participate in analyzing which traffic opportunities UP should handle using its increasingly scarce capacity and where UP should allocate its scarce capital dollars to accommodate traffic growth.

I. *The Transportation Capacity Shortfall*

A. *Extraordinary Traffic Growth*

By 2003 the rail industry – and UP in particular – had left behind the era of surplus capacity that characterized much of the nation's rail network in the latter part of the 20th century. Unexpectedly strong economic growth coupled with developments in the

trucking industry that made trucking a less-desirable, and often less-available, option (including highways at capacity and truck driver shortages) brought record volumes of traffic to UP and the rest of the rail industry. Since the summer of 2003, UP has set all-time carloading records in every month, except when extraordinary natural disasters shut down key parts of UP's network. Our traffic growth is shown in the chart set forth as Exhibit TCH-1, drawn from a presentation delivered to UP management employees during 2006.

By the fall of 2003, when system-wide carloadings had pushed above the 180,000 carloads-per-week level, this growth in traffic strained UP's resources – track, locomotives, manpower, etc. The 180,000-carloads-per-week threshold was then regarded by Network Planning as approximately the top end of the range of UP's system fluid capacity. That level had previously been reached only very briefly during annual fall peaks, but in 2003 traffic levels surged above that level and have stayed there ever since, except during extraordinary events – like the West Coast flooding at the beginning of 2005, the impairment of the SPRB Joint Line, the impacts of Hurricanes Rita and Katrina in fall 2005, and major washouts caused by flooding in Kansas in late 2005. The chart at Exhibit TCH-2 depicts UP's weekly carloadings since 2003 in conjunction with our best estimate of the network's range of fluid throughput capacity, which we have been working hard to increase as traffic volumes continue to grow.

Not surprisingly, during this sustained period with volumes consistently above our range of fluid capacity, UP's network has not performed smoothly. Our system velocity fell dramatically during 2003. Although it has improved modestly, it is still in an unacceptable range – degrading service performance and consuming additional costs and resources. We estimate that every mile-per-hour decline in average velocity consumes an

additional 200 to 250 locomotives, 5,000 freight cars, 180 train crew personnel and 20,000 annual re-crew events. Other performance metrics – including on-time performance and customer satisfaction index – also declined.

B. UP's Substantial Efforts to Accommodate Growth

UP has taken extraordinary measures to meet the rising demand. In late 2003 we embarked on a massive train crew hiring program. Since 2003, we have hired almost 10,000 new train crew personnel to replace retiring employees and handle growing volumes. This hiring expanded our force by almost 3,150 train crew employees. We acquired more than 1,000 new locomotives since 2003, representing 4.2 million additional horsepower and more than \$2 billion in capital expenditures. Also, we have leased additional locomotives over this period to handle peak demand periods. The outlook for peak this year, net of acquisitions, retirements and changes in peak leases, is a locomotive fleet of 8,200 units, more than 1,000 larger than in 2003. And we have increased our capital spending on track and terminal capacity expansion from the \$300 million per year range to the \$500 million range.

At the same time, we have taken steps on the demand side to limit the growth in new traffic seeking to use our constrained corridors, as a way of improving service. Our marketing department has employed a variety of measures, including at-times-substantial rate increases, to encourage shippers to moderate their demand for our services, or to channel that demand in ways that reduce stresses on congested parts of the system. Beginning in mid-2004, those measures achieved some success in alleviating stresses on the network from rapid volume growth. Market demand has been so strong since 2003, for example, that – had UP been blessed with unlimited capacity – we could have handled

significant additional volumes of lumber, grain, steel, coal and other commodities, all at higher rates.

Even with our metering efforts, traffic volumes have continued to climb. Shippers' demand for UP's services continued to set records, even at the higher rates UP has charged when it is not constrained by regulation or existing contracts. With these growing volumes, our massive infusion of resources to expand capacity has allowed only modest improvements in performance and efficiency, still short of the levels we need to meet our objectives. The problem is that as of 2006, key segments of our network remain at or above fluid capacity.

C. The Significant Capacity Challenges

There are three broad areas of our network where capacity is most constrained: our Sunset Corridor between California, Texas and Eastern gateways; our key transcontinental corridors between Wyoming/Nebraska and the Eastern gateways; and our routes in the Texas/Gulf region. The map attached as Exhibit TCH-3 was prepared by Network Planning for UP's management to illustrate the capacity outlook for 2006, and it depicts the corridors and terminals where our capacity is most stressed.

The traffic demand calls for us to continue to take aggressive action to expand our network and manage growth so as to match supply with demand. We are adding track and terminal capacity to address these constraints in the near term, as I discuss in more detail below. However, looking ahead, as is our responsibility in Network Planning, it is clear that the railroad industry – along with the rest of the nation's transportation infrastructure – faces an ongoing capacity shortfall. Average train speed on the four largest U.S. railroads is down in recent years because demand is catching capacity. Demand in

certain key commodity groups continues to grow rapidly, with huge increases forecast over the coming years. The AASHTO Report identifies this arriving shortfall as well, and highlights the extraordinary need for additional rail infrastructure nationwide to support this growth.

On UP, we predict that energy traffic – mostly PRB coal – and intermodal traffic will lead the way, but we expect certain other commodities handled in our manifest network to grow as well.

To accommodate even a substantial portion of this traffic growth, we would have to spend heavily on additional capacity over the next several years, even if our efforts to meter the new traffic are successful. Without that capacity, significant parts of UP's system will have more traffic than they can handle, as shown on the map set attached as Exhibit TCH-4. Network Planning has been using this map within the UP organization to underscore the urgent need for capacity investment and more aggressive efforts to take on new business only where that traffic can support the full costs of adding the incremental capacity it consumes, including the facilities, equipment, and all other resources required to handle it.

The financial burdens associated with our need to add capacity are all the more acute given the massive infusions of capital we must make year in and year out just to maintain the network carrying capacity we have today (including not only track but the locomotives and other resources we need to handle our traffic). We are finding that today's heavy-axle loading traffic – especially coal trains – chews up our existing infrastructure at accelerated rates. We must replace track, bridges, culverts, and other parts of our infrastructure with stronger and more-costly components to avoid rapid deterioration and

catastrophic failure under load. System-wide, we must spend roughly \$1.8 to \$1.9 billion in capital dollars – plus an additional \$1.9 billion in maintenance expense dollars¹ – just to maintain and replace the level of carrying capacity we already have in place. Under heavy and growing traffic volumes, moreover, maintaining the network and adding to it become a greater challenge. We cannot put the railroad into a dry dock for overhaul; all of the work we do must be performed while “underway,” without disrupting the flow of the nation’s commerce. As our network fills with traffic, it becomes more and more difficult to perform essential maintenance work without unacceptably disrupting the flow of traffic, and we are finding we must add substantial capacity (at great cost) to create space for maintenance forces to work without shutting down our mainlines.

II. *Additional Capacity Needed to Accommodate Growth Will Be Extremely Expensive*

Our analysis of the existing capacity situation and the available traffic growth forecasts reveals a capacity gap that will grow unless we find ways to narrow it. Throughout the railroad, we are devoting substantial effort and ingenuity to exploring every available means of increasing the throughput of our existing infrastructure, in addition to spending the dollars and time needed to put new “iron in the ground.” We are employing industrial engineering principles to refine terminal process to increase throughput and improve service. We have embarked on a systematic operational redesign to minimize work events and reduce complexity in train operations. We are spending heavily on technology, such as lineside defect detectors and remote diagnostic devices to allow for more scientific

¹ The maintenance expense figure reflects UP’s spending for Way and Structures and Equipment in the repair and maintenance categories (excluding depreciation), of Schedule 410 of UP’s Annual Report R-1.

preventive maintenance and improve operational reliability. We are investing in systems support to enhance network performance. And we are enlisting the assistance of shippers to help us increase throughput, such as by adopting more predictable loading patterns or conducting train inspections at their facilities.

But we know that these steps alone will not provide enough new capacity to keep up with the pace of rapidly growing demand. We must also increase the pace at which we are adding “iron in the ground” – physical track and other facilities needed to handle burgeoning traffic volumes. Adding that capacity will be very expensive. Our best estimate is that adding all of the capacity we would need to keep up with unconstrained demand growth of all types would require spending \$1 billion more annually on growth capital through 2010 – over and above the \$700-800 million we are currently spending to grow capacity of facilities, equipment and other capabilities, and also over and above the \$1.8 to \$1.9 billion in capital we must spend on maintenance just to preserve the level of output we already have. In other words, to accommodate all demand growth, we would have to *more than double* our current spending for growth capital. Like the other participants in the transportation industry, we cannot spend enough to satisfy the unconstrained demand.

Our finance experts say it is impossible to justify spending this much at our current levels of revenue and our return on investment. Investors would withdraw their funds and cripple our ability to borrow. Based on UP’s past investments in the coal business at an average of \$700 million per year, 2005 coal revenues of about \$2.5 billion, and 2005 costs for handling coal as measured by URCS, UP stands to earn a return on investment of less than 4 percent on coal, which is significantly below the 12.2 percent cost of capital in

2005. This makes it very difficult to justify the larger investments that will be needed to accommodate the projected increasing demand for coal transportation.

So we must work vigorously on all elements of the capacity equation, including internal processes, organization, and technology improvements, as well as more effective partnerships with our customers, other railroads, and other transportation modes. And we must do our best to manage growth, metering the new traffic we handle so that our overall growth rate is kept to a more reasonable level. However, capital spending must continue to grow to handle even a metered growth trend.

III. *UP's Coal Traffic Needs to Contribute More*

A. Coal Uses Some of the Most Capacity-Challenged Corridors on UP's System

Where does UP's PRB coal traffic fit into this picture? UP's coal traffic shares portions of UP's network that are strategically vital and among the most capacity-challenged on the entire system. The lion's share of UP's coal traffic originates in the Powder River Basin; most of the rest originates in Colorado and Utah. As shown on the map set forth as Exhibit TCH-5, once it leaves the Joint Line, nearly all of UP's coal traffic that originates in the PRB uses the Central Corridor across central Nebraska to Gibbon – the “Triple Track” corridor on which UP spent hundreds of millions of dollars in the 1990s. But that triple track will be running out of spare capacity, especially as maintenance needs increase – it is one of the shaded areas on the map on Exhibit TCH-4. The triple track ends at Gibbon, Nebraska, where UP's coal flows split. East of Gibbon, UP's coal flows depend on mainline segments that are already constrained, as shown on Exhibit TCH-3. About 40 percent of the coal continues east toward Omaha and Chicago, while roughly 60 percent heads southeast towards Kansas City. From there, it is another 60-40 split, with 60 percent

continuing east toward St. Louis and about 40 percent heading south to plants in Oklahoma, Arkansas, Texas and Louisiana.

These lines are the very core of UP's network. More than 40 percent of every carload of UP's traffic uses at least some portion of the Central Corridor from eastern Wyoming to Chicago and St. Louis. Large portions of these lines carry 70-90 trains per day, and the densest of them carry 130 to 160 trains every day. As important as coal is, it accounts for only about 40 percent of UP's revenue-ton-miles and only one fifth of UP's revenue. In addition to supporting the PRB coal operation, the Central Corridor must carry all types of traffic to and from vast portions of the Western United States. The mix of traffic on the route to Chicago, for example, is roughly 40 percent coal, 30 percent intermodal and automotive traffic, and 30 percent manifest (carload) traffic. Because of the divergent speeds and handling characteristics of these trains, the extraordinary number of daily train movements competing for this capacity, heavy maintenance requirements, and periodic extreme weather, the Central Corridor is perhaps the most challenging rail corridor to operate in the world.

B. Significantly More Investment Will Be Needed on the Coal-Carrying Corridors

These coal corridors are also among the key parts of UP's network that are capacity constrained. The PRB Joint Line itself is near capacity and stressed by record-setting traffic volumes – typically 90 to 110 loaded and empty coal trains each and every day, and over 420 million gross tons annually on the busiest portion. Unprecedented wet weather and a series of derailments in May 2005 exposed deteriorating track conditions caused by coal dust accumulation in the roadbed that was far more severe than anyone imagined. BNSF, which has responsibility for the Line's maintenance, is proceeding with a

massive undercutting program to restore track conditions. That effort, while vital, has also constricted the Line's carrying capacity and caused both railroads to declare force majeure conditions and UP to issue an embargo. Despite these challenges, the railroads originated record tonnage on the Joint Line during 2005, but struggled after the May events.

One beneficial consequence of the 2005 crisis was an even greater commitment by both railroads to examine what further steps were necessary to assure that the Joint Line had the capacity to accommodate growing traffic volumes. In 2005, UP and BNSF hired CANAC, an industry-leading expert on rail capacity, to conduct a study of the Line's capacity and report its findings. On April 18, CANAC reported its initial conclusions at the National Coal Traffic Association's Spring 2006 meeting. Based on their initial assessment of needs through 2008, CANAC recommended that, on the Joint Line alone, UP and BNSF add approximately 50 miles of additional mainline trackage – at a cost of \$2.5 to 3.0 million per mile. We have already started planning and funding these additions. UP estimates that its share of these near-term needs will be more than \$80 million, and would expand capacity on a pace double that which the railroads have achieved in the past. Moreover, we have asked CANAC to review its initial results to reflect increased need for maintenance windows to accommodate more frequent undercutting and other necessary work aimed at addressing the problem of coal dust contamination. In addition, CANAC concluded that the mines should add significant additional train capacity at or near their loading facilities to create 14 to 20 new mine loading slots to handle the additional trains coming on line in the near term.

Over the longer term – really only just a few years off – capital needs will continue to grow. CANAC is extending its work to address capacity needs between 2008

and 2012. They have not yet quantified the new capacity the railroads and mines will need, but we already know those needs will be massive.

The needs extend well beyond the Joint Line. UP's PRB and other coal traffic flows across parts of UP's network that are in the heart of one of the "capacity-critical" zones depicted on Exhibit TCH-3: key UP segments in eastern Nebraska, across Iowa, toward Kansas City, south of Kansas City, and between Kansas City and St. Louis that are *already* stressed by fluid capacity limitations. In addition, Those coal trains consume capacity at key run-through terminals – at North Platte; Fremont, Nebraska; Clinton, Iowa; and Jefferson City, Missouri – that are similarly constrained. And coal trains interchanged with eastern carriers at St. Louis and Chicago require facilities that are likewise straining under growing traffic volumes. In a preliminary report, CANAC has separately advised UP that these parts of its network also demand infusions of capital, and more would be required to cope with the massive and ongoing traffic growth that is occurring for all of the major traffic flows that use these lines. We already have begun several projects and await CANAC's final recommendations on how to direct our capital for the greatest impact.

Coal traffic is a major source of the growth that UP is being asked to accommodate now and in the years to come. CANAC, in consultation with the PRB mines, has identified potential growth rates that are roughly *two to three times* the rate achieved over the past several years. CANAC's conclusion assumes that producers will make investments necessary to mine more coal, and that producers are not counting the same market opportunities twice. But even if one were to assume a growth rate only twice that experienced in the past several years, UP's coal network would still have to accommodate an additional 32 to 36 loaded and empty coal trains each and every day by 2010.

The challenge is already upon us. Already in 2006 UP anticipates the need to move eight more loaded and empty trains of PRB coal every day than we handled during 2005 – a record year despite the suppressing effect on volumes of serious coal dust-related problems. Even with the track capacity we are adding on an ongoing basis, we must try to find other ways to make room for these trains, all of which must be woven into corridors and terminals that are already nearing capacity limits, and contend with tightly limited space at the PRB mines for staging while waiting to load. We are doing everything we can to get the job done. And if we make it through this year, we will only have earned the right to renew our efforts next year and every year thereafter.

With excess capacity long-since exhausted and demand growing, coal must compete with other commodities for scarce capacity. Conventional wisdom might suggest that this should be an easy contest for coal to win – since it has traditionally been perceived as among the most profitable commodities on the railroad. But this is an outdated view. In fact, coal contributes relatively less than other commodities that share UP's network.

Coal's relative underperformance can be demonstrated by comparing the contribution per revenue ton-mile generated by UP's coal traffic with the contribution per revenue ton-mile generated by UP's other traffic. A straightforward analysis of UP's revenue and cost data shows that UP's coal traffic generates 1.9 mills per revenue ton-mile of contribution. This is substantially less than the 3.0 mills per revenue ton-mile generated by UP's agricultural traffic, which is next to last in a commodity group ranking, and a mere fraction of the 9.8 mills per revenue ton-mile generated by UP's chemical traffic. *See* Exhibit TCH-6.

There are several reasons for this: downward regulatory and competitive pressures on coal rates, the fact that we are not recovering all of our higher fuel costs, heightened maintenance demands by coal trains; and the fact that there is growing demand for long-distance rail movement of other commodities, with very favorable economics.

All of the traffic using our key corridors must fully pay its way. With limited space, and an inability to pay for enough new capacity to take on every piece of traffic, UP must make hard choices about which traffic to invest in. Coal traffic flowing across Nebraska and Iowa has been crowding out intermodal, manifest, and other traffic on UP's transcontinental Overland Route. One indication of this is the relatively lackluster growth in non-coal traffic on that route since deregulation in 1980 as compared to other western transcontinental routes. Traffic on UP's Overland Route west of the PRB (where coal trains generally do not move) grew by only 36 percent. That pales in comparison to the 130 percent traffic growth on BNSF's Los Angeles-Chicago Transcon route; 85 percent growth on BNSF's PNW route between Chicago and Seattle; and 78 percent growth on UP's former-SP Sunset Route (all measured at the Continental Divide). At the same time, tonnage on UP's line across Iowa used by about 40 percent of UP's PRB coal traffic has exploded, growing by 118 percent since 1980. Our conclusion is that the flood of coal flowing east out of the PRB on relatively short-haul routes has come at the expense of other growth opportunities on UP's much longer-haul transcontinental corridors. That may have made sense when coal was more profitable than most other commodities, but we must make hard choices about where to invest based in substantial part on where the returns are sufficient to support that investment. If coal returns do not increase, coal will not be able to earn its place at a table that does not have room for any and all comers. As shown on the

maps at Exhibits TCH-3 and TCH-4, other critical areas of the UP network, especially the Sunset Corridor and portions of the Gulf region, also have massive capacity and investment needs.

IV. *There Is No Basis for Assuming that Stand-Alone Railroads Will Achieve Productivity Improvements of the Sort Realized by Real-World Railroads*

Finally, I have been asked to explain the sources of productivity gains for railroads and compare them to opportunities for productivity improvements achievable by stand-alone railroads. I will discuss productivity gains through operational changes first, then address improvements to terminal operations and productivity gains from technology, and finish with gains that can be achieved through “learning by doing.”

A. *Railroads Strive to Make Their Operations Resemble Existing Unit Coal Train Operations as Much as Possible*

I begin with the observation that the most efficient railroad operation as measured by the production of ton-miles moved relative to the resources used (*i.e.* crews, horsepower-hours, line and terminal capacity and car-days) is the unit train moving in a continuous shuttle. Many of our efforts at improving productivity and thereby maximizing throughput on our network are aimed at getting other traffic to resemble unit trains to the extent we can. While there are obvious limits given the inherent nature of manifest traffic, there remain many opportunities to close the gap that we expect will drive productivity gains.

We employ many techniques towards this end. One is encouraging customers to tender trainloads to be delivered to one destination instead of carloads moving to many destinations. We offer price and service packages to grain, aggregate, other bulk customers, and even some perishable customers to encourage them to shift to shuttle trains. As these prove successful in the market, it encourages other customers to follow suit.

For manifest traffic, we have taken a hard look at our network and how we can take out work events so that our manifest trains can keep moving between terminals. We launched the Unified Plan in 2005 and continue to extend and adjust it to fit actual traffic. The Unified Plan revises transportation plans so that manifest trains stop less often to perform drop-offs and pick-ups. It also modifies the transportation plans so that a manifest train can move as a run-through to its ultimate destination. That eliminates switching out cars or blocks or switching to add cars or blocks at intermediate terminals.

Even so, manifest traffic still has to be gathered and distributed to customers. This is very labor intensive and requires extensive terminal facilities. We are unable to eliminate these activities, but we do look for opportunities to shift this work to others. The premier example is our redeployment program, which leases or sells low-density lines to short line railroad operators. By doing so, we can focus on providing line-haul transportation and let the short-line perform the necessary, but less efficient, work of delivering cars and picking up cars from customers. In the process, our productivity improves.

In contrast, I understand that stand-alone railroads have the freedom to choose what traffic they handle and that they generally choose to handle only unit coal trains. In those instances where only small volumes of coal move over a segment, they may choose to act as a bridge carrier in a “hook-and-haul” operation where they transport an intact trainload from one interchange to another – the functional equivalent of a unit coal train. In that case, the stand-alone railroad has already achieved the ideal. It cannot benefit from changes in operations that reduce switching or work events for manifest trains because it already has eliminated those labor and asset intensive activities.

B. Improvements in Terminal Operations Will Enhance Productivity in Carload Traffic

Of course, UP cannot completely eliminate manifest traffic from our network. Nor would we want to. Such traffic makes a significant contribution to our earnings. Still we strive to find ways of improving terminal operations to enhance service, reduce costs and maximize throughput. The Unified Plan revisions to the transportation plans help by reducing the number of trains requiring terminal switching, but ultimately all manifest trains must be built and broken down and their carloads must be gathered from and delivered to customers. We are always looking for and implementing ways of improving our efficiency in performing that work.

One major initiative is the Car Inventory Management System (“CIMS”). In simplest terms, CIMS was developed to match loads headed to a terminal with the customers’ ability to receive those loads. With CIMS, we work in partnership with our customers to match their inventory of cars on hand and launches of cars from origin with their ability to take cars into their facilities at destination. This saves our terminals and line capacity from getting congested and improves the reliability of delivering cars when customers expect them. This reduces costs and increases throughput – all of which delivers productivity gains. CIMS began at the Phoenix terminal and we are in the process of rolling it out to all of our terminals.

CIMS is only one example of the many initiatives we have underway to improve terminal operations. We continuously evaluate processes in terminal operations to identify bottlenecks or to find ways to eliminate steps. We also invest in updating or modifying yards so that they are better suited to the current traffic and train types they must handle. These opportunities to improve productivity, however, are available only if a rail

carrier handles manifest traffic. If a stand-alone railroad has already chosen to limit itself to run-through unit train shuttle operations or trainloads moving between interchanges, these opportunities do not exist.

C. Technology Offers Limited Opportunities and Requires Time and Money to Implement

Technology offers the possibility of real productivity gains but some of those benefits are limited to manifest traffic. Even for technology that could benefit unit train or trainload operations will require time and extra costs to deploy before those benefits are realized.

Remote Control Technology (“RCL”) promises the ability to reduce the labor required for labor-intensive yard switching associated with carload traffic. Because run-through trainloads operated by stand-alone railroads do not require switching, RCL offers no potential savings for such railroads despite its great promise for UP and other real-world railroads. Likewise, technological improvements in software used for terminal operations, retarders used in classification hump yards or updating existing yards to use the state-of-the-art technology can deliver benefits to real railroads but not stand-alone railroads which have already shed the need to conduct extensive terminal operations.

Some technology can be applied to both unit train and manifest train operations, but deploying such technology takes time and money. Distributed power is an example. Even after UP developed the technology to the point where it was reliable and safe, we faced numerous steps before we could realize the benefits. Locomotive engineers had to be trained and certified on all segments that a DP-configured train would operate over. We could not certify them until we had enough DP-equipped locomotives available for the engineers to run. The chief productivity benefit from DP is the ability to run longer

and heavier trains, but these require longer sidings and premium track materials, such as concrete ties and heavier rail. It took years and substantial capital investment to extend sidings and upgrade track along all the routes where we planned to run DP trains. In fact, we only recently completed a run-through facility in the Kansas City Armourdale Yard to accommodate coal trains. We have deployed DP in phases over years even for the PRB coal trains that were our first priority to convert to DP operation. Likewise, when Positive Train Control (“PTC”) is fully demonstrated as feasible and reliable, it will require years for real railroads to deploy and substantial expenditures because those railroads will be modifying their existing networks to make PTC work.

A stand-alone railroad, by contrast, has the opportunity to fully implement a proven technology immediately. It can incur the necessary costs up-front and realize the full benefits without waiting.

D. Productivity Gains from Learning-by-Doing Depend on Changes in Operations

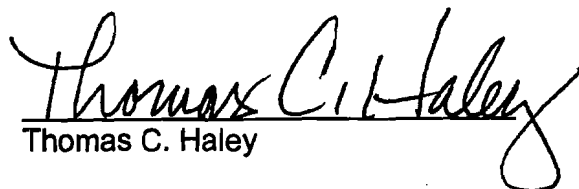
I understand that there is speculation that a stand-alone railroad’s personnel could become more efficient as the railroad ages because they will have more experience. One source for increasing efficiency is that experienced employees are generally more productive than brand-new employees. However, all railroads are now hiring thousands of new employees to replace retiring employees and to handle increased volume. We expect that hiring frenzy to continue indefinitely given the demographics of the railroad industry and the traffic projections I discussed earlier in my statement. The distribution of age and experience within a railroad’s employee base thus will not change markedly over time. I understand that stand-alone railroads are assumed to have the same attrition and training costs as incumbent railroads.

The other source of increased productivity due to experience comes from adjustments to changes in traffic and operations. When a real-world railroad is buffeted by change, then after the initial disruption as the railroad adjusts to the change, it becomes more efficient. Clearly that was the case in implementing railroad mergers. However, when a stand-alone railroad is designed to handle a predetermined volume and type of traffic through its proposed life and its employees are properly trained before it begins operations, it is difficult to see how it could achieve any noticeable improvement in efficiency or how the stand-alone railroad's improvement would be measured by any productivity gains realized by real railroads.

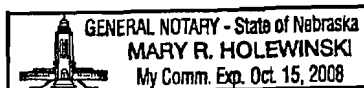
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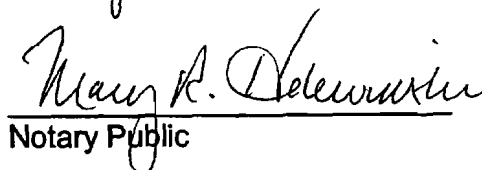
Thomas C. Haley, Assistant Vice President Network and Capital Planning of Union Pacific Railroad Company, under penalty of perjury, declares and verifies that he has read the statement in Ex Parte No. 657, knows the facts stated therein, and that said facts are true as stated.

Dated: May 1, 2006.


Thomas C. Haley

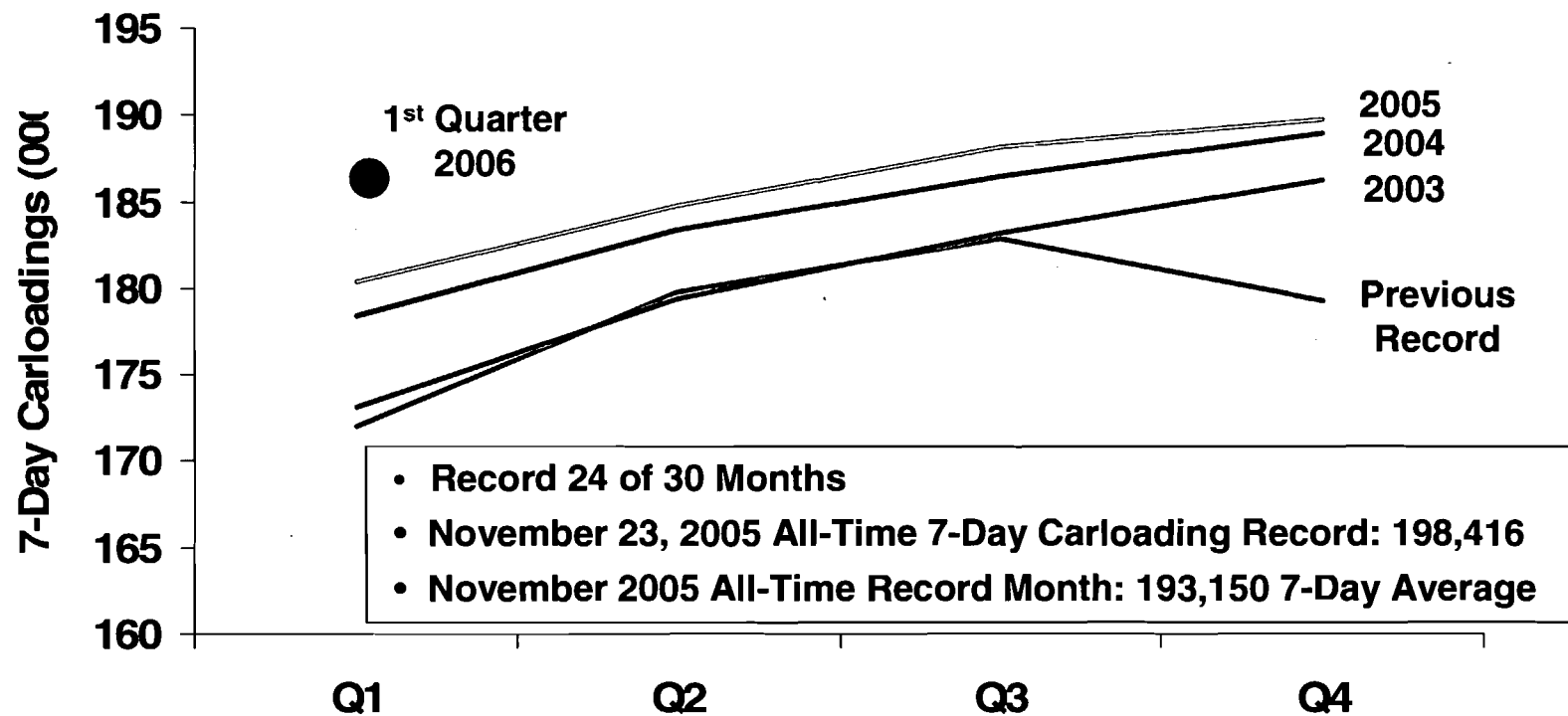
Subscribed and sworn to before me this 1st day of May, 2006.



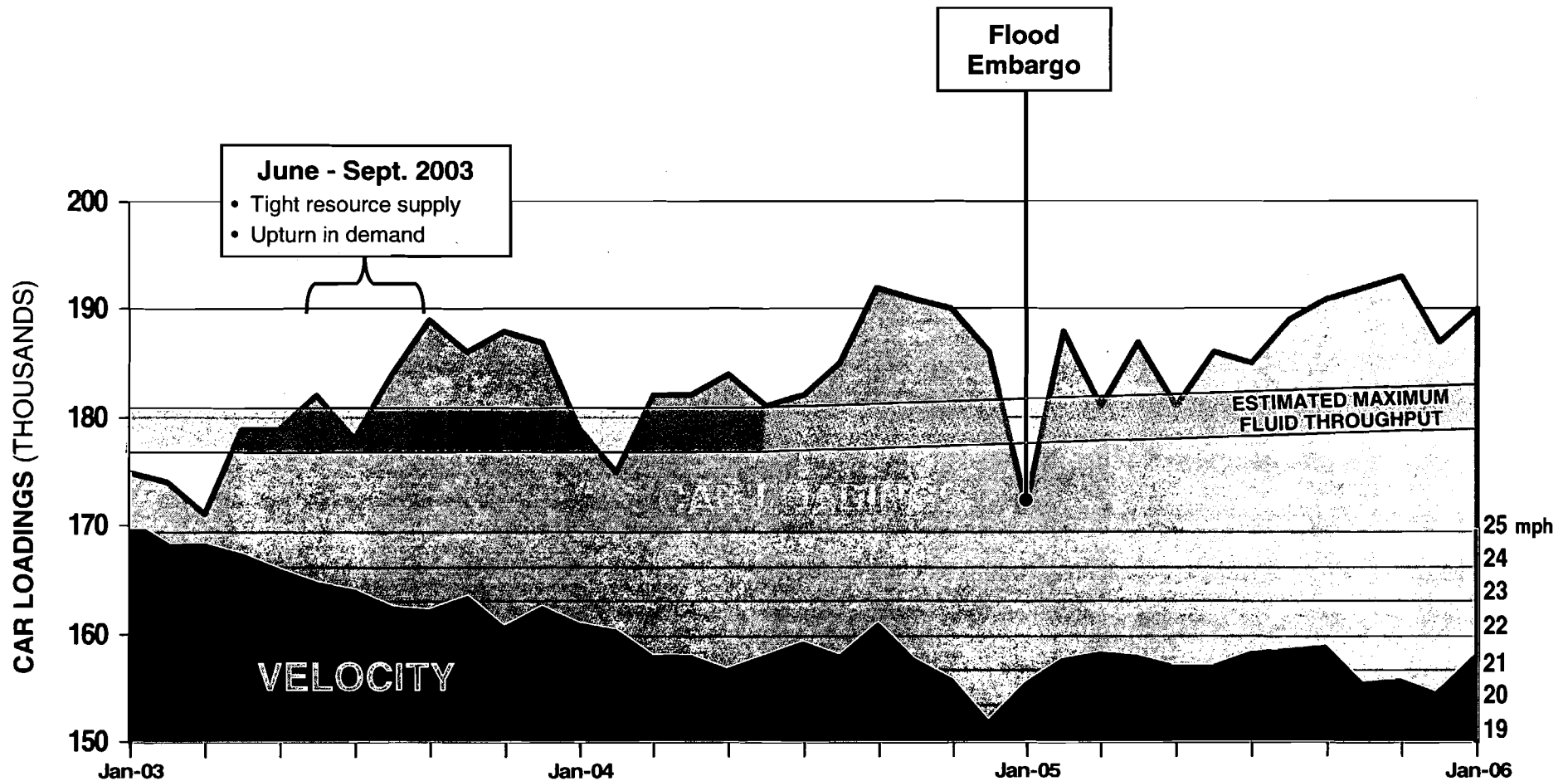

Notary Public

My Commission Expires:

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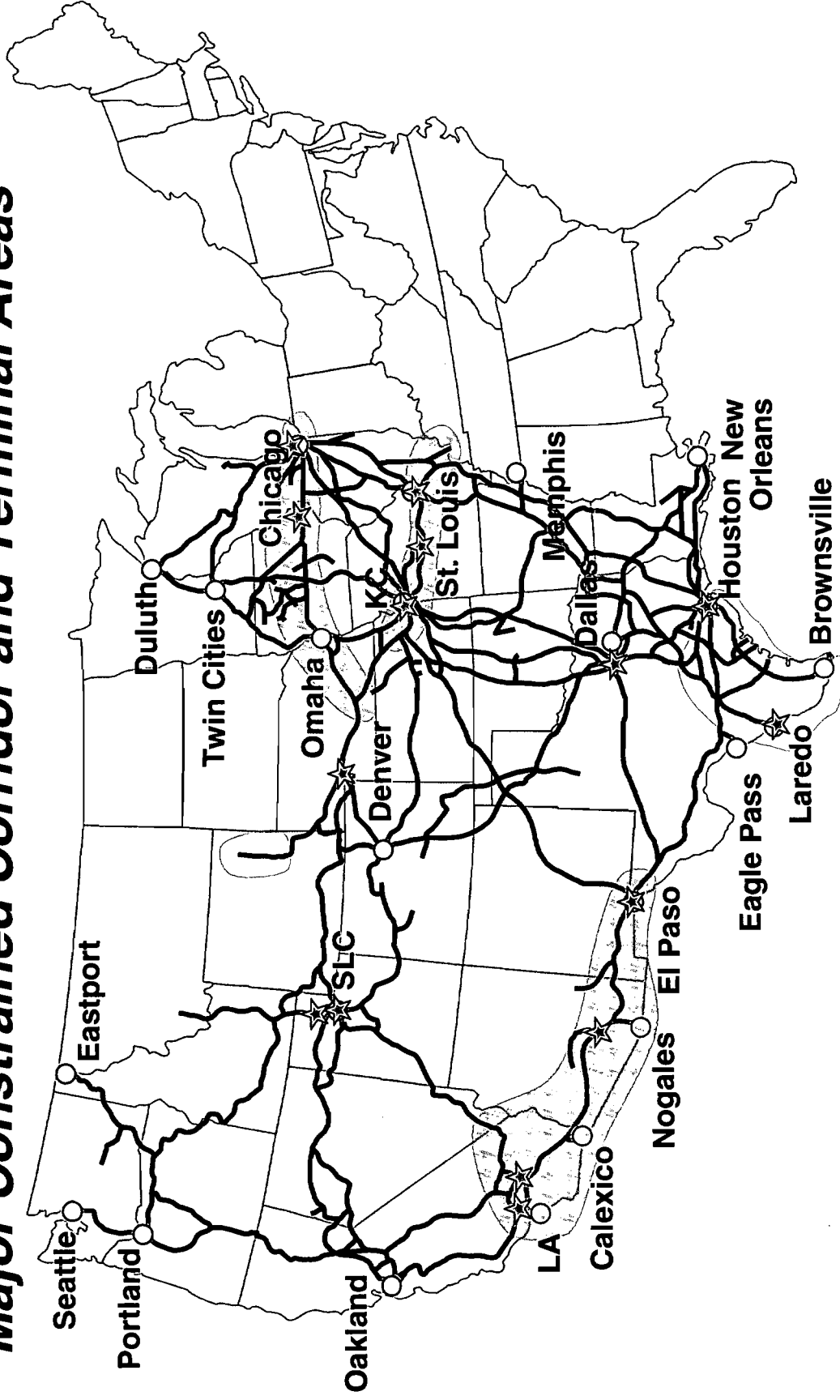


Union Pacific Timeline (2003 - 2006)



2006 Projected Network

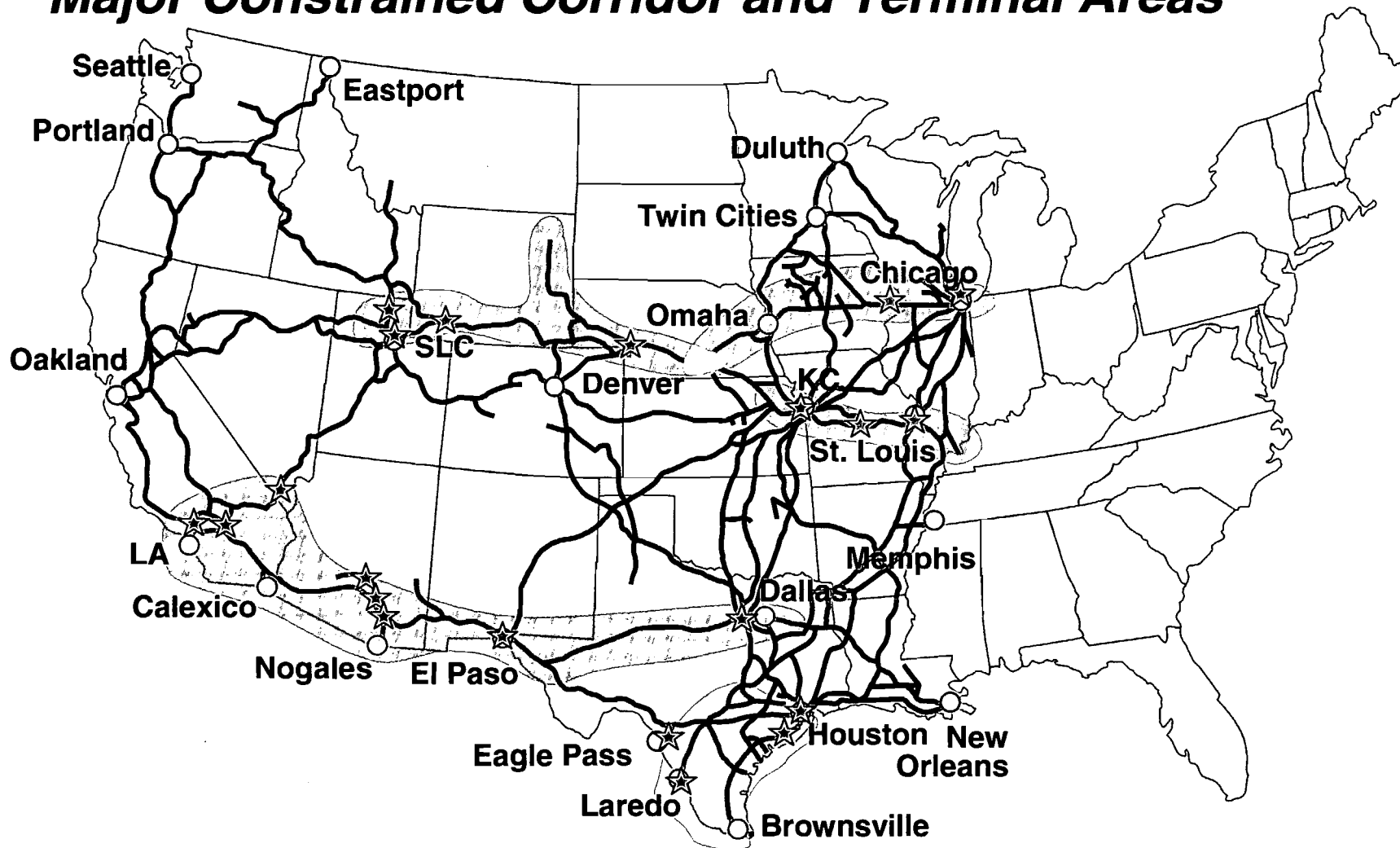
Major Constrained Corridor and Terminal Areas



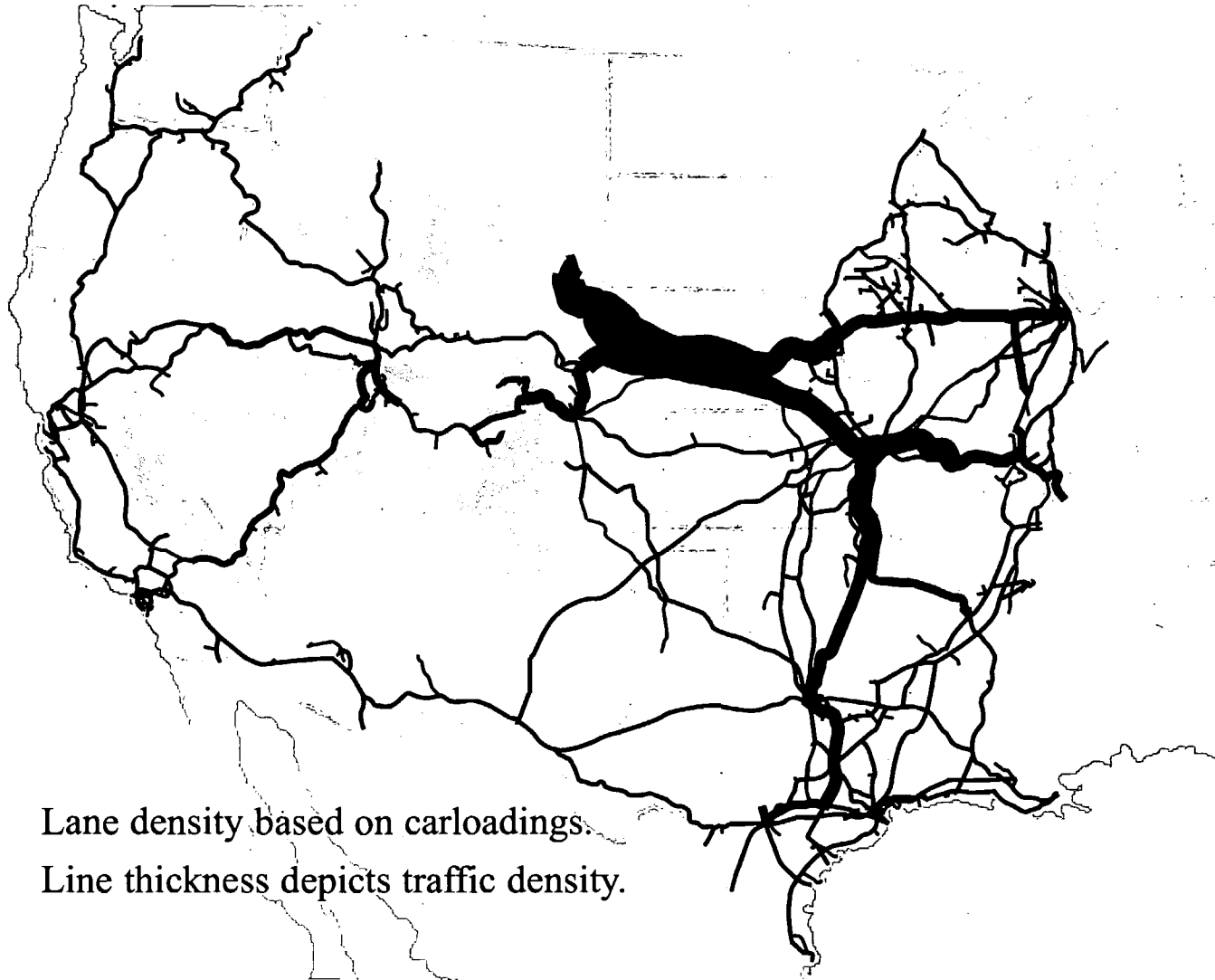
BUILDING AMERICA

2010 Projected Network

Major Constrained Corridor and Terminal Areas

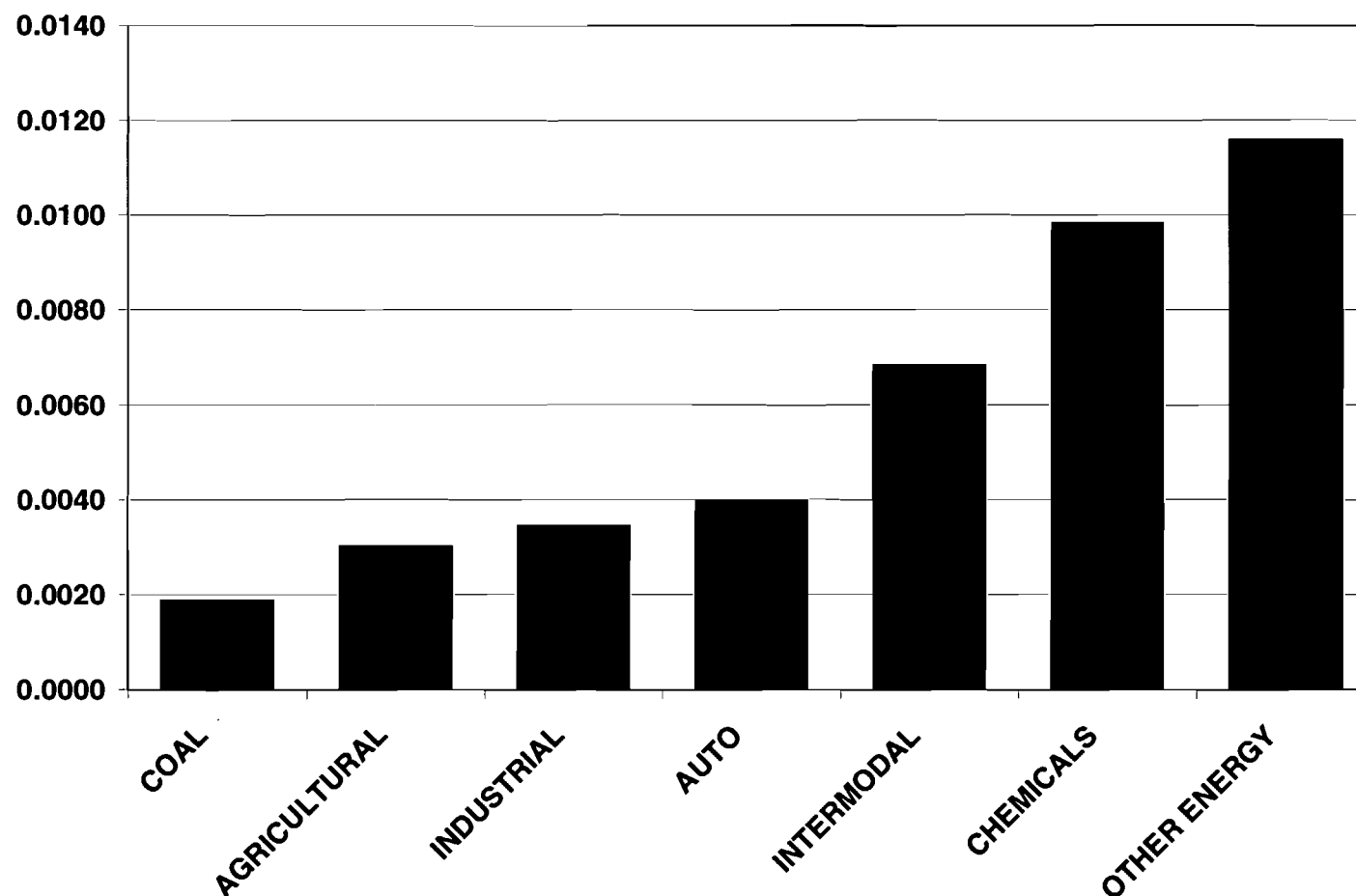


UP Energy Network



Coal Underperforms Other Commodities

UP Contribution per Revenue Ton-Mile
(2004)



VERIFIED STATEMENT OF KEVIN NEELS

Qualifications

My name is Kevin Neels. I hold a PhD in economics from Cornell University. I am a Principal at the Brattle Group, an economics consulting firm headquartered in Cambridge, Massachusetts. I direct that company's transportation consulting practice. I have more than 30 years of experience providing economic analysis, research, and consulting to a wide range of clients. These clients have included government transportation agencies, as well as firms in the postal, trucking, railroad, airline, and auto manufacturing industries. My work has frequently addressed issues relating to regulatory policy and the proper relationship between the public and private sectors. Prior to joining the Brattle Group I served on the staff of a number of other institutions, including the Rand Corporation, the Urban Institute, the consulting firm of Putnam, Hayes & Bartlett and Charles River Associates. I am a member of the American Economic Association and Vice Chairman of the Committee on Freight Transportation Economics and Regulation of the Transportation Research Board, an arm of the National Academy of Sciences. A copy of my resume is included as Appendix C.

Scope of My Testimony

My comments will focus on the Surface Transportation Board's proposal addressing revenue allocation for cross-over traffic. In its notice for this proceeding, the Board has identified constrained market pricing (CMP) and the stand-alone cost (SAC) test as fundamental elements of its regulatory framework. I demonstrate, however, that the Board's revenue allocation proposal is fundamentally inconsistent with these principles, that it is based upon flawed economics, and that it will, if adopted, lead the Board to biased and erroneous conclusions that will damage both railroads and shippers. I propose a practical alternative – Efficient Component Pricing – that overcomes these problems while allowing complainants to continue to use cross-over traffic in SAC presentations.

Defining Terms

I begin by defining a number of terms that will appear repeatedly in the discussion that follows. First, I will refer to the defendant railroad as the "incumbent," and the portion of the

incumbent's network not replicated by the stand-alone railroad as the "residual incumbent." Following the terminology used by the Board in its notice for this proceeding, I will refer to a stand-alone railroad that is self-contained and does not rely on cross-over traffic as a "full SARR," and the analysis based upon this railroad as a "full SAC analysis." I will refer to a stand-alone railroad that relies upon cross-over traffic and hence that interchanges such traffic with the incumbent as a "truncated SARR." Every truncated SARR has an associated full SARR. Unless otherwise noted, when I discuss the full SARR and the truncated SARR I will refer to railroads that serve the same traffic group. I will use the term "off-SARR segments" to refer to those portions of the full SAR that are not included in the truncated SARR, and the term "on-SARR segments" to refer to portions of the truncated SARR network.

The Board Recognizes the Failure of Its Current Procedures for Allocating Cross-Over Traffic Revenues

The fact that the Board has proposed a new methodology for allocating cross-over traffic revenue between the incumbent and the truncated SARR implies an acknowledgement of the shortcomings of its current approach (the Modified Straight-Mileage Prorate, or MSP method) and of other methods that have been proposed or used in the past (e.g., Density Adjusted Revenue Allocation, or DARA method). Indeed, in its notice the Board refers to "the prolonged debate over how to allocate revenue from cross-over traffic."¹

In an attempt to overcome these shortcomings, the Board has proposed a new method that would allocate revenue for a cross-over traffic move based upon the average total cost (ATC) of the various on- and off-SARR segments used by the movement. In this way it seeks to allocate revenue "in proportion to the relative total cost of providing service."² The total cost, in this case, is determined by allocating the fixed costs of a segment on a uniform per-ton basis to all of the traffic using the segment.

Unfortunately, this new approach is no more consistent with economic theory or the realities of the railroad industry than the MSP and DARA methods that the Board has rejected.

¹ EP 657 Notice, p. 18.

² EP 657 Notice, p. 20.

The Board's Efforts to Allocate Contribution Are Doomed to Fail

It is not surprising that the Board's search for an appropriate way of allocating cross-over traffic revenue and contribution has triggered a "prolonged debate." Essentially, the Board is looking for something that does not exist. It is attempting to do something that economists have long warned the Board cannot be done. The Board's proposal is thus no better than other proposals because, like them, it is based upon incorrect assumptions and is inconsistent with economic theory.

The Board's problem arises because of the fact that what it is attempting to do, essentially, is to allocate joint costs. The contribution that the Board seeks to divide between the incumbent and the truncated SARR is by definition the difference between revenues and variable costs. This pool of contribution provides the revenues out of which all of the incumbent's fixed and joint costs are covered. Allocating contribution, therefore, is equivalent to allocating joint costs. Economists have for years advised the Board that there is no non-arbitrary way to assign joint costs to individual traffic movements, much less to individual portions of individual traffic movements.

Variable costs, as their name indicates, are the costs that change with variations in the volume of traffic. At a conceptual level it is clearly possible both to measure these costs and to assign them to individual movements, challenging though this task may prove to be in practice. Using URCS average variable costs, for example, one can sensibly estimate the variable cost associated with an individual traffic movement. One can also sensibly talk about the variable costs associated with different portions of an individual traffic movement. Indeed, the widely used activity-based costing methodology measures variable costs by observing how the costs of different activities (or, in the railroad context, network segments) varies with changes in usage.

Fixed costs, by definition and in contrast, do not vary with changes in traffic, and so there is no experiment capable of revealing the fixed costs associated with an individual traffic movement. Only in the hypothetical case where a segment supports only a single movement will it be possible to identify a tight causal link between an element of fixed cost and an individual traffic movement.

Within an interconnected railroad network it is impossible to determine which traffic movements and contribution margins are covering which fixed costs. Under differential pricing, contribution margins on traffic movements vary widely, and the network remains viable only to the extent that the totality of the contribution margin earned by the railroad on all of its movements is sufficient to cover the totality of its fixed costs. Each movement uses a number of different segments, and the vast majority of segments are supported by multiple movements. The extent to which a particular segment will need to draw upon the contribution generated by a specific traffic movement will depend on how many other traffic movements rely upon that same segment, how much contribution they generate, and how many other segments must be supported by that contribution. These interdependencies render futile any effort to allocate the contribution associated with any specific movement.

The Board's proposal will not and cannot assign revenue correctly. It will inevitably provide one party with a windfall while leaving the other insufficient revenue to cover all of its costs.

The Board's Proposal Would Seriously Undermine the Integrity and Accuracy of the SAC Process

The Board's proposal would force defendant railroads to subsidize complainants. It would introduce significant errors into the SAC process, and would inevitably lead to biased results.

The Board's Proposal Would Extend Revenue Sharing Beyond the Limits of the Full SARR

The Board's proposal fails to reflect that in a stand-alone cost test the stand-alone entity is supposed to *stand alone*. As it was originally conceived, the stand-alone cost test addresses the problem of how to relate revenues, contribution and joint cost by asking whether a group of customers of a multi-product firm could break away and set up their own dedicated network at a cost less than what they are currently paying the incumbent.³ Two features of this test are crucial. First, it examines the relationship between the revenues and costs of serving the entire

³ The seminal article defining the stand-alone cost test and explaining its application to multiproduct firm is Gerald R. Faulhaber (December 1975), "Cross-Subsidization: Pricing in Public Enterprises," *American Economic Review*, Vol 65, No. 4, pp. 966-977.

group of SARR customers. It does not attempt to allocate or otherwise assign fixed costs to individual customers within that group. Second, it severs the connection between the costs and revenues of the SARR, on the one hand, and those of the incumbent, on the other hand. It thus asks what there costs would be *in isolation*. In a true stand-alone costs test stand-alone entity truly stands alone, sharing neither costs nor revenues with the incumbent.

In its notice for this proceeding the Board makes the following statement regarding cross-over traffic carried in part by the truncated SARR:

Even if we knew the total replacement costs of the off-SARR segments used by cross-over movements, we have no method for allocating a share of those investment costs to just the cross-over movements. The off-SARR segments would have other traffic flowing over those lines that would be expected to contribute to the investment costs.⁴

What is the “other traffic” referred to in the statement above? Clearly it is not the issue traffic, which must be contained within the confines of the truncated SARR. Neither is it the cross-over traffic, from which it is clearly distinguished. In this statement, the Board is describing a situation in which off-SARR segments are paid for in part by traffic that is not part of the traffic group of the full or truncated SARR. This statement by the Board implies a belief that the full stand-alone railroad does not really have to stand alone, but rather can count upon some degree of continuing support from the residual incumbent.

The Board’s new proposal for allocating cross-over traffic revenue reflects an apparent willingness to compel the incumbent’s non-SARR traffic to bear a share of the costs of those portions of the full SARR that are not replicated by the truncated SARR. The Board has proposed to allocate cross-over traffic revenue between the truncated SARR and the incumbent based on the “Average Total Cost,” or ATC of the on-SARR and off-SARR segments.⁵ It would calculate these costs in a four-step process. First, using URCS, it would calculate the variable costs associated with the on-SARR and off-SARR portions of a movement. Second, it would calculate the fixed costs of the on-SARR and off-SARR line segments by computing average URCS fixed costs per route mile, and then multiplying this quantity by the route miles associated with each of these two segments. Third, the Board would divide these fixed costs by the total

⁴ EP 657 Notice, p. 17.

⁵ EP 657 Notice, p. 19.

gross ton-miles on each of these segments. The gross ton-miles that the Board would use for the off-SARR segment in this calculation are not the gross ton-miles associated with the cross-over traffic, but the gross ton miles associated with *all* of the incumbent's traffic.⁶ Finally, the Board would add the variable costs and average fixed costs computed above to arrive at estimates of ATC that would then be used to allocate cross-over traffic revenue.

If the Board were focused on the full SARR as a stand-alone entity, it would calculate ATC based on the gross ton-miles of the full SARR. Instead, the Board proposes to use the gross ton-miles of the incumbent. The gross ton-miles of the incumbent on the off-SARR segments will never be less than those of the full SARR (since the traffic group of the full SARR will always be a subset of the traffic of the incumbent). They can be greater than the ton-miles of the SARR, potentially by a substantial amount. Using the incumbent's gross ton-miles rather than the SARR's gross ton-miles to compute ATC lowers estimated ATC for the off-SARR segments, reduces the amount of cross-over traffic revenue allocated to those segments, and increases the cross-over traffic revenue allocated to the truncated SARR. Thus, this procedure necessarily biases the results of the truncated SARR analysis in favor of the complainant.

Surprisingly, the Board seems aware of this possibility, and is apparently untroubled by it. In the recent *Otter Tail* case, BNSF argued that use of cross-over traffic should be restricted to situations in which it could be demonstrated that the full off-SARR costs would be covered by the off-SARR revenue allocations. Imposition of such a requirement would be entirely consistent with the principles of the stand-alone cost test as generally understood by economists. This test dictates that the revenues generated by the stand-alone customers must be sufficient to cover the full cost of the services they use.

In its decision in that case, the Board emphatically disagreed with BNSF on this point, stating that "this notion has long since been rejected."⁷ There is no economic justification for the Board's position on this point. With this statement the Board has expressed a willingness to

⁶ Although I have described what I believe to be the Board's intent, I must note that there is some ambiguity in the wording of the notice. The gross ton miles over which the estimated fixed costs of the off-SARR segments are to be spread are identified simply as those of "the railroad." In principle this word could refer either to the truncated SARR, the full SARR, the incumbent or the residual incumbent. In this section of the Notice, however, the Board appears to be referring to the truncated SARR as "the SARR," and the incumbent as "the railroad."

⁷ *Otter Tail Power Co. v. BNSF Ry.*, STB Docket No. 42071 (STB served Mar. 24, 2006), p. 12.

allow the SARR to off-load a portion of its stand-alone costs onto the incumbent, an outcome that is fundamentally inconsistent with the provisions of the SAC test.

The Board's Proposal Introduces Enormous Potential for Error into the SAC Process

According to the theory of the SAC test, what really matters is the outcome of what the Board has described as a full SAC test based upon a full SARR without cross-over traffic. A truncated SAC analysis is thus only valid if it can replicate (or at least reliably approximate) the outcome of a full SAC analysis. In its notice for this proceeding the Board has acknowledged this fact, stating that its goal is “to ensure that a simplified SAC analysis using cross-over traffic will approximate a full SAC analysis, which provides origin-to-destination service for the entire traffic group.”⁸

The Board's current procedures for handling cross-over traffic and its proposed new method fail this standard. Both introduce an enormous potential for error into the SAC process. In a SAC presentation involving the use of cross-over traffic, the Board relies upon a set of detailed calculations to account for the costs and revenues of the truncated SARR, and a set of rough allocations and approximations to account for the costs and revenues for the remainder of the full SARR. One factor that has important implications for the accuracy of a simplified SAC analysis is the relative magnitude of these two sets of costs and revenues. What fraction of the costs and revenues of the full SARR are being subjected to detailed modeling and analysis? In recent SAC cases cross-over traffic has frequently accounted for a very large fraction of the revenues of the truncated SARR – as high as 99 percent.⁹ In its recent *Otter Tail* decision the Board itself has commented that, “[w]ithout cross-over traffic the SARR would replicate the entire service provided by the defendant railroad for all of the traffic included in the SAC analysis ... rather than relying on the residual defendant to provide what is often the *majority* of the transportation for the traffic group.”¹⁰ If a majority of the costs and revenues of the full SARR is being estimated using rough approximations and arbitrary allocations, how accurate can the test as a whole actually be? If 70, 80, 90 percent or more of the full SARR network consists

⁸ EP 657 Notice, page 7.

⁹ Joint Supplemental Reply Evidence and Argument of The Burlington Northern and Santa Fe Railway Co. and Union Pacific Railroad Co. at I-6, *Arizona Elec. Power Coop. v. Burlington N.&S.F. Ry.*, STB Docket No. 43058 (STB Jan. 26, 2004).

¹⁰ *Otter Tail*, p. 12.

of off-SARR segments that are being modeled using rough approximations and arbitrary rules of thumb with no economic justification or content, the truncated SAC analysis cannot be expected to yield a meaningful result.

The Board's implementation of the SAC test has over time transformed this test into something other than what its developers intended. The nature of the test changes when the SARR begin to derive large fractions of its revenue from cross-over traffic subject to mechanical revenue allocation rules that often have little basis in theory or real world economics. Outcomes become driven less and less by the rates charged for issue traffic, and more and more by the ability of the complainants to assemble a high-margin traffic group whose revenues will, under the Board's procedures, be disproportionately assigned to the truncated SARR.

A Potential for Error Means a Potential for Bias

The Board also emphasized in its recent *Otter Tail* decision that its goal in allowing (or even encouraging) reliance on cross-over traffic is simply to expedite the process, and not to steer it toward any particular outcome.

Our goal in allocating revenue from cross-over traffic is to assure that a simplified SAC analysis using cross-over traffic will approximate a full SAC analysis without cross-over traffic. We do not permit the use of cross-over traffic so that Complainants might win where they should not; rather, the goal is to make the analysis more manageable without introducing bias.¹¹

In the present setting, an approximate test that may superficially appear unbiased in principal will inevitably be biased in practice. Even if a procedure works adequately for the average case (which the Board's current proposal, with no basis in economic theory, does not), the Board must recognize that average cases are not what are likely to be brought before it. Complainants, who are free to define the SARR traffic group in whatever way they see fit, will have a powerful incentive to seek out situations in which rough and ready approximations approved by the Board work in their favor, and to bring such cases before it. Bias is the inevitable result.

The potential for bias associated with the Board's proposal for cross-over traffic revenue allocation is for several reasons even greater. First, because it is based upon arbitrary allocations

¹¹ *Otter Tail*, p. 14.

of fixed costs and contribution, it cannot be accurate on average. Second, as I have discussed above, the volume of revenue and contribution it can shift between the complainant and the defendant railroad is significant.

The Board's Proposal Assigns Too Much Contribution to High Density Lines, Introducing Bias and Error into Truncated SAC Analyses

The Board's procedures for allocating cross-over traffic revenue have tended to assign too much contribution to the high density main lines that often account for a disproportionate share of truncated SARR route mileage. As a result, they tend to leave lower density lines under-funded. They can also create situations in which a truncated SAC presentation will indicate that rates are excessive even though a full SAC presentation would not. The Board's new proposal suffers from the same problem.

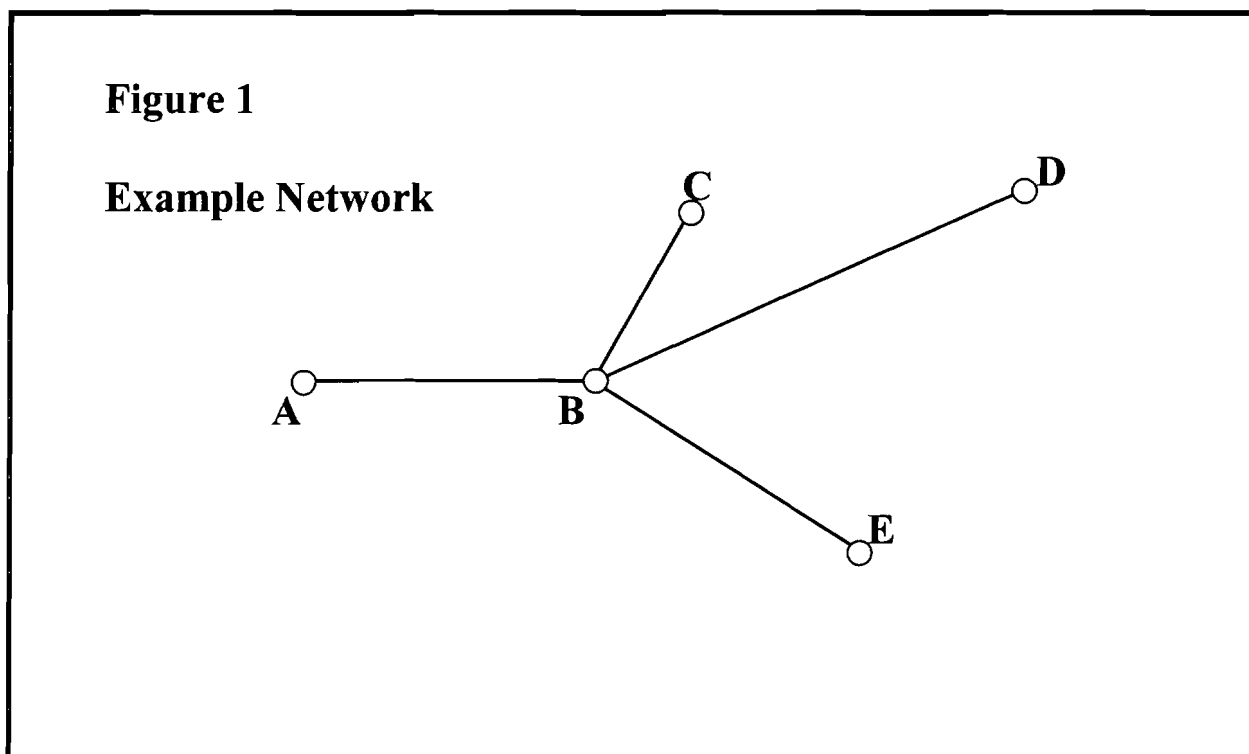
This problem of assuring availability of sufficient revenue to cover the high fixed costs of lower density main, branch and gathering lines is one of the most significant problems arising in real-world railroad economics. Rail networks generally combine large numbers of lower density main, branch and gathering lines with smaller numbers of high-density main lines. These large networks of lower density main, branch and gathering lines are needed to collect freight from and deliver freight to a large number of geographically dispersed origins and destinations. The volume assembled in this way is then funneled into corridors in which the railroad is able to exploit effectively the economies of density that characterize the industry.

Because of this pattern, it will generally be the case that lower density main, branch and gathering lines will have relatively fewer movements and less contribution to draw upon for fixed cost coverage than high density main lines. This reality necessarily results in a situation in which lower density lines *have first claim* on the contribution generated by the movements they support. The main lines may carry a very large volume of traffic, and there may well be a large pool of contribution associated with that large volume of traffic. However, one cannot conclude from this simple fact that these lines are highly profitable. That same pool of contribution has to support the entire network of lower density main, branch, and gathering lines, and so in a very real sense much of this pool has already been spent before the traffic reaches the high-density main lines. Efforts to allocate contribution cannot account for these facts, and tend to show over

recovery of costs by main lines, and under recovery on gathering and branch lines. The Board has effectively acknowledges as much in its notice in this proceeding.¹²

While the Board's cross-over traffic revenue allocation proposal may be somewhat better in this regard than the current MSP methods, it does not and cannot address this problem adequately.

The following example illustrates this point. Consider the simplified network shown in Figure 1. This network contains one main line (segment A-B) and three branch lines (B-C, B-D, and B-E). Four traffic movements share the network: A-B, A-C, A-D, and A-E. In schematic form it resembles the network of the Union Pacific, whose high-density Central Corridor (akin to A-B) carries PRB coal eastbound for delivery via lower density lines.



To construct this example, I have assumed a uniform fixed cost per route-mile, and a uniform variable cost per unit-mile. I have also assumed that there are variable costs associated with the origination and termination costs of each movement. Traffic volumes and contribution

¹² EP 657 Notice, p. 18. The Board notes that MSP allocates revenue based on a crude measure of variable costs, and does not adequately account for total costs (i.e., variable plus fixed costs).

margins vary substantially across movements, as one would expect to find in the real world. The tables shown in Appendix A depict the network's basic economics. Revenues exceed variable costs by an amount that is exactly equal to the network's fixed costs, so that taken as a whole the network is just breaking even. All traffic movements make a contribution toward coverage of fixed costs.

In this simplified network it is easy to demonstrate that no traffic group could lower its costs by breaking away from the network. Results of conducting a full SAC analysis for all possible traffic groups are shown in Appendix B. The network just breaks even (see Appendix Table A-4). No subset of traffic movements generates enough contribution to cover the fixed costs of the segments that it requires. Thus, there is no evidence of cross-subsidy, and every shipper is better off using the shared network. That network functions only as an integrated whole. No movement could exist without the others, and no segment could exist without the others.

The Board's cross-over traffic revenue allocation rules distort the economics of this network. They assign the revenue associated with any traffic movement to the individual line segments that it traverses. Based on the Board's assignment of revenue and a true assignment of costs, it is possible to calculate the overall perceived "profit" or loss associated with each segment of the network. Table 1 shows the segment level profits and losses that result when all of the revenues associated with the example network are assigned to segments using the Board's MSP rule.

Table 1				
Segment Profitability Under MSP Revenue Allocation				
Segment	Revenue	Fixed Costs	Variable Costs	Profit (Loss)
A-B	\$109,021	\$3,200	\$100,000	\$5,821
B-C	\$24,208	\$4,800	\$21,000	(\$1,592)
B-D	\$98,078	\$9,600	\$91,000	(\$2,522)
B-E	\$40,693	\$6,400	\$36,000	(\$1,707)

The Board's MSP allocation method implies that segment A-B is highly profitable, while all of the others are operating at a loss. This is, of course, an absurd result. The traffic that is

local to segment A-B generates nowhere near enough contribution to cover its fixed costs (see Appendix Table B-3). Segment A-B can remain in operation only because of the contribution generated by traffic moving across the other segments of the network.

Allocation of revenue using the Board's proposed new ATC-based cross-over traffic revenue allocation rule yields a similar and equally absurd result. Segment A-B is once again judged to highly profitable, while all other segments are shown to be losing money. Admittedly, the profits and losses shown in Table 2 are smaller in absolute value than those produced by the MSP rule, but it is clear that the proposed new rule falls far short of adequately addressing this serious problem.

Table 2				
Segment Profitability Under The Board's Proposed ATC-Based Revenue Allocation Rule				
Segment	Revenue	Fixed Cost	Variable Costs	Profit (Loss)
A-B	\$106,158	\$3,200	\$100,000	\$2,958
B-C	\$25,435	\$4,800	\$21,000	(\$365)
B-D	\$98,553	\$9,600	\$91,000	(\$2,047)
B-E	\$41,854	\$6,400	\$36,000	(\$546)

Admittedly, these results describe only a single example, and it is possible that different network configurations and parameter values might yield different results. However, within this schematic representation of the Union Pacific's network I found it impossible, despite extensive experimentation, to find a set of parameters values that did not have the main line earning apparent profits at the expense of the lower-density segments.

How do these two methods compare when they are used in the context of a truncated SAC analysis? To answer this question, I have considered a SAC analysis for a traffic grouping made up of movements A-B, A-D and A-E. In these SAC analyses the movement A-E constitutes the issue traffic. In the truncated SAC analysis movement A-D is handled as cross-over traffic. Thus, the network of the truncated SARR includes segments A-B and B-E, and segment B-D is an off-SARR segment. Table 3 compares the results of a full SAC analysis with

the results of a truncated SAC analysis using the Board's current MSP method for allocating cross-over traffic revenue.

Table 3			
Comparison of Full SAC Analysis and Truncated SAC Analysis Using The Board's Current MSP Revenue Allocation Rule			
<i>Traffic Group: A-B, A-D, A-E</i>			
<i>Cross-over Traffic: A-D</i>			
<i>Full SAC</i>		<i>Truncated SAC</i>	
Revenues	\$230,500	Revenues	\$132,422
Fixed Costs	\$19,200	Fixed Costs	\$ 9,600
Variable Costs	\$212,000	Variable Costs	\$121,000
Profit	(\$700)	Profit	\$1,822

Although the full SAC analysis shows, as discussed above, that the traffic group is unable to cover its stand-alone costs, the truncated SAC analysis incorrectly indicates that the traffic group is being overcharged, and hence that rate relief is warranted.

The Board's proposed new cross-over traffic revenue allocation rule still allows complainants to "win where they should not."¹³ Table 4 compares the results of a full and a truncated SAC analysis of the same traffic group using the Board's proposed new ATC-based cross-over traffic revenue allocation rule.

Table 4			
Comparison of Full SAC Analysis and Truncated SAC Analysis Using The Board's Proposed ATC-Based Revenue Allocation Rule			
<i>Traffic Group: A-B, A-D, A-E</i>			
<i>Cross-over Traffic: A-D</i>			
<i>Full SAC</i>		<i>Truncated SAC</i>	
Revenues	\$230,500	Revenues	\$131,947
Fixed Costs	\$19,200	Fixed Costs	\$ 9,600
Variable Costs	\$212,000	Variable Costs	\$121,000
Profit	(\$700)	Profit	\$1,347

¹³ *Otter Tail*, p. 14.

In this example a full SAC analysis and a truncated SAC analysis continue to give different and contradictory results. The Board's cross-over traffic revenue allocation procedure again incorrectly supports a conclusion that this traffic group is generating revenue in excess of its stand-alone costs, and hence that rate relief is warranted. Any such relief, of course, would deprive the network of revenues needed to covers its actual costs.

I could readily generate other examples, but one is enough to demonstrate that the Board's proposed new procedure cannot be counted upon to allocate cross-over traffic revenues correctly. I believe, moreover, that this is not an isolated problem. It is a general one. Adoption of the Board's proposed cross-over traffic revenue allocation method will allow claimants to use the rate relief procedures of the Board to win reductions in rates in cases where no such relief is economically justified.

The Efficient Component Pricing Rule Is the Only Valid Method for Handling Cross-Over Traffic, and Should Be Adopted by the Board

Although I have discussed at length the risks that adoption of the Board's cross-over traffic revenue allocation proposal poses for the accuracy and integrity of the SAC test, my remarks should not be construed as an attack on the use of cross-over traffic as an element of a simplified SAC presentation. The Board has repeatedly and persuasively articulated the critical role that reliance on cross-over traffic plays in reducing the cost and complexity of SAC cases, thereby maintaining their relevance as a practical means of seeking appropriate rate relief.

The question, however, is how to permit cross-over traffic without invalidly distorting SAC results. The evidence I have presented above supports one simple, strong, and obvious conclusion. There is no valid and objective way to allocate *contribution* between the truncated SARR and the incumbent, and for this reason the Board should stop trying to do so. All of these efforts will lead the SAC test to biased and erroneous results that will ultimately undermine the viability not of the SARR, but of the real rail network that thousands of shippers depend upon.

What has been called the Efficient Component Pricing Rule (ECP)¹⁴ is the only economically valid method for apportioning cross-over traffic revenue between the truncated

¹⁴ For an early discussion of this rule see Robert D. Willig, The Theory of Network Access Pricing, in ISSUES IN PUBLIC UTILITY REGULATION 109 (Harry M. Trebing ed., 1979)

SARR and the incumbent. This rule states that the cross-over traffic revenue that should be credited to the SARR is be equal to the cost that the incumbent would avoid by handing the traffic over to the SARR rather than providing end-to-end service directly. This amount will be equal to the incumbent's avoided variable costs. ECP bases cross-over traffic revenue allocations on economic quantities that can be readily be measured at the traffic movement and network segment level, and makes no effort to allocate contribution.

ECP has many advantages, chief among them that it does not suffer the inherent and fundamental problems associated with any effort to allocate contribution.

ECP Would Preserve the Key Objective of Using Cross-Over Traffic While Eliminating the Problems That Have Plagued Its Use

First, ECP would allow complainants to use cross-over traffic to design SARRs that achieve optimal operations and traffic densities. Because ECP would allocate to the SARR the incumbent's avoided variable costs, it would assure that the SARR did not lose money on this traffic (unless it proposed inefficient operations). And in the typical case of a SARR that is substantially more efficient than the incumbent, the SARR's allocation should allow it to earn a substantial margin of contribution as well.

Use of ECP to allocate cross-over traffic revenues would appropriately focus the SAC analysis on the economics of the issue traffic itself. The rates, revenue and contribution associated with this traffic would, under ECP, play a larger role in the economics of the SARR and in the outcome of the SAC test. The amount of rate relief provided will more closely related to the rates actually paid by the party seeking relief.

Moreover, to the extent the ECP approach might conceivably under-allocate contribution to the SARR segments in certain circumstances, it would be self-correcting. If there are significant groups of traffic that share the network with the issue traffic and earn very substantial amounts of contribution, complainants are free to pursue that contribution for their SARR by building the SARR out to the end points of the incumbent's movement.

Such build outs would be most likely to occur in situations where a relatively large group of shippers share a relatively limited set of lines and facilities. These are precisely the types of

situations the SAC test addresses best, and where its results are most informative and useful to the Board. Build outs are least likely to occur in situations in which the SARR traffic group includes a diverse set of movements that traverse large fractions of the incumbent's network. These situations are the types of situations in which the problems of unraveling the economies of scale and scope in the incumbent's network (and within the SARR itself) are most intractable, the SAC test is least applicable, and the potential for substantial error is the greatest. If the effect of adopting ECP were to push SAC analyses away from the latter situations and toward the former, this would be a highly desirable outcome.

Only ECP Can Assure the Viability of Off-SARR Segments

Second, because ECP leaves in place in the SARR world the contribution margins that in the real world are supporting the various off-SARR lines and facilities upon which the truncated SARR cross-over traffic depends, it is the only allocation rule that can assure that these facilities will remain economically viable in the SARR world. Its adoption would thus eliminate the bias toward under-recovery of these costs that has characterized the Board's procedures to date, and that would continue if the proposed ATC method were adopted.

Economic Theory Supports the Use of ECP

Third, ECP is the only cross-over traffic revenue allocation rule that is consistent with contestable market principles. The contestable market scenario addressed by the SAC test begins with the incumbent providing end-to-end service to all of the traffic in the SARR traffic group. Then the SARR enters the market. The SARR provides end-to-end service to the issue traffic, and perhaps to other movements in the traffic group. By definition, however, cross-over traffic cannot rely wholly on the SARR. Instead, the SARR can handle this traffic only with the assistance of the incumbent.

Under what circumstances, then, will this assistance be forthcoming in the hypothetical contestable world in which the SARR and incumbent are operating? The incumbent will have an incentive to interchange traffic with the SARR if and only if the amount of the total end-to-end revenue that it pays to the SARR is less than the cost it would incur were it to carry the traffic itself. In a contestable market there would be nothing to prevent the incumbent from offering such end-to-end service. Hence, there is no reason to expect in a truly contestable marketplace

any outcome that leaves the SARR with more revenue than the incumbent's avoided costs. Such an outcome could be achieved only by regulatory fiat.

While the Board is correct in its recent assertion that in a contestable marketplace revenue divisions collapse to a cost based approach, the relevant costs to which revenue divisions collapse reflect the incumbent's incremental avoided costs, not its average total costs.¹⁵

ECP Simplifies the Rate Relief Problem.

Finally, using ECP to allocate cross-over revenues has the potential of simplifying the difficult problem of how to allocate rate relief between issue and non-issue traffic. Because ECP allocates none of the incumbent's contribution from cross-over movements to the SARR, there is no need to apportion any part of a SAC over-recovery to those movements. If SAC revenues are shown to exceed SAC costs, any rate relief that needs to be granted could be restricted to the traffic group that is local to the truncated SARR.

Conclusion

The Board's new proposal for allocating cross-over traffic revenues will not solve the problems it is attempting to address. Because it attempts to do the impossible – that is, to allocate contribution between the SARR and the incumbent in a way that is objective, fair, and economically valid – it cannot yield meaningful results. Its adoption would introduce error and bias into the SAC process.

The Efficient Component Pricing Rule is consistent with contestable market principles, and is the only economically valid method for dividing cross-over traffic revenues between the incumbent and the SARR. The Board should adopt this method in all future SAC cases involving cross-over traffic.

¹⁵ For a more complete explanation of how contestable market principles lead to this outcome see the recent testimony of Professor Kalt in *Western Fuels Association, Inc. and Basin Electric Cooperative, Inc. v. BNSF Railway Company*, STB Docket No. 42088.

VERIFICATION

I, Kevin Neels, declare under penalty of perjury that the foregoing statement is true and correct. Further, I certify that I am qualified and authorized to file this statement. Executed on May 1, 2006.

A handwritten signature in cursive script that reads "Kevin Neels".

KEVIN NEELS

Appendix A

Financial and Operational Assumptions for Example Network

Appendix Table A-1 Financial Parameters	
Fixed cost per route-mile per period	\$8
Variable cost per unit-mile per period	\$2
Origination costs per unit	\$200
Termination costs per unit	\$200

Appendix Table A-2 Network		
Segment	Miles	Fixed Costs
A-B	400	\$3,200
B-C	600	\$4,800
B-D	1,200	\$9,600
B-E	800	\$6,400
Total	3,000	\$24,000

Appendix Table A-3 Traffic					
<i>Segment</i>	<i>Miles</i>	<i>Units</i>	<i>Variable Cost</i>	<i>Contrib.</i>	<i>Revenue</i>
A-B	400	25	\$30,000	\$1,400	\$31,400
A-C	1,000	15	\$36,000	\$5,500	\$41,500
A-D	1,600	35	\$126,000	\$9,800	\$135,800
A-E	1,200	20	\$56,000	\$7,300	\$63,300
Total	4,200	95	\$248,000	\$24,000	\$272,000

Appendix Table A-4 Overall Economics	
Revenue	\$272,000
Fixed Cost	\$24,000
Variable Cost	\$248,000
Total Cost	\$272,000
Profit	\$0

Appendix B

Full SAC Analysis Results for All Possible Example Network Traffic Groupings

Appendix Table B-1 Traffic Flows Included				
<i>SAC Grouping</i>	<i>A-B</i>	<i>A-C</i>	<i>A-D</i>	<i>A-E</i>
1	Yes			
2		Yes		
3			Yes	
4				Yes
5	Yes	Yes		
6	Yes		Yes	
7	Yes			Yes
8		Yes	Yes	
9		Yes		Yes
10			Yes	Yes
11	Yes	Yes	Yes	
12	Yes	Yes		Yes
13	Yes		Yes	Yes
14	Yes	Yes	Yes	Yes

Appendix Table B-2 Line Segments Required				
<i>SAC Group</i>	<i>A-B</i>	<i>B-C</i>	<i>B-D</i>	<i>B-E</i>
1	Yes			
2	Yes	Yes		
3	Yes		Yes	
4	Yes			Yes
5	Yes	Yes		
6	Yes		Yes	
7	Yes			Yes
8	Yes	Yes	Yes	
9	Yes	Yes		Yes
10	Yes		Yes	Yes
11	Yes	Yes	Yes	
12	Yes	Yes		Yes
13	Yes		Yes	Yes
14	Yes	Yes	Yes	Yes

**Appendix Table B-3
SAC Test Results**

<i>SAC Grouping</i>	<i>Variable Cost</i>	<i>Contrib.</i>	<i>Fixed Cost</i>	<i>Revenue</i>	<i>Profit</i>
1	\$30,000	\$1,400	\$3,200	\$31,400	(\$1,800)
2	\$36,000	\$5,500	\$8,000	\$41,500	(\$2,500)
3	\$126,000	\$9,800	\$12,800	\$135,800	(\$3,000)
4	\$56,000	\$7,300	\$9,600	\$63,300	(\$2,300)
5	\$66,000	\$6,900	\$8,000	\$72,900	(\$1,100)
6	\$156,000	\$11,200	\$12,800	\$167,200	(\$1,600)
7	\$86,000	\$8,700	\$9,600	\$94,700	(\$900)
8	\$162,000	\$15,300	\$17,600	\$177,300	(\$2,300)
9	\$92,000	\$12,800	\$14,400	\$104,800	(\$1,600)
10	\$182,000	\$17,100	\$19,200	\$199,100	(\$2,100)
11	\$192,000	\$16,700	\$17,600	\$208,700	(\$900)
12	\$122,000	\$14,200	\$14,400	\$136,200	(\$200)
13	\$212,000	\$18,500	\$19,200	\$230,500	(\$700)
14	\$248,000	\$24,000	\$24,000	\$272,000	\$0

Appendix C

Kevin Neels directs the Transportation Practice at *The Brattle Group*. Dr. Neels has more than 30 years experience as a consultant and expert witness in the rail, trucking, courier, postal, aviation, and automotive industries. He has led many significant engagements relating to competition, market structure, pricing, revenue management, distribution strategy, regulation, and public policy. His work has addressed issues related to system planning, competition policy, privatization, and congestion management.

Prior to joining *The Brattle Group*, Dr. Neels served as Vice President and leader of the transportation practice at Charles River Associates. He has also served as a researcher in the Urban Policy Program at the Rand Corporation and the Transportation Studies Program at the Urban Institute, as a Director in the Transportation Practice at the consulting firm of Putnam, Hayes & Bartlett, as a Management Consultant in the Transportation Practice of the firm now known as KPMG. Dr. Neels is currently Vice Chairman of the Committee on Freight Transportation Economics and Regulation of the Transportation Research Board, an arm of the National Academy of Sciences. He is also a member of the Transportation Research Board's Committee on Airline Economics and Forecasting.

Dr. Neels has authored numerous research reports, monographs and articles for peer-reviewed journals. He has often been asked to offer expert testimony in legal and regulatory proceedings. He regularly serves as an invited speaker at conferences and industry forums, and his opinions and observations on industry developments are frequently quoted in the popular and trade press. Dr. Neels earned his Ph.D. from Cornell University.

PUBLICATIONS

"Pricing-Based Solutions to the Problem of Weather-Related Airport and Airway System Delay." *Air Traffic Control Quarterly*, Vol 10(3) 261–284 (2002).

"Congestion, Pricing and the Economic Regulation of Airports." Transportation Research Board, The Federal Aviation Administration, Conference on Airports in the 21st Century (April 20, 2000).

"Estimating the Effects of Display Bias in Computer Reservation Systems." With Franklin Fisher, In *Microeconomics Essays in Theory and Applications*. Ed. Maarten-Pieter Schinkel. Cambridge University Press, 1999.

"Insurance Issues and New Treatments." *Journal of the American Dental Association*, 125 (January 1994): 45S-53S.

"Medical Cost Savings from Pentoxifylline Therapy in Chronic Occlusive Arterial Disease." *Pharmacoeconomics* 4, No. 2, (February 1994): 130-140.

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“Forecasting Intermodal Competition in a Multimodal Environment.” With Joseph Mather. *Transportation Research Record* 1139 (1987).

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“Direct Effects of Undermaintenance and Deterioration.” With C. Peter Rydell. In *The Rent Control Debate*. Ed. Paul L. Niebanck. Chapel Hill, NC: University of North Carolina Press, 1985.

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“Reducing Energy Consumption in Housing: An Assessment of Alternatives.” *International Regional Science Review* 7, 1 (May 1982).

“Production Functions for Housing Services.” *Papers of the Regional Science Association* 48 (1981).

PROFESSIONAL AFFILIATIONS

American Economic Association
Transportation Research Board

TESTIMONY

Before the U.S. Tax Court, Docket No. 21342-03, Testimony in the matter of Van der Aa Investments, Inc., a dissolved Delaware Corporation; and Terry L. Van der Aa, Trustee vs. Commissioner of Internal Revenue, December 2005.

Before the U.S. District Court for the District of Massachusetts, Docket No. 03-10820-GAO, Testimony in the matter of Paul Quaglia vs. Eaton Corporation and Cutler-Hammer, Inc., November 2005.

Before the U.S. Department of Transportation, Docket No. OST-2004-19214, Submission in support of American Airlines’ comments on the joint application of Alitalia-Linee Aeree Italiane-S.p.A., Czech Airlines, Delta Airlines, Inc., KLM Royal Dutch Airlines, Northwest Airlines Inc., and Société Air France for approval of and Antitrust Immunity for Alliance Agreements, June 2005.

Testimony in the Matter of an Arbitration under Chapter Eleven of the North American Free Trade Agreement and the UNCITRAL Arbitration Rules, United Parcel Service of America, Inc., Investor, and The Government of Canada, Party, March 2005.

Before the U.S. District Court, Western District of Oklahoma, Testimony in the matter of Ponder, *et al.* vs. Gulfstream Aero Corporation, *et al.*, Civil Docket No. 5:02cv739, October 2004.

Before the Surface Transportation Board, Docket No. 27590 (Sub-No.3), Verified Statement in support of Trinity Industries' comments on TTX Company's application for approval of pooling of car service with respect to flatcars, April 2004.

Before the American Arbitration Association, Commercial Arbitration Tribunal, Testimony in the matter of Solvay Pharmaceuticals, Inc. vs. Duramed Pharmaceuticals, Inc., Case No. 53 181 00564 02, November 2003.

Before JAMS Arbitration, Testimony in the matter of Transcore Holdings, Inc. vs. Rocky Mountain Mezzanine Funding II, L.P.; Hanifen Imhoff Mezzanine Fund, L.P.; Moramerica Capital Corporation; and NDSBIC, L.P., and W. Trent Ates and Fred H. Rayner, September 2003.

Before the U.S. District Court Southern District of Ohio Western Division (Cincinnati), Testimony in the matter of Gooby Industries Corp., Century Box Division, and David S. Kagan vs. Frank J. Veneziano, and Weltman, Weinberg & Reis Co., L.P.A., September 2003.

Before the U.S. District Court Central District of California Western Division, Testimony in the matter of Winn Incorporated and Ben Huang vs. Eaton Corporation, July 2003.

Before the Superior Court of New Jersey, Law Division Docket No. CAM-L-6235-00, Testimony in the matter of Bruce Zakheim, M.D. on behalf of himself and all others similarly situated vs. AmeriHealth HMO, Inc., October 2002.

Before the U.S. District Court, Eastern District of Pennsylvania, Testimony in the matter of National Steel Car, Ltd. vs. Canadian Pacific Railway, Civil Docket No. 2:02cv6877, August 2002.

Before the U.S. District Court for the District of Massachusetts, Testimony in the matter of City of New Bedford, and New Bedford Harbor Development vs. Woods Hole, Martha's Vineyard & Nantucket Steamship Authority, May 2002.

VERIFIED STATEMENT

OF

ROBERT L. SANSOM

My name is Robert L. Sansom. I am President of Energy Ventures Analysis, Inc. (“EVA”), a consulting firm that specializes in energy and environmental market analysis and forecasting for the coal, natural gas, electricity, and oil industries. My familiarity with Western coal markets goes back to the early 1970s, when I was at the U.S. EPA and helped establish the initial sulfur limits on power plants that opened new markets for Western low-sulfur coal. Since 1974, I have followed these markets as an energy and environmental consultant. My experience encompasses production and market studies on Western coal and coal transportation. My resume is attached as Exhibit RLS-1.

Union Pacific Railroad Company (“UP”) has asked me to discuss the role of Powder River Basin (“PRB”) coal and rail transportation of PRB coal in meeting current and future demand for electricity generation in the United States.

I. PRB Coal Plays A Pivotal Role In Meeting Demand For Electricity Generation In The United States.

PRB coal plays a pivotal role in meeting the demand for electricity generation in the United States. Wyoming PRB coal shipments have increased from 65 million tons in 1980 to 430 million tons in 2005, an increase of 365 million tons.

This impressive growth in PRB coal shipments reflects the significant economic advantages of using coal, and PRB coal in particular, to supply energy for electricity generation. Over the last twenty-five years, the delivered cost of coal has consistently been far lower and far less volatile than the delivered cost of natural gas or residual oil, the two other main fossil fuel sources of energy for electricity generation in the United States, as shown in Exhibit RLS-2.

Between 1980 and 2005, the delivered cost of coal increased from \$1.35 per million Btu (“MMBtu”) to \$1.53/MMBtu, or 13.3%. By comparison, over the same period, the delivered cost of natural gas increased from \$4.35/MMBtu to \$7.90/MMBtu, or 81.6%, and the delivered cost of residual oil increased from \$4.27/MMBtu to \$6.99/MMBtu, or 63.7%.

The delivered cost of PRB coal is even lower than the delivered cost of coal from other producing regions in the United States. As shown in Table 1, over the past five years, the delivered cost for Wyoming PRB coal increased from \$1.04/MMBtu to \$1.14/MMBtu, or just 9.5%, which is less than the inflation rate of 13.1%.

TABLE 1
WYOMING PRB COAL DELIVERED TO UTILITIES

Year	Quantity (000 Tons)	\$/MMBtu
2000	271,332	1.04
2001	296,181	1.00
2002	289,768	1.00
2003	285,227	1.03
2004	295,953	1.06
2005	352,001	1.14
Source: FERC Form 423 Data		

By contrast, as shown in Table 2, the delivered price for all coal increased by 27.5%, the delivered price for natural gas increased by 86.8%, and the delivered price for residual oil increased by 62.9%. Also worth noting, the delivered cost for PRB coal increased at a lower rate than the average retail electricity price, which increased by 18.8% between 2000 and 2005 – faster than the rate of inflation.

TABLE 2

**EFFECTIVE CHANGES IN DELIVERED COST OF FUEL FOR ELECTRICITY
GENERATION, PRICE OF ELECTRICITY, AND INFLATION**

	\$/MMBtu		Increase
	2000	2005	
Wyoming PRB Coal	1.04	1.14	9.5%
All Coal	1.20	1.53	27.5%
Natural Gas	4.23	7.90	86.8%
Residual Oil	4.29	6.99	62.9%
	¢/kWh		Increase
	2000	2005	
U.S. CPI Index	172.2	194.8	13.1%
Avg Retail Electricity Price (¢/kWh)	6.81	8.09	18.8%
Sources: FERC Form 423 Data (Wyoming PRB coal); DOE/EIA Monthly Energy Review at 135 (Mar. 2006) (coal, natural gas, residual oil; retail electricity); 2006 Economic Report of the President, Table B-62 (CPI).			

As one would expect, the delivered cost advantage of PRB coal as compared to coal from other regions in the United States has translated into increased demand for PRB coal production. As shown in Table 3, production of Wyoming PRB coal increased by 20.7% from 2000 to 2005, while coal from other regions experienced far more modest increases, or even decreases, in production.

TABLE 3

**CHANGES IN U.S. COAL PRODUCTION 2000-2005
(millions of tons)**

Region	2000	2005	Change	
			Percent	Tonnage
Northern Appalachia	135.2	138.0	+2.1	+2.8
Central Appalachia	259.2	235.1	-10.3	-24.1
Southern Appalachia	19.4	21.4	+10.3	+2.0
Illinois Basin	88.5	92.8	+4.9	+4.3
Lignite	85.6	84.0	-1.9	-1.0
Wyoming PRB	323.0	390.0	+20.7	+67.0
Rockies	83.0	87.6	+4.4	+3.7
Other	36.2	39.1	+8.0	+2.9
Source: EVA, based on Mine Safety & Health Administration (MSHA) Production Data				

The delivered cost advantage and rapid growth in demand for PRB coal is not a phenomenon that is confined to facilities located in the Western United States. PRB coal is a relative bargain in the East. In 2005, PRB coal was typically delivered to utilities in states east of the Mississippi at a lower cost than coal from Appalachia or the Illinois Basin, as shown in Exhibit RLS-3. In fact, as shown in Table 4, for utilities located in states east of the Mississippi, Wyoming PRB coal has become more competitive than coal from other major coal producing regions over the past three years. This is because the delivered cost of other coal has been rising much faster than the delivered price of PRB coal.

TABLE 4

CHANGES IN DELIVERED COAL PRICES FROM MAJOR COAL REGIONS TO POWER PLANTS LOCATED EAST OF THE MISSISSIPPI 2003-2005

Region	2003 cents/MMBTU	2005 cents/MMBTU	Change
Wyoming PRB	119.0	129.4	8.7%
Central Appalachia	160.0	215.9	34.9%
Illinois Basin	120.3	135.6	12.7%
Northern Appalachia	120.5	147.6	22.5%

Source: FERC Form 423 Data.

Many eastern utilities have recognized the growing price advantage of PRB coal and have switched or are contemplating switching from eastern coals to PRB coal. In fact, from 2000 to 2005, the annual amount of PRB coal moving to utilities in states east of the Mississippi has increased by 29 million tons, from 121 million tons to 150 million tons, which represents almost half of the increase in PRB production over that same period.

II. Demand for PRB Coal Is Expected To Keep Rising And Will Require Producers And Railroads To Invest In Capacity To Accommodate The Growing Demand.

The past growth in demand for PRB coal reflects the combination of a growing demand for electricity generation in the United States and the relative cost advantages of PRB coal. Both trends are expected to continue in the future, intensifying the demands on producers

that mine the coal and the railroads that deliver it. The U.S. Energy Information Administration (“EIA”) projects that total electricity consumption in the United States will grow from 3,729 billion kilowatt hours in 2004 to 5,208 billion kilowatt hour in 2025.¹ Coal-fired plants currently provide approximately 50% of electricity generation, and thus much of the increased electricity consumption is likely to be fueled by coal.

As demand for coal grows, PRB coal is expected to provide the largest incremental share of production, as shown in Exhibit RLS-4. The increased demand will result from growing demand for PRB coal at plants that are currently burning PRB coal, as capacity utilization rises in response to continued growth in demand for electricity. It will also result from plants located east of the Mississippi switching from eastern coal to PRB coal. In addition, PRB coal demand will grow as utilities build new coal-fired plants. Many utilities have announced plans to build dozens of new plants that will be fueled by PRB coal between now and 2012, as shown in Exhibit RLS-5. The incremental demand from just those plants could amount to as much as 83 million tons of PRB coal.

A new CANAC report regarding the UP-BNSF Railway Joint Line in the PRB estimates, based on meetings with producers and “optimistic and ideal market condition,” that demand for rail transportation of PRB coal tonnage on the Joint Line could increase from 325 million tons in 2005 to 474 million tons in 2010 and to 490 million tons in 2012.² EVA’s most recent forecast for all Wyoming PRB mines is that tonnage will rise from 390 million tons in

¹ EIA, Annual Energy Outlook 2006, p. 5 (Feb. 2006), [http://www.eia.doe.gov/oiaf/aeo/pdf/0383\(2006\).pdf](http://www.eia.doe.gov/oiaf/aeo/pdf/0383(2006).pdf).

² CANAC, Southern Powder River Basin BNSF/UP Joint Line: Towards Sustainable Operations of 500 mmT (Apr. 18, 2006), <http://www.nationalcoaltransportation.org/presentations/Cebula.pdf>.

2005 to 461 million tons in 2010.³ EIA's forecast for the same area projects that tonnage will rise to 457 million tons in 2010.⁴

Western railroads have been delivering a rising volume of the lowest-cost source of energy to utilities that are demanding an ever-increasing amount of this coal to satisfy the nation's demand for electricity. Between 60 and 100 million tons of additional Wyoming PRB production is likely by 2010. The CANAC report recommends additional capital investment by both producers and railroads to accommodate the growing demand. As that report makes clear, producers will be required to make investments at their mines and railroads will be required to make investments on the Joint Line and on their rail networks that transport coal beyond the Joint Line, to maintain existing PRB operations and accommodate the projected demand.

³ EVA, Long-Term PRB Forecast (Feb. 2006). EVA's forecast includes production from Wyoming PRB mines north of the Joint Line, which are served only by BNSF. In 2005, production from these mines amounted to approximately 65 million tons.

⁴ EIA, Annual Energy Outlook 2006, Table 110.

VERIFICATION

I, Robert L. Sansom, declare under penalty of perjury that the foregoing statement is true and correct. Further, I certify that I am qualified and authorized to file this statement.

Executed on May 1, 2006.



ROBERT L. SANSOM

**EXPERIENCE OF
DR. ROBERT L. SANSOM**

Education

- ★ Robert Sansom graduated (B.S.) from U.S. Air Force Academy in 1964.
- ★ In 1965, Dr. Sansom received a Masters degree in economics from Georgetown University.
- ★ In 1968/69, he received a B. Phil and D. Phil in economics from Oxford University.

Honors

- ★ Dr. Sansom was a Fulbright Scholar, Rhodes Scholar, and White House Fellow.

Experience

- ★ From 1968 to 1969, Dr. Sansom was a White House Fellow assigned to Assistant to the President for National Security Affairs.
- ★ From 1969 to 1971, he was on Dr. Henry Kissinger's National Security Council staff.
- ★ From 1971 to 1972, he was Deputy Assistant Administrator for Planning and Evaluation for the Environmental Protection Agency.
- ★ From 1972 to 1974, he was Assistant Administrator for Air and Water Programs at the Environmental Protection Agency.
- ★ From 1974 to 1980, Dr. Sansom was President of Energy and Environmental Analysis, Inc.
- ★ From 1981 to the Present, Dr. Sansom has been President of Energy Ventures Analysis, Inc.

Sansom has been active in energy and environmental consulting since 1974 and throughout the period has focused on the coal, natural gas and electric utilities industries and on related environmental issues.

- ★ coal, gas, and oil production, markets and prices,
- ★ coal and gas contracts and procurement,
- ★ coal suitability and the environmental effects of coal combustion,
- ★ electric power markets and projects, and
- ★ coal transportation.

Electric Power Markets

Dr. Sansom analyzes and testifies on electric power markets and prices. In several cases (PEPCO, PP&L, NIPSCO, Entergy, Sierra Pacific, AEPCO, Bonneville Power Administration, for example), Sansom has examined power pricing and power transactions. EVA's analysis employs public and proprietary data and models at the NERC or NERC subregion level and develops forward pricing curves. Sansom presented testimony before FERC in 1996 on Order 888A: promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services.

Coal Markets and Coal Property Transactions

Coal market studies by EVA's coal group cover all the major coal producing and using regions of the United States. Clients include the major U.S. coal companies, major U.S. utilities, and groups such as EPRI and the National Mining Association.

EVA maintains large data bases on all U.S. mines and utility coal users. For clients it utilizes its proprietary coal production cost models and tracks and forecasts demand and prices for U.S. steam and metallurgical coals.

The U.S. coal market is regionalized with the reach of a particular coal mine limited by its transportation costs to various markets, its competition as well as the quality of its coal and its production cost. EVA addresses these issues in its market studies on a regional and international basis with analyses sold to clients on a job-specific basis or through its COALCAST subscription coal service.

In coal property and coal company valuations for buyers and sellers, EVA employs its market, cost of mining, and coal contract expertise using discounted cash flow and comparable transactions methods.

Coal and Transportation Contracts

Major U.S. coal transactions occur pursuant to coal and rail transportation contracts between buyers and sellers. Sansom has reviewed over 300 long-term coal contracts and many coal transportation contracts. He has advised utilities and coal companies on coal and rail transportation contract terms and conditions. His expertise is frequently sought and utilized in contract disputes.

Electric Utility Audits

EVA is frequently hired by Public Utility Commissions to conduct prudency audits of utility coal procurement practices and wholesale power transactions. Sansom has participated in such utility audits in Ohio, Delaware, Florida, Utah, Wyoming, California, Oregon, and Washington, and before FERC.

Natural Gas And Oil Markets

Dr. Sansom has been engaged in analysis of natural gas markets. He has examined U.S. and Canadian natural gas production. Other work has addressed world oil markets and OPEC's role therein. Dr. Sansom has examined the role of natural gas combined cycle technology as a source of base load generating capacity.

Coal Suitability and the Environmental Effects of Coal Use

Sansom's original involvement in the coal industry was in response to the adverse environmental effects of coal use. He has been active in studies on sulfur dioxide, nitrous oxides, particulates, air toxins, and CO₂ emissions. EVA has estimated the cost of specific environmental control technologies at plant sites and the cost of national environmental programs for clients such as the U.S. Environmental Protection Agency, EPRI, and the Department of Energy. It has advised electric utilities on how to comply with acid rain legislation. Coal suitability involves how a particular coal burns in a particular boiler and how that coal's emissions are treated before discharge to the atmosphere. EVA's studies have included examination of the performance of most U.S. coals used in a broad range of U.S. boilers.

International Coal and Utility Experience

Sansom has been active in international coal since the mid-1970's, analyzing overseas coal markets and inter-fuel competition. In 1989 Sansom testified in an international arbitration involving a large Canadian coal producer and the Japanese steel industry. In 1998 Sansom testified in an international arbitration involving an independent power project in the Phillippines.

Western Coal, Utility, and Transportation Experience

EVA has broad experience in the western U.S. Sansom's western coal and coal transportation expertise is the basis for his testimony on the Powder River Basin, the fastest growing producing region in the United States.

Expert Testimony

Sansom's expert testimony most often addresses coal contracts, coal markets, coal transportation and the prudence of coal procurements. Since 1995, Sansom has testified in the following court and arbitration cases:

	<u>On Behalf of</u>	<u>Other Party</u>	<u>Year</u>	<u>Court or Regulatory Body</u>
C	Louisville G&E	Various Plaintiffs	1995	State Court Kentucky
C	Island Creek Corp <u>et al</u> Defendants	Holland <u>et al</u> Plaintiffs	1995	U.S. District Court District of Columbia
A	Westmoreland Res, Inc.	Wisconsin P&L/Dairyland	1996	Chicago, IL
A	CMS Energy	Luzon Power	1998	Hong Kong, China
A	Otter Tail Power/Minnkota Pwr Coop/NW Pub Svc	Knife River Coal Company	1998	Chicago, IL
C	Cedar Bay Generating	Florida Power & Light	1999	State Court Florida
A	Seminole Electric Coop, Inc.	Mt. Vernon Transfer Terminal	2000	Washington, D.C.
A	CMS Energy	Adams Affiliates, Inc. & Cottonwood Partnership	2001	Chicago, IL
A	Government of Turkey	PSE&G	2003- 2006	Washington, D.C.
C	Peabody Coal Company/ Indianapolis P&L	John Wasson	2004	U.S. District Court Southern Indiana
PSC	Peabody Western Coal Co.	Mohave/So Cal Edison	2004	California PSC
PSC	CSX	Tampa Electric Co	2004	Florida PSC
A	Marysville Fractionation Partnership	Kinetic Resources	2005	Detroit, MI
A	Dearborn Industrial Generation	Duke/Flour Daniel	2005	Detroit, MI

A Arbitration
C Court

Sansom has testified in the following Surface Transportation Board cases:

<u>STB Docket No.</u>	<u>On Behalf of</u>	<u>Other Party</u>	<u>Date</u>
41191	West Texas Utilities	Burlington Northern Railroad	8/10/95
32760	Union Pacific (Control/Merger)	Southern Pacific Rail	Rebuttal 4/29/96
41242	Assn of American Railroads (Competitive Forces on Rail Rates in 1980's and 1990's)		10/15/96
41989	CSX Transportation	Potomac Electric Power	5/05/97 Rebuttal 8/11/97

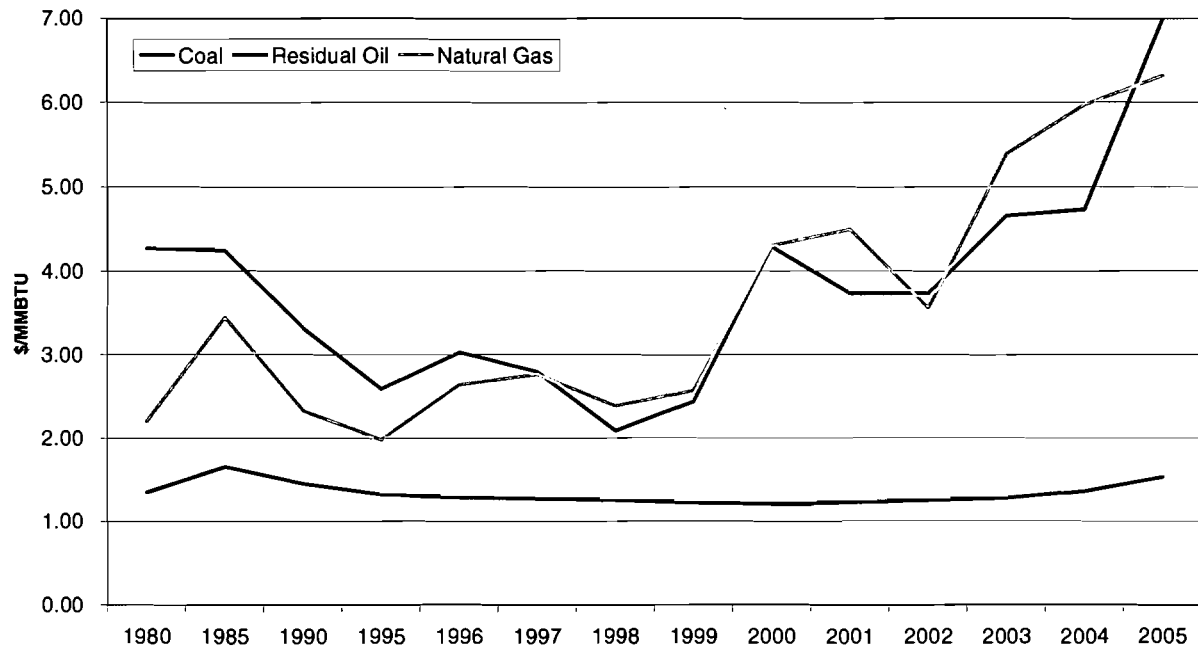
41295	Conrail , CSX and Norfolk Southern	Pennsylvania Power & Light	6/11/97
33388	CSX and Norfolk Southern (Acquisition)	Conrail	6/1997
42012	Union Pacific	Sierra Pacific Power/Idaho Power	5/26/98
Ex Parte 627	Assn of American Railroads (Market Dominance Determinations: Product and Geographic Competition)	Comment Reply	5/29/98 6/29/98
STB			
<u>Docket No.</u>	<u>On Behalf of</u>	<u>Other Party</u>	<u>Date</u>
42069	Norfolk Southern	Duke Energy Corporation	2003
42072	Norfolk Southern	Carolina Power & Light	2003

Publications

"Looking Past California: The Emerging Shape of the Generation Sector", Public Utilities Fortnightly, June 1, 2001, pp. 44-50.

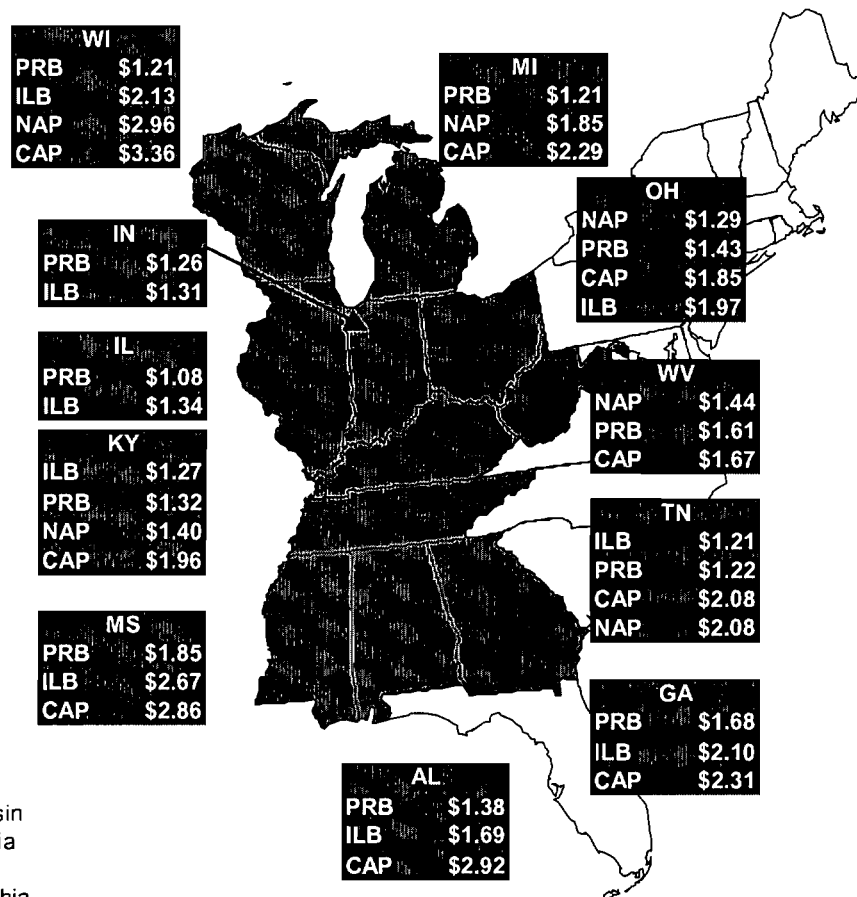
"Gas Turbine Mania: The Merchant Power Plant Stakeout", Public Utilities Fortnightly, June 15, 2002.

The Delivered Cost Of Fossil Fuels To Electric Generators Over The Last 25 Years



Source: DOE/EIA-0035(2006/03), Monthly Energy Review, March 2006, Table 9.10.

2005 Delivered Coal Prices East of the Mississippi River (\$/MMBTU)

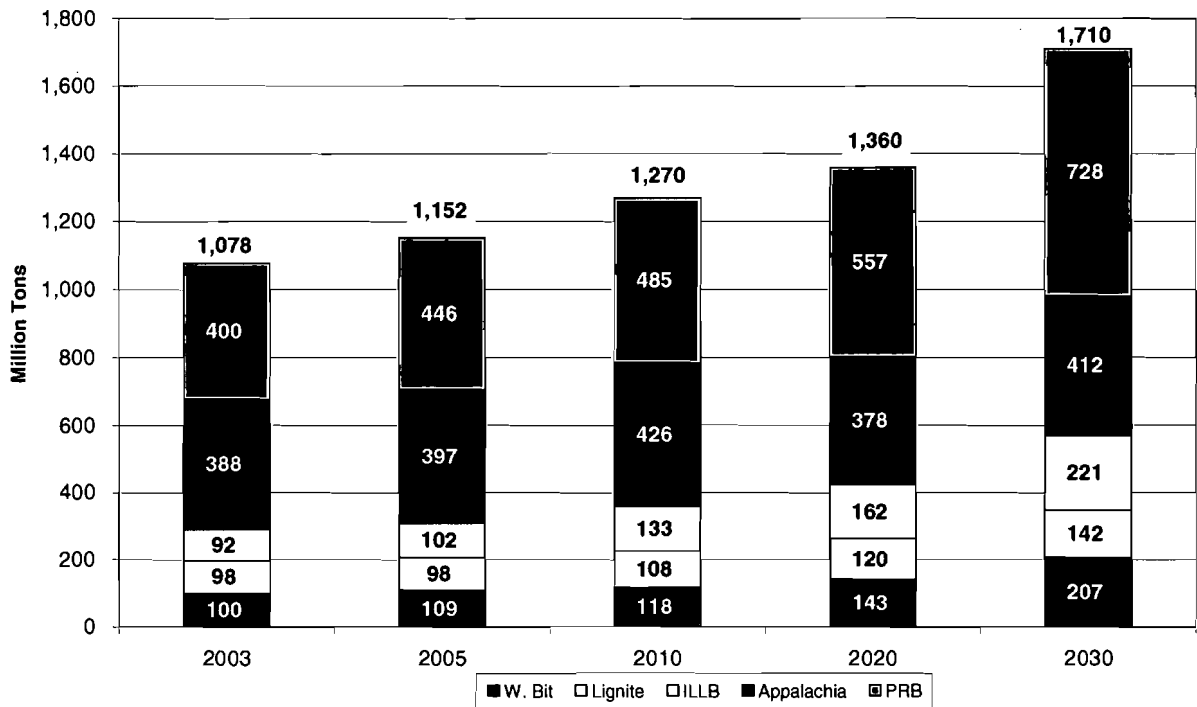


Legend

PRB: Powder River Basin
CAP: Central Appalachia
ILB: Illinois Basin
NAP: Northern Appalachia

Source: FERC and EVA Inc.

Coal Production And Projected Production By Region



Source: 2006 DOE/EIA Annual Energy Outlook, Table 110, Coal Production by Region and Type.

Announced New U.S. PRB Coal-Fired Plants (2005-2012)

Owner	Plant	Unit	State	MW	Year
MDU Resources	Rocky Mountain	1	MT	116	2006
Tri-State G&T	Springerville	3	AZ	400	2006
MidAmerican Energy	Council Bluffs	4	IA	750	2007
Black Hills	Wygen	2	WY	90	2008
Newmont Mining	TS Power	1	NV	220	2008
WPS Resources	Weston	4	WI	500	2008
Arkansas River Power	Lamar		CO	39	2008
North American Power Group	Two Elk	1	WY	300	2008
Springfield, MO	Southwest	2	MO	300	2008
Omaha Public Power	Nebraska City	2	NE	663	2009
Wisconsin Energy	Elm Road	1	WI	615	2009
San Antonio	Spruce	2	TX	750	2009
Xcel - PSCo	Comanche	3	CO	750	2009
NRG Energy	Big Cajun II	4	LA	675	2009
Salt River Power	Springerville	4	AZ	400	2009
Wisconsin Energy	Elm Road	2	WI	615	2010
Kansas City P&L	Iatan	2	MO	850	2010
Southern Company	Stanton IGCC	3	FL	285	2010
Southern Montana G&T Coop	Highwood	1	MT	250	2010
LS Power	Plum Point	1	AR	665	2010
South Texas Electric Coop	Unsitd		TX	550	2010
Sithe Global Power	Toquop		NV	750	2010
TXU	Big Brown	3	TX	800	2010
TXU	Lake Creek	3	TX	800	2010
TXU	Martin Lake	4	TX	800	2010
TXU	Monticello	4	TX	800	2010
TXU	Morgan Creek	6	TX	800	2010
TXU	Trading House	3&4	TX	1,600	2010
TXU	Valley	4	TX	800	2010
Otter Tail Power	Big Stone	2	SD	600	2011
Basin Electric	Dry Fork	1	WY	385	2011
Associated Electric Coop	Norbonne	1	MO	660	2011
Excelsior Energy	Mesaba	1	MN	300	2011
Sempra Energy	Idaho Valley		ID	600	2011
Sempra Energy	Granite Fox	1-2	NV	1,450	2011
Sempra Energy	Twin Oaks	3	TX	600	2011
LS Power	Sandy Creek	1	TX	800	2011
LS Power	White Pine	1-2	NV	1,600	2011
LS Power	Longleaf	1-2	GA	1,600	2011
Municipal Energy Nebraska	Whelan	2	NE	220	2012
Kansas City BPU	Nearman Creek	2	KS	235	2012
Western Farmers Electric	Hugo	2	OK	750	2012
Energy Northwest	Port of Kalama		WA	600	2012
Tenaska/GRDA	Unsitd	1	OK	660	2012