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PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

SUNBELT CHLOR ALKALI PARTNERSHIP Complainant, v. NORFOLK SOUTHERN RAILWAY COMPANY Defendant.	)	Docket No. NOR 42130

OPENING EVIDENCE AND ARGUMENT OF SUNBELT CHLOR ALKALI PARTNERSHIP

Volume I: Narrative

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CASE GLOSSARY

AEP Texas	AEP Texas Northern Co. v. BNSF Ry., STB Docket No. 41191, slip op. (STB served Nov. 8, 2006)
AEP Texas II	AEP Texas Northern Co. v. BNSF Ry., STB Docket No. 41191, slip op. (STB served Sept. 10, 2007)
AEPCO 2011	Arizona Electric Power Cooperative, Inc. v. BNSF Railway, STB Docket No. 42113, slip op. (STB served Nov. 22, 2011)
AEPCO 6/27/11 Decision	Arizona Electric Power Cooperative, Inc. v. BNSF Railway, STB Docket No. 42113, slip op. (STB served June 27, 2011)
APS	Arizona Public Service Co. v. Atchison, Topeka & Santa Fe Ry., 2 S.T.B. 367 (1997)
Bottleneck Decision	Central Power & Light Co. v. Southern Pacific Transportation Co., 1 S.T.B. 1059 (1996), aff'd sub nom. MidAmerican Energy Co. v. STB, 169 F.3d 1099 (8th Cir. 1999).
Coal Rate Guidelines or Guidelines	Coal Rate Guidelines, Nationwide, 1 I.C.C.2d 520 (1985), aff'd sub nom. Consolidated Rail Corp. v. United States, 812 F.2d 1444 (3d Cir. 1987)
Coal Trading Corp.	Coal Trading Corp. v. Baltimore & Ohio R.R., 6 I.C.C.2d 361 (1990)
Consolidated Papers	Consolidated Papers, Inc. v. Chicago & Northwestern Transportation, Inc., 7 I.C.C.2d 330, 341 (1991)
CP&L	Carolina Power & Light Co. v. Norfolk Southern Ry., 7 S.T.B. 235 (2003)
DMIR I	Minnesota Power, Inc. v. Duluth, Missabe & Iron Range Ry., 4 S.T.B. 64 (1998).
DMIR II	Minnesota Power, Inc. v. Duluth, Missabe & Iron Range Ry., 4 S.T.B. 288 (1999)
DMIR Decisions	Minnesota Power, Inc. v. Duluth, Missabe & Iron Range Ry., 4 S.T.B. 64 (1998), reconsideration denied, 4 S.T.B. 288, 292 (1999)
Duke/CSXT	Duke Energy Corp. v. CSX Transportation Inc., 7 S.T.B. 402 (2004)
Duke/NS	Duke Energy Corp. v. Norfolk Southern Ry., 7 S.T.B. 89 (2003)

CASE GLOSSARY

DuPont (Nitrobenzene)	E.I. du Pont de Nemours & Co. v. CSX Transportation, Inc., STB Docket No. 42101, slip op. (served June 30, 2008).
DuPont (Plastics)	E.I. du Pont de Nemours & Co. v. CSX Transportation, Inc., STB Docket No. 42099, slip op. (served June 27, 2008).
FMC	FMC Wyoming Corp. v. Union Pacific R.R., 4 S.T.B. 699 (2000).
General Electric	General Electric Co. v. Baltimore & Ohio R.R., No. 38125S, 1984 ICC LEXIS 206 (ICC Oct. 12, 1984).
General Procedures	General Procedures for Presenting Evidence in Stand-Alone Cost Rate Cases, STB Ex Parte No. 347, slip op. (STB served March 12, 2001).
IPA	UP Reply Evidence (Public), Intermountain Power Agency v. Union Pacific R.R., STB Docket No. 42127 (Nov. 10, 2011).
Major Issues	Major Issues in Rail Rate Cases, STB Ex Parte No. 657, slip op. (STB served Oct. 30, 2006).
McCarty Farms	McCarty Farms, Inc. v. Burlington Northern, Inc., 2 S.T.B. 460 (1997).
Mkt. Dominance Determinations	Market. Dominance Determinations & Consideration of Product Competition, 365 I.C.C. 118 (1981).
Multi-Stage DCF	Use of a Multi-Stage Discounted Cash Flow Model in Determining the R.R. Industry's Cost of Capital, Ex Parte No. 664 (Sub-No. 1) (STB served Jan. 28, 2009).
Nevada Power II	Bituminous Coal – Hiawatha, Utah to Moapa, Nevada, 10 I.C.C.2d 259 (1994).
OG&E	Oklahoma Gas & Electric Co., v. Union Pacific R.R., STB Docket No. 42111 (STB served July 24, 2009).
Otter Tail	Otter Tail Power Co. v. BNSF Ry., STB Docket No. 42071 (STB served Jan. 27, 2006).
PSCo/Xcel	Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern & Santa Fe Ry., 7 S.T.B. 589 (2004).
PSCo/Xcel II	Public Service Co. of Colorado d/b/a Xcel Energy v. Burlington Northern & Santa Fe Ry., STB Docket No. NOR 42057 (STB served Jan. 19, 2005).

CASE GLOSSARY

Special Procedures	Special Procedures for Making Findings of Mkt. Dominance as Required by the Railroad Revitalization and Regulatory Reform Act of 1976, 353 I.C.C. 874, 929 (1976).
TMPA	Texas Municipal Power Agency v. Burlington Northern & Santa Fe Ry., 6 S.T.B. 573 (2003).
WFA/Basin	Western Fuels Association, Inc. v. BNSF Ry., STB Docket No. 42088 (STB served Sept. 10, 2007).
WFA/Basin II	Western Fuels Association, Inc. v. BNSF Ry., STB Docket No. 42088 (STB served Feb. 18, 2009).
WFA/Basin III	Western Fuels Association, Inc. v. BNSF Ry., STB Docket No. 42088 (STB served June 15, 2012).
Wisconsin P&L	Wisconsin Power & Light Co. v. Union Pacific R.R., 5 S.T.B. 955 (2001).
West Texas	West Texas Utilities Co. v. Burlington Northern R.R., 1 S.T.B. 638 (1996), aff'd sub nom. Burlington Northern R.R. v. STB, 114 F.3d 206 (D.C. Cir. 1997).

ACRONYMS

The following acronyms are used:

1518 AD	Alcatel 1518 Integrated Access Device
2Q12	Second quarter of 2012
3Q11	Third quarter of 2011
AAR	Association of American Railroads
AASHTO	American Association of State Highway Officials
ACBL	American Commercial Barge Lines
AEI	Automatic Equipment Identification
AEO	Energy Information Administration's Annual Energy Outlook Forecast
AGR	Alabama and Gulf Coast Railway
AII-LF	All-Inclusive Less Fuel Index, published by AAR
AREMA	American Railway Engineering and Maintenance-of-Way Assoc.
ARRA	American Reinvestment and Recovery Act of 2009
AS1	Single Track Automatic Signal Location
AS2	Double Track Automatic Signal Location
ATC	Average Total Cost
ATF	Across-the-Fence
ATV	All-Terrain Vehicle
AV/IPS	Anti-Virus/Intrusion Prevention System
AVP	Assistant Vice President
B&B	Bridge and Building
BNSF	Burlington Northern Santa Fe Railway Company
C&S	Communications and Signals
CAGR	Compound Annual Growth Rate
CAPM	Capital Asset Pricing Model
CGR	CG Railway
cmp	Corrugated Aluminized Metal Pipe
CMP	Constrained Market Pricing
CN	Canadian National Railway
CNW	Chicago & NorthWestern
COBRA	Consolidated Omnibus Budget Reconciliation Act
CPI	Consumer Price Index
CSA	Chlorine Sales Agreement
CSXT	CSX Transportation, Inc.
CVI	1997 Chloralkali Venture
CTC	Central Traffic Control
CWR	Continuous Welded Rail
CY	Cubic Yard
DCF	Discounted Cash Flow
DP	Distributed Power
DTL	Direct to Locomotive Fueling
EDI	Electronic Data Interchange
EEO	Equal Employment Opportunity
EIA	Energy Information Administration

EL1	Single Track Electric Lock Manual Switch Location
EL2	Double Track Electric Lock Manual Switch Location
EOTD	End of Train Device
FED	Failed-Equipment Detector
FRA	Federal Railroad Administration
FSC	Fuel Surcharge
G&A	General and Administrative
GBB	Gottlieb, Barnett & Bridges, LLC
GDP-IPD	Gross Domestic Product – Implicit Price Deflator
GWR	Gross Weight on Rail
HDF	On-Highway Diesel Fuel Index
HR	Human Resources
ICC	Interstate Commerce Commission
IDC	Interest During Construction
ISS	Interline Settlement System
IT	Information Technology
KCS	Kansas City Southern Lines
LAN	Local Area Network
LF	Linear Feet
LMR	Land Mobile Radio
MACRS	Modified Accelerated Cost Recovery System
MGT	Million Gross Tons
MIT	Massachusetts Institute of Technology
MLO	Manager of Locomotive Operations
MMM	Maximum Markup Methodology
MOW	Maintenance of Way
MTO	Manager of Train Operations
NaOH	Caustic Soda
NCREIF	National Council of Real Estate Investment Fiduciaries
NDGPS	Nationwide Differential GPS
NOPB	New Orleans Public Belt Railroad
NPI	NCREIF Property Index
NS	Norfolk Southern Railway Company
NT/PC	Network Personal Computer
O/D	Origin/Destination
OS	Operating Station
OSHA	Occupational Safety and Health Administration
P&W	Providence & Wooster Railroad
PPI	Producer Price Index
PTC	Positive Train Control
R/VC	Revenue to Variable Cost
RCAF-A	Rail Cost Adjustment Factor, adjusted for productivity
RCAF-U	Rail Cost Adjustment Factor, unadjusted for productivity
RMI	A GE Transportation Company
RMS	RMI's Revenue Management Services System
ROW	Right of Way
RSIA	Rail Safety Improvement Act of 2008

RTC	Rail Traffic Controller Model
SAC	Stand-Alone Cost
SARR	Stand-Alone Railroad
SBRR	SunBelt Stand-Alone Railroad
SEC	Securities Exchange Commission
SPLC	Standard Point Location Code
STB	Surface Transportation Board
STCC	Standard Transportation Commodity Code
STEO	EIA's Short-Term Energy Outlook
T&E	Train and Engine
TCS	Triple Crown Services
TDIS	Thoroughbred Direct Intermodal Services
TIH	Toxic Inhalation Hazard
TMS	RMI's Transportation Management Services System
TRN	NS Train Event Train Symbol
UP	Union Pacific Railroad Company
UPS	Uninterruptible Power Supply
URCS	Uniform Railroad Costing System
USDA	United States Department of Agriculture
VCM	Vinyl Chloride Monomer
WAN	Wide Area Network
WTI	West Texas Intermediate

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Part I

PUBLIC VERSION

PART I

COUNSEL'S ARGUMENT AND SUMMARY OF EVIDENCE

Pursuant to the procedural schedule served by the Surface Transportation Board ("Board" or "STB") in this docket on April 25, 2012, SunBelt Chlor Alkali Partnership ("SunBelt") hereby submits its Opening Evidence and Argument on both market dominance and stand-alone costs ("SAC").[1]

SunBelt is challenging the Norfolk Southern Railroad ("NS") rate for the transportation of chlorine on the origin segment of a through route from SunBelt's chlorine production facility at McIntosh, AL, to the facility of its customer, Oxy Vinyls, LP ("OxyVinyls"), at LaPorte, TX. The NS rate is a "local" rate that applies only to the bottleneck segment from the origin, at McIntosh, to New Orleans, LA. The Union Pacific Railroad Company ("UP") currently transports the chlorine from New Orleans to La Porte, although the BNSF Railway also can provide that service to SunBelt. SunBelt has lawfully challenged just the bottleneck segment of the joint line movement to La Porte, pursuant to the "contract exception" to the Board's "bottleneck" rule, because it has entered into a contract with UP for the portion of the transportation from New Orleans to La Porte.[2] See Cent. Power & Light Co. v. S. Pac. Transp. Co. ("Bottleneck Decision"), 1 S.T.B. 1059, 1078 (1996), aff'd sub nom. MidAmerican Energy Co. v. STB, 169 F.3d 1099 (8th Cir. 1999).

SunBelt's Opening Evidence follows the format set forth in General Procedures for Presenting Evidence in Stand-Alone Cost Rate Cases ("General Procedures"), STB Ex Parte No. 347 (Sub-No. 3) (served March 12, 2001). As shown in Part II of this Opening Evidence, NS

[1] Throughout SunBelt's Opening Evidence, all text within single brackets is {CONFIDENTIAL} and all text within double brackets is {{HIGHLY CONFIDENTIAL}} pursuant to the Protective Order adopted in the Board's decision served on September 6, 2011 in this proceeding.

[2] See Sun. Op. Workpaper "UP Contract"

possesses market dominance over the issue movement, pursuant to 49 U.S.C. §§ 10701(d)(1) and 10707. Part II-A establishes that the challenged rate exceeds 180% of variable costs. Part II-B establishes the absence of effective competition from alternative transportation providers. Part III of this Opening Evidence demonstrates that the challenged rates are unreasonable because they exceed the SAC rate. In Part IV, SunBelt sets forth the qualifications of its witnesses for both the market dominance and SAC evidence.

The remainder of this Part I presents the legal argument and a summary of SunBelt's Opening Evidence in the following structure:

- Part I-A.1 addresses quantitative market dominance
- Part I-A.2 addresses qualitative market dominance
- Part I-B summarizes the SAC evidence
- Part I-C summarizes SunBelt's request for relief

A. MARKET DOMINANCE EVIDENCE AND ARGUMENT.

"Market dominance" is defined as "an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies." 49 U.S.C. § 10707(a). There is both a quantitative and a qualitative component to market dominance. Mkt. Dominance Determinations & Consideration of Prod. Competition, 365 I.C.C. 118, 131-32 (1981) [hereinafter "Market Dominance Determinations"], aff'd en banc sub nom. W. Coal Traffic League v. United States, 719 F. 2d 772 (5th Cir. 1983)). First, the Board must find that the challenged rate is at least 180% of the carrier's variable cost of providing the service. 49 U.S.C. § 10707(d)(1)(A). Second, the Board must determine that neither other rail carriers nor other modes are effective competitive constraints upon the challenged rate. SunBelt has satisfied both of these requirements in this Opening Evidence.

1. NS Possesses Quantitative Market Dominance.

A rail carrier has the burden of proof to establish the absence of quantitative market dominance (*i.e*, its revenue/variable cost ratio is below 180%). 49 U.S.C. § 10707(d)(1)(B). On April 9, 2012, SunBelt and NS filed their "Joint Submission of Operating Characteristics" in this proceeding. See Exhibit II-A-2. They agreed upon all nine of the required traffic and operating characteristics for the issue movement. Applying those factors, SunBelt has established NS's quantitative market dominance in Part II-A, which calculates R/VC ratios for the issue movement from 3Q11 through 2Q12 that range from 479-488%. See Exhibit II-A-1.

2. NS Possesses Qualitative Market Dominance.

Qualitative market dominance has two components: intramodal and intermodal competition. As the party with the burden of proof on this issue, SunBelt must make a *prima facie* showing and NS "then must rebut that showing or suffer the consequence." McGraw Edison Co. v. Alton & S. Ry., 2 I.C.C. 2d 102, 106 (1986). SunBelt has made a *prima facie*

showing that there is no effective intramodal or intermodal competition for any of the issue movements.

a. Intramodal competition does not exist for the issue movement.

Because "[i]ntramodal competition refers to competition between two or more railroads transporting the same commodity between the same origin and destination," there can be no intramodal competition where NS is the sole rail carrier at either the origin or destination. Ariz. Pub. Serv. Co. v. Atchison, Topeka & Santa Fe Ry. ("APS"), 2 S.T.B. 367, 373 (1997); see also, Market Dominance Determinations, 365 I.C.C. at 132; W. Tex. Utils. Co. v. Burlington N. R.R. ("West Texas"), 1 S.T.B. 638, 645 (1996); Consol. Papers, Inc. v. Chi.& Nw. Transp., Inc. ("Consolidated Papers"), 7 I.C.C.2d 330, 341 (1991) ("In analyzing the possible presence of intramodal competition, we may eliminate movements from consideration on any of three bases: (1) the lack of more than one independent route. . . ."). In Part II-B-2, SunBelt demonstrates that there is no intramodal competition possible for the issue movement because NS is the only rail carrier that serves the origin, at McIntosh, AL. Furthermore, no other rail carrier has a rail line in the vicinity of McIntosh to which SunBelt conceivably could build-out. Therefore, it is impossible to use just rail transportation for the issue movement without obtaining a portion of that service from NS.

b. Intermodal competition does not exist for the issue movement.

Intermodal competition "refers to competition between rail carriers and other modes for the transportation of a particular product between the same origin and destination." Market Dominance Determinations, 365 I.C.C. at 133. As discussed in subpart (1), below, this means competition between McIntosh and New Orleans, not McIntosh and La Porte. Nevertheless, regardless whether one considers alternatives to New Orleans or La Porte, subpart (2) explains that, as a matter of law, no intermodal alternative can provide "effective competition" because

NS does not consider the issue movement to be desirable business, and thus NS would not respond to competitive pressure to maintain reasonable rates, even if such pressure existed. Although the foregoing arguments conclusively establish the market dominance of NS, subparts (3) and (4), below, summarize additional evidence in Part II-B-3., which shows that the only potential intermodal alternatives to NS rail service are purely conjectural and insufficiently realistic, both physically and economically, to be an effective competitive constraint upon the challenged rate.

The principal intermodal alternatives considered by SunBelt in Part II-B-3 require some form of barge transportation. The Board has provided guidance as to the types of factors that are relevant to determining whether effective competition from water transportation truly exists. Those factors include: (i) the number of alternatives involving different carriers; (ii) feasibility, as evidenced by pertinent physical characteristics, for the product in question, of the transportation or routing associated with each alternative; (iii) feasibility as evidenced by the access of both the shipper and receiver to each alternative; and (iv) the transportation costs of each alternative. Market Dominance Determinations, 365 I.C.C. at 133. The first three factors weigh heavily against barge transportation alternatives as effective competitive constraints. Although the last factor appears to favor barge transportation alternatives when one considers only the transportation rates, the enormous cost of additional infrastructure requirements also tilt that factor heavily against barge transportation as an effective competitive constraint.

SunBelt also has presented evidence of truck alternatives; but, those alternatives are even less of a competitive constraint than barging. Among the factors relevant to determining whether effective competition from trucks exists are: (i) the physical characteristics of the product in question that may preclude transportation by motor carrier; (ii) the amount of the product in

question that is transported by motor carrier where rail alternatives are available; (iii) the amount of the product that is transported by motor carrier under transportation circumstances (*e.g.*, shipment size and distance) similar to rail; and (iv) the transportation costs of the rail and motor carrier alternatives. Id. The physical characteristics of chlorine, the volume of the issue movement, and the distances involved unequivocally dictate that truck options are not viable alternatives for the issue movement, much less an effective competitive constraint.

Finally, the Board has noted that:

> If a market is to be truly competitive, shippers must be able to respond quickly to changes in transportation charges. They must be in a position to shift their demand from one rail carrier to other rail carriers or carriers of other modes. Such a shift in demand requires not only the availability of carriers ready to provide a comparable service, but also the ability of shippers to take advantage of that service.

Special Procedures for Making Findings of Mkt. Dominance as Required by the R.R. Revitalization and Regulatory Reform Act of 1976 ("Special Procedures"), 353 I.C.C. 874, 929 (1976). SunBelt has demonstrated that there is very little infrastructure (*e.g.*, tank barges, docks, tugboats) for barging chlorine; it would need at least a year to acquire the necessary permits to construct the infrastructure required at McIntosh, if such permits could be obtained at all; and it would need several more years to actually build all of the necessary infrastructure (*e.g.*, docks, barges) before it could begin to use any alternative transportation option. The time, cost, and uncertainty associated with these efforts undermine the ability of such purely theoretical alternatives to be effective competitive constraints.

(1) "Market Dominance" is determined from McIntosh to New Orleans.

Although SunBelt ships chlorine from McIntosh, AL to La Porte, TX, the transportation to which the challenged rate applies is only the NS segment, from McIntosh to New Orleans,

LA. Because Congress has required the Board to determine "whether the rail carrier proposing the [challenged] rate has market dominance over the transportation to which the rate applies,"[3] the Board may only consider alternative transportation options from McIntosh to New Orleans.

In Minnesota Power, Inc. v. Duluth, Missabe & Iron Range Ry. ("DMIR I"), 4 S.T.B. 64 (1998), on reconsideration, ("DMIR II"), 4 S.T.B. 288 (1999), the complainant challenged the defendant rail carrier's rate for the transportation of coal from the interchange with BNSF at Keenan, Minnesota to a power plant at Laskin, Minnesota.[4] BNSF transported the coal from the origin mines to the Keenan interchange pursuant to a contract.[5] The defendant sought discovery of an alleged intermodal alternative to its rail service that involved rerouting the complainant's traffic on BNSF to a different location than the Keenan interchange and transloading from rail-to-truck at that location for final delivery to Laskin, thereby by-passing the interchange altogether.[6] The Board denied the defendant's motion to compel discovery regarding this alternative because the alternative represented geographic, not intermodal, competition.[7] In explaining its decision, the Board observed that:

> The position advocated by DMIR is contrary to both our *Bottleneck* and *Product and Geographic II* decisions. Under 49 U.S.C. 10707, our market dominance inquiry is limited to whether there are effective competitive alternatives "for the transportation to which [the rate at issue] applies." In the *Bottleneck* decisions, the Board concluded that, where there is a contract over the non-bottleneck segment of a through movement, a rate challenge must necessarily be confined to the bottleneck segment. Thus, the transportation to which the separately challengeable bottleneck-segment rate applies is not the full through movement (from the mines to Laskin), but rather only DMIR's movement (from Keenan

[3] 49 U.S.C. § 10707(b).

[4] DMIR I, 4 S.T.B. at 64.

[5] DMIR II, 4 S.T.B. at 291.

[6] Id.

[7] DMIR I, 4 S.T.B. at 66; DMIR II, 4 S.T.B. at 291-92.

> to Laskin). Accordingly, under the circumstances presented here, the fact that the coal MPI receives at Laskin comes from the Montana and Wyoming mines served by BNSF is irrelevant. Because the transportation to which the rate at issue applies is limited to the movement between Keenan and Laskin, transportation alternatives involving service to or from other points would constitute geographic competition.[8]

Thus, the Board held that "evidence as to a trucking alternative from any point other than Keenan may not be considered."[9]

Therefore, the Board should evaluate market dominance only for the NS segment from McIntosh to New Orleans. Alternative transportation that bypasses New Orleans altogether, such as transporting chlorine directly from McIntosh to La Porte via truck or barge, may not be considered. This is the analysis required for "bottleneck" rates by both the Board's Bottleneck Decision[10] and Product and Geographic II[11] decision.

(2) No transportation alternative, real or potential, can be an effective competitive constraint because NS does not consider the issue movement to be "desirable" business.

As part of the market dominance determination, Congress tasked the Board with determining whether there is "an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies." 49 U.S.C. 10707(a). Thus, it is not enough for the Board to determine that another transportation alternative exists for chlorine between McIntosh and La Porte; it must determine whether that alternative "constitutes an effective competitive constraint so as to prevent an exercise of undue market power." West

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[8] DMIR II, 4 S.T.B. at 292 (footnotes omitted) (emphasis added).

[9] Id.

[10] Bottleneck Decision, 1 S.T.B. 1059, 1074 (1996) ("[W]hen one of the components of service over the through route is embodied in a transportation contract, we cannot assess the reasonableness of the through rate in its entirety. . . . In a complaint against a bottleneck proportional rate that operates in combination with a contract rate, . . . we may consider **only** the reasonableness of the bottleneck rate.") (emphasis in original).

[11] Mkt. Dominance Determinations—Prod. & Geographic Competition, 3 S.T.B. 937, 950 (1998) (declaring that the Board will not consider geographic competition in its market dominance determinations).

Texas, 1 S.T.B. at 646, citing Arizona Pub. Serv. Co. v. U.S., 742 F.2d 644, 651 (D.C. Cir. 1984). See also Metropolitan Edison Co. v. Conrail, 5 I.C.C.2d 385, 410 (1989) ("We look to see if there are any alternatives sufficiently competitive...to bring market discipline to Conrail's pricing."). Nor is it enough to show that the alternative transportation has lower rates. Amstar Corp. v. Atchison, Topeka & Santa Fe Ry., No. 37478, 1987 ICC LEXIS 47, at *19 (ICC Nov. 23, 1987) ("[S]imilarity of rates alone does not indicate that motor carriers provided an effective constraint."). Rather, "effective competition" means that, "if a carrier raises the rate for such traffic, then some or all of that traffic will be lost to other carriers or modes." CF Indus., Inc. v. STB, 255 F.3d 816, 821 (D.C. Cir. 2001) (quoting Mkt. Dominance Determinations, 365 I.C.C. at 129).

The courts have held that, "[a]t the core of the 'effective competition' standard is the idea that there are competitive, market pressures on the railroads deterring them from charging monopoly prices for transporting goods." Arizona at 650-51. In Mkt. Dominance Determinations, 365 I.C.C. at 129, the Board similarly held that "effective competition" means "that there must be pressures on that firm to perform up to standards and at reasonable prices, or lose *desirable* business." (emphasis added). It is no great secret that NS has no *desire* to transport chlorine. NS has publicly proclaimed for many years—at least since the accidental chlorine release by NS at Graniteville, SC in 2005—that, but for the common carrier obligation, it would not choose to transport chlorine.[12] Because NS does not consider the issue movement to

[12] See Sun. Op. Workpaper "NS H. Rep. Testimony" at 127 (NS CEO C. Moorman stating "absent [the common carrier obligation], Norfolk Southern would not transport [highly hazardous] materials"), 129 ("It simply is not good public policy to force railroads to bear all the substantial risks of catastrophic damages associated with transporting highly hazardous materials – risks we would not take absent the common carrier obligation imposed by the Federal government."), 130 ("It is time for Congress to remedy the inequity in the law that forces us to assume risks that we would not assume on our own without any protection against those risks."), 130 ("This Committee should relieve railroads of their common carrier obligation so that Norfolk Southern can decide for itself whether to accept and at what price it is willing to accept such materials for transportation."); Sun. Op. Workpaper "NS Ex Parte 677 Testimony" at 46 (NS Executive Vice President Law and Corporate Relations, J. Hixon, stating that he would not

be *desirable* business, no transportation alternative can provide "effective competition," as defined by both the courts and the Board.

Despite the common carrier obligation, a railroad that does not *desire* to transport chlorine can price such traffic to discourage or minimize rail transportation, or to make costly alternative modes seem attractive. That is precisely what NS has done with the issue movement. Over the past decade, since 2002, the through rail rate from McIntosh to La Porte has risen by {{[redacted]}}, including single year leaps of {[redacted]} in 2003, {[redacted]} in 2008, {[redacted]} in 2010 and {[redacted]} in 2011.[13] Because only joint rates were published prior to 2011, SunBelt cannot isolate the NS division from the connecting railroads. Clearly, however, the NS division was a major contributing factor. Moreover, the fact that SunBelt has challenged only the NS Rule 11 factor between McIntosh and La Porte indicates that NS has taken much more aggressive rate increases.

NS has raised its rate for the issue movement quite substantially in recent years without losing any portion of the issue movement to an alternative mode, which is strong evidence of market dominance. Special Procedures, 353 I.C.C. at 92. A firm with market power also can raise its prices without a net loss of revenue, and a rate increase of 20% has been considered "well above the standard usually employed to signal a substantial degree of market power" under this standard. CF Indus., Inc. v. STB, 255 F.3d at 823-24. Since "effective competition" means that, "if a carrier raises the rate for such traffic, then some or all of that traffic will be lost to

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advise his management to continue to carry TIHs at today's prices and risk exposure if NS was not obligated to do so by the common carrier obligation); Sun. Op. Workpaper "Roanoke Times Article" (quoting NS spokeswoman Susan Terpay, "We do not want to move TIH. We don't own the rail cars in which TIH are shipped. We don't load TIH shipments into rail cars. We don't make, sell, use or buy TIH."). See also Norfolk S. Corp., 2010 Sustainability Report 20, *available at* http://www.scribd.com/doc/47997810/NS-Sustainability-Full-Report-v5-2#outer_page_21 (last visited July 25, 2012) ("Because we are required under federal law as a common carrier [not because it is desirable traffic], Norfolk Southern transported approximately 15,000 carloads of TIH commodities in 2009.").

[13] See infra pp. II-B-3 55 to 56. See also Sun. Op. Workpaper "SunBelt Rate History."

other carriers or modes," id. at 816, it would be arbitrary to conclude that potential alternative modes have imposed any constraint upon NS in the face of such significant rate increases.

It is not as if SunBelt has not explored alternative modes. In 2001, Olin Corporation ("Olin"), which is the owner of SunBelt and the McIntosh property, considered the possibility of floating rail cars by barge from McIntosh to Mobile, where Olin could interchange with three railroads in addition to NS. See infra pp. II-B-34 to 42. In 2007, and at various times since then, Olin also has considered options to ship chlorine in tank barges directly from Mobile to customers at various destinations. See infra pp. II-B-19 to 28. Both the 2001 and 2007 reviews were conducted in the face of impending {[redacted]} rail rate increases, respectively. See infra pp. II-B-55 to 56. In every instance, Olin has concluded that, despite such enormous rail rate increases, these options were not feasible because of the enormous infrastructure investments required to utilize those alternatives, in addition to numerous hurdles and risks that rendered those options insufficiently realistic. This has continued to be true despite additional double-digit rate increases in 2010 and 2011.

Consequently, there is no potential for *any* alternative transportation mode to be an "effective constraint" upon NS pricing. If NS does not *desire* to transport chlorine, it will not respond to alternative modes by lowering or capping its rates. The pricing behavior of NS for the issue movement reflects the use of its market power in an attempt either to force the chlorine traffic onto other modes by rendering the multi-million dollar investments required to use those other modes economically comparable to the rail rate, or failing that, to capture as much economic rent from the issue movement as it can without regulatory intervention. In other words, there are no market pressures on NS that deter it from charging monopoly prices.

Because the presence of such market pressure is at the "core" of the "effective competition" standard, NS clearly possesses market dominance over the issue movement. Arizona at 650-51.

(3) Intermodal alternatives to NS are not "sufficiently realistic" to constitute an effective competitive constraint.

Chlorine shipments from McIntosh presently cannot move by any mode other than rail because SunBelt does not have the necessary infrastructure at McIntosh for doing so. Moreover, neither La Porte nor New Orleans has the necessary infrastructure to receive chlorine shipments by alternative modes. Consequently, there is no history of the issue movement being transported by any mode other than rail. Although this is an important fact in the market dominance assessment, it does not end the market dominance inquiry; the Board also will consider evidence of potential transportation alternatives. Potential transportation alternatives for the issue movement of chlorine, in theory, are most likely to come from barges, followed by trucks, but only if SunBelt spends many tens of millions of dollars on origin and destination infrastructure.

The fact that alternative transportation modes may be theoretically possible does not make such modes feasible. According to the Board "'feasible' is not synonymous with 'possible' — a test of feasibility must include considerations of economic and physical practicality, as well as safety." Gen. Elec. Co. v. Balt.& Ohio R.R. ("General Electric"), No. 38125S, 1984 ICC LEXIS 206, at *5 (ICC Oct. 12, 1984). Therefore, although the Board will consider potential competition, in addition to actual or historical competition, the potential competition must be "*sufficiently realistic* to effectively constrain the rail rates." Dayton Power & Light Co. v. Louisville & Nashville R.R., 1 I.C.C. 2d 375, 383 (1985) (emphasis added).

From the most cursory to the most in-depth analysis, alternative transportation options are not "realistic." SunBelt's owner, Olin, is one of just two chlorine producers that transport chlorine by barge today in the eastern United States. From 2009-11, Olin barged an average of

just 36,717 tons of chlorine annually.[14] The issue movement, which at 250,000 tons per year is the largest volume chlorine movement in North America, would be a seven-fold increase. It is daunting just to contemplate from where the capacity to handle this volume increase would come, or how quickly it could be available. This question is even more daunting with respect to trucks because Olin does not transport *any* chlorine by truck and neither do most chlorine producers except over very short distances in privately-owned equipment. Although these facts alone seriously challenge the feasibility of alternative transportation for the issue movement, SunBelt has gone far beyond just this question in its Opening Evidence by also considering many of the infrastructure requirements, operating costs, transportation costs, and physical obstacles to associated with potential transportation of the issue movement by alternative modes.

In Part II-B-3 of its Opening Evidence, SunBelt has presented evidence regarding the following five theoretical transportation alternatives:

1. Tank barge transportation of chlorine directly from McIntosh to La Porte (the "La Porte Option"), see Part II-B-3.a.;

2. Tank barge transportation of chlorine from McIntosh to New Orleans, and transloading the chlorine into rail cars for delivery to La Porte (the "NOLA Option"), see Part II-B-3.a.;

3. Rail barge transportation of rail cars loaded with chlorine from McIntosh to Mobile for further transportation to New Orleans by rail (the "Rail-Barge Option"), see Part II-B-3.b.;

4. Tank truck transportation of chlorine directly from McIntosh to La Porte (the "Direct Truck Option"), see Part II-B-3.c.; and

5. Tank truck transportation of chlorine from McIntosh to a bulk terminal, and transloading the chlorine into rail cars for delivery to La Porte via New Orleans (the "Truck-Transload Option"), see Part II-B-3.c.;

All five theoretical alternatives are purely conjectural. The La Porte and Rail-Barge Options have been explored by SunBelt's owner, Olin, at various times over the past dozen years and

[14] Sun. Op. Workpaper "Volume shipped 2009-2012"

have been rejected as impractical, infeasible, and unrealistic. The other three options are speculative musings that would never warrant even passing consideration. As potential competition, these alternatives are not "sufficiently realistic to effectively constrain the rail rates." Id.

(a) The La Porte Option is not realistic.

The La Porte Option should not be considered at all because it is not an alternative for transportation from McIntosh to New Orleans, but instead bypasses New Orleans by barging directly to La Porte. To consider the La Porte Option would be contrary to the DMIR Decisions, as discussed above in Part I-A-2.b.(1). Nevertheless, SunBelt has evaluated the La Porte Option because it is the only alternative that even comes close to being physically feasible in the real world. Upon close examination, however, the La Porte Option is not "sufficiently realistic" to effectively constrain the NS rate for numerous reasons.

(i) There are very few chlorine tank barges and tugboat operators willing to tow them.

The single fact that even makes the La Porte Option potentially feasible is that chlorine is transported in tank barges from producers to consumers today. But, as discussed at pages II-B-5 to 7, that is very much the exception rather than the rule. Only two chlorine producers, Olin and PPG Industries ("PPG"), ship chlorine in tank barges today, and only from three facilities: Olin from Charleston, TN, and PPG from Natrium, WV and Lake Charles, LA. Both barge their chlorine to the *same* customer, DuPont, at New Johnsonville, TN. There are no other barge shipments of chlorine east of the Rocky Mountains. Moreover, only one other location, Westlake, at Calvert City, KY, has the ability to load or unload chlorine tank barges.

The issue movement, which is the largest volume chlorine movement in North America, would require doubling the existing chlorine barge fleet. As discussed on page II-B-6, the

chlorine barge fleet is entirely privately-owned and is both small and very old. Olin owns six chlorine barges, of which four are over 48 years old and two are over 33 years old, and one will remain out of service unless costly repairs are made. PPG owns another dozen barges. Thus, the entire functional chlorine barge fleet east of the Rocky Mountains comprises just 17 aging barges that are privately owned. At pages II-B-30 to 32, SunBelt has estimated that it would need a minimum of 16 new barges, at a cost of $5 million per barge, to implement the La Porte Option for the issue movement. Thus, in order to shift the issue movement to barges, SunBelt would need enough new barges to double the entire existing chlorine barge fleet east of the Rocky Mountains.

As discussed at pages II-B-6 to 7, there also is a scarcity of tugboat operators willing to tow chlorine barges. Of the five tug operators that regularly operate in the waters between McIntosh and Mobile, none are willing to tow chlorine barges. Therefore, SunBelt would have to hire tugboats in dedicated service from operators in other regions who may be willing to tow chlorine barges.

Also as discussed at page II-B-26, empty barges returning to McIntosh need a place to "fleet" (*i.e.*, park) in Mobile when there is no open dock slip available at McIntosh or when McIntosh is inaccessible due to weather or river conditions. Olin currently uses Cooper Marine to fleet its caustic barges at Mobile, but Cooper is one of the five local tug operators who will not haul chlorine. Because fleeting of chlorine barges must occur in secure areas that comply with TSA requirements, SunBelt likely would have to lease and operate its own fleeting area at Mobile for chlorine barges.

Finally, the La Porte Option is not realistic because, as discussed on page II-B-12, SunBelt is required by contract to deliver the chlorine to OxyVinyls at La Porte in rail cars. A

customer requirement for rail transportation demonstrates the infeasibility of alternative modes. DuPont (Plastics), slip op. at 7. See also McCarty Farms, 3 I.C.C. 2d at 829 ("needs of the shipper or receiver" may determine feasibility of truck transportation). Moreover, a contractual requirement to deliver product to a customer by rail "makes a switch . . . highly infeasible from an economic standpoint due to the risk of losing its customer or incurring breach-of-contract liability." E.I. du Pont de Nemours and Company v. CSX Transportation, Inc. (DuPont (Nitrobenzene)), STB Docket No. 42101, slip op. at 6 (served June 30, 2008).

(ii) The infrastructure required at McIntosh and La Porte renders the La Porte Option unrealistic.

While the preceding factors demonstrate that it is unrealistic even to presume that SunBelt could secure the necessary transportation services to implement the La Porte Option, a host of other factors demonstrate that it is unrealistic for SunBelt to construct the necessary infrastructure at McIntosh to load chlorine into barges, or at La Porte to enable OxyVinyls to unload chlorine from barges. The challenges are great and the cost is exceedingly high, according to a 2007 study performed by Olin to determine the feasibility of barging chlorine from McIntosh. See Sun. Op. Exs. II-B-1 and 2.

A study by Thompson Engineering, which is discussed on pages Part II-B-21 to 24, presented three options, labeled "A," "B" and "C," for constructing chlorine barge docks at McIntosh. See Sun. Op. Ex. II-B-2. In inflation-adjusted dollars, those options range in cost from {{[redacted]}}. See infra p. II-B-25. Olin estimated that it would cost another, inflation-adjusted, {{[redacted]}} to build the piping needed to transport the chlorine 1.3 miles from the plant to the docks and to load the barges. See id. and Sun. Op. Ex. II-B-1. Another inflation-adjusted {{[redacted]}} would be needed to relocate a public boat ramp adjacent to Olin's property. See infra p. II-B-25. In total, the minimum infrastructure cost at

McIntosh would be {{[redacted]}}. Id, Table II-B-1. On top of that, the La Porte Option requires a minimum of 16 new barges at $5 million per barge, which adds another $80 million to the price tag. See infra pp. II-B-30 to 32. Thus, SunBelt would be staring at a minimum total price tag of {{[redacted]}}. See infra p. II-B-33, Table II-B-2.

The difference between the high and low ends of this range reflects the difference between Options A and C of the Thompson study. As discussed at pages II-B-22 to 24, SunBelt would prefer Option C over Options A or B, despite its higher cost, because it offers greater security and protection from river traffic. Instead of building the chlorine docks directly on the riverfront, Option C would construct an inland basin connected to the river by a short canal. This offers several advantages. First, it shortens the distance from the plant to the loading docks, thus reducing the length of chlorine pipeline that would need to be secured. Second, it solves a major problem that Olin has today with anglers fishing adjacent to and from the existing caustic soda loading docks, which would be a much greater security problem for chlorine than it is for caustic soda. Finally, Option C eliminates the risks associated with potential collisions with river traffic that must negotiate a tight bend in the river. Thompson observed the extremely close proximity of river traffic to the caustic barge basin during its site visits to McIntosh, and in 2009, Olin experienced a collision first-hand when river traffic collided with and destroyed the barge dock at its St. Gabriel plant, which like McIntosh is located on the far bank of a tight river bend. Thus, despite its greater cost, Option C would be the preferred design for chlorine barge docks at McIntosh.

Although {{[redacted]}} covers the largest cost elements, those are by no means the only costs. The following additional cost factors have been identified but not included in the above estimate:

- Land acquisition costs for relocating the public boat ramp (See infra p. II-B-24);
- Permitting costs (See infra pp. II-B-25 to 26);
- Environmental mitigation costs (See infra p. II-B-25);
- Security costs for the dock and 1.3 miles of pipeline (See infra pp. II-B-22 to 23); and
- Construction and operation of a barge fleeting facility at Mobile (See infra p. II-B-26).

See Part II-B-3.a.(2)(d) for a summary of the above costs.

Furthermore, as discussed at pages II-B-25 to 26, the construction of chlorine barge docks at McIntosh is subject to multiple permitting requirements. There is no assurance that SunBelt even could secure the necessary permits or how long the permitting process might take. SunBelt currently has been waiting a full year for a fairly routine permit to dredge the silt that accumulates in the existing caustic soda basin at McIntosh approximately every five years. If it takes more than a year to obtain a routine permit, it likely would take even longer to obtain the permits needed to construct an entirely new dock facility. The time, cost and uncertainty of obtaining permits to build chlorine docks at McIntosh are just further examples of how unrealistic the La Porte Option truly is.

If and when permits are granted, SunBelt then would face another 1-2 years of construction before it even could load the first barge, and probably an additional 3-4 years before it could acquire a full complement of barges capable of transporting all of the issue movement. See infra pp. II-B-30 and 45. SunBelt also would need this time to secure sufficient tugboat capacity and a "fleeting" location at Mobile, which is all highly speculative given the scarcity of barge transportation service providers willing to handle chlorine. See infra pp. II-B-6 to 7.

Finally, as discussed at pages II-B28 to 29, even if SunBelt built all of the foregoing infrastructure at McIntosh and acquired the requisite number of barges, the La Porte Option

cannot even be implemented unless and until OxyVinyls constructs adequate facilities at La Porte to receive the issue movement chlorine volume by barge. This likely would cost another $20 million and would face the same permitting requirements. Although this cost would fall upon OxyVinyls, {{[redacted]}}.

Such speculative facts relating to the time, cost, and uncertainty of executing the La Porte Option hardly place SunBelt in a position "to respond quickly to changes in transportation charges" by shifting its demand from NS to barge transportation. Special Procedures, 353 I.C.C. at 929. The La Porte Option simply is not sufficiently realistic or feasible to be an effective constraint upon the challenged rate.

(b) The NOLA Option is not realistic.

The NOLA Option, as noted in Part II-B-3.a.(2), suffers from virtually all the same issues as the La Porte Option. It would require the exact same infrastructure at McIntosh as the La Porte Option. See infra Part II-B-3.a.(2)(a). Although fewer barges would be needed (*e.g.*, 9 for the NOLA options versus 16 for the La Porte Option), barges would still be a significant expenditure at $5 million per barge, and there would be a smaller reduction in SunBelt's rail fleet because rail cars still are needed to transport the chlorine from New Orleans to La Porte. See infra pp. 32 to 33. In addition, the NOLA Option would face similar difficulties finding sufficient tugboat and fleeting capacity among the few providers willing to handle chlorine. See infra pp. 6 to 7, 26. But even if the NOLA Option did not share any of the foregoing issues with the La Porte Option, it would not be at all realistic for a single reason: as discussed at pages II-B-14 to 19, transloading bulk quantities of chlorine does not occur anywhere in this country because it would convert a bulk terminal into a mini chemical factory.

The process of transloading chlorine, as illustrated by Figure II-B-1 on page II-B-15, would be very complex because it requires the transfer of refrigerated liquefied chlorine that is under pressure from a barge (with 4 separate tanks) into 12 rail cars. An air compressor pushes pressurized air through a dryer to remove moisture that would damage the interiors of the barge, rail car, and piping. The dried air pushes the liquefied chlorine from the barge into a rail car. During the transfer, some of the liquefied chlorine in the rail car vaporizes into chlorine gas, which is vented or removed through a vacuum hose and scrubbed with caustic soda. That process, in turn, produces sodium hypochlorite, which must be disposed.

On page II-B-18, SunBelt has summarized the equipment needed to operate this hypothetical transload facility. In addition to air compressors, vacuum compressors, desiccant dryers, and a scrubber, the marine transload terminal must maintain storage for, and ensure an adequate supply of, caustic soda. It also would need storage facilities and a disposal plan for the sodium hypochlorite by-product of the scrubbing process. Furthermore, the terminal would need to comply with TSA and Coast Guard security requirements, be equipped with leak sensors and automatic shut-off devices, and provide emergency response infrastructure. These are all the more important because transloading would occur in the heart of New Orleans where a chlorine leak could be particularly catastrophic. Since no bulk terminal transloads chlorine today, SunBelt almost certainly would need to construct and operate this facility itself.

To maintain a throughput of chlorine at a sufficient rate to handle the issue movement volume, the bulk terminal must have additional infrastructure. There would need to be storage tracks for at least 12 rail cars, which have the equivalent chlorine capacity of a single barge. A minimum of 4 rail car loading racks, with scales, are needed to load the 7-8 rail cars per day that

are required to transport 250,000 tons of chlorine per year. There also would need to be a truck scale and loading rack to remove the sodium hypochlorite.

As noted on pages II-B-18 to 19, all of the above comes at an indeterminate cost because no one has ever attempted it. SunBelt, however, has identified at least {{[redacted]}} of infrastructure costs, {{[redacted]}} of annual caustic soda consumption by the chlorine scrubber, and {{[redacted]}} in annual labor costs. But the singular fact that there are no similar transload operations for chlorine is all the information that this Board needs to understand how unrealistic the NOLA Option truly would be and thus determine that it could not be an effective competitive constraint upon the challenged NS rate.

(c) <u>The Rail-Barge Option is not realistic.</u>

The Rail-Barge Option also faces many of the same challenges as the La Porte Option, in addition to several distinct challenges of its own. As discussed in Part II-B-3.b., instead of loading tank barges, SunBelt would continue to ship its chlorine in rail cars, but would float the rail cars on a barge from McIntosh to Mobile, where the rail cars could be interchanged with CSXT for transport to New Orleans, and ultimately La Porte. The multiple challenges associated with the Rail-Barge Option make it even less realistic than the La Porte Option and only slightly more plausible than the NOLA Option.

As discussed on page II-B-35, there are even fewer real-world examples of chlorine moving via rail barges than of chlorine moving via tank barges. SunBelt could not find any examples of rail barges operating on the inland waterways of the United States, much less examples of all-chlorine rail barges. The only two examples of car float operations that SunBelt has identified operate across New York Harbor between New York and New Jersey, and across

the Chesapeake Bay between Norfolk, VA and Cape Charles, VA.[15] SunBelt also has identified rail car ferry operations between Whittier, AK and Seattle, WA, and between Mobile, AL and Coatzacoalcos, Mexico. These latter two operations, however, use ocean barges or ferries, which are much larger vessels than a car float and typically are self-propelled. All of the above rail-barge examples are operated by common carrier railroads between public docks. The absence of any private rail car float operations that connect a shipper-owned facility with a public terminal demonstrates how unrealistic the Rail-Barge Option truly is.

Because there are so few rail barge operations, there also are very few terminals capable of loading and unloading a rail barge. The only reason SunBelt has even included the Rail-Barge Option as part of its opening evidence is because one such terminal does exist at Mobile, AL, which is a 60-mile barge trip from McIntosh down the Tombigbee and Mobile Rivers, and SunBelt actually considered and rejected the possibility of barging rail cars to Mobile in 2001. Although this renders the Rail-Barge Option theoretically possible, it is not very realistic.

Like the La Porte Option, the Rail-Barge Option requires SunBelt to build new dock infrastructure at McIntosh. See infra pp. II-B-36 to 37. That construction would encounter the same permitting and environmental mitigation issues as the dock for the La Porte and NOLA Options. Id., p. II-B-37. SunBelt also would encounter similar security issues. Id., pp. II-B-40 to 41. Instead of having to secure a 1.3 mile pipeline between the production plant and the dock, SunBelt would need to secure a similar distance of track and a rail car storage yard at the dock. The dock security issues and interference from river traffic would be similar to, if not potentially worse than, the La Porte and NOLA Options because, at twice the length of a tank barge, a rail barge would extend even further into the river.

[15] See Car float – Wikepedia, the free encyclopedia, http://en.wikipedia.org/wiki/Rail_barge#Modern_operations (last visited July 25, 2012).

The dock itself, however, would be very different from the La Porte and NOLA Options because of much greater engineering challenges. Id., p. II-B-36. Specifically, the dock must enable loading and unloading of rail cars between the barge and the shore, at water levels that can fluctuate by as much as 25 feet, and from atop a bluff near the shoreline that has a steep 33-foot grade. See Sun. Op. Ex. II-B-5. A 2001 engineering study conducted for Olin proposed two alternative dock designs at McIntosh. Id. In inflation-adjusted dollars, the articulated bridge system would cost {{[redacted]}} and the synchro-lift system would cost {{[redacted]}}. See infra Table II-B-3 at page II-B-41.

As also discussed at pages II-B-38 to 39, the Rail Barge Option requires SunBelt to purchase at least one specially-designed rail barge. In 2001, JeffBoat designed a 401 x 70-foot barge for Olin with a capacity of 35 rail cars (5 tracks and 7 cars per track) for an inflation-adjusted price of {{[redacted]}}.[16] These dimensions are nearly equal to four tank barges in a 2 x 2 configuration. Despite its large size, this design had been scaled back from an even larger 401 x 100 feet due to bridge clearance issues. Even the scaled back design, however, appears to have a draught that, when fully loaded with the new 286,000-pound tank cars, slightly exceeds the nine foot maximum draft in the Tombigbee and Mobile Rivers.[17]

Because none of the regular barge operators on the Tombigbee and Mobile Rivers will tow chlorine barges, SunBelt faces the same challenge of finding a tugboat operator for the Rail-Barge Option as for the La Porte and NOLA Options. Just about the only advantage that the Rail-Barge Option has over the La Porte and NOLA Options is the need for fewer barges and tugboats because it covers a shorter distance with a larger capacity vessel (*i.e.*, Mobile is much

[16] See id. and Sun. Op. Workpaper "Rail Barge Price Quote."

[17] This was not considered in the 2001 design because heavier tank cars did not exist.

closer that New Orleans or La Porte; a 35-car rail barge holds 3150 tons of chlorine versus 1100 tons for a tank barge).

Finally, although SunBelt has presumed that it could use the existing rail ferry terminal at Mobile, that is far from certain. See infra pp. II-B-39 to 40. The terminal was built for, and is exclusively used by, CG Railway ("CGR") for its rail ferry service across the Gulf of Mexico between Mobile and Coatzacoalcos, Mexico. SunBelt would have to ensure that its rail barge is capable of using the CGR terminal which was designed for double-decker ocean-going rail ferries, schedule its use around the sailings of CGR's two 115 rail car ferries every four days, and pay an indeterminate fee for using the terminal. See infra p. II-B-45.

There are far too many questions surrounding the feasibility of the Rail-Barge Option for it to be "sufficiently realistic." Aside from its substantial costs, the Rail-Barge Option presents engineering challenges, barge design questions, security issues, permitting issues, and destination terminal access uncertainty that all pose serious threats to its viability. The fact that there are so few common-carrier rail barge operations, and that no other shipper operates a comparable private rail barge, reinforces the point that the Rail-Barge Option is not realistic. Furthermore, even if SunBelt decided to invest the capital needed to pursue the Rail-Barge Option, the permitting process would require at least a year, and if granted, SunBelt then would face another 1-2 years of construction before it even could load the first barge. Part II-B-3.d.(1).

Such speculative facts relating to the time, cost, and uncertainty of executing the Rail-Barge Option hardly place SunBelt in a position "to respond quickly to changes in transportation charges" by shifting its demand from NS to the Rail-Barge Option. Special Procedures, 353 I.C.C. at 929. The Rail-Barge Option simply is not sufficiently realistic or feasible to be an effective constraint upon the challenged rate.

(d) Trucking is not realistic.

As discussed on pages II-B-42 to 44, the notion that trucks could provide effective competition to NS for the issue movement is the most far-fetched of the transportation alternatives considered by SunBelt. Very little chlorine is transported by bulk truck anywhere in the United States and the small amount of bulk trucking that does occur is mostly by private carriers over very short distances. Neither Olin nor SunBelt ships any chlorine by bulk truck.

The primary reason why so little chlorine is transported by bulk truck is safety. As a society, we do not want large volumes of chlorine moving long distances on our nation's highways where the risk of an accident is many times greater than rail transportation. This is such a fundamental notion that, in the only two previous rate cases involving chlorine, the railroads agreed that intermodal competition from trucks does not exist.[18]

The DOT has stated that "[t]he public interest would be ill served if there were a significant shift to the transportation of these commodities by truck," and that "[d]iversion of TIH materials traffic from rail to the highways is neither practicable nor consistent with public safety."[19] Furthermore, as UP notes, trucks are 16 times more likely than trains to have a hazmat accident.[20] Out of concern for public safety, Congress has established that it is the policy of the U.S. Government "to operate transportation facilities and equipment without detriment to public health and safety."[21] Elsewhere in the Rail Transportation Policy, Congress has expressed

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[18] See E.I. du Pont de Nemours & Co. v. CSX Transp., Inc., STB Docket No. 42100, slip op. (STB served June 30, 2008); US Magnesium, LLC v. Union Pac. R.R., STB Docket No. 42114, slip op. (STB served Jan. 28, 2010).

[19] See Comments of the U.S. Dep't of Transp., at pp. 6 & 12 (filed May 12, 2012 in Union Pac. R.R.—Pet. for Declaratory Order, Finance Docket No. 35504).

[20] UP: TIH Facts, http://www.uprr.com/newsinfo/media_kit/safety/tih_facts.shtml (last visited July 11, 2012).

[21] 49 U.S.C. § 10101(8).

concern for consideration of public needs.[22] In keeping with these policy statements, the Board should not consider a transportation alternative that places the public at 16 times greater risk than rail for an accident that has the potential to release a poisonous gas.

Nevertheless, in order to be conservative, SunBelt has presented evidence of two truck alternatives. The Direct-Truck Option would require SunBelt to ship chlorine directly to La Porte in bulk trucks. Even to consider this option, however, would violate the holding in the DMIR decisions, as discussed in Part I-A-2.b.(1), above. It also would contravene the CSA, which requires SunBelt to deliver chlorine to La Porte in rail cars—the Board has found that a contract requirement for rail delivery is evidence of market dominance. DuPont (Nitrobenzene), STB Docket No. 42101, slip op. at 6.

The Truck-Transload Option would require SunBelt to ship chlorine in trucks to a bulk terminal where, after transloading the chlorine into rail cars, the rest of the journey would be completed by rail. As noted at page II-B-43, this form of transloading would be no more practical than the barge-to-rail transloading contemplated by the NOLA Option for the same reasons. See infra pp. II-B-14 to 19.

As discussed on n page II-B-43, the following additional factors further demonstrate that both trucking options are completely unrealistic:

- SunBelt does not have truck loading capability at McIntosh.
- OxyVinyls does not have truck unloading capability at La Porte.
- SunBelt would have to load 46 trucks per day, every day of the year, in order to transport 250,000 tons of chlorine annually.
- Trucks loaded with chlorine would have to travel on our public roads and highways for 500 miles between McIntosh and La Porte and over 180 miles between McIntosh and New Orleans.

[22] See Id. § 10101(4).

(4) Enormous infrastructure costs render all three barge options economically infeasible.

Although SunBelt contends that the theoretical barge and truck alternatives to NS discussed above are not "sufficiently realistic" to constitute "effective competition" based solely upon the factors presented, SunBelt also has presented evidence, at pages II-B-44 to 55, that the three barge alternatives—the La Porte Option, the NOLA Option and the Rail-Barge Option—are not economically feasible even when predicated upon those same unrealistic factors. SunBelt has employed the "Capital Appropriations Request (C.A.R.) Financial Analysis Review" model that Olin, SunBelt's owner, uses in the ordinary course of business to evaluate the financial profitability of a proposed capital project. SunBelt has prepared separate CAR analyses for the La Porte, NOLA and Rail-Barge Options.[23]

SunBelt conservatively applied the CAR model to the "best case" (*i.e.*, lowest possible cost) infrastructure investment requirements for each barge alternative. Where available, SunBelt also included estimated operating costs for new facilities, namely, the cost of operating a chlorine transload terminal at New Orleans for the NOLA Option. For each Option, SunBelt also calculated the annual freight savings from using barge as an alternative to rail. The model then calculated financial indicators such as a project's net present value of cash flows and return on capital, and provided a project payback period.

The following subparts (a) through (c) summarize the CAR model results for the La Porte, NOLA, and Rail-Barge Options, respectively.

(a) The La Porte Option.

SunBelt explains in detail each of the inputs to the La Porte CAR model on pages II-B-47 to 49. For the La Porte Option, SunBelt used a capital expenditure of {{[redacted]}},

[23] See Sun. Op. Workpapers "La Porte CAR Model," "NOLA CAR Model" and "Rail Barge CAR Model."

which represented the lowest cost Option A in the Thompson study (Ex. II-B-2), the low end of the range for boat ramp relocation costs (except real estate acquisition), pipeline construction costs, and the acquisition cost of 16 barges. SunBelt next calculated a barge transportation rate of {{[redacted]}} per ton based upon estimates provided by River Marine for dedicated tugboat service from McIntosh to La Porte. SunBelt then compared that barge rate with the through rail rate of {{[redacted]}} per ton to derive a barge transportation savings of {{[redacted]}} per ton. The total annual savings was based upon transporting 250,000 tons of chlorine via the La Porte Option.

The CAR model results are presented on page II-B-49. Based upon the foregoing factors, the CAR model for the La Porte Option determined that the net payback period would be greater than 10 years, which is well in excess of what Olin considers viable. The return on capital at the 5 year mark would be just 1.5%, whereas Olin's target return at this point is {{[redacted]}}. The net present value of cash flow by Year 10 (with termination value) would be negative, when it should be positive or, at a minimum, break-even.

These CAR model financial indicators show that the La Porte Option is nowhere close to economic feasibility, even when based upon incomplete cost estimates and highly optimistic assumptions. The "best case" assumptions that are the basis for this estimate are incomplete or not very realistic, as explained below:

- Transportation savings are based upon shipping 250,000 tons of chlorine by barge annually, although barge volumes frequently will not reach this level for the following reasons:
  - Actual annual rail volume to La Porte in recent years has only been {[redacted]} tons, because {{[redacted]}}. See infra pp. II-B-2 to 3.
  - Because barge cycle times are much more variable than rail cycle times due to weather and navigation conditions, SunBelt will need to rely upon rail transportation for approximately 10-20% (*i.e.* 25,000-50,000 tons) of the

annual volume in order to ensure continuous chlorine production at McIntosh when an empty barge is not available for loading and an uninterrupted supply of chlorine at La Porte when a loaded barge is delayed. See infra p. II-B-27.

- The number of new barges is understated because SunBelt used very aggressive cycle times to calculate the number of barges required. See infra pp. II-B-30 to 31.
- SunBelt has used the low end of the boat ramp relocation costs, which range from $90,000-$240,000, and has omitted real estate acquisition costs associated with the relocation. See infra p. II-B-25, 47.
- SunBelt has omitted permitting costs. See infra pp. II-B-25, 48 to 49.
- SunBelt has omitted environmental mitigation costs. See infra pp. II-B-25, 48 to 49.
- SunBelt has omitted security costs for the dock and 1.3 miles of pipeline. See infra pp. II-B-34, 48 to 49.
- SunBelt has omitted the cost of leasing and operating a chlorine barge fleeting facility at Mobile. See infra p. II-B-26.
- SunBelt has omitted approximately $20 million to construct chlorine barge unloading facilities at La Porte. See infra pp. II-B-28 to 29, 48 to 49.

If SunBelt had more complete cost estimates and used more realistic assumptions, the net payback period would be even longer than the already unacceptably long period estimated in the CAR model. But, rather than engage in a protracted debate with NS over precisely where to draw the line between realistic and unrealistic costs and assumptions, SunBelt has demonstrated that, even using costs and assumptions that are highly favorable towards NS, the La Porte Option cannot be economically justified. In other words, the La Porte Option is not "sufficiently realistic" to be an effective competitive constraint upon the challenged rate.

(b) The NOLA Option.

SunBelt explains in detail each of the inputs to the NOLA CAR model on pages II-B-49 to 52. For the NOLA Option, SunBelt used a capital expenditure of {{[redacted]}}, which represented the lowest cost Option A in the Thompson study (Ex. II-B-2), the low end of the range for boat ramp relocation costs (except real estate acquisition), pipeline construction costs,

the acquisition cost of 16 barges, and at least $20.5 million for a New Orleans transload terminal. SunBelt also included transload terminal operating costs of {{[redacted]}}for caustic soda consumption and {{[redacted]}} for labor. SunBelt next calculated a barge transportation rate of {{[redacted]}} per ton based upon estimates provided by River Marine for dedicated tugboat service from McIntosh to New Orleans. SunBelt then compared that barge rate with the challenged NS rate of {{[redacted]}} per ton to derive a barge transportation savings of {{[redacted]}} per ton. The total annual savings was based upon transporting 250,000 tons of chlorine via the NOLA Option.

The CAR model results are presented on pages II-B-51 to 52. Based upon the foregoing factors, the CAR model for the NOLA Option determined that the net payback period would be greater than 10 years, which is well in excess of what Olin considers viable. The return on capital at the 5 year mark would be just 0.3%, whereas Olin's target return at this point is {{[redacted]}}. The net present value of cash flow by Year 10 (with termination value) would be negative, when it should be positive or, at a minimum, break-even.

These CAR model financial indicators show that the NOLA Option is nowhere close to economic feasibility, even when based upon incomplete cost estimates and highly optimistic assumptions. The "best case" assumptions that are the basis for this estimate are incomplete or not very realistic, as explained below:

- Transportation savings are based upon shipping 250,000 tons of chlorine by barge annually, although barge volumes frequently will not reach this level for the following reasons:
  - Actual annual rail volume to La Porte in recent years has only been {[redacted]} tons, because {{[redacted]}}. See infra pp. II-B-2 to 3.
  - Because barge cycle times are much more variable than rail cycle times due to weather and navigation conditions, SunBelt will need to rely upon rail transportation for approximately 10-20% (*i.e.* 25,000-50,000 tons) of the

annual volume in order to ensure continuous chlorine production at McIntosh when an empty barge is not available for loading and an uninterrupted supply of chlorine at La Porte when a loaded barge is delayed. See infra p. II-B-27.

- The number of new barges is understated because SunBelt used very aggressive cycle times to calculate the number of barges required. See infra pp. II-B-32 to 33.

- SunBelt has used the low end of the boat ramp relocation costs, which range from $90,000-$240,000, and has omitted real estate acquisition costs associated with the relocation. See infra p. II-B-25, 47.

- SunBelt has omitted permitting costs. See infra pp. II-B-25, 51.

- SunBelt has omitted environmental mitigation costs. See infra pp. II-B-25, 51.

- SunBelt has omitted security costs for the dock and 1.3 miles of chlorine pipeline. See infra pp. II-B-34, 51.

- SunBelt has omitted the cost of leasing and operating a chlorine barge fleeting facility at Mobile. See infra pp. II-B-26, 51.

- SunBelt has included only some costs for constructing and operating a marine bulk terminal for transloading at New Orleans. See infra pp. II-B-18 to 19, 51.

If SunBelt had more complete cost estimates and used more realistic assumptions, the net payback period would be even longer than the already unacceptably long period estimated in the CAR model. But, rather than engage in a protracted debate with NS over precisely where to draw the line between realistic and unrealistic costs and assumptions, SunBelt has demonstrated that, even using costs and assumptions that are highly favorable towards NS, the NOLA Option cannot be economically justified. In other words, the NOLA Option is not "sufficiently realistic" to be an effective competitive constraint upon the challenged rate.

(c) The Rail-Barge Option.

SunBelt explains in detail each of the inputs to the La Porte CAR model on pages II-B-52 to 55. For the Rail-Barge Option, SunBelt used a capital expenditure of {{[redacted]}}, which represented the lower cost articulated bridge system for the loading dock at McIntosh (Ex. II-B-5) and a single 35 rail car capacity barge that JeffBoat designed for Olin in 2001. SunBelt

next calculated a barge transportation rate from McIntosh to Mobile of {{[redacted]}} per ton, based upon estimates provided by River Marine for dedicated tugboat service; a CSXT rail rate of {{[redacted]}} per ton from Mobile to New Orleans; and various port and rail fees at Mobile of {{[redacted]}} per ton. SunBelt then compared the combined barge/CSXT/port rate of {{[redacted]}} per ton with the NS rail rate of {{[redacted]}} per ton to derive a barge transportation savings of {{[redacted]}} per ton. The total annual savings was based upon transporting 250,000 tons of chlorine via the Rail-Barge Option.

The CAR model results are presented on page II-B-55. Based upon the foregoing factors, the CAR model for the Rail-Barge Option determined that the net payback period would be greater than 10 years, which is well in excess of what Olin considers viable. The return on capital at the 5 year mark would be negative 4.6%, whereas Olin's target return at this point is {{[redacted]}}. The net present value of cash flow by Year 10 (with termination value) would be negative, when it should be positive or, at a minimum, break-even.

These CAR model financial indicators show that the Rail-Barge Option is nowhere close to economic feasibility, even when based upon incomplete cost estimates and highly optimistic assumptions. The "best case" assumptions that are the basis for this estimate are incomplete or not very realistic, as explained below:

- SunBelt has assumed, without ever making a final determination, that the lower cost "articulated bridge" dock in the GBB study is at least as feasible as, and more preferable to, the substantially more expensive "synchro-lift" dock. See infra pp. II-B-36 to 37, 52.

- SunBelt has ignored draught issues with the 35-car barge designed by JeffBoat, and assumed that the barge can be redesigned to comply with draught limits while retaining the same rail car capacity. See infra pp. II-B-38 to 39, 52.

- Transportation savings are based upon shipping 250,000 tons of chlorine by barge annually, although barge volumes frequently will not reach this level for the following reasons:

- Actual annual rail volume to La Porte in recent years has only been {[redacted]} tons, because {{[redacted]}}. See infra pp. II-B-2 to 3.

- Because barge cycle times are much more variable than rail cycle times due to weather and navigation conditions, SunBelt will need to rely solely upon rail transportation for approximately 10-20% (*i.e.* 25,000-50,000 tons) of the annual volume in order to ensure an uninterrupted supply of chlorine at La Porte when a loaded barge is delayed. See infra p. II-B-27.

- The number of new barges is understated because SunBelt used very aggressive cycle times to calculate the number of barges required. See infra p. II-B-38.

- SunBelt has omitted permitting costs. See infra pp. II-B-37, 52.

- SunBelt has omitted environmental mitigation costs. See infra pp. II-B-37, 52.

- SunBelt has omitted security costs for the dock, 1.3 miles of track, and the rail car storage yard. See infra p. II-B-52.

- SunBelt has omitted the infrastructure and operating costs of switching rail cars over a mile between the chlorine production plant and the barge dock. See infra p. II-B-41.

- SunBelt has omitted the cost of leasing and operating a barge fleeting facility at Mobile. See infra p. II-B-26.

- SunBelt has assumed that it can use the existing CGR rail ferry terminal at Mobile, and that it can do so at the same rates that it was quoted in 2001 for use of a different, now-defunct, Mobile terminal. If not, SunBelt would have to construct a terminal for approximately $27 million and operate it. See infra pp. II-B-39 to 40, 52.

- SunBelt has assumed that there are no security concerns with transporting a single barge with 35 rail cars of chlorine on the inland waterway system or interchanging that many chlorine rail cars in a single train at Mobile, New Orleans, or Houston. See infra pp. II-B-40 to 41.

If SunBelt had more complete cost estimates and used more realistic assumptions, the net payback period would be even longer than the already unacceptably long period estimated in the CAR model. But, rather than engage in a protracted debate with NS over precisely where to draw the line between realistic and unrealistic costs and assumptions, SunBelt has demonstrated that, even using costs and assumptions that are highly favorable towards NS, the Rail-Barge

Option cannot be economically justified. In other words, the Rail-Barge Option is not "sufficiently realistic" to be an effective competitive constraint upon the challenged rate.

(5) A decade of extremely aggressive NS rate increases prove that alternative transportation modes are not an effective competitive constraint.

NS's ability to impose enormous rate increases upon SunBelt without a loss of the issue traffic to alternative modes is compelling evidence of NS's market dominance. As shown on pages II-B-55 to 56, the through rail rate for the transportation of chlorine from McIntosh to La Porte has risen by {{[redacted]}} over the past decade. This includes a {[redacted]} increase in 2003, a {[redacted]} increase in 2008, a {[redacted]} increase in 2010, and a {[redacted]} increase in 2011, interspersed with single digit increases in the intervening years.

Because of the extraordinarily high infrastructure costs associated with the La Porte, NOLA, and Rail-Barge Options considered by SunBelt, those Options are effectively "higher cost" alternatives to rail transportation despite having lower transportation rates. As NS continues to steadily and significantly increase the challenged rate, some barge alternative inevitably will become cost-effective by comparison. But, as both the Board and the courts have recognized, that would not constitute effective competition.

In DuPont (Plastics), STB Docket No. 42099, slip op. at 7-8, the Board declared that:

> Even if we were to find that the cost of trucking the product is similar to the cost of using rail after the CSXT rate increase, it does not follow that the threat of trucking is evidence of effective competition. After all, even a monopolist finds that there is a profit-maximizing price beyond which it cannot raise prices without adversely affecting its bottom line. A carrier possessing market power might set its rates so high that it would begin to lose business to a higher-cost alternative (such as a trucking company). As the Board has previously noted, while this may create an "outer limit" constraint, it does not necessarily mean that effective competition is present.

Id. (emphasis in original) (footnotes omitted). See also Arizona, 742 F.2d at 650-51 (a pricing constraint does not equate to effective competition). Consequently, the fact that a barge rate is less than NS's rate, after a {{[redacted]}} increase in the joint rail rate over the past decade, demonstrates only that NS has attempted to price up to much higher cost barge alternatives, not that such alternatives constitute effective competition. See infra pp. II-B-55 to 57.

Comparable or lower rates for alternative transportation have been found to constitute evidence of effective competition when railroads have *reduced* their rates to meet the competitive threat, *not increased them*. For example, in Consolidated Papers, 7 I.C.C.2d at 337-38, the ICC found trucking to be effective competition based upon the fact that a defendant had lowered its rail rates due to truck competition while also losing market share. In FMC, 4 S.T.B. at 713-14, the Board noted that FMC had used the threat of switching to trucks credibly in the past to obtain rail rate reductions. See also Allied Chem. Corp. v. Ann Arbor R.R. Sys., 1 I.C.C.2d 492, 506-07 (1985) (noting that "[w]idespread price reductions [to keep or attract this traffic] reflect the workings of a competitive marketplace."), rev'd on other grounds, Gen. Chem. Corp. v. United States, 817 F.2d 844 (D.C. Cir. 1987). For the issue movement, the cost of barging (inclusive of the transportation rate, capital investments, and added operating costs) only will become competitive as NS continues to *increase* its rate. While such competition *may* establish an outer limit upon NS's pricing, it clearly would not be an effective competitive constraint.[24]

The extreme divide between the cost (not rates) associated with rail and barge transportation is graphically illustrated by Olin's candid assessment of a barge alternative in 2009. After studying the total cost (*e.g.* transportation rates plus capital investments) required to

[24] For the reasons presented in Part I-A-2.b.(2), supra, SunBelt contends that higher cost barge options may not even be an outer limit upon NS pricing because NS does not consider chlorine traffic to be "desirable." The only constraint may be whatever rate level NS believes it can achieve before regulatory intervention.

transport chlorine in barges from McIntosh to Delisle, MS, Olin observed that {{[redacted]}}. See Sun. Op. Exhibit II-B-4. The fact that NS is able to increase its rate so high that {{[redacted]}} makes more sense than building the infrastructure necessary to use a barge transportation alternative is perhaps the most compelling single fact that illustrates the "higher cost" nature of barge alternatives for transporting chlorine, and thus the inability of such alternatives to provide effective competition.

B. STAND-ALONE COSTS.

1. Introduction – Governing Principles.

In Coal Rate Guidelines – Nationwide, 5 I.C.C.2d 520 (1985), the Interstate Commerce Commission, the Board's statutory predecessor, adopted constrained market pricing ("CMP") as its methodology for determining maximum reasonable rate levels for market dominant traffic, such as the SunBelt movement that is the subject of this proceeding. Under CMP, a captive shipper should not be required to pay more than is necessary for the carrier involved to earn adequate revenues. Nor should it pay more than necessary for efficient service. Finally, a captive shipper should not be required to bear the cost of any facilities or services from which it derives no benefit. Id. at 523-524. These principles have been relied on by the Board and its predecessor for more than twenty-five years. See, e.g., AEPCO 2011, slip op. at 3-4 (citing Guidelines); WFA/Basin, slip op. at 7 (citing Guidelines).

Under Guidelines, CMP contains three main constraints on the extent to which a railroad may charge differentially higher rates on captive traffic: the "revenue adequacy" constraint, Guidelines at 535-36; the "management efficiency" constraint, id. at 537-42; and the "stand-alone cost" ("SAC") constraint, id. at 542-46, which protects a captive shipper from bearing costs

or inefficiencies or from cross-subsidizing other traffic by paying more than the revenue needed to replicate rail service to a select subset of the carrier's traffic base.[25] AEPCO 2011, slip op. at 4. SunBelt is proceeding under the SAC prong of CMP.

As the Board has very recently noted, the SAC test "protects a captive shipper from cross-subsidizing other traffic, bearing inefficiencies, or paying more than the revenue needed to replicate rail service to a select subset of a carrier's traffic base." W. Fuels Ass'n v. BNSF Ry. (WFA/Basin III), STB Docket No. 42088, slip op. at 2 (STB served June 15, 2012). Under the principles of SAC, the Board seeks to determine whether a complainant is bearing the cost of any inefficiencies or the cost of any facilities or services from which it derives no benefit, by simulating the rate that would exist in a "contestable market," that is, a market that is free from barriers to entry or exit. Guidelines, 1 I.C.C.2d at 528; AEPCO 2011, slip op. at 4; CP&L, 7 S.T.B. at 244 (SAC analysis seeks to determine the "lowest cost at which a hypothetical, optimally efficient carrier could provide the service . . . if the rail industry were free of barriers to entry or exit . . . ."). Contestable markets have characteristics that preclude monopoly pricing. Id. Since real-life rail markets are not contestable due to high barriers to entry that permit a rail carrier to impose monopoly pricing on a captive shipper, the SAC analysis develops a hypothetical competitor – the "Stand Alone Railroad" ("SARR"). See AEPCO 2011, slip op. at 4; see also WFA/Basin III, slip op. at 2 ("The SAC test requires hypothesizing a new, optimally efficient carrier – a stand-alone railroad (SARR) – operating in a market with no barriers to entry or exit that would serve the traffic to which the challenged rate applies (referred to as the issue traffic) and, at the complainant's option, other traffic sharing lines and facilities with the issue traffic.").

[25] Guidelines also contains a fourth limitation on a rail carrier's pricing, the phasing constraint. See Guidelines, 1 I.C.C.2d at 546. Phasing does not limit the final price selected by the carrier, but the pace at which a rate increase may be imposed.

Under the SAC constraint, the rate at issue cannot be higher than what the SARR would need to charge to serve the complaining shipper while fully covering all of its costs, including a reasonable return on investment. Thus, the SAC analysis produces a simulated competitive rate against which to judge the challenged rate. Guidelines, 1 I.C.C.2d at 542; AEPCO 2011, slip op. at 4; TMPA, 6 S.T.B. at 586.

To make a SAC presentation, the complaining shipper designs a SARR specifically tailored to serve an identified traffic group. Using information on the types and amounts of traffic actually moving over the defendant's rail system, the complainant selects a subset of that traffic (including the traffic that is the subject of the complaint) that the SARR would serve. AEPCO 2011, slip op. at 4. To facilitate the modeling task, the Board permits complainants to design SARRs using so-called "cross-over traffic," which is non-issue traffic that would traverse the SARR for part of the movement and the residual incumbent railroad for the remainder of the movement. WFA/Basin III, slip op. at 2 (citing Nevada Power II). The use of cross-over traffic is a "well-established practice," PSCo/Xcel, slip op. at 13-14, and indeed is an "indispensable part of administering a workable test," WFA/Basin, slip op. at 11. The Board has developed procedures to allocate the revenues from cross-over traffic between the on- and off-SARR segments of the movement. See Major Issues, slip op. at 25-31; WFA/Basin III, slip op. at 2-5. The objective is to reflect, to the extent practicable, the defendant carrier's relative costs of providing service over each of the two segments. WFA/Basin II, slip op. at 12. The Board adopted the "Average Total Cost" ("ATC") methodology to allocate revenues from cross-over traffic in order to reflect the economies of density, using the densities of the incumbent railroad. Id. at 13.

The complainant then designs a transportation system that would serve the selected group of traffic efficiently and at the lowest cost, taking into account all essential facilities and operating assets. See WFA/Basin, slip op. at 8; FMC, 4 S.T.B. at 721; Guidelines, 1 I.C.C.2d at 543-44. An operating plan must be developed to serve the traffic group selected by the complainant, and the system-wide investment requirements and operating expenses must be estimated, including appropriate documentation to support the estimates. WFA Basin III, slip op. at 2; AEPCO 2011, slip op. at 4-5. The Board's requirements assume that investments are made prior to the start of service, that the SARR would continue to operate into the indefinite future, and that recovery of the investment costs would occur over the economic life of the assets. AEPCO 2011, slip op. at 5; WFA/Basin, slip op. at 8; AEP Texas II, slip op at 8. A computerized discounted cash flow ("DCF") model simulates how the SARR would likely recover its capital investments. The annual revenues required to cover the SARR's capital costs and taxes are combined with the annual operating costs to calculate the SARR's total annual revenue requirements. Id. at 5.

The revenue requirements of the SARR are then compared to the revenues that the defendant railroad is expected to earn from the traffic group. If the present value of the revenues that would be generated by the traffic group exceeds the present value of the revenue requirements of the SARR, the Board must decide what relief to provide to the complainant by allocating the revenue requirements of the SARR among the traffic group over time. Id.

Thus, the five basic tasks of a SAC analysis are: (1) identify the traffic group to be served by the SARR, including historical and projected revenues; (2) design the configuration of, and develop an operating plan for, the SARR to serve the selected traffic group; (3) calculate operating expenses of the SARR to serve the traffic group and implement the operating plan; (4)

calculate the road property and equipment investment needed to operate the SARR; and, (5) develop the DCF analysis. The parts are not strictly sequential, since the results of a later step may prompt a revision in an earlier step. SunBelt's evidence is presented in Part III, in the order required by the Board in its decision in General Procedures, 5 S.T.B. 441 (2001).

2. SunBelt Has Carefully Followed the Board's Well-Defined Set of Rules and Precedent to Guide Parties In Developing Stand-Alone Cost Evidence.

Since the ICC's 1985 decision in Guidelines, the ICC and the Board have decided several dozen SAC cases, which now has produced a well-defined set of precedent that can be relied upon by parties in SAC cases to design a specific SARR and that has been consistently applied by the Board in deciding issues surrounding the development of a stand-alone railroad. A review of this case law reveals that the Board has taken a consistent approach in dealing with at least the following key issues:

- Principles and procedures by which the Board could adjudge whether traffic on one part of a SARR was cross-subsidizing traffic on another part of a SARR, and if so, whether and how the Board would adjudge the rates to be unreasonable and calculate the SAC rates. See PP&L, 6 S.T.B at 293-300; Otter Tail, slip op. at 24-30.

- A strong preference for using government forecasts of revenue and traffic because they are unbiased, independent, and updated regularly. See, e.g., AEPCO 2011, slip op. at 21-23; PSCo/Xcel, 7 S.T.B at 639 and PSCo/Xcel II, slip op. at 14, aff'd on this point, 453 F.3d at 486; WFA/Basin, slip op. at 27.

- A strong preference for an operating plan based upon the Rail Traffic Controller ("RTC") Model. See AEPCO 2011, slip op. at 28; WFA/Basin II, slip op. at 15-16; WFA/Basin, slip op. at 15; AEP Texas II, slip op. at 17; PSCo/Xcel, 7 S.T.B. at 613-14; Otter Tail, slip op. at 19.

- The consistent use of a 10 percent contingency factor[26] and a 10 percent engineering factor[27] for the road property investment cost of a SARR.

[26] See AEPCO 2011, slip op. at 133; WFA/Basin II, slip op. at 55; WFA/Basin, slip op. at 132-133; AEP Texas II, slip op. at 104 (citing the complainant's reliance on "past Board decisions"); Duke/NS, 7 S.T.B. at 203-204.
[27] See AEPCO 2011, slip op. at 132; WFA/Basin II, slip op. at 55; WFA/Basin, slip op. at 132; AEP Texas II, slip op. at 104; Duke/NS, 7 S.T.B. at 201-203.

- The universal use of the cost of capital determined annually for the railroad industry in determining the cost of capital for the SARR. AEPCO 2011, slip op. at 137; WFA/Basin II, slip op. at 19-26; WFA/Basin, slip op. at 135; AEP Texas II, slip op. at 107-108.

- The routine acceptance of a very narrow range for the cost of insurance for the SARR.[28]

- Approval of a relatively narrow range of costs for mobilization factors in cases where the matter has been litigated.[29]

Moreover, in cases where it would not be possible to settle on a specific figure or even range of figures given the specific design of a SARR in an individual case, the Board has clearly expressed a preference for a particular configuration or methodology for determining the costs of a SARR. For example, the Board has clearly made known that it does not believe that the outsourcing of ordinary maintenance is feasible. See Duke/NS, 7 S.T.B. at 163-164 (rejecting the use of outside contractors for spot maintenance); AEP Texas II, slip op. at 67-68 (same); WFA/Basin, slip op. at 57 (noting with approval that the complainant had used a realistic in-house maintenance staff); PSCo/Xcel, 7 S.T.B at 661-62 (rejecting extensive use of outside contractors); Otter Tail, slip op. at C-18 to C-21 (rejecting use of small MOW staff). Similarly, the agency has noted with approval throughout its decisions a particular methodology to estimate the "peaking factor" that it uses to ensure that the SARR has sufficient equipment to handle the peak week traffic demands. See AEPCO 2011, slip op. at 32 (citing WFA/Basin and PSCo/Xcel II).

In addition to this case precedent, the Board in 2006, after comprehensively considering several key issues in a rulemaking proceeding, issued a decision in Major Issues, which

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[28] See AEPCO 2011, slip op. at 78 (3.66% of operating expenses accepted); WFA/Basin II, slip op. at 44 (3.2% of operating expenses accepted); WFA/Basin, slip op. at 76 (3.2% of operating expenses accepted). .

[29] See AEPCO 2011, slip op. at 132 (2.4% mobilization factor); Duke/CSXT, 7 S.T.B at 338 (2.6% mobilization factor); CP&L, 7 S.T.B at 338 (2.5% mobilization factor); TMPA, 6 S.T.B. at 744-45 (2.0% mobilization factor); Wisconsin P&L, 5 S.T.B. at 1036-1037 (2.4% mobilization factor); AEP Texas II, slip op. at 103 (2.4% mobilization factor).

established binding rules in four key areas dealing with the development of a SARR and the application of a SARR's costs to determine the maximum reasonable rate: (a) replacing the "percent reduction approach" with the "maximum markup methodology" ("MMM") to calculate maximum lawful SAC rates; (b) adopting the ATC approach to allocate revenue from cross-over traffic; (c) shortening the analysis period to 10 years; and, (d) using a hybrid approach for forecasting changes in operating expenses to account for future productivity. See Major Issues, slip op. at 9-44, 61-64.[30] Since the Board's decision in Major Issues, the agency has applied the rules set forth in that decision to complaints brought to the Board under the SAC constraint.[31]

SunBelt's experts have carefully considered the Board's precedent in these and other matters, and have followed the Board's guidance. SunBelt's SAC analysis is well within the bounds of the parameters that the Board has accepted in past cases, and therefore the Board can and should rely on SunBelt's evidence in deciding this case. As the Board recently noted, "[w]here . . . a complainant has followed established agency precedent, defendant[] carr[ies] the burden to justify a departure from that methodology." AEPCO 2011, slip op. at 11, 33.

In this case, SunBelt's evidence shows that the challenged NS rates are extraordinarily high. As noted in Part II-A-1, revenue-to-variable cost ("R/VC") ratios for SunBelt's traffic range between 479% and 488% from 3Q11 through 2Q12, well above the Board's jurisdictional threshold.[32] See infra p. II-A-2. Indeed, the R/VC ratios of these rates are far above the levels that the Board has found reasonable in past cases. See WFA/Basin II, slip op. at 2; PSCo/Xcel,

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[30] The Board's decision in Major Issues also dealt with the issue of whether movement-specific adjustments would be used to calculate variable costs, an issue important for developing the variable cost calculations used for the Board's jurisdictional inquiry, as well the ATC and MMM calculations. Major Issues also dealt with the issue of uniform standards for reopening, vacating and filing a new case. See Major Issues, slip op. at 47-60 and 67-75.

[31] See AEPCO 2011, slip op. at 34, 35; WFA/Basin II, slip op. at 4-7, 12; AEP Texas II, slip op. at 15, 23. The Board also has followed those principles in cases in which the parties have agreed that the SAC level would be below the jurisdictional threshold, and therefore the maximum reasonable rate would be set at the 180 percent of the applicable variable costs. See OG&E, slip op. at 4; KCPL, slip op. at 7-8.

[32] As noted in SunBelt' evidence, the parties have agreed on all nine (9) of the required traffic and operating characteristics associated with SunBelt's movement to which the challenged rate applies. See infra p. II-A-2.

slip op. at 22 and PSCo/Xcel II, 7 S.T.B. at 625, 698-741. Therefore, on the basis of the SAC evidence submitted by SunBelt, which is consistent with the rules, principles and precedent that the Board has enunciated in past SAC cases, the Board should determine that SunBelt's rates clearly exceed a reasonable maximum, and should prescribe maximum reasonable rates as requested by SunBelt.

3. The SunBelt Railroad System.

The SARR in this case, the SunBelt Railroad ("SBRR"), is a simple system operating over just 580.64 route miles traversing only three states (Alabama, Louisiana, and Mississippi), including construction of 578.24 miles and operation over 2.4 miles under trackage rights. See infra pp. III-A-2, III-B- 2. The SBRR, which is one of the shortest SARRs ever considered by the Board, has only two line segments, (a) from Birmingham, AL to New Orleans, LA, and (b) from McIntosh, AL to Burstall, AL (near Birmingham). See infra p. III-B-1. SunBelt's traffic originates at McIntosh, and is interchanged at New Orleans with the Union Pacific Railroad Company ("UP"), for eventual delivery to the destination. NS traffic data, operating timetables and track charts produced in discovery were used to identify the SBRR route miles involved, as well as the SBRR's interchanges with other Class I and short line rail carriers in the same manner as the NS does today. See infra pp. III-B-3.

The SBRR will hypothetically transport a broad range of commodities over its small system, similar to what NS transports over the same rail lines in the real world, in single-line, interline and cross-over traffic. See infra p. III-A-3. The traffic includes chemical, intermodal, agricultural, coal, automotive, metals, paper, and construction materials shipments, in intermodal, unit, manifest, and local trains, exactly as NS does today. See infra pp. III-A-3 to 4. There is no rerouted traffic on the SBRR system.

The SBRR's main line consists of single main track with additional main track to enable the SBRR to move its peak period trains efficiently. See infra p. III-B-4. The SBRR has a total of about 700 single main track miles and other main track/passing siding. Id. Consistent with Board precedent, the SBRR uses new 136-pound continuous welded rail on all constructed main track and passing sidings in line segments carrying 20 million or more gross tons per year. Standard rail is used for all mainline track except that premium rail is used on curves of three (3) degrees or more, with lighter rail used for main tracks on segments carrying less than 20 MGT. See infra pp. III-B-4 to 5; AEPCO 2011, slip op. at 104; Duke/NS, 7 S.T.B. at 184-185. Consistent with its nature as a simple system, the SBRR has no need of any branch lines. See infra p. III-B-5.

The SBRR will have a total of 13 yards, with one major yard, 4 mid-size yards and 8 other yards. See infra pp. III-B-5. Depending upon their size and nature, the yards will be used for fueling, crew changes, inspections, servicing, and other purposes. See infra pp. III-B-5 to 6. Power switches are used for the connections between the main line and the yard lead and relay tracks, and the connections to local origins and destinations. See infra p. III-B-7. Communications on the SBRR are conducted using a microwave system utilizing radios, with cell phones used for emergencies and as a back-up to the radios. Id. The SBRR uses standard railroad turnouts and standard technology such as failed equipment detectors and Automatic Equipment Identification scanners. See infra pp. III-B-7 to 8.

The SBRR system is constructed in conformity with the latest safety requirements. As the Board has recently noted, existing law requires rail carriers to install Positive Train Control ("PTC") systems, and stand-alone railroads should include PTC costs. AEPCO 2011, slip op. at 34. Current federal law mandates the use of PTC by December 31, 2015. Id. However, the

SBRR is constructed at the outset with the PTC system, both for safety reasons and for reasons of cost and efficiency, since it is more cost-efficient to construct a PTC train control and communications system from the outset, rather than constructing a Centralized Traffic Control ("CTC") system and then converting to a PTC system partway through the analysis period. See infra pp. III-B-7, III-C-16 to 17, III-F-35 to 36.

4. The Stand-Alone Traffic Group.

Under Board precedent, the complainant must create a traffic group by using information on the types and amounts of traffic moving over the defendant's rail system, and by selecting a subset of that traffic (including its own traffic to which the challenged rate applies) that the SARR would serve. See AEPCO 2011, slip op. at 16. The selected traffic group must be representative of that which would move on the SARR in the future, and the composition of the traffic group must be realistic, that is, consistent with the principles of real-world railroading. Id.

SunBelt has followed these principles. As noted in Part III-A of its evidence, the SBRR transports a broad range of commodities over its system, similar to what the NS transports over many of the very same lines today. The SBRR traffic group was developed using NS car and container waybill data for the January 1, 2010 through September 30, 2011 time period, which were produced by NS in response to SunBelt discovery requests. See infra pp. III-A-3 to 4. The SBRR Base Period traffic (2011) consists of approximately {[redacted]} carloads of merchandise traffic; about {[redacted]} containers, and about {[redacted]} million tons of coal. See infra pp. III-A-8 to 10. In contrast, in the Peak Year of operations (July 30, 2020 through July 29, 2021), the SBRR is projected to transport about {[redacted]} carloads of merchandise traffic, nearly {[redacted]} containers, and nearly {[redacted]} million tons of coal. See infra pp. III-A-8 to 10.

The SBRR has been constructed to begin operating on July 30, 2011. The SBRR traffic group uses actual NS traffic moving from that date through the end of September 2011. See

infra p. III-A-5; AEPCO 2011, slip op. at 20 (STB accepted base year volumes using actual traffic information). The SBRR also includes forecasted traffic volumes for the period from October 1, 2011 through July 29, 2021. See infra p. III-A-5. For all commodity groups, the 4Q11 volumes were projected by adjusting the NS volumes for January to September 2011 by the NS actual fourth quarter growth as shown in the NS' Fourth Quarter 2011 Quarterly Financial Review. See infra p. III-A-5. Traffic volume forecasts from 2012 through 2016 were developed using NS internal forecasts provided in discovery, which were developed by NS in March 2012. See infra pp. III-A-5 to 6. SunBelt aggregated the NS forecasted totals on a commodity group basis and developed year-over-year volume change indexes for each commodity group, and then applied those indexes to the selected SBRR movements. See infra p. III-A-6. Aggregation of the forecast data on a commodity group basis was necessary to maintain consistency between the traffic volume forecast and the train forecast, since different commodities shipped on the same train may be forecasted to grow at different rates. Id.

The methodology used by SunBelt is consistent with the methodology used by the Board in the CP&L decision, where the Board recognized that coal business in the east is constantly shifting, and therefore to project volumes on an O-D pair-specific basis would be "unduly restrictive" and would not "fairly reflect the traffic that would be available" to the SARR in any one year. CP&L, 7 S.T.B. at 249-250. Thus, the Board approved the use of projections on a regional, commodity-group basis. Id. There is no difference between coal and other commodities in this regard, and SunBelt has used the same logic to cover all carload movements on the SBRR.

For the January 2017 through July 2021 time periods, the SBRR volumes were determined by adjusting the prior year volume by the commodity group-specific compound

annual growth rate developed using three years of actual NS data and five years of NS internal forecast data. See infra p. III-A-7. This methodology is consistent with the Board's recent decision in AEPCO 2011, slip op. at 22-23. This methodology was applied to merchandise, intermodal, and coal traffic. See infra pp. III-A-7 to 9. With respect to coal traffic, prior precedent indicates that coal volume growth should be capped at an 85 percent plant capacity level. See AEPCO 2011, slip op. at 21; AEP Texas II, slip op. at 31. After the forecasted growth factors were applied in this case, neither one of the two generating stations served by the SBRR attained a maximum volume greater than the 85 percent plant capacity factor limitation. See infra pp. III-A-9 to 10.

Historical revenues were developed from waybill revenue data and revenue adjustment data provided by NS in discovery, although SunBelt experienced severe problems with the NS-provided data. See infra pp. III-A-10 to 11; Exhibit III-A-2. Revenue projections were based on NS 4Q11 system-wide traffic and revenue data reported by NS in public documents; NS pricing authorities and fuel surcharge tariffs; NS internal revenue forecasts; and publicly available forecasts of key economic indices. See infra pp. III-A-12 to 15. Indices and procedures used by SunBelt are consistent with STB precedent. See WFA/Basin, slip op. at 27-30; PSCo/Xcel, 7 S.T.B. at 638; AEPCO 2011, slip op at 24-26; AEP Texas II, slip op. at 35-38. SunBelt assumed that movements subject to the NS fuel surcharge program in 2011 would continue to be subject to NS fuel surcharges throughout the SAC analysis period. See infra p. III-A-13. Thus, SunBelt separated the fuel surcharge revenue from the movement revenues and forecasted the two revenue components separately. Id. SunBelt's method for projecting fuel surcharge revenues is consistent with agency precedent. See AEPCO 2011, slip op. at 26-28.

Although the SBRR will handle single line and interline traffic, the largest grouping of traffic to be handled by the SBRR is cross-over traffic, that is, traffic that currently moves over a larger portion of the NS system than is replicated by the SBRR. See infra pp. III-A-15 to 19. Cross-over movements are assumed to be interlined with the residual NS. The revenue split between the SBRR and the residual NS has been calculated using the methodology set forth in Major Issues, slip op. at 24-39, as modified by the Board in WFA/Basin II, slip op. at 12-13 and as affirmed in WFA/Basin III, slip op. at 5-12; and AEP Texas II, slip op. at 15-16 (application of ATC procedures to total revenue contribution rather than total revenue).

In the WFA/Basin case, the defendant railroad proposed an "alternative" version of ATC, instead of the Board's Modified ATC. SunBelt believes that the Board's Modified ATC is the current and proper practice. However, Sunbelt has also submitted evidence regarding the rates that would result from the Alternative ATC approach suggested by the defendant in WFA/Basin.[33] See infra pp. III-A-19 and III-H-21, n. 44. That evidence shows that there is virtually no difference between the rates that would result from application of the two approaches, a difference that declines to just 0.2% at the end of the prescription period in 2021. See infra p. III-A-19

5. The SBRR Operating Plan.

Under agency precedent, an operating plan must be able to meet the transportation needs of the traffic to be served, but it need not match the existing practices of the defendant railroad,

[33] In a late release on July 25, 2012, the Board issued a decision in Docket No. EP 715, Rate Regulation Reforms, that proposes, among other things, to adopt a slight variation upon the "alternative ATC" methodology that the defendant had proposed in WFA/Basin. SunBelt, however, already had developed opening evidence based upon the WFA/Basin methodology, and there was insufficient time for SunBelt to revise its opening evidence to show the results of the proposed "alternative ATC." Moreover, at page 18 of the EP715 decision, the Board stated that it seeks "public comment on whether we should adopt this modification to ATC for use *in all future SAC...proceedings*...." [emphasis added]. SunBelt construes this statement to refer to all future filed SAC proceedings and not pending proceedings, which is consistent with the Board's treatment of the only other cross-over traffic proposal in EP715, at page 17, n. 11.

since the objective of the SAC test is to determine what it would cost to provide the service with "optimal efficiency." AEPCO 2011, slip op. at 28; WFA/Basin II, slip op. at 15. However, the assumptions used in the SAC analysis must be realistic, that is, consistent with the underlying realities of real-world railroading. Id.

The SBRR's operating plan, described in detail in Part III-C, is designed to enable the SBRR to transport its peak seven-day traffic volume and train frequencies during the 10-year DCF period, in a manner that meets the transportation needs of the traffic group in compliance with all NS transportation and service commitments. See infra p. III-C-2. Basic information used to develop the operating plan included NS operating timetables, track charts, and various discovery responses by NS that described the operation of SunBelt traffic and other trains. See infra p. III-C-2. The operating plan was then verified using the Board-approved RTC Model to accommodate the railroad's peak year traffic group. See infra p. III-C-2. It takes into account the SBRR's total traffic volume and traffic flows, as well as the SBRR's interchange relationships with other carriers. See infra pp. III-C-2 to 5. All trains are interchanged with other railroads as run-through trains. See infra p. III-C-5. The SBRR's train sizes are no larger than those for comparable NS trains operated from January 2010 through September 2011 for which NS produced car movement data, and non-coal trains that are interchanged with NS have the same mix of traffic as the comparable NS trains that moved between the same points in that period. See infra p. III-C-8. All of the SBRR's tracks are constructed to permit a maximum gross weight on rail of 286,000 pounds per car. See infra p. III-C-5.

The SBRR operating plan provides for efficient modern railroad practices, such as calling train crews in advance of the train's arrival at a designated interchange point and the maximization of crew assignments within the confines of current law. See infra pp. III-C-6 to 7.

Inspections of locomotives and cars conform to regulatory requirements using efficient state-of-the-art procedures. See infra pp. III-C-7 to 8. The maximum train speeds for the SBRR (60 mph except for loaded coal and bulk grain trains, with a maximum speed of 50 mph) are consistent with NS' practice on the lines being replicated by the SBRR. See Exhibit III-C-2 at 3. Interchange times with other carriers are consistent with recent Board precedent. See Exhibit III-C-2 at 5-6; WFA Basin II, slip op. at 16.

Under the SBRR operating plan as confirmed by the RTC simulation, all trains have sufficient locomotives to provide a horsepower-to-trailing ton ratio necessary to meet current transit time commitments and service requirements. See infra p. III-C-9. The plan assumes that maximum train sizes will remain the same throughout the ten-year DCF period; therefore, increased volumes are accounted for by adding cars to existing trains where possible up to the maximum train size, and then adding "growth" trains. Id.

The number of locomotives on the SBRR is sufficient to handle the traffic volume. Locomotives used on the SBRR are used in modern distributed power (DP) configurations used by rail carriers across the country, including NS. See infra p. III-C-10. The count of road locomotives includes a spare margin of {[redacted]} percent for road locomotives and {[redacted]} percent for local and work train locomotives, based on information provided by NS in discovery. See infra p. III-C-11. SunBelt's experts examined actual NS bad order time, transit time, and total equivalent units in service by locomotive type for 2008 through September 2011. From that information, they developed the actual three-year weighted average locomotive spare margin for both types of locomotives. Id. Though these spare margin figures are somewhat lower than the Board has found in some (but not all) past cases,[34] the figures are well-supported and are based

[34] See WFA/Basin, slip op. at 33-34 (8.6% spare margin for road locomotives and 0% for helper, switching and work locomotives); AEP Texas II slip op. at 43-44 (7.9% spare margin); Otter Tail, slip op. at C-2 (7.94% spare

on actual NS experience, and should be adopted by the Board. SunBelt's experts have also calculated a peaking factor of 15.1 percent, using the same process as that approved by the Board in recent cases. See infra p. III-C-11; WFA/Basin, slip op. at 33-34; PSCo/Xcel II, slip op. at 13; AEPCO 2011, slip op. at 32.

Railcar requirements for the SBRR traffic group were determined from data produced by NS in discovery. See infra p. III-C-12. The SBRR car requirements were increased by a {[redacted]} percent spare margin that is based on the range of spare margins contained in NS' coal transportation contracts and which is consistent with the range of spare margins for cars utilized by the parties or decided by the Board in a number of recent cases.[35] See infra p. III-D-7. The car requirements were also increased by the peaking factor used for locomotives described previously, which is again consistent with recent precedent. See infra p. III-C-12; WFA/Basin, slip op at 40.

After inputting the main-track configuration, the yard and interchange locations, operating parameters such as train speeds and restrictions and a wide variety of other information, the RTC model was run and changes were made on an iterative basis until the model ran to a successful conclusion. See infra pp. III-C-13 to 16 and Exhibit III-C-2.

The SBRR's operating plan is consistent with the Board's fundamental requirement that the operating plan must "meet the transportation needs of the traffic the SARR proposes to serve," and must be "realistic, i.e., consistent with the underlying realities of real-world railroading." WFA/Basin, slip op. at 15. In making that determination, the Board looks to the

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margin for road locomotives). But see TMPA, 6 S.T.B. at 661 (5% spare margin requirement for helper service); Duke/CSX, 7 S.T.B. at 453-454 (5% spare margin used for road and helper locomotives); CP&L, 7 S.T.B. at 289 (5% spare margin accepted); Duke/NS, 7 S.T.B. at 151 (5% spare margin accepted).

[35] See infra p. III-C-12, n. 12, describing both parties use of a 5.0 percent spare margin in the AEPCO 2011 case, based on the use of transportation contracts. See also, WFA/Basin, slip op. 39 (5% railcar spare margin used, based on transportation contracts); Otter Tail, slip op. at C-5 (5.0% spare margin for cars, based on transportation contracts).

adequacy of the configuration, to ensure that the SARR will have sufficient capacity to handle the peak forecast, and the cycle times, to determine whether the service will be adequate. The SBRR meets these tests. The RTC Model confirms that the on-SARR transit times during the peak period in the peak year are lower on average than the NS's actual transit times over the SBRR segments during the comparable period of the most recent year for which data is available. See infra p. III-C-16.

6. Operating Expenses.

The SBRR's operating expenses are described in Part III-D of SunBelt's evidence, which sets forth the costs of equipment, personnel, general and administrative, information technology and maintenance of way requirements, and the development of related service units and costs. The SBRR's operating expenses reflect the results of the RTC Model simulation, which was used to calculate the SBRR's locomotive hours and car hours for the peak week of the peak year, which was then used to calculate locomotive hours, car hours, locomotive unit miles, and car miles for 2011. See infra p. III-D-1. The resulting statistics were then utilized to determine overall locomotive and car ownership requirements as well as personnel requirements. Id. The procedures used to develop the SBRR's operating expense for the Base Period were those approved by the Board in WFA/Basin, slip op. at 33, that is, by applying transit times calculated for the peak period of the peak year to a full year of train data in order to calculate operating statistics. See infra p. III-D-23.

As noted in SunBelt's evidence, NS did not provide any current locomotive capital leases in response to SunBelt's discovery requests. See infra p. III-D-3. Therefore, SunBelt developed locomotive lease costs from various public sources (depending on the type of locomotive acquired), including prior Board decisions, the public record of prior cases, and industry publications. See infra pp. III-D-3 to 4. The cost of locomotive maintenance and servicing was

based on actual NS costs derived from its Annual Report to the STB. See infra pp. III-D-5. Fuel costs for locomotives are based on the prices that NS actually paid for fuel, and fuel consumption was based on NS' own experience, from information developed from NS' Annual Report to the STB. See infra p. III-D-6. All of these sources provide strong support for the SBRR's cost of operations.

The SBRR was conceived as a railroad that would primarily handle trainload quantities of goods using non-union personnel, as permitted by Board precedent. See infra p. III-D-8 to 9; Exhibit III-D-1 at 1; PSCo/Xcel, 7 S.T.B. at 651 (non-unionized workforce); TMPA, 6 S.T.B. at 687. The SBRR's staffing plan permits the SARR to handle peak traffic volume safely and efficiently, taking into account the SBRR's traffic volume. Train and engine ("T&E") crew counts were developed using actual train counts over an entire year, as the Board has authorized in past cases. See infra p. III-D-10; Exhibit III-D-1 at 2; PSCo/Xcel, 7 S.T.B. at 645 (citing Duke/CSXT, CP&L, Duke/NS, and TMPA). Consistent with Board precedent, SunBelt's SARR recognizes that train crews could work 270 days per year. See infra p. III-D-10; Exhibit III-D-1 at 2; TMPA, 6 S.T.B. at 644 (270 crew shifts per year); WFA/Basin II, slip op. at 47 (270 crew shifts per year); AEP Texas II, slip op. at 47 (270 shifts per year). T&E crew compensation for the SBRR was derived from NS's own Wage Forms and is established at the same level as those paid by NS for comparable positions. See infra p. III-D-11; Exhibit III-D-1 at 8. Other aspects of T&E personnel costs, such as the fringe benefit ratio and the cost of taxi trips and overnight stays, were also calculated as approved in prior cases. See infra p. III-D-11 to 12; Exhibit III-D-1 at 9-10; WFA/Basin, slip op. at 48 (taxi and overnight expenses), 66 (fringe benefit ratio calculation); PSCo/Xcel, 7 S.T.B. at 651-52 (annual calculation of taxi expenses); Otter Tail, slip

op. at C-12 (overnight expenses at $44.89 per night, which is consistent with SBRR's figures of $35 to $99 per night, see Exhibit III-D-1 at 10).

The SBRR's General and Administrative ("G&A") staff is composed of 22 personnel, which is consistent with the very small size of the SBRR and Board precedent in prior cases applied to small SARRs. See infra pp. III-D-12 to 13; Exhibit III-D-2; PSCo/Xcel, 7 S.T.B at 648 (51 G&A staff approved); WFA/Basin, slip op. at 39 (39 G&A staff approved); AEP Texas II, slip op. at 52-53 (66 G&A staff approved). The SBRR will have only an average of 54 train movements per day in the peak week, and a limited number of local customers and interchange points. See infra p. III-D-15. It handles primarily trainload movements, with multiple-car billing. These operations characteristics substantially reduce the need for numerous G&A personnel and related features such as complex IT systems needed to support a much larger operation. See infra pp. III-D-15 to 16. Moreover, a number of functions can be effectively outsourced, including several finance and accounting functions such as the preparation of tax returns, as well as auditing, legal services (including claims administration), and other discrete administrative functions. See infra pp. III-D-16 to 17.

Consequently, the SBRR uses a 4-member Board of Directors, which is appropriate for the size and scope of the railroad and the fact that it would not be a publicly-owned company. See infra p. III-D-13; Exhibit III-D-2 at 2. See also WFA/Basin, slip op at 42-43 (5-member Board of Directors approved); AEP Texas II, slip op. at 53-54 (citing PSCo/Xcel, Duke/CSXT, and TMPA (5-member Board of Directors approved)). Similarly, the President, who also serves as the railroad's CEO, does not need a large staff to assist him because of the nature of the SBRR. See Exhibit III-D-2 at 3; WFA/Basin, slip op. at 43 (2-person staff assisting President of SARR); AEP Texas II, slip op .at 51 (2-person staff assisting President).

In AEPCO 2011, the Board rejected the complainant's proposal to outsource a large part of the marketing function and instead adopted the much larger in-house marketing staff proposed by the defendant railroad. See AEPCO 2011, slip op. at 55-57. However, the Board has also "accepted the premise that a SARR serving only a subset of the incumbent railroad's customer base would not need a marketing department as large as that of the incumbent carrier." WFA/Basin, slip op. at 46; see also, AEP Texas II, slip op. at 54. In the case of the SBRR, the great majority of the railroad's traffic neither originates nor terminates on the railroad; consequently, there is little need for customer contact. Thus, a Director of Sales and Marketing would fulfill the minimal marketing duties. See Exhibit III-D-2 at 7; WFA/Basin, slip op. at 46 (3-person marketing department approved).

The SBRR's relatively simple finance and accounting functions would be handled by a Comptroller assisted by five (5) staff. See Exhibit III-D-2 at 3-4; WFA/Basin, slip op. at 43 (small financial staff approved, in part because the SARR "would not be a publicly traded corporation and would not need to prepare reports to the SEC or to the equity-investment community."); Otter Tail, slip op. at C-9 (same). In the same way, the SBRR's IT function could be handled by a staff of seven (7) people, composed of a Manager of Information Technology assisted by six (6) IT Specialists. This is consistent with Board precedent for relatively small SARRs. See infra pp. III-D-15 to 16; Exhibit III-D-2 at 5-6, and WFA/Basin, slip op. at 43 (8 IT personnel); Otter Tail, slip op. at C-8 (9 IT personnel); AEP Texas II, slip op. at 52 (11-person IT staff approved). Moreover, RMI, a General Electric transportation services company, can provide information technology to manage day-to-day rail operations (currently used by several regional railroads), as well a revenue accounting and car accounting system. See infra Exhibit III-D-2 at 11-13. Other companies provide crew management systems and dispatching systems.

Id. Finally, the SBRR will use off-the-shelf systems for its general accounting and human resource management requirements. See Exhibit III-D-2 at 13-14.

Compensation for the SBRR's G&A personnel are based on data contained in the NS Wage forms, with certain exceptions. See Exhibit III-D-2 at 7-8. Specifically, the salary for the SBRR's President, Vice President – Operations, and Assistant Vice Presidents are based on the compensation paid by the Providence and Wooster Railroad ("P&W"), a publicly-traded regional railroad that operates 516 route miles in five Northeastern states. Id. The P&W is clearly a comparable operation to the SBRR, and its compensation to its senior officers provides strong support for compensation to comparable positions at the SBRR. See AEP Texas II, slip op. at 59 (Board adopted executive compensation based on comparable railroad).

The SBRR's start-up and training costs are consistent with those set forth in the Board's decision in WFA/Basin, slip op. at 51-54. Training costs for engineers and conductors are based upon information provided by NS in discovery. See infra p. III-D-17 and Exhibit III-D-2, pp. 19 to 21. Recruiting costs for the SBRR are based on amounts provided by NS in discovery. See infra Exhibit III-D-2, p. 20. Consistent with WFA/Basin, slip op. at 53, AEP Texas II, slip op. at 66, and Otter Tail, slip op. at C-17, the costs of training and recruiting employees is treated as an operating expense in the SBRR's first year of operation. See infra p. III-D-17; Exhibit III-D-2 at 21. Corporate travel has been estimated consistent with Board precedent. See infra pp. III-D-17 to 18; Otter Tail, slip op. at C-14.

Unlike the complainant in some past cases, SunBelt's experts have included a substantial field staff to perform day-to-day inspection and maintenance activities, supported by a managerial/office engineering and support staff that reports to the SBRR's management. See infra pp. III-D-18 to 20; Exhibit III-D-3 at 1; WFA/Basin, slip op. at 57. This is consistent with

the approach taken by complainants in recent cases, much of which the Board has accepted. See AEPCO 2011, slip op. at 65, 72, 74 (Board approves MOW staffing for various categories); WFA/Basin, slip op. at 57 (same). The basic functions include track inspection and routine maintenance, communication, and signal inspections, testing and maintenance, bridge inspection and minor building maintenance, and administrative support. See Exhibit III-D-3 at 2. The SBRR is planned to have a total of 97 MOW employees, organized into Track, Communication and Signals, Bridge and Buildings, and Administrative Support departments. Id. at 3. The MOW operations of the SBRR are consistent with modern railroad practice and agency precedent. For example, the territory assigned to each field maintenance crew, the four-person crew size, and the tasks that they are expected to perform are followed by current eastern carriers including the NS, and are consistent with the approach recently approved by the Board. WFA/Basin, slip op. at 58-60.

However, the Board has also recognized in WFA/Basin, AEPCO 2011, and other cases that some maintenance can be contracted out, and SunBelt's experts have followed that precedent here. See infra p. III-D-19; WFA/Basin, slip op. at 69-73; AEPCO 2011, slip op. at 77; AEP Texas II, slip op. at 69-73; Otter Tail, slip op. at C-24-28. Specifically, some planned maintenance of way work that is not performed frequently enough to justify an investment in equipment and personnel is contracted out. This includes track geometry and ultrasonic rail testing, rail grinding, yard cleaning, vegetation control, crossing repaving, equipment maintenance, communications system inspection and repair, and bridge and building maintenance. See Exhibit III-D-3 at 16-24, 27-29. In addition, contractors will perform such unplanned maintenance tasks as storm debris removal, building repairs, and large-magnitude unplanned maintenance, such as for derailments and environmental cleanups, since it is more

efficient to contract out this work rather than hiring large gangs. Id. at 25-27. WFA/Basin, slip op. at 70-71 (track geometry testing, etc.), 73 (snow removal, environmental cleanup and derailments); AEPCO 2011, slip op. at 75-77; AEP Texas II, slip op. at 72-73.

Other miscellaneous operating costs, such as ad valorem taxes and loss and damage, and insurance, are also calculated for the SBRR consistent with Board precedent. See infra p. III-D-20 to 21; AEPCO 2011, slip op. at 79 (ad valorem taxes calculated by the amount that the incumbent paid per route mile in the various states); AEP Texas II, slip op. at 67 (same); WFA/Basin, slip op. at 55 (loss and damage based on the incumbent's experience). The SBRR's insurance expense (3.89 percent of operating expenses) was based on the experience of the Providence and Wooster Railroad's average insurance ratio for the year 2008 through 2011. See infra p. III-D-21. This is consistent with recent precedent. See AEPCO 2011, slip op. at 79 (insurance at 3.66 percent of operating expenses). The SBRR's loss and damage expense was calculated using the same methodology utilized by both the complainant and the defendant in the recent AEPCO 2011 decision and accepted by the Board without comment. See infra p. III-D-20 to 21.

7. Road Property Investment Cost.

Part III-F of SunBelt's evidence describes the acquisition of land and the construction of roadbed, track tunnels, bridges, signals, etc. on the approximately 580 miles of the SBRR's system. This evidence is in accordance with current engineering standards and governing Board precedent. Construction costs for the SBRR total $1.708 billion, or about $2.95 million per route mile. See infra p. III-F-1; compare, AEPCO 2011, slip op. at 31 and 81 (SARR approved at approximately $3.2 million per route mile); PSCo/Xcel, 7 S.T.B. at 632 and 666 (SARR approved at approximately $3.2 million per route mile); AEP Texas II, slip op. at 27 and 75

(SARR approved at approximately $2.4 million per route mile); Otter Tail, slip op. at A-1, D-1 (SARR approved at approximately $2.1 million per route mile).

Land acquisition amounts and costs are consistent with the methodologies employed by the Board in past cases. The standard "Across the Fence" ("ATF") methodology was used to estimate the value of the right of way ("ROW"), by establishing the value of adjacent land in proximity to the SARR's ROW with the same zoning. See infra p. III-F-2; e.g., Duke/CSXT, 7 S.T.B at 168-169. The majority of the SBRR's ROW is an average width of 100 feet, with 75 feet used in urban locations. See infra p. III-F-3. This is consistent with the amounts of land utilized in past cases. See AEP Texas II, slip op. at 75 (100 foot/75 foot widths used); WFA/Basin, slip op. at 78 (100 foot widths generally used); PSCo/Xcel, 7 S.T.B at 667 (100 foot/75 foot widths used); Duke/NS, 7 S.T.B. at 168 (parties agreed on 100 foot widths in most locations, but 75 foot widths in industrial, commercial and urban areas); Wisconsin P&L, 5 S.T.B. at 1018 (100 foot width is "standard," except 75-foot in urban locations); West Texas, 1 S.T.B. at 702. The SBRR purchased the same interest held by the NS in the land utilized. See infra p. III-F-5; CP&L, 7 S.T.B. at 308; Duke/CSXT, 7 S.T.B. at 474.

Other design parameters such as the SBRR's 24-foot single-track roadbed width, the 1.5:1 side-slope measurements and other features of the roadway investment are based on Board-approved parameters from prior cases. See infra p. III-F-10. See, e.g., AEPCO 2011, slip op. at 90 (15-foot track centers); WFA/Basin, slip op. at 82 and 83 (24-foot roadbed width and 1.5:1 side slopes); Otter Tail, slip op. at D-7-8 (24-foot roadbed widths approved and 1.5:1 side slopes); PSCo/Xcel, 7 S.T.B at 671-672; WFA/Basin, slip op. at 83 (1.5:1 side slope); AEP Texas II, slip op. at 79-80 (24-foot roadbed width and 1.5:1 side slope); Duke/NS, 7 S.T.B. at 171. Similarly, SunBelt has adopted a variety of construction elements for the SBRR consistent

with the agency's practice in past cases, including the one foot of fill height for yard earthwork,[36] grading,[37] ditches,[38] and the costs and amounts of solid rock excavation.[39] See infra p. III-F-9 to 14.

SunBelt has developed costs for several aspects of rail construction for the SBRR, including clearing and grubbing costs, earthwork costs, common excavation, and the need for construction site access, based on actual costs incurred on a realignment project in Tennessee, the Trestle Hollow Project, which involved the rerouting and building of a rail line in Centerville, TN, indexed to the start date for the SBRR construction. See infra pp. III-F-8 to 13, 20, 21. This is consistent with past cases, in which the parties utilized costs based on actual railroad construction projects. AEPCO 2011, slip op. at 80-86; WFA/Basin, slip op. at 86. SunBelt also utilized, consistent with prior Board precedent, ICC Engineering Reports and information provided by NS in discovery and from the Means Handbook for earthwork quantities, culverts, retaining walls, rip rap, seeding and topsoil, and other information. See infra pp. III-F-9 to 21.[40]

Similarly, track construction for the SBRR hews closely to Board precedent and the NS' own specifications. The SBRR incorporates geotextile fabric in the construction of its lines, in accordance with past cases. See infra p. III-F-22; AEPCO 2011, slip op. 103; WFA/Basin, slip op. at 94-95; AEP Texas II, slip op. at 88. Culverts are used to replace bridges less than twenty

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[36] See AEPCO 2011, slip op. at 90; Wisconsin P&L, 5 S.T.B. at 1022; PSCo/Xcel at 675; Duke/CSXT, 7 S.T.B. at 477; CP&L, 7 S.T.B. at 310-311; Duke/NS, 7 S.T.B. at 172; Otter Tail, slip op. at D-10.
[37] See FMC, 4 S.T.B. at 800; Duke/CSXT, 7 S.T.B. at 478-479.
[38] See Duke/NS, 7 S.T.B. at 171; Duke/CSXT, 7 S.T.B. at 476; TMPA, 6 S.T.B. at 701, n. 83; Wisconsin P&L, 5 S.T.B. at 1023.
[39] See for costs of excavation, AEPCO 2011, slip op. at 89-90; PSCo/Xcel, 7 S.T.B. at 677-678; WFA/Basin, slip op. at 86-87; AEP Texas II, slip op. at 82. See for 50/50 split for solid and loose rock, AEPCO 2011, slip op. at 90; PSCo/Xcel, 7 S.T.B. at 677; Duke/NS, 7 S.T.B. at 174; CP&L, 7 S.T.B. at 312; Duke/CSXT, 7 S.T.B. at 478.
[40] The STB has relied on ICC Engineering Reports, Means, and defendant's information for these construction elements in approving the complainant's estimates in, for example, AEPCO 2011, slip op. at 85, 92, 95, 96; AEP Texas II, slip op. at 78-79, 81-82.

feet in length. See infra p. III-F-29; AEP Texas II, slip op at 93. Quantities of ballast and subballast conform to NS' standard roadbed section, and prices from quotes obtained from suppliers and data obtained from NS in discovery. See infra pp. III-F-22 to 24. The SBRR's spacing of wood ties conforms to the standard approved in numerous Board decisions. See infra p. III-F-24; AEPCO 2011, slip op. at 103; WFA/Basin, slip op. at 95-96; AEP Texas II, slip op. at 88; West Texas, 1 S.T.B. at 707. The SBRR's use of 136-pound continuous welded rail ("CWR") for main tracks and 115-pound rail for lighter density lines conforms to standard Board practice. See infra p. III-F-25; AEPCO 2011, slip op. at 104; WFA/Basin, slip op. at 98; AEP Texas II, slip op. at 88; Duke/NS, 7 S.T.B. at 184-85. Bridge design was based on standard practice in prior cases. See infra p. III-F-29 to 33; see, e.g., CP&L, 7 S.T.B. at 327; Duke/NS, 7 S.T.B at 108-112; Duke/CSXT, 7 S.T.B. at 494-497; WFA/Basin, slip op. at 108-112.

As mentioned above, SunBelt has incorporated a 2.7% mobilization factor, a figure which is consistent with the figures adopted by the Board in past cases,[41] a 10% additive for engineering costs,[42] and a 10% contingency factor,[43] all consistent with Board precedent. See infra p. III-F-45.

Finally, consistent with Board precedent, SunBelt projects a 30-month period to construct the SBRR, controlled by the time it takes to construct the most time-consuming single component, and in accordance with the principle of barrier-free entry, which in turn demands that there be unconstrained resources and simultaneous construction of the SARR. See infra pp. III-F-45 to 47; Coal Trading Corp., 6 I.C.C.2d at 412-413; West Texas, 1 S.T.B. at 674; Guidelines, 1 I.C.C.2d at 529-530.

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[41] See infra p. III-F-46 and n. 5.
[42] See infra p. III-F-47 and n. 3.
[43] See infra p. III-F-47 and n. 2.

8. Discounted Cash Flow Analysis and Application to SAC Analysis.

Under Board precedent, a DCF analysis is used to distribute the total capital costs (in current year dollars) of the SARR over the SAC analysis period. AEPCO 2011, slip op. at 34; WFA/Basin II, slip op. at 19. The DCF methodology presented by SunBelt in Part III-G and Part III-H is consistent with Guidelines and Major Issues, as applied in recent cases such as WFA Basin and WFA Basin II, AEP Texas II and AEPCO 2011.

First, debt cost for the SBRR during the 10-year DCF period equals the weighted average railroad industry cost of debt over the construction period, weighted by the SBRR's investment for the construction year. See infra p. III-G-3, III-H-1. Consistent with Major Issues and previous Board decisions, the debt for road property investment is assumed to be financed over twenty years. See infra pp. III-H-2 to 4; Major Issues, slip op. at 65; AEP Texas II, slip op. at 107. However, in previous SAC cases, the parties assumed that the SARR would issue debt structured similar to a typical home mortgage loan, with quarterly payments consisting of an interest and a principal component, with the former declining and the latter rising over time. This is not, however, consistent with actual railroad industry debt payments, which are typically coupon payments consisting of fixed interest payments. SunBelt, therefore, has developed a quarterly coupon payment schedule consistent with industry practice. See infra pp. III-H-2 to 4.

The cost of equity for the SBRR is the then-current year railroad industry cost of equity, consistent with the Board's "longstanding practice." WFA/Basin II, slip op. at 19. Thus, the SBRR uses the industry average costs consistent with the Board's annual cost of capital proceedings to calculate the capital recovery charges for all road property investment. See infra pp. III-G-3 to 4. This methodology is the same as the Board has used in its most recent SAC decision, where it adopted the methodology used in its decision in Use of a Multi-Stage Discounted Cash Flow Model in Determining the R.R. Industry's Cost of Capital (Multi-Stage

DCF), Ex Parte No 664 (Sub-No. 1) (STB served Jan. 28, 2009). See AEPCO 2011, slip op. at 137; see also WFA/Basin, slip op. at 135; AEP Texas II, slip op. at 107; Duke/NS, 7 S.T.B. at 123; CP&L, 7 S.T.B. at 261. The SBRR's cost of capital reflects the numbers approved by the Board in its cost of capital determinations for 2009 and 2010.[44] See infra pp. III-G-3 to 4. For 2011, SunBelt has used the industry average cost of common equity, debt, and capital structure as calculated by the Association of American Railroads and submitted to the STB as part of the Board's 2011 cost of capital determination, a conservative approach. See infra pp. III-G-3 to 4.

Operating costs were indexed as required by the Board's decision in Major Issues, using an index composed of the RCAF-U and RCAF-A with expenses adjusted based on a changing "mix" of the two indices over time. See infra p. III-G-7; Major Issues, slip op. at 39-47; AEPCO 2011, slip op. at 34; WFA/Basin, slip op. at 19; AEP Texas II, slip op. at 22, 109. SunBelt also uses inflation indices for various road property components based on actual railroad prices and wage rates developed by the AAR, along with Global Insight's June 2012 Rail Cost Adjustment Factor forecast, as approved by the Board in AEP Texas II, slip op. at 109; Duke/NS, 7 S.T.B. at 123; and CP&L, 7 S.T.B. at 261. See infra p. III-G-5. For land asset value inflation, SunBelt has adopted the Board's most recent pronouncement on the subject, using a weighted combination of indices that reflect rural and urban land prices in proportion to the mix of land values on the SBRR system routes, instead of a combination of indices that reflect the percentage of SARR acres that were rural versus urban. See infra pp. III-G- 5 to 6 and AEPCO 2011, slip op. at 139. SunBelt has also conformed to the Board's preference, expressed in AEPCO 2011, for using "longer rather than a shorter period of historic data when forecasting future economic trends, such as an inflation rate for land values or the cost of equity." Id. Accordingly, SunBelt

[44] Railroad Cost of Capital – 2009, Ex Parte No. 558 (Sub-No. 13), slip op. (served Oct. 28, 2010); Railroad Cost of Capital – 2010, Ex Parte No. 558 (Sub-No. 14), slip op. (served September 30, 2011).

has developed an historic annual and quarterly percentage change in rural land values for the eighty-year period between 1930 and 2011 for the SBRR states, similar to the time period that the Board used in developing its own risk premium used in its cost of capital proceedings. See Multi-Stage DCF, slip op. at 10-11; AEPCO 2011, slip op. at 139; infra pp. III-G-5 to 6. For urban land values, SunBelt has developed a similarly long-time-period index of historic data. See infra p. III-G-6.

Federal and state tax liability for the SBRR was calculated consistent with the Board's decisions in prior cases. See, e.g., West Texas, 1 S.T.B. at 714; FMC, 4 S.T.B. at 848, and pp. III-G-7 to 8. The SBRR will take advantage of "bonus" depreciation provisions enacted as part of the Economic Stimulus Act of 2008, the American Reinvestment and Recovery Act of 2009 ("ARRA"), and the Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010. See AEPCO 2011, slip op. at 141-142. See infra pp. III-H-5 to 8. In the AEPCO 2011 decision, the Board noted that it would not "necessarily accept" the application of these tax benefits in calculating the DCF in future cases. The Board should accept the application of those benefits in this case, since they were applicable at precisely the point at which the SBRR was hypothetically being constructed (the DCF model assumes that all assets are placed into service in the first year of the ten-year DCF period, which in this case is 2011). In fact, NS itself took advantage of those bonus provisions in 2008 through 2011 to defer significant taxes to later years. See infra p. III-H-7. Not permitting the SBRR to do so would constitute a barrier to entry forbidden by Guidelines, since it would force the SARR to pay a cost that the incumbent did not incur. See Guidelines, 1 I.C.C.2d at 529; WFA/Basin, slip op. at 8 ("To simulate the competitive price that would result if the market for rail service were contestable, the costs and other limitations associated with entry barriers must be omitted from the SAC analysis," citing

Guidelines). In fact, the Board has recently emphasized that the elimination of entry barriers must "remove[] any advantages that the existing railroad would have over a new entrant . . . ." AEP Texas II, slip op. at 7 (emphasis added); see also, Otter Tail, slip op. at 6 (same). Moreover, the bonus depreciation provisions are applicable for at least five tax years, a significant period of time, with the possibility that they will be extended. See infra pp. III-H-7 to 8.

Finally, SunBelt's evidence conforms to the requirements of Major Issues dictating the use of a ten-year analysis period, but assuming that the SBRR would continue to operate for the foreseeable future. See infra pp. III-G-8 to 9. SunBelt's calculation accounts for the costs associated with the renewed investments after the 10-year analysis period. See AEP Texas II, slip op. at 105-106. SunBelt's evidence also utilizes, as required by Board precedent, a real capital carrying charge that is equal in each year of the DCF period, regardless of changes in volume. See WFA/Basin, slip op. at 134-135; infra p. III-G-9.

Prior to its decision in AEPCO 2011, unused depreciation was accounted for in an undiscounted terminal value calculation; AEPCO 2011 changed that approach to calculate the present value of unused depreciation in the terminal value calculation. See AEPCO 2011, slip op. at 140-141. SunBelt's evidence conforms to the Board's conclusions in AEPCO 2011, but has identified a flaw in the Board's model, which it has corrected in its evidence. See infra pp. III-H-9 to 11.

SunBelt's DCF analysis combines all of the analyses above and others set forth in its evidence to develop a quarterly levelized capital carrying charge equaling the required investment to be recovered from the quarterly capital recovery flow. See infra p. III-H-11. This

is then combined with the SBRR's tax liability and operating expenses over the ten-year analysis period to show a summary of the SAC for the SBRR. See infra pp. III-H-11 to 12.

9. After Careful Application of the Procedures Called For By the Board's Principles and Rules in Guidelines, Major Issues, and By Board Precedent, SunBelt's SAC Analysis Shows That the Rates Charged by NS Far Exceed a Reasonable Maximum.

SunBelt's SAC analysis was developed with the Board's principles in Guidelines, the Board's rules in Major Issues, and the procedures adopted by the Board in its past SAC decisions in mind, and is consistent with those decisions. Application of those procedures shows that, over the 10-year DCF period, the revenues generated by the SBRR exceed its total capital and operating costs, indicating that the rate being charged by the NS exceeds a reasonable maximum under the SAC constraint set forth in Guidelines. See infra pp. III-H-13.

In such a case the Board must then decide "what relief to provide to the complainant by allocating the revenue requirements of the SARR among the traffic group and over time." AEPCO 2011, slip op. at 143-144. In Major Issues, the Board adopted the MMM as its new rate prescription approach. Major Issues, slip op. at 14-15. MMM seeks to determine how much differential pricing the defendant carrier must be permitted in order to recover the total SAC costs and therefore earn a reasonable return on its capital investments. AEPCO 2011, slip op. at 35. The MMM analysis is based on the actual distribution of R/VC ratios of the traffic group, thus reflecting the ability (or inability) of the railroad to recover a pro-rata share of SAC costs from all its traffic due to the presence of competitive alternatives. See infra pp. III-H-14 to 15.

SunBelt has utilized the Board's MMM procedures, using the revenues generated by the Board's Modified ATC methodology;[45] and variable costs using the NS' 2010 URCS costs based on the nine cost inputs identified in Major Issues. See infra p. III-H-13.

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[45] See supra note 9.

In Major Issues, the Board determined to replace the then-current "percent reduction" approach for determining maximum reasonable rates with the MMM methodology. Major Issues, slip op. at 14. The Board stated that, in calculating the MMM, "the parties should use unadjusted URCS to estimate the variable cost of each movement in the traffic group, and then determine the maximum contribution of each movement toward SAC costs, expressed as a markup over variable costs." Id. (emphasis added). The context of the discussion in Major Issues indicated that the parties should use the defendant's unadjusted URCS – that is, including the movement characteristics on the defendant carrier – in calculating the R/VC ratios under the MMM, and not the URCS variable costs on the SARR, that is, using the movement characteristics on the SARR. This interpretation was confirmed in the WFA/Basin II decision, where the Board unequivocally stated that "the base year variable costs used in MMM are the defendant's variable costs estimated by URCS, not the variable costs of the SARR." WFA/Basin II, slip op. at 30 (emphasis added).

Following that instruction, both the complainant and the defendant in the AEPCO 2011 case submitted variable costs for cross-over traffic based on the movement characteristics on the defendant rail carrier, not the movement characteristics on the SARR. See Ariz. Elec. Power Coop. v. BNSF Ry. (AEPCO 6/27/11 Decision), slip op. at 1 (served June 27, 2011). Without even adverting to its instruction in Major Issues and confirmed in WFA Basin II that variable costs used in the MMM should be defendant's variable costs and not the SARR's, the Board ordered the parties to submit "revised variable cost calculations, reflecting actual operating characteristics of the movements on the SARR, for the traffic group submitted on rebuttal . . . ," stating simply (and incorrectly) that "neither the complainant or the defendants have provided us with a MMM calculation that we can use to reach a final result . . ." AEPCO 6/27/11 Decision,

slip op. at 1 (emphasis added). The complainant submitted a revised variable cost calculation consistent with the Board's instruction, without acquiescing or agreeing with the Board's basic premises or assumptions. See infra p. III-H-14.

In its decision in AEPCO 2011, the Board determined not to resolve the issue, since it made no difference to the final result in that case. AEPCO 2011, slip op. at 35-36. However, in the AEPCO 2011 decision, the Board appeared to concede that this was not a simple technical issue nor one in which the parties had somehow made a mistake in submitting evidence to the Board, noting that the resolution of the issue had "potentially broad ramifications across future proceedings . . . ," and also indicating that the June 27, 2011 decision had "properly framed this issue for future rate litigants to consider and brief." AEPCO 2011, slip op. at 36.

SunBelt's evidence carefully considers this issue. See infra pp. III-H-14 to 19. SunBelt strongly believes that the Board's position in the AEPCO 6/27/11 Decision is inconsistent with the results of the Board's rulemaking in Major Issues; inconsistent with the bases upon which Major Issues was decided; not supported by the agency's decision in Guidelines; at odds with the agency's precedent as set forth in the WFA/Basin II decision; and, at variance with the dictates of the statute.

As noted above, in Major Issues, the Board held that the parties should use unadjusted URCS "to estimate the variable cost of each movement in the traffic group . . ." – clearly, the defendant's variable cost. In explaining the rationale for MMM, the Board indicated that MMM "provides for demand-based differential pricing . . ." Thus, the Board said, MMM "calculates the precise amount that the defendant carrier would need to price its services above the average R/VC ratio to cover all its costs and earn adequate revenues. This calculation rests on the demand for rail transportation services, as observed in the existing rate structure of the defendant

carrier." Major Issues, slip op. at 20; see also, slip op. at 22 (MMM is a "more practical way of allocating the SAC costs in accordance with demand, as reflected in the actual rates the defendant railroad has determined it may charge based on perceived market demand."). Thus, in Major Issues, the Board clearly focused on the costs of the defendant carrier – not the SARR – in describing the rationale for adopting MMM. For the Board to adopt a rule that would require the calculation of MMM based upon the movement characteristics on the SARR would thus be inconsistent with the rationale and directions in Major Issues.

In addition, as explained in SunBelt's evidence, adjusting the variable costs in the MMM to reflect the SARR's operations would distort the relationship between revenues and costs for different movements – a result flatly inconsistent with the Board's purpose in Major Issues in adopting MMM in the first place. See infra p. III-H-15 to 16; Major Issues, slip op. at 16-20.

Moreover, using the movement characteristics of the SARR in the MMM procedure would be inconsistent with the Long-Cannon Factors of the statute, and in particular 49 U.S.C. §10701(d)(2)(B), which requires the Board to set rates so that a carrier charges its competitive traffic as much of the unattributable costs as demand will permit. See also, Guidelines, 1 I.C.C.2d at 539. It is also inconsistent with the Board's decision in Major Issues, slip op. at 16-18, in which the Board relied specifically on the dictates of the Long-Cannon Factors in the statute in adopting MMM, which as noted above, was based on the variable cost of the defendant, not the variable cost of the SARR. As SunBelt's evidence shows, adjusting the variable costs used in the MMM model to reflect a SARR's operations instead of the incumbent's would violate the Long-Cannon second factor by permitting the reduction of rates on competitive traffic below the rates dictated by demand. See infra pp. III-H-16 to 18. This again is likewise inconsistent with the Board's decision in Major Issues, in which the Board

specifically rejected the railroad industry's argument that it was consistent with the statute for the agency to reduce the rates on competitive traffic below the level dictated by the demand on the defendant railroad. See generally Major Issues, slip op. at 17-21; see also, id. at 18-19 ("BNSF's statutory analysis would not give reasonable effect to the term 'maximize the revenues' in section 10701(d)(2)(B). No party has pointed to any statutory or legislative history to suggest that, in setting the maximum lawful rate, the Board should assume that shippers who already have competitive options should be contributing a lower share of SAC costs than they already are."), 19 (a carrier must "charge its competitive traffic as much of the unattributable costs as demand will permit before charging differentially higher prices to captive traffic.").

Finally, in the AEPCO case, the incumbent railroads asserted that the empty return ratio on overhead trainload movements should be adjusted from the URCS default value of 2.0 for movements costed as unit train shipments to the equipment type-specific return ratios the URCS program uses to calculate variable costs for single car and multiple car shipments. Thus, railroads combined elements of unit train (SARR) costing with elements of single-car/multiple-car (incumbent) costing in developing their alternate MMM R/VC ratios. But as discussed in SunBelt's evidence, adoption by the Board of this adjustment would be inconsistent with the Board's decision in Major Issues. See infra pp. III-H-18 to 19.

The Board clearly indicated in Major Issues that parties must use unadjusted (incumbent's) URCS to estimate the variable costs of each movement in the MMM model. Major Issues, slip op. at 14 (under MMM, "parties should use unadjusted URCS to estimate the variable cost of each movement in the traffic group . . . .") To argue, as the railroads did in AEPCO 2011, that parties must not use the URCS default empty return ratio for unit trains of 2.0 (reflecting the SARR's operations), and instead substitute a car-type-specific ratio based on

shipment types (reflecting the incumbent's operations), would be flatly inconsistent with the dictates of Major Issues. Indeed, this would constitute the sort of movement-specific adjustments to URCS costs that Major Issues expressly prohibits. In Major Issues, the Board specifically rejected a railroad industry proposal to use just a few movement-specific adjustments. See,Major Issues, slip op. at 57-59. The Board concluded that "piecemeal adjustments would tend to bias the results in favor of the railroads," id. at 58. Moreover, the Board found that it would be consistent with the National Transportation Policy to minimize cost, complexity, expense and delay in rate proceedings to reject all movement-specific adjustments. Id. at 60. The Board concluded that it would strictly "limit the parties to the use of the unadjusted URCS Phase III movement costing program and disallow movement specific adjustments other than those automatically made by URCS. The variable costs used in rate proceedings will be the system-average variable cost generated by URCS, using the nine movement-specific factors inputted into Phase III of URCS. The only adjustments allowed to the URCS Phase III program would be those adopted in Ex Parte No. 431 (Sub-No. 2)." Id. (footnotes omitted).

Application of the MMM yields maximum R/VC ratios for each year of the DCF model ranging from 96.1 percent to 130.9 percent, and application of those percentages yields a maximum reasonable rate for SunBelt's traffic, using the greater of the jurisdictional threshold or the MMM maximum rates.[46] See infra p. III-H-22. SunBelt's rates exceed both the jurisdictional threshold and the issue rate.

[46] SunBelt's experts also have calculated the MMM results on the basis of the Board's suggested MMM adjustments in AEPCO 2011. The purpose is to demonstrate the minor impact of this adjustment upon the final results, and is not intended to endorse or accept that approach as appropriate. See infra p. III-H-21, n. 44.

10. Rate Relief and Damages.

Based on the evidence presented herein, the Board should find that the rate set forth in the NS tariff at issue in this Complaint exceeds the maximum reasonable levels as determined under the SAC constraint of the Guidelines and is therefore unlawful under 49 U.S.C. §10701(d).

Accordingly, since in all time periods relevant to this Complaint, *i.e.,* between July 30, 2011 and for the prescription period ending on July 29, 2021, the Board's prescribed SAC methodology results in a rate below the jurisdictional threshold, the Board should prescribe maximum reasonable rates at the jurisdictional threshold.

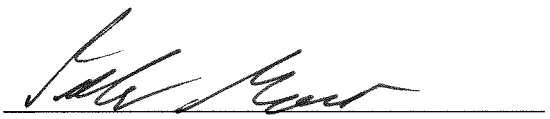
In addition, SunBelt has paid NS freight charges at tariff rates significantly higher than the lawful maximum rate summarized in its evidence. Pursuant to 49 U.S.C. § 11704(b), the Board should award SunBelt damages resulting from the payment of rates that exceed a reasonable maximum. The Board should therefore award damages to SunBelt, consisting of a refund of overpayments plus interest.

C. CONCLUSION

For the foregoing reasons, Sunbelt requests that the Board find that:

1. NS possesses market dominance over the transportation of chlorine from McIntosh, AL to New Orleans, LA;
2. the challenged rate for the issue movement is unreasonable;
3. SunBelt is entitled to reparations for monies paid in excess of a reasonable rate from July 30, 2011 through the present; and
4. SunBelt is entitled to a reasonable prescribed rate for a period of 10 years beginning on July 30, 2011.

Respectfully submitted,



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August 1, 2012

PUBLIC VERSION

CERTIFICATE OF SERVICE

I hereby certify that this 1st day of August 2012, I served a copy of the Opening Evidence and Argument or SunBelt Chlor Alkali Partnership upon Defendant via hand-delivery at the address below:

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Part II-A

PUBLIC VERSION

PART II

MARKET DOMINANCE

In this Part II, SunBelt presents evidence to establish the market dominance of NS over the issue movement of chlorine from McIntosh, Alabama to New Orleans, Louisiana. Part II-A addresses quantitative market dominance and Part II-B addresses qualitative market dominance.

A. QUANTITATIVE MARKET DOMINANCE.

In making a determination under this section, the Board may find that a railroad has market dominance if the rate charged results in a revenue to variable cost ("R/VC") ratio equal to or greater than 180 percent. 49 U.S.C. § 10707(d)(1). In this Part II-A, SunBelt demonstrates that the R/VC ratio for the movement challenged in this proceeding greatly exceeds 180 percent. The testimony in this Part II-A is jointly sponsored by Thomas D. Crowley and Timothy D. Crowley of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV.

For purposes of this analysis, NS tariff rates are compared to NS's variable costs for handling SunBelt's traffic following the Board's procedures in Major Issues. Specifically, NS's variable costs are calculated using the Board's NS 2010 Uniform Railroad Costing System ("URCS") unit costs,[1] the URCS Phase III program and the following nine (9) specific traffic and operating inputs for each movement: (1) the railroad; (2) loaded miles (including loop track miles); (3) shipment type (originated and terminated or "local", originated and delivered, received and delivered or "bridge," and received and terminated); (4) number of freight cars per train; (5) tons per car; (6) commodity; (7) type of movement (single car, multiple car or unit train); (8) car ownership (railroad or private); and (9) type of car.[2]

[1] Released December 9, 2011.

[2] Major Issues at 52 and 60.

A detailed summary of the movement parameters, variable costs and R/VC ratios for SunBelt's challenged movement is included in SunBelt Opening Exhibit II-A-1. As shown in Table II-A-1 below, NS's R/VC ratios at mid-third quarter 2011 levels through mid-second quarter 2012 levels range between 479 percent and 488 percent.

Table II-A-1
Summary of Variable Cost, Jurisdictional Threshold and Revenue to Variable Cost Ratios for SunBelt Movement

Item	3Q2011	4Q2011	1Q2012	2Q2012
(1)	(3)	(4)	(5)	(6)
1. Phase III Cost	$1,671	$1,659	$1,664	$1,688
2. Jurisdictional Threshold	$3,008	$2,985	$2,995	$3,039
3. Rate Per Car	$8,088	$8,088	$8,088	$8,088
4. R/VC Ratio	484%	488%	486%	479%

Source: Exhibit II-A-1

1. Traffic and Operating Characteristics.

As directed by the Board, SunBelt and NS conferred and agreed upon all nine (9) of the required traffic and operating characteristics associated with SunBelt's movement to which the challenged rate applies.[3] The agreed to traffic and operating characteristics used by SunBelt in its calculation of the variable costs summarized in Exhibit II-A-1 are shown below:

1. Railroad: NS
2. Miles: 585
3. Shipment Type: Originated and Delivered
4. Cars Per Shipment: 1

[3] Joint Submission of Operating Characteristics ("Joint Submission"), Docket No. NOR-42130 filed April 9, 2012 and summarized in SunBelt Opening Exhibit II-A-2.

5. Car Type: Tank <22,000 Gallons
6. Car Owner: Private
7. Tons Per Car: 89.8
8. Commodity (STCC): Chlorine (2812815)
9. Movement Type: Single Car

2. Variable Cost Calculations.

The rate being challenged is for a movement originated by NS and delivered by NS in interchange ("Originated and Delivered"). SunBelt Opening Exhibit II-A-1 shows the calculation of the variable costs for SunBelt's movement at issue using the STB's NS 2010 URCS unit costs. The 2010 NS URCS variable cost calculations are indexed to mid-third quarter 2011 ("3Q11") through mid- second quarter 2012 ("2Q12") wage and price levels using the STB prescribed indexing procedures.[4] Table II-A-1 above summarizes the results of these calculations.

3. Rates.

Through March 30, 2011, NS transported SunBelt's issue traffic pursuant to a joint UP/NS Contract with SunBelt. When the parties were unable to reach agreement on new contract rates, NS originally published a Joint Tariff rate with UP (NSRQ 70319) that remained in effect until July 29, 2011. At that time, UP and NS published separate Rule 11 (proportional) rates for the subject movement. On December 13, 2011, NS published a local rate in NSRQ 65912 to replace the Rule 11 rate which had been in effect since July 30, 2011. NS also has informed the Board that it waives any objection to SunBelt challenging the proportional rate that

[4] See workpaper "NS10 to 2Q12 Phase III INDEX.xlsx."

was in effect from July 30 until December 13, 2011 as a local rate.[5] It is the NS proportional and local rates from McIntosh, AL to New Orleans, LA which are at issue here.

Because SunBelt and NS were unable to agree upon new contract rates, SunBelt initiated this proceeding and has continued to pay NS's public tariff rate of $8,088 per car since July 30, 2011.[6]

Comparing the aforementioned variable cost calculations to the applicable rate produces R/VC ratios for 3Q11 through 2Q12 that range between 479 percent and 488 percent, well in excess of the 180 percent jurisdictional threshold.

[5] See, "Defendant Norfolk Southern Railway Company's Reply To SunBelt's Motion for Clarification," pp. 5, 21-22 (filed Jan. 6, 2012).

[6] This rate is not subject to a fuel surcharge.

Part II-B

B. QUALITATIVE MARKET DOMINANCE

In this Part II-B, SunBelt presents its qualitative market dominance evidence. Subpart B-1 provides an important overview of the issue movement and commodity. Subpart B-2 addresses the absence of any intramodal competition. Subpart B-3 presents evidence of the lack of effective intermodal competition. Except as otherwise stated within this Part II-B, the facts and evidence presented herein are jointly sponsored by Stephen Asbill, Olin's Vice President Supply Chain Management, Thomas Tirabassi, Olin's Director-Logistics, and Christopher Alalade, Olin Logistics Analyst. Their credentials are detailed in Part IV.

1. Background.

SunBelt is challenging the NS rate for the transportation of chlorine on the origin segment of a through route from SunBelt's chlorine production facility in McIntosh, AL, to the facility of its customer, OxyVinyls, at LaPorte, TX. At 250,000 tons per year, this is the largest volume movement of chlorine in North America. The NS rate only applies to the bottleneck segment from the origin, at McIntosh, AL, to New Orleans, LA, where NS interchanges the chlorine with UP. SunBelt is captive to NS at McIntosh.

a. Description of SunBelt and the issue movement.

SunBelt was created in 1996 as a 50/50 partnership between 1997 Chloralkali Venture, Inc. ("CVI"), which was a wholly-owned subsidiary of The Geon Company (which later became PolyOne Corporation ("PolyOne")), and Olin SunBelt, Inc., which was a wholly-owned subsidiary of Olin Corporation ("Olin").[7] In 2011, Olin SunBelt II, Inc., another wholly-owned

[7] Sun. Op. Workpaper "SunBelt Partnership Agreement" at 1.

Olin subsidiary, acquired CVI's partnership interest in SunBelt, which gave Olin 100% ownership of SunBelt through its ownership of Olin SunBelt and Olin SunBelt II.[8]

SunBelt's only production facility is located on Olin property at McIntosh, AL, within a complex that includes another chlorine production facility owned directly by Olin.[9] Olin operates the SunBelt facility, including the arrangement of transportation, under an operating agreement with SunBelt.[10] SunBelt, however, contracts for rail transportation separately and in its own name for the issue movement. In addition to chlorine, SunBelt produces caustic soda at McIntosh. Caustic soda is a co-product in the production of chlorine that also has commercial value. Olin markets SunBelt's caustic soda production.

SunBelt was created, and its McIntosh facility was constructed, for the purpose of supplying chlorine to the OxyVinyls' La Porte facility pursuant to a 99 year chlorine sales agreement ("CSA"). SunBelt can produce between {{[redacted]}} tons of chlorine per day. The CSA requires OxyVinyls to purchase 250,000 tons of SunBelt's chlorine production annually—approximately 2,778 railcars—through 2094.[11] SunBelt may sell any of its chlorine production in excess of 250,000 tons to other customers.

{{[redacted]

[redacted]

[redacted]

[8] Sun. Op. Workpaper "SunBelt II Purchase Agreement." In the agreement by which Olin SunBelt II acquired CVI's partnership interest, PolyOne retains certain rights and duties through December 31, 2013.

[9] See Sun. Op. Workpaper "McIntosh Facility Aerial Photos."

[10] Sun. Op. Workpaper "SunBelt Operating Agreement."

[11] Sun. Op. Workpaper "Chlorine Sales Agreement."

[12] Sun. Op. Workpaper "Chlorine Sales Agreement" at 1, 12.

[redacted]}}[13] Consequently, the volume of chlorine actually shipped from McIntosh to La Porte in recent years has ranged from {[redacted]} tons.

The CSA requires SunBelt to deliver chlorine to OxyVinyls at La Porte by rail, unless SunBelt and OxyVinyls agree upon an alternative mode.[14] In order to comply with this CSA requirement, SunBelt has a fleet of 298 rail cars and ships an average of 7-8 railcars per day. {{[redacted]}} Furthermore, OxyVinyls is a competitor of both Olin and SunBelt in that it also produces and markets its own chlorine. Thus, OxyVinyls has no incentive to agree to alternate modes even if it would lower SunBelt's transportation costs.

All of SunBelt's chlorine production must be transported by rail. There is no infrastructure at the issue origin (McIntosh) to load chlorine for bulk transport by any other mode, and there is no infrastructure at either the issue destination (New Orleans) or the ultimate destination (La Porte) to unload bulk chlorine shipments by any other mode. Although the McIntosh facility has three barge slips for loading caustic soda, chlorine barges require different loading facilities. In addition to building chlorine loading docks, SunBelt would have to build a pipeline to convey the chlorine 1.3 miles from the production plant to the river front. Similarly, OxyVinyls does not have a chlorine unloading dock at La Porte or the facilities to pipe chlorine 3 miles to the vinyl chloride monomer ("VCM") facility where the chlorine is consumed. Lastly, if SunBelt were to barge chlorine to New Orleans, there are no facilities at New Orleans for transloading chlorine from barges to rail cars.

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[13] {{[redacted]}} See Sun. Op. Workpaper "Diverted Chlorine Shipments."

[14] Sun. Op. Workpaper "Chlorine Sales Agreement" § 5.01, at 2.

b. The transportation characteristics of chlorine.

When not under pressure, chlorine is a deadly, poisonous gas.[15] Indeed, the DOT has classified chlorine as a class 2.3 poisonous gas, also known as a toxic inhalation hazard ("TIH"). 49 C.F.R. §§ 172.101, 173.115(c). Combined with moisture, chlorine also is corrosive.[16] In addition, it is an oxidizer and reactive with organic materials and some metals.[17] Chlorine reacts violently with petroleum products, solvents, and hydrogen compounds.[18] Under specific conditions, chlorine can even support combustion.[19]

Because chlorine is found in combination with other elements such as hydrogen or sodium (*e.g.* hydrochloric acid, salt, etc.),[20] commercial chlorine producers obtain chlorine by separating it from the other elements with which it is naturally combined. The process that chlorine producers most often use to obtain elemental chlorine is the electrolysis of salt (NaCl)[21] dissolved in water. This process also produces caustic soda and hydrogen gas as co-products.[22]

Elemental chlorine exists only in a gaseous or refrigerated liquid state.[23] Because chlorine gas is 460 times less dense than chlorine liquid, chlorine is transported in liquefied form.[24] This requires compressing the chlorine, which raises its boiling point—the temperature above which chlorine is a gas and below which chlorine is a liquid —from -29.5°F at standard atmospheric

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[15] See Sun. Op. Workpaper "Chlorine MSDS" at 1.

[16] See Sun. Op. Workpaper "Chlorine MSDS" at 1.

[17] See id.

[18] See Sun. Op. Workpaper "Chlorine Knowledge" at 11.

[19] See id. at 10.

[20] See Sun. Op. Workpaper "Chlorine Knowledge" at 3, 5.

[21] Potassium Chloride (KCl) may also be used.

[22] The chemical equation is $2\ NaCl + 2\ H_2O \rightarrow Cl_2 + H_2 + 2\ NaOH$.

[23] Id. at 5.

[24] See id. at 8.

pressure to 290°F, and shipping the chlorine under pressure as a refrigerated liquid.[25] If there is a change in pressure, such as occurs if a transport container is breeched, the liquid chlorine will vaporize into chlorine gas, which will disperse in the atmosphere if not contained or scrubbed. Even in a controlled transfer from one container to another, some of the liquefied chlorine will vaporize into its gaseous state and must be scrubbed with a caustic soda solution in a complex process that requires specialized equipment and creates sodium hypochlorite.

c. Chlorine transportation modes.

As a general matter, chlorine can be transported by rail, barge, or truck. Rail, however, is the predominant mode for transportation in bulk quantities, because rail serves more locations than barges and is much safer than trucks. Because it is a TIH, chlorine is not transloaded between trucks, rail cars and barges.

Chlorine can be transported in tank barges. A typical tank barge has a capacity of 1100 tons of chlorine typically spread across four, but sometimes six, internal tanks. Each barge is approximately 200 feet long by 35 feet wide by 12 feet deep.[26] The time required to load and unload chlorine tank barges varies with the method and equipment used. At Olin's only chlorine barge loading facility, in Charleston, TN, loading requires 4 days.

Although the transportation of chlorine in tank barges does occur between some locations, it is the exception rather than the rule. This is because the ability to load and unload chlorine barges is limited to just a few facilities, the chlorine barge fleet is both small and aging, and few tugboat operators are willing to tow the existing chlorine barges, much less handle even more chlorine barge traffic.

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[25] See id. at 9.

[26] Sun. Op. Exhibit II-B-1, at SUN-BDR1-0010.

Only two chlorine producers barge chlorine on the inland waterways east of the Rocky Mountains: [27] Olin, from its Charleston, TN plant, and PPG, from its Natrium, WV and Lake Charles, LA plants.[28] All of Olin's chlorine barge shipments are from Charleston to DuPont at New Johnsonville, TN. PPG also barges chlorine to DuPont at New Johnsonville. SunBelt is not aware of any other PPG chlorine barge recipients. Based upon SunBelt's industry knowledge, the only other potential shipper and recipient of chlorine barges is Westlake at Calvert City, KY. If SunBelt were to shift the issue movement to barges, that would increase Olin's total annual chlorine barge shipments by a factor of seven.[29]

The chlorine barge fleet east of the Rocky Mountains is both small and aging. Olin owns a fleet of six chlorine barges, four of which are over 48 years old and the remaining two are over 33 years old.[30] Furthermore, of those six barges, one is out of service and must be scrapped without a quarter million dollar investment to restore it to serviceable condition. PPG also owns a fleet of twelve chlorine barges. There are no commercial chlorine tank barges for hire. Thus, the entire functional chlorine barge fleet comprises just 17 privately-owned barges. If SunBelt were to barge the CSA chlorine volume, it would need to double or triple the size of Olin's existing fleet.[31]

Commercial tugboat operators tow barges along the nation's inland and intracoastal waterway system. Unlike rail carriers, which are subject to a common carrier obligation that requires them to provide service upon reasonable request, tugboat operators can and do refuse to

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[27] The relevant geographic area is east of the Rocky Mountains because there is no practical means to use western barges in the east or vice versa.

[28] See Sun. Op. Workpaper "PPG Chlorine Info"

[29] See Sun. Op. Workpaper "Volume shipped 2009-2012." Over three full years, from 2009-11, Olin barged an average of {{[redacted]}} tons of chlorine.

[30] See Sun. Op. Workpaper "Chlorine Barging Considerations." Although that work paper identifies seven barges, Olin recently sold one barge for scrap.

[31] See infra p. II-B-30.

tow chlorine. For example, none of the five tugboat operators that currently provide regular service between McIntosh and Mobile will transport chlorine.[32]

A potential alternative to using commercial tugboat service is to contract exclusively with a single company to provide dedicated tow services. This is similar to having a private fleet of tugboats but without the investment or operating responsibility. Indeed, this is how Olin handles all barge transportation of caustic soda, caustic potash, and chlorine from its Charleston, TN facility. Olin contracts exclusively with River Marine {{[redacted]}}.[33] Because no existing tugboat operators in the vicinity of McIntosh will tow chlorine barges and the issue movement volume is substantial, SunBelt's Opening Evidence relies upon cost estimates from River Marine for dedicated tugboat service.[34]

It is important to understand the operating characteristics of barge transportation in order to appreciate the full scope of barge costs. Barge transportation has many similarities with rail transportation. There are large tug boats that provide the equivalent of line-haul rail service and there are smaller tugs that provide the equivalent of terminal switching services. The large tugs can tow multiple barges, subject to navigational and infrastructure restrictions along the route. They, however, typically cannot pick-up barges from, or deliver them to, specific docks due to the size of the tug and/or the length of the tow. Therefore, smaller harbor boats are used to shift barges to/from individual docks and to/from line-haul tows. While waiting to be shifted, a barge is held (or parked), which is a service referred to as "fleeting."

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[32] Cooper Marine and Kirby will not haul chlorine. Parker Towing hauls coal almost exclusively. Warrior & Gulf Navigation is practically dedicated to serving US Steel. Martin Marine tows a midstream refueling boat.

[33] Sun. Op. Workpaper "River Marine Contract"

[34] Sun. Op. Workpaper "River Marine Estimates"

Unlike rail service, however, these various tugboat services typically incur separate charges. There is a "tramp" charge per barge, which is equivalent to a rail line-haul rate, except that it does not include the equivalent of an origin or destination switch. Instead, a per barge "In-Charge" or "Out-Charge" occurs each time a harbor boat transfers a barge between a line-haul tow, the fleeting area, or a dock. There also is a daily charge per barge for the fleeting service until the barge is shifted into a dock or a line-haul tow. Although the daily charge plus fuel for dedicated tugboat service replaces the "tramp" charge of commercial tugboat service, both services incur "In-Charges," "Out-Charges," and fleeting expenses, which are passed-through to the shipper. Also, all of the foregoing charges apply to both the loaded and empty barge movement.

Theoretically, chlorine also could be transported on rail barges. This would entail loading rail cars with chlorine and floating them on a specially-designed barge to a port where the rail cars would be unloaded and continue their journey by rail. The same tugboat operations described above for tank barges also would apply to rail barges. There are very few examples of rail barging in this country, however, and none that appear to serve a private shipper facility. This is likely attributable to the scarcity of specialized terminal facilities that are capable of loading and unloading rail barges, which would be a major impediment to transporting the issue movement by rail barge.

No chlorine producer transports chlorine in bulk quantities by truck, except over very short distances. Most of this trucking is performed by private carriers. There are very few commercial motor carriers that handle chlorine. Because a bulk truck typically has a capacity of just 15-20 tons of chlorine, at least five trucks are needed to transport the same volume as a 90

ton rail car. Shifting the transportation of a TIH material such as chlorine from a single rail car to multiple trucks that travel our nation's highways is not in the public interest.

2. Intramodal competition does not exist.

"Intramodal competition refers to competition between two or more railroads transporting the same commodity between the same origin and destination." Ariz. Pub. Serv. Co. v. Atchison, Topeka & Santa Fe Ry., 2 S.T.B. 367, 373 (1997) ("APS"); Mkt. Dominance Determinations & Consideration of Prod. Competition, 365 I.C.C. 118, 132 (1981) ("Mkt. Dominance Determinations"). NS does not face any intramodal competition for the issue movement because it is the sole rail carrier at the origin. Moreover, there is not another rail line within 40 miles of McIntosh. Since no rail carrier other than NS serves the origin and there is no potential to build-out to a competing railroad, SunBelt cannot avoid NS when shipping by rail from McIntosh. Thus, there is no actual or potential intramodal competition at all, much less effective competition.

3. Intermodal Competition Is Entirely Conjectural And Does Not Effectively Constrain the NS Rate.

Intermodal competition "refers to competition between rail carriers and other modes for the transportation of a particular product between the same origin and destination." Mkt. Dominance Determinations, 365 I.C.C. at 133. The Board will consider both actual and potential competition. Because SunBelt is physically unable to originate chlorine by any other mode at McIntosh, NS does not face any actual intermodal competition for the issue movement. Therefore, SunBelt's evidence addresses the effectiveness of potential competition.

Potential competition must be both feasible and realistic. As the Board has noted, "'feasible' is not synonymous with 'possible'—a test of feasibility must include consideration of economic and physical practicality, as well as safety." Gen. Elec. Co. v. Balt. & Ohio R.R., No.

38125S, 1984 ICC LEXIS 206, at *5 (Oct. 12, 1984) ("General Electric"). In addition, potential competition must be "sufficiently realistic to effectively constrain the rail rates." Dayton Power & Light Co. v. Louisville & Nashville R.R., 1 I.C.C.2d 375, 383 (1985). For the issue movement of chlorine from McIntosh to New Orleans, the theoretical potential to transport chlorine via non-rail modes is not feasible due to economic, physical, *and* safety considerations, and it is too conjectural to be sufficiently realistic to effectively constrain the NS rate level.

Because the challenged rate applies to a "bottleneck" segment of a through movement (*i.e.* the McIntosh to New Orleans segment of a through movement to La Porte), and SunBelt has entered into a contract with the non-bottleneck rail carrier (*i.e.* from New Orleans to La Porte), the issue movement is just the origin segment from McIntosh to New Orleans and market dominance is evaluated solely as to that segment. Minn. Power, Inc. v. Duluth, Missabe & Iron Range Ry., 4 S.T.B. 64, 66 (1998), reconsideration denied, 4 S.T.B. 288, 292 (1999) ("DMIR Decisions").[35] Therefore, transportation alternatives between McIntosh and La Porte are not relevant to the market dominance determination.

For the purpose of its opening evidence, SunBelt has considered three alternative modes for the issue movement: tank barge, rail barge and truck. Although the only relevant alternative transportation route for the issue movement under the DMIR Decisions is from McIntosh to New Orleans, SunBelt's opening evidence conservatively includes evidence relating to transportation from McIntosh directly to La Porte. This additional evidence includes one tank barge and one truck alternative. In total, SunBelt has evaluated two tank barge, one rail-barge, and two truck alternatives.

[35] See Part I-A-2.b.(1), pp. I-6 to 7, for a detailed discussion of the DMIR Decisions.

The two tank barge alternatives cover (1) direct shipments of chlorine to La Porte (the "La Porte Option"), and (2) direct shipments of chlorine to New Orleans for transloading into rail cars (the "NOLA Option"). The La Porte Option, in addition to being irrelevant under the DMIR Decisions, is not feasible because of:

- the costly and extensive infrastructure requirements at both the origin and destination to load and unload barges and to purchase barges;
- a lack of transportation infrastructure (*e.g.*, barges, tugboats) and service providers willing to handle chlorine;
- the risk of stranding this investment {{ [redacted] }}, or if tug operators refuse to haul chlorine; and
- the rail delivery requirement in the CSA with OxyVinyls.

The NOLA Option is not feasible because of:

- the costly and extensive infrastructure required to enable barge loading of chlorine at McIntosh and transloading at New Orleans, and to purchase barges;
- a lack of transportation infrastructure (*e.g.*, barges, tugboats) and service providers willing to handle chlorine;
- the risk of stranding new infrastructure investments if unable to ship by barge; and
- the fact that bulk chlorine shipments are not transloaded between barges and rail cars.

The rail barge alternative entails floating chlorine in rail cars on top of a barge to Mobile, AL, for further transport to New Orleans by an alternative rail carrier (the "Rail-Barge Option"). The Rail-Barge Option is not feasible because it:

- requires a very high infrastructure investment at McIntosh, and to purchase barges, without any offsetting rail infrastructure savings;
- offers very little, if any, transportation cost savings; and
- faces numerous practical and logistical hurdles to become a reality.

The two truck alternatives cover direct trucking to La Porte (the "Direct Truck Option") and trucking to New Orleans for transloading into rail cars (the "Truck Transload Option"). Both alternatives are easily dismissed due to the large volume of chlorine that must be transported, the distance of the movements, and the undesirability of transporting this TIH material on our nation's highways. Moreover, the Direct Truck Option is precluded by the DMIR Decisions and the Truck Transload Option is neither practical nor realistic because bulk chlorine shipments are not transloaded between trucks and rail cars.

Thus, while tank barge, rail barge, and truck transportation are theoretical alternatives to NS for the transportation of chlorine, all three are impractical and insufficiently realistic to be effective competitive constraints upon the NS rate for the transport of chlorine from McIntosh to New Orleans. The evidence to support these conclusions is presented in this Part II-B-3 as follows:

- Subpart a. addresses the tank barge alternatives in the La Porte and NOLA Options;
- Subpart b. addresses the rail barging alternative in the Rail-Barge Option;
- Subpart c. addresses the trucking alternatives in the Direct Truck and Truck Transload Option; and
- Subpart d. addresses the economic feasibility of the La Porte, NOLA and Rail-Barge Options.

a. The La Porte and NOLA Tank Barge Options Are Not Feasible.

Two of the alternatives considered by SunBelt involve the transportation of chlorine from McIntosh via tank barges. The La Porte Option is an all-barge route directly from McIntosh to La Porte. The NOLA Option is a barge route from McIntosh to the current rail interchange at New Orleans, where the chlorine would be transloaded into rail cars and finish the journey to La

Porte via rail. Both alternatives face virtually all of the same impediments, although each also confronts some unique issues.

The evidence presented within this Part II-B-3.a. covers the following matters:

- Subpart (1) details the issues that are unique to each of the La Porte and NOLA Options; and
- Subpart (2) describes the physical infrastructure that SunBelt would have to build at McIntosh, the infrastructure required at the destinations, and the new barges that SunBelt would have to acquire before it could consider either the La Porte or NOLA Options.

The factors identified in each of these subparts provide an independent basis for the Board to hold that NS possesses market dominance.

(1) The unique issues for each of the La Porte and NOLA Options conclusively establish their infeasibility.

The unique issues for each of the La Porte and NOLA Options conclusively demonstrate that those options are not feasible alternatives to NS rail service for the issue movement.

(a) The La Porte Option.

Two issues unique to the La Porte Option conclusively establish that this Option is not a feasible alternative to NS rail service.

The first unique issue is the fact that the La Porte Option is not an alternative for the issue movement. Because the issue movement is from McIntosh to New Orleans, the direct shipment of chlorine by barge from McIntosh to La Porte cannot be an alternative for that movement at all. The DMIR Decisions hold that the La Porte Option is not relevant to determining the market dominance of NS over the issue movement. See Part I-A-2.b.(1), at pp. I-6 to 7. Nevertheless, because transporting chlorine directly from a production facility to a customer in tank barges is the only alternative to rail for transporting chlorine in bulk quantities that actually is used by any chlorine shipper today, the La Porte Option is the only alternative that is even remotely feasible.

Therefore, in an effort to be conservative in its evidence, SunBelt has presented additional evidence to show that, even if the Board considered this alternative, it would not be an effective competitive constraint upon the challenged NS rate.

The second unique issue is the CSA requirement for rail delivery at La Porte. Because the CSA specifies rail delivery unless the parties otherwise agree upon barges, SunBelt does not have the ability to compel OxyVinyls to receive chlorine by barge.[36] OxyVinyls has just a single barge mooring at La Porte, and that mooring does not have chlorine unloading capability. Moreover, the VCM facility that consumes the SunBelt chlorine is approximately 3 miles away and there is no piping or storage for moving the chlorine from the barge mooring to the VCM facility. It would be very costly for OxyVinyls to add these capabilities. SunBelt has no means to compel OxyVinyls to make any of the infrastructure investment needed to receive chlorine barges and {{[redacted]}}.

(b) <u>The NOLA Option.</u>

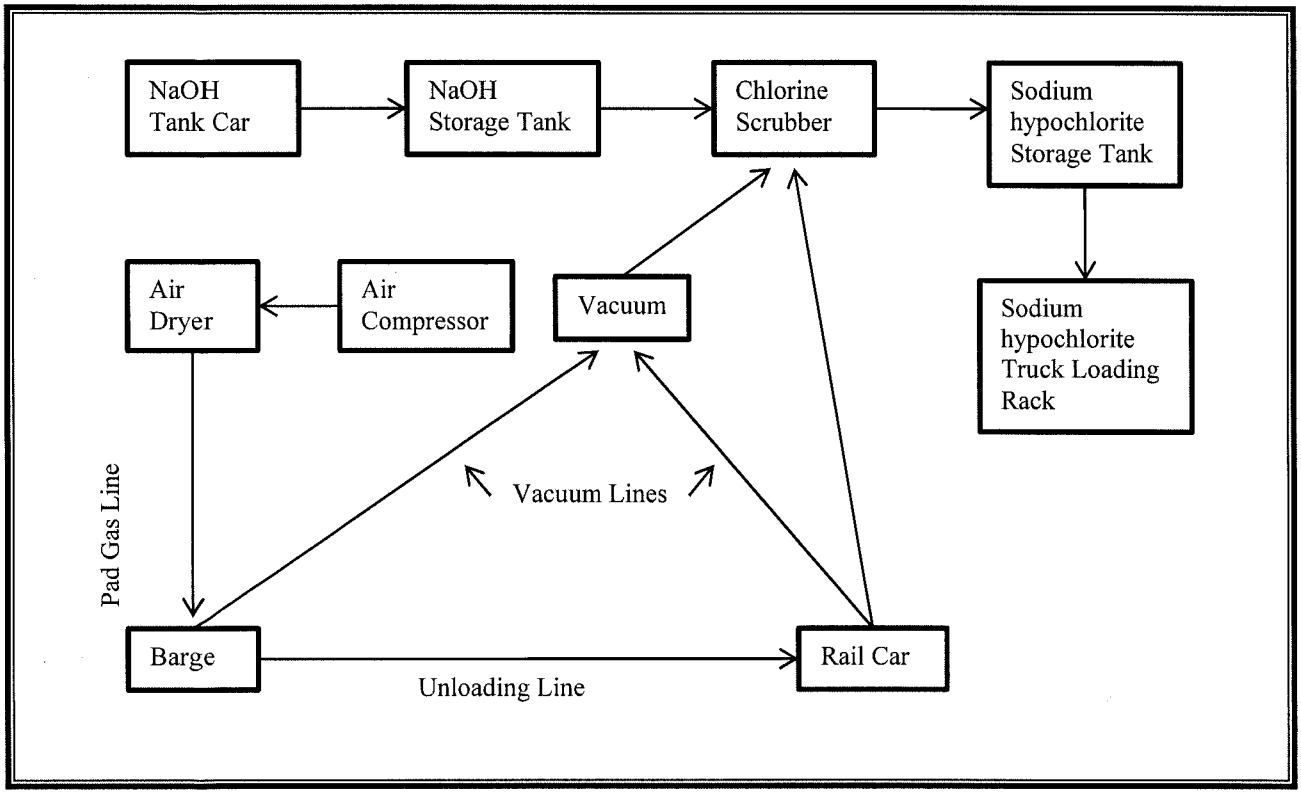
The NOLA Option has its own unique issue that conclusively establishes that it too is not feasible. Transloading bulk quantities of chlorine from barges to rail cars at New Orleans (or any location at all) is not physically practical and would be extremely costly.

No facilities exist for transloading bulk volumes of chlorine between barges and rail cars in this country, primarily because the transloading process would require the bulk terminal to function as a mini chemical plant. During the transloading of refrigerated liquid chlorine, some of the liquid chlorine will vaporize into chlorine gas that must be scrubbed to remove its toxicity. The scrubbing process requires reacting diluted caustic soda with the chlorine gas, which

[36] Sun. Op. Workpaper "Chlorine Sales Agreement" § 5.01, at 2.

produces sodium hypochlorite. This is a complex process that requires the use of valuable caustic soda, the disposal of the sodium hypochlorite, and expensive equipment and facilities. The transload process is illustrated in Figure II-B-1 and described in the following paragraphs.

Figure II-B-1: Chlorine Transloading Process



The complexity of the transload process would begin upon arrival of the chlorine tank barge at the marine terminal. Once the barge is docked and secured, the terminal facility would connect three separate lines to the barge: an unloading line, a pad gas line and a vacuum line.

In order to transfer the liquid chlorine from the barge to the rail car, the chlorine must remain under pressure to prevent it from vaporizing into chlorine gas. An air compressor creates a pad gas, which pushes the liquid chlorine out of the barge and fills the empty space in the barge tank that is created as liquid chlorine exits the barge. Without the pad gas, the pressure of the refrigerated liquid chlorine will decrease during the transfer and the chlorine will vaporize into a

chlorine gas. The air compressor pumps the pad gas into the barge through the pad gas line. But first, the pad gas must pass through a desiccant air dryer to remove all moisture from the air. Otherwise, the moisture will combine with the chlorine to create a corrosive gas that would damage the interior of the barge tanks, transload pipes, and rail car.

During the transfer process, both the barge and the rail car are under pressure. Vacuum lines remove any residual chlorine gas and inert gases left in the rail car from its previous use as well as any refrigerated liquid chlorine in the rail car that vaporizes into gas during the transfer process. The vacuum also assists the flow of refrigerated liquid chlorine from the barge into the tank car.

When the refrigerated liquid chlorine enters the tank car, a portion will initially vaporize into gas. As the rail car fills with refrigerated liquid chlorine, this gas is vented out of the car through a vent line.

Both the vacuumed chlorine gas and vented chlorine gas must be scrubbed to eliminate its toxicity. A chlorine scrubber reacts diluted caustic soda with the chlorine gas to produce sodium hypochlorite.

The scrubbing process requires copious amounts of caustic soda. Each ton of chlorine scrubbed requires 1.3 dry tons of caustic soda. The amount of chlorine that needs to be scrubbed during transloading will vary with the amount of chlorine residue in each empty rail car, the transfer rate, the pad gas pressure, and ambient temperature. SunBelt estimates on average that 1 dry ton of caustic soda per rail car would be needed for scrubbing. This would amount to almost 2800 dry tons of caustic soda annually to transload 250,000 tons of chlorine. In addition, a minimum of 390 dry tons of caustic soda must be on hand at all times in order to respond to an emergency leak of poisonous chlorine gas from just a single one of the four barge tanks.

Maintaining an ample supply of caustic soda on hand is especially critical in a populated area, like New Orleans, because the consequences of a chlorine release could be catastrophic.

The need for caustic soda in the scrubbing process adds significant costs to a transloading operation. First, in addition to the transportation costs for the chlorine, SunBelt also would incur costs for transporting the caustic soda to the marine terminal. Because caustic soda typically is transported and stored in a 50% solution, the dry tons referenced in the preceding paragraph must be doubled for the purpose of determining the volume that must be transported and stored. Second, SunBelt must store the caustic soda at the marine terminal and install a caustic dilution system that further dilutes the caustic soda before scrubbing. Third, SunBelt must pay for the caustic soda. Although SunBelt produces caustic soda as a necessary co-product during chlorine production, caustic soda is itself a marketable commodity. Accordingly, SunBelt will not generate any revenue from the caustic soda that it diverts to scrubbing, which only adds to the expense of transloading. At a current market value of {[redacted]}, the 2800 tons of caustic soda used for scrubbing would cost SunBelt {[redacted]} annually.[37]

Finally, SunBelt also must store and dispose of the sodium hypochlorite that is produced during the scrubbing process. Scrubbing creates one ton of sodium hypochlorite for every ton of chlorine. Sodium hypochlorite is a class 8 corrosive material[38] that cannot be readily disposed in large quantities without chemical treatment. SunBelt must store the sodium hypochlorite at the marine terminal until it has a customer who will purchase it, and then SunBelt must transport the sodium hypochlorite to the customer. Alternatively, SunBelt must pay a third party to dispose of or treat the sodium hypochlorite.

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[37] See Sun. Op. Workpaper "IHS Caustic Soda Prices"

[38] 49 C.F.R. § 172.101.

The transload process described above would require a marine terminal with the following equipment and facilities in order to handle the issue movement volume:

- 3-4 barge slips in order to maintain a continuous flow of rail cars to La Porte.
- 12 empty tank cars per barge, with storage track, to receive the contents of a single barge. The storage track must have sufficient capacity to hold an equal number of loaded and empty rail cars, with a daily rail switch.
- A minimum of 4 rail car loading racks are needed to load 7-8 rail cars per day, in order to keep pace with OxyVinyls' daily chlorine requirements at La Porte. Because the transloading process requires approximately 24 hours from the first hook-up until a loaded rail car is ready to be shipped, it is necessary to load 4 rail cars simultaneously, in order to tender 7-8 loaded rail cars per day.[39]
- A rail car scale for each loading position to weigh cars during loading. Otherwise, additional time and labor would be needed to continuously switch rail cars to/from the scales. This would require more loading racks and increase both operating costs and safety risks when rail cars must be returned to the loading racks to add or remove chlorine and then be reweighed.
- A caustic soda ("NaOH") unloading rack.
- An 800 ton minimum storage tank for the caustic soda used to scrub chlorine.
- A tank for diluting the caustic soda for use in the chlorine vent scrubber.
- Vacuum compressors, air compressors, and desiccant air dryers for the pad gas needed to push liquid chlorine from the barge to the rail cars.
- A chlorine vent scrubber.
- Sodium hypochlorite storage for the scrubbing by-product.
- A sodium hypochlorite truck loading rack to dispose of the scrubbing by-product.
- Liquid, gas, and vacuum pipelines of sufficient length to connect the various transloading and scrubbing equipment, barges, and rail cars.
- Security infrastructure.
- Leak sensors and automatic shut-off devices.
- Emergency response infrastructure.

There simply are no marine terminals that provide this transloading service or the necessary facilities. Considering that transloading chlorine requires a chemical plant operation,

[39] The pad gas process required for transloading requires 6-8 hours per rail car. It also takes 8-12 hours to vacuum the chlorine residue from an empty rail car. Pre and post load inspections require a total of 1 hour. After loading, a rail car must sit for 8 hours to allow the chlorine contents to adjust to the temperature and to check for leaks.

this is not surprising. Thus, SunBelt would have to construct and operate this infrastructure itself at substantial cost. Although it would be difficult to develop a complete cost estimate precisely because this has never been done, SunBelt has estimated that the major components with which it has some experience would cost {{[redacted]}} and that annual labor costs would be at least {{[redacted]}}.[40] Moreover, the public safety issues surrounding a one-of-a-kind chemical plant operation—this would in fact be a chemical plant—in the heart of New Orleans make this an extremely unrealistic prospect even if cost was not an issue.

(2) The La Porte and NOLA Options require costly infrastructure investments.

There are significant common issues that affect the feasibility of both the La Porte and NOLA options. Before SunBelt can use either option, it must make the following substantial infrastructure investments: (a) dock and chlorine loading facilities at McIntosh, (b) dock and chlorine unloading facilities at the destinations (if suitable locations exist), and (c) a large number of new barges. These infrastructure costs are prohibitively expensive and are subject to various government permitting requirements that could prevent SunBelt from constructing the required infrastructure at all. Furthermore, there is a significant risk that this investment, if made, could be stranded in whole or in part by various factors.

SunBelt's owner, Olin, considered and rejected making such investments as recently as 2007, because they were neither practical nor cost-effective, and that remains true today. Olin's "best case" (*i.e.*, lowest cost) scenario was marginal and described as highly unrealistic in a July 2007 e-mail exchange that is attached as SunBelt Opening Exhibit II-B-3:[41]

[40] See Sun. Op. Workpaper "NOLA Chemical Plant"

[41] The attachment to this e-mail, which is provided in Sun. Op. Workpaper "2007 Barge Best Case.xls," is the "best case" scenario.

> To say this is a "best case" is an understatement. I would say that you'd have to be smoking something to think this set of circumstances would ever come together, but in reality it would take some stronger chemical inducements to generate these kinds of delusions.

The author concluded that the economics of the case would be good enough to pursue further only if all of the unrealistic assumptions presented actually came to fruition.

The evidence in this Part II-B-3.a.(2) is presented in the following four subparts:

- Subpart (a) describes the dock and chlorine loading facilities that SunBelt would have to construct at McIntosh to use both the La Porte and NOLA Options, including the cost of such infrastructure.
- Subpart (b) describes the dock and chlorine unloading facilities that would be required at the destinations, and approximates some of those costs, in order for SunBelt to use either the La Porte or the NOLA Option.
- Subpart (c) estimates the minimum number of barges that SunBelt would need to purchase, and their cost, in order to ship 250,000 tons of chlorine annually via the La Porte and NOLA Options.
- Subpart (d) summarizes and totals the major cost items described in the preceding subparts for the La Porte and NOLA Options, and identifies the cost items that have been omitted from the totals, because they are difficult to estimate.

(a) SunBelt does not have the infrastructure at McIntosh to load chlorine tank barges.

The McIntosh plant lacks the necessary facilities for loading chlorine tank barges. The plant has just three barge slips that are only equipped to load caustic soda barges.[42] The difference in physical properties between caustic soda and chlorine require significantly different infrastructure. Furthermore, the riverfront is approximately 1.3 miles from the actual SunBelt chlorine production facility, which requires the construction of new ancillary facilities, with

[42] See Sun. Op. Workpaper "McIntosh Facility Aerial Photos" for an aerial photo of the McIntosh facility and a close-up of the caustic barge docks.

security, to transport the chlorine to, and store it at, the barge docks.[43] Therefore, a significant expansion of the existing dock facilities, along with a secure pipeline from the plant to the docks, would be required in order to add chlorine loading capability and dock capacity.

In 2007, Olin initiated a project to evaluate the infrastructure needed to load chlorine into tank barges at McIntosh. The scope of this 2007 project is summarized in SunBelt Opening Exhibit II-B-1, which is titled "Preliminary Project Scope" and is dated March 1, 2007. The project scope included construction of a new multi-barge dock, a fleet of 20-30 barges, above-ground piping to transfer chlorine from the plant to the docks, and equipment needed to load the chlorine at the docks.[44] Although the project was not undertaken specifically for SunBelt's La Porte traffic, it was based on shipping 250,000 tons of chlorine, which is equivalent to the annual volume in the CSA.[45] Olin engaged Thompson Engineering ("Thompson") to evaluate alternative barge dock designs and locations, while Olin internally evaluated the necessary chlorine loading infrastructure.

Thompson developed three chlorine barge dock alternatives labeled Options A, B, and C. The Thompson study is attached as SunBelt Opening Exhibit II-B-2. Under Option A, the existing caustic barge facility would be expanded to accommodate three caustic and eight chlorine dock slips.[46] The estimated cost of this option in 2007 was {{[redacted]}}.[47] Under Option B, a new chlorine barge dock facility with 8 barge moorings would be built upstream of

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[43] See Sun. Op. Workpaper "McIntosh Facility Aerial Photos" for perspective on the distance between the production complex and the riverfront.

[44] Sun. Op. Exhibit II-B-1, p. 1855.

[45] Id.

[46] See Sun. Op. Workpaper "McIntosh Tank Barge Option A" (showing an overlay view of the Thompson drawing on top of an aerial photo).

[47] Ex. II-B-2, at SUN-BDR1-0124.

the existing caustic barge facility.[48] Thompson estimated that this option would cost {{[redacted]}} in 2007.[49] Under Option C, an inland dock facility for 8 barges would be constructed along with a canal leading to the river.[50] The estimated cost of this option in 2007 was {{[redacted]}}.[51] All three cost estimates had a +/- 25% accuracy.

Although Options A and B are approximately {{[redacted]}} less expensive than Option C, they come with significant security concerns that Option C avoids. Under Option C, the barge loading docks would be in closer proximity to the production facility, completely removed from the river front, and accessible from the river only by a short canal.[52] The inland location of Option C has two distinct security advantages. First, reducing the 1.3 mile distance between the SunBelt production plant and the barge docks means that there is less pipeline that needs to be secured and monitored. This is critical because a 1.3 mile pipeline would contain over 45 tons of chlorine and would be outside the confines of the security perimeter that exists today. Second, because the McIntosh facility is directly adjacent to a public boat ramp, anglers frequently trespass upon the existing caustic barge docks and even the barges themselves to fish.[53] Such easy access to the chlorine barge docks and barges would pose substantially greater

[48] See Sun. Op. Workpaper "McIntosh Tank Barge Option B" (showing an overlay view of the Thompson drawing on top of an aerial photo).

[49] Ex. II-B-2, at SUN-BDR1-0124.

[50] See Sun. Op. Workpaper "McIntosh Tank Barge Option C" (showing an overlay view of the Thompson drawing on top of an aerial photo).

[51] Ex. II-B-2, at SUN-BDR1-0124.

[52] See Sun. Op. Workpaper "McIntosh Tank Barge Option C" (showing an overlay view of the Thompson drawing on top of an aerial photo).

[53] Sun. Op. Workpapers "McIntosh Facility Aerial Photos" and "McIntosh Hypothetical Barges" are aerial photos that show the proximity of the public boat ramp to the caustic barge docks.

security concerns than are currently present. Due to the enhanced security challenges associated with Options A and B, Option C would be preferred despite its higher costs.[54]

In addition to providing superior security, Option C protects the chlorine barges from river traffic and potential collisions, unlike Options A and B. The Thompson study noted that the caustic barge facility is on the cutting bank of a bend in the river and has suffered prior damage from marine traffic.[55] Moreover, Thompson observed the close proximity that exists between the existing facilities and marine traffic during its site visit to McIntosh.[56] River traffic that misjudges the bend or takes it too wide has the potential to run aground or otherwise collide with structures on the far side of the bend where the McIntosh docks are located.[57] Damage from errant river traffic can be extensive and has the potential to cause the release of chlorine as well as a long-term shutdown of the barge facility. Therefore, the expenditure of more money up front for Option C potentially could avoid even greater costs in the future.

If SunBelt were to construct chlorine barge loading infrastructure at McIntosh, it would prefer Option C because of the foregoing security and collision issues. This preference has been reinforced by a recent experience at Olin's St. Gabriel plant in September 2009, when river traffic collided with the barge facility at the plant. Like McIntosh, the St. Gabriel docks were located along the far bank of a tight river bend. The docks sustained {{[redacted]}} in

[54] Sun. Op. Workpaper "Status of Chlorine Barge Loading Study" at 1 (identifying "security issues handling chlorine 1.3 miles outside of the production facility" as a "major challenge.") If SunBelt operates a chlorine barge facility, it must prevent unauthorized access to the facilities and implement active security measures, such as escorting visitors and searching waterfront areas. 33 C.F.R. §§ 105.260, 105.295.

[55] Sun. Op. Exhibit II-B-1, p. 1774.

[56] Id.

[57] See Sun. Op. Workpaper "McIntosh River Debris" (providing a close-up photo of the river bend and showing the debris that the river currents wash upon the bank where Olin's dock is located). See also, Sun. Op. Workpaper "ACE Waterway Chart" (charting the 2-mile river segment on which Olin is located).

damages from the collision.[58] Fortunately, the dock was not used for chlorine loading, but primarily for salt; otherwise the damage could have been much more substantial.

In addition to the dock construction costs, Thompson determined that Options A and B required relocating the public boat ramp on adjacent property,[59] which Thompson estimated would cost between {{[redacted]}} in 2007, excluding the cost to purchase adjacent property for the relocation.[60]

The other part of the 2007 project estimated the cost to construct chlorine loading equipment and piping at the docks and 1.3 miles of pipeline from the SunBelt plant to the docks. Olin developed internally the costs of constructing this infrastructure, which is designed to load two barges simultaneously over 56 hours.[61] The cost of this infrastructure in 2007—the infrastructure is described in SunBelt Opening Exhibit II-B-1—was estimated to be {{[redacted]}}, +/- 25%.[62] This estimate, however, did not include security for the pipeline or docks.

Because the above costs for the docks, pipeline and loading equipment were developed in 2007, SunBelt has indexed them to 2012 levels. Table II-B-1, below, summarizes the indexed infrastructure investment required just at McIntosh in order to load chlorine into barges for each of the three options proposed by Thompson Engineering:[63]

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[58] See Sun. Op. Workpaper "St. Gabriel Damage Estimate."

[59] See Sun. Op. Workpaper "McIntosh Facility Aerial Photos" at 2 (showing the location of the boat ramp).

[60] Ex. II-B-2, at SUN-BDR1-0124.

[61] See Sun. Op. Exhibit II-B-1 at SUN-BDR1-0009 (36 hours to evacuate residual chlorine from the empty barge plus 20 hours to load the 4 tanks on the barge). See also, Sun. Op. Exhibit II-B-2 at SUN-BDR1-0123 (simultaneous loading of 2 barges).

[62] See Sun. Op. Workpaper "Tank Barge Facility Estimate"; "Chlorine Barge Options" at SUN-NS00018.

[63] See Sun. Op. Workpaper "Indexed Costs." The indexed costs are sponsored by witness Thomas D. Crowley.

Table II-B-1: Indexed Thompson Study Costs

Option	Dock Cost	Boat Ramp Relocation	Pipeline	Total[64]
A	{{ [redacted] }}	{{ [redacted] }}	{{ [redacted] }}	{{ [redacted] }}
B	{{ [redacted] }}	{{ [redacted] }}	{{ [redacted] }}	{{ [redacted] }}
C	{{ [redacted] }}	N/A	{{ [redacted] }}	{{ [redacted] }}

Table II-B-1 is only a partial itemization of the total cost for the McIntosh infrastructure that is needed before SunBelt could load chlorine tank barges. As previously noted, the above costs exclude security and land acquisition costs. In addition, all three options require permitting by the Army Corps of Engineers, the Alabama Department of Environmental Management, and the U.S. Coast Guard. There are costs associated with obtaining those permits and there is no assurance that the permits will in fact be granted. Moreover, the environmental permits likely would impose wetland mitigation conditions, which would increase the cost of the barge option. Thompson did not include the acquisition of permits, wetland mitigation costs, and Coast Guard approvals in the above cost estimates.[65]

Permitting also can be a lengthy process that is by no means guaranteed. Indeed, Thompson expressly singled out Coast Guard permitting as a "major challenge."[66] The lengthy permitting process is illustrated by the difficulties that Olin currently is experiencing with the acquisition of an environmental permit to dredge the existing caustic barge basin at McIntosh. Because of its location on the outer bank of a bend in the Tombigbee River, substantial amounts of silt and sediment accumulate in the barge basin, which must be dredged approximately every five years. This dredging requires a permit. Olin filed its permit request in August 2011 and

[64] The Total value is based on the low end of the boat ramp relocation range.

[65] Ex. II-B-2, at SUN-BDR1-0124 to -0125.

[66] Sun. Op. Workpaper "Status of Chlorine Barge Loading Study" at 1.

still, exactly one year later, has not received any indication whether and when it will be issued. In the meantime, the combination of low water level and accumulated silt periodically has prevented Olin from loading caustic barges at McIntosh because the barge draught exceeds the maximum draught in the basin.[67] Dredging permits for existing barge facilities are fairly routine. If it takes this long to obtain a routine permit, it is difficult to contemplate how much lengthier the process would be for a permit to construct an entirely new barge facility.

The need for "fleeting" infrastructure at Mobile also could increase the cost of the La Porte and NOLA Options. Specifically, SunBelt would need "fleeting" facilities at Mobile for the return of empty chlorine barges. When there is no open dock slip available at McIntosh for a returning barge or McIntosh is inaccessible due to weather or river conditions, the nearest fleeting facility is at Mobile. Currently, Olin uses Cooper Marine & Timberlands to fleet its caustic soda barges at Mobile. But, Cooper is not willing to handle chlorine barges and SunBelt has not been able to identify any other operators at Mobile which can or will provide this service.[68] An added complication is that any such facility would have to meet TSA security requirements, including the requirement to have a TWIC program. Consequently, SunBelt could have to provide fleeting facilities itself at Mobile if it were to use the La Porte or NOLA Options.

The above direct cost factors only tell part of the story. SunBelt also would incur indirect costs associated with the reduced reliability and operating flexibility afforded by tank barges. Barge transportation is less reliable than rail because it is far more susceptible to delays caused by weather and river conditions. Floods, drought, and winds can cause frequent and extended delays, and produce a wider variance in transit times than rail. In addition, the Industrial Canal

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[67] See Sun. Op. Workpaper "Dredge Permit Hold Correspondence"; Sun. Op. Workpaper "Dredge Permit Issues."

[68] Sun. Op. Workpaper "Tow Availability" at 1-2.

Lock at New Orleans is frequently congested with delays of 24 hours or more. The wide variability of barge transit times inevitably will cause problems for both SunBelt and OxyVinyls.

When barges are delayed, SunBelt can quickly run low on storage because it is not continually loading barges. Because SunBelt can only produce chlorine when it has storage, it would have to reduce, or in extreme cases shut down, its chlorine production. That also curtails caustic soda production, resulting in lost caustic sales. In contrast, rail transportation has greater predictability and less variability that substantially lowers this risk.

At the other end of the transportation, OxyVinyls depends upon a continuous supply of chlorine, which it currently receives in the form of 7-8 rail cars daily. In order to maintain this pace with tank barges, OxyVinyls must unload a barge on average every 1.5 days. Therefore, the extreme variability in barge transit times almost certainly will force OxyVinyls into short supply situations that could force it to curtail production or shut down altogether. Thus, in order to ensure an uninterrupted chlorine supply to La Porte, SunBelt would need to retain at least 10-20% of its rail fleet as back-up transportation, in addition to its barge infrastructure investment.

Finally, there is a significant risk that any infrastructure investment by SunBelt to enable barge transportation of chlorine from McIntosh under either the La Porte or the NOLA Options could be stranded. {{[redacted]}}[69] In fact, over just the past two years, OxyVinyls has redirected {[redacted]

[69] In addition to the McIntosh infrastructure, the barge infrastructure investment discussed in Part II-B-3.a.(2)(c), infra, also would be stranded. Furthermore, chlorine barges cannot be mothballed without thoroughly purging and washing their tanks. Repeated washings, however, are undesirable because the chlorine residue reacts with the water to corrode the tanks, which shortens their useful life. Also, selling excess barge capacity is not a realistic option, because there is only one other chlorine producer that transports chlorine by barge.

[redacted]} of all SunBelt chlorine shipments from McIntosh.[70] In addition, as fewer tugboat operators are willing to transport chlorine, SunBelt faces the risk of decreasing towing capacity that also could strand its barge investments. Consequently, there is a very real and present risk that SunBelt's barge infrastructure investments would be stranded before they could be recovered, or the recovery period could be unduly lengthened.

(b) The destinations lack the infrastructure needed to unload chlorine tank barges.

Even if Olin were to construct the infrastructure required to load barges at McIntosh, there is no infrastructure for unloading chlorine barges at either La Porte or New Orleans. La Porte lacks a chlorine dock and unloading facilities, and New Orleans lacks a transloading facility. These would substantially increase the cost of both the La Porte and NOLA Options.

The La Porte Option would require an investment in dock and pipeline facilities at La Porte before OxyVinyls could unload chlorine tank barges from McIntosh. OxyVinyls has access to just a single barge dock at La Porte that does not have any facilities for unloading chlorine or transporting it from the dock to the VCM facility where the chlorine is consumed. That facility is approximately 3 miles from the dock. SunBelt believes that this dock is used for caustic soda shipments and perhaps other commodities. Therefore, either SunBelt or OxyVinyls would have to build the necessary chlorine barge unloading infrastructure at La Porte.

Although SunBelt does not have information sufficient to estimate the cost of constructing this infrastructure at La Porte, such infrastructure would need to be similar in scope to that required at McIntosh. Just as SunBelt would need multiple docks to load 250,000 tons of chlorine annually, OxyVinyls would need more than its single existing dock to unload the same

[70] See Sun. Op. Workpaper "Diverted Chlorine Shipments." {{[redacted]}}

quantity. If OxyVinyls can only unload one chlorine barge at a time, mathematically it must unload one barge every other day if it is to receive 250,000 tons of chlorine annually.[71] This is a very aggressive unloading schedule; requires continuous, evenly-spaced and reliable barge deliveries (which as discussed in the preceding section is not a strength of barge transportation); and presumes that the single dock at La Porte is not used for any other commodity. Furthermore, the OxyVinyls VCM plant at La Porte is 3 miles from the barge dock, which is more than twice the distance between the SunBelt plant and docks at McIntosh. Therefore, it is reasonable to presume that the cost of similar facilities at La Porte would be comparable to the {{ }} cost for the Thompson report's Option A at McIntosh.

In the final analysis, however, SunBelt has no means to compel OxyVinyls to make any infrastructure investment and {{ }}. Moreover, because the CSA specifies rail delivery unless the parties otherwise agree upon barges, SunBelt does not have the ability to compel OxyVinyls to accept chlorine delivered by barge.

SunBelt already has described the infrastructure required at New Orleans for transloading chlorine from tank barges into rail cars in Part II-B-3.(a)(1)(b), above. For the reasons stated in that section, bulk shipments of chlorine simply are not transloaded from barges to rail cars anywhere. Therefore, SunBelt would have to design, build, and operate such a facility itself, with enormous cost and public safety implications, in order to pursue the NOLA Option. SunBelt's partial estimate of the infrastructure cost is at least {{ }}.[72]

[71] 250,000 tons /1100 tons per barge = 227.3 barge shipments per year. 365 days / 227 shipments = 1.6 days to unload each shipment.

[72] See Sun. Op. Workpaper "NOLA Chemical Plant"

(c) SunBelt must acquire an armada of chlorine tank barges to handle the issue movement.

In addition to the infrastructure costs at McIntosh and at the destinations, both the La Porte and NOLA Options would require SunBelt to build an armada of tank barges to transport 250,000 tons of chlorine annually to either New Orleans or La Porte. Applying conservative assumptions that are set out in subsections (i) for La Porte and (ii) for NOLA, SunBelt estimates that it would need 16 barges for the La Porte Option and 9 barges for the NOLA Option. Since the only existing chlorine tank barges are privately-owned by Olin and PPG and there are no commercial chlorine barges for hire, SunBelt must build new tank barges to handle the issue movement. In 2007, SunBelt received a barge construction cost estimate of $3.2-3.6 million per barge.[73] More recent estimates show that the current cost would be at least $5 million and probably higher.[74]

Acquiring such large numbers of barges could take several years, because chlorine barges are not readily available on the market and must be designed and constructed, which takes 12-18 months per barge.[75] Shipbuilding capacity for these barges is unclear. Assuming that SunBelt could acquire four barges per year, it would take 2-3 years to acquire a sufficient fleet to handle all 250,000 tons per year of the issue movement pursuant to the NOLA Option, and 4 years for the La Porte Option.

(i) The La Porte Option.

In order to determine the minimum number of barges required for the La Porte Option, SunBelt has made the following aggressive cycle time assumptions:

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[73] Sun. Op. Workpaper "Tank Barge Estimate" at SUN-BDR1-0186.

[74] Sun. Op. Workpaper "Chlorine Barge Rate" at 1.

[75] See Sun. Op. Workpaper "Barge Related Information."

- SunBelt would sign a contract for dedicated tug service, rather than use a commercial tug operator, because the volume of this movement would make dedicated operations more economical. By assuming an exclusive dedicated service, the cycle time can be reduced by several days, thereby also reducing the number of barges required to handle 250,000 tons per year. This presumes, however, that there is sufficient idle tugboat capacity available.

- An 1800 hp tugboat would tow two chlorine barges in each direction. This would balance economies of scope with the need to minimize potential supply disruptions.

- The loading time at McIntosh would require 3 days, assuming that both barges could load simultaneously.

- The transit time from McIntosh to La Porte would average 7 days each way, for a total round trip transit time of 14 days.[76]

- The barges would "fleet" an average of 4 days per trip, waiting to be loaded, unloaded and/or picked up by a tugboat.

- Unloading time at La Porte would require 1.5 days per barge for a total of 3 days. This assumes that OxyVinyls constructs additional docks with the ability to unload chlorine and a pipeline to transport the chlorine nearly 3 miles to where it is consumed. Olin's only current chlorine barge customer, DuPont at New Johnsonville, detains Olin chlorine barges an average of {{ }} days. Therefore, 3 days is a highly aggressive assumption that requires the cooperation of OxyVinyls.

Based upon the aggressive assumptions set forth above, the "best case" total cycle time for the La Porte Option would be 24 days.

Based upon this 24 day cycle time, one barge can make 15 trips per year, assuming that every trip occurs under the ideal circumstances discussed above.[77] At 1,100 tons per barge, SunBelt will need 227 barge shipments annually to transport 250,000 tons of chlorine to La Porte.[78] This will require 15 barges, plus 1 additional barge as a spare for maintenance

[76] Sun. Op. Workpaper "River Marine Estimate"

[77] 365 days / 24 days = 15.2 trips per barge.

[78] 250,000 / 1100 = 227.3 trips per year.

downtime, for a total of 16 barges.[79] At $5 million per barge, 16 barges would require SunBelt to spend at least $80 million.[80]

(ii) The NOLA Option.

In order to determine the minimum number of barges required for the NOLA Option, SunBelt has made the following aggressive assumptions:

- SunBelt would sign a contract for dedicated tug service, rather than use a commercial tug operator, because the volume of this movement would make dedicated operations more economical. By assuming an exclusive dedicated service, the cycle time can be reduced by several days, thereby also reducing the number of barges required to handle 250,000 tons per year. This presumes, however, that there is sufficient idle tugboat capacity available.

- An 1800 hp tugboat would tow two chlorine barges in each direction. This would balance economies of scope with the need to minimize potential supply disruptions.

- The loading time at McIntosh would require 3 days, assuming that both barges could load simultaneously.

- The transit time from McIntosh to New Orleans would average 2.5 days each way, for a total round trip transit time of 5 days.[81]

- The barges would "fleet" an average of 2 days per trip, waiting to be loaded, unloaded and/or picked up by a tugboat. This estimate assumes that the bulk terminal, at a minimum, has the dock space, equipment and other capabilities described in Part II-B-3.a.(1)(b), supra.

- Unloading time at New Orleans would require 1.5 days per barge for a total of 3 days. This is based upon loading 8 rail cars per day and the fact that a chlorine barge holds the equivalent of 12 rail cars. This also assumes that SunBelt would construct and operate the bulk terminal, since no such terminals currently exist.

Based upon the aggressive assumptions set forth above, the "best case" total cycle time for the NOLA Option would be 13 days.

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[79] 227 trips per year / 15 trips per barge = 15.1 barges.

[80] {{ [redacted] }} { [redacted] } To handle 180,000 tons of chlorine by barge, SunBelt still would require 12 barges (11 + 1 spare) to make 164 barge shipments annually, at a total cost of $60 million.

[81] Sun. Op. Workpaper "River Marine Estimate"

Based upon this 13-day cycle time, one barge can make 28 trips per year between McIntosh and New Orleans, assuming that every trip is under the ideal circumstances discussed above.[82] At 1,100 tons per barge, SunBelt will need 227 barge shipments annually to transport 250,000 tons of chlorine to New Orleans.[83] This will require 8 barges, plus 1 additional barge as a cushion for maintenance downtime, for a total of 9 barges.[84] At $5 million per barge, 9 barges would require SunBelt to spend at least $45 million.

(d) Summary of infrastructure costs.

The total infrastructure costs for both the La Porte and NOLA Options are substantial. Although SunBelt has not developed every cost item in detail, the sum of just those items that have been thoroughly developed is enormous. Table II-B-2, below, summarizes those costs in 2012 dollars, as developed in the preceding subparts (a) through (c).

Table II-B-2: Infrastructure Costs for La Porte and NOLA Options

	La Porte Option	NOLA Option
McIntosh Barge Dock (Options A and C)	{{[redacted]}}	{{[redacted]}}
McIntosh Pipeline	{{[redacted]}}	{{[redacted]}}
McIntosh Boat Ramp Relocation	{{[redacted]}}	{{[redacted]}}
Barge Costs	$80,000,000	$45,000,000
Marine Bulk Terminal	N/A	{{[redacted]}}
TOTAL[85]	{{[redacted]}}	{{[redacted]}}

[82] 365 days / 13 days = 28.1 trips per barge.

[83] 250,000 / 1100 = 227.3 trips per year.

[84] 227 trips per year / 28 trips per barge = 8.1 barges.

[85] The low end of the range is Option A (which includes boat ramp relocation), and the high end is Option C (which does not include boat ramp relocation). Option B falls in the middle of this cost range.

SunBelt also has identified a multitude of additional costs that it has not included in the above estimates. Those costs, also discussed in the preceding subparts (a) through (c), include the following:

- Dock and other infrastructure at La Porte that could be as much as $20 million (only applicable to the La Porte Option).
- Land acquisition costs for the boat ramp relocation.
- Security costs for the dock and pipeline to transfer chlorine to the dock.
- Permitting costs for the dock construction.
- Wetland mitigation costs.
- Construction and operation of a barge fleeting facility at Mobile.

b. The Rail-Barge Option Is Not Feasible.

The third option considered by SunBelt is the Rail-Barge Option, which entails the use of a rail barge to float chlorine rail cars from McIntosh to Mobile, AL, where the rail cars would be forwarded by a rail carrier, such as CSX Transportation, Inc. ("CSXT"), to New Orleans. SunBelt has chosen to evaluate the Rail-Barge Option from McIntosh to Mobile, with further movement by rail to New Orleans, because it is a more conservative analysis than rail barging from McIntosh to New Orleans. Mobile already has the infrastructure to unload rail barges, whereas SunBelt would have to invest significant capital to construct such facilities in New Orleans and incur annual operating expenses.[86] The Rail-Barge Option, however, is not physically practical, economically feasible, or realistic even when considering just the

[86] See Sun. Op. Workpaper "CGR Rail Ferry Terminal" (showing aerial photos of the existing rail ferry terminal at Mobile).

infrastructure investment required at McIntosh. In fact, SunBelt considered and rejected the Rail-Barge Option in early 2001, and nothing has changed since then to improve its viability.[87]

The Rail-Barge Option would require SunBelt to make several costly infrastructure investments at McIntosh, acquire at least one rail barge, and make costly changes to its rail car switching operations at McIntosh. It also would require unloading facilities at the destination and could raise security concerns along the transportation route. Precisely whether and how these issues could be resolved is uncertain because there is no comparable real-world operation with which to compare the Rail-Barge Option.

There are very few examples of rail barging in this country, and none that SunBelt could identify involving private carriage directly from a shipper facility. SunBelt has identified just two car float operations in this country, none of which operate on the inland waterways. One operates across New York Harbor between New York and New Jersey, and the other operates across the Chesapeake Bay between Norfolk, VA and Cape Charles, VA.[88] SunBelt also has identified rail car ferry operations between Whittier, AK and Seattle, WA, and between Mobile, AL and Coatzacoalcos, Mexico.[89] These latter two operations, however, use ocean barges or ferries, which are much larger vessels than a car float and are too large to navigate the Mobile and Tombigbee Rivers. Furthermore, all of the above rail-barge services are provided by common carrier railroads between public ports, as opposed to operating from a private dock as required by the La Porte and NOLA Options.

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[87] In 2000, Olin toured a rail car barge loading operation at the Alabama State Docks in Mobile to evaluate it as a destination for a possible rail barge operation from McIntosh. See Sun. Op. Workpapers "Trip Report" and "Mobile Tour Photos." Based upon inquiries to the Alabama Port Authority, that particular dock is no longer in operation, and has been replaced by a new facility that was constructed in 2007 for CG Railway, which operates a rail ferry across the Gulf of Mexico between Mobile and Coatzacoalcos, Mexico. See Sun. Op. Workpapers "CGR Rail Ferry Terminal" (showing aerial photos).

[88] See http://en.wikipedia.org/wiki/Rail_barge#Modern_operations

[89] Id.

Before it could begin to use rail barges, SunBelt first would have to construct highly-specialized dock facilities at McIntosh. In 2000, SunBelt retained Gottlieb, Barnett & Bridges ("GBB") to perform a "Rail Ferry Feasibility Study" at McIntosh, which included conceptual drawings for two alternative types of barge loading facilities. SunBelt has included a copy of the GBB study as SunBelt Opening Exhibit II-B-5, which GBB provided to SunBelt in January 2001. The project posed several engineering challenges. Because the Tombigbee River is subject to extreme river stages of up to 25 feet, a rail barge facility at McIntosh must be able to accommodate an unusually broad water level range. Id., "Site Challenges" slide. A bluff near the shoreline poses steep (+33 foot) grades and must be excavated accordingly. Id. Also, due to SunBelt's location on a sharp bend in the river, the more recent 2007 Thompson study shows that the proposed site for the dock exhibits signs of erosion and would require additional slope/shoreline armoring.[90]

GBB presented two alternative types of barge loading facilities, one that employed an articulated bridge system to address the problems posed by extreme changes in the river level and another one that employed a synchro-lift system to address the same problems. As the river level changes, so will the height of a rail barge's tracks in relation to the land-based loading track. To avoid derailment, these tracks must be aligned vertically during loading.[91] An articulated bridge system achieves alignment by adjusting the loading track to the barge elevation, using a rail ramp that is hinged to fixed track at one end and attached to a lift at the other end.[92] A synchro-lift system, which uses a fixed loading track and a barge lift, achieves

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[90] Sun. Op. Exhibit II-B-2, p. 2.

[91] Horizontal alignment is also required and is maintained by adjusting the dock lines.

[92] See Sun. Op. Exhibit II-B-5, "Articulated Bridge Schematic." See also, Sun. Op. Workpaper "McIntosh Ferry Articulated Bridge" (showing an overlay view of the articulated bridge schematic on top of an aerial photo of the McIntosh facility).

alignment by lifting the barge to the elevation of the loading track.[93] Olin never reached the point in its analysis of deciding whether one option was preferable to the other.

In SunBelt Opening Exhibit II-B-5, GBB estimated the cost of a facility employing the articulated bridge system to be {{[redacted]}}[94] and the cost of a facility using the synchro-lift system to be {{[redacted]}}. However, in a March 12, 2001 e-mail, GBB subsequently increased its estimates to by {{[redacted]}}, respectively, after meetings with river operators exposed concerns that the original designs would extend more than 70 feet into the river.[95] Thus, the final estimates, in 2001, were {{[redacted]}} for the articulated bridge system and {{[redacted]}} for the synchro-lift system. These cost estimates included the construction of a rail car storage yard and tracks to connect the production plant, rail yard, and dock. SunBelt has indexed those costs to 2012 levels. The indexed costs would be {{[redacted]}} for the articulated bridge system and {{[redacted]}} for the synchro-lift system.[96]

Construction of the rail barge infrastructure at McIntosh would require the same type of permits as the tank barge options from the Army Corps of Engineers, the Alabama Department of Environmental Management, and the U.S. Coast Guard. This includes the same costs associated with obtaining those permits and the same lack of assurance that the permits will in fact be granted. See supra pp. II-B-25 to 26.

In addition to a barge loading facility, SunBelt would need specially-designed barges on which to float its chlorine rail cars. As part of its 2001 rail barge feasibility study, Olin engaged

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[93] See Sun. Op. Exhibit II-B-5, "Synchro-lift Schematic."

[94] Although the total provided in line 9.0 of the report is {{[redacted]}}, that is a mathematical error. When the entire column of numbers above that figure is summed, the actual amount is {{[redacted]}}.

[95] See Sun. Op. Workpaper "Rail Ferry Cost Revision."

[96] These indexed costs are developed from an average of four different indices: GDP/IPD, CPI-U, PPI New Construction, and AAR Materials & Supplies. See Sun. Op. Workpaper "Indexed Costs." This workpaper is sponsored by witness Thomas D. Crowley.

JeffBoat to design a rail barge and to provide a cost estimate. Jeffboat designed a 401 x 70 foot barge with a capacity of 35 rail cars (5 tracks and 7 cars per track) and quoted a price of {{[redacted]}}.[97] Indexed to 2012, today's cost would be {{[redacted]}} per barge.[98]

SunBelt conservatively estimates that a single barge with the JeffBoat design would be sufficient to handle the issue movement volume between McIntosh and Mobile. At the average daily rate of 7-8 rail cars needed to ship 250,000 tons of chlorine annually, SunBelt could fill a 35 car barge every 4-5 days. The cycle time between McIntosh and Mobile, including loading and unloading rail cars at both ends would be approximately 4 days: 1 day in each direction,[99] a half day each for loading and unloading,[100] and 1 day fleeting at Mobile. Because the barge cycle time would be comparable to the time required to load 35 rail cars with chlorine, SunBelt would need just one rail barge in order to maintain a continuous flow. This is a conservatively low estimate because it does not account for periods when the barge will be out of service for inspection, maintenance, or repair. During those times, SunBelt still would have to rely upon NS rail service unless it purchased a second rail barge.

But, because the JeffBoat rail barge would have a footprint that is 4 times larger than a tank barge (in a 2 x 2 configuration), multiple questions must be answered to determine whether such transportation is physically feasible. For example, the original GBB study contemplated a 401 x 100 foot barge with a capacity of 56 rail cars, before reducing the width to 70 feet and the

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[97] Sun. Op. Workpaper "Rail Barge Price Quote."

[98] Sun. Op. Workpaper "Indexed Costs." This workpaper is sponsored by witness Thomas D. Crowley.

[99] Sun. Op. Workpaper "River Marine Estimate"

[100] The loading and unloading time for the lower cost articulated bridge system at McIntosh is 12 hours at each end, based upon estimates in the GBB study in Sun. Op. Exhibit II-B-5. Because the GBB study estimated load/unload times for a larger barge, with 8 tracks that hold 7 rail cars per track, and the final barge design has just 5 tracks that hold 7 rail cars, SunBelt has used the average load/unload time per track multiplied by 5 tracks to estimate the load/unload time at each end of the movement.

capacity to 35 rail cars due to narrower bridge clearance.[101] In addition, according to the waterway charts maintained by the Army Corps of Engineers, a major navigation restriction between McIntosh and Mobile is the river depth. The navigable channel for almost the entire distance to Mobile Bay is 200 feet wide and 9 feet deep.[102] Consequently, a fully-loaded rail barge cannot have a draught greater than 9 feet. Although the JeffBoat design sheets do not provide draught information, in response to an inquiry from SunBelt, JeffBoat responded that this barge fully loaded with 286,000 pound tank cars would have a draught of between 9' and 9'3". Because chlorine tank cars are heavier today than they were in 2001, the original JeffBoat design no longer would be practical. Consequently, either the barge would have to be re-designed or loaded to less than its full capacity.

In addition to the infrastructure investment at McIntosh and in rail barges, SunBelt also would need a rail barge unloading facility at the destination. Because there are so few rail barge operations, there also are very few terminals capable of loading and unloading a rail barge. The only terminal that SunBelt potentially might use for the issue movement is at Mobile, AL, which is a 60 mile barge trip from McIntosh down the Tombigbee and Mobile Rivers. At Mobile, the chlorine rail cars could continue the journey to New Orleans via an alternative rail carrier.

In order to use the Mobile terminal, SunBelt would have to work around the operations of the sole operator, CG Railway ("CGR"), and pay appropriate user fees. CGR operates a rail ferry across the Gulf of Mexico between Mobile and Coatzacoalcos, Mexico, using two double-deck ocean ferries with a capacity of 115 rail cars each. Because CGR's scheduled sailings

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[101] Sun. Op. Workpaper "Barge Freight Estimate." Although this workpaper, which is a January 12, 2001 e-mail, states that the new barge width would be 75 feet and hold 42 cars, the February 12, 2001 cost estimate and designs provided by JeffBoat further reduced the width to 70 feet and the capacity to 35 rail cars. Sun. Op. Workpaper "Rail Barge Price Quote."

[102] See Sun. Op. Workpaper "ACE Waterway Chart" for the 2-mile segment from the McIntosh facility downriver.

occur every four days and rail car loading and unloading occurs in between, there would only be very narrow windows in which SunBelt could operate. Currently, there are no third party users of the CGR terminal and thus no established charges. The types of fees that Olin was quoted in 2001 at Mobile were a per car unloading fee, a 1000 foot track lease at Mobile dock, a per ton wharfage charge, and a per car switch fee from the dock to the connecting line-haul carrier.[103] If SunBelt had to construct and operate its own ferry terminal, the $27 million that the Alabama Port Authority spent at Mobile in 2007 provides a fair proxy for the infrastructure cost.[104] This cost also is reasonable in light of the {{ [redacted] }} estimate for constructing a rail barge facility at McIntosh, which is a challenging location for reasons previously stated.

The Rail-Barge Option also implicates several security concerns at McIntosh. When Olin considered rail barging in early 2001, the events of "9/11" had not yet occurred. Consequently, Olin did not have to address many security issues that exist today. SunBelt will need to secure the tank car staging area and the mile of track leading from the production plant to the river. Also, SunBelt will need to patrol the barge dock during loading. As mentioned in the discussion of tank barges, maintaining security at the river is especially challenging due to the proximity of a public boat ramp and the prevalence of anglers who frequently pull up to the current caustic dock and fish.

In addition to the security issues at McIntosh, there will be security issues at multiple other points along the transportation route. It is important to note that a 35-car rail barge will hold 3 times more chlorine than a standard tank barge. Security is essential at Mobile where the barge terminal must have the capacity to store all 35 tank cars securely, in accordance with TSA regulations (including TWIC requirements), until they can be interchanged with the connecting

[103] See Sun. Op. Workpaper "Rail Ferry Capital Estimate."

[104] See Sun. Op. Workpaper "Mexican Rail Ferry Service."

rail carrier for the journey to New Orleans. The connecting railroads, instead of hauling 7-8 SunBelt tank cars in a train as they do today, would be handling nearly five times that number. Furthermore, there will be at least one additional interchange and hand-off of rail cars, at Mobile, compared against the current all-rail route. It is unclear whether or to what extent the rail carriers on the route to La Porte have sufficiently secure interchange facilities to receive this many chlorine cars at one time, or whether the interchange of this many chlorine cars at one time, in urban areas like Mobile, New Orleans, and Houston, would concern TSA.

The foregoing infrastructure costs that SunBelt has developed for the Rail-Barge Option are substantial. Although SunBelt has not developed every cost item in detail, the sum of just those items that have been thoroughly developed is substantial. Table II-B-3, below, summarizes those costs in 2012 dollars:

Table II-B-3: Infrastructure Costs for Rail-Barge Option

	Articulated Bridge	**Synchro-Lift**
McIntosh Barge Dock and Rail Yard	$36,480,000	$52,810,000
Barge Costs	$6,300,000	$6,300,000
TOTAL	**$42,780,000**	**$59,110,000**

There are many other costs associated with the Rail-Barge Option that were never fully developed and considered by Olin in the 2001 feasibility study. Specifically, Olin never fully considered the cost of switching rail cars 1.3 miles from the McIntosh plant to the new rail yard or the capital investment needed for such switching. Because NS provides a daily switch to/from the McIntosh plant, and all intra-plant switching is performed by track mobile, this would be a significant change to Olin's operations. A rail barge operation would require SunBelt to invest

in two switch engines and to hire and train at least eight individuals to operate the engines.[105] Alternatively, SunBelt would need to contract with a third party switcher to provide this service. In addition, SunBelt would need a "fleeting" facility at Mobile where the barge could park when the CGR terminal is not immediately available because it is occupied by a CGR ferry. As noted at page II-B-26 above, there are not currently any fleeting facilities at Mobile willing to handle chlorine.

Ultimately, Olin abandoned the 2001 rail barge feasibility study based on the cost and implementation factors that were known and have been discussed above. All of the operating costs and capital requirements that were not considered at that time, some of which also have been identified above, would have rendered the project even less feasible. The compound effects of these factors amply demonstrate that the Rail-Barge Option is not sufficiently realistic to be an effective competitive constraint upon the challenged NS rate.

c. Truck Transportation Is Not a Realistic Alternative to NS Rail Service for the Issue Movement.

SunBelt has considered two truck alternatives. Those two alternatives are the Direct Truck Option, which entails trucking from McIntosh to La Porte, and the Truck Transload Option, which entails trucking from McIntosh to a bulk terminal in New Orleans for transloading into rail cars that would continue the journey to La Porte.

The Direct Truck Option is irrelevant because it does not conform to the DMIR Decisions. In addition, because the CSA with OxyVinyls does not permit truck deliveries, SunBelt may not deliver chlorine to La Porte in trucks.[106]

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[105] See Sun. Op. Workpaper "3rd Party Switching."

[106] Sun. Op. Workpaper "Chlorine Sales Agreement" § 5.01, at 2.

The Truck Transload Option is not practical because it would require comparable transloading infrastructure to that discussed previously for barge transloading. See supra pp. II-B-14 to 19. A chlorine transload facility would have to operate as a mini chemical plant. When loading the chlorine into railcars, some of the chlorine will vaporize and accumulate above the liquid chlorine. The facility must vent this vapor from the railcar during loading and scrub it. Scrubbing requires copious amounts of caustic soda, which the terminal must keep on-hand, and creates sodium hypochlorite, which the terminal must dispose. Thus, to transload chlorine, a bulk terminal will turn into a sodium hypochlorite plant. There is no bulk terminal that is able or willing to provide this service.

For both Options, trucking the volume of chlorine at issue is impractical and contrary to the public interest. At 15 tons of chlorine per truck, SunBelt would need to load 16,667 truck shipments annually to handle 250,000 tons. That volume would require more than 46 truck loadings per day, every single day of the year. Furthermore, neither SunBelt nor OxyVinyls have truck loading/unloading capability at their facilities.

Moreover, transporting 46 trucks per day over public highways from McIntosh to either New Orleans or La Porte would be contrary to the public interest. The DOT has stated that "[t]he public interest would be ill served if there were a significant shift to the transportation of these commodities by truck," and that "[d]iversion of TIH materials traffic from rail to the highways is neither practicable nor consistent with public safety."[107] Furthermore, as UP notes, trucks are 16 times more likely than trains to have a hazmat accident.[108] Out of concern for public safety, Congress has established that it is the policy of the U.S. Government "to operate

[107] See Comments of the U.S. Dep't of Transp., at pp. 6 & 12 (filed May 12, 2012 in Union Pac. R.R.—Pet. for Declaratory Order, Finance Docket No. 35504).

[108] UP: TIH Facts, http://www.uprr.com/newsinfo/media_kit/safety/tih_facts.shtml (last visited July 11, 2012).

transportation facilities and equipment without detriment to public health and safety."[109] Elsewhere in the Rail Transportation Policy, Congress has expressed concern for consideration of public needs.[110] In keeping with these policy statements, the Board should not consider a transportation alternative that places the public at 16 times greater risk than rail for an accident that has the potential to release a poisonous gas.

In short, neither the Direct Truck Option nor Truck Transload Option constitutes a feasible or realistic alternative to NS rail service for the issue movement, and thus cannot be an effective competitive constraint upon the challenged NS rate.

d. The La Porte, NOLA and Rail-Barge Options Are Not Effective Competitive Constraints Upon the Challenged Rate Because of Their Enormous Infrastructure Costs.

Because of the enormous infrastructure investment that is needed for the La Porte, NOLA, and Rail-Barge Options, the potential threat of those Options is far too conjectural to be an effective competitive constraint upon the challenged NS rate. Aside from the multiple practical hurdles discussed in the preceding sections, these three barge options are not economically feasible because whatever savings can be achieved through the transportation rate is far outweighed by the infrastructure investment. Subpart (1), below, explains why that is the case for each of the three barge options. Subpart (2) shows that the current differential between barge and rail rates for the issue movement is the result of a series of enormous rail rate increases over the past decade, which is stark evidence that none of the three barge options has been a constraint upon NS pricing at all, much less an effective competitive constraint.

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[109] 49 U.S.C. § 10101(8).

[110] See Id. § 10101(4).

(1) The La Porte, NOLA, and Rail-Barge Options Are Not Economically Feasible.

The La Porte, NOLA, and Rail-Barge Options are not economically feasible because of their expensive infrastructure requirements. The testimony in this Part II-B-3.d.(1) is co-sponsored by Thomas Tirabassi, Olin's Director-Logistics, as to freight costs, and Larry Murray, Olin's Vice President of Engineering and Technology, as to the financial analyses.

As discussed in preceding sections, and summarized in Tables II-B-2 and 3 on pages II-33 and 41, SunBelt has quantified the minimum investment needed for the La Porte Option to be in the range of {{[redacted]}}; for the NOLA Option to be in the range of {{[redacted]}}; and for the Rail-Barge Option to be in the range of {{[redacted]}}. These costs come directly from Olin's analyses of tank barge and rail barge alternatives in 2007 and 2001, respectively, and have been indexed to 2012 levels. The large infrastructure projects covered by these investments would require at least a year to obtain permitting,[111] 12-18 months for construction of the La Porte and NOLA Option infrastructure,[112] and 19-21 months for the Rail-Barge Option.[113]

In order to determine the economic feasibility of making these investments, SunBelt has employed the "Capital Appropriations Request (C.A.R.) Financial Analysis Review" model that Olin, SunBelt's owner, uses in the ordinary course of business to evaluate the financial profitability of a proposed capital project.[114] The model calculates financial indicators such as a project's net present value of cash flows and return on capital, and provides a project payback period. These and other indicators are summarized in the CAR model at cell ranges AD65

[111] See surpa pp. II-B-25 to 26, which describe how Olin is still waiting for a routine dredging permit at McIntosh after a full year.

[112] Construction timing depends upon "Mother Nature" because construction must occur during low water levels.

[113] GBB provided the construction time estimate with its cost estimate in Exhibit II-B-5.

[114] See Sun. Op. Workpapers "La Porte CAR Model," "NOLA CAR Model" and "Rail Barge CAR Model."

through AI115. For purposes of its Opening Evidence, SunBelt has applied the CAR model solely to the above-summarized capital costs, except for the NOLA Option, which also includes an annual caustic soda cost estimate for chlorine scrubbing and an annual labor cost estimate for operating a marine terminal transload facility at New Orleans. SunBelt has prepared separate CAR analyses for each of the La Porte, NOLA and Rail-Barge Options.

The CAR model requires the user to input certain information about the proposed project. These inputs are added to the area of the spreadsheet that begins at cell AT3. SunBelt Opening Workpaper "CAR Input Summary" summarizes in one document all the variables that SunBelt has used in the CAR models for each of the three barge options. In all three models, SunBelt conservatively has used the capital costs at the low end of the investment ranges provided above. Thus, these are all "best case" (*e.g.* lowest possible cost) scenarios.[115] Even those costs are substantially understated due to the omission of many cost factors that have been identified previously on pages II-B-33 to 34 and II-B-41 to 42. The capital costs are entered into the table beginning at cell AT51. Operating costs, which are used only in the NOLA CAR model just for labor and caustic soda consumption at the transload facility, appear in the rows that begin at cells AT95 and AT101. The freight savings are shown in the CAR model beginning at cell AT94.

In subsections (a) – (c) below, SunBelt explains how it has calculated the freight savings for each barge Option and presents the results of the CAR models, which indicate that none of the three barge options is economically feasible.

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[115] For example, SunBelt has used the lowest cost Option A from the Thompson study (Ex. II-B-2) for both the La Porte and NOLA CAR models, although the more expensive Option C would be preferred for the reasons presented, above, on pages II-B-22 to 24. For the Rail-Barge CAR model, SunBelt has used the lower cost articulated lift system instead of the synchro-lift system, even though the 2001 GBB study (Ex. II-B-5) never progressed to the point of deciding which system was best.

(a) The La Porte Option.

This subsection explains how SunBelt determined the inputs for the La Porte CAR model and presents the results generated by the model. The La Porte CAR model evaluates the financial profitability of making a {{[redacted]}} capital investment for the La Porte Option.[116] This investment amount includes Option A in the Thompson study, the lowest estimated boat ramp relocation cost (except real estate acquisition), pipeline construction costs, and the acquisition cost of 16 barges. See Exhibit II-B-2. It does not include any of the other costs discussed o pages II-B-25 to 27. Even excluding those costs, the rail barge option is not economically feasible.

The CAR model assumes freight savings that are measured as the difference between the through rail rate from McIntosh to La Porte and the barge transportation rate components for the same movement. Because the rail rate is higher, there will be some savings. SunBelt has estimated that savings on a cost per ton basis and multiplied that savings by an annual volume of 250,000 tons of chlorine.[117]

The rail transportation rate for the La Porte Option is the sum of the challenged NS rate of $8088 per rail car and the UP contract rate of {{[redacted]}} per rail car plus a UP fuel surcharge that currently is {{[redacted]}}.[118] The total rail rate is {{[redacted]}}, or {{[redacted]}} per ton.[119]

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[116] Sun. Op. Workpaper "La Porte CAR Model," cell AG70.

[117] This likely overstates the annual savings because, as previously noted on pages II-B-2 to 3, SunBelt's actual shipping volume to La Porte in recent years has ranged from {[redacted]} tons per year, {{[redacted]}}. Also, as noted on page II-B-27, because barges are inherently less consistent than rail, SunBelt inevitably will need to continue shipping 10-20% of the issue movement volume by rail in order to avoid plant shut downs at McIntosh and La Porte. Consequently, a reduced annual volume means reduced annual savings, which means an even longer cost recovery period than the CAR model projects.

[118] Sun. Op. Workpaper "UP Contract"

[119] {{[redacted]}} = ($8088 NS tariff rate + {{[redacted]}} UP contract rate) / 90 tons per rail car. The NS rate is not subject to a fuel surcharge.

For barge transportation costs, SunBelt has assumed that it would use a dedicated tugboat operator for the following two reasons: (1) there are no tugboat operators that provide regular service between McIntosh and Mobile that are willing to handle chlorine, and (2) as the largest volume chlorine movement in North America, it is more efficient to shuttle the same tugboats back and forth like a unit train operation.[120] SunBelt asked River Marine, which provides dedicated tugboat service for barge shipments from Olin's Charleston, TN facility, for a cost estimate to provide dedicated tugboat services for the La Porte Option. River Marine provided the following cost estimates:[121]

- {{ }} daily rate per 1800 hp tugboat multiplied by 16 day cycle times[122] = {{ }} per trip.
- Average fuel consumption of 18,500 gallons per trip multiplied by $3 per gallon = $55,500 per trip.
- Waterway User Fee of $0.20 per gallon multiplied by 18,500 gallons = $3700 per trip.

The sum of the above charges for a round-trip tow of two chlorine barges would be {{ }}. Because two barges hold 2200 tons of chlorine, the cost per ton would equal {{ }}.

Thus, the potential freight savings over rail for the La Porte Option would be {{ }} per ton.[123] As discussed previously, this savings is overstated because it excludes real estate costs for relocating the public boat ramp, security costs for the 1.3 mile chlorine pipeline to the

[120] This assumption also was used to estimate the total number of barges needed. If a dedicated tugboat service is not used, cycles times will be longer, more barges will be required, and the capital investment will increase by $5 million per additional barge.

[121] Sun. Op. Workpaper "River Marine Estimates."

[122] Although barge cycle times are 24 days, SunBelt conservatively assumes that tugboats would not remain with the barges during loading, unloading, or fleeting, which account for 10 days of the 24 day cycle time estimate. Instead, SunBelt assumes that, upon arrival at La Porte and McIntosh, a tug would drop 2 barges and pick up 2 more from a previous trip. Because 2 barges will not always be immediately available, however, SunBelt has assumed that a tugboat would incur 2 stand-by days per trip. (14 transit days + 2 stand-by days = 16 billable days)

[123] {{ }}

barge dock and within the dock area, permitting costs, wetland mitigation costs, and a fleeting facility at Mobile, not to mention all of the infrastructure costs to enable OxyVinyls to unload chlorine barges at the destination. In addition, the barge transportation costs do not include the fleeting and In/Out charges that would accrue to each barge. Nevertheless, even without those charges, the CAR model indicates that the La Porte Option would not be economically feasible.

According to the CAR model for the La Porte Option, the net payback period would be greater than 10 years, which is well in excess of what Olin considers viable.[124] The return on capital at the 5 year mark would be just 1.5%, whereas Olin's target return at this point is {{[redacted]}}.[125] The net present value of cash flow by Year 10 (with termination value) is negative, when it should be positive or, at a minimum, break-even.[126] All of these financial indicators show that the La Porte Option is nowhere close to economic feasibility, even when based upon incomplete cost estimates and highly optimistic assumptions.

(b) The NOLA Option.

This subsection explains how SunBelt determined the inputs for the NOLA CAR model and presents the results generated by the model. The NOLA CAR model evaluates the financial profitability of making a {{[redacted]}} capital investment for the NOLA Option.[127] This investment amount includes {{[redacted]}} for Option A in the Thompson study, the lowest estimated boat ramp relocation cost (except real estate acquisition), the pipeline construction costs, and the acquisition of 9 barges. See Exhibit II-B-2. It also includes {{[redacted]}} of infrastructure associated with constructing a marine transload terminal in New Orleans. In

[124] See Sun. Op. Workpaper "La Porte CAR Model," cell AE79 (the term "Too Many" means more than 10 years). Although this means that any recovery period over 10 years is unacceptable, it does not mean that any recovery in under 10 years would be acceptable. Other financial indicators also would be relevant.

[125] Id., cell AK109.

[126] Id., cell AK89.

[127] Sun. Op. Workpaper "NOLA CAR Model," cell AG70.

determining whether the above investment is economically feasible, the NOLA CAR Model also takes into account annual operating expenses of {{[redacted]}} for caustic soda needed to scrub the chlorine during transloading and {{[redacted]}} in transload terminal labor costs. The model does not include any of the other costs discussed on pages II-B-25 to 27. Even excluding those costs, the rail barge option is not economically feasible.

The CAR model assumes freight savings that are measured as the difference between the rail rate from McIntosh to New Orleans and the barge transportation rate components for the same movement. Because the rail rate is higher, there will be some savings. SunBelt has estimated that savings on a cost per ton basis and multiplied that savings by an annual volume of 250,000 tons of chlorine.[128]

The rail transportation rate for the NOLA Option is the challenged NS rate of $8088 per rail car, or $89.87 per ton. There is no fuel surcharge.

For barge transportation costs, SunBelt has assumed that it would use a dedicated tugboat operator for the same reasons as the La Porte Option.[129] SunBelt asked River Marine, which provides dedicated tugboat service for barge shipments from Olin's Charleston, TN facility, for a cost estimate to provide dedicated tugboat services for the NOLA Option. River Marine provided the following cost estimates: [130]

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[128] This likely overstates the annual savings because, as previously noted on pages II-B-2 to 3, SunBelt's actual shipping volume to La Porte in recent years has ranged from {[redacted]} tons per year, {{[redacted]}}. Also, as noted on page II-B-27, because barges are inherently less consistent than rail, SunBelt inevitably will need to continue shipping 10-20% of the issue movement volume by rail in order to avoid plant shut downs at McIntosh and La Porte. Consequently, a reduced annual volume means reduced annual savings, which means an even longer cost recovery period than the CAR model projects.

[129] This assumption also was used to estimate the total number of barges needed. If a dedicated tugboat service is not used, cycles times will be longer, more barges will be required, and the capital investment will increase by $5 million per additional barge.

[130] Sun. Op. Workpaper "River Marine Estimates."

- {{ }} daily rate per 1800 hp tugboat multiplied by 7 day cycle times[131] = {{ }} per trip.
- Average fuel consumption of 10,000 gallons per trip multiplied by $3 per gallon = $30,000 per trip.
- Waterway User Fee of $0.20 per gallon multiplied by 10,000 gallons = $2000 per trip.

The sum of the above charges for a round-trip tow of two chlorine barges would be {{ }}. Because two barges hold 2200 tons of chlorine, the cost per ton would equal {{ }}.

Thus, the potential freight savings over rail for the NOLA Option would be {{ }} per ton.[132] As discussed previously, this savings is overstated because it excludes real estate costs for relocating the public boat ramp, security costs for the 1.3 mile chlorine pipeline to the barge dock and within the dock area, permitting costs, wetland mitigation costs, and a fleeting facility at Mobile, and only includes a portion of the infrastructure and operating costs to enable SunBelt to transload chlorine barges at New Orleans. In addition, the barge transportation costs do not include the fleeting and In/Out charges that would accrue to each barge. Nevertheless, even without those charges, the CAR model indicates that the NOLA Option would not be economically feasible.

According to the CAR model for the NOLA Option, the net payback period would be greater than 10 years, which is too long to be considered viable.[133] The return on capital at the 5

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[131] Although barge cycle times are 13 days, SunBelt conservatively assumes that tugboats would not remain with the barges during loading, unloading, or fleeting, which account for 8 days of the 13 day cycle time estimate. Instead, SunBelt assumes that, upon arrival at New Orleans and McIntosh, a tug would drop 2 barges and pick up 2 more from a previous trip. Because 2 barges will not always be immediately available, however, SunBelt has assumed that a tugboat would incur 2 stand-by days per trip. (5 transit days + 2 stand-by days = 7 billable days)

[132] {{ }}

[133] See Sun. Op. Workpaper "NOLA CAR Model," cell AE79 (the term "Too Many" means more than 10 years). Although this means that any recovery period over 10 years is unacceptable, it does not mean that any recovery in under 10 years would be acceptable. Other financial indicators also would be relevant.

year mark would be just 0.3%, whereas Olin's target return at this point is {{[redacted]}}.[134] The net present value of cash flow by Year 10 (with termination value) is negative, when it should be positive or, at a minimum, break-even.[135] All of these financial indicators show that the NOLA Option is nowhere close to economic feasibility, even when based upon incomplete cost estimates and highly optimistic assumptions.

(c) The Rail-Barge Option.

This subsection explains how SunBelt determined the inputs for the Rail Barge CAR model and presents the results generated by the model. The Rail Barge CAR model evaluates the financial profitability of making a {{[redacted]}} capital investment for the Rail-Barge Option.[136] This investment amount includes {{[redacted]}} for the lower cost articulated bridge system in the GBB study (Ex. II-B-5) and the acquisition of one barge with the JeffBoat design for {{[redacted]}}. For the purpose of this analysis, SunBelt has assumed away the draught problems with the JeffBoat design and potential permitting obstacles. This analysis also disregards security compliance costs, intra-plant rail switching infrastructure and operating costs at McIntosh, and permitting and environmental mitigation costs. SunBelt has assumed, although this fact remains in doubt, that there would not be any infrastructure cost at Mobile because SunBelt would use the existing CGR rail barge terminal. The model does not include any of the other costs discussed on pages II-B-41 to 42. Even excluding those costs, the Rail-Barge Option is not economically feasible.

The CAR model assumes freight savings that are measured as the difference between the direct rail rate from McIntosh to New Orleans and a combination of the barge transportation rate

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[134] Id., cell AK109.

[135] Id., cell AK89.

[136] Sun. Op. Workpaper "Rail Barge CAR Model," cell AG70.

components from McIntosh to Mobile and the rail transportation rate from Mobile to New Orleans. Because the direct rail rate is higher, there will be some savings. SunBelt has estimated that savings on a cost per ton basis and multiplied that savings by an annual volume of 250,000 tons of chlorine.[137]

The rail transportation rate for the Rail-Barge Option is the challenged NS rate of $8088 per rail car, or $89.87 per ton. There is no fuel surcharge.

For barge transportation costs, SunBelt has assumed that it would use a dedicated tugboat operator for the same reasons as the La Porte Option. SunBelt asked River Marine, which provides dedicated tugboat service for barge shipments from Olin's Charleston, TN facility, for a cost estimate to provide dedicated tugboat services for the Rail-Barge Option. River Marine provided the following cost estimates: [138]

- {{ }} daily rate per 1800 hp tugboat multiplied by 4 day cycle times[139] = {{ }} per trip.
- Average fuel consumption of 2,000 gallons per trip multiplied by $3 per gallon = $6,000 per trip.
- Waterway User Fee of $0.20 per gallon multiplied by 2,000 gallons = $400 per trip.

The sum of the above charges for a round-trip tow of two chlorine barges would be {{ }}. Because a 35 car rail barge holds 3150 tons of chlorine, the cost per ton would equal {{ }}.

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[137] This likely overstates the annual savings because, as previously noted on pages II-B-2 to 3, SunBelt's actual shipping volume to La Porte in recent years has ranged from { } tons per year, {{ }}. Also, as noted on page II-B-27, because barges are inherently less consistent than rail, SunBelt inevitably will need to continue shipping 10-20% of the issue movement volume by rail in order to avoid plant shut downs at McIntosh and La Porte. Consequently, a reduced annual volume means reduced annual savings, which means an even longer cost recovery period than the CAR model projects.

[138] Sun. Op. Workpaper "River Marine Estimates."

[139] Because of the short distance and turn-around times, and the use of only a single barge, the tugboat would remain with the barge throughout the cycle. This is different from the "drop-and-tow" operation assumed for the La Porte and NOLA Options, which require multiple barges and tugboats.

SunBelt also must pay CSXT to complete the trip by hauling the rail cars from Mobile to New Orleans. SunBelt obtained a rate quote from CSXT in January 2011 of {{[redacted]}}.[140] Although SunBelt also could connect with BNSF and CN, at Mobile, the CSXT route to New Orleans is by far the shortest and most direct. As illustrated in SunBelt Opening Exhibit II-B-6, the CSXT route is 144 miles, compared with 376 miles for CN and 1276 miles for BNSF. The CSXT rate translates to {{[redacted]}} per ton, based upon 90 ton rail cars.

In addition to the foregoing barge and rail transportation rates, SunBelt would incur various charges at Mobile, such as barge loading and unloading fees, rail switching fees, track storage fees, wharfage fees, or rail ferry terminal usage fees. Although SunBelt was not able to obtain current rate quotes due to the speculative nature of this project, just using the fees that were quoted to Olin in 2001, which clearly would be much higher today, would add $441 per rail car, or $4.90 per ton.[141]

The sum of the foregoing charges is {{[redacted]}} per ton for the Rail-Barge Option.

Thus, the potential freight savings over rail for the Rail-Barge Option would be {{[redacted]}} per ton.[142] As discussed previously, this savings is overstated because it excludes security compliance costs, intra-plant rail switching infrastructure and operating costs at McIntosh, permitting and environmental mitigation costs, and "fleeting" costs at Mobile. It also assumes no infrastructure costs for a rail ferry terminal at Mobile.

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[140] Sun. Op. Workpaper "CSXT Rate Quote."

[141] See, Sun. Op. Workpaper "Rail Ferry Capital Estimate" ($55/car load fee; $55/car unload fee; $2/ton wharfage charge; $151/car switch fee).

[142] {{[redacted]}}

According to the CAR model for the Rail-Barge Option, the net payback period would be much greater than 10 years, which is too long to be considered viable.[143] The return on capital at the 5 year mark would be a negative 4.6%, whereas Olin's target return at this point is {{[redacted]}}.[144] The net present value of cash flow by Year 10 (with termination value) is negative, when it should be positive or, at a minimum, break-even.[145] All of these financial indicators show that the Rail-Barge Option is nowhere close to economic feasibility, even when based upon incomplete cost estimates and highly optimistic assumptions.

(2) The history of the challenged rate proves that neither the La Porte, NOLA, or Rail-Barge Options have been an effective competitive constraint.

The current rate differential between barge and rail transportation, as discussed in the preceding section, is due to very substantial rail rate increases over the past ten years. The SunBelt joint rail contract rate in 2002 was equal to {[redacted]} per ton for the through movement from McIntosh to La Porte.[146] SunBelt negotiated a new 5-year contract, effective in 2003, that increased the rate by {[redacted]}.[147] When that contract expired in 2008, the base rate increased by a staggering {[redacted]} and a fuel surcharge was introduced.[148] In the three years that followed, the joint rate increased by {[redacted]}, excluding fuel surcharges.[149] Only in July 2011, when UP and NS switched to Rule 11 tariffs, did the through rate decline, and

[143] See Sun. Op. Workpaper "Rail Barge CAR Model," cell AE79 (the term "Too Many" means more than 10 years). Although this means that any recovery period over 10 years is unacceptable, it does not mean that any recovery in under 10 years would be acceptable. Other financial indicators also would be relevant.

[144] Id., cell AK109.

[145] Id., cell AK89.

[146] Sun. Op. Workpaper "SunBelt Rate History." Because the issue movement was subject to joint rate contracts, or to a joint rate tariff, until July 2011, SunBelt can only compare the entire through rate from McIntosh to La Porte.

[147] Id.

[148] Id.

[149] Id.

then only by {{[redacted]}}.[150] Cumulatively, from 2002 through the present, the cost per ton, including the fuel surcharge, has risen by {{[redacted]}}, from {[redacted]} per ton to {{[redacted]}} per ton.[151]

Such large and sustained rate increases prove that NS has not set its rates based upon potential barge competition. Indeed, NS has stated publicly for many years that it has no desire to transport chlorine and that it would not do so but for its common carrier obligation.[152] It defies logic to conclude that a rail carrier that does not desire to transport chlorine at all would compete to win that business from a potential or an actual competitor. Indeed, the issue movement must be "desirable" in order for alternative transportation to provide "effective competition."[153] Nor are NS's substantial rate increases consistent with a concern that it will lose the issue movement to a hypothetical barge alternative. Thus, such alternatives cannot be deemed sufficiently realistic to constitute a constraint upon rail rates, much less an effective constraint as required by the statute. See supra Part I-A-2.b.(5), at pages I-34 to 36.

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[150] Id.

[151] Id.

[152] See Sun. Op. Workpaper "NS H. Rep. Testimony" at 127 (NS CEO C. Moorman stating "absent [the common carrier obligation], Norfolk Southern would not transport [highly hazardous] materials"), at 129 ("It simply is not good public policy to force railroads to bear all the substantial risks of catastrophic damages associated with transporting highly hazardous materials – risks we would not take absent the common carrier obligation imposed by the Federal government."), at 130 ("It is time for Congress to remedy the inequity in the law that forces us to assume risks that we would not assume on our own without any protection against those risks."), at 130 "This Committee should relieve railroads of their common carrier obligation so that Norfolk Southern can decide for itself whether to accept and at what price it is willing to accept such materials for transportation."); Sun. Op. Workpaper "NS Ex Parte 677 Testimony" at 46 (NS Executive Vice President Law and Corporate Relations, J. Hixon, stating that he would not advise his management to continue to carry TIHs at today's prices and risk exposure if NS was not obligated to do so by the common carrier obligation); Sun. Op. Workpaper "Roanoke Times Article" (quoting NS spokeswoman Susan Terpay, "We do not want to move TIH."). See also, "NS 2010 Sustainability Report," p. 20, http://www.scribd.com/doc/47997810/NS-Sustainability-Full-Report-v5-2#outer_page_21 ("Because we are required under federal law as a common carrier, Norfolk Southern transported approximately 15,000 carloads of TIH commodities in 2009.").

[153] Mkt. Dominance Determinations, 365 I.C.C. at 129 ("effective competition" means "that there must be pressures on that firm to perform up to standards and at reasonable prices, or lose *desirable* business." [emphasis added]).

Even if the tank and rail barge options somehow have provided some constraint upon NS pricing, these large rail rate increases indicate that those options are not effective competitive constraints, but the type of "outlier limit" constraint that the Board referenced in E.I. du Pont de Nemours and Company v. CSX Transp. Inc., STB Docket No. 42099, slip op. at 7-8 (served June 30, 2008). This "outlier limit" is "a profit-maximizing price beyond which [a monopolist] cannot raise prices without adversely affecting its bottom line." This outlier limit typically is established by a "higher-cost alternative." Id. In this proceeding, despite lower barge transportation *rates*, the enormous infrastructure *costs* that are required to turn the potential of barging into reality make it a much higher cost alternative to rail.

Strong evidence of this fact comes from a 2009 Olin evaluation of barging chlorine from McIntosh to Delisle, MS. Based upon the 2007 Thompson study estimates of {{ }} for McIntosh infrastructure and $70 million for barges, Olin concluded that {{ }}.[154] In other words, due to the enormous infrastructure costs associated with barging, barges are a much higher cost mode than rail service. Indeed, the total cost of barging was so much higher than rail that it made more economic sense {{ }}. If this constitutes "effective competition," then market dominance can never be demonstrated.

[154] See Sun. Op. Exhibit II-B-4.

Part III-A

III. A. STAND-ALONE TRAFFIC GROUP

The testimony in this Part is being sponsored by Thomas D. Crowley, Michael E. Lillis, Robert D. Mulholland and Sean D. Nolan, all of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV and summarized herein.

For the last forty-one (41) years, Mr. Crowley has been analyzing and evaluating economic and transportation options available to users of all transportation modes, as well as the transporters of products. In addition to railroads, pipelines and truck transporters, Mr. Crowley has assisted shippers of chemical traffic, coal and aggregates, grain and agriculture, lumber and raw materials analyze and evaluate different transportation options available to them in both competitive and captive environments in all parts of the United States. Mr. Crowley has sponsored economic evidence in every maximum rate proceeding based on the stand-alone cost test filed at the STB and its predecessor agency, the ICC, since the adoption of the 1985 *Guidelines.*

Mr. Lillis has more than twenty-five (25) years of experience solving economic, transportation and fuel supply problems for different shippers throughout the United States. He has performed extensive analyses in the area of stand-alone costing including traffic group identification, route layout, design and construction costs, revenue development, forecasting and the development of detailed operating plans for various stand-alone railroads.

Mr. Mulholland has over seventeen (17) years of experience conducting and directing studies, analyzing many different facets of the freight transportation industry, with an emphasis on economic and policy issues. He has worked in both the private and public sectors with or for shippers, carriers, facility operators, and regulators. Much of his work has focused on the operations, cost and pricing structures of the rail and trucking industries. He has developed and

sponsored evidence regarding traffic selection, shipment routing, revenue division, and traffic and revenue forecasts in several rate reasonableness proceedings before the STB.

Mr. Nolan has spent his twenty (20) year consulting career evaluating railroad cost of service, pricing and operations issues on behalf of shippers and government departments and agencies. The nature of his work has been supporting shippers in their procurement initiatives including the purchasing of fuel, transportation services, equipment and management of inventories. His development and analysis of alternative scenarios have been supported by tailored financial models used to estimate cost reductions and savings, actual versus budgeted variances, revenue to variable cost of service relationships, cash flows, and break-even and sensitivity analyses.

The SunBelt Stand-Alone Railroad ("SBRR") will operate 580.64 route miles, which includes 2.4 miles under a trackage rights agreement with CN (as NS does today).[1] The SBRR traverses three (3) states – Alabama, Louisiana and Mississippi. A schematic of the SBRR system appears in Exhibit III-A-1.

The SBRR stand-alone traffic group and associated revenues are discussed in the remainder of this Part III-A. Different, interrelated time periods are used to develop SunBelt's opening evidence. Specifically, the time periods are defined as follows: 1) "Base Period" is 2011;[2] 2) "Base Year" is July 30, 2010 through July 29, 2011;[3] 3) "First Year" is July 30, 2011 through July 29, 2012, the first year of the SAC analysis period; and 4) Peak Year is July 30, 2020 through July 29, 2021, the last year of the SAC analysis period.

The remainder of this Part III-A is organized under the following topical headings:

1. Stand-Alone Railroad Traffic

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[1] *See* e-workpaper "IC/SR Agreement.pdf."

[2] NS traffic data from the Base Period were used to develop base SBRR traffic volumes and revenues. These data were forecasted over the SAC analysis period as described in this section.

[3] NS train data from the Base Year were used to develop base SBRR operating statistics. These data were forecasted over the SAC analysis period as described in Part III-C.

2. Volumes (Historical and Projected)
3. Revenues (Historical and Projected)
4. Revenues by Traffic Type

1. Stand-Alone Railroad Traffic

The SBRR transports a broad range of commodities over its system in single-line, interline and cross-over service, similar to what NS does over the same rail lines in the real-world. The basis for the SBRR traffic group is NS waybill data and NS car and intermodal event data for January 1, 2010 through September 30, 2011, which were produced by NS in response to SunBelt discovery requests.[4]

As discussed in more detail in Parts III-A-2 and III-A-3 below, the waybill and car/intermodal event data were used in conjunction with several other files that were provided by NS in multiple disparate formats and with varying levels of common data fields that did not always enable efficient and/or complete database linking to identify the SBRR traffic. The processes used to link the tables and the difficulties encountered and overcome in developing those processes are detailed in Exhibit III-A-2.

Like NS, the SBRR traffic includes chemical, intermodal, agricultural, coal, automotive, metals, paper, and construction materials shipments.[5] The SBRR moves its shipments in the same manner that NS handles the traffic today on intermodal, unit, manifest (mixed general freight), and local trains. The Base Period traffic is made up of NS actual shipments traversing the SBRR during the first quarter 2011 ("1Q11") through third quarter 2011 ("3Q11") time period plus fourth quarter 2011 ("4Q11") projections based on NS' actual system-wide volumes and revenues. SunBelt developed 4Q11 NS commodity-specific growth rates by dividing NS

[4] NS 2010 traffic data were provided at hard drives NS-DP-HC-EHD2, NS-DP-HC-EHD4. NS 2011 traffic data were provided at hard drives NS-SB-HC-EHD1, and NS-SB-HC-EHD2.

[5] The traffic and corresponding NS commodity group codes include: Agriculture (10), Chemicals (40), Automotive (60), Coal (80), Intermodal (IM), and "General Merchandise" consisting of Metals (20), Construction (25), and Paper (30).

system-wide 4Q11 volumes by NS system-wide 1Q11-3Q11 volumes for each commodity group. The 4Q11 NS commodity specific growth rates are summarized in Table III-A-1 below.

Table III-A-1
NS Commodity Specific Growth Rates
To Annualize 1Q11-3Q11 NS Provided Data

Commodity	4Q11 Growth Rate 1/
(1)	(2)
1. Agricultural Products (10)	1.335
2. Metals (20)	1.330
3. Construction Materials (25)	1.330
4. Paper (30)	1.311
5. Chemicals (40)	1.304
6. Automotive (60)	1.365
7. Coal (80)	1.334
8. Intermodal (IM)	1.351

1/ Factor applied to annualize 1Q11-3Q11 NS provided data based on actual NS growth.
Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

SunBelt applied the Table III-A-1 growth rates to the 1Q11-3Q11 data for NS movements traversing the SBRR to develop Base Period traffic levels. The Base Period SBRR traffic is summarized in Table III-A-2 below and is made up of {[redacted]} agricultural products, {[redacted]} metals, {[redacted]} construction materials, {[redacted]} paper, {[redacted]} chemicals, {[redacted]} automotive, {[redacted]} coal, and {[redacted]} intermodal on a carload/container basis.

Table III-A-2
Summary of SBRR Base Period Carloads/Containers and Net Tons – 2011

Commodity	Carloads/ Containers	Net Tons	Percent of Col (2) Total
(1)	(2)	(3)	(4)
1. Agricultural Products (10)	{[redacted]}	{[redacted]}	{[redacted]}
2. Metals (20)	{[redacted]}	{[redacted]}	{[redacted]}
3. Construction Materials (25)	{[redacted]}	{[redacted]}	{[redacted]}
4. Paper (30)	{[redacted]}	{[redacted]}	{[redacted]}
5. Chemicals (40)	{[redacted]}	{[redacted]}	{[redacted]}
6. Automotive (60)	{[redacted]}	{[redacted]}	{[redacted]}
7. Coal (80)	{[redacted]}	{[redacted]}	{[redacted]}
8. Intermodal (IM)	{[redacted]}	{[redacted]}	{[redacted]}
9. Total	{[redacted]}	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

The SBRR Base Period traffic consists of {[redacted]} carloads/containers or {[redacted]} million tons as shown in Table III-A-2 above. A detailed summary of the Base Period traffic group for the SBRR is included in SunBelt's workpapers.[6]

2. Volumes (Historical and Projected)

The SBRR begins operating on July 30, 2011. The SBRR traffic group is composed of: (1) actual selected NS traffic (including issue traffic) moving from the start date through the end of September 2011, and (2) forecasted traffic volumes from October 1, 2011 through July 29, 2021.

For all commodity groups (see Table III-A-1 above), the 4Q11 volumes were projected by adjusting the NS selected volumes for January to September, 2011 by the NS actual fourth quarter growth as shown in the NS' Fourth Quarter 2011 Quarterly Financial Review. For the 2012 through 2016 periods, SBRR volumes were projected by using an annual volume index developed from NS internal shipment forecasts provided in discovery. Specifically, NS

[6] *See* e-workpapers "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

produced the 2012-2016 internal forecasts it developed in March 2012. SunBelt aggregated the NS forecasted carload and container totals on a commodity group basis and developed year-over-year volume change indexes for each commodity group. SunBelt then applied the annual volume change indexes it developed from the NS forecast data to the selected Base Period SBRR movements based on the 2-digit commodity code[7] provided in the NS waybill data. Aggregation of forecast data on a commodity group basis was necessary to maintain consistency between the traffic volume forecast and the train forecast because shipments that move together on a given train may be forecasted to grow at different rates in the NS forecast. By developing commodity group-specific growth rates, SunBelt was able to accurately reflect forecasted volume growth in the Peak Year train list.

This aggregate approach is consistent with the model accepted by the STB in *CP&L*.[8] In *CP&L*, the Board recognized that coal business in the east constantly shifts on an O/D pair basis and that an O/D pair-specific approach to forecasting the traffic group would be too restrictive and result in understated volume growth. The same holds true for this case.[9] Although some of the historical movements do not appear in the NS forecast (and would be excluded from the SBRR volume forecast using an O/D specific approach), the forecast does include other

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7 The NS database code that reflects the 2-digit commodity is "AR_MAJOR_COMMODITY_GRP."

8 *See CP&L* at 249-251.

9 Although the issue in *CP&L* was limited to coal volume forecasting, the principles behind the Board's decision in that case are relevant to the forecast of coal and other commodities in this case, and SunBelt applied the *CP&L* volume forecasting methodology to all selected movements in its forecast model. As stated by the STB in its December 23, 2003 *CP&L* decision, a customer may ship from one mine in one year, then shift to another the next year, and back to the first mine in the following year. Similarly, a customer may not ship from a SARR-served mine in the Base Year but it may do so in some or all subsequent years. Consequently, requiring exact origin-destination matches between forecasted traffic volumes and the selected Base Year is unduly restrictive and does not fairly reflect the traffic that would be available to the SARR in any given year. The better (and Board-endorsed) approach is to view the Base Year traffic group selected by the shipper as a snapshot that is reflective of the coal traffic that can reasonably be assumed to be available to the SARR for any given year of the model period. Thus, the fact that some traffic would not continue to move from a specific origin to a specific destination throughout the SAC analysis period does not mean that other traffic would not move from the mines served by the SARR. It is therefore reasonable to treat the base traffic group selected by the shipper as a representative traffic group for all modeled years. Theoretically there is no difference between coal and other commodities in this regard, so we have extended this Board approved logic to cover all existing carload movements on the SARR.

comparable movements that are not included in the historical data. Therefore, including only the historical lanes would not be reflective of the actual system-wide growth NS projects.

For the January 2017 through July 2021 time period, SBRR volumes were determined by adjusting the prior year volume by the commodity group-specific compound annual growth rate ("CAGR") developed utilizing three (3) years of NS actual data (2009-2011) and five (5) years of NS internal forecast data (2012-2016). These procedures were accepted by the Board most recently in *AEPCO 2011*.[10] The average tons per car will remain the same throughout the study period.

Table III-A-3 below summarizes the year-over-year SBRR growth rates by NS-designated commodity group for the 2012 through July 29, 2021 time period.

Table III-A-3
SBRR Traffic Growth Rates by NS Commodity Group

Time Period	Agriculture (Code 10)	Chemicals (Code 40)	Automotive (Code 60)	Coal (Code 80)	Other Freight (Code 20/25/30)	Intermodal (Code IM)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. 2012	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
2. 2013	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
3. 2014	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
4. 2015	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
5. 2016	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
6. 2017	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
7. 2018	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
8. 2019	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
9. 2020	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
10. 7/29/2021	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

a. Merchandise Traffic

Merchandise (or "General Freight") traffic handled by the SBRR was developed as described above. Some of the merchandise traffic originates and/or terminates on the SBRR and

[10] SunBelt is incorporating eight (8) years of NS data, reducing the effects of real and perceived volatility. *See AEPCO 2011* at 22-23.

some moves in overhead service. Table III-A-4 below summarizes the commodity groups, carloads, and tons moved in general freight service over the SBRR in the Base Period and Peak Year.

Table III-A-4
Summary of SBRR Base Period and Peak Year Merchandise Traffic

NS Major Commodity Group	Base Period		Peak Year	
	Carloads	Net Tons	Carloads	Net Tons
(1)	(2)	(3)	(4)	(5)
1. Agriculture Products (10)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
2. Metals (20)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
3. Construction Materials (25)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
4. Paper (30)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
5. Chemicals (40)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
6. Automotive (60)	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}
7. Total	{[redacted]}	{[redacted]}	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

Merchandise carloads and tons handled by the SBRR during each study year are shown in SunBelt's workpapers.[11]

b. Intermodal Traffic

The intermodal traffic handled by the SBRR is developed as described above. Some of the intermodal traffic is originated and/or terminated on the SBRR system, and some moves in overhead service on the SBRR. Table III-A-5 below summarizes the Base Period and Peak Year containers moved by the SBRR in intermodal service by customer.

[11] *See* e-workpaper "Gen Freight Traffic and Revenue Forecast.xlsx."

Table III-A-5
Summary of SBRR Base Period and Peak Year Intermodal Traffic

Transporter	Containers	
	Base Period	Peak Year
(1)	(2)	(3)
1. HUB Group Inc.	{[redacted]}	{[redacted]}
2. JB Hunt Transport Inc.	{[redacted]}	{[redacted]}
3. Hanjin Shipping Limited	{[redacted]}	{[redacted]}
4. NYK International	{[redacted]}	{[redacted]}
5. All Other	{[redacted]}	{[redacted]}
6. Total Intermodal Traffic	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables 5+6.xlsx" and "IM-Coal Traffic and Revenue Forecast.xlsx."

Intermodal containers handled by the SBRR for each year of the DCF model are shown in SunBelt's workpapers.[12]

c. Coal Traffic

The coal traffic handled by the SBRR is also developed as described above. The SBRR will not serve any origin coal mines directly but will receive trainloads of coal in interchange from NS and other railroads. Some coal moving over the SBRR terminates at two generating stations[13] and a few industrial facilities located on the SBRR. Other coal traffic moving over the SBRR will be interchanged (interline forwarded/received) with NS and other railroads that will transport this traffic to/from electric utilities, marine coal terminals or industrial facilities located off the SBRR system.

As in prior STB maximum rate reasonableness proceedings, electric utility coal volume growth was capped at an 85 percent plant capacity level for each generating station. However, for the two generating stations at which SBRR terminates coal shipments, i.e., R.D. Morrow at Richburg, MS and Lowman Plant at Jackson (Carson), AL, when the forecasted growth factors

[12] *See* e-workpaper "IM-Coal Traffic and Revenue Forecast.xlsx."
[13] R.D. Morrow Station at Richburg, MS and Lowman Plant at Jackson (Carson), AL.

were applied to the annual volumes, the maximum volume was less than produced by the 85 percent capacity factor.

The on and off system coal destinations and total tons of coal handled by the SBRR for the Base Period and Peak Year are summarized in Table III-A-6 below.

Table III-A-6
Summary of SBRR Base Period and Peak Year Coal Traffic

Coal Destination	Tons	
	Base Period	Peak Year
(1)	(2)	(3)
1. South Mississippi Electric Power	{[redacted]}	{[redacted]}
2. Powersouth Energy Cooperative	{[redacted]}	{[redacted]}
3. International Paper Co.	{[redacted]}	{[redacted]}
4. Alabama Power Co.	{[redacted]}	{[redacted]}
5. All Other	{[redacted]}	{[redacted]}
6. Total Coal Traffic	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables 5+6.xlsx" and "IM-Coal Traffic and Revenue Forecast.xlsx."

Total coal tons handled by the SBRR for each year of the DCF model are shown in SunBelt's workpapers.[14]

3. Revenues (Historical and Projected)

SunBelt developed total revenue for each selected movement using actual revenue and revenue adjustment data provided by NS in discovery for January 1, 2011 through September 30, 2011. SunBelt then forecasted the movement revenues for the rest of the SAC analysis period based on the methodology described below. Finally, SunBelt allocated the movement revenues between the SBRR and residual NS using the Board's modified average total cost ("ATC") methodology.

Calculating base net revenues was a difficult and cumbersome process. As with volumes, the difficulties arose from the nature and scope of the waybill revenue data and the revenue adjustment data provided by NS in discovery. Specifically, NS provided revenue data in an

[14] *See* e-workpaper "IM-Coal Traffic and Revenue Forecast.xlsx."

inconsistent manner in the waybill file and in multiple additional files of multiple different media types containing multiple record layouts and few common data fields that would enable efficient and precise linking of files. Exhibit III-A-2 contains a detailed description of the problems encountered and solutions developed to process and utilize the complex, disparate, and extremely voluminous data NS provided in an orderly, automated, repeatable way. There is no doubt that SunBelt's automated model was unable to make positive links between and among the many data tables for some shipments. These broken links are due entirely to data deficiencies and were unavoidable in the development of a system of straightforward, intuitive, and understandable scripts and models to pull all the disparate data sources together in a way that facilitated the SAC analysis.

a. Historical Revenues

SunBelt developed movement revenues (which included fuel surcharges, absorbed switching charges, other revenue claims and handling/haulage settlement payments) for each unique shipment[15] handled by the SBRR and then compiled the individual shipments into unique movements. A unique movement is defined by Origin/Destination ("O/D") pair, commodity group, and contract, if available. Using this compiled data, NS movement revenues were developed as follows:

1. For merchandise, coal and non-TCS/TDIS[16] intermodal moves, the following fields were summed:[17]
    a. Line Haul Revenues
    b. Fuel Surcharge Revenues
    c. Accounts Receivable Adjustments
    d. Other NS Revenue Adjustments
    e. Contract Refunds
    f. Dumping Amounts

[15] A shipment is defined as a car/container or group of cars/containers moving under the same waybill.

[16] NS intermodal shipments were classified in the following three ways: 1) shipper = Triple Crown Services ("TCS"); 2) Shipper = Thoroughbred Direct Intermodal Services ("TDIS"); and 3) All other Intermodal. There are no TCS shipments on the SBRR.

[17] All revenue fields were summed because negative revenue adjustments were captured as negative values in the data processing models. For example, contract refunds are recorded as negative amounts.

g. Net Switching Payments (where applicable)[18]
h. Net Handling Line Payments (where applicable)[19]
i. Net Haulage Receivable Payments (where applicable)[20]

2. For TDIS Intermodal moves, the following fields were summed:
   a. TDIS Net Revenues (total revenues less drayage expenses)
   b. NS Fuel Surcharge Revenues
   c. Accounts Receivable Adjustments
   d. Other NS Revenue Adjustments
   e. Contract Refunds
   f. Dumping Amounts
   g. Net Switching Payments (where applicable)
   h. Net Handling Line Payments (where applicable)
   i. Net Haulage Receivables Payments (where applicable)

3. There are no TCS Intermodal moves on the SBRR.

b. Projected Revenues

SBRR forecasted revenue for 4Q11 through July 29, 2021 using: (1) NS system-wide 4Q11 revenue data; (2) NS pricing authorities and fuel surcharge tariffs; (3) NS internal revenue forecasts; and (4) publicly available forecasts of key economic indices.

Table III-A-7 summarizes the basis of the revenue forecasts that SunBelt used to develop SBRR projected revenues.

[18] Switching charges/payments were provided in separate data tables and often could not be positively linked to the waybill data based on the common fields provided. To the extent that links could be made, switching charges were considered in the development of NS movement revenues.

[19] Handling Line charges/payments were provided in separate data tables and often could not be linked to the waybill data based on the common fields provided. To the extent that links could be made, handling line charges were considered in the development of NS movement revenues.

[20] Haulage receivable payments were provided in separate data tables and often could not be linked to the waybill data based on the common fields provided. To the extent that links could be made, haulage receivables payments were considered in the development of NS movement revenues.

Table III-A-7
Basis of SBRR Revenue Forecasts

NS Major Commodity Group	Study Period		
	4Q11	1Q12-2016	2017 - 7/29/21
(1)	(2)	(3)	(4)
1. Agriculture (10)	1/	NS Internal Forecasts	AII-LF 2/
2. Metals (20)	1/	NS Internal Forecasts	AII-LF 2/
3. Construction (25)	1/	NS Internal Forecasts	AII-LF 2/
4. Paper (30)	1/	NS Internal Forecasts	AII-LF 2/
5. Chemicals (40)	1/	NS Internal Forecasts	AII-LF 2/
6. Automotive (60)	1/	NS Internal Forecasts	RCAFU 2/
7. Coal (80)	1/	NS Internal Forecasts	AEO East Escalator 3/
8. Intermodal (IM)	1/	NS Internal Forecasts	AII-LF 2/
9. All Commodity Groups	1/	NS WTI FSC Program 4/	NS WTI FSC Program 4/

1/ The 4Q11 revenues were developed by adjusting the NS net revenues for selected movements traversing the SBRR in January to September, 2011 by the NS commodity-specific, system-wide fourth quarter growth rates as shown in the NS' Fourth Quarter 2011 Quarterly Financial Review.
2/ Rail Cost Adjustment Factor Forecast, June 2012, Global Insight. If no FSC was applied to 1Q11-3Q11 actual shipments, RCAF-U is applied.
3/ Transportation Escalator from the Annual Energy Outlook 2012, 2009-2035.
4/ EIA 2012 forecasts of WTI in its Short Term and Annual Energy Outlooks.

SunBelt assumed that moves subject to NS fuel surcharge ("FSC") programs in 2011 will be subject to NS FSC programs throughout the SAC analysis period. Therefore, SunBelt separated the fuel surcharge revenue from the movement revenues developed as described above and forecasted the two revenue components separately.[21]

As summarized in Table III-A-7 above, SunBelt adjusted the "Revenues Less Fuel Surcharge" portion of revenues during the 2012-2016 time period based on NS' internal forecasts. During the 2017-7/29/21 time period, SunBelt used the Global Insights June 2012 forecasts of the AAR All Inclusive Index Less Fuel ("AII-LF") and the Unadjusted Rail Cost Adjustment Factor ("RCAF-U") for all commodities except coal.[22] Coal rates for 2017-7/29/21

[21] This revenue split was made for all traffic except automotive related traffic. Total movement revenues for automotive traffic were treated as base revenues for forecasting purposes because the NS provided forecast data did not separate revenues between base revenues and FSC revenues.
[22] SunBelt adjusted 2017-2021 revenues for movements that were not subject to NS fuel surcharge programs in 2011 based on the Global Insights forecast of the Unadjusted Rail Cost Adjustment Factor ("RCAF-U").

were adjusted using the annual percentage change in the 2012 AEO's Transportation Rate Escalator for the Eastern U.S., consistent with Board precedent.[23]

SunBelt's forecasting procedures for 4Q11 through July 29, 2021, for each commodity group shown in Table III-A-2 above, are described as follows:

1. SunBelt developed annual revenue growth indices for 2011-2016 for all commodity groups based on NS actual data and NS forecasts that separately recorded "Revenues Less Fuel Surcharge" and FSC.

    a. SunBelt restated "Revenues Less Fuel Surcharge" on an average per unit basis for each forecast year from 2011-2016 by dividing the aggregate "Revenues Less Fuel Surcharge" by the corresponding carloads/containers in the NS provided forecasts for each commodity group.

    b. SunBelt then developed an annual revenue growth rate for each commodity group based on the annual average per unit revenues implicit in the NS forecast.

2. To forecast "Revenues Less Fuel Surcharge", SunBelt applied either: (1) the applicable contract rate adjustment mechanism (where available); (2) the commodity-group-specific revenue-per-unit growth index it developed from NS forecasts (for 2011-2016) (Item 1 above); or (3) the appropriate publicly available economic index (for 2017-2021) for each SBRR movement, as appropriate.

    a. For movements where contract data was provided by NS, contract rate adjustment mechanisms were used to forecast the "Revenues Less Fuel Surcharge" portion of revenues for the duration of the contract term.

    b. After expiration of the contract, "Revenues Less Fuel Surcharge" were adjusted based on the commodity-group-specific revenue-per-unit growth index SunBelt developed from NS forecasts through 2016 and the appropriate publicly available economic index from 2017 through 2021.

    c. If no contract was provided by NS, "Revenues Less Fuel Surcharge" were adjusted based on the commodity-group-specific revenue-per-unit growth index SunBelt developed from NS forecasts through 2016

[23] EIA uses its Transportation Rate Escalators to forecast future coal transportation prices. It applies the escalators based on coal origins. EIA uses its Eastern Escalator for coal originating east of the Mississippi River, and its Western Escalator for coal originating west of the Mississippi River. Coal produced in the Powder River Basin or Rocky Mountains and destined to locations east of the Mississippi River would have transportation rates adjusted based on the Western Escalator. *See, e.g.*, *WFA/Basin* at 30; *PSCo/Xcel* at 639.

and the appropriate publicly available economic index from 2017 through 2021.

The fuel surcharge portion of the revenues for movements subject to a fuel surcharge was adjusted based on the fuel surcharge growth rate implicit in the NS fuel surcharge tariffs and the price of West Texas Intermediate ("WTI") fuel based on the EIA's Short Term Energy Outlook ("STEO") and Annual Energy Outlook ("AEO") forecasts.

4. Revenues By Traffic Type

The SBRR revenues developed as described in the previous section are summarized by traffic type in this section. SBRR handles single-line traffic, interline traffic, and cross-over traffic.

Single-line traffic is traffic that originates and terminates on the SBRR. Interline traffic is traffic that either originates or terminates on the SBRR and is interchanged with a railroad other than NS. Cross-over traffic is traffic that presently moves over a portion of the NS system that is beyond that which the SBRR replicates and is interlined between the SBRR and NS.

Table III-A-8 below contains a summary of the SBRR revenues by traffic type in the Base Period and Peak Year.

Table III-A-8
Summary of SBRR Base Period and Peak Year Net Revenue

Traffic Type	Base Period	Peak Year
(1)	(2)	(3)
1. Single-Line	{[redacted]}	{[redacted]}
2. Interline	{[redacted]}	{[redacted]}
3. Cross-Over	{[redacted]}	{[redacted]}
4. Total	{[redacted]}	{[redacted]}

Source: e-workpapers "III-A-Tables.xlsx," "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

As shown in Table III-A-8 above, total SBRR revenues equal {[redacted]} million in the Base Period and {[redacted]} million in the Peak Year. Each of the three traffic types is discussed further below.

a. Single-Line Traffic

As shown in Table III-A-8 above, single-line traffic revenue equaled {[redacted]} million in the Base Period. This revenue accrued from the handling of {[redacted]} carloads of general freight and {[redacted]} intermodal containers/trailers in single-line service. SBRR revenue for this traffic was developed assuming 100 percent of the NS net movement revenue accrues to the SBRR.

In the Peak Year of operations, {[redacted]} carloads of general freight and {[redacted]} containers will move over the SBRR in single-line service generating {[redacted]} million in revenue. The total revenue for all single-line SBRR traffic for all years is shown in SunBelt's workpapers.[24]

b. Interline Traffic

Base Period interline traffic revenue equaled {[redacted]} million. This revenue came from handling {[redacted]} carloads of general freight and {[redacted]} containers/trailers in interline service.

In the Peak Year of operations, {[redacted]} carloads of general freight and {[redacted]} containers will move over the SBRR in interline service. This traffic will generate {[redacted]} million in the Peak Year.

SBRR revenues for interline traffic are the same as revenues generated by NS on the same movements. The total revenue for interline traffic handled by SBRR for all years is summarized in SunBelt's workpapers.[25]

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[24] *See* e-workpapers "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

[25] Id.

c. Cross-Over Traffic

The largest group of traffic handled by the SBRR is cross-over traffic. These shipments are assumed to be interlined between the SBRR and NS. The SBRR portion of revenues for these movements is calculated using the Modified Average Total Cost ("ATC") revenue division approach pursuant to the Board's decision in *Major Issues.*[26]

In implementing the STB's ATC methodology, SunBelt encountered multiple problems with the NS provided electronic data. A summary of these problems and the modifications made by SunBelt to overcome the NS data deficiencies is included in Exhibit III-A-3. A detailed description of the methodology followed by SunBelt to calculate SBRR's share of revenue on cross-over traffic is included in SunBelt's electronic workpapers and summarized below.[27]

i. Variable Costs – SunBelt calculated variable costs per unit for both the SBRR segment ("on-SARR") and the residual NS segment ("off-SARR") of each cross-over movement in the SBRR traffic group. Variable costs were developed using the nine (9) URCS Phase III inputs identified in *Major Issues.*[28] SunBelt utilized the Board's 2010 NS URCS unit costs to develop the URCS Phase III costs for both the on-SARR and off-SARR segments.

ii. Fixed Costs Per Route Mile – SunBelt calculated fixed costs per route mile for both the on-SARR and off-SARR segments of each cross-over movement in the SBRR traffic group. SunBelt first calculated the density for each segment of the entire movement of SBRR cross-over traffic (both on-SARR and off-SARR). SunBelt developed density data by segment from data produced by NS in discovery. The density data was developed on a net ton basis as called for in the STB's ATC methodology. SunBelt then calculated the NS fixed cost per route mile[29] by subtracting NS's total system variable costs from NS's total costs as developed in URCS and dividing the difference by NS's total system route miles.[30]

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[26] As modified by the STB in *WFA/Basin* at 12-14 and *AEP Texas II* at 11-16.

[27] *See* e-workpaper "SUNBELT_ATC_METHODOLOGY.docx."

[28] The STB stated that *AEPCO 2011* "properly framed this issue for future rate litigants to consider and brief" at 36. *AEPCO 2011* related to the calculation of variable costs for the maximum markup methodology ("MMM") model and not the ATC model. Exhibit III-A-3 explains, in part, why the URCS Phase III variable costs should not be adjusted in the ATC model.

[29] Because of the limitations of NS data, SunBelt did not calculate a separate fixed cost per route mile for trackage rights segments. Instead SunBelt calculated a fixed cost per route mile for all segments (the sum of NS owned segments and NS trackage rights segments). SunBelt's calculations are described more fully in Exhibit III-A-3.

[30] Total route miles are from NS's 2010 Annual Report Form R-1, Schedule 700, Line 57, Column (c).

iii. Fixed Costs Per Ton – With the fixed cost information developed above, SunBelt calculated the fixed cost per net ton for each segment of the actual route of movement of the cross-over traffic. NS's fixed cost per ton was calculated by multiplying the NS fixed cost per route mile by each segment's route miles and dividing the resulting aggregate fixed cost per segment by the density for each segment. SunBelt aggregated the SBRR fixed cost per net ton for the SBRR (on-SARR) segments and separately aggregated the residual NS fixed cost per net ton for the non-SBRR (off-SARR) segments of the total movement.[31]

iv. Net SARR Revenue – On-SARR variable costs plus the off-SARR variable costs were subtracted from the total NS net revenue.[32] If the result was negative (i.e., variable costs exceeded revenues), then the NS net revenues were allocated to the SBRR and residual NS based on the ratio of on-SARR to total variable costs and the ATC process for the movement was complete. If the result was positive (i.e., revenues exceeded variable costs) then the total movement contribution was calculated by subtracting the total variable costs from the total NS revenues. The contribution was allocated between the SBRR and residual NS as follows:

(1) Calculate the total cost per ton for both the on-SARR and off-SARR segments for each movement by adding the variable cost per net ton and the fixed cost per net ton;
(2) Calculate the ratio of on-SARR total costs to full movement total costs; and
(3) Apply the item (2) ratio to the total contribution for the evaluated movement and add this result to the on-SARR variable cost to arrive at the SBRR share of the total movement revenue for each cross-over movement.

The SBRR ATC revenue division ratios developed using the above procedures are held constant during each year of the DCF model life, regardless of when the movement over the SBRR starts or terminates.[33]

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[31] In performing the calculations described above, SunBelt relied upon NS provided car and intermodal event data produced in discovery and additional publicly available data from PC*MILER/Rail. PC*MILER/Rail was used primarily to identify the actual detailed route of movement on-SARR and off-SARR for each shipment. It was also used to identify the stations on the SBRR system where cross-over traffic is either received from NS or would enter the SBRR system and where cross-over traffic is interchanged to NS for off-SARR delivery or would leave the SBRR system. PC*MILER/Rail is point-to-point rail routing, mileage and mapping software for the North American rail network. The software is available for purchase and is utilized by the STB and the railroad industry.

[32] In developing the ATC divisions, URCS variable costs and URCS-based fixed costs are used. Implicit in URCS costs are total NS fuel costs recovered through the base rates plus the fuel surcharge. Therefore, to ensure that the costs and revenues that are used to allocate are on the same basis, total net revenues including fuel surcharges are included in this calculation.

[33] *See AEP Texas* at 3.

Cross-over traffic generated {[redacted]} million in the Base Period and will generate {[redacted]} million in the Peak Year of the SBRR study period. A complete summary of SunBelt's cross-over revenue allocations using the ATC methodology is shown in our workpapers.[34]

In *WFA/Basin III*, the STB reaffirmed the use of modified ATC for purposes of developing revenue divisions for cross-over traffic. The STB also stated that it may evaluate BNSF's so called alternate ATC methodology[35] in future maximum rate cases. The impact of applying BNSF's alternative ATC methodology to the cross-over traffic handled by the SARR is included in the accompanying electronic workpapers.[36] Application of the BNSF alternative ATC methodology has only a minor impact on the revenue divisions for cross-over traffic handled by the SBRR.

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[34] *See* e-workpapers "IM-Coal Traffic and Revenue Forecast.xlsx" and "Gen Freight Traffic and Revenue Forecast.xlsx."

[35] BNSF's alternate ATC methodology can be summarized as follows: if total movement revenue is greater than total movement variable costs, revenues are divided between the on-SARR and off-SARR segments based on a percent distribution of total costs (on-SARR revenues cannot be less than variable costs). If total movement revenue is less than total movement variable costs, revenues are divided between the on-SARR and off-SARR segments based on a percent distribution of variable costs.

[36] *See* e-workpapers "ATC Alt Gen Freight Traffic and Revenue Forecast.xlsx," and "ATC Alt IM-Coal Traffic and Revenue Forecast.xlsx."

Part III-B

III. B. STAND-ALONE RAILROAD SYSTEM

The testimony in this Part is being sponsored by Richard H. McDonald, President of RHM Consulting, Inc. and Charles A. Stedman of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV and summarized herein.

Mr. McDonald has over 40 years of experience in the railroad engineering and operations fields, primarily at the former Chicago and NorthWestern ("CNW") which is now part of the Union Pacific Railroad. Mr. McDonald began his railroad career in 1958 at the New York Central Railroad, where he held positions as Assistant Engineer, Roadmaster and Division Engineer (for both the New York Central and Penn Central). In 1974, Mr. McDonald left Penn Central and joined CNW, where he held several positions of increasing responsibility in the Engineering and Operating Departments including Assistant Division Manager-Engineering and later Division Manager at St. Paul, MN, Vice President-WRPI, Vice President-Operating Administration, Vice President-Transportation, Vice President-Operations, and Vice President-Planning & Acquisitions.

Mr. Stedman has over thirty (30) years of experience in solving economic, marketing, transportation and fuel supply problems. He has directed and performed extensive analyses in the area of stand-alone costing, including route layout, design and construction costs, as well as the development of detailed operating plans for various stand-alone railroads.

1. Routes and Mileage

The SunBelt Stand Alone Railroad ("SBRR") is a limited system that has only two (2) main line segments. The segments are:

1. Birmingham, AL to New Orleans, LA; and
2. McIntosh, AL to Burstall, AL (near Birmingham).

The SBRR does not include any branch lines but does operate over 2.4 miles of Canadian National Railway Company ("CN") right of way under a trackage rights agreement. The total route miles operated by the SBRR equal 580.64. The SBRR will construct 578.24 miles. The SBRR's route is shown on Exhibit III-A-1. Exhibit III-A-1 also shows the SunBelt issue traffic origin (McIntosh, AL) and interchange location (New Orleans, LA).

a. Route Miles

NS operating timetables and track charts (produced by NS in discovery) were used to develop the SBRR rail lines being replicated and summarized in Table III-B-1 below.[1] NS operating timetables and track charts that were used to develop the SBRR rail lines being replicated, which were produced by NS in discovery, are the primary source documents used to identify the SBRR route mileages.[2] Maps and schematics of various portions of the SBRR route that were used to develop the SBRR route miles are also included in SunBelt's opening work papers.[3]

Table III-B-1
SBRR Constructed Route Mileage

	Segment	Constructed Miles
	(1)	(2)
1.	Birmingham, AL to New Orleans, LA	365.72
2.	McIntosh, AL to Burstall, AL	212.52
3.	Total constructed route miles	578.24

Source: e-workpaper "SUNBELT RR Route Miles Opening.xlsx"

[1] *See* e-workpaper "SUNBELT RR Route Miles Opening.xlsx."
[2] The timetable and track chart pdf files provided by NS in discovery that cover the route of the SBRR are included in SunBelt's opening electronic work papers.
[3] *See* e-workpaper "Additional SBRR mileage support.pdf."

The SBRR's rail lines are shown in the stick diagrams, which are the track charts for the SBRR.[4] The SBRR interchanges traffic with six (6) Class I railroads (UP, BNSF, CN, CSXT, KCS and NS) as well as with several short line railroads in the same manner that NS does today.[5] A summary of the SBRR's major interchange locations are shown in Table III-B-2 below.

Table III-B-2
SBRR Major Interchange Locations

	Location (1)	Carrier (2)
1.	McIntosh, AL	NS
2.	Kimbrough, AL	NS, AGR
3.	Marion Jct., AL	NS
4.	Selma, AL	NS, MNBR
5.	Maplesville, AL	NS
6.	Wilton, AL	NS
7.	Birmingham	NS, CSXT, BNSF
8.	Tuscaloosa, AL	NS, KCS, ABS
9.	Boligee, AL	NS, AGR
10.	Meridian, MS	NS, UP, KCS, MNBR
11.	Hattiesburg, MS	NS, CN, KCS, MSE
12.	New Orleans, LA	NS, CSXT, BNSF, UP, CN, KCS, NOPB

Source: e-workpaper "SBRR interchanges.xlsx."

b. Track Miles and Weight of Track

The SBRR's track and yard configuration was developed by SunBelt's expert operating witnesses McDonald and Stedman. The system configuration was developed to accommodate the SBRR's traffic group, using several tools, including information provided by SunBelt Witness Nolan (and supported by data produced by NS) concerning the SBRR's Peak Year traffic volumes and flows, and the trains that will move over the SBRR system in the peak week of the peak traffic year; the SBRR operating plan developed by Mr. McDonald; NS's operating timetables and track charts for the divisions and subdivisions involved; and a simulation of the

[4] *See* e-workpaper "SBRR Opening Sticks.pdf."
[5] *See* e-workpaper "SBRR interchanges.xlsx."

SBRR's operations executed by Messrs. Fapp and Humphrey using the Rail Traffic Controller ("RTC") model, which has been accepted by the Board as an appropriate operational modeling tool in several previous rail rate cases.[6]

The SBRR's track miles are shown in Table III-B-3 below.[7]

Table III-B-3
SBRR Constructed Track Miles

Type of Track	Constructed Miles
(1)	(2)
1. Main line track	
a. Single first main track[1/]	578.24
b. Other main track[2/]	124.11
c. Total main line track	702.35
2. Setout tracks	4.48
3. Yard tracks (include interchange tracks)[3/]	63.62
4. Total track miles	770.45

[1/] Single first main track miles equal total constructed route miles, excluding yard tracks and the 2.4 route miles of trackage rights that are operating miles that the SBRR does not construct.
[2/] Equals total miles for constructed other main tracks and passing sidings.
[3/] Includes all tracks in yards, such as locomotive repair and servicing tracks and classification tracks.

i. Main Line -- As shown in the SBRR stick diagrams, the SBRR's main line consists of single main track with sections of additional main track (including signaled passing sidings) at appropriate intervals to enable the SBRR to move its peak period trains efficiently and without delay. The SBRR has a total of 702.35 single main track miles and other main track/passing sidings.

All constructed main track and passing sidings in line segments carrying 20 million or more gross tons per year ("MGT") consist of new 136-pound continuous welded rail ("CWR").

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[6] *See, e.g., PSCo/Xcel* at 613; *WFA/Basin* at 15. A detailed explanation of the RTC Model simulation that was conducted in developing the SBRR system configuration is set forth in Exhibit III-C-2.

[7] *See* e-workpapers "SUNBELT RR Route Miles Opening Grading.xlsx" and "SBRR Yard Matrix.xlsx."

Standard rail is used for all mainline track except that premium (head-hardened) rail is used on curves of 3 degrees or more, where rail wear is heaviest. The main tracks in segments carrying less than 20 MGT will be constructed using new 115-pound CWR.

All of the SBRR's track and structures are designed to accommodate a gross weight on rail ("GWR") of 286,000 pounds per car and maximum train speeds of 60 mph, conditions permitting.

ii. Branch Lines -- The SBRR will not construct any branch lines.

iii. Sidings -- The SBRR's passing sidings are considered part of its main tracks and are discussed above.

iv. Setout tracks -- The SBRR places one setout track on each side of each of the SBRR's Failed-Equipment Detectors ("FEDs"), as described in Parts III-C and III-F, with one FED on each track in areas with multiple main tracks. All of these setout tracks are single-ended tracks, 735 feet in length. This provides 600 feet in the clear, past the switch, to accommodate both the occasional bad-order car and the temporary storage of maintenance-of-way ("MOW") equipment.

The locations of the setout tracks are shown in the SBRR stick diagrams.[8] They consist of 115-pound new CWR. The SBRR has a total of 4.48 track miles for these tracks. The SBRR does not have any helper districts, so does not require any helper pocket tracks.

2. Yards

The SBRR has a total of thirteen (13) yards. This total includes one (1) major yard, four (4) mid-size yards and eight (8) other yards. These yards are used for train staging, 1000/1500-mile car inspections, crew changes, locomotive repair, servicing and fueling, interchanges, local

[8] *See* e-workpaper "SBRR Opening Sticks.pdf."

train operations and originating/terminating traffic. A listing of all the SBRR yards is shown in SunBelt's opening workpapers.[9]

a. Major Yard Characteristics

The Birmingham (Norris) Yard is the only major yard on the SBRR. This yard includes fueling platforms, a locomotive shop, a crew change facility, a yard office and space for a contractor-provided car shop (including spare car storage and rip tracks). Car inspections are also performed here.

b. Mid-Size Yard Characteristics

There are four mid-size yards located on the SBRR. These yards are located in McIntosh, AL, Meridian, MS, New Orleans, LA and Selma, AL. The SBRR has stationed yard crews at New Orleans. Local crews perform the switching duties as needed at the other locations. Each location also includes a crew change facility, a yard office, inspection tracks, locomotive servicing tracks and classification tracks.

c. Other Yard Characteristics

The SBRR also has several other yards where traffic levels are minimal. These yards are used for interchanging traffic (at locations where a yard does not already exist).[10]

d. Miles and Weight of Yard Track

The SBRR's thirteen (13) yards have 63.62 miles of track.[11] The yard tracks are 115-pound new CWR.

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[9] *See* e-workpaper "SBRR Yard Matrix.xlsx."

[10] *See* e-workpaper "SBRR Yard Matrix.xlsx" for a complete listing of the yards on the SBRR and the activities that occur at each yard.

[11] Id.

3. Other

a. Trackage Rights

The SBRR utilizes 2.4 miles of trackage rights over track owned by CN. This agreement allows the SBRR to deliver trains to the UP and CN. A more detailed description of this agreement is included in Part III-C.

b. Signal/Communications System

Current federal law mandates that the SBRR be equipped with Positive Train Control ("PTC") by December 31, 2015. Rather than construct a Central Traffic Control ("CTC") system at the outset of SBRR operations (July 30, 2011) and then convert it to PTC, the SBRR will install PTC at the beginning of SBRR operations. The PTC system is discussed in more detail in Part III-F-6.

Power switches are used for the connections between the main line and the yard lead and relay tracks, and the connections to local origins and destinations. Interior yard switches and set-out track switches are hand-thrown switches.

Communications are conducted using a microwave system, with microwave towers at appropriately-spaced intervals as described in Part III-F-6. All locomotive engineers, dispatchers and field supervisory personnel are equipped with radios connected to the microwave system. Certain employees also will be equipped with cellular telephones for emergency railroad use, as a back-up to the radios. Further details on the SBRR's signal and communications system are provided in Part III-F-6.

c. Turnouts, FEDs and AEI Scanners

All turnouts between the SBRR's main tracks are No. 20 turnouts. This permits trains to operate through the turnouts at speeds of up to 40 miles per hour (conditions permitting). No. 20

turnouts also are used for connections between the main line and the yard leads and the main running tracks at both ends of each of the SBRR's major and mid-size yards. No. 14 turnouts are used between main tracks and all other tracks, including the connections with origin and destination industrial spurs, other yards and sidings used by local trains, where trains move at slower speeds. Trains can operate through these turnouts at a speed of up to 25 miles per hour. No. 10 turnouts are used within yards and for setout tracks.

FEDs, which include hot-bearing, dragging-equipment, cracked-wheel and wide/shifted load detection systems, have been spaced approximately every 35 miles along the SBRR's route. Multiple FEDs are provided at each location that has multiple main tracks, one for each track. Each FED is accompanied by two setout tracks, each located within two miles on either side of the FED. Each such track is a 735-foot single-ended track (with 600 feet in the clear) to facilitate the setout of bad-order cars after a train has passed an FED. These tracks are used primarily for temporary storage of bad-order cars detected by the FEDs, as well as for temporary storage of work equipment.

Automatic Equipment Identification ("AEI") scanners are located at or near each of the locations where the SBRR interchanges trains with other railroads as described above. A total of 20 AEI scanners have been provided. The AEI scanners have been placed so as to enable them to capture all train movements that occur on the SBRR, including both local and interline movements.

Part III-C

III. C. STAND-ALONE RAILROAD OPERATING PLAN

The operating plan for the SBRR was designed by Richard H. McDonald, one of the nation's leading rail operations and management experts, with assistance from Mr. Philip H. Burris of L. E. Peabody & Associates, Inc. who developed the operating specifications. Mr. Daniel L. Fapp and Mr. William W. Humphrey, also of L. E. Peabody & Associates, Inc., performed a simulation of the SBRR's peak-period operations using the Rail Traffic Controller model ("RTC Model") with operating inputs provided by Mr. McDonald to confirm the feasibility of the operating plan.

The operating plan is designed to enable the SBRR to transport its Peak Year traffic volume, and the trains moving on the system during the peak week of the Peak Year, in a manner that meets the transportation needs of its traffic group, in full compliance with all applicable NS transportation and service commitments to the customer group involved. The operating plan and the RTC Model are used to optimize the SBRR's system track configuration, as described in Part III-B, and provide the basis for many of the SBRR's annual operating expenses shown in Part III-D.

A key series of NS records needed to perform the multiple, interrelated analyses required to produce a viable operating plan for the SARR are the NS' train event records or train movement data. SunBelt requested train event records from NS in the discovery phase of this proceeding through Requests for Production No. 21 and No. 22. In response, NS provided eleven text files that contained train event data for January 2009 through September 2011.

Exhibit III-C-1 explains numerous problems and errors included in the NS provided train event data and the "fixes" that SunBelt employed to utilize this data.

1. General Parameters

The SBRR's configuration and operating plan have been designed to accommodate its peak seven-day traffic volume and train frequencies during the 10-year DCF period. The peak traffic volume and train movements were developed by SunBelt Witness Fapp using the 2010 through September 2011 traffic and car/train movement data provided by NS in discovery and the traffic forecast procedures described in Part III-A-2.

The SBRR system and operating plan were developed through a series of steps. First, Mr. McDonald reviewed the NS operating timetables and track charts for the lines being replicated,[1] as well as maps of various facilities, joint facility/joint use agreements between NS and other railroads, and NS interrogatory responses describing the operation of SunBelt traffic and other trains. A preliminary track configuration for the SBRR was developed, starting with NS's present main-track/passing siding configuration for all of the lines being replicated. Then, the operating plan elements to be input into the RTC Model were developed.

The SBRR operating plan was developed to accommodate the railroad's Peak Year traffic group. As indicated in Part III-A, the SBRR's peak traffic year is July 30, 2020 through July 29, 2021, which is also the final 12-month period in the 10-year DCF. As described in Part III-A-1, the SBRR's traffic group consists of general freight, coal, and intermodal traffic. The traffic moves in various flows over different parts of the system. The SBRR Peak Year total traffic volumes are shown in Table III-C-1 below.

[1] The NS operating timetables and track charts for all of the lines involved are reproduced in Part III-B e-workpapers.

Table III-C-1
SBRR Peak Year Traffic Volume
(July 30, 2020 to July 29, 2021)

Train Type	Cars/ Containers	Tons
(1)	(2)	(3)
1. General Freight		
a. Local	{}	{}
b. Interline	{}	{}
c. Overhead	{}	{}
2. Coal		
a. Local	{}	{}
b. Interline	{}	{}
c. Overhead	{}	{}
3. Intermodal		
a. Local	{}	{}
b. Interline	{}	{}
c. Overhead	{}	{}
4. Total	{}	{}

Source: e-workpaper "Table C-1.xlx."

The SBRR's operating plan reflects the different commodities it handles and the types of service they require. The SBRR serves various local origins and destinations, including industrial and intermodal facilities and power plants. The SBRR also serves interchange points with other railroads including CN, CSXT, BNSF, NS, UP and KCS as well as the NOPB and AGR.

As described in Part III-B, the SBRR has two (2) mainline segments and no branch lines. A schematic of the SBRR's route is attached as Exhibit III-A-1.

a. Traffic Flow and Interchange Points

The SBRR's Peak Year traffic volume consists of {[redacted]} million tons of general freight traffic, {[redacted]} million tons of coal traffic, and {[redacted]} million tons of intermodal traffic.[2] The

[2] The SBRR "Base Year" includes trains moving from July 30, 2010 through July 29, 2011. The SBRR begins operations on July 30, 2011 and continues for ten years to July 29, 2021 however, as the Board's standard DCF model adjusts operating expenses based on a full calendar year's statistics, SunBelt used calendar year 2011.

traffic density varies over different segments. The busiest segment is Birmingham, AL to Bessemer, AL. The Peak Year trains moving over the SBRR are shown in Table III-C-2 below.

Table III-C-2
SBRR Peak Year Trains By Line Segment

Line Segment[1/] (1)	No. of Trains (2)
1. Birmingham to Bessemer	{[redacted]}
2. Bessemer to Lacy	{[redacted]}
3. Lacy to Wilton	{[redacted]}
4. Wilton to Selma	{[redacted]}
5. Selma to Marion Jct.	{[redacted]}
6. Marion Jct. to Jackson	{[redacted]}
7. Jackson to Carson	{[redacted]}
8. Carson to McIntosh	{[redacted]}
9. Bessemer to Mercedes	{[redacted]}
10. Mercedes to Kimbrell	{[redacted]}
11. Kimbrell to Vance	{[redacted]}
12. Vance to Tuscaloosa	{[redacted]}
13. Tuscaloosa to Boligee	{[redacted]}
14. Boligee to Meridian	{[redacted]}
15. Meridian to Hattiesburg	{[redacted]}
16. Hattiesburg to Richburg	{[redacted]}
17. Richburg to New Orleans	{[redacted]}
18. Mercedes to Lacy	{[redacted]}

Source: e-workbook "Trains on SBRR.xlsx."
[1/] Trains shown for a line segment are the maximum trains moving over any part of the segment – volumes may not be uniform for the entire segment.

The SBRR handles SunBelt traffic from origin to the terminating carrier (UP). It also directly serves two (2) coal burning power plants[3] to which it delivers {[redacted]} tons of coal in the Peak Year. The SBRR also handles coal originated and terminated by other railroads. In addition, the SBRR handles other general freight and intermodal traffic in interline and local service, interchanging such traffic with other railroads at various points on the SBRR system.

The SBRR's operating plan takes into account its total traffic volume and the traffic flows described in Part III-A and summarized above and also reflects the SBRR's interchange

[3] These power plants are the Southern Mississippi Electric Power Association ("SMEPA") Morrow station located near Richburg, MS and Alabama Electric Cooperative's Lowman plant located near Leroy, AL.

relationships with other Class I carriers and short line railroads. These relationships are based on NS's joint use and interchange agreements with such carriers; the SBRR steps into NS's shoes under these agreements. All trains interchanged with other railroads are run-through trains, with the locomotive power staying with the train.

b. Trackage Rights Agreements

The SBRR steps into the shoes of NS and utilizes 2.4 miles of CN track at New Orleans from the CN/IC connection to Mays Yard.

c. Track and Yard Facilities

The SBRR's track and yard facilities are described in Part III-B-1 and III-B-2.[4] The SBRR's main lines consist of single track with appropriately spaced sections of second main track (essentially signaled passing sidings with power switches). The siding configuration and spacing were developed by SunBelt Witness McDonald with assistance from Witness Fapp and Humphrey's RTC Model simulation of the SBRR's peak-period operations.

All of the SBRR's main tracks are constructed to a standard that allows for maximum train speeds of 60 mph, conditions (including gradient and curvature) permitting. All tracks are being constructed to permit a maximum GWR of 286,000 pounds per car and are equipped with PTC and main-track power switches.

Wood crossties are being used on all SBRR tracks. The tie, other track and subgrade specifications (including rail section, turnouts, other track material, ballast and side slopes) are described in Parts III-F-2 and III-F-3 and associated e-workpapers. The track and subgrade specifications enable the SBRR to handle its expected peak-period traffic volume efficiently, consistent with lowest feasible cost, while enabling all customer service requirements to be met.

[4] *See* e-workpaper "SBRR Yard Matrix.xlsx."

d. Crew-Change Locations/Times

i. Road Crews -- All of the SBRR's crew changes take place at origins, yards, interchange points or destinations. The SBRR follows the efficient modern railroad practice of calling train crews sufficiently in advance of a train's arrival at the designated crew-change point so that the crew is ready to board the train when it arrives and the in-coming crew has de-trained. The crews in each district are qualified to operate to and from other intermediate origins, destinations and interchange points within the district.

Mr. McDonald's operating plan for the SBRR provides for straight-away and turn crew assignments at four (4) locations on the SBRR. The crew districts and assignments are shown in Table III-C-3 below.

Table III-C-3
SBRR Crew District Assignments

	Assignment Location	Away Locations	Turn Location
	(1)	(2)	(3)
1.	Birmingham, AL	Selma, AL McIntosh, AL Marion Jct. AL Boligee, AL Carson, AL Meridian, MS Jackson, AL	Kimbrell, AL Wilton, AL Mercedes, AL
2.	Selma, AL	McIntosh, AL	
3.	Meridian, MS	Wilton, AL	Richburg, MS
4.	New Orleans, LA	Meridian, MS	

Source: e-workpaper "SBRR Crew Assignments.docx."

These crew districts and assignments reflect a least-cost SARR's flexibility to maximize the efficiency of its crew assignments within the constraints of the federal "12-hour" (hours of service) law, including the amendments thereto wrought by the recently-enacted Rail Safety Improvement Act of 2008 ("RSIA") (Public Law No. 110-432). Since the SBRR is a new, start-up, non-unionized operation, its crew districts can be, and have been, designed for maximum

efficiency. SBRR road crews are not limited to operating over a single route, but instead are flexible enough to operate over several different routes on which they are certified. For example, crews stationed in Birmingham, AL can operate south to Meridian, MS or southeast to McIntosh, AL as necessary.

ii. Local Crews -- Local Crews are assigned at Birmingham, Selma, McIntosh and Meridian Yards. SBRR local crews are not limited to operating local trains, but instead are flexible enough to operate road trains over routes on which they are certified, as well as to perform any switching operations that may be required in yards.

iii. Helper crews -- Helper service is not required on the SBRR.

e. Switching and Yard Activity

i. Locomotive Inspections and Fueling -- FRA-required 92-day locomotive inspections are performed at SBRR's locomotive shop located at Birmingham. Road locomotive(s) requiring inspection are removed from the train and moved to the locomotive shop. Fueling is accomplished at stanchions provided in Birmingham. All other fueling is performed by tanker truck.

ii. Railcar Inspections

(a) Inspection Procedures -- The SBRR conducts 1,500-mile inspections of coal trains and 1,000-mile inspections of non-coal trains using state-of-the-art procedures, while complying at all times with FRA-mandated safety and inspection rules. SBRR performs 1,500-mile and 1,000-mile inspections on through trains at Birmingham. SBRR also performs inspections on originating trains by car inspection crews at the Meridian, Selma, McIntosh and New Orleans yard locations. Road train crews perform inspection functions at other yards as necessary.

The SBRR uses three-person inspection crews at its Birmingham Yard for 1,000 and 1,500 mile inspections, with one crew member on each crew serving as foreman. One person inspection crews are used for inspecting originating trains at Meridian, New Orleans, Selma and McIntosh. A description of the car inspection crews on duty at each of the yards is included in SunBelt's workpapers.[5]

Roadways are provided between each of the yard relay tracks at Birmingham where 1,000 mile and 1,500 mile inspections are performed. Each inspection crew stationed at the Birmingham Yard is equipped with a low-slung, four-wheel ATV-type vehicle. The vehicles carry spare parts, such as brake shoes and air hoses. Some parts are also placed periodically adjacent to the rails on the inspection tracks for ready availability. Coupler knuckles are rarely replaced during 1,500 or 1,000 mile inspections and can be transported to a specific car needing a knuckle by a company pick-up truck as needed.

(b) Trains Requiring Inspection -- Each of the SBRR's yards where trains originate is an inspection point and all trains are inspected either by a car inspection crew or by the train crew.

f. Trains and Equipment

i. Train Sizes -- The SBRR operates complete trains, including general freight, coal and intermodal trains, in local and interline (including overhead) service. The SBRR's train sizes are no larger than those for comparable NS trains operated from January 2010 through September 2011 for which NS produced car movement data. Non-coal trains that are interchanged with NS have the same mix of traffic as the comparable NS trains that moved between the same points from January 2010 through September 2011.

[5] *See* e-workpaper "Inspection Crews.xlsx."

All trains have sufficient locomotives to provide a horsepower-to-trailing ton ratio that assures they are adequately powered to meet present contractual transit-time commitments and service requirements. This was confirmed by the RTC simulation.

The SBRR operating plan assumes that the maximum train sizes (for a given train type) and locomotive consists will remain the same throughout the 10-year DCF period.[6] Increased volumes are accounted for by adding cars to existing trains consistent with the SBRR's (and NS's) ability to handle them with the same track configuration (yards/sidings). If a train would be too long using this procedure, "growth" trains are added that are equivalent or smaller in size to the comparable trains NS included in the data provided in discovery. The maximum train size is {[redacted]} cars and four (4) locomotives. All growth trains are limited to the same size and weight, and no growth train has more than four (4) locomotives.

ii. Locomotives -- The SBRR requires a total of 46 locomotives to handle its traffic volume in the first year of operations. The railroad has three types of locomotives: GE ES44AC locomotives for road service, GP-38 locomotives for local train and work train service and EMD SW1500 locomotives for yard switching service. The number of locomotives required for each kind of service in the first year of operations is shown in Table III-C-4 below. The SBRR's road locomotive requirements take into account the need to equalize the locomotive power used in run-through service for the NS and other interchange trains, any intermediate setting out or picking up of blocks of cars, and a spare margin which is described below.

[6] Maximum train sizes were identified for each train symbol ("TRN") based on car counts included in NS' car event data. As indicated in Exhibit III-C-1, NS' train event data was riddled with erroneous and missing information, including information on maximum train sizes, requiring SunBelt to use car event data to determine maximum train sizes.

Table III-C-4
SBRR Base Year Locomotive Requirements

Type of Service	Quantity
(1)	(2)
1. Road – ES44AC	26
2. Local/Work Train– GP38	16
3. Switch – SW1500	4
4. Total	46

Source: e-workpaper "SBRR Operating Statistics.xls."

(a) Road Locomotives -- The SBRR's "standard" road locomotive consist for all trains is two locomotives in a 1/1 distributed power ("DP") configuration, although some heavy coal, general freight and intermodal trains require three or more road locomotives for all or part of their runs on the SBRR. Where additional units are needed, they are placed at the front of the train.

The DP configuration involves positioning one locomotive on the front of the train and one locomotive on the rear of the train (hence the "1/1" designation). The rear (DP) locomotive has no engineer and is remotely controlled by radio signals from the lead locomotive. The use of a DP locomotive configuration reduces the drawbar tension between cars and enables the same number of locomotives to haul heavier trains or the same size trains at higher speeds. It also facilitates reversal of direction by a train, as locomotives do not have to be repositioned from one end of the train to the other. DP locomotive configurations are standard practice on the western Class I railroads, and DP is also being used by NS.[7]

As stated previously, local trains and work trains are powered by GP38 locomotives, using one locomotive per train where possible. When this is not possible, due to train size or topography, the SBRR adds a second GP38 locomotive, or in some instances uses an ES44AC

[7] *See* http://www.progressiverailroading.com/pr/article/Class-Is-employ-fuelsaving-practices-that-promise-stingier diesel-usage—22736 and "Railroad Mechanical Article.pdf."

locomotive instead. Consistent with prior STB decisions, the count of road locomotives for the first year of operations, shown in Table III-C-4, above, includes a spare margin and a peaking factor.[8]

Spare Margin -- The total number of road locomotives required includes a spare margin of {[redacted]} percent for ES44AC locomotives and {[redacted]} percent for GP38 locomotives. This spare margin is based on information provided by NS in response to SunBelt's discovery requests. The information provided by NS includes locomotive bad order time, transit time and total equivalent units in service by locomotive type for annual 2009 through September 2011. From this information, we developed the amount of time locomotive units were unavailable for service on a weighted average basis for 2009 through year-to-date 2011 to yield the locomotive spare margin for both ES44AC locomotives and GP38 locomotives.[9]

Peaking Factor -- In addition to using the spare margin, SunBelt's experts determined the SBRR's locomotive peaking factor by dividing the average number of train starts per day in the peak week of the Peak Year by the average number of train starts per day moving in the Peak Year. This is the same process as that approved by the Board[10] and results in a peaking factor of 15.1 percent.[11]

(b) Helper Locomotives -- The SBRR system does not require helper service.

(c) Switch Locomotives -- The SBRR uses EMD SW1500 locomotives for switch service. This type of locomotive is commonly used by Class I and other railroads (including NS) for such service. The SBRR requires a total of four (4) SW1500

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[8] *See WFA/Basin* at 33-34.
[9] *See* e-workpaper "Loco Utilization.xlsx." A similar calculation was accepted by the Board in *AEP Texas* at 43-44.
[10] *See PSCo/Xcel II* at 13.
[11] *See* e-workpaper "Peak Week Identification.xlsx," worksheet "Peak Period Identification."

locomotives for use in switch service. The number of locomotives assigned to each yard is dependent on the number of switch assignments working in each yard.

iii. Railcars -- Car ownership for the SBRR traffic group was determined from the shipment data produced by NS in discovery. This data shows that most of the SBRR's general freight and coal traffic moves in shipper-provided equipment and that nearly all of its intermodal traffic moves in shipper-provided containers and trailers. It is assumed that all flatcars used to transport intermodal containers and trailers are system cars. Table III-C-5 below summarizes the ownership of railcars and intermodal units for each traffic type.

Table III-C-5
Percent Of Car Ownership By Traffic Type

Traffic Type	System	Foreign	Private
(1)	(2)	(3)	(4)
1. General Freight	24.82%	10.65%	64.53%
2. Coal	38.72%	1.96%	59.32%
3. Containers & Trailers	15.17%	--	84.83%
4. Intermodal Flats	100.00%	--	--

Source: *See* e-workpaper "SBRR Car Costs.xlsx"

The SBRR car requirements for all of the movements in its traffic group were developed from the Base Year traffic and the simulated transit time output from the RTC Model. The resulting SBRR car requirements were increased by a {[redacted]} percent spare margin[12] and the 15.1 percent peaking factor described earlier. A complete description of the development of car ownership costs for system, foreign and private cars is set forth in Part III-D-2.

[12] The {[redacted]} percent spare margin is based on a review of coal transportation contracts provided by NS in discovery which show spare margins which range from {[redacted]} to a high {[redacted]} percent. Further, review of the public record in *AEPCO 2011* shows that both parties relied on a 5.0 percent spare margin, which is also based on review of transportation contracts in that proceeding, and is nearly the same as that used herein. *See AEPCO 2011* Opening Evidence (Public Version) in Docket. No. 42113 filed January 25, 2010 at III-C-15 and AEPCO's Rebuttal Evidence (Public Version) in Docket No. 42113 filed July 1, 2010 at III-C-16. In addition, the 5.0 percent spare margin for shipper-provided cars was accepted by the Board in *WFA/Basin* at 39 and *Otter Tail* at C-5, and was also based on the transportation contracts produced in discovery in those proceedings. SunBelt is relying on public information and common industry practice concerning the railcar spare margin from other maximum rate proceedings as described above.

g. RTC Model Procedures and Results

The essential elements of the operating plan (described above), the main-track configuration, and the yard and interchange locations were provided to Messrs. Fapp and Humphrey for input into the RTC Model. Messrs. Fapp and Humphrey also input various physical characteristics for these lines, which were obtained from NS track charts, operating timetables and other documents produced in discovery. These included train speed restrictions at various locations, grades, curves, topography and turnouts (switches). The final steps were to populate the RTC Model with the SBRR's trains during the simulation period, which includes the peak traffic week (in terms of train movements) in the SBRR's 10-year DCF existence plus a two-day warm-up and one-day cool down period, and input random "outage" and maintenance events.

SunBelt Witnesses Fapp and Humphrey developed SBRR's trains moving during the peak-seven day simulation period. The peak trains were based on the NS trains carrying traffic in the SBRR's traffic group forecasted from the base period to the Peak Year (the last year of the DCF model life.)

All road trains and local trains carrying SBRR identified cars moving on the SBRR network were included in the RTC simulation. The simulation includes stops en route for crew changes, inspections, fueling, and spotting and pulling cars at customer locations for all road trains and local trains operating in straight-away service between two locations. Local trains in turn service, i.e., trains identified in NS' train event data designated as local trains which originate and terminate at the same location, are also included in the RTC simulation. The data contained in NS' train event files for these trains did not provide adequate information to determine the stops en route. However, SunBelt's consultants were able to estimate the furthest

location traveled from the train's home location and have included in the simulation the movement of the local turn train from its home location to the furthest location and back. A description of the infirmities of the NS train event data, and the steps SunBelt took to overcome these infirmities is included in Exhibit III-C-1.

The RTC simulation runs began after inputting the SBRR's track and other relevant facilities, peak-period trains and operating parameters (including random outages and maintenance outages). Changes were made on an iterative basis until the RTC Model ran to a successful conclusion. These changes included the relocation, addition or deletion of certain passing sidings and segments of second main track, refinement of the locations and configuration of yards and interchange tracks, and the addition of locomotives to certain trains. A detailed description of the SBRR modeling procedures and results is included in Exhibit III-C-2.

2. <u>Cycle Time</u>

A SARR's operating plan must enable it "to meet the transportation needs of the traffic the SARR proposes to serve."[13] As the Board noted in *WFA/Basin*, a SARR:

> Need not match existing operating practices of the defendant railroad, as the objective of the SAC test is to determine what it would cost to provide the service with optimal efficiency. However, the assumptions used in the SAC analysis, including the operating plan, must be realistic, i.e., consistent with the underlying realities of real-world railroading.

Id at 15. This means that the complainant shipper must demonstrate that its SARR can provide service to its customers (i.e., traffic group members) that meets their requirements. SunBelt has accomplished this by showing that the average train transit times while on the SBRR during the

[13] *See WFA/Basin* at 15 - "the operating plan must be capable of providing, at a minimum, the level of service to which the shippers in the traffic group are accustomed."

peak period in the Peak Year are lower than the NS's transit times during the comparable period of the most recent 12-month period for which data is available.[14]

The starting point for the analysis in this case is the SBRR's Peak Year traffic volume and its peak-period train counts, which were developed from NS's train movement and car movement data for the traffic included in the SBRR's traffic group for July 2010 through July 2011. The peak trains, SBRR system configuration and relevant aspects of the operating plan were then input into the RTC Model to verify that the configuration and operating plan are realistic and adequate to enable the SBRR to operate its peak-period trains efficiently and in accordance with its customers' requirements as measured by train cycle/transit times.

The key outputs generated by the RTC Model for the transit time analysis were elapsed train running times over each of the SBRR's line segments and train transit times (used to develop locomotive and car hours and train-crew counts) over the portion of the SBRR system used by each train during the seven-day period modeled by SunBelt's operating experts. The electronic files containing the RTC Model runs, output and case files are included in SunBelt's Part III-C e-workpaper folder "RTC."[15]

As the Board has acknowledged, the SAC test must be equally workable in the Eastern and Western contexts.[16] The same holds true with regard to variances in the amount and usability of railroad traffic and operating data in a given proceeding. Accommodating both the nature of Class I rail operations in the East generally, and the NS traffic data produced in discovery in particular, the RTC simulation of the SBRR's operations in the peak week of its

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[14] *See* e-workpaper "Sunbelt Time on SARR v5.xlsx."

[15] SunBelt understands that the Board's staff is a licensee of, and has, the RTC Model, so the RTC Model itself is not being provided to the Board. Messrs. Fapp and Humphrey used Version 64(K) of the RTC Model for the simulation of the SBRR's peak-period operations presented in e-workpaper folder "RTC."

[16] *See CP&L* at 250.

peak traffic year confirm that the SBRR's configuration, facilities and operating plan are feasible.

The SBRR's trains operate in a manner that produces faster train speeds and transit times on average than NS demonstrated in the provided train movement data. In fact, 135 of the 138 trains that are comparable to NS trains (i.e., no growth trains or local trains) have faster transit times on the SBRR portion of their move than NS trains. For the three (3) trains where the SBRR transit time is greater than the NS transit time (on the SBRR), the transit time increase is between 2 percent and 10 percent of the total NS elapsed time for the entire NS movement.[17] The SBRR's ability to provide service equal to or better than the service provided by NS therefore is confirmed.

3. Other

a. Train Control and Communications

The SBRR network employs a Positive Train Control ("PTC") system for all train control and communications. RSIA mandates the widespread installation of PTC systems by December 2015.

As stated by the Federal Railroad Administration, "PTC systems are integrated command, control, communications, and information systems for controlling train movements with safety, security, precision, and efficiency. PTC systems will improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers and damage to their equipment, and over speed accidents.... PTC systems are comprised of digital data link communications networks, continuous and accurate positioning systems such as NDGPS, on-board computers with digitized maps on locomotives and maintenance-of-way equipment, in-cab displays, throttle-brake interfaces on locomotives, wayside interface units at

[17] *See* e-workpaper "Sunbelt Time on SARR 7 17 12 2.xlsx" tab "SBRR More."

switches and wayside detectors, and control center computers and displays.... PTC systems issue movement authorities to train and maintenance-of-way crews, track the location of the trains and maintenance-of-way vehicles, have the ability to automatically enforce movement authorities, and continually update operating data systems with information on the location of trains, locomotives, cars, and crews. The remote intervention capability of PTC will permit the control center to stop a train should the locomotive crew be incapacitated. In addition to providing a greater level of safety and security, PTC systems also enable a railroad to run scheduled operations and provide improved running time, greater running time reliability, higher asset utilization, and greater track capacity. They will assist railroads in measuring and managing costs and in improving energy efficiency."[18]

As discussed in Part III-F, unlike existing Class I carriers, the SBRR is installing a PTC system from the outset of its construction and investment, rather than converting an existing train communications and control system to a PTC system. As a result, the investment expenditures by the SBRR are less than what an existing Class I carrier will incur to achieve the same level of infrastructure.

Moreover, based on discussions with the designer and developer of the RTC simulation model, the dispatch logic of the RTC most closely simulates the communications of a PTC system where there are no active signals within the model. Therefore, SunBelt has disabled any signal logic in its RTC simulation runs.[19]

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[18] *See* http://www.fra.dot.gov/pages/784.shtml.

[19] The developer of the RTC model has indicated that operating the model with the signal logic turned off closely mimics the expected operations assuming PTC system communications are employed.

Part III-D

III. D. OPERATING EXPENSES

This Part of SunBelt's Opening Narrative summarizes the SBRR's annual operating expenses for equipment, personnel, General and Administrative ("G&A"), Information Technology ("IT") and maintenance-of-way ("MOW") requirements and the development of the related service units and costs. The expert witnesses responsible for the evidence in this Part include Richard H. McDonald (locomotive requirements and operating and G&A personnel and equipment); Joseph A. Kruzich (IT costs); Philip H. Burris (operating statistics, crew requirements, locomotive and freight car requirements, fuel costs, personnel compensation, equipment lease/maintenance costs and operating unit costs); and Harvey A. Crouch, P.E. (MOW costs). Their detailed qualifications are included in Part IV.

SunBelt witness Fapp and Humphrey developed train transit/cycle times from the RTC simulation of the SBRR's operations. The RTC output was directly used to calculate the SBRR's locomotive hours and car hours for the peak week of the July 30, 2020 to July 29, 2021 Peak Year. Mr. Burris, using the peak week transit times and locomotive requirement outputs from the RTC model, calculated locomotive hours, car hours, locomotive unit miles and car miles for trains moving from July 30, 2010 through July 29, 2011 ("Base Year").[1] The resulting statistics were utilized to determine overall locomotive requirements and car ownership requirements, as shown in the accompanying workpapers.[2] T&E (train crew) personnel requirements were also developed for trains moving in the Base Year.[3] Base Year statistics are then indexed to represent calendar year 2011 ("Base Period") traffic levels based on the difference between

[1] Development of the locomotive miles, car miles, locomotive hours, car hours and train and enginemen ("T&E") requirements is shown in e-workpaper "Base Year Train List_Statistics_Open.xlsx."
[2] *See* e-workpapers "SBRR Operating Statistics.xls" and "SBRR Car Cost.xls."
[3] Details are provided in e-workpaper "Base Year Train List_Statistics_Open.xlsx."

the carloads and containers moving in the Base Year and the carloads and containers moving in the Base Period.[4]

The actual locomotive and car hours and associated expenses derived from train transit/cycle times for the year would be lower than those presented here because the average number of daily trains containing SBRR traffic moved during the Base Year is less than the daily trains moved by the SBRR during the peak one-week period of the Peak Year. Thus the SBRR's transit/cycle times should be faster on a daily average basis for the entire year than as compared to the peak week.

The SBRR's Base Period annual operating expenses are shown in Table III-D-1 below.[5]

Table III-D-1
SBRR Base Period Operating Expenses

	Expense Component	Cost (in Millions)
	(1)	(2)
1.	Locomotive Acquisition	$4.0
2.	Locomotive Maintenance	8.9
3.	Locomotive Operating Expense	43.6
4.	Railcar Acquisition and Maintenance	11.7
5.	Train and Engine Personnel	14.1
6.	Non-Train Operating Personnel	6.2
7.	General and Administrative	6.1
8.	Materials & Supplies Operating	0.7
9.	Start-up and Training	5.3
10.	Maintenance-of-Way	15.6
11.	Leased Facilities	0.0
12.	Loss & Damage	0.6
13.	Insurance	4.8
14.	Ad Valorem Taxes	5.1
15.	Other	1.5
16.	Total Base Period Operating Expense[1/]	$128.2

Source: e-workpaper "SBRR Operating Expense.xls.", tab "DCF Transfer."
1/ Total may differ slightly from the sum of the individual items due to rounding.

[4] The Board's standard DCF model adjusts operating expenses based on full calendar year statistics. Therefore, SunBelt used calendar year 2011 as its "Base Period" even though the SBRR begins operations on July 30, 2011.

[5] Operating expenses are calculated at 3Q11 wage and price levels. The DCF model uses these expenses and indexes them to the appropriate time periods.

1. Locomotives

The SBRR's locomotive requirements for the Base Period are summarized in Table III-C-4 in Part III-C. The SBRR uses three types of locomotives – GE ES44AC locomotives for road service, GP38 locomotives for local train service and work trains and EMD SW1500 locomotives for yard switching. The SBRR needs a total of 26 ES44AC locomotives, sixteen (16) GP38 locomotives to transport its Base Period trains (including spares), and a total of four (4) SW1500 locomotives for switch service.

a. Acquisition

NS did not provide any current locomotive capital leases in response to SunBelt's discovery requests. As a result, SunBelt developed 3Q11 locomotive lease costs for ES44AC locomotives from information contained in *AEPCO 2011*[6] and the public version of defendants' reply statement in that proceeding. The annual lease expense developed from *AEPCO 2011* equals ${[redacted]} per unit.[7] This amount is also supported by the public version of UP's Reply evidence in *IPA*[8] which shows that UP's 2011 annual cost to lease ES44AC locomotives equals ${[redacted]}.[9] The locomotive lease cost developed from *AEPCO 2011* indexed to 3Q11 equals ${[redacted]} per unit. The total SBRR lease cost in 3Q11 for ES44ASC locomotives equals ${[redacted]}.[10]

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[6] *See AEPCO 2011* at 40-41.

[7] The STB's decision in *AEPCO 2011* provides total investment in locomotives at page 40, and the number of units by type of unit at page 41. Defendants' Reply statement (public version) provides the lease price for switch locomotives at page III.D-3, thereby providing the information necessary to determine UP's average annual lease price for ES44-AC locomotive in 2009. See e-workpaper "III-D-1 Loco Cost.pdf."

[8] STB Docket No. 42127, *Intermountain Power Agency v. Union Pacific Railroad Company,* UP Reply at III-D-2 and III-D-8 (Public Version).

[9] *See* e-workpaper "III-D-1 Loco Cost.pdf".

[10] In addition, to these locomotive lease amounts, capital costs to install required PTC equipment on all ES44AC and GP38 locomotives are included with the signals & communications investment expense in the DCF model. The amount included per locomotive is developed from information provided by NS in discovery.

The SBRR leases its GP38 locomotives at an annual lease price of $82,216 per unit. This lease price is developed from an article in the June 2008 issue of *Railway Age*, titled "2008 Guide to Equipment Leasing."[11] The total SBRR lease cost in 3Q11 for GP38 locomotives equals $1.3 million.

The SBRR leases its SW1500 locomotives at an annual lease price of $36,540 per unit. This lease price is also developed from the June 2008 *Railway Age* article referenced above.[12] Application of this annual lease payment to the four (4) SW1500 locomotives results in an annual lease payment of $146,160 in 2011.

As explained in Part III-C-1, SunBelt's experts used a road locomotive spare margin of {[redacted]} percent and {[redacted]} percent for ES44AC and GP38 locomotives, respectively, based on NS's actual experience for 2009, 2010 and the first nine months of 2011, as shown in materials NS produced in discovery. SunBelt's experts also applied a peaking factor, as mandated by the Board in *WFA/Basin*, to arrive at the SBRR's total annual road locomotive requirements. The peaking factor equals 15.1 percent and is equal to the average number of train starts per day in the peak week of the Peak Year divided by the average number of train starts per day in the Peak Year. This is the same procedure as that used by the STB to calculate the peaking factor in *PSCo/Xcel II*.[13]

b. Maintenance

The SBRR's locomotives undergo FRA-required 92-day inspections and minor repairs at the SBRR's Birmingham yard, where the SBRR has provided a locomotive maintenance facility to be used by its locomotive maintenance contractor. Locomotives used for trains that do not

[11] The lease price for GP38-2 and GP38-3 locomotives range from $200 to $250 per day, indexed to 3Q11 using the AAR equipment rents index produces an annual lease rate of $82,216.

[12] *See* e-workpaper "III-D-1 Loco Cost.pdf." The lease price for SW1500 locomotives ranges from $75 to $125 per day. Using the average price of $100 per day, indexed to 3Q11 using the AAR equipment rents index, produces an annual lease payment of $36,540 per unit.

[13] *See PSCo/Xcel II* at 13 and e-workpaper "Peak Week Identification.xls", tab "Peak Period Identification."

operate through Birmingham or any other locomotive inspection/maintenance point on NS (in the case of cross-over traffic) are routed on trains that do operate through Birmingham, to enable them to receive required maintenance, including periodic overhauls.

NS' 2011 average locomotive maintenance cost per locomotive unit mile is used for ES44AC, GP38 and SW1500 locomotives. The NS cost per locomotive unit mile of $1.6182 was developed from its 2011 R-1 Annual Report to the STB and indexed to 3Q11.[14] The NS system average cost includes both routine maintenance and locomotive overhauls. The system average cost was used as NS failed to provide information requested in discovery that is specific to various types of locomotives it utilizes including ES44AC and GP38 locomotives. The total locomotive maintenance cost for the SBRR equals $8.9 million in 2011.[15]

The SBRR provides an End-of-Train Device ("EOTD") for each of its locomotives.[16]

c. Servicing (Fuel, Sand and Lubrication)

Contractors based at the SBRR's yards fuel, sand and lubricate locomotives. Locomotives are fueled and serviced using two different procedures. A fixed fueling platform is located at the Birmingham Yard for fueling and servicing locomotives. Locomotives on through trains that are being inspected are removed and replaced with freshly fueled and serviced locomotives. Further, locomotives on trains originating at other yards are fueled and serviced by tanker truck (known in the railroad industry as direct-to-locomotive or "DTL" fueling).

The SBRR's fuel cost is based on the average consumption per locomotive unit mile calculated from NS' 2011 R-1 Annual Report for road and yard locomotives and the actual price of fuel paid by NS for 3Q11 as reported by NS in its Quarterly Review. The components of the SBRR's fuel costs are discussed below.

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[14] *See* e-workpaper "Loco Servicing and Maintenance Cost.xlsx."
[15] *See* e-workpaper "SBRR Operating Expense.xlsx."
[16] *See* e-workpaper "SBRR Materials and Supplies.xls."

i. Fuel Cost -- The SBRR's fuel cost is based on the price NS paid for fuel in 3Q11 of $3.097 per gallon as reported in NS' Quarterly Financial Review, Third Quarter 2011.[17]

ii. Fuel Consumption -- The average fuel consumption rate for the SBRR was developed from NS' 2011 R-1 Annual Report. For road and switch locomotives this equals 2.48 and 2.40 gallons per locomotive unit mile, respectively.[18]

iii. Locomotive Servicing -- Other SBRR locomotive servicing costs (primarily sand and lubrication) are based on a cost of $0.2466 per diesel unit-mile for ES44AC and GP38 locomotives and $0.0399 for SW1500 locomotives. These amounts are calculated using NS's 2011 R-1.[19]

2. Railcars

a. Acquisition

The SBRR uses a mixture of railroad-provided cars and private cars. For railroad-provided cars, SunBelt developed car costs using three different approaches. First, for non-coal traffic moving in cars owned by foreign roads, car costs are based on time and mileage by car type developed from NS's 2011 R-1. Second, for non-coal traffic moving in NS equipment, an annual full service lease cost was developed for each car type from information provided by NS in discovery or from publicly available sources.[20] A weighted annual car cost for all car types was then developed based on the percentage each car type moves on the SBRR system. The weighted average annual car cost was then converted to a cost per hour and cost per mile and applied to the car hours and car miles for the Base Year trains. The Base Year car hours and car

[17] *See* www2.nscorp.com/sd/sdoc?doc=3Q_financial_review 20110261604000 and e-workpaper "III-D-1 Loco Cost.pdf."
[18] *See* e-workpaper "III-D-1 Loco Cost.pdf."
[19] *See* e-workpaper "Loco Servicing and Maintenance Cost.xls."
[20] *See* e-workpapers "III-D-2 Car Cost.pdf" and "SBRR Car Costs.xls."

miles are indexed to Base Period traffic levels to calculate operating expenses. The car hour requirements for these cars are based on RTC transit times, plus free time at shipper origin and destination. The free time included is based on review of NS Tariff NS 6004-C, *Demurrage Rules and Charges,* effective February 1, 2009.[21] This tariff specifies NS demurrage charges equal to $100 per car per day, or fraction thereof, and provides for a one day credit for loading and a two day credit for unloading. These credit days are included in the calculation of car days for the purpose of determining SBRR system car requirements. Time beyond the credit days at origin and destination are not included as NS collects $100 per car per day for that time. Given that the typical car leases for between $8.23 and $14.54 per day,[22] the $100 charge received by NS, and which would be received by SBRR, more than offsets any additional car costs the SBRR would incur for system cars at origin or destination. Third, for SBRR-provided coal cars, car lease payments are based on annual full service lease costs developed from the June 2008 *Railway Age* article referenced above. The annual full service lease for coal cars is $5,206.[23]

The cars provided by the SBRR for non-coal traffic include boxcars, covered hoppers, gondolas, open-top hoppers and flat cars. The annual full service lease cost per car for each of these car types, based June 2008 *Railway Age* article referenced above, is as follows:

Boxcars	$3,003
Covered Hoppers	$3,552
Open-top Hoppers	$5,206
Flat Cars	$5,306

The SBRR's freight car requirements include a spare margin of {[redacted]} percent. This spare margin is based on a review of transportation contracts provided by NS in discovery which show spare margins that range from {[redacted]} percent to {[redacted]} percent. This spare margin is similar

[21] A copy of NS Tariff 6004 – C is included. *See* e-workpaper "III-D-2 Car Cost.pdf."
[22] Annual lease cost of $3,003 and $5,306 divided by 365 days, respectively.
[23] *See* e-workpapers "III-D-2 Car Cost.pdf" and "SBRR Car Costs.xls."

to the 5.0 percent spare margin used by both parties and accepted by the Board in *AEPCO 2011* at 46. A 5.0 percent margin was also accepted by the Board in *Otter Tail.* [24]

b. Maintenance

As described above, the SBRR uses full service car leases for the railcars it provides. As full service lease payments include maintenance costs, no other maintenance costs are included.

Shippers who supply railcars for their SBRR movements make their own separate arrangements for maintenance of their cars at existing car repair facilities on or near the route of movement.

c. Private Car Allowances

For SBRR coal movements that occur in private cars, the cars are provided per diem and mileage free under the terms of the relevant NS transportation contracts and other pricing authorities (that is, the cars are provided free of charge to NS and the freight rates reflect the fact that NS is not incurring car costs). Because the SBRR is replacing NS with respect to its coal traffic, the SBRR also pays no per diem or mileage allowances with respect to coal movements in private cars.

For private cars used for non-coal traffic, SunBelt's experts have included a private car charge per car-mile by car type which is applied to all private car-miles on the SBRR. The private car mileage charge by car type was developed from data contained in NS's 2011 R-1.[25]

3. Operating Personnel

The SBRR has a traffic group that moves primarily in trainload quantities. Consistent with the stand-alone concept of identifying the least-cost, most-efficient, feasible hypothetical

[24] *Otter Tail* at C-5.
[25] *See* e-workpaper "SBRR Car Costs.xls."

alternative to the incumbent, the SBRR is a non-union railroad that is built from the ground-up to handle a defined traffic group.[26]

SunBelt's experts have developed a staffing plan and associated personnel for the SBRR to handle its projected peak traffic volume safely and efficiently by taking full advantage of modern technology. This staffing plan also permits the railroad to maintain its facilities in good condition while minimizing cost. The staffing plan has been developed on the basis of the experience of SunBelt's witnesses McDonald and Crouch. Mr. McDonald in particular has held a number of senior management positions at a Class I railroad.

The SBRR's operating personnel include train crew, line supervisory and field employees in Transportation, Engineering/Maintenance-of-Way, Administration and Mechanical departments. The operations staff reports directly to the Vice President – Operations or their respective Assistant Vice President. The SBRR's operating personnel requirements are summarized below and fully discussed in Exhibit III-D-1.

a. Train/Switch Crew Personnel

The SBRR requires a total of 140 Train and Engine ("T&E") crew members to transport its Base Year trains indexed to Base Period traffic levels. This count, which includes switch crews based at the SBRR's yards, is based on the number of trains moving over the various parts of the SBRR system; the crew assignments developed by Mr. McDonald (as described in Part III-C-1-d), and the switch assignments at the SBRR's yards. The RTC simulation, performed by Messers. Fapp and Humphrey, was used to confirm that train crews operating in these crew districts generally could complete each tour of duty within 12 hours and otherwise comply with the federal Hours of Service law, as amended.[27]

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[26] The Board has accepted the concept of a non-unionized SARR. *See TMPA* at 687; *PSCo/Xcel* at 651.
[27] *See* e-workpaper "Base Year Train List_Statistics_Open.xlsx."

Consistent with Board precedent, T&E crews were developed using the total number of crew starts as determined by the actual train counts over an entire year.[28] In this instance, crews were determined for all Base Year trains. The total crew starts from each crew base were then adjusted upward to reflect traffic volumes moving in the Base Period and to reflect the 0.3 percent re-crewing requirements based on the results of the RTC simulation indicating the number of crews whose on-duty time expired under the Hours of Service law. The adjusted crew count was then used to determine the total number of T&E crews required using the standard formula employed by the Board to determine how many crews are required to cover the number of crew starts assuming that each crew member is available 270 days a year. *Id.*[29]

b. Non-Train Operating Personnel

The SBRR's staffing requirements for operating personnel other than train and switch crews and MOW personnel are summarized in Table III-D-2 below and fully discussed in Exhibit III-D-1. MOW personnel are discussed separately in Part III-D-5 and Exhibit III-D-3.

[28] *See PSCo/Xcel* at 645.
[29] This number is not affected by the hours-of-service provisions of RSIA.

Table III-D-2
SBRR Non-Train Operating Personnel

Operations Department Position (1)	No. of Employees (2)
Vice President – Operations	1
Assistant Vice President – Administration and Budget	1
Manager – Operations Planning & Joint Facilities	1
Manager – Safety, Rules & Training	1
Assistant Manager – Safety, Rules & Training	1
Customer Service Agent and Car Distributor	5
Manager – Field Operations	4
Assistant Manager – Field Operations	6
Managers – Locomotive Operations	2
Chief Dispatcher	1
Dispatchers (2 desks 24/7)	9
Crew Callers (1 desk 24/7)	5
Assistant Vice President – Engineering	1
Assistant Vice President – Mechanical	1
Manager – Locomotive Maintenance	1
Manager – Testing & Environmental	1
Manager – Equipment Maintenance	1
Car Inspectors	19
Total Non-Train Operating Personnel	61

Source: e-workpaper "SBRR Operating Expense.xls"

c. Compensation

Compensation for the T&E personnel and other non-train operating personnel is derived from NS's 2010 Wage Forms A&B and is established at the same levels as those paid by NS for comparable positions and indexed to 3Q11. The T&E wages include all constructive allowances paid by NS to its train and enginemen. The total compensation (excluding fringe benefits) for T&E personnel equals ${[redacted]}. Total compensation (excluding fringe benefits) for SBRR's non-train operating personnel equals $4.5 million. Salaries and total compensation for the SBRR's T&E personnel and for the non-train operating personnel are shown in detail in Exhibit III-D-1.

Fringe benefits for all SBRR employees are based on 37.5 percent of wages. This number is based on the average ratio of fringe benefits to total wages paid to all railroad

operating employees as reported by the Association of American Railroads.[30] This method of determining the fringe benefit ratio has been approved by the Board.[31] In addition, it is the same method used by Complainants and accepted by both Defendants and the Board in *AEPCO 2011*.[32]

4. General and Administrative Expense

The SBRR's personnel have all been designated either as operating personnel or as G&A personnel. The MOW employees, while considered operating personnel, are discussed separately in Part III-D-5 and Exhibit III-D-3. Those employees who might be considered non-operating personnel on a Class I railroad are included in the G&A staff discussed below.

The G&A expenses for the SBRR include its headquarters (corporate) management and administrative staff, buildings and equipment, and other expenses, including IT requirements. These expenses have been developed on the basis of the experience of SunBelt's Witnesses McDonald, Burris and Kruzich. Mr. McDonald in particular has held a number of senior management positions at a Class I railroad. Mr. Burris developed G&A personnel salaries based on salaries paid to comparable NS or (where appropriate) other railroad personnel. SunBelt's IT expert, Joseph Kruzich, developed the SBRR's IT requirements and costs including computer hardware, systems, software, and support personnel as well as out-sourcing needs.

a. G&A Personnel Requirements

The G&A staff are based at Birmingham, AL, where the SBRR's corporate headquarters building is located. This staff covers all executive and administrative functions including

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[30] Historically, the AAR reported fringe benefit information on a state by state basis for operating employees it now reports fringe benefit information only for the US as a whole. *See* e-workpaper "III-D-4 Salaries.pdf."

[31] *See WFA/Basin* at 66.

[32] The Public Version of AEPCO's Opening Evidence shows the derivation of the fringe benefit ratio in that proceeding, see AEPCO's January 25, 2010 Opening Evidence, Public Version, page III-D-25. Review of Defendants Reply evidence shows that they did not object to this fringe benefit ratio. *See* Defendants Reply Evidence dated May 7, 2010, pp. III.D-29 to 30. Moreover the STB accepted this evidence without comment in *AEPCO 2011*.

marketing, legal services, accounting and bookkeeping, budgeting, financial reporting, payroll, information systems, human resources, secretarial and clerical services, and supervising contractors in the performance of some out-sourced functions. The SBRR's G&A staff is consistent with the G&A staffing for the SARRs approved by the Board in recent SAC cases, including *PSCo/Xcel*, *AEP Texas*, *WFA/Basin* and *AEPCO 2011*.

The SBRR's G&A staff is summarized in Table III-D-3 below. This table does not include the operating and MOW employees located at the Birmingham, AL headquarters, who are discussed elsewhere in this Part. The G&A personnel requirements are more fully discussed in Exhibit III-D-2.

Table III-D-3
SBRR General & Administrative
Personnel Requirements

Position	Personnel
(1)	(2)
Outside Directors	2
President and CEO	1
Administrative Assistant	1
Controller/Treasurer	1
Manager – Payrolls	1
Analysts	2
Manager – Budgets and Purchasing	1
Manager – Claims & Internal Auditing	1
Director – Real Estate & Security	1
Security Agents	2
Manager – Information Technology	1
IT Specialists	6
Director – Sales & Marketing	1
Director – Human Resources	1
Total General & Administrative	22

Source: e-workpaper "SBRR Operating Expense.xls."

b. Compensation

The salaries and benefits for the SBRR's G&A personnel are based on comparable and competitive compensation packages presently available in the railroad industry (and in other service industries). Specifically, annual salaries for the G&A personnel are based on data

contained in NS's Wage Forms A and B, with several exceptions. The salary for the President is based on the salary, including bonuses, paid for a similar position by the Providence and Worcester Railroad Company ("P&W"), a publicly traded regional railroad.

As stated previously, fringe benefits for all employees are based on 37.5 percent of wages based on information available from the AAR. The fringe benefit ratio includes expenses related to health and welfare benefits, railroad retirement, supplemental annuities, unemployment insurance and other programs. The total compensation (excluding fringe benefits) for the SBRR G&A employees equals $1.8 million. This compensation by employee is further detailed in Exhibit III-D-2.

c. Materials, Supplies and Equipment

Consistent with the stand-alone principles of unlimited resources and barrier-free entry, the ready availability of materials and equipment is assumed.

The SBRR owns or leases various types of vehicles and equipment used by its Operating and G&A staffs. As fully discussed in Exhibit III-D-2, costs for this equipment are included in the calculation of the SBRR's annual operating expenses.[33] The SBRR also needs miscellaneous office equipment and supplies including desks, chairs, copiers, etc., which are included in the materials and supplies expense.[34]

d. Other G&A Expense

i. IT Systems -- The SBRR's IT systems have been developed by SunBelt Witness Joseph Kruzich, its experienced railroad IT expert. Mr. Kruzich has worked for Class I railroads reviewing various work procedures and providing recommendations on how the work processes could be improved to achieve a higher degree of efficiency. This position provided him an opportunity to become very familiar with various work processes involved in

[33] *See* e-workpaper "SBRR Operating Expense.xls."
[34] Id.

running a railroad. Mr. Kruzich also served as IT Vice President of the Kansas City Southern Railroad and was instrumental in directing the development of KCS' new computer systems in the late 1990s. A more detailed description of Mr. Kruzich's qualifications is contained in Part IV of this opening evidence.

Mr. Kruzich reviewed the SBRR's operating plan and G&A requirements to determine the railroad's basic computer and communications needs and the kind of support needed by its staff. The IT systems described below will enable the SBRR to operate safely and efficiently and to perform all administrative functions.

The SBRR has an average of 54 train movements per day in the peak week, as well as a limited number of local customers and interchange points. It also handles primarily trainload movements, with multiple-car billing (using the RMI Revenue System to allocate revenues), rather than billing for individual railcars. This reduces the complexity of the computer and communications systems required to support operations and renders unnecessary the colossally expensive mainframe systems that large carriers such as NS use.

Based on the SBRR operating plan and G&A staff departments, the capital requirements for IT and communications systems equal $1.8 million.[35] The annual operating cost for IT and related communications equals $2.5 million at 3Q11 price levels.[36] Table III-D-4 below shows the capital and annual operating expenses separately for IT and related communications systems.

[35] *See* e-workpaper "SBRR-Capital Budget.xls."
[36] *See* e-workpaper "SBRR-Operating Budget.xls."

Table III-D-4
Capital And Operating Costs For
SBRR IT And Communications Systems

Item	Capital Cost	Operating Expense
(1)	(2)	(3)
1. Information Technology	$1,758,627	$2,321,668
2. Communications	$32,509	$130,914
3. Total	$1,791,136	$2,452,582

Source: e-workpapers "SBRR-Capital Budget.xls" and "SBRR-Operating Budget.xls."

The SBRR's computer and IT communications systems are fully described in Exhibit III-D-2. They have been designed to meet the company's mission-critical technology needs to achieve operating efficiencies, customer satisfaction, maximum productivity, and safe train operations. The costs shown in the workpapers are based on the SBRR's highest daily train counts and number of annual carload transactions.

In addition to the amounts shown above for IT capital, costs for IT hardware and software are included in the signals and communications investment account that are required for the SBRR's PTC signaling system. The amount included is based on values provided by NS in discovery for additional IT systems and prorated to the SBRR based on a route mile basis. The amount provided was reduced to eliminate duplication of the dispatching system already provided for in the IT capital cost reflected above.

ii. Other Out-Sourced Functions -- As described earlier, several functions customarily provided in-house by large Class I railroads can be efficiently out-sourced by the SBRR. Consistent with the stand-alone concept of an efficient, least-cost railroad, out-sourcing is used wherever the economics so justify without sacrificing the SARR's feasibility or service quality.

Out-sourced functions, in addition to those described in the preceding section, include initial training of operating employees (discussed in more detail below), several finance and accounting functions including preparation of income, property and payroll tax returns and financial/account auditing, legal services including claims administration and investigation, and administration of the company's retirement plan.[37]

A number of independent accounting, payroll service and other firms have the experience and systems to perform these functions. For example, the payroll service firm Paychex has experience in complying with Railroad Retirement and other railroad-specific tax and regulatory reporting requirements. In the human resources area, regional and industry employers' associations are available as a resource for the SBRR's internal human resources staff.

Estimated annual costs of $615,900 have been developed for outsourcing all of the functions described above.[38]

iii. Start-Up and Training Costs -- The SBRR's start-up and training costs have been calculated using the procedures approved by the Board in *WFA/Basin* at 51-54. A total amount of $5.3 million has been provided for initial SBRR training and recruiting costs.[39] Consistent with *WFA/Basin*, start-up training and recruitment costs are treated as operating expense in the SBRR's first year of operations. Training and recruiting costs are fully discussed by position in Exhibit III-D-2.

iv. Travel Expense -- Travel expenses have been included for all SBRR employees at the Manager level and higher and for the two (2) outside members of the Board of Directors. Annual travel expenses of $10,475 per employee are included. This amount is based

[37] *See* e-workpaper "SBRR GA Outsourcing.xls."
[38] Id.
[39] 2010 is the most recent Runzheimer survey available. *See* e-workpaper "SBRR Operating Expense.xls", tab "Training."

on the 2010 survey of corporate travel managers performed by Runzheimer International, which estimates the annual cost of corporate business travel.[40] The SBRR's other start-up costs, road property investment costs including construction of fixed facilities, which are included in the SBRR's capital costs, and equipment acquisition are discussed in other sections of Part III.

5. Maintenance-of-Way

The MOW plan for the SBRR was developed by SunBelt's expert railroad engineering Witness Harvey Crouch.[41] It was also reviewed and approved by Richard McDonald, SunBelt's rail operations expert, who has engineering and operating experience with NS's predecessors.

Mr. Crouch served in the Southern Railway's and then NS's Engineering Department from 1977 to 1987, including service as a Project Engineer and Track Supervisor in the Maintenance of Way & Structures Department. His duties in these positions are detailed in his Statement of Qualifications in Part IV. As Track Supervisor, Mr. Crouch was responsible for the inspection and maintenance of a portion of NS's mainline trackage in Virginia, including track inspection, day-to-day supervision of work gangs, ordering material, budgeting and planning, as well as management of rehabilitation and maintenance of track and inspection of bridges. As Project Engineer, Mr. Crouch was responsible for engineering design and plan review, and the bid and construction engineering phases for major capital track and bridge construction and rehabilitation projects in the geographic areas served by the SBRR.

Mr. Crouch considered the kinds of terrain and climate in which the various portions of the SBRR are located in developing the SBRR's MOW plan and incorporated any significant aspects of variations in terrain and climate into the MOW plan and staffing.

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[40] *See* e-workpapers "SBRR Operating Expense.xls" and "III-D-4 Materials and Supplies.pdf."

[41] Mr. Crouch is also sponsoring SunBelt's evidence on the SBRR's construction costs in Part III-F. The staffing for the SBRR's MOW Communications & Signals Department is also sponsored by SunBelt's communications and signals expert, Victor Grappone, PE.

Consistent with *WFA/Basin*, Mr. Crouch's MOW plan provides for a field staff, to perform day-to-day inspection and maintenance activities, that reports to the SBRR's AVP Engineering. Capital maintenance programs are also required during the 10-year DCF period to renew/replace the fixed facilities and in particular the principal elements of the track structure. The SBRR's MOW staff has been structured to include planning, budgeting and contracting related to annual capital programs.

Also consistent with *WFA/Basin*, all of the SBRR's program work (including rail grinding and crossing paving) is performed by contractors. It is more efficient to contract out program work, rather than hiring large seasonal gangs to perform most of this work as most Class I railroads have done until recently.[42] Using contractors is more efficient, in part, because contractors are not subject to internal railroad union craft work-rules (which can be exacerbated for large railroads like NS that are the product of numerous mergers and consolidations among predecessor railroads) or the Railroad Retirement program, which makes internal railroad labor very expensive. In addition, it is not cost-effective to hire and equip large mechanized gangs consisting of SBRR employees because most program work is performed on an as-needed basis each year, and gangs simply are not needed throughout the entire year.[43]

In developing the SBRR's MOW plan, Mr. Crouch started by considering the maintenance functions that need to be performed and then developed an appropriate field organization and supervisory/support staff for each function given the railroad's geographic scope, terrain, number of trains and gross tonnages. The basic functions include track inspection

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[42] Consistent with the treatment of program renewal work in other rate cases such as *AEP Texas II* and *WFA/Basin*, the cost of capital programs is accounted for in the DCF model. In addition, CSX uses Hulcher for ballast train supply and unloading; all the Class 1's use contractors for vegetation control, rail defect testing, geometry car testing, and to some extent, inspection using hi-rail truck mounted equipment. Regional and Short Line Railroads routinely use contract services for all capital work.

[43] Because the SBRR starts operations with a newly-constructed physical plant, there should be no need for significant program work (and thus large mechanized forces) during the first 10 years of its operations – notwithstanding the way program maintenance is treated under the DCF model, in which a portion of the SBRR's fixed assets are assumed to be renewed each year.

and routine maintenance, communication and signal inspections, testing and maintenance, bridge inspection and minor building maintenance, and budgeting and administrative support. Mr. Crouch also considered the equipment needs for each function, as well as the maintenance work (other than capital program maintenance) that appropriately could be contracted out. The annual MOW expense in at 3Q11 levels equals $15.6 million.

Each of the categories of MOW expense is discussed at length in Exhibit III-D-3. This Exhibit also addresses program maintenance and maintenance scheduling. The detailed calculations are provided in Mr. Crouch's supporting e-workpapers.

6. Leased Facilities

The SBRR utilizes a trackage rights agreement with Canadian National Railway Company ("CN") covering a 2.4 mile segment in New Orleans, LA. The Agreement, originally between Illinois Central Railroad and Southern Railway Company, and now between their successors CN and NS, allows NS to use this segment "without charge" and therefore the SBRR incurs no cost for use of this segment.[44]

7. Loss and Damage

The SBRR's annual loss and damage cost equals $600,803. This cost was developed based on NS's actual 2010 loss and damage per ton for the commodities moving on the SBRR multiplied by the number of tons of each commodity that would have moved on the SBRR in 2010.[45] This is the same methodology used to calculate loss and damage costs in other SAC proceedings by both Complainant and Defendant and accepted by the Board. Review of the public record shows that most recently, Complainant used this method in the *AEPCO 2011*

[44] *See* e-workpaper "IC/SR Agreement.pdf."

[45] For cross-over traffic, the SBRR's share of the loss and damage payments was calculated on the percentage of the SBRR's car-miles to NS's total car-miles by two-digit STCC code. *See* e-workpaper "SBRR Loss and Damage.xls."

proceeding, it was accepted by Defendants in that proceeding and without comment by the Board in *AEPCO 2011*.

8. Insurance

The standard practice of railroads is to self-insure against potential liability except for catastrophic risks. The SBRR also self-insures for most types of claims, and obtains insurance at competitive rates to cover catastrophic loss and Federal Employers Liability Act exposure.

Insurance expenses for the SBRR were calculated using P&W's average insurance ratio, for years 2008 through 2011, of 3.89 percent of operating expenses.[46]

9. Ad Valorem Taxes

The SBRR operates in the states of Alabama, Louisiana and Mississippi. To develop Ad Valorem taxes, the amount of tax that NS paid per route mile was calculated for NS's route miles in each state. These amounts were then applied to the SBRR's route miles in each state and summed to arrive at SBRR's total Ad Valorem Tax burden. Table III-D-5 below summarizes the SBRR's Ad Valorem tax burden in 2011.

Table III-D-5
SBRR Ad Valorem Tax Burden - 2011

State	Taxes Per Mile	SBRR Route Miles	Ad Valorem Tax Burden
(1)	(2)	(3)	(4)
1. Alabama	${[redacted]}	356.9	${[redacted]}
2. Louisiana	{[redacted]}	50.0	{[redacted]}
3. Mississippi	{[redacted]}	171.4	{[redacted]}
4. Total	xxx	578.3	${[redacted]}

Source: *See* e-workpaper "SBRR Ad Valorem Tax.xlsx"

[46] *See* e-workpaper "SBRR Insurance Rate.xls."

10. Other

a. Intermodal Lift and Ramp Cost

In addition to the line haul costs associated with intermodal traffic related to locomotives, fuel, crews and maintenance-of-way, the SBRR incurs lift and ramp costs. These costs have been included for all containers and trailers originating or terminating on the SBRR based on information provided by NS in discovery. A lift and ramp cost is included based on the amount NS incurs for providing lift and ramp services at intermodal terminals located on the NS lines included in the SBRR network.[47] The costs were calculated at each NS facility and applied on a facility by facility basis to the containers and trailers handled at each facility by the SBRR.

The lift and ramp services include costs for {[redacted]}. The annual intermodal lift and ramp expenses incurred by the SBRR equal ${[redacted]} in the Base Period.[48]

b. Automotive Handling Cost

Automotive handling costs are included for loading and unloading automobiles to and from railcars. The handling cost per unit equals ${[redacted]} and is developed from information provided by NS in discovery. The total cost of automobile handling for the SBRR equals ${[redacted]}.[49]

c. Calculation of Annual Operating Expenses

As noted at the beginning of this Part, the statistical inputs used to develop the SBRR's annual operating expenses (equipment and operating personnel needs, locomotive unit miles,

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[47] *See* e-workpaper "SBRR Intermodal Cost Per Lift.xlsx" and SUNBELT_ATC_Open.xlsx", tab "Pivot – Intermodal Units"

[48] *See* e-workpaper "SBRR Operating Expense.xls." It should be noted that the SBRR incurs no intermodal dray expenses as no intermodal traffic originates or terminates on the SBRR where the intermodal plan code indicates that the railroad provides dray services.

[49] *See* e-workpaper "SBRR AUTO DISTRIBUTION.xlsx."

crew starts, *etc.*) were developed by SunBelt's expert operating, IT and engineering/MOW witnesses, with assistance from SunBelt's Witness Burris. Mr. Burris also developed the annual salaries, equipment and operating unit costs. Mr. Burris used all of these inputs to develop the SBRR's Base Period operating expenses.[50]

The procedures used to develop the SBRR's annual operating expenses were those approved by the Board in *WFA/Basin*, i.e., applying transit times calculated for the peak period of the Peak Year to a full year of train data in order to calculate annual operating statistics, rather than calculating statistics only for trains moving in the peak week and then expanding those statistics to reflect a full year of data. The Board determined that applying the transit time statistics to a full year of train data is preferable as it avoids the risk of understating or overstating the annual operating statistics if the peak-week traffic mix is not representative of the annual traffic.[51]

The resulting operating statistics determined for Base Period trains were used to develop Base Period operating expenses. The Base Period operating expenses were then provided to SunBelt Witnesses Crowley and Fapp who developed operating expenses for each period in the DCF model.

[50] *See* e-workpaper "SBRR Operating Expense.xls."
[51] *See WFA/Basin* at 33.

Part III-E

III. E NON-ROAD PROPERTY INVESTMENT

The testimony in this Part is being sponsored by Philip H. Burris of L.E. Peabody & Associates, Inc. His credentials are detailed Part IV.

1. Locomotives

As previously described, the SBRR leases ES44AC and GP38 road locomotives and SW1500 switching/work train locomotives. The annual lease cost is included as an operating expense. The acquisition of all locomotives is described in Part III-D.

2. Railcars

The SBRR also leases all of the railcars needed to serve the traffic group which are not supplied by the shippers or foreign railroads. The annual lease cost is also included as an operating expense, as described in Part III-D.

3. Other

As explained in Part III-D most of the SBRR's other equipment, including company vehicles, maintenance-of-way equipment such as hi-rail trucks, radios and telephones will be leased or purchased. The annual lease cost for this equipment is included as an operating expense. To the extent any of this equipment is purchased, the purchase price is annuitized and included with operating expenses.

Some items of equipment will be purchased, in particular, computers and related hardware. The SBRR's computer system needs, and the associated capital investment, are described in Part III-D.

The SBRR operates over 2.4 miles of track through a trackage rights agreement with CN in the same capacity as NS does today. The Agreement allows NS to use this segment "without charge" and therefore the SBRR incurs no cost for use of this segment. This agreement is discussed in Part III-C.

Part III-F

III. F. ROAD PROPERTY INVESTMENT

The SBRR replicates approximately 578.24 route miles of existing NS track in three (3) states (Alabama, Louisiana and Mississippi). The areas through which the track runs include rural undeveloped areas as well as major metropolitan areas.

The SBRR's road property investment costs are summarized in Table III-F-1 below.

Table III-F-1
SBRR Road Property Investment Costs
(in millions)

Item	Investment
(1)	(2)
1. Land	$199
2. Roadbed Preparation	244
3. Track Construction	537
4. Tunnels	0
5. Bridges	316
6. Signals & Communications	95
7. Buildings & Facilities	17
8. Public Improvements	8
9. Subtotal	$1,416
10. Mobilization	33
11. Engineering	122
12. Contingencies	137
13. Total Road Property Investment Costs	$1,708

Source: Exhibit III-F-1.

This testimony is being sponsored by Richard R. Harps, MAI, CRE, John G. Pinto, CRE, Elizabeth W. Vandermause, MAI and Daniel C. Vandermause (land acquisition costs), Philip H. Burris (easements), Harvey A. Crouch (construction costs and bridge designs and costs), Charles A. Stedman (roadbed preparation costs excluding culverts), and Victor F. Grappone (signals and communications system costs). These Witnesses' qualifications are included in Part IV.

1. Land

Land acquisition costs for the SBRR were developed by Richard R. Harps, MAI, CRE, John G. Pinto, CRE, Elizabeth W. Vandermause, MAI, Daniel C. Vandermause and their project team. Mr. Harps has over 35 years of experience as an appraiser and consultant. He holds the Member of the Appraisal Institute ("MAI") designation from the Counselors of Real Estate. He was President of the Washington, D.C. Association of Realtors in 1985. The team he has put together for this assignment brings an extensive background in real estate appraisal and experience in appraisal of transportation rights-of-way including valuation of rail properties throughout the United States and Canada.

The Across-the-Fence ("ATF") methodology was used for this appraisal. This method estimates the value of the right-of-way ("ROW") by establishing the value of adjacent lands and parcels of land in proximity to the ROW with the same zoning as lands abutting the ROW.[1] The acquisition price for land is assumed to be equal to the market value of the ATF properties.

A summary of SBRR's land acquisition acreage and costs based on the results of Mr. Harps' analysis is shown in Table III-F-2 below.

Table III-F-2
SBRR Land Acquisition Acreage And Costs

Property Type	Acreage	Cost (in millions)
(1)	(2)	(3)
1. ROW		
a. Fee-Simple	6,510.1	$175.1
b. Easement	272.6	0.2
2. Yard	163.0	21.9
3. Other		
a. Microwave Towers	50.0	1.9
4. Total	6,995.7	$199.1

Source: "Sunbelt Land Valuation – 2012.pdf"

[1] *Duke/CSXT* at 473 - "The land along the ROW is a prime indicator of a ROW's value and has been used in all prior SAC cases."

a. Right-of-Way Acreage

The majority of the ROW is based upon an average width of 100 feet.[2] In urban locations an average width of 75 feet was used.[3] And, in each location where additional trackage or space is required, acreage has been added.

The SBRR will acquire 6,995.7 total ROW acres; 6,723.1 acres in fee simple and 272.6 acres via easement.[4]

b. Yard Acreage

The SBRR has one major yard and several lesser yards whose locations are fully discussed in Parts III-B and III-C. The SBRR headquarters building is located at the Birmingham (Norris) Yard. The locomotive shop is also located at Birmingham (Norris). Yards throughout the SBRR system are primarily used for interchange, classification, car and locomotive inspections and fueling. SBRR will acquire 163.0 acres for its yards.[5]

c. Other Acreage

The SBRR will place 25 microwave towers along its right-of-way. The SBRR will acquire two (2) acres per microwave tower site for a total of 50.0 acres for microwave towers.[6]

d. Property Values

Based on the inspections and analyses undertaken by Mr. Harps and his team, and the easement costs developed by Mr. Burris, SunBelt has determined that the total cost for the ROW needed for the SBRR's lines as of July 30, 2011, is $199.1 million as summarized in Table III-F-

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2 The 100 foot right-of-way has been utilized consistently by both parties in prior SAC cases and accepted by the Board. *PSCO/Xcel* at 667.

3 *See Duke/CSXT* at 472-473; *Wisconsin P&L* at 1018; *West Texas Utilities* at 702.

4 *See* e-workpaper "Sunbelt Land Valuation – 2012.pdf."

5 Id.

6 Id.

2 above. A detailed description of Mr. Harps approach to developing these land acquisition costs is included in SunBelt's workpapers and summarized below.[7]

Mr. Harps and his team utilized aerial imagery from Google Earth Pro to trace the path of the SBRR. Adjacent land uses were noted along the way and used to define the land use type on both sides of the ROW. The ROW is split down the centerline with the adjacent land use defined for half of the ROW width on each side of the centerline. A new segment was defined when the ATF land use changed on either side of the ROW. Using this approach, 350 line segments were created.

Following the review of the aerial imagery, Mr. Harps and his team performed physical inspections of the ROW in 5 urban areas, covering 52 miles of ROW. These inspections took place during June 3 through June 5, 2012 and were used to verify the land use determined using aerial imagery as well as to provide additional information.

This process identified six (6) types of land use along the ROW that were used to determine comparable sales. Table III-F-3 below summarizes the percent of each type of land use along the SBRR ROW.

Table III-F-3
SBRR Distribution Of Land Use

Land Use Type	Percent of Total
(1)	(2)
1. Agriculture	68%
2. Residential	12%
3. Industrial	9%
4. Restricted	4%
5. Rural Town	5%
6. Commercial	2%
7. Total Acreage	100%

Source: e-workpaper "Sunbelt Land Valuation – 2012.pdf"

[7] Id.

The most appropriate method of estimating the value of the land for this purpose is the sales comparison approach. Land is valued as if vacant and unimproved regardless of its current state. Because there were only a limited number of sales in the recent past from which to determine values, Mr. Harps expanded the timeframe for comparable sales and broadened the area of proximity to encompass a greater number of sales. Mr. Harps details his valuation approach in his Report.[8]

Finally, and consistent with the principal that a SARR is not required to purchase a greater interest than the incumbent railroad possesses,[9] SunBelt's Witness Burris conducted an extensive review of NS valuation maps and easement documents provided in discovery. This review identified many easements and other transfers of property ownership along the SBRR ROW.

The SBRR easement acreage was developed by multiplying the length of the easement along the ROW times the width of the ROW at each location. The average cost per easement acre for each state was then applied to the acreage for each easement in the individual state. The total cost for SBRR acreage acquired through easements is $163,269.[10]

The total land acquisition costs for the SBRR are $199.1 million; $198.9 million for fee simple acquisitions and $163,269 for easements.

2. <u>Roadbed Preparation</u>

SunBelt's roadbed preparation testimony is sponsored by witnesses Harvey Crouch and Charles Stedman. Their qualifications are detailed in Part IV and summarized herein.

Mr. Crouch has over 30 years of freight railroad engineering experience, including service with Southern Railway and Norfolk Southern between 1977 and 1987 as a project

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[8] Id.
[9] *See CP&L* at 308 and *Duke/CSXT* at 474.
[10] *See* e-workpaper "SBRR Easements_Open.xlsx."

engineer and track supervisor with the NS. His experience with NS included supervision of the construction of numerous grading and track construction projects, and railroad facilities and buildings.

Mr. Stedman has over 30 years of experience with L. E. Peabody & Associates, Inc. He has developed and presented evidence pertaining to roadbed preparation in numerous proceedings before the ICC and the Board. Mr. Stedman has also researched ICC records including the ICC's Engineering Reports.[11]

In this testimony, the ICC Engineering Reports were used to develop the SBRR quantities for clearing, grubbing, earthwork, rip rap, retaining walls and lateral drainage. As noted below, the information extracted from the ICC Engineering Reports was adjusted to reflect modern engineering and design specifications.

The roadbed preparation unit costs utilized herein are a combination of actual costs and Means Handbook[12] costs. The Means Handbook costs are very conservative for this application because the prices are based on an average of costs for projects of all sizes from around the country and assume a unionized workforce. There is no way to reflect the economies of scale inherent in a project the size of the SBRR or to accurately estimate the impact of using non-union labor.

A summary of the SBRR's roadbed preparation costs are summarized in Table III-F-4 below.

[11] ICC Bureau of Valuation B.V. Form No. 561.
[12] RS Means 2011 Site Work & Landscape Cost Data ("Means Handbook.")

Table III-F-4
SBRR Roadbed Preparation Costs[1/]

Item	Cost (000)
(1)	(2)
1. Clearing and Grubbing	$13,866
2. Earthwork	
a. Common	43,358
b. Loose Rock	15,053
c. Solid Rock	17,501
d. Borrow	93,250
e. Land for Waste Excavation	5,551
3. Drainage[2/]	
a. Lateral Drainage	2,792
4. Culverts[3/]	13,677
5. Retaining Walls	39,015
6. Rip Rap	437
7. Relocation of Utilities	0
8. Topsoil Placement / Seeding	7
9. Surfacing for Detour Roads	0
10. Environmental Compliance	0
11. **Total**	$244,507

[1/] *See* e-workpaper "SBRR Open Grading.xlsx."
[2/] Yard drainage is included in building site development costs.
[3/] *See* e-workpaper "Culvert Construction Costs.xlsx."

a. Clearing and Grubbing

SunBelt reviewed the valuation section index maps accompanying the ICC Engineering Reports for the railroads traversed by the SBRR[13] and identified the valuation sections applicable to the SBRR. A listing of the valuation sections used in the development of the roadbed preparation construction costs for the SBRR is included in SunBelt's workpapers.[14]

[13] The ICC Engineering Reports were compiled in the first quarter of the 20th century. At that time, the current lines of NS were owned by many different railroads.
[14] *See* e-workpaper "SBRR Open Grading.xlsx" tab "Eng Rep Input."

Based on this selection of valuation sections, the clearing and grubbing quantities required for the original construction of the SBRR lines were taken from the ICC Engineering Reports. These quantities were then modified to reflect current construction specifications.[15]

Historically, clearing and grubbing costs have been developed and applied separately depending on the acreage requiring the grubbing of tree stumps. In this case, however, SunBelt's engineers based the clearing and grubbing costs on a recent railroad realignment project in Tennessee, the Trestle Hollow Project, and applied this cost to all SBRR acreage to be cleared. The project took place in 2007 and involved re-routing and building a new rail line near Centerville, TN. The cost for clearing and grubbing was $2,000 per acre and included "clearing and grubbing of all trees, stumps, undergrowth, brush, trash, grass, weeds, roots, debris, or other deleterious or objectionable materials...."[16] Stumps, roots and other debris were to be removed to a minimum depth of 18 inches below the surface and/or subgrade, whichever was lower and also included removal and stockpile of topsoil. SunBelt indexed the 2007 unit costs to July 30, 2011, the start date of the SBRR. The indexed unit cost for clearing and grubbing is $2,257 per acre.

Applying this combined unit cost to the total acres requiring clearing conservatively overstates the total costs as not all acres have trees or require grubbing. Construction of the SBRR requires 6,143 acres to be cleared and grubbed at a total cost of $13.9 million at 3Q11 levels.[17] Consistent with prior STB decisions, SunBelt has not included any additional costs for stripping or undercutting.[18]

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[15] The clearing and grubbing quantities (acres per track mile) were increased by the ratio of the current roadbed specifications to the original roadbed specifications and applied to the track miles (including yards and sidings) of the SBRR's line segments to develop current clearing and grubbing quantities. *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

[16] *See* e-workpapers "Trestle Hollow Project Cost Sheet.pdf" and "Trestle Hollow Specifications.pdf."

[17] SunBelt notes that in recent stand-alone cost proceedings, complainants have used two different costs for clearing and one cost for grubbing, all from the Means Handbook. For the acres that were grubbed (according to the ICC

b. Earthwork

The ICC Engineering Reports were also utilized to develop the earthwork quantities for each valuation section covering the line segments of the SBRR. These quantities were adjusted to reflect current roadbed specifications. The adjusted earthwork quantities were then used to develop the earthwork requirements and costs for the SBRR. A combination of actual unit costs from the Trestle Hollow Project (indexed to 3Q11) and the Means Handbook average costs were used to develop the earthwork costs.

Table III-F-5 summarizes the earthwork quantities and costs associated with construction of the SBRR.

Table III-F-5
SBRR Earthwork Quantities And Costs

Item	Cubic Yards (000)	Cost (000)
(1)	(2)	(3)
1. Common Excavation	23,311	$43,358
2. Loose Rock Excavation	1,389	15,053
3. Solid Rock Excavation	1,210	17,501
4. Borrow	3,487	93,250
5. Total	29,397	$169,162

Source: *See* e-workpaper "SBRR Open Grading.xlsx," tab "EW Cost."

i. ROW Quantities -- SunBelt engineers identified the main-line, other main track, and all other track from the applicable ICC Engineering Reports. They also extracted the cubic yards ("CY") of excavation and embankment material by type – common,

Engineering Reports), complainants assumed that trees were also cleared and applied both the cost per acre for clearing and the cost per acre for grubbing from the Means Handbook. For the remaining acres of clearing (i.e., those acres not requiring grubbing), complainants applied a cost for brush clearing. This approach has been accepted by the STB. See *AEP Texas II* at 78-79, *AEPCO 2011* at 83-84. While SunBelt believes the use of actual clearing costs is superior to the costs from the Means Handbook, SunBelt has included these alternate calculations in its workpapers. *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

[18] *See PSCo/Xcel* at 671, *WFA/Basin* at 83, *AEP Texas II* at 74, *Duke/CSXT* at 479-480, *AEPCO 2011* at 84-85. Additionally, these costs are included in the Trestle Hollow unit costs.

loose rock, solid rock and embankment (borrow).[19] The grading quantities from the ICC Engineering Reports were then used to develop distribution percentages for the four earthwork categories.[20] Based on a review of railroad construction literature prevailing at the time the ICC Engineering Reports were compiled, SunBelt's engineers estimated that the ICC Engineering Report quantities for the rail lines comprising the SBRR reflect average roadbed widths of 19 feet for fills and 23 feet for cuts (including ditches).[21] The earthwork quantities obtained from the ICC Engineering Reports were adjusted to reflect the requirements of today's heavier trains. Table III-F-6 shows the more modern roadbed widths utilized in the construction of the SBRR.

Table III-F-6
Roadbed Widths For Construction Of The SBRR

Track Type	Roadbed Width[1/] Fills	Cuts
(1)	(2)	(3)
1. Single Track	24 feet	40 feet
2. Double Track	39 feet	55 feet

[1/] Based upon 15 foot track centers and a side slope of 1.5 to 1.

The adjusted earthwork requirements by valuation section for the construction of the SBRR based on the above specifications are contained in the accompanying workpapers.[22] The calculation of the earthwork quantities for the SBRR's line segments are also detailed in SunBelt's workpapers and described below.[23]

First, the SBRR line segments were matched with the applicable valuation section. Next, the track miles for each segment were categorized as first main (route miles), other main (multiple track and passing sidings) and other track (such as set out tracks) based on the SBRR's

[19] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Eng Rep Input."
[20] See e-workpaper "SBRR Open Grading.xlsx," tab "Distribution."
[21] *See* William C. Willard, *Maintenance of Way & Structures*, McGraw-Hill Book Company, 1915, pp. 29-31 included in e-workpaper "Original Roadbed Widths.pdf."
[22] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Earthwork by val sec."
[23] *See* e-workpaper "SBRR Open Grading.xlsx," tab "CY Grad by seg."

track configuration shown in the SBRR stick diagrams. Finally, the number of track miles was multiplied by the applicable cubic yards per mile for the appropriate valuation section.

ii. Yard Quantities -- As discussed in Part III-B, the SBRR has one (1) major yard and twelve (12) lesser yards (including interchange yards).[24] For each yard, SunBelt calculated the grading requirements based on an assumed average fill height of one foot and 25-foot track centers.[25]

Yard earthwork is classified as excavation because the estimated yard track quantities removed from the ICC Engineering Report total quantities were removed from the excavation quantities for each valuation section.

iii. Earthwork Unit Costs -- Harvey Crouch and his associates are familiar with much of the territory traversed by the SBRR and knowledgeable about the appropriate equipment required for excavation. Rail lines, including the lines comprising the SBRR, are generally laid out to follow the natural ground as much as possible, minimize grade changes and avoid difficult terrain whenever possible. The SBRR relies upon the same least-cost-but-feasible grading approach previously accepted by the STB.[26]

(a). Common Earthwork -- In most previous stand-alone proceedings, earthwork excavation unit costs have been based on the Means Handbook.[27] The costs in the Means Handbook are conservative because they are based on an average of costs for

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[24] *See* e-workpaper "SBRR Yard Matrix Open Grading.xlsx."

[25] The one-foot fill height was used for the yards because an assumed fill height of one foot is used to allocate earthwork quantities to the yard tracks involved in the original construction and reflected in the ICC Engineering Reports. This methodology has been applied repeatedly, and accepted by the STB, to develop SARR yard earthwork quantities. *See Wisconsin P&L* at 1022, *PSCo/Xcel* at 675, *AEP Texas II* at 81, *Otter Tail* at D-10, *Duke/NS* at 172, *CP&L* at 310-311, *Duke/CSXT* at 477 and *AEPCO 2011* at 90. *See* e-workpaper "SBRR Open Grading.xlsx," tab "Yards."

[26] *See FMC* at 800 - "UP has not shown that it would be infeasible to use the equipment selected by FMC... FMC is entitled to have the equipment that results in the overall lowest cost used. Therefore, we use FMC's unit costs for grading to determine earthwork costs." *See also Duke/CSXT* at 478-480; *PSCo/Xcel* at 676-678.

[27] *See PSCo/Xcel* at 677-678, *AEP Texas II* at 81-82, *Otter Tail* at D-11-12, *Duke/CSXT* at 478-479, *Duke/NS* at 174-176 and *CP&L* at 313.

projects of all sizes from around the country, without specific consideration for the economies of scale that would benefit the SBRR due to the large project size involved. Using the Means Handbook, SunBelt's engineers have calculated a common excavation unit cost; however, this is not the cost SunBelt has relied upon here.[28]

Beginning with *WFA/Basin*, complainants used costs from actual railroad construction projects. The common excavation cost per CY based on an actual BNSF track construction project was accepted by BNSF and the STB.[29] This trend continued in *AEPCO 2011*, where the complainant relied on costs from five BNSF railroad projects and this was accepted by the Board.[30]

In this proceeding, NS provided a limited number of documents containing earthwork cost information in response to SunBelt's discovery requests. Virtually all of the documents were {[redacted]} estimates with CY quantities ranging from {[redacted]}. These projects reflected {[redacted]} construction. None of these projects are remotely akin to new rail construction like the SBRR.

Moreover, projects undertaken by the {[redacted]} are generally projects involving additions or modifications to existing track and right-of-way, many times requiring construction under traffic, or adjacent to active tracks. This drives the cost up since site access is limited, work has to be conducted in limited work windows, and work has to be performed in a manner that is safe with respect to the railroad and its contractor and the contractor's activities.

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[28] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Unit Costs."

[29] *See WFA/Basin* at 86 (the parties agreed on the unit costs for common excavation), WFA/Basin April 19, 2005 Opening (Public Version) at III-F-36-37 (describing the source of the common excavation unit cost) and WFA/Basin September 30, 2005 Rebuttal (Public Version) at III-F-56 (stating that BNSF accepted WFA/Basin's common excavation unit cost).

[30] *See AEPCO 2011* at 86-88.

The data provided by NS was insufficient to be used to develop common earthwork unit costs based on actual projects. As discussed in the previous section on clearing and grubbing, SunBelt's Witness Crouch was involved with the Trestle Hollow Project, a railroad realignment project in Tennessee which required the construction of a new railroad line. This was an actual project with actual quantities and costs as opposed to an estimate of quantities and costs, it reflects new rail line construction and there were considerable amounts of earthwork moved.[31]

The Trestle Hollow project involved constructing a complicated, new alignment for the South Central Tennessee Railroad west of Nashville. This project was challenging for several reasons. The purpose of the project was to bypass several large timber bridges approximately 100 years old. The alignment was designed to improve the vertical grade and reduce curvature. The new design was difficult due to the hilly terrain and included several tall embankments and deep cuts all on an average 2.4 percent grade. Clearing was difficult due to the hilly nature of the land and the size of the trees. The material excavated was a combination of common earth and loose rock. SunBelt's engineers are being conservative by using the Trestle Hollow cost for only common excavation.

Common earthwork excavation costs for the SBRR are based on the actual unit cost from the 2007 Trestle Hollow project of $1.65 per CY indexed to 3Q11 resulting in a cost of $1.86 per CY. This unit cost includes all necessary work to prepare the roadbed for the placement of subballast, the handling of waste and hauling it to off-site locations as needed, as well as costs associated with any water for compaction that might be necessary.[32]

(b). Loose Rock Excavation -- Loose rock excavation is a category on the ICC Engineering Reports that does not have a counterpart in today's railroad

[31] *See* e-workpapers "Trestle Hollow Specifications.pdf" and "Trestle Hollow Project Cost Sheet.pdf." *See also,* the directory "Trestle Hollow Pictures" included with SunBelt's opening workpapers.

[32] *See* the construction specifications contained in e-workpaper "Trestle Hollow Specifications.pdf" at 152-153.

construction environment. Railroads today use the categories of common (or unclassified) and solid rock. Thus, SunBelt is being extremely conservative by applying a separate loose rock cost to such excavation rather than including it with the common excavation quantities. Loose rock excavation costs are based on the use of two (2) 300 HP dozers for ripping the loose rock and pushing it into piles, a 3CY power shovel for placing the ripped and dozed rock into the truck (including the Means 15% additive), a 42 CY off-highway truck to haul the material to the fill or disposal site, and a dozer to spread the material after it is dumped. Each of the 300 HP dozers is equipped with rock rippers at the rear and large push blades in front. The 42 CY off-highway truck was selected because it is capable of turning in a 27' 11" radius and thus suitable for work in a railroad right-of-way.[33]

The cost for loose rock excavation on the SBRR is $10.84 per CY.[34]

(c). Solid Rock Excavation -- The unit cost for solid rock blasting is based on an average of the Means Handbook cost for blasting rock over 1,500 cubic yards and the cost for bulk drilling and blasting. SunBelt has added the costs to excavate the blasted rock, load it into trucks, haul it away, and dump it. In addition, the cost to spread the material, and the average compaction cost for embankment that was used for the other earthwork categories was also applied.[35]

SunBelt's engineers used a 50/50 combination unit cost made up of the solid rock unit cost ($18.07 per CY) and the loose rock unit cost ($10.84 per CY) based on their expert opinion that at least half of the quantities classified by the ICC as solid rock would be rippable (and

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[33] *See* e-workpaper "42 CY Truck.pdf."

[34] The unit costs from the 2011 Means Handbook are indexed to 3Q11 levels and adjusted by the Means Handbook location factors. *See* e-workpaper "SBRR Open Grading.xlsx," tabs "Unit Cost" and "Loc Factor."

[35] SunBelt's solid rock excavation unit cost development is consistent with recent Board decisions. *See WFA/Basin* at 86-87, *AEP Texas II* at 82-83, *PSCo/Xcel* at 677-678 and *AEPCO 2011* at 89-90.

therefore classified as loose rock or common excavation) using modern equipment.[36] This 50/50 combination results in a cost per CY of $14.46 for solid rock excavation.

(d). Embankment/Borrow -- The Means Handbook-based unit costs for borrow utilized by the SunBelt engineers are based on a five (5) cubic yard wheel-mounted front end loader, 20 CY capacity dump trucks to haul material to the construction site, a dozer to spread the material, and the average compaction cost for embankment that was used for the other earthwork categories.[37] SBRR borrow unit costs equal $26.74 per CY at 3Q11 levels.

(e). Land for Waste Excavation -- Not all of the excavated material for the SBRR is re-used as fill. Consistent with the procedures used in other SAC cases, SunBelt's earthwork calculations assume a 30 percent waste ratio. As this waste material needs to be placed somewhere, the SBRR is acquiring additional land along the right-of-way to accommodate the dumping of the waste material. SunBelt's engineers have assumed an average 15-foot depth for wasted materials. SunBelt has included an additional 385 acres of rural land for this purpose at an estimated $14,402 per acre for a total cost of $5.6 million.

(f). Total Earthwork Cost -- The total earthwork cost associated with constructing the SBRR, including the cost of land for waste excavation, is $174.7 million.

c. Drainage

i. Lateral Drainage -- The linear feet of pipe per route mile for lateral drainage was obtained from the ICC Engineering Reports and applied to the SBRR's line segments. The cost per linear foot for installed drainage pipe, including backfill and compaction, was taken from the 2011 Means Handbook indexed to 3Q11 and adjusted by the Means

[36] This 50/50 combination has been repeatedly accepted by the Board. *See WFA/Basin* (parties agreed, not mentioned or altered in decision); *AEP Texas II* (parties agreed, not mentioned or altered in decision); *Otter Tail* at D-12; *PSCo/Xcel* at 677 (where BNSF also agreed on this split); *Duke/NS* at 174; *CP&L* at 312; *Duke/CSXT* at 478; *AEPCO 2011* at 90.

[37] *See AEP Texas II* at 81 and *Otter Tail* at D-13.

Handbook location factors. Based on the ICC Engineering Reports, the SBRR requires 112,346 linear feet of lateral drainage pipe. The SBRR's total investment in lateral drainage equals $2.8 million at 3Q11.[38]

ii. Yard Drainage -- SunBelt's engineering experts have included yard drainage facilities in the way of catch basins and drainage pipe for the SBRR's major yard and four (4) mid-size yards. Prior to the installation of any drainage facilities, the roadbed for yard track construction will be constructed to slope away from the main line. Storm water runoff will drain freely through the ballast and be collected by ditch lines along the perimeter of the yards. These ditches will then convey the storm water runoff offsite. Low areas can occur near facilities and between tracks separated by non-typical spacing. In those instances, catch basins are used to collect the water in the low areas. This water is then conveyed under the track to the perimeter ditch.

Yard drainage for the SBRR will cost $0.9 million for catch basins and $0.6 million for drainage pipe and is included in the yard building site development costs.

d. Culverts

Culverts are devices placed in the roadbed to facilitate the movement of water from one side of the track to the other where large drainage areas, typical of bridges, are not required. The culverts specified by SunBelt's engineers are corrugated aluminized metal pipe ("cmp"). All culverts used by the SBRR are adequate to withstand railroad loadings to a gross weight on rail of 286,000 pounds per car (Cooper E-80 standards).

Culverts on the SBRR also replace any bridges less than 20 feet in length, assuming that the bridge crosses a waterway.[39]

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[38] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."
[39] *See AEP Texas II* at 93.

i. Culvert Unit Costs -- Unit costs were developed from costs provided in quotes from multiple metal pipe manufacturers and the Means Handbook. Unit costs for cmp are driven by the linear feet ("LF") of length of each culvert required in a particular location as well as the diameter of the pipe.[40] Additional unit costs were developed for excavation, furnishing and placing crushed stone for bedding material, and backfill.[41]

ii. Culvert Installation Plans -- All culverts are installed during the early stages of preparation of the subgrade for the railroad. The sites are easily accessible, in part through the ongoing preparation of the roadbed and in part because much of the SBRR's ROW is near public roads. Moreover, the culverts can be installed with a minimum of excavation using the open trench method of installation.

Specifically, once the base layer of the roadbed is in place, the trench for the cmp is excavated one foot wider on each side than the culvert width. The bottom of the excavation is covered with an average depth of 12" of crushed stone bedding material to act as a foundation and cushion for the culvert, providing a means for transferring the load into the ground below the culvert as well as a level surface. The first culvert section is placed on the prepared bedding material. The next section is placed adjacent to the first and a connecting band is installed to connect the two sections. This continues until all sections have been set in place. The culvert is then backfilled. After the sub-base has been prepared, most culverts can be installed in less than one day.

Work production of the crews is consistent with SunBelt's proposed construction schedule because there are no deep trenches to excavate or work in, and by installing the culverts at this stage of the project, no waterway diversions are required. Moreover, in the few instances

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[40] *See* e-workpaper "Culvert Construction Costs.xlsx."

[41] The price of bedding material is from the Trestle Hollow Project. All other unit costs are from the Means Handbook. *See* e-workpaper "Culvert Construction Costs.xlsx."

where water is flowing immediately adjacent to the culvert, the culvert can be installed while the water is flowing.

iii. Culvert Quantities -- SunBelt's engineers used the culvert inventories provided by NS in discovery to form an initial culvert list. All culverts less than 20' in length were removed from the list, because they did not go through the full width of the roadbed, so that only culverts that provided drainage under the SBRR lines were included. The list was then converted to equivalent circular pipe sizes of 24", 36", 48", 60", 72", 84", 96", 108", or 120".

In many instances, the culvert inventories provided by NS did not include any culvert length data. SunBelt's engineers have, therefore, assumed that the culvert length will be set in accordance with the standard roadbed widths for cut and fill sections. Further, in many cases, NS's culvert inventory list did not indicate the size of the culvert being used; in those cases a size of 24" was assumed. In order to ensure that the SBRR's culverts could meet the loading requirements of the SBRR, SunBelt's engineers elected to use aluminized cmp for all culvert installations.

iv. Total Culvert Costs -- The total cost of the SBRR's culverts is $13.7 million.[42]

e. Other

i. Ditches -- The SBRR has side ditches in cuts that are two feet wide and two feet deep and that are trapezoidal in section. Two-foot ditches have repeatedly been accepted by the Board.[43]

ii. Retaining Walls -- Retaining wall quantities for the SBRR are also extracted from the ICC Engineering Reports. The Engineering Report data includes cubic yards

[42] *See* e-workpaper "Culvert Construction Costs.xlsx."
[43] *See Duke/NS* at 171, *CP&L* at 310, *Duke/CSXT* at 476, *TMPA* at 701, n.183, *Wisconsin P&L* at 1023.

of masonry, timber walls, and walls made from timber ties and pilings under the category "Protection of Roadway" in Account 3, Grading. Rather than construct masonry or timber retaining walls, the SBRR uses gabions (galvanized steel mesh boxes filled with rock) for all of its retaining walls. Gabions are suitable because they can be assembled on site and bent to fit the existing terrain.

SunBelt has used the cost for retaining wall gabions (including the rock) and the cost for timber pilings from the 2011 Means Handbook. Total retaining wall investment for the SBRR equals $39.0 million at 3Q11 levels.[44]

iii. Rip Rap -- SunBelt's engineers developed rip rap quantities from the ICC Engineering Reports, and applied the unit cost from the Means Handbook to machine-place the rip rap. The material portion (rock) of the unit cost is included because the material is not readily available from the excavated rock that is wasted. SunBelt has included $0.4 million for rip rap investment at 3Q11 levels.[45]

iv. Relocating and Protecting Utilities -- All of the lines being replicated by the SBRR were constructed by NS's predecessors in the 19th and early 20th centuries. Few, if any, utility lines existed at that time and would have had to be relocated. These costs were not incurred by the incumbent and thus, under the *Coal Rate Guidelines*, would constitute a barrier to entry if imposed on the SBRR.[46]

v. Seeding/Topsoil Placement -- Embankment protection quantities for all lines of the SBRR were derived from the ICC Engineering Reports. Based on the ICC Engineering Report data, less than one (1) percent of the lines being replicated by the SBRR had

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[44] *See* e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

[45] This rip rap investment does not include the rip rap used on culvert faces and for bridge pier and abutment protection. Those costs are included, where needed, in the appropriate investment category. Details on rip rap investment for roadbed preparation are provided in e-workpaper "SBRR Open Grading.xlsx," tab "Other Items."

[46] *See AEP Texas II* at 84; *PSCo/Xcel* at 680; *Duke/CSXT* at 483.

embankment protection quantities. For seeding and topsoil placement costs, SBRR's engineers relied upon the unit cost of $1,600 per acre from the Trestle Hollow Project indexed to $1,805.90 per acre at 3Q11 levels.[47] Total SBRR investment costs for seeding/placing topsoil equal $6,459.

vi. Water for Compaction -- In the Eastern coal rate cases, the Board agreed with complainants that water for compaction was not necessary in the areas traversed by the stand-alone railroads because there is sufficient water content in the region to allow for proper compaction.[48] Consistent with the territory traversed by the stand-alone railroads in the Eastern coal rate cases, the SBRR rail lines traverse sub-humid, moist sub-humid and humid areas and not arid and semi-arid areas.[49] In any event, even if water for compaction was necessary in a certain area, the common earthwork unit costs relied on by SunBelt include any incidental items such as water.[50]

vii. Surfacing for Detour Roads -- SunBelt's engineers did not include any costs for road detours for the SBRR's lines, as it is unlikely that NS incurred any costs for this item when the lines were originally built, and NS did not provide any information in discovery indicating that it incurred such costs. This is consistent with the approach approved by the Board in other SAC cases.[51]

viii. Construction Site Access Roads -- In general, the SBRR's track subgrade is used for its site construction roads. In addition, most of the SBRR right-of-way is accessible from public roads and highways, thereby permitting construction access without building separate access roads. Further, the initial construction activity includes clearing the

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[47] *See* e-workpapers "Trestle Hollow Project Cost Sheet.pdf" and "SBRR Open Grading.xlsx," tab "Other Costs."
[48] *See Duke/CSXT* at 483, *Duke/NS* at 179-180 and *CP&L* at 317.
[49] *See* e-workpaper "SBRR Route avg rainfall.pdf."
[50] *See* e-workpaper "Trestle Hollow Specifications.pdf."
[51] *See PSCo/Xcel* at 681-682; *Duke/NS* at 180; *CP&L* at 317; *Duke/CSXT* at 484; *TMPA* at 707-708; *Wisconsin P&L* at 1024-1025; *FMC* at 802.

SBRR right-of-way and creating initial site access with the heavy construction equipment. As the site is leveled by either cutting or filling the right-of-way, access roads are created for moving earth, rock and other materials to and from the construction sites. In any event, no additional costs should be incurred for site construction access roads because the Trestle Hollow project, used for common excavation costs, required the contractor to provide its own, uncompensated, access to the site.[52] SunBelt's position on this issue is consistent with several prior SAC decisions.[53]

ix. Environmental Compliance -- SunBelt did not include any environmental compliance costs for its construction. Inclusion of these costs on the lines originally constructed in the 19th and early 20th centuries by NS or its predecessors would constitute a barrier to entry.[54]

3. Track Construction

SunBelt's track construction testimony is sponsored by Witness Harvey Crouch. His qualifications are detailed in Part IV.

Track construction is the work required to lay track once the subgrade has been completed. This includes placing subballast, ballast, ties, rail, and other track components. The total costs of track construction for the SBRR ($536.7 million) are summarized in Table III-F-7 below.

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[52] *See* e-workpaper "Trestle Hollow Specifications.pdf."

[53] *See Duke/CSXT* at 476-477; *Duke/NS* at 172; *CP&L* at 317; and *AEP Texas II* at 80.

[54] *See Wisconsin P&L* at 1025 (the parties agreed that environmental mitigation was only required for the recently constructed segments); *PSCo/Xcel* at 682 (the parties agreed on the inapplicability of such costs); *AEP Texas II* at 83. *See also* the public evidence (complainants' Rebuttal Evidence) in *WFA/Basin* where environmental compliance costs were applied only to recently-constructed lines - Docket No. 42088 (Public Version) filed Sept. 30, 2005, Narrative Vol. II at III-F-81-82.

Table III-F-7
SBRR Track Construction Costs

Item	Cost (000)
(1)	(2)
1. Geotextile Fabric	$182
2. Ballast	74,322
3. Ties	108,259
4. Track (Rail)	
a. Main Line	152,795
b. Yard and Other Track	12,831
c. Field Welds	2,217
d. Switches (Turnouts)	34,754
5. Rail Lubricators	184
6. Plates, Spikes and Anchors	54,133
7. Derails and Wheel Stops	191
8. Track Labor and Equipment	96,804
9. Total	$536,672

Source: *See* e-workpaper "Track Construction Costs.xls."

a. Geotextile Fabric

SunBelt has placed geotextile fabric under turnouts and at at-grade crossings.[55] The cost for at-grade crossings already includes the cost for the fabric so the quantities and costs in this part are only for the amount required under the SBRR turnouts. SBRR requires a total of 151,821 SY of geotextile fabric under turnouts at a cost of $0.2 million. The total SBRR geotextile quantity calculations are included in the costs of turnouts and grade crossings.[56]

b. Ballast

SunBelt's engineers have used 18" of ballast and subballast, consisting of a 6-inch subballast layer and a 12-inch layer of clean rock ballast for all main tracks. Diagrams of the standard SBRR main track cross sections (single and double) are included in the accompanying

[55] *See WFA/Basin* at 94-95.
[56] *See* e-workpaper "Track Construction Costs.xls."

workpapers.[57] This roadbed section conforms to AREMA and certain Class 1 standard roadbed sections.

SunBelt's engineers used 4" of subballast and 6" of ballast under yard tracks and set-out tracks because of the lighter traffic and slower speeds. This is consistent with certain Class 1 standard roadbed sections. Ballast for the SBRR would be locally obtained limestone or granite, crushed to meet AREMA No. 4 size requirements and meeting Los Angeles and Mill Abrasion requirements.[58] Subballast consists of similar parent materials crushed to provide a well-graded, dense layer of crushed rock similar to road base material.[59]

Ballast and subballast quantities were developed for all sections of track based on the lengths of single and multiple track sections, and the roadbed section referenced above. As noted, the SunBelt engineers have included cross-sections of the SBRR track designs in the workpapers. These designs include the volume per foot of track for all items, including the volume per foot for ballast and subballast.[60] The quantities were calculated by multiplying the sectional area in square feet by one foot in length and then dividing by 27 to obtain cubic yards. The volume of rock displaced by the volume of the ties being used in particular locations was removed from the total volume calculation.

Ballast and subballast quantities for yards were calculated assuming each track in the yard is a single track and using the 4" subballast and 6" ballast depth. SunBelt's experts also used the standard conversion factor of 1.5 tons/CY in determining quantities, which is conservative versus the conversion factor of 1.325 tons/CY used by the "Track Data Handbook."[61]

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[57] *See* e-workpaper "Typical Track Sections.pdf."
[58] *See* e-workpaper "Track Construction Costs.xls."
[59] *See* e-workpaper "Trestle Hollow Specifications.pdf."
[60] *See* e-workpapers "Typical Sub-Ballast.pdf" and "Ballast Sections.pdf."
[61] *See* e-workpapers "Track Construction Costs.xls" and "Typical Sub-Ballast.pdf."

SunBelt's engineers used prices for ballast from direct quotes obtained from suppliers and historical pricing data obtained from NS in discovery.[62] The unit costs for subballast were obtained from the Trestle Hollow Project, which included delivery costs as well as placement of the subballast on the roadbed. Delivered costs for ballast are based on shipping distances from the sources to the railheads throughout the SBRR system, which were then multiplied by $0.035 per mile based on a transportation charge from *AEPCO 2011*.[63] The supply and shipping costs were then totaled and averaged to develop an average delivered cost per CY for ballast. The total cost of ballast and sub-ballast for the SBRR is $74.3 million.

c. Ties

SunBelt's engineers selected wood ties with a tie spacing of 20.5 inches for all main track and passing sidings consistent with railroad industry standards for mainline track. The Board has repeatedly accepted wood tie spacing of 20.5 inches.[64] Because of the lighter traffic and slower speeds, SunBelt's engineers used wood ties with 24-inch spacing in yards and set-out tracks.[65]

SunBelt's engineers selected standard Grade 5 treated hardwood railroad ties, whose dimensions are 7" x 9" x 8'6", for all track. Unit costs for Grade 5 ties were based on quotes received from Tangent Rail. Transportation costs were added based on average distance to rail head at $0.035 per ton-mile.

The SBRR is constructing its bridges with ballast decks, thereby obviating the need for transition ties. In addition, the Board has rejected transition ties at turnouts.[66] The total cost of ties for the SBRR is $108.3 million.

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[62] *See* e-workpapers "Track Construction Costs.xls" and "Ballast 2011.xls."
[63] *See AEPCO 2011* at100.
[64] *See WFA/Basin* at 96; *West Texas Utilities* at 707.
[65] *See WFA/Basin* at 96 (accepting this spacing in yards).
[66] *Id* at 97.

d. Track (Rail)

i. Main Line -- As discussed in Part III-B, the SBRR will use 136-pound CWR for most of the SBRR's main tracks and passing sidings (20 MGT/year or greater), with premium rail used in curves 3 degrees and greater. For the lighter density portions of the SBRR (less than 20 MGT/year) new 115-pound CWR will be used.[67] The delivered cost used for the SBRR's mainline rail is $889 per ton.[68]

The rail is welded together into approximately 1,440-foot lengths and then loaded onto a rail train. The rail is distributed by the rail installation contractor and the rail distribution costs are included in labor charges.[69] The total cost of mainline rail for the SBRR is $152.8 million.

ii. Yard and Other Track -- As discussed in Part III-B, the SBRR is using new 115-pound CWR for yard and set-out tracks. As with the 136-pound rail, the price includes delivery to various railheads and the materials will be distributed by the rail installation contractor. The total cost of rail for yards and other tracks for the SBRR is $12.8 million.

iii. Field Welds -- The cost of labor for field welds is derived from direct quotes and historical prices from projects overseen by Crouch Engineering.[70] The cost of field weld materials is included in the costs for field welding labor. Field welds are required to connect the 1,440-foot strings of welded rail produced by the manufacturer as well as to insert insulated joints, make connections to turnouts and span grade crossings. The calculations for the number of field welds as well as the number of compromise welds (where 115-pound and 136-

[67] *See* e-workpaper "Track Construction Costs.xls."
[68] *See* e-workpapers "NS 2010 Rail Cost.pdf", and "Track Construction Costs.xls."
[69] *See* e-workpaper "Track Construction Costs.xls."
[70] Id.

pound rail are joined together) are included in the workpapers accompanying this opening evidence.[71] The total cost for field welds is $2.2 million.

iv. Insulated Joints -- Insulated joint requirements are addressed in the signals and communications costs discussed in Section III-F-6 below.

v. Switches (Turnouts) -- SunBelt's engineers included the number and size of turnouts specified in the SBRR's stick diagrams (as discussed in Section III-B). Turnouts were also included for the SBRR's yards and connections to customers served by the SBRR.[72] Unit costs for turnouts were obtained from quotes from vendors.[73] The turnout quotations include all materials necessary for construction of complete No. 20 power turnouts, No. 14 power turnouts, and No. 10 hand-thrown turnouts, including, but not limited to rail, switch ties, frogs, guard rails, switch points, base plates and tie plates, switch plates, switch point heel blocks, adjustable wedge brace plates for the switch point section, insulated tie bar rods, connecting rods, the switch machine, and all other items incidental to turnout construction. The total cost to the SBRR for turnouts (excluding geotextiles and including switch heaters) is $34.8 million.[74]

e. Other

i. Rail Lubricators -- Rail lubricators are used by the SBRR to distribute grease to the wheel/flangeway interface. Spacing of lubricators is based on the coverage of the grease as defined by the supplier, and as warranted by track conditions. The unit cost for rail lubricators is based on quotes from vendors.[75] The SBRR's total cost for rail

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[71] Id.
[72] *See* e-workpapers "SBRR Yard Matrix.xlsx" and "SUNBELT_ATC_OPEN.xlsx," tab "Origins and Destinations."
[73] *See* e-workpaper "Track Construction Costs.xls."
[74] Id.
[75] Id.

lubricators is $0.2 million.[76]

ii. Plates, Spikes and Anchors -- The SBRR is using wood ties with cut spikes that will be used to hold the rail to the tie plate and the tie plate to the ties, and to provide lateral restraint to hold the rail to gauge (4 feet 8.5 inches inside dimension between the railheads). Two spikes per tie plate (four spikes per tie) are used on all track with timber ties and less than 3-degree curves. This spiking pattern is standard practice for U.S. railroads, and is used by NS. AREMA standards also support two spikes per plate.[77]

For curves between 3 and 6 degrees, 4 spikes per plate are used. This pattern is consistent with industry practice and AREMA.[78] For curves greater than 6 degrees, five spikes per plate are used.[79]

Rail anchors are drive-on or spring clip-on devices that clamp under the base of the rail and bear against the sides of the timber ties. Anchorage of the rail prevents the rail from running, or moving in a longitudinal direction down the track, due to thermal expansion or train acceleration/braking loads. The anchors transmit the longitudinal stress forces in the rail to the ties, which then transmit the forces to the ballast thereby restraining movement of the track structure. Anchors are used on both sides of every other tie on main track, branch lines, yard tracks, set-out tracks and interchange tracks where the curvature does not exceed 3 degrees. Anchors are used on both sides of every tie for curves 3 degrees or greater and for 200 feet at each end of grade crossings (those costs are included in the grade crossing and turnout costs).

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[76] Id.
[77] *See* e-workpaper "Spiking Pattern.pdf."
[78] Id.
[79] Id.

The anchoring pattern being used on the SBRR is consistent with AREMA and NS standards.[80] The total costs for plates, spikes, and anchors on the SBRR are $54.1 million.[81]

iii. Derails and Wheel Stops -- Derails are used to keep cars from rolling from a spur track or side track through a turnout and onto the main track. Derails are included at all Failed Equipment Detectors ("FED"), set-out track turnouts and at yard turnouts at the yard locations where cars are set out from trains and stored. Wheel stops are used at the end of single ended tracks to keep the cars from rolling off the end of the track. The cost for derails and wheels stops were developed from vendor price catalogues. The total costs for derails and wheel stops for the SBRR are $0.2 million.[82]

iv. Materials Transportation -- As described above, specific transportation costs associated with a given item are included in the total costs for that item. Therefore, no additional transportation costs have been added.

v. Track Labor and Equipment -- The SBRR's track laying and related costs are derived from direct quotes and bids obtained from contractors on projects where Crouch Engineering bid and oversaw rail construction, and from recent quotes solicited from contractors for similar projects. Labor quotes for track construction were obtained from Queen City Railroad Construction and RailWorks. Bid prices were also obtained from several NS track construction projects. The lowest quote/bid has been used for track construction and includes the following:

1) Provide labor to unload and distribute all track material including 136 RE CWR or 115 RE CWR from rail train, timber crossties, tie plates, rail anchors, spikes, and ballast;

[80] *See* e-workpaper "Rail Anchor pattern.pdf."
[81] *See* e-workpaper "Track Construction Costs.xls."
[82] Id.

2) Construct track complete using CWR, crossties on 21" centers, box anchoring every other tie, box anchor every tie within 200' of grade crossings;

3) Distribute ballast from hoppers or ballast cars; and

4) Surface and line track, regulate ballast, 12" of ballast under center of ties.

The total cost of track labor for the SBRR is $96.8 million.[83]

4. Tunnels

There are no tunnels on the SBRR.

5. Bridges

SunBelt's bridge testimony is also sponsored by witness Harvey Crouch. SunBelt's engineers have observed bridges on the lines being replicated by the SBRR and reviewed the specific information contained in NS's bridge inventory. Bridge quantities for the SBRR were developed from NS bridge inventory information provided in discovery. Bridge designs were developed by SunBelt's engineers and unit costs are derived from various real world sources as described below.

a. Bridge Inventory

Mr. Crouch prepared the bridge inventory for the SBRR based on a review of the bridge information provided by NS in discovery. The bridge inventory utilized by SunBelt's engineers includes milepost, feature crossed, number of spans, structure type, and total length.[84] Bridges spanning 20 feet or less and crossing natural barriers have been built as culverts.[85]

b. Bridge Design and Cost Overview

When the NS lines replicated by the SBRR were constructed, a variety of bridge types and lengths were used. This was due to the different technologies that were available at the time

[83] Id.
[84] *See* e-workpaper "SBRR Bridge Construction Costs.xls."
[85] *See* e-workpaper "Culvert Construction Costs.xls."

of original bridge construction, the proclivities of the particular railroad company that constructed the bridge, the desired load rating, and the available materials. As technology has become more sophisticated, so has bridge design and implementation.

The SBRR's bridges have the same lengths as those being replicated, but SunBelt's engineers have designed those bridges using more efficient spans where possible using several standard bridge designs (*e.g.,* Type I, II, III bridges) based on the diverse bridge lengths and heights that are required.[86] However, the bridge inventory provided by NS did not include complete and detailed bridge height data, only the maximum height. Therefore, to determine the necessary heights of the bridge being replicated, the following methodology was used based on the feature the bridge is crossing:

1. Highway/Interstate	16.5' (AASHTO-Interstate Requirement)
2. Other roads	14.5' (AASHTO-Other Highways)
3. Navigable waterways	USCG clearance requirements[87]
4. Other waterways	11'

These standard heights were adopted by SunBelt's engineers in order to develop costs for the bridges required for the SBRR. Bridge height is an essential aspect of the cost of a bridge. The higher the bridge, the more bracing will be required for stability, the more materials will be used, and the higher the construction cost will be due to the difficulty in forming concrete, driving longer steel piles, and lap-splicing rebar.

No information was provided in discovery on the hydraulic area of the bridges. Therefore, water flow increase/decrease was not taken into consideration in the engineer's methodology as this is negligible due to the fact that each bridge either kept the same number of

[86] This is standard practice in prior SAC rate cases. *See Duke/NS* at 190-191, *CP&L* at 327, *Duke/CSXT* at 496 and *WFA/Basin* at 108-112.

[87] *See* e-workpaper "USCG_Clearance_Guide.doc."

spans, or had a decrease in span number, while keeping the length the same as the existing bridge.

SunBelt's engineers then developed a cost formula for each of the four bridge types using a composite of costs from Crouch Engineering's historical data of successful bidders on similar scale railroad bridge construction. The historical data includes the cost quotes from successful bidders for bridges built in rural Tennessee and rural Alabama with terrain very similar to that of the lines being replicated by the SBRR. This project data focused on bridges that were not being built under traffic conditions or limited work windows, i.e., working conditions similar to those assumed to exist when building the SBRR.

Once they developed a standard cost formula, they then applied it to every bridge within the relevant category in the inventory. The cost for each bridge is developed separately. The primary formula applied for each bridge, but separately by Type as needed is:

> Bridge Cost = [(Abutment cost X number of Abutments) + (Pier Cost X number of Piers) + (Per Linear Foot Cost X Length of Bridge)].

Other components such as piling, handrail, elastomeric pads, base plates, and PVC deck drains are also reflected in the costs.[88]

From a design standpoint, using Crouch Engineering's historical costs for building bridges ensures that all items necessary for building the bridges are included, especially since these historical costs are actual costs from real world applications thereby demonstrating the feasibility of the methodology. These bridges are adequate in design, and have a minimum rating of 286,000 pounds and a life cycle of 100 years (meaning that no major repairs will be required for 100 years).

[88] *See* e-workpaper "SBRR Bridge Construction Costs.xls."

i. Type I Bridges -- Type I bridges have varying spans of 20'-0" to 32'-0". These bridges are typically one span unless they are incorporated in the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. The same precast deck, column caps, abutment caps, and wing-walls are used for all of these bridges. The typical column uses 8-HP14x73 piles as the foundation and each abutment uses 6-HP14x73 piles as the foundation. Type I bridges less than 32' in length are single span structures; structures that are 32-55' are two spans. In addition, Type I spans were often used when approach spans were necessary due to the inconsistent span lengths on the bridge inventory list.[89]

ii. Type II Bridges -- Type II bridges have spans of 32'-0" to 45'-0". These bridges are typically one span unless they are incorporated into the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. These intermediate spans are achieved by placing rolled beam sections next to each other. The same columns, abutments, caps, and wing-walls are used for all of these bridges. The typical column uses 8-HP14x73 piles as the foundation and each abutment uses 6-HP14x73 piles as the foundation.[90] The Type II Bridge classification on the SBRR is reserved for single-span bridges between 32'-0" and 45'-0" in length, and on an occasional multi-span bridge requiring a shorter span.

iii. Type III Bridges -- Type III bridges have spans of 60'-0" to 92'-6". These bridges are typically one span unless they are incorporated in the configuration of a much longer bridge requiring multiple bridge types and/or multiple span configurations. These intermediate spans are achieved by placing four 60' pre-stressed concrete Bulb-T beams side-by-

[89] Examples of the designs are included in e-workpaper "Type I_Photos and Plans.pdf."

[90] Examples of the designs are included in e-workpapers "Type II_Photos and Plans.pdf," "BR01-Pier Typical.pdf," "BR02-Pier Typical Sections.pdf," "BR05-Type II-1.pdf," "BR05-Type II-2.pdf," "BR05-Type II-3.pdf," "BR05-Type II-4.pdf," "BR05-Type II-5.pdf" and BR05-Type II-6.pdf."

side. A cast-in-place deck is installed over the pre-stressed Bulb-T beams. The same columns, abutments, caps, and wing-walls are used for all of these bridges. The typical column uses 8-HP14x73 piles as the foundation and each abutment uses 6-HP14x73 piles as the foundation.[91] The Type III Bridge classification on the SBRR is reserved for single-span bridges between 60'-0" and 92'-6" in length, and on an occasional multi-span bridge requiring a longer span.[92] Type III Bridges are the most economical span, and, therefore, this is the span that was chosen for single-span bridges between 60'-0" and 92'-6" in length, and for multi-span bridges longer than 92'-6" (unless USCG restrictions are in-place).

iv. Type IV Bridges -- Type IV bridges have spans of 150'-0", consist of a Steel-Through-Plate-Girder, and can be comprised of multiple bridge types in order to achieve long multiple span structures. Type IV bridges were selected to cross over large rivers needing to comply with USCG clearance requirements. Along with the 150' spans, the vertical clearance of the bridge was set to 60' through the length of the river only.[93] Through-Plate-Girders were only chosen when USCG requirements were present and the structure consisted of the minimum of eighteen (18) 150' spans (totaling 2,700') or the length of the structure based on NS information provided in discovery. If eighteen 150' spans were used, it was necessary in some instances to have additional bridge types to extend the structure so as to keep it out of the floodplain. This is consistent with the information provided by NS in discovery.

v. Highway Overpasses -- Grade separated crossings are included in the SBRR bridge calculations. The SBRR is constructing one (1) such overpass. As noted pre-

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[91] Examples of the designs are included in e-workpapers "BR01-Pier Typical.pdf," "BR02-Pier Typical Sections.pdf," "BR06-Type III-1.pdf," "BR06-Type III-2.pdf," "BR06-Type III-3.pdf," "BR06-Type III-4.pdf," "BR06-Type III-5.pdf," "BR06-Type III-6.pdf" and "BR06-Type III-7.pdf."

[92] Examples of the design are included in e-workpaper "Type III_Photos and Plans.pdf."

[93] Examples of the designs are included in e-workpapers "Type IV_Plans and Photos.pdf," "BR03-Pier USCG.pdf," "BR04-Pier USCG Sections.pdf," "BR07-Type IV-1.pdf" and "BR07-Type IV-2.pdf."

viously, the NS lines being replicated predate the roads in this territory. As such, SunBelt has included 10 percent of the costs for this bridge consistent with Board precedent.[94]

The unit costs for highway overpass construction were derived from a composite list of costs that is tracked by various state Departments of Transportation.[95] The SBRR highway overpass bridge will be constructed with the required clearances as specified in AREMA Figure 28-1-6. A sketch and photo of the typical highway overpass is shown in SunBelt's workpapers.[96]

The total investment cost for the SBRR's bridges is $316.2 million and for highway overpasses is $0.06 million for a total of $316.2 million.[97]

6. Signals and Communications

The SBRR will rely on a standard CTC-based vital signal system with components added to provide Positive Train Control ("PTC"). It will rely on a microwave system for communications. The signal system, including PTC, and communication system costs are sponsored by witness Victor Grappone, PE and summarized in Table III-F-8 below.

Table III-F-8
Signals And Communications System Costs
($ millions)

Item	Cost
(1)	(2)
1. PTC Signals System	$68.1
2. Detectors	0.8
3. Communications	25.7
4. Total	$94.6

Source: e-workpapers "SunBelt C&S estimate.xlsx" and "PTC Locomotive Cost.xlsx."

[94] *See AEP Texas II* at 102-103.
[95] *See* e-workpaper "SBRR Over Head Bridge Construction Costs.xls."
[96] *See* e-workpapers "BR09-Single Track Overpass.pdf" and "BR09-Double Track Overpass.pdf."
[97] *See* e-workpapers "SBRR Bridge Construction Costs.xls" and "SBRR Over Head Bridge Construction Costs.xls."

a. PTC Signal System

The Rail Safety Improvement Act of 2008 ("RSIA") (signed by the President on October 16, 2008, as Public Law 110-432) has mandated the widespread installation of PTC systems by December 2015. The SBRR network employs a PTC system for all train control and communications on the entirety of its constructed track network (i.e., the SBRR does not include investment cost for signaling and communications system on trackage rights and joint facility tracks owned by other carriers).

Unlike existing Class I carriers, the SBRR is installing a PTC system from the outset of its construction and investment, rather than converting an existing train communications and control system to a PTC system. As a result, the investment expenditures by the SBRR are less than what an existing Class I carrier will incur to achieve the same level of infrastructure. To develop the cost of the PTC system, SunBelt's experts relied on information provided by NS in discovery related to its estimates of the costs of the various components of the PTC system. The costs were adjusted, where appropriate, to reflect the cost of a PTC system as an initial installation rather than conversion from an existing CTC or other signaling system.

PTC investment costs are included for three basic components, which include track (wayside), information technology systems and locomotive communications. Signal system costs, including the costs for the wayside and information technology portions of PTC, are detailed in SunBelt's workpapers.[98] The number and type of components associated with typical installations along the right of way are defined in this file. The number of each type of installation was identified based on the layout of the SBRR as manifested in the SBRR stick diagrams and the track charts provided by NS in discovery.

[98] *See* e-workpaper "SunBelt C&S estimate.xlsx."

SunBelt counted interlocking components for huts ("IH"), signals ("IG"), switches ("IW") and track circuit ends ("IT"). For interlocking huts, a standard end-of-siding layout was taken as a baseline. To account for the additional costs associated with larger interlockings, a scaling factor was included that takes into account the number of signals, switches and track circuit ends. For automatic signal locations, either single or double track installations ("AS1" or "AS2") were counted.

SunBelt has also included costs to cover active highway crossing gates and flashers where needed. The count of crossings based on the numbers of track (one to four) and whether a given crossing had gates and flashers or just flashers ("X1G", "X1F", "X2G", "X2F", etc.) was based on information provided by NS in discovery.[99] Consistent with the Board's decision in *Duke/CSXT*, SunBelt's engineers have included 10 percent of the costs for highway crossing protection signals.

b. Detectors

Automatic roll-by failed equipment detectors ("FEDs") are included along the SBRR main lines as required by operations and consistent with the current industry standard.[100] As discussed in Part III-B, FEDs are located approximately every 35 miles along the main line (one for each main track in areas with two or more main tracks). Bad order setout tracks have been sited within two miles of the failed equipment detectors in each direction to provide for train stopping distances and allow removal of bad order cars to the setout tracks. All setout tracks near the detectors are single-ended tracks, 735 feet in length providing 600 feet in the clear past the switch. For interface to the signal and PTC system, each setout track is provided with either

[99] *See* e-workpaper "SunBelt C&S estimate.xlsx," tab "Crossings."
[100] *See* AREMA 2001 Standards, Chapter 16, Section 5.3.1, Items j & k.

a single- or double-track ("EL1" or "EL2") electric lock manual switch installation. Costs for FED and electric lock locations are contained in SunBelt's workpapers.[101]

c. Communications System

The SBRR's railroad radio system enables locomotive communications, two-way radio communications, general voice communications, general data communications, and FED alerts. Microwave radio technology is used for the radio system backbone and land mobile radio technology is used to facilitate communications between end user applications and the radio system backbone. Land Mobile Radio ("LMR") technologies provide communication access (via fixed, mobile and portable radios) to the radio system backbone for operating crews, supervisory and track maintenance personnel that need to communicate with the railroad=s operating headquarters and central dispatching facility at Birmingham, AL. LMR technologies are co-located with microwave radio technologies at network (tower) sites if appropriate. LMR technologies operate in Very High Frequency ("VHF") mode to accommodate railroad operational frequencies assigned by the AAR.

The backbone of the SBRR=s railroad radio system includes microwave towers along the SBRR route.[102] The use of microwave towers for railroad communications is widespread, although fiber optic communications are now also being used. On average, microwave towers are placed at 20 mile intervals along the SBRR.

Each tower includes a full set of microwave equipment, including two microwave base stations enabling sending and receiving along a straight path, and four microwave antennas. End towers have only one microwave station and two antennas. Where necessary, a tower may have three or four base stations and six or eight antennas. Each microwave tower also includes a

[101] *See* e-workpaper "SunBelt C&S estimate.xlsx."
[102] *See* e-workpaper "SunBelt LMR cost development.xls."

LMR base station, with corresponding radio equipment. Finally, each tower includes the necessary communications shed.

The type of multiplexor deployed at each tower is the Alcatel 1518 Integrated Access Device ("AD"). The 1518 AD is rack-mountable and will convert analog Radio Frequency ("RF") signals from/to digital signals. The 1518 AD also interconnects with the MTR2000 LMR base station by standard Plain Old Telephone System ("POTS") four-wire. The 1518 AD will also interconnect with the Alcatel MDR-8606 microwave base station by standard DS1 cable and shall conform to Telcordia TR-TSY-000499 and ANSI T1.102 standards. The 1518 AD supports up to 24 PCM channels per digroup that are intermixed at random, providing voice frequency ("VF") trunking, special service interfaces, synchronous and asynchronous data channels, program/broadcast services and FCC registered channels in one assembly.

CTC infrastructure components that are radio-enabled (*e.g.*, AEIs and FEDs) are equipped with the Kenwood TK-762GK radio, KAP-1 switching unit and required cables. For technical descriptions of the Kenwood TK-762GK VHF radio, *see* SunBelt's workpapers.[103] This mobile radio is VHF capable and operates in the 148-174 MHz frequency range.

In addition to the radios handling CTC infrastructure, SunBelt's engineering experts have included 163 LMR repeating stations positioned along the right-of-way. These LMR repeaters allow for uninterrupted RF communications along the right-of-way because the LMR stations on the microwave tower may or not be accessible at all points. Many of the LMR repeaters include a 30-foot antenna to extend the range.

Automatic Equipment Identification ("AEI") scanners are located at or near each of the locations where the SBRR interchanges trains with other railroads as described in Part III-B. A total of 20 AEI scanners have been provided. The AEI scanners have been placed so as to enable

[103] *See* e-workpaper "Radios.pdf."

them to capture all train movements that occur on the SBRR, including both local and interline movements. Details of the costs and components are shown in SunBelt's workpapers.[104]

The costs for the locomotive communications component of PTC are also included in the SBRR's communications system costs. Total investment cost for the SBRR's communications system is $25.7 million.[105]

7. Buildings and Facilities

SunBelt's buildings and facilities testimony is also sponsored by witness Harvey Crouch. The SBRR's major system facilities are located at its Birmingham, AL yard. These facilities include the SBRR's headquarters building, crew facilities, a yard office, a locomotive repair shop, 1,000 and 1,500-mile inspection facilities, and car and locomotive storage. Additional, smaller yards are located throughout the SBRR system.[106] The total SBRR building and facilities costs are summarized in Table III-F-9 below.

Table III-F-9
SBRR Buildings And Facilities Costs

Facility	Cost (000)
(1)	(2)
1. Headquarters Building	$3,025
2. Fueling Facilities	377
3. Locomotive Shops	897
4. Car Repair Shop	0
5. Crew Change Facilities	1,409
6. Yard Offices	237
7. Roadway Buildings (MOW)	142
8. Wastewater Treatment	887
9. Other Facilities/Site Costs	10,637
10. Total Buildings and Facilities	$17,611

Source: *See* e-workpaper "SBRR Facilities Cost.xlsx."

[104] *See* e-workpaper "SunBelt C&S Estimate.xlsx."
[105] *See* e-workpapers "SunBelt C&S Estimate.xlsx" and "PTC Locomotive Cost.xlsx."
[106] *See* e-workpaper "SBRR Yard Matrix.xlsx."

a. Headquarters Building

The SBRR headquarters is located at the SBRR's Birmingham (Norris) Yard. The SunBelt engineers calculated the required square footage using the American Institute of Architects standards square footage per employee which includes additional space for work rooms, IT equipment, hallways, bathrooms and mechanical services. Executive employees were allotted additional space per those same standards. The resulting building is two (2) stories with a total of 19,365 square feet.[107] The building's costs were based on RS Means online square foot cost calculator for building structures of this kind.[108] The total cost of the headquarters building is $3.0 million.

b. Fueling Facilities

i. Fueling Platforms and Fueling by Truck -- Fueling platforms are located at SBRR's Birmingham (Norris) Yard. Locomotive fueling at all other locations is performed by trucks (i.e., direct-to-locomotive or DTL fueling). All fueling by truck will be performed track-side. The yard tracks where locomotive fueling by truck will occur are built on 25-foot track centers, thereby providing sufficient space for the trucks to operate. The cost for fueling facilities on the SBRR equals $0.4 million.[109]

ii. Lube Oil & Sanding -- Locomotive servicing tracks designed for fueling locomotives by truck including sanding and lube facilities are located in SBRR yards in order to provide such services as needed.[110] These costs are included in each major and mid-size yard site based on the unit costs for the necessary facilities (including any needed storage tanks) derived from bid tabulations of projects with similar scope and size.

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[107] *See* e-workpaper "SBRR Facilities Cost.xlsx," tab "HQ Bldg."
[108] Id.
[109] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[110] *See* e-workpaper "SBRR Yard Matrix.xlsx" for the location of these facilities.

c. Locomotive Shop

SunBelt's engineers have included a locomotive shop designed to handle overhaul work as well as 92-day inspections and running repairs at the Birmingham (Norris) Yard. This shop includes a two-track facility designed to handle 92-day inspections and other minor running repairs as required and includes such necessities as a pit. Two (2) additional tracks capable of holding up to a total of eight (8) locomotives are included for the larger overhaul work. The heavier work-track design includes overhead and jib cranes, drop tables and other necessary heavy equipment as required based on the function of each track.[111] In addition, the shop is equipped with a wheel turning machine.[112]

Unit costs and designs are based on actual locomotive shop facilities designed and constructed by Crouch Engineering. Details of the shop fixtures and costs are included in SunBelt's workpapers.[113] The total cost for the locomotive shop for the SBRR is $0.9 million.[114]

d. Car Repair Shop

As noted in Part III-C, the SBRR acquires its railcars via full service leases and therefore, the lessor, and not the SBRR, is responsible for providing all necessary car repair shops.[115] Consequently, SunBelt's experts have not included costs for any car repair facilities. However, they have provided the necessary space and tracks for such a facility at the SBRR's Birmingham (Norris) Yard.

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[111] All items included in the design of the SBRR locomotive shop are separately priced.
[112] *See* e-workpaper "SBRR Facilities Cost.xlsx," tab "Major."
[113] *See* e-workpapers "SBRR Facilities Cost.xlsx" and "Locomotive Shop.pdf."
[114] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[115] *See PSCo/Xcel* at 693, *CP&L* at 333-334; *Duke/NS* at 196.

e. Crew Change Facilities

There are six (6) crew change locations on the SBRR which require a crew change facility.[116] The buildings at Birmingham, Meridian and New Orleans, which have a higher number of crew starts per day, are sized 35' by 64' for a total of 2,240 square feet per building. The buildings at the other locations are sized 25' by 56' for a total of 1,400 square feet per building. These buildings generally replicate the buildings used by NS for such purposes. Based on Mr. Crouch's experience, NS utilizes a variety of structures for crew change locations including old depots, metal buildings and concrete block buildings. Each building includes basic facilities such as locker rooms, a break area, a work room and other necessities. The unit costs and designs are based on actual buildings designed by Crouch Engineering. The total cost for crew change facilities on the SBRR is $1.4 million.[117]

f. Yard Offices

There are five (5) yard offices, one at each of the SBRR's major and mid-size yards.[118] These buildings are 25' by 56' and are pre-engineered metal buildings. The total cost for yard offices on the SBRR is $0.2 million.[119]

g. Maintenance of Way Buildings (Roadway Buildings)

The SBRR has three (3) MOW buildings. Each building is similar in office space and design to the crew change facilities, but the interior is smaller as there are fewer employees using the space. Additional area is provided for garaging certain vehicles as necessary and storing MOW supplies. SunBelt's engineers developed the space requirements based on the typical MOW crew at each location as well as the need to house signal maintainers. The unit costs and

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[116] Some crew change locations do not require a facility as the crew is away from home and goes directly to a motel upon going off duty. *See* e-workpaper "SBRR Yard Matrix.xlsx" for crew change facility locations.
[117] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[118] *See* e-workpaper "SBRR Yard Matrix.xlsx" for yard office locations.
[119] *See* e-workpaper "SBRR Facilities Cost.xlsx."

specifications were derived from actual MOW buildings designed by Crouch Engineering. The total cost for MOW buildings on the SBRR is $0.1 million.[120]

h. Wastewater Treatment

The SBRR building facilities are located near existing towns and cities, and are able to be served by a local sewer connection or similar service. SunBelt's engineers, therefore, included costs for sewer tie-ins. In addition, to handle runoff from various work by-products (*e.g.*, oil) before reaching the public sewer system, SunBelt's engineers have included oil/water separators. (The effluent (oil) is sent to an oil/water vaporizer that produces a dry powder which can be easily disposed of.) SunBelt's engineers have utilized such facilities in projects for other railroads. The total cost for wastewater treatment on the SBRR is $0.9 million.[121]

i. Other Facilities / Site Costs

SunBelt has also included costs for other facilities and site preparation costs. These costs include automobile handling facilities, locomotive servicing areas in certain SBRR yards, yard lighting, yard drainage and other site preparation costs. SunBelt has included $10.6 million for these items.[122]

8. Public Improvements

SunBelt's public improvements testimony is also sponsored by witness Harvey Crouch. While public improvements are discussed in detail below, the costs for some of items were included in other investment categories, such as buildings and facilities and signals.

a. Fences

NS did not provide any data concerning the quantities or locations of fencing on any of the lines being replicated by the SBRR. Consequently, SunBelt has relied on its experts'

[120] *See* e-workpapers "SBRR Facilities Cost.xlsx" and "MOW Building.pdf."
[121] *See* e-workpaper "SBRR Facilities Cost.xlsx."
[122] Id.

experience and observations that the vast majority of the lines being replicated are not fenced. Moreover, the fencing that was observed tended to be for farm, industrial, or residential use, and given the variations in materials, such fencing appears to have been erected by the adjacent land owner. Therefore, SunBelt has included fencing only for its yards at a cost of $1.0 million.[123]

b. Signs

SunBelt's operating and engineering experts have included a standard package of railroad signs, including milepost, whistle post, yard limit, and cross-buck signs and posts. SunBelt has included $0.6 million for railroad signs.[124]

c. Highway Crossings and Road Crossing Devices

The SBRR is building all at-grade crossings, and paying 100 percent of the cost for the crossing materials. SunBelt has included $7.5 million for at-grade crossings.[125] Consistent with *TMPA, PSCo/Xcel, Duke/CSXT, Duke/NS* and *CP&L*, SunBelt has included 10 percent of the costs associated with crossing protection, such as gates, flashers, and related signal elements such as crossing predictor huts.[126] These costs are included with the signal costs described in Part III-F-6 above.[127] For grade separated crossings, the SBRR is paying for 10 percent of the total investment costs in such structures[128] resulting in $0.1 million. These costs and designs are discussed in Part III-F-5 above.

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[123] Id.
[124] *See* e-workpaper "Track Construction Costs.xlsx.
[125] *See AEP Texas II* at 102; *PSCo/Xcel* at 695-696. *See* e-workpaper "Track Construction Cost.xlsx."
[126] *See TMPA* at 154, *PSCo/Xcel* at 696, *Duke/CSXT* at 504, *Duke/NS* at 200 and *CP&L* at 337.
[127] *See* e-workpaper "SunBelt C&S Estimate.xlsx."
[128] *See WFA/Basin* at 130 and *Duke/CSXT* at 504.

9. Mobilization

SunBelt's engineers have added a 2.7 percent mobilization factor for all items where mobilization is not already included in the contractor's bid.[129] The total cost for mobilization on the SBRR is $32.9 million.

10. Engineering

The Board has used a 10 percent estimate for all engineering cost components.[130] Thus, SunBelt's engineers have used a 10 percent additive here to cover all engineering, construction management, and resident inspection costs, as well as other items such as soil testing. The total cost for engineering on the SBRR is $121.8 million.

11. Contingencies

Consistent with prior Board decisions in other SAC rate cases,[131] SunBelt's engineering experts have used a 10 percent contingency factor and applied it to the construction subtotal excluding land. Total contingency costs for the SBRR are $137.2 million.[132]

12. Other

a. Construction Time Period

The construction time period for the SBRR is controlled by the time it takes to construct the Lake Pontchartrain Bridge located near the city of New Orleans, LA. The work will begin with the start of surveying and aerial mapping operations. A two (2) month period will be allocated to obtain sufficient information to allow preliminary planning and engineering design

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[129] *See Duke/CSXT* at 505. The STB accepted 2.6 percent in *CP&L* (at 338) and 2.5 percent in *Duke/NS* (at 201). The STB also accepted 2.4 percent in *AEPCO 2011* (at (132). SunBelt is being conservative by using 2.7 percent for mobilization.

[130] *See PSCo/Xcel* at 697-698.

[131] *See WFA/Basin* at 132-133; *AEP Texas II* at 104-105; *PSCo/Xcel* at 698 (parties agreed to 10 percent contingency); *TMPA* at 746-747; *West Texas Utilities* at 710; *APS* at 402.

[132] *See* e-workpaper "III-F Total.xls."

to begin. Design of the railroad and appurtenances will require a fourteen (14) month period including the two (2) month start-up/surveying period.

Land acquisition will take approximately seven (7) months to complete. It will commence five (5) months after project initiation. Test borings will be timed to coincide with land acquisition so sufficient test borings can be made during the design process.

By the tenth month at about 70 percent completion of the design phase, the longest bridge, the Lake Pontchartrain Bridge, will be bid with construction to start by the thirteenth month. The remaining site work bid packages will be ready to bid in the eleventh month and work on all site work, bridges and tunnels will be started by the fifteenth month. In the twelfth month, the PTC, signal, communications and track packages will be bid.

Construction of all bridges and structures other than the Lake Pontchartrain Bridge is anticipated to take a maximum period of twelve months. It is expected that the Lake Pontchartrain Bridge can be constructed in fourteen months.

In general, the construction work has been planned by subdivision. The work has been structured so that all site work and bridges and tunnels can be completed prior to installation of track and signals. Total construction time for the N.O. & N.E. District, which will take the longest to construct, will be twenty months. Total design and construction time for this project is twenty-eight (28) months with six (6) months (of which four (4) months overlap construction) available at the end of construction for final operational testing. Thus a thirty (30) month overall construction period has been provided.

The SBRR construction project would be divided into 7 track packages, 36 grading packages, 50 bridge packages and 1 building package.[133]

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[133] *See* e-workpaper "Complete Construction Schedule.xls."

Track gangs will lay track at an average of one-half mile per day, ballasted and anchored. With crews working six days per week, the rate of one half-mile per day would enable the project to be completed within the established schedule.

Finally, material prices have been obtained for most track materials delivered to railheads, including, but not limited to, Birmingham, AL, McIntosh, AL and New Orleans, LA. Because of the numerous road access points along the lines, the uniform topography for most of the railroad, and interstate roads paralleling many line segments, materials that cannot be shipped by rail have been priced with shipping by truck to one or more of the road access points along the SBRR's lines.

Part III-G

III. G. DISCOUNTED CASH FLOW ANALYSIS

The expert witnesses responsible for this part are Thomas D. Crowley and Daniel L. Fapp of L. E. Peabody and Associates, Inc. Their credentials are detailed in Part IV.

The Board's SAC constraint rests on the premise that a captive shipper should pay no more than the minimum necessary to receive service from a least-cost, presumptively efficient replacement for the incumbent railroad, and that the shipper should not bear the cost of any facilities or services from which it derives no benefit.[1] The SAC constraint is derived from and constitutes an application of the theory of contestable markets.

In the Board's contestable market structure, the incumbent railroad's rates are deemed constrained by the threat of entry by the hypothetical stand-alone entity. If it is shown that the prospective cost of substitute service is less than the rate charged by the incumbent, there is an incentive for the new entity to enter. The presence of that incentive, in turn, is evidence that under the incumbent's rates the shipper is contributing to (subsidizing) the cost of services that it does not use, and/or is contributing monopoly profits to the incumbent.

SAC provides a regulatory ceiling on rates under conditions of rail market dominance; if the incumbent's rates are higher than those that would be charged by the stand-alone entity (the SBRR in this case), then the incumbent's rates are unreasonable. As the Board summarized in *CP&L*:

> A SAC analysis seeks to determine the lowest cost at which a hypothetical, optimally efficient carrier could provide the service at issue free from any costs associated with inefficiencies or cross-subsidization of other traffic. A stand-alone railroad is hypothesized that could serve the traffic if the rail industry were free of barriers to entry or exit. (It is such barriers that can make it possible for railroads to engage in monopoly pricing absent regulatory constraint.) Under the SAC constraint, the rate at issue

[1] *See Coal Rate Guidelines*, 1 I.C.C. 2d at 523-524; *AEPCO 2011* at 3 and 4.

> cannot be higher than what the SARR would need to charge to serve the complaining shipper while fully covering all of its costs, including a reasonable return on investment.[2]

Since the function of a SAC analysis is to identify the cost associated with providing the most-efficient, least-cost service to the captive shipper, it follows that application of the SAC standard should be premised on rational economic behavior by the stand-alone entrant. In particular, the stand-alone entrant should pay no more than is necessary for its inputs. Thus, while the SBRR is considered to be a substitute for NS to the extent of the scope of the SBRR's planned services, SAC does not require that the SBRR replicate the NS system in all respects. As the Board's predecessor confirmed in *Coal Rate Guidelines*, the design of the stand-alone system and the traffic it carries are chosen to achieve the goals of maximizing revenues and minimizing service costs to the shipper, regardless of the actual circumstances of the incumbent railroad.[3] This means that the SBRR must be considered a replacement for the relevant portions of the NS system, not a rival, and must be afforded the flexibility to configure its system and service scope in a manner that maximizes efficiency and cost effectiveness.[4]

These core principles guide the traffic group, design, configuration, and planned operation of the SBRR as detailed in the previous Parts of this Testimony. They also inform the proper treatment of capital cost recovery, inflation and taxes.

1. Cost of Capital

Calculation of the capital recovery charge for the SBRR necessarily depends on the SBRR's assumed cost of capital. The Board has consistently accepted the general railroad industry's average costs of common equity, debt and preferred equity (if any), and their

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[2] *See CP&L* at 244-245.
[3] *See Coal Rate Guidelines* at 543-544.
[4] *See, e.g., Nevada Power II* at 280-281(Chairman McDonald, commenting).

percentage mix within the industry's capital structure[5] in forming a capital structure for the SARR over the relevant construction period (February 27, 2009 through July 29, 2011 in this case) and operating period (July 30, 2011 through July 29, 2021).[6]

The SBRR's cost of debt and preferred equity[7] capital during the 10-year DCF period is assumed to equal the weighted average railroad industry cost of debt or preferred equity over the SBRR's construction period, weighted by the SBRR's investment by construction year. The cost of common equity capital is assumed to equal the then-current year railroad industry cost of equity as determined by the Board. If the Board has not calculated the cost of equity capital for such year, the simple average of all prior years' costs of equity capital beginning in the first year of the SARR's construction is used. To project capital costs forward and estimate the value of the SBRR at the end of the DCF period, the Board relies on an average of available past years' industry capital costs, reaching back to the first construction year.[8]

SunBelt has followed the Board's approved and preferred approach in developing capital costs for the SBRR. For 2009 and 2010, SunBelt employs the industry average costs determined by the Board in its annual cost of capital proceedings.[9] For 2011, Sunbelt has used the industry average costs of common equity, debt and capital structure as calculated by the Association of American Railroads ("AAR") and submitted to the STB as part of the Board's 2011 cost of

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5 As determined by the Board in its annual railroad cost of capital proceedings.
6 *See WFA/Basin* at 135; *Duke/NS* at 123; *CP&L* at 261-262.
7 The STB's annual cost of capital findings since calendar year 2002 have not included preferred equity.
8 *See AEP Texas* at 108-109.
9 *See Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital – 2009,* decided October 28, 2010, and *Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital – 2010,* decided September 30, 2011. The railroad industry had no preferred equity capital outstanding, therefore the SBRR incurs no cost of preferred equity for these years.

capital determination.[10] SunBelt uses the railroad industry cost of capital to calculate the capital recovery charges for all road property investment.

2. Inflation Indices

The prices of goods and services used by the SBRR undoubtedly will change over the 10-year DCF period. It therefore is necessary to forecast rates of inflation for application to the capital assets and operating expenses over the timeline covered by the SAC analysis; *i.e.* July 30, 2011 through July 29, 2021. The time path of capital recovery charges for the SBRR likewise must maintain the real purchasing power of those charges. A summary of the indexes applied to the SBRR's capital assets and operating expenses is shown in Table III-G-1 below.

Table III-G-1
Index Values Utilized In The SBRR DCF Model

Year	Land	Materials and Supplies	Wage Rates and Supplements	Materials, Supplies, Wage Rates and Supplements (Excluding Fuel)	Operating Expenses
(1)	(2)	(3)	(4)	(5)	(6)
2009	100.0	100.0	100.0	100.0	---
2010	100.1	100.3	107.2	106.3	---
2011	108.2	103.7	109.1	108.4	100.0
2012	116.6	110.5	114.0	113.6	97.7
2013	124.6	114.1	120.8	120.0	100.4
2014	133.1	116.7	124.9	123.8	102.4
2015	142.2	120.0	130.2	128.8	104.6
2016	152.0	122.6	135.2	133.5	106.5
2017	162.5	124.5	140.1	138.1	108.3
2018	173.7	126.5	145.4	142.9	110.2
2019	185.8	128.4	150.8	147.9	112.0
2020	198.6	130.3	156.3	152.9	113.5
2021	210.7	132.4	161.1	157.3	115.5

Sources: Opening e-workpapers "SBRR Land Appreciation.xls," "Hybrid RCAF.xls," and "Exhibit III-H-1.xls."

[10] *See* the AAR's Opening evidence in *Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital – 2011*, submitted April 20, 2012. SunBelt's use of the AAR's 2011 cost of capital calculations is not an endorsement of the AAR's estimate, but instead an effort to minimize the potential differences between SunBelt and NS.

The annual inflation forecast that is used to calculate the value of the SBRR's road property assets is based on actual railroad chargeout prices and wage rate indexes calculated by the AAR for materials and supplies, wage rates and supplements, and materials prices, wage rates, and supplements combined (excluding fuel) ("MWSExFuel") for eastern railroads, and the current Global Insight's June 2012 Rail Cost Adjustment Factor Forecast for rail labor and rail materials and supplies.[11]

For land assets, the annual forecast inflation rate is based on a weighted combination of indices that reflect rural and urban land prices in proportion to the mix of the land values on the SBRR system routes.[12]

Rural land indexes were developed from historic rural land values reported by the U.S. Department of Agriculture ("USDA"). The STB determined in *AEPCO 2011* that it is preferable to use a longer rather than a shorter period of historic data when forecasting future economic trends, such as an inflation rate for land values.[13] The STB cited its use of historical averages of more than 80-years in developing railroad costs of equity estimates.[14] Given the STB's clear preference for longer historical averages, and the use of averages from the late 1920s to 1930 to calculate the SBRR's cost of equity, we developed the historic average annual and quarterly

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[11] Global Insight does not develop a forecast of the AAR's MWSExFuel index. SunBelt therefore uses a proxy that weights Global Insight's materials and supplies and labor rate index forecasts, which the Board has relied upon for purposes of execution of the DCF model. *See AEP Texas II* at 109; *Duke/NS* at 123; *CP&L* at 261.

[12] Historically, parties in SAC cases weighted the different urban and rural land indexes based upon the percentage of SARR acres which were urban and rural. In *AEPCO 2011*, the STB changed its approach to weight the indexes based on the value of the rural and urban land acquired by the SARR. SunBelt has applied the STB's revised approach in its opening DCF model.

[13] *See AEPCO 2011* at 139.

[14] *See AEPCO 2011* at 139 "In measuring the terminal growth rate (from year 11 out) in the cost of equity, the Morningstar/Ibbotson model uses, in part 'the average annual percentage change in real GDP from 1930 to the year being analyzed." Similarly, in developing the Capital Asset Pricing Model ("CAPM") cost of equity, the STB relies upon the historic average equity risk premium calculated from the year 1926 to the present. See STB Ex Parte No. 558 (Sub-No. 10), *Railroad Cost of Capital -- 2006*, served January 17, 2008.

percentage change in rural land values between 1930 and 2011 for the SBRR states, and used these historic averages to forecast future changes in rural land values.[15]

Urban land values, which are assumed to consist of a mix of investment, residential and commercial properties, were indexed using a commercial land index prepared by the National Council of Real Estate Investment Fiduciaries ("NCREIF").[16] The NCREIF Property Index ("NPI") is a quarterly time series composite index, which like the Massachusetts Institute of Technology Center for Real Estate ("MIT") index used in *AEPCO 2011*, measures total rate of return of investment performance of a very large pool of individual commercial real estate properties acquired in the private market.[17] However, unlike the MIT index used in *AEPCO 2011*, the NPI reports values back to 1977, while the MIT index only reports values back to 2001. As indicated above, the Board determined in *AEPCO 2011* that it is preferable to use a longer rather than a shorter period of historic data when forecasting future economic trends. The 23 years of additional data included in the NPI makes it superior to the data included in the MIT index.

SunBelt applied the NPI to urban land values in developing its land inflation index. For the years 2009 through 2011, SunBelt used the actual historic change in the Southern Region NPI. For the years 2012 to 2021, SunBelt calculated the long-term historic change in the Southern Region NPI from 1978 (the first year reported) to 2011, and used this longer-term average as a proxy for future urban land value growth. This collection of forecasts and their application is shown on Exhibit III-H-1.

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[15] For the years 2009 through 2011, SunBelt relied upon the actual historic change in rural land values instead of the historic average.

[16] Details are provided in e-workpaper "Land Appreciation.xls." *See, e.g., Duke/NS; CP&L.*

[17] A complete description of the NPI can be found on the NCREIF website at http://www.ncreif.org/property-index-returns.aspx.

In *Major Issues*, the Board adopted a convention for the indexing of operating expenses for a SARR under which expenses for the first year would adjust based on 100 percent of the change in the RCAF-U; expenses for the second year would adjust based on 95 percent of the change in the RCAF-U and 5 percent of the change in the RCAF-A; and each succeeding year of the DCF period would use a mix reflecting increasing shares of the RCAF-A in 5 percent increments.[18] SunBelt applies this method to the indexing of operating expenses for the SBRR.[19] SunBelt's model uses actual RCAF-U and RCAF-A indexes through 2Q12, the latest quarter available, and applies Global Insight's June 2012 RCAF-U and RCAF-A forecasted indexes thereafter.

3. Tax Liability

Federal taxes for the SBRR are calculated on the assumption that it pays taxes at the 35 percent corporate rate, with all payments for debt interest, state income taxes and depreciation expenses treated as reductions in taxable income.[20] Interest expense is calculated on a 20-year period, pursuant to Board precedent.[21] As explained in greater detail in Section III-H-1-d, SBRR interest expense is calculated based on the real practice of railroads issuing primarily coupon bonds, which pay periodic, even interest payments. Depreciation expenses for tax purposes use accounting lives from the Modified Accelerated Cost Recovery System ("MACRS") with investments placed in service in the second quarter using a mid-quarter convention. In addition,

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[18] Under the Board's hybrid approach, operating expenses for the tenth and final year of the DCF period would be determined using an index comprised of 55 percent of the change in the RCAF-U, and 45 percent of the change in the RCAF-A. *Id.* at 40.

[19] See e-workpaper "Hybrid RCAF.xlsx."

[20] *See FMC* at 847-848.

[21] *McCarty Farms* at 525. This has been an uncontested issue between the shippers and railroads and is implicit from the statement in *Major Issues* at 65 where the STB states "the only changes…[needed to convert the DCF model from a 20-year to a 10-year model] are: (1) the elimination of forecasts for operating expenses in years 11 through 20 and (2) changing the netting calculations…."

as described in Part III-H-1-f, the SBRR calculated bonus depreciation available under current tax laws.

The SBRR also must account for any income tax liability accruing to the three (3) states in which it operates. Following Board-approved procedures, the taxes applicable to railroads in each state were weighted together based on the SBRR route-miles located within each state.[22] As summarized in Table III-G-2 below and detailed in Exhibit III-H-1, the weighted average rates for each state produce an effective state tax rate of 6.19 percent for the SBRR.

Table III-G-2
State Tax Rates And
Constructed Miles For The SBRR

	State	Tax Rate	Route Miles
	(1)	(2)	(3)
1.	Alabama	6.50%	356.85
2.	Louisiana	8.00%	50.03
3.	Mississippi	5.00%	171.36
4.	Weighted Average	6.19%	578.24

Source: Exhibit III-H-1

4. Capital Cost Recovery

Under the Board's DCF methodology, economic depreciation is used to calculate the capital recovery cost of the SBRR's property. Economic depreciation effectively represents an asset's loss of earning power as it approaches the end of its life and/or its replacement date. The changes adopted in *Major Issues* dictate the use of a 10-year analysis period to benchmark the SBRR's asset value. However, the SBRR's investments would not be retired at the end of the 10-year DCF period; rather, it is assumed that continuing investments will be made in the SBRR, and that it would operate, hypothetically, in perpetuity. SunBelt's calculation of SAC, in Exhibit

[22] *See*, e.g., *Coal Trading Corp.* at 527.

III-H-1, therefore accounts for the costs associated with the renewed investments in and continued operation of the SBRR after July 29, 2021, using the approach approved by the Board in previous cases.[23]

Beginning with *FMC* and continuing through subsequent decisions, the Board has utilized a real capital carrying charge that is equal in each year of the DCF period, regardless of changes in volume. Under this assumption, the relationship between stand-alone revenues and SAC (and, thus, the measure of potential rate relief and the maximum reasonable rate) fluctuates with annual changes in volume and associated revenue.[24] SunBelt's computations of the pattern of capital recovery apply this approach.[25]

[23] *See, e.g., AEP Texas* at 105-106.
[24] *See WFA/Basin* at 134-135.
[25] *See* Exhibit III-H-1.

Part III-H

III. H. RESULTS OF SAC ANALYSIS

The expert witnesses responsible for this Part are Thomas D. Crowley and Daniel L. Fapp of L.E. Peabody & Associates, Inc. Their credentials are detailed in Part IV.

1. Results of SAC DCF Analysis

The results of the SAC DCF analysis conducted by SunBelt are shown in Exhibit III-H-1. The calculations shown in each table of that Exhibit are summarized below.[1]

a. Cost of Capital

The cost of capital (Table A) for the SBRR is based upon the Board's annual cost of capital determinations for 2009 and 2010 and the Association of American Railroad's ("AAR") estimate of the railroad industry's 2011 cost of capital.[2] The SBRR's cost of debt for years 2009 to 2011, the SBRR's construction period, is assumed to equal the railroad industry average cost of debt for each specific year in the construction period. For years 2012 through 2021, the SBRR's cost of debt equals 4.71 percent and reflects the weighted average of the construction years' debt costs. The SBRR's cost of common equity for the years 2009 through 2011 is assumed to equal the railroad industry cost of common equity for each specific year. For years 2012 through 2021, the SBRR's cost of common equity equals 12.98 percent, which, consistent with prior SAC cases, is equal to the simple average of the prior years cost of common equity. The SBRR has no preferred equity.

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[1] The cost of capital (Table A) and inflation indices (Table B) are addressed in more detail in Part III-G.

[2] Our use of the AAR's 2011 cost of capital estimate is not an endorsement of the calculation, but instead provides a very conservative upper-bound approximation of the SBRR's actual cost of capital and minimizes the potential areas of difference between SunBelt and NS.

b. Road Property Investment Values

The calculation of road property investment costs is summarized in Table C of Exhibit III-H-1. The investment cost also incorporates one-time fees paid for land easements.

c. Interest During Construction

Interest During Construction ("IDC") accrues on the road property assets of the SBRR. Table D shows the total IDC amount, and the portion that is debt-related. IDC is calculated based on the investment values in Table C, the composite cost of capital by year from Table A, and the assumed length of the finance period for each account. The construction schedule described in Part III-F-12 is used as the basis for the length of the finance period. The portion of IDC that is debt-related is calculated by multiplying the investment by the length of the finance period, the SBRR's debt percentage, and the annual cost of debt for the year of investment. Debt-related IDC is shown as an interest deduction for tax purposes during the construction period.

d. Interest Schedule of Assets Purchased With Debt Capital

Parties in prior SAC proceedings have assumed that the hypothetical SARR's debt capital would mirror the debt issued by the U.S. Class I railroads included in the Board's annual cost of capital determination.[3] While the parties had incorporated the cost of the railroad industry debt reflected in the Board's annual determination, they implicitly deviated from the type of debt the railroad industry utilized in its capital structure. Both shippers and railroads assumed that the SARR would issue debt structured similar to a typical home mortgage loan, e.g., the SARR would make quarterly payments that contained a principal repayment component and an interest

[3] *See West Texas Utilities* at 712.

component. Over time, as the debt was amortized, the interest component portion of the payment declined as larger amounts of the principal were repaid until, after 20 years, the debt was assumed to be completely repaid.

While such a payment stream is consistent with a typical home mortgage, it is contradictory to the payment schemes of the vast majority of railroad industry debt. Railroad companies, like other large corporations, do not customarily make periodic payments that contain constantly changing principal and interest components, but rather make coupon payments on the debt consisting of fixed interest payments. The AAR's filing in the 2010 cost of capital determination shows that nearly 90 percent of railroad industry debt consists of corporate bonds, notes and debentures that incorporate such periodic coupon payments.[4] In fact, the vast majority of NS' own debt is held in the form of corporate notes and debentures. According to the NS's 2011 SEC Report 10-K, $7.464 billion of NS' $7.540 billion total debt (after discounts and premiums) is held in notes and debentures paying coupon payments.[5] In other words, nearly 99 percent of NS' total long-term debt pays fixed payments.

If Board precedent assumes that the SARR's cost of debt should mirror the railroad industry cost of debt, the SARR debt should also mirror the composition of that debt and how the interest is paid to the debt holders. To that end, instead of amortizing the debt in a mortgage-style approach over a 20-year schedule, SunBelt has developed quarterly coupon payments associated with the SBRR's debt as depicted in Table E of Exhibit III-H-1.[6] The SBRR's

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[4] *See* the Verified Statement of John T. Gray in Ex Parte No. 558 (Sub No. 14), *Railroad Cost of Capital – 2010*, submitted April 29, 2011 at page 10 and Appendix A, which discuss the pricing of bonds based in part on their coupon payments and shows the coupon payments for the railroads' long-term notes and debentures. Mr. Gray submitted verified statements in the 2008 and 2009 Railroad Cost of Capital proceedings that show that the debt issued by the railroads in those years also primarily consisted of notes and debentures with coupon provisions.

[5] *See* NS SEC Form 10-K for the Fiscal Year Ended December 31, 2011 at page K56.

[6] Most railroad companies pay interest semi-annually, but to remain consistent with the structure of the Board's DCF model, SunBelt has assumed the SARR will make coupon payments on a quarterly basis.

quarterly interest payment is developed by multiplying the fourth-root of the appropriate Table A cost of debt by the sum of the total investment and IDC for the year.

Consistent with *Major Issues* and previous Board decisions, the debt for road property investment is assumed to be financed over 20 years. The Board has expressed concern about the SARR issuing 20-year debt obligations that may not match the actual length of debt obligations issued by the railroads in the cost of capital determination group. However, this should not be a concern and need not impact the assumption of fixed interest payments. As explained more fully below, the railroads' level of debt has remained fairly level since the last round of mergers in the mid-1990s. This is because the railroads are issuing new debt as debt instruments mature, or as they redeem older debt issuances and replace them with newer issuances. In other words, the railroads are holding their levels of debt fairly constant, and as such, are consistently paying interest on this debt. Between 1998 and 2009, the four main railroads included in the STB's cost of capital calculation paid aggregate interest payments ranging in a narrow band between $1.8 and $2.2 billion.

e. Present Value of Replacement Cost

Table F shows the additional investment (on a present value basis) that the SBRR would have to make if each of its assets (excluding land) was replaced indefinitely at the end of its useful life. The 2009-2011 average cost of capital values are used to calculate replacement value for road property assets. This calculated investment is added to the initial investment in Table I prior to determining the quarterly cash flows.

f. Tax Depreciation Schedules

Table G displays the tax depreciation required under the Federal Tax Code as currently in effect.[7] Depreciation was calculated assuming a mid-quarter convention, with assets placed in service in the third quarter. Investments in communications (Account 26), signals and interlockers (Account 27), and the track accounts (Accounts 8-12) were depreciated over seven (7) years employing a 200 percent declining balance methodology, then switching to straight-line depreciation when the straight line percentage exceeds the declining balance percentage. Investments in bridges and culverts (Account 6), public improvements (Account 39), fences and roadway signs (Account 13), station and office buildings (Account 16), roadway buildings (Account 17), and shops and engine houses (Account 20) were depreciated over 15 years using a 150 percent declining balance method, and then switching to straight-line depreciation at the same point consistent with Board precedent. Investments in grading (Account 3) and tunnels (Account 5) were amortized over 50 years using straight-line amortization. Investments in engineering (Account 1) were amortized over five (5) years using straight-line amortization.

The SBRR will take advantage of additional or "bonus" depreciation provisions enacted in 2009 and 2010. These provisions were part of the American Reinvestment and Recovery Act ("ARRA") of 2009, the Small Business Jobs Act of 2010, which contained 50 percent depreciation bonus applicable to purchases made between January 1, 2010 through September 7, 2010 and the Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 which increased the bonus depreciation to 100 percent for capital investments placed in

[7] The mandatory method for depreciating most tangible property placed in service after December 31, 1986 is MACRS. In addition, Engineering Costs have been amortized over a 60 month period, starting with the month in which the business begins.

service after September 8, 2010 through December 31, 2011.[8] These acts provided bonus depreciation on capital investments with MACRS recovery periods of 20 years or less.[9] Qualifying investments made between February 2009 and September 7, 2010 are allowed a 50 percent depreciation bonus in the year that they are placed into service, while qualifying assets made between September 8, 2010 and July 29, 2011 are allowed 100 percent bonus depreciation. Tax depreciation for the remaining 50 percent of the cost, or the remaining cost basis, is calculated using the standard MACRS schedules.[10] Because the DCF model assumes that all assets are placed into service in the first year of the 10-year DCF period, which in this case is July 2011, the majority of the SBRR's investment qualifies for the bonus depreciation.[11] Table G of Exhibit III-H-1 displays the amount of bonus depreciation available to the SBRR in 2011.

The STB expressed some skepticism in *AEPCO 2011* as to whether bonus depreciation allowed under the prior and current tax law should be allowed in SAC presentations. Not allowing a shipper to avail itself of the bonus depreciation provisions clearly taken and used by the railroad companies, however, would create a barrier to entry, and place the shipper at a distinct disadvantage relative to the incumbent railroad. The STB defines a barrier to entry as any type of cost that a new entrant would have to incur that was not actually incurred by the

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[8] For equipment placed in service after December 31, 2011 and through December 31, 2012, the Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010 provides for 50 percent depreciation bonus.

[9] NS took advantage of bonus depreciation provisions in the federal tax code in 2008 through 2011 to defer significant taxes to later years. *See* NS 2008 SEC Form 10-K at K30 ("The improvement in 2008 (liquidity) resulted from increased railway operating income and from bonus depreciation which reduced current tax payments.") NS also took further advantage of bonus depreciation in its 2009, 2010 and 2011 tax calculations. See NS 2009 SEC Form 10-K at K29, NS 2010 SEC Form 10-K at K28 and NS 2011 SEC Form 10-K at page K27.

[10] For example, a $1 million asset with a five (5) year MACRS life placed into service between February 2009 September 7, 2011 would accrue $500,000 in bonus depreciation in year 1 ($1 million x 50 percent bonus factor), plus $100,000 in standard MACRS depreciation ($500,000 remaining cost basis x 20% Year 1 MACRS factor for a 5 year asset) for a total of $600,000 in first year depreciation. See http://www.depreciationbonus.org/ for a description and example of bonus depreciation under the various enacting laws.

[11] The SBRR begins calculating depreciation on all assets in the first year of railroad operations. This is consistent with the fact that no depreciation charges are incurred during the 30-month construction and testing period.

defendant carrier.[12] There is no denying that NS reduced its tax costs and increased its cash flows by employing the tax shielding effects of the bonus depreciation.[13] If the STB were to disallow shippers the same tax advantage enjoyed by the incumbent railroad, it would be creating a clear barrier to entry by forcing the SARR to pay higher taxes than those paid by the incumbent. In this instance, the incumbent carrier, NS, was able to lower its tax expense and increase its cash flow by employing the bonus depreciation allowed under the law. Denying the SBRR the same tax-shielding benefits as NS would be a textbook example of a barrier to entry to the SARR.

The STB may also have been concerned about the bonus depreciation since it deemed the bonus depreciation as "temporary," and "now-expired."[14] However, the bonus depreciation allowances allowed by federal tax law have extended over at least five (5) tax years, with the possibility of further extensions.[15] In other words, bonus depreciation is still current under federal tax law and is expected to continue into the near future.[16] Moreover, the structure of the Board's DCF model limits the bonus depreciation taken by SunBelt to only the assets placed into service in 2009, 2010 and 2011. This is because the DCF model assumes assets are only replaced at the end of their useful lives, meaning replacement assets are ineligible for use of the bonus depreciation. While not yet a permanent part of the federal tax code, the bonus depreciation is a

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[12] *See West Texas Utilities* at 670.

[13] As NS clearly stated in its 2012 SEC Form 10-K at page K-27, "Cash provided by operating activities, NS' principal source of liquidity, was $3.2 billion in 2011 compared with $2.7 billion in 2010 and $1.9 billion in 2009. The improvement in 2011 reflects better operating results and lower income taxes paid due to additional bonus depreciation."

[14] *See AEPCO 2011* at 142.

[15] The current administration has proposed extending the 100 percent bonus depreciation through 2012 (2013 for certain long-lived property and transportation property, including railroads). See "FY 2013 Federal Budget Proposals," CCH Tax Briefing, February 17, 2012 at page 6.

[16] Not only is the bonus depreciation still applicable under current tax law, it was expanded in 2010 to allow 100 percent bonus depreciation for capital investments placed in service after September 8, 2010 through December 31, 2011. For equipment placed in service after December 31, 2011 and through December 31, 2012, the bill provides for 50 percent depreciation bonus. In other words, NS is currently enjoying the 100 percent bonus depreciation available to real world companies.

tax benefit available to the SBRR under applicable tax laws. SunBelt, should not be penalized by incurring a cost that the incumbent carrier has not incurred.

g. Average Annual Inflation in Asset Prices

Table H computes the average annual inflation rate by which the capital recovery charge in Table I is indexed. The weighted average inflation rate was used because Table H calculates the required capital recovery necessary to return the investment. All road property and equipment accounts are indexed at the quarterly rates shown in Table B. The weighted average inflation rates are based on the inflation indexes discussed in Part III-G.

h. Discounted Cash Flow

Table I shows the calculation of the capital carrying charge and associated flow of funds required to recover the total road property investment and equipment investment. Inputs to this spreadsheet were taken from the Tables described *supra.* Table I calculates the quarterly capital carrying charge required over the 40 quarters of the DCF period, after consideration of the applicable tax liability.

The total start-up investment is comprised of the road property and equipment investment shown in Table C, the road property IDC calculated in Table D, the present value of replacement investment calculated in Table F, and any capitalized maintenance of way expenses. The result equals the total investment to be recovered over the life of the SBRR from the quarterly capital recovery stream. The quarterly capital recovery stream reflects the tax benefits associated with interest on the investment financed with debt from Table E and the asset tax depreciation from Table G.

The cash flow shown in Column (8) of Table I is the amount remaining each quarter after the payment of federal and state tax liabilities. This cash flow is used for payment of return on

total investment in the SBRR. For road property investment, this quarterly figure is then discounted by the fourth root of the composite annual cost of capital from Table A, adjusted to reflect the assets being placed in service on July 30, 2011. The present value cash flow is then summed for each quarter along with the future cash flow; the total equals the total cost that must be recovered. The future cash flow is the residual value of the SBRR's unconsumed assets, future interest payments and remaining tax liabilities (remaining interest and depreciation), and reflects the cash flow required to account for the value of the assets not consumed during the 10-year life of the DCF model.

Prior to the STB's decision in *AEPCO 2011*, unused depreciation was accounted for in the terminal value calculation on an undiscounted basis. However, the STB modified its approach in *AEPCO 2011* to calculate the present value of unused depreciation in the terminal value calculation.[17] SunBelt has included the STB's modified terminal value approach in its DCF model, but in doing so, has identified an additional flaw in the STB's model. The STB's DCF model explicitly assumes that the SARR's capital structure will remain constant into perpetuity.[18] This means that the amounts of common equity and debt carried on the assumed SARR's financial statements will remain the same forever. However, the STB's DCF model assumes that after year 20, and until the first assets are replaced in the replacement level of the DCF model, the railroad has no debt and no tax shielding interest payments. Stated differently, the model assumes from a tax payment perspective that the railroad is 100 percent equity financed after year 20 and before its first replacement cycle. This creates an irreconcilable

[17] *See AEPCO 2011* at 140 to 141.

[18] The cost of capital used to calculate the terminal value in the DCF model equals the simple average cost of capital from the first year of the SARR's construction to the most recent cost of capital issued by the STB. It also reflects the average railroad industry capital structure over the same period. Between 2009 and 2011, debt as a percentage of railroad industry capital ranged from 20.8 to 29.1 percent.

mismatch between the SARR's cost of capital and its cash flows. The cost of capital assumes that the SARR is carrying debt, and its associated interest payments, but the cash flows reflect no benefits from the interest tax shields.

To correct this flaw, SunBelt adjusted the terminal value in the capital carrying charges to reflect the cost of capital assumption that the SARR's level of debt is held constant into perpetuity, and that interest tax shields consistent with this level of debt are accounted for in the cash flow calculation. Specifically, SunBelt calculated an interest tax shield perpetuity by dividing the last full quarterly coupon payment by one plus the quarterly real cost of capital.[19] This calculation aligns the cost of capital assumption of a fixed level of debt forever with the interest payable on this debt.[20]

This change not only corrects for a flaw in the STB's DCF model, but also aligns the SARR with how the real world railroads operate. As indicated above, the railroads are constantly issuing new debt as older debt issuances mature, or the railroads call the debt before its maturity. Since the last round of mergers in the mid-1990s the amount of railroad industry debt, as measured by the four major railroads included in the STB's cost of capital calculations (UP, BNSF, CSXT and NS), has remained consistent. As shown in Exhibit III-H-2, the amount of railroad industry debt between 1998 and 2009 has remained at approximately $30 billion in aggregate.[21] It is generally agreed in the financial community that borrowing can add value to a firm because of the tax shielding impact of interest payments.[22] Under the STB's current DCF

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[19] This is the same type of calculation used to develop the terminal capital carrying charge.

[20] To avoid a double count in the impact of the interest tax shields, SunBelt has adjusted the asset replacement calculations to remove the impact of the interest tax shields on replacement assets.

[21] The amount of debt carried by the railroads increased beginning in 1996 as the railroads took on debt to finance their last round of mergers. 2009 is the final year in this analysis because that was the last year that BNSF was included in the STB's cost of capital calculation.

[22] See, for example, Brealey, R. A., Myers, S. C., and Allen, F., "Principles of Corporate Finance, Eighth Edition," McGraw-Hill Irwin, 2006, at page 476 ("Brealey, Myers and Allen"), "... most financial managers believe that

model assumptions, the value this debt adds from the interest tax shields is unaccounted for in all periods in the cash flow projections, but is accounted for in the cost of capital. The change made by SunBelt corrects this flaw.

The development of the quarterly levelized capital carrying charge requirement is a relatively simple calculation, *i.e.,* the starting capital carrying charge requirement times the quarterly index factor from Table H, which will recover total investment during the 10-year DCF model period. The starting capital carrying charge requirement which recovers the total investment is developed through an iterative process. The DCF model begins with a specified amount and then runs through the calculation described above to develop the cumulative present value of the cash flow. If this cumulative number does not equal the total costs to be recovered from the quarterly revenue flow (start-up investment plus the present value of the replacement investment), the starting cost is adjusted upward or downward as necessary and the DCF model runs through the calculations again. The process is repeated until the starting quarterly charge yields a cumulative present value cash flow which equals the required investment to be recovered from the quarterly capital recovery flow.

i. Computation of Tax Liability -- Taxable Income

Table J, Part 1 displays the calculation of the SBRR's federal tax liability on road property. The procedures followed to develop the federal tax liability are discussed in Part III-G. Table J, Part 2 shows the calculation of the SBRR's state income tax liability for both asset groups, which also is discussed in Part III-G.

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there is a moderate tax advantage to corporate borrowing, at least for companies that are reasonably sure they can use the corporate tax shields."

j. Operating Expenses

Table K displays the operating expenses incurred in each year of the DCF period based on the traffic levels described in Part III-A. Annual operating expenses that change with the level of traffic volumes are adjusted by the annual change in ton-miles to take into consideration the shifting nature of SBRR's traffic.[23] In this case, SunBelt has adjusted train and engine personnel expenses, locomotive related expenses, loss and damage expenses, and intermodal lift costs annually by the change in SBRR net ton-miles. Table K states the annual operating costs on a quarterly basis, and indexes them to reflect inflation over the 10-year analysis period based on the inflation rates shown in Table B.

k. Summary of SAC

Total SAC for the SBRR based on investment and operating costs is summarized in Table L of Exhibit III-H-1. The capital requirement from Table I and the annual operating expenses from Table K are presented and summed in Table L for each year of the SBRR's operation.

2. Maximum Rate Calculations

The SAC analysis, summarized in Parts III-A through III-G and the accompanying Exhibits and displayed in Exhibit III-H-1, demonstrates that over the 10-year DCF period the revenues generated by the SBRR exceed its total capital and operating costs. Table III-H-1 below shows the excess revenue over SAC in each year of the DCF period for this case.

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[23] For example, assume that in Year 1 of the 10-year period Movement A transports 1,000 tons of product over 1,000 miles of the SARR, producing 1 million net ton-miles of traffic. In Year 2, Movement A is forecasted to be discontinued, but is replaced in the SARR traffic group by Movement B. Movement B also transports 1,000 tons of product, but only moves over 100 miles of the SARR, producing 100,000 net ton-miles. Movement B will be less expensive to move than Movement A, given the lower aggregate costs associated with a shorter movement and the 90 percent reduction in net ton-miles. Adjusting costs by the change in ton-miles instead of the change in tons reflects the shifting nature of the SARR's traffic mix and its actual impact on the SARR's operating costs.

Table III-H-1
Summary of DCF Results – July 30, 2011 to July 29, 2021
($ in millions)

Year	Annual Stand-Alone Requirement	Stand-Alone Revenues	Overpayments or Shortfalls	PV Difference	Cumulative PV Difference
(1)	(2)	(3)	(4)	(5)	(6)
July 30, 2011 – Dec 2011	$123.0	$182.4	$59.4	$59.4	$59.4
2012	294.4	458.0	163.5	147.3	206.8
2013	311.7	496.0	184.3	149.7	356.4
2014	324.6	549.1	224.5	164.2	520.6
2015	339.5	613.1	273.5	180.3	700.9
2016	353.7	680.7	327.0	194.2	895.1
2017	369.6	745.6	376.0	201.2	1,096.3
2018	386.5	812.1	425.6	205.2	1,301.5
2019	404.1	883.7	479.5	208.2	1,509.8
2020	422.1	961.1	539.0	210.9	1,720.7
Jan 2021 – July 29, 2021	254.7	603.7	349.0	126.3	1,847.1

Source: Exhibit III-H-1

Where stand-alone revenues are shown to exceed costs, rates for the members of the SBRR traffic group -- including SunBelt in particular -- must be adjusted to bring revenues and SAC into equilibrium. In *Major Issues*, the Board adopted MMM as its rate prescription approach for use in proceedings under the *Coal Rate Guidelines*.[24]

Under MMM, maximum reasonable rates for each year of the DCF period are expressed as a ratio of each movement's stand-alone revenues to the variable cost of providing the subject service over the SBRR route. Revenues are expressed as each movement's annual stand-alone revenue calculated using the ATC methodology detailed in Part III-A-3. Revenues are categorized based on traffic type (*i.e.,* coal, intermodal or general freight), NS origin and destination, and SBRR origin and destination. Variable costs for each movement are calculated using NS's 2010 URCS costs for the portion of the movement replicated by the SBRR, based on the nine (9) cost inputs identified in *Major Issues*.

[24] *See Major Issues* at 14-23.

a. Calculation of Variable Costs Used In The MMM

In *Major Issues*, the Board determined parties in SAC cases should use the incumbent railroad's unadjusted URCS Phase III variable costs as the cost input for the MMM model.[25] The Board, however, expressed a concern in *AEPCO 2011* that use of variable costs based on a movement's characteristics on the incumbent carrier would not reflect, in some cases, the movement's characteristics when it moved over the SARR.[26] Specifically, the STB stated that where the SARR transported trains in overhead service between interchanges with the incumbent carrier (i.e., cross-over traffic), parties should calculate the variable costs for all cars on a trainload service basis even if the cars moved in single car or multiple car service on the incumbent railroad. The Board felt this would better reflect the actual cost of operations incurred by the SARR in moving this traffic.

Pursuant to the Board's order, the shipper in *AEPCO 2011* submitted revised variable cost calculations for use in its MMM model.[27] The incumbent railroads subsequently submitted their reply variable cost calculations pursuant to the Board's order, and made one key change from the shipper's opening submission. The railroads asserted that, while the variable costs for non-issue overhead traffic should be calculated as if the traffic were operated in unit train service, the empty return ratio should not reflect the standard 2.0 empty return ratio used in unit train costing. Instead, the railroads indicated the empty return ratios should reflect each applicable traffic group. In simple terms, the railroads argued that the parties should use

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[25] *See Major Issues* at 14.
[26] *See AEPCO 2011* at 35.
[27] *See* "Revised Variable Cost Calculations of Complainant Arizona Electric Power Cooperative, Inc," filed July 5, 2011. As part of its public filing, AEPCO stated that its filing should not be mistaken for any acquiescence in or agreement with the Board's basic premises or assumptions.

movement specific adjustments to the variable cost calculations to replace the default empty return ratio with an empty return ratio based on the type of traffic moved.

The STB did not come to a final conclusion on these issues in *AEPCO 2011* because the impact was immaterial to the outcome of the case.[28] Instead, the Board indicated it had properly positioned the issue for litigants in future cases to consider and brief. Consistent with the Board's position, SunBelt considers this issue below.

i. <u>The STB's Proposed Variable Cost Adjustments Are Inconsistent With The Focus On An Incumbent's Costs</u> -- The STB stated in *AEPCO 2011* that the variable costs used in the MMM model should reflect the variable costs of the SARR's operations rather than the incumbent's as required in *Major Issues*:

> The Maximum Markup Methodology provides for demand-based differential pricing. The approach recognizes that, because competition would compel the defendant carrier to price some of its services below an average R/VC level, the defendant carrier must be able to price other services above the average to compensate. By design, the Maximum Markup Methodology therefore calculates the precise amount that the defendant carrier would need to price its services above the average R/VC ratio to cover all its costs and earn adequate revenues. This calculation rests on the demand for rail transportation services, as observed in the existing rate structure of the defendant carrier.[29]

A major consideration for implementing the MMM approach was the maintenance of the incumbent railroad's relationship between revenues and costs for different movements. Adjusting the variable costs used in the MMM to reflect a SARR's operations would adversely distort this relationship and the resulting rate reductions.

For example, assume two incumbent-railroad, single car movements, identical in all ways, with the same incumbent variable costs, move over the SARR, except for one is an overhead movement on the SARR and the other is not. By the adjustment proposed by the Board

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[28] *See AEPCO 2011* at 36.
[29] *See Major Issues* at 20.

in *AEPCO 2011*, the overhead movement would have lower variable costs than the second movement and subsequently a higher R/VC ratio. This may lead to the overhead movement receiving a rate reduction in the MMM process while the identical movement, that does not move in overhead service, sees no change in rates. This outcome is completely contradictory to the idea that demand, as reflected by relative R/VC ratios, sets the price. There is no distortion if the variable costs parameters are based on the incumbent's movement characteristics and not the SARR's characteristics.

This is the position supported by the Board in *WFA/Basin*. In discussing the correct variable costs to use in the MMM model, the Board directly indicated that the variable costs used in the MMM model are the defendant railroad's variable costs estimated by URCS and not the SARR's variable costs.[30]

ii. The Board's Proposed Adjustments Violate the Long-Cannon Factors -- Under Long-Cannon factors included in the United States Code, a carrier must charge its competitive traffic as much of its un-attributable costs as demand will permit before passing along the remaining costs to less competitive shippers.[31] This is one of the primary reasons the STB rejected the percent reduction rate reduction approach it used to establish SAC rates prior to *Major* Issues.[32] The STB found in *Major Issues* that MMM reflects the important principle that a railroad should recover as much of its costs as possible from each shipper served before charging differentially higher rates to captive shippers.[33]

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[30] *See WFA/Basin* at 30.
[31] *See Guidelines* at 539.
[32] The percent reduction violated the Long-Cannon factors because it reduced all rates by an equal percentage, and thus did not require competitive traffic to carry as much un-attributable costs as demand would allow.
[33] *See Major Issues* at 16.

Adjusting the variable costs used in the MMM model to reflect a SARR's operations instead of the incumbent could lead to a Long-Cannon violation by reducing rates on competitive traffic below the rates dictated by their demand. For example, assume a competitive movement with a rate of $10 and variable costs of $8 based on the incumbent carrier's characteristic. This produces an R/VC ratio of 125 percent, which, according to the Board, reflects the highest rate the railroad can charge without fear of losing this traffic to a competitor. This rate also reflects the amount of un-attributable costs that this movement can absorb.

Now assume that this movement moves in overhead service on a SARR, and has variable costs of $6.67 based on the SARR operating characteristics. This produces an R/VC of 150 percent for MMM purposes. If the final MMM ratio were, say, 140 percent, the competitive movement would not be due relief if the incumbent's variable cost characteristics were used, since it is contributing as much as it can given its competitive environment. However, if the variable costs were calculated based on the SARR's operating characteristics, this move would be due relief under the STB's proposed variable cost adjustments.[34] This reduction, however, is completely contradictory to the Long-Cannon Factor that a competitive movement contribute as much as its demand permits. A railroad can charge up to $10 for this movement, but making the Board's proposed MMM adjustments provides a rate below this theoretically optimal level, thus contradicting the Long-Cannon Factors.

Within the MMM rate reduction approach, reducing the rate for a competitive movement means captive traffic must assume a greater share of the SAC, and subsequently higher rates. The Board rejected this very notion in *Major Issues* when the railroads argued that it is more

[34] The MMM adjusted R/VC ratio of 150 percent exceeds the MMM R/VC ratio of 140 percent. Based on MMM the 140 percent R/VC ratio would then be multiplied by the SARR variable cost of $6.67, producing a rate of $9.34, or a $0.66 reduction in the rate.

efficient to lower rates on shippers with more competitive options and shift recovery of un-attributable costs to shippers with fewer competitive alternatives.[35] The way to not contradict these statutory factors is to continue to use the incumbent railroad's characteristics when calculating the MMM variable costs.

iii. <u>The Board Should Reject Any Adjustments To Variable Costs</u> -- Even if the STB were to decide that parties should adjust the variable costs used in the MMM model to reflect the SARR's operating characteristics, it should not accept the railroads' recommendation to use movement specific empty return ratios.

As indicated above, the incumbent railroads in *AEPCO 2011* asserted that the empty return ratio on the overhead movements should be adjusted from the URCS default of 2.0 to a movement specific factor. The STB must reject this position for several reasons.

The Board clearly indicated in *Major Issues* that parties need to use unadjusted URCS to estimate the variable costs for each movement in the MMM model:

> We will replace the percent reduction approach with the Maximum Markup Methodology. Under this method, the parties should use unadjusted URCS to estimate the variable cost of each movement in the traffic group, and then determine the maximum contribution of each movement towards SAC costs, expressed as a markup over variable cost.[36]

The Board used unadjusted Phase III URCS costs in its analyses for several reasons, including, but not limited to, reducing the complexity involved with maximum reasonable rate cases.[37] Making the movement specific adjustments recommended by the railroads clearly contradicts this intent. Second, adjusting the empty return ratio away from the 2.0 used when costing

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[35] *See Major Issues* at 17.
[36] *See Major Issues* at 14.
[37] *See Major Issues* at 48.

trainload movements introduces piecemeal and incomplete adjustments to the variable cost calculations.

The railroads asserted in their *AEPCO 2011* filing that while it is proper to determine the variable costs for individual overhead traffic as if they moved in unit train service, it is improper to assign the Phase III default unit train empty return ratio of 2.0.[38] Instead, the railroads claimed that parties must override the Phase III model's default unit train empty return ratio and substitute a movement specific ratio based on traffic group types. The railroads argued this adjustment would reflect the fact that non-unit traffic does not have an empty car for every loaded car moved.

The problem with the railroads' position in *AEPCO 2011* is that it introduces incomplete adjustments to the variable cost calculation. The Board's URCS Phase III model calculates total unit train miles by multiplying the URCS short line miles by the empty return ratio. The Phase III model then uses the total unit train miles to develop locomotive unit mile ("LUM") dependent costs. If the empty return ratio used is different than the default Phase III empty return ratio, then LUM costs will be either overstated or understated. To solve this problem, a user would have to make another adjustment to LUM to remove the impact of the changed empty return ratio.

The Board chose not to allow movement specific adjustments, in part, because of the impact these onetime adjustments would have on unit costs and the complexity of a SAC case. The railroad's recommended adjustment to the empty return ratio would introduce additional complexity and piecemeal results to the variable cost calculation process.

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[38] *See* "Defendants' Response To The Revised Variable Cost Calculations Of Complainant Arizona Electric Power Cooperative, Inc," filed July 19, 2011 at page 4.

b. Indexing Variable Costs In the MMM Model

The Board indicated in *Major Issues* that parties in SAC cases should project the base year URCS variable costs used in the MMM forward using the hybrid RCAF approach used to index a SARR's operating expenses.[39] The Board revised this position in *WFA/Basin* saying that use of the hybrid RCAF would distort the actual distribution of R/VC ratios used to develop MMM rate reductions and the degree of differential pricing the carrier will need in the future.[40] Instead, the Board indicated that parties should use the RCAF-A to project forward the base year URCS variable costs because the RCAF-A would better reflect the future productivity of the incumbent railroad than the hybrid RCAF.

While the RCAF-A may better reflect future costs than the hybrid RCAF, the Board has also determined that in calculating variable costs to implement an R/VC ratio rate standard, the Board's standard URCS indexing approach produces the most accurate results.[41] SunBelt is relying on this determination, and uses the Board's URCS indexing procedure to forecast variable costs for the MMM calculation.

The STB's URCS index uses five (5) indexes: the AAR's Wage, Wage Supplements, Materials and Supplies and Fuel Indices, and the Producer Price Index – All Commodities ("PPI"), which are weighted by actual railroad costs reported in the Annual Report Form R-1. Global Insight publishes forecasts for each of the first four (4) indices, and the Board already accepts Global Insight's forecasts of the first three (3) for use in the DCF model. The fuel forecast is included in the same documentation. Likewise, EIA -- whose coal production, trans-portation cost and GDP-IPD forecasts already are accepted by the Board -- publishes a PPI

[39] *See Major Issues* at 14, note 19.
[40] *See WFA/Basin* at 30.
[41] *See OG&E* at 11.

forecast.[42] To forecast NS URCS Phase III variable costs for MMM purposes, therefore, SunBelt uses the STB's URCS index, with the June 2012 Global Insight and most recent EIA forecasts for its components. Weighting factors are taken from NS's Annual Report Form R-1 data.

Following the calculation of the specific annual variable costs for each movement, SunBelt calculated each movement's maximum contribution toward SAC each year, expressed as a mark-up over the movement's variable costs. Under MMM, a movement cannot contribute more to SAC than the contribution reflected in the mark-up of its current, actual or forecasted rate over variable cost. For each year in the DCF period, the MMM model sets each movement's R/VC ratio at the lesser of the average R/VC ratio required to cover total SAC, or the movement's actual R/VC ratio. The average R/VC ratio required to cover SAC then is iteratively increased until no movement in the traffic group is assigned a share of SAC greater than its actual contribution over variable costs as measured by its R/VC ratio, and the aggregate adjusted stand-alone revenues equal total SAC.[43]

Application of MMM yields the maximum R/VC ratios for each year of the DCF model summarized in Table III-H-2 below.[44]

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[42] The EIA lists its PPI forecasts as its Wholesale Price Index forecasts in its Annual Energy Outlook.

[43] According to the Board, this step reflects the assumption that the rates charged by NS on all non-issue traffic are profit-maximizing rates, such that the reapportionment represents "an appropriate application of demand-based differential pricing." *See Major Issues* at 14.

[44] In addition to the Table III-H-2 MMM results, the accompanying electronic workpapers contain the MMM results for the SBRR based on the following three different approaches: 1) assuming the BNSF alternative ATC revenues are substituted for ATC revenues based on the STB's modified approach; 2) assuming the *AEPCO 2011* suggested adjustments to the MMM are incorporated along with the ATC revenues based on the STB's modified approach; and 3) assuming the *AEPCO 2011* suggested adjustments to the MMM are incorporated along with the ATC revenues based on the BNSF alternative approach. *See* e-workpapers "SBRR MMM Model (BNSF Alt ATC).xlsm," "SBRR MMM Model (AEPCO Adjustment).xlsm," and "SBRR MMM Model (BNSF Alt ATC and AEPCO Adjustment).xlsm." These three analyses are included in our workpapers to demonstrate the minor impact each approach has on SunBelt's final results summarized in Table III-H-2. The fact that we have included these calculations in our workpapers should not be construed as our endorsement or acceptance of these approaches for determining MMM R/VC ratios.

Table III-H-2
MMM Results

Time Period	Maximum R/VC Ratios
(1)	(2)
July 30, 2011 – December 2011	130.9%
2012	124.9%
2013	122.6%
2014	117.1%
2015	113.3%
2016	110.6%
2017	107.3%
2018	104.4%
2019	101.7%
2020	99.0%
January 2021 – July 29, 2021	96.1%

Source: Exhibit III-H-3.

As indicated in Table III-H-2, the maximum R/VC ranges from 96.1 percent to 130.9 percent over the 10-year DCF period. The maximum reasonable rate for SunBelt's shipments based upon application of these maximum R/VC ratios to the unadjusted Phase III URCS variable costs at 3Q11 wage and price levels equals $2,187 per car.

The maximum lawful transportation rate for SunBelt traffic covered by Tariff NSRQ 65912 equals the greater of the jurisdictional threshold or the MMM maximum rate. Table III-H-3 compares NS' rate at 3Q11 to the jurisdictional threshold and the MMM maximum. As shown, the issue rate is substantially greater than both the jurisdictional threshold and the MMM rate.

Table III-H-3
Maximum Rate Comparison for the Movement of STCC 2812815
From McIntosh, AL to New Orleans, LA as of July 30, 2011
($ per Carload)

Item	Source	Rate Per Car
(1)	(2)	(3)
1. NS Rate	Tariff NSRQ 65912	$8,088
2. Jurisdictional Threshold Rate	Exhibit II-A-1	$3,008
3. MMM Rate	1/	$2,187
4. Maximum Rate	2/	$3,008
5. Overcharge included in NS Rate	Line 1 – Line 4	$5,080

1/ Table III-H-2 MMM Ratio x NS 3Q11 variable cost per carload.
2/ Greater of Line 2 or Line 3

At 3Q11 levels, the maximum rate for the issue SunBelt traffic equals $3,008 per carload.

Part IV

PART IV

WITNESS QUALIFICATIONS AND VERIFICATIONS

This Part contains the Statements of Qualifications of the witnesses who are responsible for the Narrative portions of SunBelt's Opening Evidence (and the exhibits and workpapers referred to therein) identified with respect to each witness.

1. SUNBELT WITNESS

Christopher Alalade
Logistics Analyst I
Olin Corporation

Christopher Alalade is cosponsoring factual evidence pertaining to the transportation of chlorine. The sponsored evidence includes, but is not limited to:

- SunBelt Chlor-Alkali Partnership's ("SunBelt's") use and ability to use barges to transport chlorine.
- The infrastructure required at McIntosh to transport chlorine by barge.
- The logistics of transporting chlorine by barge.

These issues are discussed in Part I ("Counsel's Argument and Summary of Evidence") and Part II-B ("Qualitative Market Dominance").

Mr. Alalade is qualified and competent to provide testimony in this proceeding. He has been an employee of Olin Corporation ("Olin") since 2011 and has held the position of Logistics Analyst I, since January 2011. In this position, Mr. Alalade's responsibilities include: Olin barge operations & logistics, truck operations & logistics for the western & southeastern regions, freight rate negotiations with barge & truck carriers, and analyzing data to optimize sourcing locations.

Mr. Alalade holds a Bachelor of Science degree in Industrial Technology & Industrial Distribution from Purdue University.

PUBLIC VERSION

VERIFICATION

I, Christopher Alalade, verify under penalty of perjury that I have read the portions of SunBelt Chlor-Alkali Partnership's Opening Evidence that I have cosponsored, as described in my Statement of Qualifications, that I know the contents thereof, and that the same are true and correct based on my knowledge, information, and belief. Further, I certify that I am qualified and authorized to file this statement.

Christopher Alalade
Logistics Analyst I

Executed on 7/19/12

Stephen Asbill
Vice President, Supply Chain Management
Olin Corporation

Stephen Asbill is cosponsoring factual evidence pertaining to the transportation of chlorine. The cosponsored evidence includes, but is not limited to:

- SunBelt Chlor-Alkali Partnership's ("SunBelt's") use and ability to use various modes of transportation to transport chlorine.
- The characteristics of chlorine and how they relate to the use of transportation alternatives.
- The transportation needs and requirements of SunBelt and its customers, including any contractual requirements between them, concerning chlorine.
- The infrastructure required at McIntosh to transport chlorine by alternatives to NS.
- The ability of SunBelt's customers to receive chlorine by alternative modes to rail.
- The requirements for transloading chlorine.
- Information concerning the market for chlorine.
- Production and supply considerations regarding chlorine.
- The logistics of transporting chlorine by barge.
- Previous analyses by Olin Corporation ("Olin") or SunBelt concerning the ability to barge chlorine from McIntosh.

These issues are discussed in Part I ("Counsel's Argument and Summary of Evidence") and Part II-B ("Qualitative Market Dominance").

Mr. Asbill is qualified and competent to provide testimony in this proceeding. He has been an employee of Olin since 1996 and has held the position of Vice President, Supply Chain Management, since August 2011. In this position, Mr. Asbill's responsibilities include: procurement, energy supply, and logistics operations. Prior to being in this role, Mr. Asbill held

positions as Director of Strategic Initiatives, Manager of Gulf Coast Operations, and Plant Manager of Olin's McIntosh, AL plant.

Mr. Asbill holds a Bachelor of Science degree in Chemical Engineering from The University of Texas at Austin.

PUBLIC VERSION

VERIFICATION

I, Stephen Asbill, verify under penalty of perjury that I have read the portions of SunBelt Chlor-Alkali Partnership's Opening Evidence that I have cosponsored, as described in my Statement of Qualifications, that I know the contents thereof, and that the same are true and correct based on my knowledge, information, and belief. Further, I certify that I am qualified and authorized to file this statement.

Stephen Asbill
Vice President, Supply Chain Management

Executed on 7-19-12

Larry Murray
Vice President of Engineering and Technology
Olin Corporation

Larry Murray is cosponsoring factual evidence pertaining to the transportation of chlorine. The cosponsored evidence includes, but is not limited to:

- Previous analyses by Olin Corporation ("Olin") or SunBelt concerning the ability to barge chlorine from McIntosh.
- Financial analyses of the alternatives to rail transportation of chlorine from the McIntosh facility of SunBelt Chlor-Alkali Partnership.

These issues are discussed in Part I ("Counsel's Argument and Summary of Evidence") and Part II-B ("Qualitative Market Dominance").

Mr. Murray is qualified and competent to provide testimony in this proceeding. He has been an employee of Olin since 1975 and has held the position of Vice President of Engineering and Technology since November, 2007. In this position, Mr. Murray's responsibilities include management of the Olin Chlor-Alkali Division capital spending program and oversight and leadership of the Technology function which performs new product development, process improvement and acts as a technical resource for all of Olin's chlor-alkali plant locations. Prior to being in this role, Mr. Murray held positions as Director – Energy, Director - Engineering, Plant Manager – Niagara Falls Plant and numerous other roles in manufacturing and engineering.

Mr. Murray holds a Bachelor of Chemical Engineering degree from the Georgia Institute of Technology.

PUBLIC VERSION

VERIFICATION

I, Larry Murray, verify under penalty of perjury that I have read the portions of SunBelt Chlor-Alkali Partnership's Opening Evidence that I have cosponsored, as described in my Statement of Qualifications, that I know the contents thereof, and that the same are true and correct based on my knowledge, information, and belief. Further, I certify that I am qualified and authorized to file this statement.

Larry Murray
Vice President of Engineering and Technology

Executed on 7/24/2012

Thomas Tirabassi
Director-Logistics
Olin Corporation

Thomas Tirabassi is cosponsoring factual evidence pertaining to the transportation of chlorine. The cosponsored evidence includes, but is not limited to:

- SunBelt Chlor-Alkali Partnership's ("SunBelt's") use and ability to use various modes of transportation to transport chlorine.
- The characteristics of chlorine and how they relate to the use of transportation alternatives.
- The transportation needs and requirements of SunBelt and its customers, including any contractual requirements between them, concerning chlorine.
- The infrastructure required at McIntosh to transport chlorine by alternatives to NS.
- The ability of SunBelt's customers to receive chlorine by alternative modes to rail.
- Information concerning the market for chlorine.
- Production and supply considerations regarding chlorine.
- Actual and historical use of non-rail transportation alternatives for chlorine.
- The logistics of transporting chlorine by barge.
- Previous analyses by Olin Corporation ("Olin") or SunBelt concerning the ability to barge chlorine from McIntosh.

These issues are discussed in Part I ("Counsel's Argument and Summary of Evidence") and Part II-B ("Qualitative Market Dominance").

Mr. Tirabassi is qualified and competent to provide testimony in this proceeding. He has been an employee of Olin since 1997 and has held the position of Director-Logistics since

January 2009. In this position, Mr. Tirabassi's responsibilities include:

- Olin rail, barge, and truck freight.
- Fleet sizing and maintenance of Olin's railcar, barge, and trailer fleet.
- Rail, barge, and truck fleet maintenance procedures and regulatory compliance.
- Rail and barge internal and external repair shop quality control.
- Division transportation security and development of enhanced monitoring/tracking instrumentation.
- Production scheduling and inventory control for all division chlor alkali plants.
- SunBelt Venture Manager.

Prior to being in this role, Mr. Tirabassi held manufacturing positions as:

- Project Engineer.
- Plant Engineering Manager.
- Plant Maintenance Manager.
- Plant Operations Manager.
- Plant Manager.

Mr. Tirabassi holds a Bachelor of Science degree in Chemical Engineering from The State University of New York at Buffalo.

PUBLIC VERSION

VERIFICATION

I, Thomas Tirabassi, verify under penalty of perjury that I have read the portions of SunBelt Chlor-Alkali Partnership's Opening Evidence that I have cosponsored, as described in my Statement of Qualifications, that I know the contents thereof, and that the same are true and correct based on my knowledge, information, and belief. Further, I certify that I am qualified and authorized to file this statement.

Thomas Tirabassi
Director-Logistics

Executed on 7/19/12

2. RICHARD H. MCDONALD

Mr. McDonald is president of RHM Consulting, Inc., a transportation planning firm specializing in the railroad industry. RHM Consulting is located at 516 W. Shady Lane, Barrington, Illinois. Mr. McDonald's experience includes 42 years in varied and increasingly responsible positions with the New York Central ("NYC"), Penn-Central ("PC"), and Chicago and Northwestern ("CNW") Railroads. The specific evidence Mr. McDonald developed and is sponsoring is SunBelt's evidence as it relates to the stand-alone railroad ("SARR") system (Part III-B), SARR operating plan (Part III-C), the operating personnel and the General and Administrative personnel required to manage the SunBelt SARR (Part III-D).

Mr. McDonald graduated from the University of Illinois, College of Engineering with a Bachelor of Science degree in Engineering in 1957. He completed the following certificate programs: Railroad Engineering, University of Illinois, 1975; Management for Engineers, University of Iowa, 1976; Accounting for the Non-Accounting Executive, Wharton School, University of Pennsylvania, 1977; and Railroad Profit Strategy, Kellogg Center, Northwestern University, 1990. Mr. McDonald has been an active member of the American Railway Engineering Association and the Chicago Maintenance of Way Club. Mr. McDonald served on the Board of Directors of the Peoria & Pekin Union Railway and Minnesota Transfer Properties, Inc. from 1984 to 1994.

Mr. McDonald founded RHM Consulting in 1994 and since that time has successfully completed numerous assignments for railroads, shippers and public entities related to transportation issues, including; rail line construction projects, operational adjustments and analyses of railroad operations, such as restructuring the Ferrocarriles Nacionales de Mexico ("FNM") into an independent, modern terminal transportation company.

Prior to joining CNW, Mr. McDonald was an officer in the Operating Department on the NYC and PC railroads from 1960 to 1974. During this period, Mr. McDonald was assigned duties in Indianapolis, IN, Columbus, OH, Youngstown, OH and Rochester, NY.

Mr. McDonald's career with CNW included a number of high-level positions over a period of twenty years. These positions included: Vice President–Planning & Acquisitions, Vice President–Operations, Vice President–Engineering, Vice President–Operating Administration, Vice President–Transportation, Vice President–Western Railroad Properties, Inc., Assistant Vice President–Transportation, Assistant Vice President – Division Manager and Assistant to Vice President–Transportation. As Vice President–Western Rail Properties, Inc. ("WRPI"), Mr. McDonald was responsible for the successful planning, construction and operation of the CNW/WRPI rail line into the Powder River Basin ("PRB"). As Vice-President Operations, he was responsible for Transportation, Engineering and Mechanical departments and related functions for both freight and commuter service on the CNW, which incidentally, was over ten (10) times the size and complexity of the SunBelt Railroad. CNW was merged into the Union Pacific system in 1995. Mr. McDonald has testified before the Surface Transportation Board in numerous stand-alone cost proceedings, including STB Docket No. 42051, *Wisconsin Power & Light Company v. Union Pacific Railroad Company*, STB Docket No. 42054, *PPL Montana, LLC v. The Burlington Northern and Santa Fe Railway Company,* STB Docket No. 42051, *Public Service Company of Colorado d/b/a Xcel Energy v. The Burlington Northern and Santa Fe Railroad Company* and STB Docket No. 42125, *E.I. DuPont De Nemours & Company v. Norfolk Southern Railway Company.*

VERIFICATION

I, Richard H. McDonald, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Richard H. McDonald

Executed on July 18, 2012

3. **HARVEY A. CROUCH, P.E.**

Mr. Crouch is President and CEO of Crouch Engineering, P.C. His business address is 428 Wilson Pike Circle, Brentwood, TN 37027. Crouch Engineering is a consulting firm providing high quality railway engineering and planning services to railroads, governmental agencies and private industry.

The specific portions of SunBelt's Opening Evidence that Mr. Crouch is sponsoring are (1) Part III-D-5 and Exhibit III-D-3 relating to the SARR maintenance-of-way-plan and annual expenses, and (2) the portion of Part III-F relating to the SARR's construction costs.

Mr. Crouch has served as a Track Supervisor and Project Engineer in the Maintenance of Way & Structures ("MW&S") Department of Norfolk Southern Railway ("NS"). He founded Crouch Engineering in 1991 and since that time has provided railway engineering services to numerous railroads and government agencies. He has been responsible for many track and bridge construction and rehabilitation projects across the United States, predominantly in the Eastern United States, in the Central and Southern Appalachian regions and elsewhere. His clients have included NS (for which he has designed over 30 capital projects), and over 120 short line and regional railroads, including many of the RailAmerica and Genesee and Wyoming railroads, East Tennessee Railway, Eastern Alabama Railway, South Central Tennessee Railroad, Knoxville & Holston River Railroad, Alabama Gulf Coast Railroad, Nashville & Eastern Railroad, New England Central Railroad, Tennessee Southern Railroad, TennKen Railroad, Toledo, Peoria and Western Railroad, and the Kyle Railroad among others. He has conducted hundreds of on-site evaluations of railroad facilities to identify needed repairs or improvements; conducted engineering surveys and prepared plans, specifications and cost estimates for railroad capital construction projects, repairs and improvements; provided construction management and inspection services, including preparation and analysis of bid

documents; and evaluated many new railroad routes for proposed construction or proposed line changes. Mr. Crouch has also designed many railroad locomotive and car repair facilities, including shops on the Connecticut Southern Railroad, San Luis & Rio Grande Railroad, South Carolina Central Railroad, Tennessee Southern Railroad, Alabama Gulf Coast Railroad, Franklin Industries Railroad, KWT Railway, and Knoxville & Holston River Railroad.

From 1977 to 1987, Mr. Crouch worked for Southern Railway and NS (after the merger of the Southern and Norfolk & Western Railroads) in the MW&S Department. He started with Southern Railway as a Coop Engineer in 1977, and continued in that position through 1980. Mr. Crouch resumed service in 1982 with NS as a Management Trainee, and in 1983 was appointed Project Engineer in which position he was responsible for project management of railroad construction projects in Alabama, near Columbia, SC, and on NS's Appalachian Division which included mountainous areas in western Virginia and Tennessee. He was responsible for a variety of projects including construction of new connecting tracks, sidings, yards, lead tracks, and assisted on a tunnel bypass, conversions from dark territory to CTC, and other projects.

From 1986 to 1987, Mr. Crouch was a Track Supervisor and was responsible for the inspection and maintenance of the NS main line trackage from Danville to a point near Richmond, VA, including track inspection, day-to-day supervision of work gangs, safety program, ordering material, budgeting, planning, and construction management for rehabilitation and maintenance of track and bridges. Mr. Crouch was qualified by NS as an FRA-qualified track inspector, and continues to perform inspections based on FRA track safety standards.

From 1988 to 1991, Mr. Crouch worked as a Graduate Research Assistant for Tennessee Tech, as an Environmental Engineer for the Tennessee Valley Authority, and as Project Manager for McCoy Associates, Inc., an engineering firm involved in bridge inspection, design, planning and project management and new railroad facility design. He founded Crouch Engineering in

1991. In addition to his U.S. consulting work, Mr. Crouch has worked on bridge evaluations in Canada, and on contractor requirements, bidding and negotiations for Freight Victoria's entire rail infrastructure (over 2,500 miles) in Australia. Mr. Crouch has also worked on a preliminary concept design of a 260-mile rail line in West Africa, including design for 286K for track and bridges, sidings, yards, and locomotive and car repair facilities.

Mr. Crouch received a Bachelor of Science in Civil Engineering from Tennessee Technological University in 1982 and a Master of Science in Civil Engineering from Tennessee Tech in 1989. Mr. Crouch is a registered Professional Engineer in more than 35 states. He is a member of the American Railway Engineering and Maintenance of Way Association (AREMA), the American Short Line and Regional Railroad Association, the American Society of Civil Engineers, and the National Society of Professional Engineers.

Mr. Crouch was assisted in preparing the SARR construction-cost evidence in Part III-F by various members of his firm, including in particular Richard Davis R.L.S., who was primarily responsible for identifying and laying out the SBRR's routes.

PUBLIC VERSION

VERIFICATION

I, Harvey A. Crouch, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Harvey A. Crouch

Executed on July 17, 2012

4. THOMAS D. CROWLEY

Mr. Crowley is an economist and President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 21 Founders Way, Queensbury, NY 12804.

Mr. Crowley is sponsoring portions of SunBelt's Opening Evidence in Parts II and III. Specifically, Mr. Crowley is co-sponsoring Part II-A with Witness Timothy D. Crowley, Part III-A with Witnesses Michael E. Lillis, Robert D. Mulholland and Sean Nolan, Part III-G with Witness Daniel L. Fapp and Part III-H with Witness Daniel L. Fapp.

Mr. Crowley is a graduate of the University of Maine from which he obtained a Bachelor of Science degree in Economics. He has also taken graduate courses in transportation at The George Washington University in Washington, D.C. He spent three years in the United States Army and has been employed by L.E. Peabody & Associates, Inc. since February, 1971. He is a member of the American Economic Association, the Transportation Research Forum, and the American Railway Engineering Association.

As an economic consultant, Mr. Crowley has organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, shippers, associations, and state governments and other public bodies dealing with transportation and related economic and financial matters. Examples of studies in which he has participated include organizing and directing traffic, operational and cost analyses in connection with multiple car movements, unit train operations for coal and other commodities, freight forwarder facilities, TOFC/COFC rail facilities, divisions of through rail rates, operating commuter passenger service, and other studies dealing with markets and the transportation by different modes of various commodities from

both eastern and western origins to various destinations in the United States. The nature of these studies has enabled Mr. Crowley to become familiar with the operating and accounting procedures utilized by railroads in the normal course of business.

Additionally, Mr. Crowley has inspected both railroad terminal and line-haul facilities used in handling general freight, intermodal and unit train movements of coal and other commodities in all portions of the United States. The determination of the traffic and operating characteristics for specific movements was based, in part, on these field trips.

In addition to utilizing the methodology for developing a maximum rail rate based on stand-alone costs, Mr. Crowley also presented testimony before the ICC in Ex Parte No. 347 (Sub-No. 1), *Coal Rate Guidelines - Nationwide*, the proceeding that established this methodology and before the STB in Ex Parte No. 657 (Sub-No. 1), *Major Issues In Rail Rate Cases*, the proceeding that modified the application of the stand-alone cost test. Mr. Crowley also presented testimony in a number of the annual proceedings at the STB to determine the railroad industry current cost of capital, i.e., STB Ex Parte No. 558, *Railroad Cost of Capital.* He has submitted evidence applying ICC (now the STB) stand-alone cost procedures in numerous rail rate cases. He has also developed and presented numerous calculations utilizing the various formulas employed by the ICC and STB (both Rail Form A and Uniform Railroad Costing System ("URCS")) to develop variable costs for rail common carriers. In this regard, Mr. Crowley was actively involved in the development of the URCS formula, and presented evidence to the ICC analyzing the formula in Ex Parte No. 431, *Adoption of the Uniform Railroad Costing System for Determining Variable Costs for the Purposes of Surcharge and Jurisdictional Threshold Calculations.*

As a result of his extensive economic consulting practice since 1971 and his participating in maximum-rate, rail merger, and rule-making proceedings before the ICC and the STB, Mr.

Crowley has become thoroughly familiar with the operations, practices and costs of the rail carriers that move traffic over the major rail routes in the United States.

VERIFICATION

I, Thomas D. Crowley, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Thomas D. Crowley

Executed on July 30, 2012

5. PHILIP H. BURRIS

Mr. Burris is Senior Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm with offices in Alexandria, VA, Tucson, AZ and Queensbury, NY. The specific evidence Mr. Burris is sponsoring relates to the development of operating statistics based on the output of the RTC model and the operating plan (Part III-C), including the development of train crew personnel requirements (Part III-D), development of equipment lease, maintenance and servicing costs (Parts III-D-1 and III-D-2), operating expenses (Parts III-D-3, III-D-4 and III-D-6 through III-D-10) and compensation levels for all the SBRR transportation and operating (including engineering) employees, non-operating (General and Administrative) personnel, and training and recruiting costs (Parts III-D-3 and III-D-4). Mr. Burris is also sponsoring the non-road property investment (Part III-E) and the identification of land to be acquired through easements and the associated costs of that land (Part III-F-1).

Mr. Burris received his Bachelor of Science in Business Administration from Virginia Polytechnic Institute and State University in 1971. He was awarded a Masters in Business Administration, specializing in transportation economics, from American University in 1978. Mr. Burris has worked in the consulting industry for more than 30 years. In addition to his current position as Senior Vice President of L.E. Peabody & Associates, Inc., Mr. Burris has been an employee of the following consulting firms: A. T. Kearney, Wyer Dick & Associates, Inc. and George C. Shaffer & Associates.

Mr. Burris has extensive experience in the field of transportation economics as it pertains to transportation supply alternatives, plant location analysis, regulatory policy and dispute resolution before regulatory agencies as well as state and federal courts. He has designed, directed and executed analyses of the costs of moving various commodities by different modes of transportation including rail, barge, truck, pipeline, ocean and intermodal. He has also

performed economic analyses of maximum reasonable rate levels for the movement of coal and other commodities using the Board's CMP methodology, and specifically the stand-alone cost constraint. Mr. Burris has submitted evidence regarding maximum reasonable rate levels using the stand-alone cost constraint to the Board and its predecessor and testified before the Railroad Commission of Texas, the Colorado Public Utilities Commission, the Illinois Commerce Commission, the Public Service Commission of Nevada and various state and federal courts and arbitration panels.

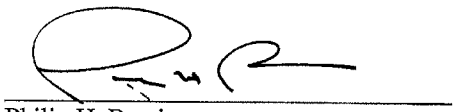
In the public sector, Mr. Burris has performed studies and written draft reports for the Railroad Accounting Principles Board, an independent body created by Congress to establish cost accounting principles for use in implementing the regulatory provisions of the Staggers Act of 1980.

Since 2005, Mr. Burris has served as a member of the Board of Directors of the South Central Florida Express Railroad, a wholly owned subsidiary of United States Sugar Corporation.

PUBLIC VERSION

VERIFICATION

I, Philip H. Burris, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Philip H. Burris

Executed on July 30, 2012

6. CHARLES A. STEDMAN

Mr. Stedman is a Vice President of L. E. Peabody & Associates, Inc., headquartered in Alexandria, VA. The specific evidence Mr. Stedman is co-sponsoring relates to the roadbed preparation/earthworks component of the road property investment cost of the SARR, exclusive of culverts, roadbed specifications and yard drainage (Part III-F-2). Mr. Stedman is also sponsoring the development of SARR route and track miles (Part III-B).

Mr. Stedman has been employed by L. E. Peabody & Associates, Inc. since October 1981. Since that time, he has performed and directed numerous extensive projects and analyses undertaken on behalf of utility companies, short line railroads, state and local governments and entrepreneurs. These projects include: (a) participation in the development of variable cost evidence presented to the ICC and the Board in numerous cases; (b) the development of variable costs contained in numerous reports and other analyses presented to clients; (c) the development of stand-alone cost evidence presented to the ICC and the Board in numerous cases; (d) the development of evidence in abandonment cases before the ICC; (e) the development of net liquidation values and rehabilitation costs for interested parties in abandonments and acquisitions; and (f) the preliminary design (including route layout), construction and maintenance costs associated with the construction of a new rail line.

Prior to joining L. E. Peabody & Associates, Inc., Mr. Stedman was employed by the United States Railway Association ("USRA") where he monitored the effectiveness of the operating plan of Consolidated Rail Corporation ("Conrail") using a computer model, participated in data manipulation and analyzed results in order to make projections about Conrail's future operations.

Mr. Stedman also worked as the chief research assistant on a transportation project for the Maryland Department of Transportation and was the co-author of the resulting Report

"International Air Cargo Potential at Baltimore-Washington International Airport." Recommendations in this Report were used to increase international air cargo shipment volumes through Baltimore-Washington International Airport. And, as a research assistant for the ICC, Mr. Stedman studied the effect of selected railroad mergers on the national railroad system using a computer model to aid in determining shifts in traffic patterns caused by specific rail mergers.

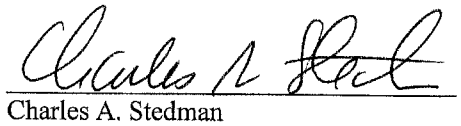
Mr. Stedman is a graduate of the University of Maryland where he obtained a Bachelor of Arts degree in Political Science with a minor in Business Transportation. He has attended numerous railroad construction and maintenance seminars across the country and is a Certified Track Foreman and a member of the American Railway Engineering and Maintenance-of-Way Association.

Mr. Stedman has conducted several field inspections of eastern and western carriers' rail lines in order to develop and determine the existing and potential operating and economic conditions of these lines. He has also conducted and directed detailed research into the valuation records of major eastern and western railroads. This research entailed, among other things, detailed reviews of both ICC and railroad valuation maps, land acquisition records (including title status and market value) and the ICC's Bureau of Valuation B.V. Form No. 561, commonly referred to as the ICC Engineering Reports.

PUBLIC VERSION

VERIFICATION

I, Charles A. Stedman, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Charles A. Stedman

Executed on July 30, 2012

7. MICHAEL E. LILLIS

Mr. Lillis is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 21 Founders Way, Queensbury, NY 12804. Mr. Lillis is co-sponsoring Part III-A along with Robert D. Mulholland and Thomas D. Crowley.

Mr. Lillis received a Bachelor of Arts degree in economics from the University of Virginia in 1985. He has taken continuing education courses in law at the University of Virginia and has taken numerous graduate courses while enrolled in the MBA program at George Washington University.

Mr. Lillis has been employed by L.E. Peabody & Associates, Inc. since 1995. Prior to joining L. E. Peabody & Associates, Inc., Mr. Lillis worked for Western Fuels Association, Inc., ("WFA") a national fuel supply organization in the electric utility industry. While with WFA, he managed coal supply and rail transportation agreements for shippers that represented the membership of WFA. He organized and presented numerous economic studies and analyses for shippers relating to coal transportation, coal supply and related economic and regulatory problems. Mr. Lillis has negotiated, implemented and monitored both long term coal supply and rail transportation agreements. Mr. Lillis has conducted field trips to coal suppliers in Wyoming's Powder River Basin and New Mexico's San Juan Basin to develop on-site information used in the quantification of contract provisions and the development of operational mine costs.

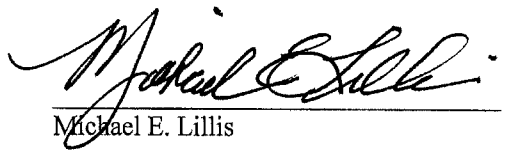
While at L.E. Peabody & Associates, Inc., Mr. Lillis has participated in studies that utilize various formulas employed by the Surface Transportation Board ("STB") in the development of costs for common carriers, including the Uniform Railroad Costing System ("URCS"). He has developed variable costs for common carriers with particular emphasis on the

general purpose costing system for rail carriers. Mr. Lillis has also performed extensive analyses in the area of stand-alone costing including route layout, design and construction costs, traffic and revenue development, forecasting and the development of detailed operating plans for various stand-alone railroads.

As part of his work at L.E. Peabody & Associates, Inc., Mr. Lillis conducted numerous studies for electric utilities regarding least cost alternatives for coal and natural gas delivery to various power plants. These studies included the valuation of existing contractual arrangements for fuel supply and transportation service, the evaluation of alternative fuel sources and transportation options (including trucking coal from nearby railroad locations, rail build-out to a competing railroad and conveyor delivery) and the development of operating characteristics and the associated operating and investment costs for each alternative. He has also developed numerous forecasts of coal prices, natural gas prices, freight rates and general economic indicators for electric utilities.

VERIFICATION

I, Michael E. Lillis, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Michael E. Lillis

Executed on July 30, 2012

8. DANIEL L. FAPP

Mr. Fapp is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, transportation, marketing, and fuel supply problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 21 Founders Way, Queensbury, NY 12804. Mr. Fapp is co-sponsoring the RTC modeling component of Part III-C with Mr. William W. Humphrey. Mr. Fapp is also co-sponsoring Part III-G, the discounted cash flow analysis and Part III-H, the results of the SAC analysis with Mr. Thomas D. Crowley.

Mr. Fapp received a Bachelor of Science degree in Business Administration with an option in Marketing (cum laude) from the California State University, Northridge in 1987. In 1993, he received a Master of Business Administration degree specializing in finance and operations management from the University of Arizona's Eller College of Management. He is also a member of Beta Gamma Sigma, the national honor society for collegiate schools of business.

Mr. Fapp has been employed by L. E. Peabody & Associates, Inc. since December 1997. Prior to joining L. E. Peabody & Associates, Inc., he was employed by BHP Copper Inc. in the role of Transportation Manager - Finance and Administration, where he also served as an officer of the three BHP Copper Inc. subsidiary railroads: The San Manual Arizona Railroad, the Magma Arizona Railroad (also known as the BHP Arizona Railroad) and the BHP Nevada Railroad. Mr. Fapp has also held operations management positions with Arizona Lithographers in Tucson, AZ and MCA-Universal Studios in Universal City, CA.

While at BHP Copper Inc., Mr. Fapp was responsible for all financial and administrative functions of the company's transportation group. He also directed the BHP Copper Inc. subsidiary railroads' cost and revenue accounting staff, and managed the San Manuel Arizona

Railroad's and BHP Arizona Railroad's dispatchers and the railroad dispatching functions. He served on the company's Commercial and Transportation Management Team and the company's Railroad Acquisition Team, where he was responsible for evaluating the acquisition of new railroads, including developing financial and economic assessment models. During his time with MCA-Universal Studios, Mr. Fapp held several operations management positions, including Tour Operations Manager, where his duties included vehicle routing and scheduling, personnel scheduling, forecasting facilities utilization, and designing and performing queuing analyses.

As part of his work for L.E. Peabody & Associates, Inc., Mr. Fapp has performed and directed numerous projects and analyses undertaken on behalf of utility companies, short line railroads, bulk shippers, and industry and trade associations. Examples of studies which he has organized and/or directed include, traffic, operational and cost analyses in connection with the rail movement of coal, metallic ores, pulp and paper products, and other commodities. He has also analyzed multiple car movements, unit train operations, divisions of through rail rates and switching operations throughout the United States. The nature of these studies enabled him to become familiar with the operating procedures utilized by railroads in the normal course of business.

Since 1997, Mr. Fapp has participated in the development of cost of service analyses for the movement of coal over the major eastern and western coal-hauling railroads. He has conducted on-site studies of switching, detention and line-haul activities relating to the handling of coal. He has also participated in and managed several projects assisting short-line railroads. In these engagements, he assisted short-line railroads in their negotiations with connecting Class I carriers, performed railroad property and business evaluations, and worked on rail line abandonment projects.

Mr. Fapp has been frequently called upon to perform financial analyses and assessments of Class I, Class II and Class III railroad companies. In addition, he has developed various financial models exploring alternative methods of transportation contracting and cost assessment, developed corporate profitability and cost studies, and evaluated capital expenditure requirements. He has also determined the Going Concern Value of privately held freight and passenger railroads, including developing company specific costs of debt and equity for use in discounting future company cash flows.

His consulting assignments regularly involve working with and determining various facets of railroad financial issues, including cost of capital determinations. In these assignments, Mr. Fapp has calculated railroad capital structures, market values, cost of railroad debt, cost of preferred railroad equity and common railroad equity. He is also well acquainted with and has used the commonly accepted models for determining a firm's cost of equity, including single-stage and multi-stage Discounted Cash Flow models ("DCF"), Capital Asset Pricing Model ("CAPM"), Farma-French Three Factor Model and Arbitrage Pricing Model.

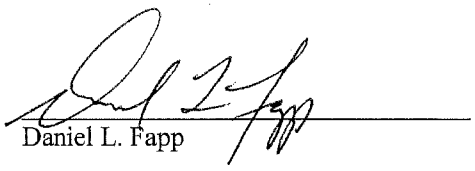
In his tenure with L. E. Peabody & Associates, Inc., Mr. Fapp has assisted in the development and presentation of traffic and revenue forecasts, operating expense forecasts, and DCF, which were presented in numerous proceedings before the STB. He presented evidence applying the STB's stand-alone cost procedures in a number of rail proceedings before the STB. He has also presented evidence before the STB in Ex Parte No. 661, *Rail Fuel Surcharges,* in Ex Parte No. 664, *Methodology To Be Employed In Determining the Rail Road Industry's Cost of Capital,* in Ex Parte No. 664 (Sub-No. 1), *Use Of A Multi-Stage Discounted Cash Flow Model In Determining The Railroad Industry's Cost of Capital*, and in Ex Parte No. 558 (Sub-No. 10), *Railroad Cost of Capital – 2006*, Ex Parte No. 661 (Sub No. 11), *Railroad Cost of Capital –*

2007, and Ex Parte No. 661 (Sub No. 12), *Railroad Cost of Capital – 2008.* In addition, his reports have been used as evidence before the Nevada State Tax Commission.

PUBLIC VERSION

VERIFICATION

I, Daniel L. Fapp, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Daniel L. Fapp

Executed on July 30, 2012

9. ROBERT D. MULHOLLAND

Mr. Mulholland is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 21 Founders Way, Queensbury, NY 12804. Mr. Mulholland is co-sponsoring Part III-A along with Michael E. Lillis and Thomas D. Crowley.

Mr. Mulholland received a Bachelor's degree in Government & Legal Studies from Bowdoin College in 1995. In 2004, he received a Master's degree in Transportation Policy, Operations & Logistics from George Mason University's School of Public Policy. Mr. Mulholland was employed by L.E. Peabody & Associates, Inc. from 1995 through 2004 and rejoined the Firm in 2008.

Mr. Mulholland has directed and conducted economic studies and prepared reports for freight carriers, shippers, federal agencies, the U.S. Congress, and other public bodies dealing with freight transportation and related economic issues. As part of his work for L.E. Peabody & Associates, Inc., Mr. Mulholland has developed evidence containing base year traffic and revenue data and forecasts of those volumes and revenues for hypothetical stand-alone railroads in several Surface Transportation Board ("STB") proceedings dealing with the calculation of maximum reasonable rail transportation rates for coal shippers. Mr. Mulholland has presented written testimony before the STB related to the development of rail traffic and operating patterns and forecasts, and economic principles concerning the maximum level of rates. He has developed evidence and presented written testimony containing fuel cost calculations for multiple commodities in an STB proceeding dealing with the determination of reasonable practices related to fuel surcharges.

Mr. Mulholland has conducted analyses of historical and forecasted rail transportation rates based on contract and tariff provisions and U.S. Government economic data for use in rail transportation contract negotiations. He has developed studies analyzing delivered fuel prices to electric utilities using Federal Energy Regulatory Commission ("FERC") and related data. Mr. Mulholland also conducted studies forecasting the impact of the Union Pacific-Southern Pacific merger on shippers with reduced access to rail competition following the merger, and developed studies analyzing the impact of the 1997-1998 Union Pacific Railroad service crisis on system traffic flows and transit times. He has organized and directed multiple traffic operations and cost analyses in connection with rail facilities analyses and rate and revenue division analyses.

Mr. Mulholland has developed economic and operational studies relative to the rail transportation of coal on behalf of electric utility companies, including analyses of the relative efficiency and costs of railroad operations over multiple routes. He has supported the negotiation of transportation contracts between coal shippers and railroads. He has developed numerous variable cost calculations utilizing the various formulas employed by the STB for the development of variable costs for common carriers, with particular emphasis on the basis and use of the Uniform Railroad Costing System ("URCS").

From 2004-2006, Mr. Mulholland directed the freight economics and freight infrastructure delivery programs for the Office of Freight Management & Operations of the Federal Highway Administration ("FHWA"). While employed at FHWA, Mr. Mulholland was a member of the United States Department of Transportation ("USDOT") inter-agency working group that drafted the National Freight Policy. In addition, Mr. Mulholland served on the USDOT Freight Gateway Team, a group headed by the Undersecretary for Policy and composed of one representative from each of the surface modal agencies.

From 2006-2008, Mr. Mulholland was employed by ICF International, where he directed and conducted numerous analyses of the trucking and rail industries for Federal transportation agencies including the Federal Motor Carrier Safety Administration ("FMCSA"), the Federal Railroad Administration ("FRA"), and the FHWA. His work included analyses of the current rail and trucking industries and forecasts of future trends in both industries.

PUBLIC VERSION

VERIFICATION

I, Robert D. Mulholland, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Robert D. Mulholland

Executed on July 30, 2012

10. TIMOTHY D. CROWLEY

Mr. Crowley is a Vice President of L.E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, marketing, and transportation problems. The Firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA, 22314, 760 E. Pusch View Lane, Tucson, AZ 85737 and 21 Founders Way, Queensbury, NY 12804. Mr. Timothy D. Crowley is co-sponsoring SunBelt's opening quantitative market dominance evidence in Part II-A with Mr. Thomas D. Crowley.

Mr. Crowley received a Bachelor of Science degree in Management with a concentration in Finance from Boston College in 2001. He graduated cum laude. He has been employed by L.E. Peabody & Associates, Inc. since 2002.

Mr. Crowley has provided analytical support for both market place and litigation projects sponsored by L. E. Peabody & Associates, Inc. The analytical support included the gathering, review and manipulation of data from the major Class I railroads, the Surface Transportation Board and various other government and public sources. Specifically, the analyses conducted by Mr. Crowley have included the development of the transportation costs associated with the movement of chemicals, coal and other products to different destinations located throughout the country.

Mr. Crowley has also assisted in developing the return on road property investment realized by major western railroads for specific sections of rail. These studies were used in variable, avoidable, and stand-alone cost analyses. He has forecasted transportation revenues included in transportation contracts entered into by major companies, taking into account the escalation factors used in specific contracts. Additionally, Mr. Crowley has reviewed virtually all major transportation coal contracts between eastern and western railroads and the major

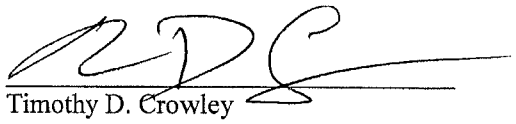
consumers of coal in the United States. The results of this review were presented to the Surface Transportation Board.

Mr. Crowley has experience with the Surface Transportation Board's Simplified Standards For Rail Rate Cases issued in Ex Parte 646 (Sub No. 1). He has done extensive work with the revised guidelines for Non-Coal Proceedings, which incorporates a three benchmark methodology. This methodology includes calculations using the Revenue Shortfall Allocation Method ("RSAM"), in which Mr. Crowley was trained by members of the Surface Transportation Board. Mr. Crowley also has extensive experience with the Surface Transportation Board's recently revised full Stand Alone Cost procedures having developed and sponsored evidence in a number of recent maximum reasonable rate cases based on this constraint.

PUBLIC VERSION

VERIFICATION

I, Timothy D. Crowley, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



Timothy D. Crowley

Executed on July 30, 2012

11. SEAN D. NOLAN

Mr. Nolan is a Vice President of L. E. Peabody & Associates, Inc. an economic consulting firm with offices in Alexandria, VA, Tucson, AZ and Queensbury, NY. Mr. Nolan is co-sponsoring the forecasting aspects of Part III-A with Mr. Thomas D. Crowley.

Mr. Nolan received a Bachelor of Arts degree in Psychology with a minor in Economics from Bates College in 1988, and a Master of Business Administration degree from the University of Phoenix in 2006, specializing in managerial accounting. Mr. Nolan first joined the firm of L. E. Peabody & Associates, Inc. in November 1989.

Since 1989, Mr. Nolan participated in the development of cost of service analyses for the movement of coal over the major eastern and western coal-hauling railroads and he has conducted on-site studies of switching, detention and line-haul activities relating to the handling of coal. He has also participated in several projects providing potential build-out opportunities as effective competition in utilities' fuel procurement initiatives. Procurement initiatives have included the purchasing of fuel, transportation services, equipment, and management of inventories. Alternative scenarios have been supported by tailored financial models developed to estimate cost reductions and savings, actual versus budgeted variances, revenue to variable cost of service relationships, cash flows, and break-even and sensitivity analysis.

In his tenure with L. E. Peabody & Associates, Inc., Mr. Nolan collected and analyzed information needed to efficiently calculate rail costs utilizing the Surface Transportation Board's ("STB") Uniform Railroad Costing System ("URCS") to determine the maximum rate a captive shipper should pay based on the STB's constrained market pricing principles, and has supported the development and presentation of traffic and revenue forecasts, operating expense forecasts, and discounted cash-flow models presented in proceedings before the STB.

Mr. Nolan has previously submitted evidence to the STB regarding market dominance issues.

PUBLIC VERSION

VERIFICATION

I, Sean D. Nolan, verify under penalty of perjury that I have read the Opening Evidence of Total Petrochemicals USA, Inc. in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Sean D Nolan

Sean D. Nolan

Executed on July 30, 2012

12. WILLIAM W. HUMPHREY

Mr. Humphrey is an Assistant Vice President of L. E. Peabody & Associates, Inc. Mr. Humphrey is co-sponsoring SunBelt's opening evidence in Part III-C with respect to the simulation of the SARR's operations using the Rail Traffic Controller ("RTC") Model with Mr. Daniel L. Fapp.

Mr. Humphrey received a Bachelor of Science degree in Sociology with a minor in Computer Science from Boston College in 2001. He has been employed by L. E. Peabody & Associates, Inc. since 2002.

Mr. Humphrey has been the lead programmer for numerous cases utilizing the industry-standard RTC Model to simulate various real-world railroad operations over multiple railroads in all parts of the United States. He has used the RTC model to create and analyze railroad systems for capacity analyses, rate cases, infrastructure investment analyses, and various other studies.

Mr. Humphrey has developed Microsoft Visual Studio applications including the Railroad Operations Simulator ("ROS") program used to model railroad operations by using advanced physics models which utilize highly detailed track information, train specific train characteristics, and detailed operational guidelines. He has designed programs that update, analyze, and summarize data originating at the Energy Information Administration. Mr. Humphrey has written programs that organize, analyze, manipulate, and summarize mainframe databases containing various industry data.

Mr. Humphrey has provided analytical support for testimony sponsored by L. E. Peabody & Associates, Inc. through the gathering and manipulation of data originating at the Energy Information Administration, the Surface Transportation Board, the Federal Railroad Administration and other publicly available sources. Specifically, these analyses include the development of the delivered costs of fuels to electric utilities and development of detailed track

statistics for various railroads located throughout the United States. Mr. Humphrey has conducted extensive research which has been used to support both fuel supply and transportation analyses developed by L. E. Peabody & Associates, Inc.

PUBLIC VERSION

VERIFICATION

I, William W. Humphrey, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

William W. Humphrey

Executed on July 30, 2012

13. RICHARD R. HARPS, MAI, CRE

Mr. Harps is President of Harps & Harps, Inc., a Real Estate Valuation and Consulting firm. His business address is 1111 14th Street, NW, Suite 600, Washington, DC 20005. Mr. Harps, in conjunction with John Pinto, Elizabeth Vandermause and Daniel Vandermause, is sponsoring the land valuation evidence in Part III-F-1.

Mr. Harps has over 35 years of experience as a real estate appraiser and consultant. He holds the MAI designation from the Appraisal Institute, the CRE designation from the Counselors of Real Estate, and the FRICS designation from the Royal Institute of Chartered Surveyors. Mr. Harps is a certified general real estate appraiser in Maryland, Virginia and the District of Columbia.

Mr. Harps was President of the Washington, DC Association of Realtors in 1985, was a member of the Executive Committee of National Association of Realtors for 1986 and 1987 and is a member of the General Comprehensive Examination Panel of the Appraisal Institute. Mr. Harps was also President of the Washington DC Metropolitan Chapter of the Appraisal Institute in 1994, and member and past President of the Real Estate Counseling Group of America.

Mr. Harps conducted a valuation of the World Bank multi-building complex in Washington, DC, performed valuations of large multi-property ownership for estate tax purposes and valued surface and underground easements for acquisition by the Washington Metropolitan Area Transit Authority. He valued and consulted with the General Services Administration on the disposition of over 500,000 sq. ft. of air rights situated above rail yards in the District of Columbia. Mr. Harps has been qualified as an expert witness on real estate appraisal matters in numerous Federal courts and the District of Columbia.

PUBLIC VERSION

VERIFICATION

I, Richard R. Harps, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Richard R. Harps

Executed on July 18, 2012

14. JOHN G. PINTO

Mr. Pinto is Founder and President of Rail Trac Associates, a Real Estate Valuation and Consulting firm. His business address is 1111 14th Street, NW, Suite 600, Washington, DC 20005. Mr. Pinto, in conjunction with Richard Harps, Elizabeth Vandermause and Daniel Vandermause is sponsoring the land valuation evidence in Part III-F-1.

Mr. Pinto has over 45 years of experience as a real estate appraiser and consultant. He holds the CRE designation. Mr. Pinto is a licensed Certified General Real Estate Appraiser in Delaware, New York, Georgia, and the District of Columbia.

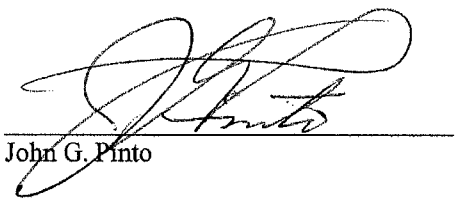
Mr. Pinto has performed real estate appraisals related to railroad property and rights-of-way for government agencies, railroads, transit authorities and private sector entities. Recent clients include: the District of Columbia Department of Transportation; Florida East Coast Railroad; Rail America; Washington Metropolitan Transportation Authority; Southeastern Pennsylvania Transportation Authority; Maryland State Highway Administration; New Jersey Transit Access Tunnel Project; Virginia Port Authority; Hampton Roads Transit Authority; New York Susquehanna & Western Railway; and the Federal Railroad Administration ("FRA").

Among other projects, Mr. Pinto was Manager, Project Land Requirements for the Northeast Corridor Improvement Program, involving the rehabilitation of the Amtrak System from Washington, DC to Boston, MA; and, on behalf of the FRA, the transfer of the Alaska Railroad to the State of Alaska; The Surface Transportation Board for the analysis of the Merger of the Union Pacific and Southern Pacific Railroads and the Acquisition of Conrail by CSX and Norfolk Southern.

Mr. Pinto is qualified as an expert in real estate appraisal in Federal courts in Connecticut, New York, Maryland and New Jersey and in State courts in Pennsylvania, New Jersey, Rhode Island, New York and Connecticut.

VERIFICATION

I, John G. Pinto, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.



John G. Pinto

Executed on July 18, 2012

15. ELIZABETH W. VANDERMAUSE

Elizabeth Vandermause is President of Merit Real Estate Analysis, a Real Estate Valuation and Consulting firm located at 2409 Hannon Court, Ellicott City, Maryland 21042. Ms. Vandermause, in conjunction with Richard Harps, John Pinto and Daniel Vandermause, is sponsoring the land valuation evidence in Part III-F-1.

Ms. Vandermause has over 30 years of experience in real estate appraisal, consulting and real estate sales, including land acquisition for builders and developers. Her appraisal and consulting experience includes appraisals for transportation authorities including the Washington Metropolitan Area Transit Authority (WMATA). She holds the MAI designation from the Appraisal Institute and is a Certified General licensed real estate appraiser in the State of Maryland.

Ms. Vandermause is qualified as an expert in Federal and Baltimore Circuit courts and has provided expert testimony in an arbitration proceeding.

VERIFICATION

I, Elizabeth W. Vandermause, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Elizabeth W. Vandermause

Executed on July 18, 2012

16. DANIEL VANDERMAUSE

Daniel C. Vandermause is Vice President of Merit Real Estate Analysis, a Real Estate Valuation and Consulting firm located at 2409 Hannon Court, Ellicott City, Maryland 21042. Mr. Vandermause, in conjunction with Richard Harps, John Pinto and Elizabeth Vandermause, is sponsoring the land valuation evidence in Part III-F-1.

Mr. Vandermause has 22 years of experience in real estate appraisal, consulting and real estate sales, including land assembly and acquisition for commercial and residential developers. His appraisal and consulting experience includes a broad variety of residential/commercial/ industrial property types in both Maryland and the District of Columbia. Mr. Vandermause is a licensed appraiser in Maryland and the District of Columbia.

Mr. Vandermause also has 16 years of experience in railroad transportation, including CSX Transportation, Fruit Growers Express, Chessie System, Norfolk Southern Railway and Southern Railway System. Mr. Vandermause's rail industry experience includes freight car utilization and distribution, cash flow analysis for freight car purchases, railroad cost and pricing analysis, market research, and computer systems design for equipment utilization and distribution. Mr. Vandermause authored the freight car utilization portion of the Norfolk Southern merger application before the Interstate Commerce Commission.

VERIFICATION

I, Daniel C. Vandermause, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Daniel C. Vandermause

Executed on July 18, 2012

17. JOSEPH A. KRUZICH

Mr. Kruzich is President of J&A Business Consulting, Inc., a firm specializing in information technology and communications. His business address is 209 Violet Drive, Sanibel, FL 33957. Mr. Kruzich is sponsoring evidence related to the SARR's information technology capital (hardware) and personnel requirements and other expenses for the SARR (Part III-D).

Mr. Kruzich has 38 years of experience in railroad accounting, executive administration and information technology. He began his railroad career with the Chicago, Burlington and Quincy Railroad in 1963 as a tax accountant and was promoted to an internal auditor in 1965. In June of 1968, he joined the Atchison, Topeka and Santa Fe Railroad ("ATSF") as a manager of work control procedures. His job responsibilities included reviewing various work procedures and providing recommendations on how the work processes could be improved to achieve a high degree of efficiency. This position provided him an opportunity to become very familiar with various work processes involved in running a railroad.

From 1973 through 1994, Mr. Kruzich held various positions of increasing responsibility at ATSF and its parent. As Acting Controller of Santa Fe Air Freight Company and head of industrial engineering at ATSF he performed various efficiency studies in the operating, engineering and mechanical departments. Mr. Kruzich also held the position of Director of Budgets for the entire ATSF operating department including engineering, mechanical, transportation and all support groups, and as such was responsible for coordination of all information technology issues with the Information Systems Department that related to the Operating Department. He was responsible for all administration duties related to the Vice President of Operations office as General Director of Administration and as Assistant to the President of ATSF. As Assistant Vice President of Administration in the Information Technology Group he oversaw all budget, administration, special studies and corporate

measurements systems. These positions provided him with the opportunity to manage a complete process in developing new systems from beginning to end.

In 1995, Mr. Kruzich joined the Kansas City Southern Railway as Vice President of Administration, where he designed profitability, corporate measurement, revenue forecasting and corporate policy systems. In January 1997, he was promoted to Vice President Telecommunications and CIO. As CIO, Mr. Kruzich led the effort in developing the state-of-the-art railroad transportation system known as MCS ("Management Control System"). This system uses some of the most advanced technology such as MQ workflow, Citrix Metaframe, the latest version of Visual Basic and many other technologies and is designed around the business process.

In January 2000, Mr. Kruzich left the Kansas City Southern Railway and formed Forging Ahead Associates, LLC, recently renamed J&A Business Consulting, Inc. This company provides state-of-the-art services in the areas of strategic planning and the development of web sites and e-business initiatives, evaluates the benefits of outsourcing information technology and business processes, and works with clients to make the initial contacts in developing global market opportunities.

Mr. Kruzich graduated from Northeast Missouri State University (Truman University) in 1962 with a Bachelor of Science degree in Business. In 1984, he received a Masters of Business Administration in Finance from the Keller Graduate School of Management in Chicago, Illinois.

PUBLIC VERSION

VERIFICATION

I, Joseph A. Kruzich, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Joseph A. Kruzich

Executed on July 18, 2012

18. VICTOR F. GRAPPONE

Mr. Grappone is President of Grappone Technologies P.E. P.C., a consulting firm that specializes in rail signaling and communications including train control systems, technical support and systems integration. His business address is 20 Jerusalem Avenue, Suite 201, Hicksville, NY 11801. Mr. Grappone developed and is sponsoring, SunBelt's Opening Evidence with respect to the stand-alone railroad's SARR signal and communications systems as set forth in Parts III-B and III-F. Mr. Grappone is also sponsoring, jointly with SunBelt Witness Harvey Crouch, the portion of the SARR maintenance-of-way plan relating to Communications & Signals Department personnel as set forth in Part III-D.

Mr. Grappone has over 31 years of experience with railroad and transit signal and communications systems. His career in this field began in 1978, when he was hired by the Long Island Rail Road ("LIRR") as a Junior Engineer. In early 1981, Mr. Grappone was appointed Assistant Supervisor-Signals for the LIRR, where he was involved in the direct supervision of approximately 50 signal construction employees engaged in the installation and revision of signal systems as part of the LIRR's capital program. His responsibilities included task scheduling, personnel evaluation, on-site supervision and material ordering.

In mid-1984, Mr. Grappone was named Staff Engineer-Projects for the LIRR. In this position he was responsible for providing technical support for signal projects. In early 1987, Mr. Grappone was appointed to the position of Signal Circuit Designer for the LIRR, a position he held until late 1995. As Signal Circuit Designer, Mr. Grappone managed the technical aspects of the LIRR's recently-completed computer-based system that controlled the signal system at Penn Station (New York) and in the adjacent territory. This position also involved the direct supervision of a design team consisting of Signal Circuit Designers, Assistant Signal Circuit

Designers and Draftsmen. In this position Mr. Grappone was also responsible for the application of new technology to signal systems. Specific tasks included:

- Development of specifications for vital microprocessor-based systems for signal applications;
- Implementation of formalized procedures for performing FRA-mandated tests for signal systems;
- Development of a PC-based graphical control system; and
- Implementation of the first use of programmable logic controllers (PLC's) for the supervisory control functions.

From late 1995 to early 2001, Mr. Grappone held other positions involving signal and communications controls systems at the LIRR, including Acting Engineer – Signal Design, Project Manager responsible for developing and implementing a corporate signal strategy to direct all LIRR signaling efforts over a 20-year period, Principal Engineer – Signal Maintenance and Construction, and Principal Engineer – Communications Based Train Control ("CBTC"). In the latter position Mr. Grappone was responsible for the management and technical direction of the LIRR's CBTC program. In all of these positions, Mr. Grappone was responsible for signal and communications matters involving LIRR's lines that had heavy volumes of both passenger and freight rail traffic.

In May of 2001, Mr. Grappone left the LIRR and formed his own consulting firm, Grappone Technologies, Inc. GTI was reincorporated as Grappone Technologies PE PC in 2007. Major projects Mr. Grappone and his firm have undertaken include:

- Signal design for the New York City Transit Canarsie Line CBTC project, Auxiliary Wayside System.
- Design of office route verification logic for New York City's ATS (Automatic Train Supervision) project.
- Signal circuit checking for the reconfiguration of Harold interlocking on the Long Island Rail Road under the East Side Access project.

- Preparation of specifications and provision of technical and field support for other signal and communications projects for heavy rail and light rail transit systems in the Northeast.
- Circuit design for signal system revisions associated with the reconstruction of five stations on New York City Transit's Brighton Line.

During the course of his consulting work Mr. Grappone has applied for and obtained two patents involving train control systems, including U.S. Patent #6,381,506 for a programmable logic controller-based vital interlocking system (issued April 30, 2002) and U.S. Patent #6,655,639 for a broken rail detector for Positive Train Control (PTC)/CBTC applications (issued December 2, 2003).

Mr. Grappone has been a member of the Eastern Signal Engineers Association since June 1999 (inactive member since June 2001). He is presently a member of the Institute of Electrical and Electronics Engineers, Rapid Transit Vehicle Interface Committee Working Group 2: CBTC; the Communications-Based Train Control User Group; and the FRA's Rail Safety Advisory Committee, Positive Train Control Working Group.

Mr. Grappone obtained a B.S. degree in Electrical Engineering from Rensselaer Polytechnic Institute in 1978.

PUBLIC VERSION

VERIFICATION

I, Victor F. Grappone, verify under penalty of perjury that I have read the Opening Evidence of SunBelt Chlor Alkali Partnership in this proceeding that I have sponsored, as described in the foregoing Statement of Qualifications, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Victor F. Grappone

Executed on July 18, 2012

PUBLIC VERSION

BEFORE THE
SURFACE TRANSPORTATION BOARD

SUNBELT CHLOR ALKALI PARTNERSHIP Complainant, v. NORFOLK SOUTHERN RAILWAY COMPANY Defendant.	)	Docket No. NOR 42130

OPENING EVIDENCE AND ARGUMENT OF

SUNBELT CHLOR ALKALI PARTNERSHIP

Volume II: Exhibits

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Counsel for SunBelt Chlor Alkali Partnership

August 1, 2012

Filing Contains Color Images

PART II-A

TAB 1

Estimated Variable Cost, Jurisdictional Threshold and Revenue to Variable Cost Ratio for the Movement of Chlorine from McIntosh, AL to New Orleans, LA

Item (1)	3Q2011 (2)	4Q2011 (3)	1Q2012 (4)	2Q2012 (5)
A. Movement Parameters				
1. Railroad	NS	NS	NS	NS
2. Miles	585.0	585.0	585.0	585.0
3. Shipment Type	Originated & Delivered	Originated & Delivered	Originated & Delivered	Originated & Delivered
4. Cars per Shipment	1	1	1	1
5. Car Type	Tank Car < 22,000 Gallons	Tank Car < 22,000 Gallons	Tank Car < 22,000 Gallons	Tank Car < 22,000 Gallons
6. Car Ownership	Private	Private	Private	Private
7. Tons per Car	89.8	89.8	89.8	89.8
8. Commodity	Chlorine (2812815)	Chlorine (2812815)	Chlorine (2812815)	Chlorine (2812815)
9. Movement Type	Single Car	Single Car	Single Car	Single Car
B. Variable Cost and Jurisdictional Threshold				
10. Phase III Cost Base Year 1/	$1,542	$1,542	$1,542	$1,542
11. Index to Applicable Quarter	1.08376	1.07569	1.07898	1.09487
12. Phase III Cost for Applicable Quarter 2/	$1,671	$1,659	$1,664	$1,688
13. Jurisdictional Threshold 3/	$3,008	$2,985	$2,995	$3,039
C. Rate and Rate to Variable Cost Ratio				
14. Rate Per Car 4/	$8,088	$8,088	$8,088	$8,088
15. Rate To Variable Cost Ratio 5/	4.84	4.88	4.86	4.79

1/ 2010 STB URCS Phase III Released December 9th, 2011.
2/ Line 10 x Line 11.
3/ Line 12 x 1.80.
4/ NSRQ 65912 Effective July 30, 2011 rate of $8,088 per car and not subject to a fuel surcharge. Rate is for NS only move from McIntosh, AL to New Orleans, LA.
5/ Line 14 ÷ Line 12.

TAB 2

SunBelt Traffic and Operating Characteristics for the
Movement of Chlorine from McIntosh, AL to New Orleans, LA

Item (1)	Movement Parameters (2)
1. Railroad	NS
2. Miles	585.0
3. Shipment Type	Originated & Delivered
4. Cars per Shipment	1
5. Car Type	Tank Car < 22,000 Gallons
6. Car Ownership	Private
7. Tons per Car	89.8
8. Commodity	Chlorine (2812815)
9. Movement Type	Single Car

PART II-B

TAB 1

Highly Confidential Information

Redacted

TAB 2

Highly Confidential Information

Redacted

TAB 3

Highly Confidential Information

Redacted

TAB 4

Highly Confidential Information

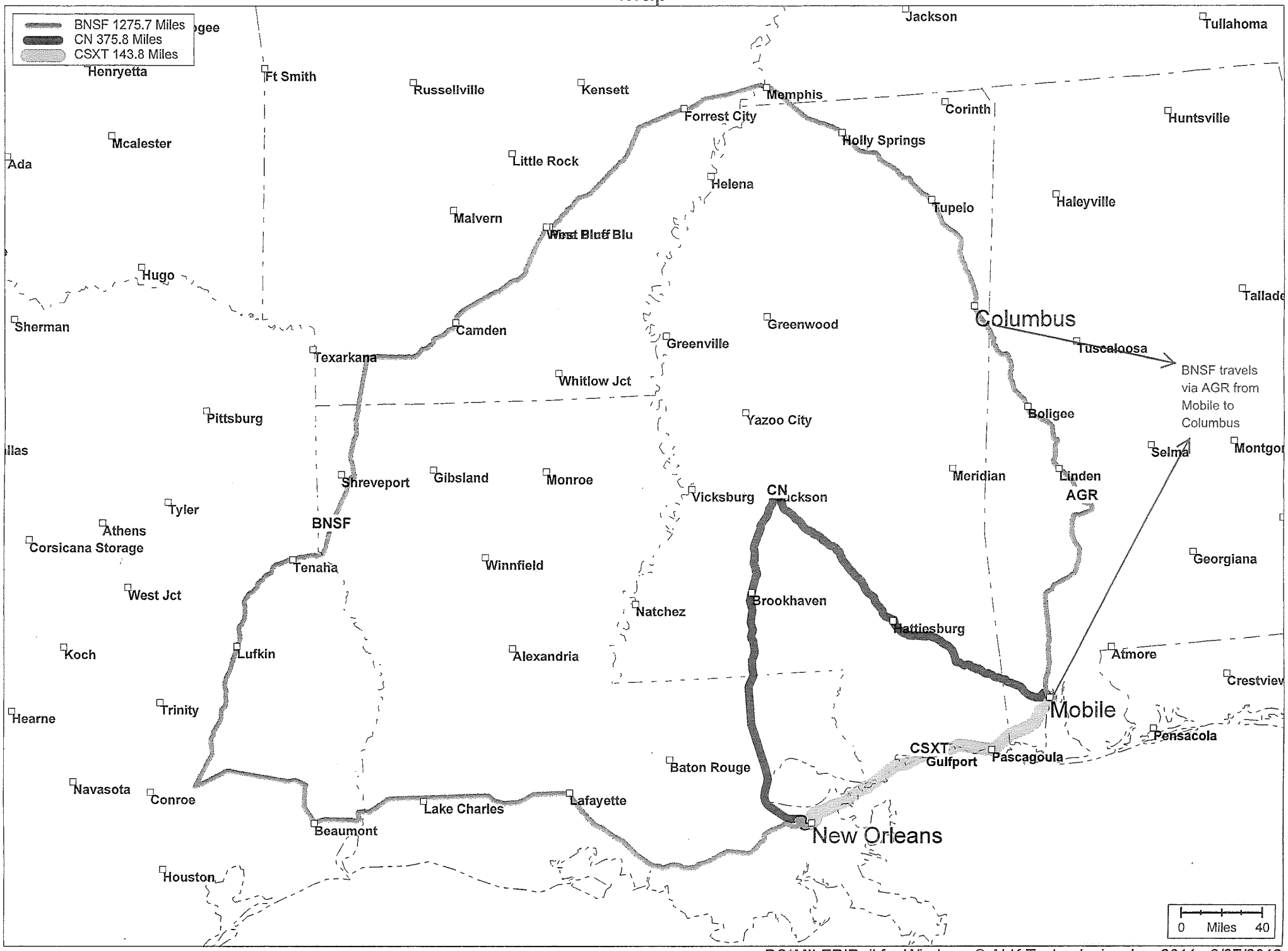
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TAB 5

Highly Confidential Information

Redacted

TAB 6

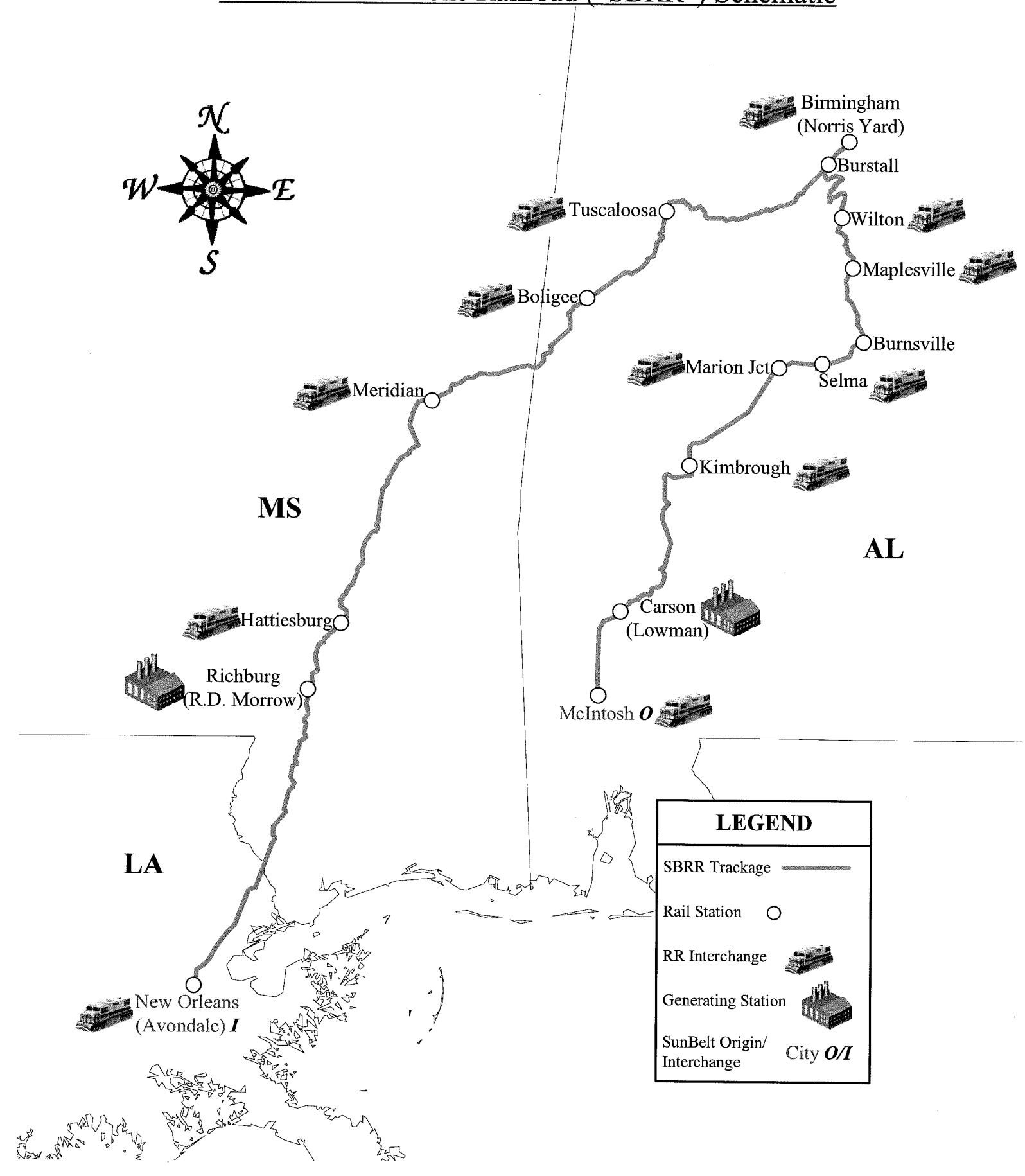


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PART III-A

TAB 1

SunBelt Stand Alone Railroad ("SBRR") Schematic



TAB 2

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

The term "Traffic Data" is a catch-all for multiple, disparate electronic databases provided by NS[1] that must be joined, linked, and used together to: (1) evaluate traffic moving over the NS system; (2) identify movements traversing the stand-alone railroad ("SARR") system; (3) quantify tons and revenues associated with those movements; (4) develop revenue divisions for cross-over traffic included in the SARR traffic group; and (5) develop inputs to the forecast, operating plan, construction, discounted cash flow ("DCF"), and maximum markup method ("MMM") models used in the stand-alone cost ("SAC") analysis. Throughout the SARR development process, it is critical to maintain data integrity and ensure that each of the data reports produced from the analytical models used to develop the various components of the SARR are directly traceable to the source data and are capable of being cross-linked for downstream analyses. Shippers must use the provided traffic data to develop many key elements of the SAC presentation. The format, robustness, and number of reliable links between data sets (i.e., data fields that are common to the many disparate data sets and that enable record(s) from one data set to be paired with its corresponding record(s) in the other provided data sets) dictate the level of accuracy and robustness of the SAC analysis.

Because imperfect data will never produce perfect results, the goal from the outset is always the same, i.e., to produce the most reliable SAC evidence possible using the provided data. SunBelt processed multiple source data sets using dozens of intermediate links and dozens of sequential processing steps which required simple, repeatable, mechanical processes. These links and processes were tested on the provided NS data sets and then run with the data outputs

[1] Traffic data is a term of art that encompasses all NS databases needed to design, build and evaluate the SARR. These include waybill data, car movement data, intermodal unit movement data, train movement data, mileage data, haulage data, handling line data, switching data, TCS movement and revenue data, TDIS revenue and movement data, density data, and all information and decoders needed to link, understand, and utilize the data.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

generated by each process flowing forward through the model. In other words, SunBelt did not manually adjust the NS data based on its judgment in developing intermediate reports and tables.

In response to SunBelt's Request for Production No. 20 through No. 23 seeking traffic data in this case, NS provided dozens of files in multiple structures and formats, with each set of files containing portions of the critical data for the years 2010[2] and 2011 (January through September). Upon placing the data into computer databases, SunBelt immediately began to encounter problems with the various data sets. Each of the major problems and SunBelt's method for dealing with them and moving its analysis forward is discussed below[3] under the following topics:

A. Incomplete Car and Intermodal Event Data

B. Inconsistent Data Records (Field Contents)

C. Incorrect Linking Instructions Provided

D. Vague, Non-Specific and Inefficient Linking Instructions Provided

E. Linking Fields Were Not Provided And Surrogate Link Development Was Required

F. Inconsistent Data File Types And Record Layouts

G. Non-Linkable Critical Data Sets

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[2] NS' 2010 traffic data were actually provided in STB Docket No. 42125: E.I. DuPont de Nemours & Company v. Norfolk Southern Railway Company ("*DuPont*"). The parties in this proceeding agreed that the 2010 NS traffic data and supporting documentation provided in *DuPont* would be used in developing the SAC evidence in this proceeding. As such, the development of SAC evidence in this proceeding from the 2010 NS traffic data required the use of data and data documentation provided in the *DuPont* case.

[3] We will not chronicle the myriad of minor data issues encountered in our analytical process. It is understandable that there should be some minor data issues to overcome and some reasonable learning curve associated with becoming familiar with a given railroads' internal traffic data format and contents. Here we are discussing only the major items we encountered through the process that were unexpected, that caused significant delays and that required SunBelt to develop means to account for imperfect, incomplete, and incompatible data sets.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

A. INCOMPLETE CAR AND INTERMODAL EVENT DATA

Only after thorough evaluation of the individual data sets, building links between the provided data sets, including correcting for incorrect linking instructions provided by NS (discussed in detail below), and testing the initial and corrected links, was SunBelt able to determine that the provided car and intermodal event data sets were incomplete. Specifically, SunBelt determined that car/intermodal event data were missing for some waybill movements.

SunBelt overcame this deficiency using a two-pronged approach. In some cases, SunBelt was able to link a waybill data record for which no car/intermodal event data had been provided to an alternate car/container that moved in the same cut as the subject car/container in order to determine the route of movement for the car/container. As documented in e-workpaper "SBRR Traffic Selection Methodology v5.docx", SunBelt labeled the surrogate car/container used for movement routing analyses a "Trace Unit." In other cases, SunBelt was not able to link waybill data records with car/intermodal event data records for either the subject car/container or an alternate Trace Unit. In these cases, SunBelt was forced to manually evaluate the movements to determine whether the traffic moved over the SARR system and should be included in the SARR traffic group. After evaluation of the lanes for which no car event data were provided, SunBelt included some of the lanes based on the movements' origins, destinations, and commodity codes.[4]

[4] The manually included lanes are shown in e-workpaper "SRR Traffic Summary Query Format v3 ADDED LANES.xlsx" at level "SRR Main Traffic Group ID" and are incorporated in Step 18 of the process outlined in e-workpaper "SRR Traffic Selection Methodology v5.docx."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

B. INCONSISTENT DATA RECORDS (FIELD CONTENTS)

NS provided (and presumably keeps in the normal course of business) its revenue waybill data in a very unique way. Specifically, NS reports volume and revenue data in its waybill file in a way that makes evaluation of data records for individual carloads impossible, at least for purposes of developing SAC evidence. This is because NS inconsistently reports the revenue data associated with individual cars in multiple-car and unit train shipments. A summary of these NS inconsistencies follows:

1. NS sometimes records the revenue and revenue adjustment data for *each individual car* in a multiple-car/unit train shipment *on the individual waybill records* associated with each car;

2. NS sometimes records *all* of the revenue and revenue adjustment data for *all cars* in a multiple-car/unit train shipment *on the waybill record associated with the lead car* in the shipment, and records *zero* revenues and revenue adjustments *on the waybill records associated with the trailing cars*; and

3. NS sometimes records: (1) the revenue and revenue adjustment data for *some cars* in a multiple-car/unit train shipment *on the waybill record associated with the lead car* in the shipment; (2) the revenue and revenue adjustment data for *some individual trailing cars* in a multiple-car/unit train shipment *on the individual waybill records* associated with those cars; and (3) *zero* revenues and revenue adjustments *on the waybill records associated with some of the trailing cars*.

NS fully explained this data nuance in the materials accompanying its initial traffic data production. However, SunBelt still needed to develop a method to account for the unusual record keeping. For instance, for waybill records where the revenue and revenue adjustments were set to zero (and the revenues for that particular car were included on the lead unit waybill record), there would be no way to determine the revenues associated with the movement for purposes of selecting traffic. Furthermore, assuming the movement was selected for inclusion in the SARR traffic group, there would be no way to develop revenue divisions using the average

total cost ("ATC") methodology, or to develop a revenue to variable cost ("R/VC") ratio for inclusion of that particular carload movement in the maximum markup methodology ("MMM") model. Similarly, for lead unit waybill records where the revenue and revenue adjustments were reflective of multiple cars, there would be no way to develop accurate revenue divisions and R/VC ratios using the ATC/MMM methodologies for those particular carload movement records.

SunBelt was forced to develop a different way of compiling the revenue waybill data before it could move forward with its traffic data analysis and traffic selection methodology. SunBelt chose to compile all of the individual waybill records associated with a particular waybill serial number into a single data record which contained total cars, total tons, and total revenues and revenue adjustments for all cars in the shipment. After this data compilation was made, SunBelt linked the compiled records to the other related data sets based on a single car's waybill serial number to determine route of movement, mileage, additional revenue adjustments, etc.[5]

C. INCORRECT LINKING INSTRUCTIONS PROVIDED

The initial NS traffic data production was accompanied by record layouts and field definitions for most of the provided data sets. A critical component of this part of the data production is the identification of the database links (the common data fields that can be used to link the various individual data tables). In key instances, the field descriptions NS provided for these linking fields were inaccurate. This led to the failure of SunBelt's first efforts to build a complete set of traffic data with functioning links that would enable meaningful analysis. As a

[5] SunBelt's methodology is outlined in full at e-workpaper "SRR Traffic Selection Methodology v5.docx."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

result, SunBelt's initial efforts to develop data reports from the provided data produced illogical and puzzling results.

Specifically, NS' waybill data contains a field titled "WB_SN_URRWIN," which is defined only as "Waybill serial number." The car and intermodal event data sets and the NS mileage data set contain a field titled "WB_SN," which is defined in all three provided record layouts as "Waybill serial number. Use to join with waybill info from revenue accounting."[6] SunBelt relied on these unambiguous field definitions to create direct links between these data sets as follows:

1. Waybill[WB_SN_URRWIN] = CarEvent[WB_SN]
2. Waybill[WB_SN_URRWIN] = IntermodalEvent[WB_SN]
3. Waybill[WB_SN_URRWIN] = NS_Miles[WB_SN]

SunBelt then moved forward with its analyses. After completing several phases of data processing, SunBelt determined that it was not linking a substantial percentage of waybill records to the corresponding event and mileage records. Upon evaluation of these preliminary results, SunBelt was forced to retrace all the steps it took in building, linking and processing the traffic data sets. Only after significant troubleshooting was SunBelt able to uncover the reason for its initial failure, i.e., NS provided incorrect file linking information.

The car and intermodal event data sets and the NS mileage data contain another data field titled "TRANS_WB_SN," defined as:

> "Transportation WBSN. Created from WBSN. One waybill per car – e.g., a single unit train WB will be broken down into one Trans WBSN for each car in the train."

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[6] *See* e-workpaper "NS_ELECTRONIC_DATA_SSI.xlsx" at levels "NS WAYBILL", "CAR EVENT", and "MILES."

SunBelt eventually determined that this actually is the field that must be used to "join with waybill info from revenue accounting." After the correct link was established, the processes were rerun and the outputs were evaluated once more. The results were logical and finally correct. The correct links are shown below.

1. Waybill[WB_SN_URRWIN] = CarEvent[TRANS_WB_SN]
2. Waybill[WB_SN_URRWIN] = IntermodalEvent[TRANS_WB_SN]
3. Waybill[WB_SN_URRWIN] = NS_Miles[TRANS_WB_SN]

This saga led to wasted time and money and reinforces the importance of correct and accurate data and data support production on the part of NS. Furthermore, as described above, the provided linking instructions for this particular set of database tables were simple and straight-forward and more importantly wrong. As discussed in more detail below, this experience led SunBelt to question all other, less straight-forward linking instructions provided by NS.

D. VAGUE, NON-SPECIFIC, AND INEFFICIENT LINKING INSTRUCTIONS PROVIDED

SunBelt's cautious approach following its discovery of the inaccurate linking information described in the preceding section would prove to be needed, as several provided linking instructions were ambiguous or incomplete. As discussed in more detail below, several critical files were provided in data files and formats that are not conducive to efficiently processing and evaluating the massive volume of data that must be processed to develop SAC. To further complicate this hindrance, NS' guidance regarding the fields and parameters that should be used to link the various data sets was often vague and in several cases not the most efficient or reliable way to make the necessary links. SunBelt's determination of the most practical and efficient

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

linking methods for other files required an iterative process of trial and error troubleshooting similar to that detailed above.

For example, NS provided switching data in several files in five (5) different formats, each of which contains a different combination of data fields. The record layout associated with the largest (by data record count) switching file produced by NS included the following ambiguous instruction regarding the link between the provided switching data and the waybill data:

> Matching Criteria:
>
> 1. Match WB SERIAL, CAR INITIAL and CAR NUMBER from switching file to WBSN, EQINIT and EQNUM on large revenue file.
>
> 2. Match WB SERIAL, CAR INITIAL and CAR NUMBER from switching file to MCXREFSN, EQINIT and EQNUM on large revenue file.
>
> 3. Match CAR INITIAL, CAR NUMBER and WB DATE from switching file to EQINIT, EQNUM and WBDT on large revenue file. (Note: Need to use a date range for waybill date on step 3).[7]

The record layouts associated with the other four provided switching data file formats did not include linking instructions. SunBelt tested the links between the large switching file and the waybill data using the provided instructions for the month of January 2010 and found that only 33% of switching data records could be linked to the waybill data file based on some combination of the provided linking instructions. Furthermore, a manual and very labor intensive verification process using commodity codes and shipper and consignee data was required to determine the validity of the positive links made using the suggested linking process.

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[7] *See* e-workpaper "NS_ELECTRONIC_DATA_SSI.xlsx" at level "SWITCHING DATA."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

SunBelt also tested the suggested linking process on the four (4) other data files for January 2010 and found that only a few dozen records could be linked using the suggested method.[8]

After thorough review and troubleshooting, SunBelt discovered that there were several reasons for the low link rate it achieved following NS' instructions. First, the switching data records were generally associated with railcars. This meant that there were no direct links between the switching data and the waybill data for intermodal records. This problem and its solution are discussed in greater detail in the following sections of this Exhibit. For non-intermodal records, it became apparent to SunBelt, after its manual review of individual data records in the relevant files, that NS' linking instructions were unnecessarily complicated and cumbersome, and still produced spotty results. SunBelt eventually determined that it would need to use the car event data as a bridge between the switching data and the waybill data, keying on the WB_SERIAL field in the switching data and the TRANS_WB_SN field in the car event data that corresponded with the WB_SN_URRWIN data field in the waybill data.

Similarly, NS' instructions for linking its haulage receivables data records to the corresponding waybill data records were:

> How to match receivable haulage amounts to waybills on revenue files:
> Match car initial, car number and waybill date on haulage spreadsheets to haulage waybills (haulage indicator = F) on revenue files. (Note: Need to use a range for waybill date.[9])

As with the switching data, SunBelt first tested the proposed linking method on January 2010 data. Using a combination of mechanical and manual data evaluation techniques, SunBelt determined that the "date range" NS indicated would be necessary to make the required link was surprisingly long. Specifically, in order to make positive links between the tested January 2010

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[8] *See* e-workpaper "Summary of NS Switching Mainframe.docx"
[9] *See* e-workpaper "NS_ELECTRONIC_DATA_SSI.xlsx" at level "HAULAGE RECEIVE."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

files using the suggested method and a date range, it would be necessary to go as far back as -25 days and as far forward as +29 days.[10] Stated differently, each haulage receivable data record evaluated would need to be tested against nearly two months of waybill and car event data in order to record all haulage receivables payments made to NS. Incorporating this scale of indexing into the linking structures required to process all of the NS traffic data is exceedingly cumbersome to the point of being impractical. In addition, as with the switching data discussed above, haulage receivable data records are generally associated with railcars, not intermodal units. As a result, SunBelt was forced to develop a three-way link using car event data as an intermediate file between waybill data and haulage receivables data. Therefore, SunBelt's ability to link haulage receivables data with corresponding waybill data records was hampered.

SunBelt encountered identical problems when it attempted to use the NS' linking instructions to link handling line data to waybill data. As with the haulage receivables data, NS instructed SunBelt to:

> Match CAR INITIAL, CAR NUMBER and INT DATE on handling line file to EQINIT, EQNUM and WBDT on large revenue file. (Note: Need to use a date range for waybill date/interchange date.)
>
> Additional note for cars with more than one record:
> If the values in the HANDLING LINE FSAC, CITY and STATE fields are different on records which have the same CAR INITIAL, CAR NUMBER, and INT DATE, the values on the P record (HANDLING LINE P/A/E/F) should be used instead of the values in the other records (A, E or F).

[10] *See* e-workpapers "Summary of NS Haulage Receivables.docx" and "Haulage Receivables Jan 2010_Linked to Waybill.pdf."

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

As with the haulage received and switching data, the handling line data records are generally associated with railcars, which required SunBelt to develop a link using the car event data as an intermediate file between the waybill data and the handling line data.[11]

E. LINKING FIELDS WERE NOT PROVIDED AND SURROGATE LINK DEVELOPMENT WAS REQUIRED

In addition to the problems described above with the linking fields NS did identify in the supporting materials accompanying its traffic data production, SunBelt also had to deal with a few instances where NS provided no specific linking instructions. Specifically, NS provided no concrete direction with respect to how waybill records for intermodal data could be linked to the provided NS mileage data, switching data, handling line data, and haulage data, as discussed in the preceding section. When NS finally provided intermodal event data in response to SunBelt discovery requests, SunBelt set about evaluating the data and checking the various links NS did identify. It quickly became apparent that NS did not provide a way to link intermodal waybill records directly to the miles associated with each move. When SunBelt pointed this deficiency out to NS, the railroad responded that:

> In most cases, the intermodal event records NS has produced identify the specific flat car on which an individual container traveled. Thus, the miles for most intermodal container movements can be determined by linking the container movement to the corresponding flat car movement. [This linking procedure may not work for all intermodal containers. For example, for some container event records, data identifying the flat car on which the container moved is not available. And in a small number of instances a container may be associated with more than one flatcar (for instance, where a container moved in a double-stack on one flat car and was transferred to a different flat car because double-stack operations were

[11] The methodologies developed by SunBelt to overcome these linking challenges are documented in e-workpaper "SRR Traffic Selection Methodology v5.docx."

not possible for the remainder of the movement). In all cases, NS has produced all data that it has available.][12]

SunBelt did develop a means to link intermodal waybill records to mileage records via the intermodal event and car event records, which is outlined in e-workpaper "SRR Traffic Selection Methodology v5.docx." Additionally, SunBelt has developed e-workpaper "Carload vs IM linking.xlsx" which shows through color coding the two sets of links that were needed to process intermodal and non-intermodal data contained in all of the disparate files included under the traffic data umbrella.

F. INCONSISTENT DATA FILE TYPES AND RECORD LAYOUTS

NS provided haulage receivables data in dozens of Excel spreadsheets (many of which comprised multiple levels of data). The haulage data were stored in multiple formats within the various Excel spreadsheets. Also, as noted above, NS provided switching data in multiple files with five different record layouts which contained some common data fields and some data fields that were unique to the individual files. Before SunBelt could incorporate the data stored in these files into its analytical framework, SunBelt first had to convert and import the data to a database platform that would enable efficient programming. Even after the conversion process was completed, linking the various files was made difficult due to the inconsistent data content of the various files, as discussed in preceding sections.

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[12] *See* October 21, 2011 letter from Matthew Warren to Jeffrey Moreno, included as e-workpaper "IM Miles Response eDSF4BE.pdf - Adobe Acrobat.pdf." This letter was actually part of the correspondence in *DuPont*.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

G. NON-LINKABLE CRITICAL DATA SETS

SunBelt requested and NS provided TCS and TDIS revenue and drayage cost data for 2010 and January-September 2011. Upon receipt and inspection of the provided data, SunBelt determined that the provided data could not be linked on a movement-specific basis to the revenue waybill data because insufficient common fields were included. SunBelt responded to NS' production asking for supplemental data and/or instruction regarding how the TCS/TDIS revenue records could be linked to specific waybill data records. NS responded that, "There is no direct way to link these files to those produced on EHD-002."[13]

However, the data included in the files are critical to SunBelt's SAC analysis. As a result of the lack of provided links, SunBelt was forced to develop an alternate means by which to incorporate the TCS/TDIS revenue data into its analysis. As documented in file "SRR Traffic Selection Methodology v5.docx", SunBelt developed lane-specific monthly average net revenues (revenues less drayage costs) for both TCS and TDIS and applied those net revenues against the TCS/TDIS moves in the lanes for which TCS/TDIS waybill data had been provided on a month-by-month basis.

Specifically, SunBelt:

(1) Calculated average net TCS/TDIS revenues between ramp pairs for each month in the study;

(2) Developed a crosswalk between the ramp codes in the provided TCS/TDIS data and the station names in the waybill data;

(3) Linked the waybill data to the provided TCS/TDIS revenue data based on origin ramp, destination ramp, year, and month; and

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[13] *See* September 30, 2011 letter from Matthew Warren to Jason Tutrone, pp. 10-11, included as e-workpaper "September 30 Letter.pdf." This letter was also part of the correspondence in *DuPont*.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA

(4) Imported the monthly average net revenue per unit for TCS/TDIS units to the waybill file.

To avoid a revenue double count, the average net TCS/TDIS revenue was used in place of (not added to) the reported NS line-haul revenue for the movement.

TAB 3

PROBLEMS WITH NS PROVIDED TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

SunBelt requested that NS produce specific electronic traffic data files in order to calculate SARR revenues for cross-over traffic included in the SBRR traffic group using the STB's Modified Average Total Cost ("ATC") method.[1] To make the specific calculations required by the ATC methodology, SunBelt utilized specific inputs that NS either provided electronically or that were developed by SunBelt from the provided electronic data.

The NS information needed to develop ATC inputs includes:

1. The actual route of movement for each NS historical shipment;
2. The actual NS mileage for each NS segment for each historical NS shipment;
3. The actual NS density on a net ton basis for each unique NS segment for each historical NS shipment;
4. The actual NS fixed cost per mile; and
5. The actual NS historical data for each shipment to develop the inputs required to calculate variable costs using the Board's URCS Phase III variable cost model.

This Exhibit outlines the major problems that SunBelt encountered with NS provided data as they relate to the ATC methodology.[2] These problems are summarized in the remainder of this Exhibit under the following five topical headings which match the five areas of inputs needed from NS in order to calculate revenue divisions using the ATC methodology:

A. NS Actual Route Of Movement
B. NS Mileage By NS Segment
C. NS Density By NS Segment

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[1] *See WFA/BASIN II* at 11-15.

[2] The problems with NS provided data are not limited to the ATC process. Exhibit III-A-2 identifies the myriad of problems SunBelt encountered when attempting to utilize NS-produced traffic data and Exhibit III-C-1 identifies a myriad of problems SunBelt encountered when attempting to utilize NS-produced train event data. The ATC calculations require certain data from each of these NS datasets and, to that extent, the same problems identified and explained in those Exhibits also affect the ATC calculations.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

D. NS Fixed Cost Per NS Route Mile

E. NS Variable Cost Of Service

A. NS ACTUAL ROUTE OF MOVEMENT

One of the critical pieces of information required for the ATC calculations is the actual route of movement over the segments of NS track used by each historical NS shipment. NS produced two types of route-based information, i.e., train movement data and car/intermodal event data.[3] For purposes of determining the actual historical route of movement for individual NS revenue shipments, SunBelt focused on the limited[4] car event data that was provided by the NS as the best source of general route information.

The Board's ATC methodology requires knowledge of the specific route of movement of NS revenue shipments in order to develop SARR/Non-SARR miles, SARR/Non-SARR fixed costs, and SARR/Non-SARR variable costs. Therefore, it was important to have this NS routing information on a segment by segment basis. However, the NS waybill and car event data provided only a general indication of the actual geographic route of movement. The NS waybill data produced only a very general description of the route of movement.[5] The NS car event data provided more detail than the NS waybill data but it was still deficient for ATC purposes. For example, the NS only produced car events for a few locations on the route of movement for a movement from New Orleans, LA to Greensboro, NC. Much more detail is needed for the ATC calculation to identify the ONSARR/OFFSARR interchange locations and to evaluate changes in

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[3] The deficiencies with the train event data are discussed in great detail in Exhibit III-C-1 and the deficiencies with the car event data are discussed in great detail in Exhibit III-A-2.

[4] Limited in terms of the number of events reported for each car handled by NS.

[5] NS waybill data included a field named "FULL_ROUTE" that indicated a general route such as "UP NEWOR NS" for the route between New Orleans, LA and Greensboro, NC. This routing information is no more descriptive than identifying the origin and destination endpoints provided elsewhere in the NS waybill data and not sufficient for ATC calculations.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

density along the route, both integral parts of the ATC process. Also, in many instances, there were multiple routes between consecutive locations provided by NS in the car event data. This lack of routing detail in the NS car event records was a major problem to overcome prior to making the ATC calculations.

In light of these deficiencies, SunBelt was forced to perform a special study to create a detailed geocoded routing for each selected movement using publicly available routing and location information plus the limited location data provided by NS in the car/intermodal event data. This special study was undertaken to overcome the limitations and deficiencies of the NS-provided data and in order to adhere, as closely as possible, to the STB's ATC methodology.[6]

B. NS MILEAGE BY NS SEGMENT

The second component of the ATC calculations is the specific mileage associated with the actual route of movement for each NS revenue shipment over the detailed segments of NS track. For ATC calculations, this mileage must be identified and aggregated as SARR miles, residual NS miles, and total NS miles. NS did produce mileage data files but none of this mileage information was particularly useful because each separate dataset produced by NS contained different pieces of location information and each dataset was lacking specific pieces of information that could be utilized to facilitate linking. For example, some NS datasets[7] provided specific NS mileposts but no station location name (station/city/state/SPLC) information. Other NS datasets[8] provided station location name information and/or SPLC information but no NS

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[6] The special study initiated by SunBelt to implement the Board's ATC methodology (including the detailed routing development) is outlined in SunBelt Opening work paper "METHODOLOGY To Develop Detailed Routes And Best ONSARR/OFFSARR Locations For SBRR Traffic."

[7] *See*, for example, NS-produced electronic track chart data in files "t707_10", "t707_ns", "mgt_ns", "grd_ns", "curv_ns" and "spde_ns" (Bates No. NS-DP-C-DVD-004).

[8] *See,* for example, NS-provided car event data in file "REP20-Q22010.zip."

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

milepost information. These datasets could not be linked because the station location names were not spelled the same. NS also provided electronic track charts that contained a great deal of information but these track charts were produced in a document format that SunBelt could not utilize efficiently.[9] After multiple requests[10] from SunBelt, NS did produce a file that contained information to facilitate the linking of disparate pieces of NS location information. This file did not provide the detailed linking information that SunBelt required.[11]

SunBelt was forced to expand its special study to create detailed mileage data based on the specific routes created from NS car event data and publicly available routing and location information.

C. NS DENSITY BY NS SEGMENT

NS density data by detailed track segment on a net ton basis is needed for the ATC calculations. In response to SunBelt's request for density information, NS provided density data on a gross ton basis for various NS track segments. These segments were identified by operating station codes, NS milepost, NS line identifier and alpha location names. While this data could be linked to the car event data, it was deficient from an ATC calculation perspective for two primary reasons. First, as explained above, the NS car event data was not detailed enough to support the ATC calculations.[12] As a result, linking to this insufficient data was not useful for

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[9] NS did provide several files that they claimed included electronic data supporting the information presented in the NS track charts. Unfortunately, SunBelt evaluated these files but determined that it could not link the data included in these files on any common fields to produce useful detailed geo-code information.

[10] *See* Exhibit III-A-2 at p 15.

[11] NS produced data file "SPLC OS MP" which provided some, but not all of the required linking information. This file was produced on November 21, 2011 (*See* Bates No. NS-DP-HC-DVD-046).

[12] Also, the data provided in the NS density data that is used to link to the NS car event data did not produce links for all of the information. Incomplete matching of NS density and car event data would result in inaccurate data for the ATC calculations.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

ATC purposes. Second, the density data was provided on a gross ton basis (including locomotives) and was not useful for the specific requirements of the ATC methodology.

SunBelt was again forced to expand its special study to create net density data on a detailed segment basis using the NS revenue traffic that historically moved over ONSARR and OFFSARR track segments. SunBelt employed the STB accepted approach in *WFA/Basin*[13] which measured individual density segments.

D. NS FIXED COST PER NS ROUTE MILE

The calculation of NS fixed cost per route mile is also required by the STB's ATC methodology. In *WFA/Basin,*[14] the railroad fixed cost per route mile was calculated the following two ways: (1) a fixed cost per route mile for system owned track segments; and (2) a fixed cost per route mile for trackage rights segments.[15] In this case, NS failed to provide SunBelt with reliable data that indicates whether a specific track segment is system owned or a trackage rights segment. As a result of the problems with NS-provided traffic data, SunBelt was forced to develop the segments along each route of movement based upon publicly available data. This publicly available data did not indicate whether a segment of track was NS owned or trackage rights track. Without this trackage rights data, SunBelt developed and utilized an average fixed cost per route mile for all NS segments (the sum of system owned and trackage rights miles).

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[13] *See WFA/Basin* at 13.
[14] Id.
[15] The Board has not settled on a specific methodology for allocating fixed costs that, by definition, are not allocable. In *WFA/Basin*, the Board accepted BNSF's proposed methodology that distinguished between owned track and trackage rights segments but offered future litigants an opportunity to explain why this approach should not be used.

PROBLEMS WITH NS PROVIDED
TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

Conceptually, the creation of fixed unit costs is an arbitrary exercise but one that the STB developed in an attempt to identify economics of density in the ATC calculation. In *WFA/Basin*,[16] the STB developed two fixed unit costs as part of the calculation of ATC, i.e., one for railroad owned track and one for joint facility track. This calculation resulted in more revenues being assigned to the residual incumbent (BNSF) than were allocated following the STB's initial proposal of one fixed unit cost based on all miles (owned plus trackage rights).

While the STB accepted the two fixed unit cost approach in *WFA/Basin* that approach contains a mathematical error which if corrected would mean the development of additional fixed unit costs. The mathematical error is demonstrated below.

In calculating the fixed unit cost assignable to trackage rights miles, the STB added the aggregate fixed "above-the-rail" costs to the aggregate fixed costs related to general overheads. The sum of these aggregate fixed costs was divided by the sum of railroad owned miles plus trackage rights miles. In calculating the fixed unit cost assignable to railroad owned miles, the STB added the first fixed unit cost (described above) to the following fixed unit cost: aggregate fixed "below-the-wheel" costs divided by railroad owned miles.

The mathematical problem exists because the aggregate fixed "below-the-wheel" costs include joint facility costs[17] which based on the STB's logic in *WFA/Basin* should be assigned to joint facility miles not railroad owned miles. To correct this problem, additional fixed unit costs would need to be developed. As explained above, we were unable to develop and apply these fixed costs to the on-SARR and off-SARR segments because of the lack of joint facility data provided by NS, therefore this problem is not applicable here.

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[16] *See WFA/Basin* at 12-13.
[17] *See* URCS, Worktable D1, lines 129, 131, 133, 135 and Worktable D2, lines 129, 131, 133 and 135.

PROBLEMS WITH NS PROVIDED TRAFFIC DATA NEEDED FOR ATC CALCULATIONS

E. NS VARIABLE COST OF SERVICE

The final piece of information needed to calculate revenue divisions using the ATC methodology is the variable cost of service for the movement of NS revenue traffic over the SARR segments and the residual NS segments. To be consistent with *WFA/Basin,* SunBelt did not include interchange costs between the SBRR and the NS in its ATC variable cost calculations. In order to perform these calculations, SunBelt developed, from NS-provided data, a unique set of nine (9) inputs used in the Board's URCS Phase III program. To develop these nine inputs for each movement, SunBelt utilized the NS-provided waybill data and the routing/mileage data from the SunBelt special study outlined above. The NS-provided waybill data was deficient in many respects for many of the revenue shipments included in the SBRR traffic group. Specific examples of these deficiencies include certain records contained incomplete or incorrect data, missing mileage data (because there was no NS car event data to link to the revenue waybill data), missing STCC data, incorrect AAR car type data, and data that produced incorrect tons per car. SunBelt developed averages to include in the data fields for each of these records that contained incomplete or incorrect NS provided data.

PART III-C

TAB 1

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

Train event data, also known as train movement data, plays a key role in stand-alone cost ("SAC") presentations. Shippers and railroads use train event data to develop many key inputs of the SAC presentation, including, but not limited to, the revenue trains moving over the stand-alone railroad ("SARR") system and the routes taken by those trains on and off-SARR, where those trains stop, switch cars or dwell, the peak period train lists used to simulate SARR operations, and the Base Year train statistics required to calculate the SARR's operating expenses. The accuracy and robustness of the train event data, therefore, will in many ways dictate the degree of accuracy and robustness of the SAC presentation.

In response to SunBelt's Request for Production Nos. 21 and 22 seeking train event data in this case, Norfolk Southern Railway Company ("NS") provided eleven (11) text files that included limited train event data for the years 2009, 2010 and 2011. The provided files contained the following eleven (11) data fields:

1. Train Symbol ("TRN")
2. Train Origin Date ("TRN_ORGN_DT")
3. Crew District ("TRN_CREW_DIST")
4. Train Section ("TRN_SECTION")
5. Event Date and Time ("TRN_EVENT_TS")
6. Train Event Type (Arrival or Departure) ("TRN_EVENT_TYPE")
7. Number of Loaded Railcars ("LOADS")
8. Number of Empty Railcars ("EMPTIES")
9. Train Tons ("TONS")
10. Train Length ("LENGTH")
11. Event Milepost ("MILEPOST")

According to the limited NS information provided describing the train event data, SunBelt could identify a unique train by joining the train symbol (TRN), the train origin date (TRN_ORGN_DT) and train section (TRN_SECTION). Linking these three key fields together allowed SunBelt to identify a particular train's movements. However, SunBelt immediately saw

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

problems and limitations with the NS-provided train event data when it placed the data into a computer database. These problems permeated the data and limited its effectiveness and usefulness. SunBelt lists these infirmities and their impacts below under the following headings:

A. Milepost Information

B. Station Information

C. Train Events

D. Train Statistics

A. MILEPOST INFORMATION

The NS provided train event dataset contained 5,915 distinct milepost names. The milepost name could include:

1) A letter prefix and a number;

2) A number by itself;

3) A number with a letter suffix or letter prefix; or

4) A number and letter suffix.

The "MILEPOST" field was the only field contained within the train event data that provided location information and NS provided no single decoder to completely document each provided milepost.[1]

After importing the provided text files into a relational database, SunBelt found three (3) problems with the milepost data. First, the train event data included different geographic locations with duplicate mileposts. Second, certain train event records contained no milepost

[1] Given the importance of geographically locating the train events, SunBelt used various additional files provided in discovery to attach stations, cities and states to the milepost information in the train event data.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

information. Third, the milepost information that was provided was erroneous. Each of these three problems is discussed below.

1. Duplicate Milepost

After augmenting the NS train event data with station and state information provided at different times in discovery, SunBelt found that the train event data indicated trains were making unaccounted for geographic "jumps." For example, the NS train event data would show a train moving through stations in Alabama, and then unaccountably jump to a station in Virginia, and then move immediately back to a station in Alabama. SunBelt realized that these seemingly random geographic leaps were due to the inclusion of duplicate milepost information within the train event data.

SunBelt found 267 mileposts within the NS train event data where the various NS data sources provided significantly different location information for the same milepost.[2] Some of these occurrences are because the milepost name is associated with two different NS rail lines. As an example, Milepost "160.10" is located both at "SWEET.SC VA" and "MCCALLA AL." Attachment No. 1 to this Exhibit III-C-1 contains the list of duplicate mileposts identified by SunBelt.

These 267 duplicate milepost names were associated with 2,015,257 train event records. It is obvious that such a large number of duplicate milepost entries would wreak havoc in identifying locations along a train's route, especially if the duplicate occurred in the first or last train event record. As has been the norm in prior SAC cases, shippers and railroads classify traffic

[2] Even though the SunBelt SARR is limited to three states, Alabama, Mississippi and Louisiana, SunBelt needed to test the accuracy of all the data included in the NS train event data since off-SARR information is critical to developing SAC evidence under the Board's average total cost ("ATC") division methodology.

and train movement data based upon the movement's origin and destination stations. An ambiguous initial milepost could incorrectly classify a train within the incorrect origin/destination categories. For example, NS data indicates milepost 259.00 is associated with three different locations – Riedsville, NC, Harrimon Junction, TN and Livingston, AL – of which only the last station, Livingston, AL is on the SunBelt SARR. Only rigorous review of the train event data would allow one to accurately associate the correct location with the duplicate milepost. SunBelt manually assigned what it believes to be the proper stations where it noticed illogical geographic sequences caused by duplicate mileposts.

2. Missing Milepost Information

There were 886,923 train event records with no milepost identified. Instead, the fields included blanks. While the number of records with blank mileposts is relatively small, their mere presence created problems when attempting to use automated programming to work with data.

3. Erroneous Milepost Information

Finally, the supporting documents NS provided which would link train event milepost information to other geographic information (station, state, etc.) appeared to provide erroneous information. For example, the file "SPLC OS MP.xlsx," provided by NS to link milepost with other operating station information, lists milepost "141.50H" as being in Crab Orchard, TN, a station west of Knoxville, TN. However, all other mileposts with "H" suffixes within this milepost range (130-150) are located in the state of Georgia. Attachment No. 2 to this Exhibit III-C-1 lists other mileposts with apparently erroneous information.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

As with the other milepost infirmities, erroneous location information caused problems when attempting to route trains, identify origin and destination locations and develop ATC divisions. SunBelt attempted to identify and fix these issues when found, but given the voluminous amount of data, not all corrections were likely made.

B. STATION INFORMATION

SunBelt came upon two (2) issues with the operating station or "station" information provided by NS. First, there were approximately 281 mileposts in which NS did not provide any station information. Second, there were over 1,559 stations included in the train event data that were covered by multiple mileposts.

1. No Station Information

In reviewing the NS train event data, SunBelt identified 281 mileposts that could not be definitively linked to a station. While a seemingly innocuous number, these mileposts showed up in 448,151 train event records. Because of this missing information, SunBelt had to manually impute station information for these 281 mileposts.

2. Multiple Mileposts Per Station

SunBelt identified 1,559 stations in the NS supporting documents that had more than one milepost. More importantly, of these 1,559 stations with multiple mileposts, 1,040 were included in the train event data. In describing this phenomenon, NS stated:

> Typically there is only one milepost per operating station/SPLC, however in many cases there can be multiple mileposts per operating station. This most commonly occurs for one of two reasons. One reason for multiple mileposts is that milepost locations are more granular than operating stations. As a result, many specific locations along the line will map to a single, more general operating station. The second reason is that there are

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

> locations where lines cross, in which case that single point will have a milepost location on each line.[3]

The second reason cited by NS in its explanation (that a location may have two milepost identifiers where rail lines cross) causes significant issues in developing SAC evidence. Classifying whether any one particular location is "on-SARR" or "off-SARR" is critical in SAC cases, especially under the procedures adopted by the STB in *Major Issues*. One example of this is the calculation of SARR revenues. Prior to the STB's decision in *Major Issues*, the calculation of SARR revenues was a fairly straight-forward process that could be accomplished with a minimal amount of location information.[4] The STB's adoption of the ATC revenue division methodology in *Major Issues* made location information much more critical in developing SARR revenues. Not only do participants in SAC cases need to know the beginning and ending points of the SARR's and incumbent's movements, they also need to know explicit locations along the route of movement in order to identify the proper traffic densities to calculate the average fixed cost component of ATC. This requires the accurate mapping of routes and route locations, which becomes a major issue when route locations are identified by multiple mileposts.

Because of the fact that the same station could be identified by multiple mileposts, it was not possible without manually adjusting records and data to identify how many times a train went off and on-SARR.[5] This has clear implications for the routing used in revenue calculations and for the calculation of SARR operating costs.

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[3] *See* November 21, 2011 letter from Matthew J. Warren to Jeffrey O. Moreno in *DuPont*.

[4] Under the modified straight-mileage prorate method used prior to the *Major Issues* decision, parties in a SAC proceeding only needed to know whether the traffic originated and terminated on-SARR or off-SARR and the number of on-SARR and off-SARR miles.

[5] For example, a train movement may be local to the SARR, but move through a station with multiple milepost identifiers. If the milepost included in the train event data is different than the milepost identified in the SARR location database, the train event data would show this train exiting the SARR and then reentering the SARR.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

C. TRAIN EVENTS

As indicated above, NS' train data contained in the field "TRN_EVENT_TYPE" consisted of either an arrival code ("ARIL") or a departure code ("DFLC"). There were three (3) problems with this limited data. First, there was an extreme imbalance in the arrival and departure events reported in the files. This imbalance was to such a degree that many trains never reported any arrival events. Second, the arrival and departure were so out of chronological sequence in all cases as to make them nearly useless in accurately defining a train's location. Third, the train events were truncated or missing for many trains. These issues are discussed below.

1. Arrival and Departure Imbalance

The 2009, 2010 and 2011 train event data provided by NS included approximately 48 million individual train events. Within these train events, 95.1 percent, or 45.6 million, were departure events and 4.9 percent, or 2.3 million, were arrival events. In other words, there was more than a 19-to-1 imbalance between train departure events and train arrival events. Attachment No. 3 to this Exhibit contains an example of the imbalance in departure and arrival notices inherent in the NS train event data as demonstrated by the train event data for a sample train.

This imbalance had serious ramifications for the development of train dwell times used in the SAC analysis. In prior SAC presentations, parties used the difference between train arrival and departure times to develop dwell times at particular locations. These dwell times were then used in various portions of the SAC presentation, including, but not limited to, establishing

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The only way to fix these issues is to manually correct the milepost location or manually enter the alternative milepost into the SARR location database.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SARR service standards against actual incumbent operations and as inputs into the SARR simulation model. In this instance, however, because of the severe imbalance in the train event data reported (and due to other train event issues discussed further below), SunBelt was unable to calculate actual NS dwell times using the train event data. Instead, SunBelt was forced to rely upon other sources of dwell time data.

2. Out of Sequence Arrival and Departure Events

In addition to the lopsided ratio of arrival to departure codes, an even more severe problem was the out of sequence nature of the arrival and departure information. Simple logic dictates that a train will arrive at a location prior to departing from the location (unless it is the first reported location). However, as shown in the sample train movement data included in Attachment No. 3 to this Exhibit III-C-1, this logic does not hold with the NS train event data. As Attachment No. 3 shows, Train 172-09/11/2010-0, a loaded Merchandise train with a reported 66 loaded railcars and 2 empty railcars, departed Terminal Junction, LA (milepost 007.70NT) on September 11, 2010 at 9:27 pm. The train event data shows the train moving through milepost 007.50NT, identified as New Orleans, LA, and then further north to milepost 295.44 in Meridian, MS. Inexplicably, the train data next shows the train arriving at milepost 007.50NT six (6) hours after departing the same location. The train moves further north and is shown to depart Birmingham, AL (milepost 142.00), and one (1) minute later, the train event data indicates arrival at milepost 295.44 in Meridian, Mississippi. This example is not a single isolated event. Almost all the train event records produced by NS show this disconcerting mismatch in departure and arrival data. The only trains that do not have this arrival-departure issue are those train records that do not show any arrival events at all.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

In addition to the out of sequence nature of the arrival and departure events, many of the departure events themselves were found to be out of sequence or included illogical time and date stamps. Attachment No. 4 to this Exhibit III-C-1 shows the train movements for an NS Intermodal train moving between Fields, Georgia and New Orleans, Louisiana. The train data also shows the train departing repeatedly from the same location at different times. This could be due to pre-departure switching activity, but the nature of the train movement data limited our ability to clearly identify the train's actions.[6]

Because of the out-of-sequence nature of the NS train event data, it was impossible to use the train event data in any sort of automated process to identify routing without making certain assumptions and modifications. The assumptions made by SunBelt include:

1. SunBelt assumed that because of the mismatched nature of the arrival and departure information that the arrival data was irreparably damaged. Therefore, in summarizing and using the NS train event data, SunBelt ignored the arrival events in the train event data.

2. Because the arrival event information was obviously flawed, SunBelt relied upon the first reported departure location to identify origin locations, and the last identified departure location to identify destination locations. This created an extreme problem in identifying origin and destination locations as the NS data that was reported for a particular TRN symbol was not always consistent.[7] To work around this issue, SunBelt spent extensive time and effort developing normalized NS origin and destination locations and normalized SBRR origin and destination information for the trains in the NS train event data. SunBelt based its

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[6] This train also shows the same infirmity discussed earlier for trains departing locations hours before they arrive at the location.

[7] For example, according to NS train schedule data provided by NS in discovery, TRN symbol 385 is a general merchandise train that operates between MP 791 at Birmingham, AL and MP 149.0MB at Mobile, AL. NS train event data shows ten (10) TRN 385 trains originating during the SBRR's base year, of which only one (1) originated at the scheduled location. The train event data shows the other nine (9) trains originating either at MP 134.96 (Birmingham, AL) or MP 137.50 (Brussel, AL).

normalization on limited data provided by NS in discovery, and on assumptions made by SunBelt.[8]

3. Because of the apparently random sequencing of the train event data, SunBelt could not accurately know when a train stopped along a route to set out or pick up cars. Therefore, when modeling train operations in its SARR simulation, SunBelt identified dwell locations for general merchandise trains based upon the two following criteria:[9]
    a. SunBelt only dwelled trains where the train event information indicated a change in consist size. This allowed SunBelt to account for train dwells due to servicing customers along the route of movement.
    b. SunBelt only stopped a train at the first instance of a specific location shown in the train event data. In other words, if the data showed a train moving between the same location multiple times, SunBelt only stopped at the location a single time.

The out of sequence train event information played particular havoc on local trains as these trains had many fewer reported train events than road trains, and therefore, much less information available to try to discern actual train operations.[10] SunBelt undertook a separate analysis of car event information for local trains in an attempt to determine how these particular trains operated, including attempting to identify were local trains stopped along their routes to set-out and pick-up railcars.[11] SunBelt began by separating local trains into "turn" trains, or trains that originated and terminated at the same location, and "straight-a-way" trains, or trains that originated at one station and terminated at a different station.

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[8] Specifically, SunBelt relied upon NS produced file "Schedule.xls," which shows the scheduled operating stations for NS coal, general merchandise, intermodal and unit bulk trains, and file "Local Jobs.xls," which shows origin and destination points for local trains.

[9] In this instance "dwell locations" refer to locations along the route where the SBRR may switch, set-out or pick-up cars. It does not include the time to change crews, service locomotives, inspect trains, etc., which are already accounted for in the simulation modeling.

[10] The train movement data shown in Attachment Nos. 3 and 4 to this Exhibit III-C-1 provide an example. Attachment No. 3 contains 189 train event records while Attachment No. 4 contains 102 train event records. In contrast, most local trains would only report 9 or 10 train events.

[11] Exhibit III-A-2 describes the many issues SunBelt had with the NS car event data, and the limitations these issues had on SunBelt's car event analyses.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

For turn trains, SunBelt manually inspected the data extracted from the car event data to identify the location a train completed its outbound journey and turned before returning to its origin station. For straight-a-way trains, SunBelt manually inspected the stops along the route indicated by the car event data to identify the stops to include in the SARR simulation. Manual inspections were required in both instances since the car event data, like the train event data, contained many redundant entries for the same stations that made a purely programming solution impractical.[12]

3. Missing and Truncated Event Data

SunBelt experienced significant difficulties in identifying the proper routing for many of these NS trains due to missing or truncated train event data. While not steadfastly uniform by any means, NS trains followed certain patterns and schedules. An example of this is shown by reviewing the train records for a particular train symbol. NS data provided in discovery indicated that TRN symbol 130 is a daily general merchandise train operating between New Orleans, LA and Chattanooga, TN. The NS train event data generally shows this pattern to hold true, but there were 16 times throughout 2010-2011 when the data for this movement was either truncated, e.g., the train events only show the train moving part of the way to between New Orleans and Chattanooga, or the data was missing, e.g, no train event data for a known train. Once again, this was not an uncommon occurrence with the NS train event data. NS event data would show trains originating or terminating half-way along the route of movement based on the movement of comparable trains.

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[12] *See* e-workpaper "Sunbelt 2011 Peak Period Local Train Summary.xlsx."

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SunBelt was required to make certain allowances for its inability to definitively identify each train's origin and destination (and indentify arrival and departure times due to the arrival/departure issues discussed above). One allowance was made in developing the peak period unit coal trains due to an inability to link unit trains at their destinations. In prior SAC cases, parties linked the loaded and empty unit coal trains at the origin mines and destination plants served directly by the SARR. In this way, when modeling the SARR system, a loaded coal train will not leave a mine served by the SARR before the preceding empty train arrives at the mine. The extreme limitations and flaws with the NS train movement data in this instance did not allow SunBelt to link the trains in this way. Instead, SunBelt looked at the number of peak period loaded and empty coal trains, and preformed a reconciliation analysis of the loaded and empty trains. It then added "balancing trains" to equalize the number of loaded and empty trains moving during the peak period. . These balancing trains were in addition to the trains SunBelt added to account for growth in future traffic, and were added by SunBelt to account for the estimated number of trains moving over the system in the peak period.

D. TRAIN STATISTICS

The NS train event data reports the following four (4) operating statistics about each train: 1) Number of loaded railcars on the train; 2) Number of empty railcars on the train; 3) Train tons; and 4) Train length. SunBelt incurred two (2) major issues when trying to utilize this data. First, the train statistical information was not consistently reported or not reported at all on some trains. Second, much of the data that was reported was clearly erroneous.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

1. Inconsistent or No Train Statistics

NS train event data did not consistently show train statistics in its train movement records, but instead only showed train statistics a limited number of times for each train movement. This is clearly shown in Attachment Nos. 3 and 4 to this Exhibit III-C-1, which show train statistics reported sporadically for two different train movements. Analysis of all of the NS train event records shows that train statistics were not recorded in approximately 94.3 percent of the NS provided train event records.[13]

Even more troublesome was the number of trains that reported "no" statistics. This tended to occur mostly on local trains, but examples could be found in all the NS train types. SunBelt found that 20.4 percent of the trains, as identified by the train symbol, train date and section number included in the train event data, had no statistics reported with the train data.

2. Erroneous Train Statistics

As indicated above, the NS train event data included only a limited set of train statistics, including total train tons and total train length.[14] SunBelt initially intended to rely upon these statistics for identifying its peak operating period and for developing the characteristics for the trains included in its SARR simulation. However, it eventually realized that the statistics as reported in the train event data were so erroneous as to make the original analysis unusable.

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[13] In other words, if a specific train, identified by its train symbol, train date and section number, had 100 train event records associated with its movements, on average only a little over 5 of those 100 records contained information on the number of loaded and empty railcars, train tons and train length.

[14] The NS document provided with the NS train event data did not indicate whether the train tons and train length included in the train event data reflected total tons and length or trailing tons and length. However, based on observations of the data which showed no loaded or empty railcars, but included tons and train length consistent with average locomotive dimensions, SunBelt assumed the statistics reflected total train statistics and not trailing statistics.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

The first indication of the extremely flawed nature of the train statistical data came in using the train statistics to identify the SARR's peak operating period. As has been the norm in prior SAC cases, SunBelt applied its forecasted growth in SARR traffic to Base Year train movements to identify the peak operating week in the peak operating year. SunBelt began by dividing its traffic between coal movements and non-coal movements. Since coal movements on modern railroads move almost uniformly in unit train service, SunBelt developed its future number of coal trains by applying the forecasted growth rate in coal by identifiable destination to the current number of trains operating to those destinations.[15] In simple terms, SunBelt used the forecasted growth rates to determine the number of complete coal trains that would be needed in the future. This approach is consistent with real world railroad operations which move coal in relatively uniform unit train sizes to destinations.

SunBelt used a different methodology (which was used in prior SAC cases) for non-coal traffic. It is generally accepted that railroads will grow the size of existing trains before adding a new train to their traffic mix. Running longer trains where practicable leads to greater overall productivity by maximizing crew production and minimizing traffic congestion. In order to increase the SARR's non-coal trains to their maximum efficient sizes, SunBelt needed to identify the largest trains currently operated by NS based upon operating train symbol. SunBelt therefore looked at NS' train movement data to identify the largest trains currently operated by NS by train type and symbol. SunBelt then planned to increase the size of the existing trains before adding additional trains to its network to account for future growth in SBRR traffic.

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[15] As indicated above, SunBelt could not always accurately identify a coal trains' origin and destination. In those instances where a destination could not be accurately identified, SunBelt applied an average SBRR coal growth rate.

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SunBelt began this process by identifying the largest train operated by NS by train ("TRN") symbol. It soon became apparent though, that many of the train sizes included in the NS train event data were erroneous. Table 1 below shows the 10 largest trains by train length and train symbol included in the Base Year train data.

Exhibit III-C-1
Table 1
NS Train Event Data Maximum Train Lengths

	Train Symbol	Train Type	Maximum Length In Train Event Data (Feet)
	(1)	(2)	(3)
1.	U87	Coal - Shuttle	91,010
2.	A40	Local - Alabama Division	88,888
3.	A60	Local - Alabama Division	88,888
4.	61G	Unit Bulk	88,888
5.	304	General Merchandise	81,863
6.	811	Coal - Empty	81,233
7.	83E	Coal - Loaded	80,183
8.	61G	Unit Bulk	77,777
9.	071	Haulage	77,777

Source: e-workpaper "Max Train Size.xls."

As shown in Table 1 above, NS train event data indicated some trains reached over 90,000 feet in length or 17 miles.[16]

This clearly erroneous data required SunBelt to use car event data to build-up the size of NS trains operating over the SBRR. After importing these revised car event statistics into its base year train list, SunBelt then applied its growth rates to what it believed to be corrected train lengths to develop the SARR's peak year train count and indentified its peak operating week.[17]

[16] The above list is not exhaustive and shows only the maximum by train symbol/type.
[17] *See* "Peak Weak Indentification.xlsx."

PROBLEMS WITH NS PROVIDED TRAIN EVENT DATA

SunBelt next developed the train statistics for the individual trains that were to be modeled in the SARR simulation. The Rail Traffic Controller ("RTC") simulation software used to model the SARR requires the input of each train's trailing tons and length. This required SunBelt to develop trailing train statistics because, as indicated above, NS' train movement data included only total train statistics. SunBelt developed trailing length and tons consistent with the approach used in prior SAC cases by multiplying the aggregate number of railcars as reported in the car event data by average car lengths, by multiplying the number of loaded railcars by average gross weights by train type and by multiplying the number of empty railcars by average tare weights by train type. The resultant train statistics were then entered into the SARR RTC simulation model.

Highly Confidential Information

Redacted

TAB 2

SBRR RTC MODELING PROCEDURES AND RESULTS

The SunBelt Stand-Alone Railroad ("SBRR") utilized the Rail Traffic Controller ("RTC") model[1] to optimize the SBRR's system track configuration and provide the basis for many of the SBRR's annual operating metrics. The RTC model has been relied upon by the STB in numerous prior maximum rate reasonableness cases[2] to evaluate the feasibility of the SARR's operating plan and to demonstrate the maximization of the SARR's infrastructure.

The process followed to develop the needed metrics for SBRR's rail operations based on the RTC model simulation is discussed in the remainder of this Exhibit under the following topical headings:

A. Development of The SBRR System

B. Operating Inputs Used in The RTC Model

C. Development of The Peak Train List

A. DEVELOPMENT OF THE SBRR SYSTEM

The SBRR system is made up of 580.24 route miles located in Alabama, Mississippi and Louisiana. The track, elevation and speed inputs were derived from NS track charts and time-tables. This system is made up of two (2) segments and thirteen (13) yards.

B. OPERATING INPUTS USED IN THE RTC MODEL

The following elements of the SBRR's operating plan were developed by Mr. McDonald and input into the RTC Model by Messrs. Fapp and Humphrey for purposes of simulating the SBRR's peak-period operations and developing train transit times:

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[1] Version 64K.

[2] *See*, e.g., *AEPCO 2011* at 28, *WFA/Basin* at 16, *PSCo/Xcel* at 613 and *Otter Tail* at 24.

SBRR RTC MODELING PROCEDURES AND RESULTS

1. Road Locomotives
2. Train size
3. Maximum train speeds
4. Dwell times
5. Time required to interchange trains with other railroads
6. Crew-change locations/times
7. Time for a train to reverse direction
8. Track inspections and maintenance windows
9. Time for random outages

Each of these elements is discussed below.

1. Road Locomotives

The RTC simulation demonstrated that most road trains can operate over the SBRR system with two ES44AC locomotives in a 1/1 DP configuration, except some heavy trains needing additional power at certain locations. The additional locomotives were generally placed on the head-end of the train, usually at crew-change locations, during crew-change time.[3]

The SBRR will operate its local trains with a single GP38 locomotive where possible. Where this is not possible due to local train sizes or topography, the SBRR adds a second GP38 locomotive or instead uses ES44AC locomotives. In addition, SBRR work trains will utilize GP38 locomotives. Finally, the SBRR will use SW1500 in its yards to perform its switching operations.

The SBRR locomotive requirements, which were developed from the RTC simulation, are shown in Table 1 below.

[3] In some cases, additional locomotives were added to the rear of the train to equalize power and minimize train slack.

SBRR RTC MODELING PROCEDURES AND RESULTS

Exhibit III-C-2
Table 1
SBRR Locomotive Requirements
(First Year of Operations)

Unit Type	Number of Units
(1)	(2)
1. ES44AC	26
2. GP38	16
3. SW1500	4
4. Total Units	46

Source: e-workpaper "SBRR Operating Statistics.xls."

2. Train Size

The peak period trains forecast for the RTC simulation are based on corresponding actual 2010-2011 trains. The maximum train size is equal to the largest trains, by train type and symbol, currently operated by NS. All growth trains are limited to the same size and weight of actual 2010-2011 trains, and no growth train has more than four (4) locomotives.

3. Maximum Train Speeds

The maximum permissible train speeds input into the RTC model are 60 mph (50 mph for loaded coal) on the SBRR's main lines. These maximum speeds are consistent with NS's real-world practice on the lines being replicated by the SBRR.

Maximum train speeds are reduced below those specified above where a speed restriction is required by NS's operating timetables for the divisions and subdivisions in question. These restrictions exist for safety reasons (such as to maintain a safe braking distance), to reduce underbalance in curve super elevation per FRA track safety regulations and reduce track/curve wear, and to avoid high-speed gage separation on curves exceeding 3 degrees. In addition, trains do not reach maximum authorized speed in some areas due to grades and curves. All of these

restrictions and limitations have been incorporated into the RTC model for application to the SBRR's peak-period operations.

4. Dwell Times

Dwell times have been allotted for trains at the SBRR's yards based on the kinds of activities being performed. These activities include 1,000/1,500-mile car inspections and associated bad-order car switching, locomotive fueling and 92-day inspections, and crew changes.

Mr. McDonald has allotted a total of five (5) hours of dwell time at the Birmingham Yard for through coal trains requiring an inspection. This includes time for the inspection itself (three hours) and removal of any bad order cars from the train and addition of spare or repaired cars (one hour).

Locomotives requiring FRA-mandated 92-day inspections are removed from the train upon arrival and replaced with fresh locomotives when the inspection and bad-order switching processes are completed. If locomotives that are not removed for a 92-day inspection require fueling, it is performed while the car inspection is taking place and the train is "blue-flagged." Another hour of dwell time has been allotted for these procedures, as well as for train staging time and contingencies.

Mr. McDonald has allotted three (3) hours of dwell time at the SBRR's Birmingham Yard for non-coal trains requiring a 1,000-mile inspection. In general, these trains have fewer cars than the SBRR's coal trains, and inspections using the procedures specified by Mr. McDonald can be accomplished in two (2) hours. An additional hour is allotted for bad-order switching and for removing and replacing locomotives requiring a 92-day inspection. A total of three (3) hours of dwell time at a yard is appropriate for intermodal and general freight trains.

SBRR RTC MODELING PROCEDURES AND RESULTS

Since the RTC model simulation is a snapshot of the SBRR's operations over a seven (7) day simulation period, there is no way to tell in advance which road locomotives on which trains require a 92-day inspection or fueling upon arrival at one of the SBRR's yards during that period. Based on Mr. McDonald's experience, it is likely that trains received in interchange from NS or another railroad will have locomotives with full fuel tanks and that do not require a 92-day inspection while on the SBRR. However, to be conservative, Mr. McDonald has assumed that the locomotives on some trains will need fueling and or a 92-day inspection at the Birmingham Yard, as well as a 1,000-mile or 1,500-mile car inspection.

5. Time Required to Interchange Trains With Other Railroads

As described in Section III-B, the SBRR interchanges complete trains, including locomotives, with six (6) Class I railroads (BNSF, CN, CSXT, KCS, NS and UP) as well as five (5) regional or short-line railroads – ABS, MNBR, MSF, NOPB and AGR.[4]

Mr. McDonald has allotted 30 minutes for the interchange of trains at each of these points. All that is required for the interchange of run-through trains is a change of crews, a brake set/release and a roll-by inspection, which can easily be accomplished within 30 minutes. The same 30 minutes of SARR interchange time were accepted by the Board in *WFA/Basin II*.[5]

A train received in interchange may have more locomotives than the SBRR needs to move the train over its system, or may not have the locomotives arranged in a DP configuration. The inbound SBRR road crew removes any extra locomotives and leaves them on the setout track at the interchange point during the time allotted for the interchange, and the outbound

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[4] The SBRR does not interchange traffic with all of these railroads during its peak period modeled in the RTC model.

[5] *See WFA/Basin II* at 16.

SBRR RTC MODELING PROCEDURES AND RESULTS

SBRR crew rearranges locomotives into a DP configuration, if necessary, during the interchange time.[6]

6. Crew Change Locations/Times

At SBRR crew change points where the change of crews is the only function performed, Mr. McDonald has allotted 15 minutes for this function. Again, this is consistent with the time allotted for SARR crew changes in *WFA/Basin*.[7]

The RTC simulation confirms that the distance for each crew assignment, as well as the allotted time at other points served by turn crews, can be covered by a single tour of duty including an allowance of one hour for crew preparation/taxi time. A few crews expire under the Hours of Service law and need to be taxied to their next terminal, while some trains are able to skip a crew change point and the crew can run through to the next crew change point. Since the SBRR is a new, start-up, non-unionized operation, its crew districts can be, and have been, designed for maximum efficiency. The SBRR crew districts are summarized in Table 2 below.

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[6] The Class I railroads are converting to DP at a rapid pace; for example, Union Pacific reported at a recent RTC Model users' conference that 70 to 75 percent of its road trains now have a DP locomotive configuration. With the peak RTC simulation period ten years hence, it is reasonable to assume that the SBRR will have in place run-through agreements that specify trains are to be received with DP power and that foreign-road locomotives will be equipped for DP operation.

[7] See *WFA/Basin* Opening Evidence of Complainants (Public Version) at page III-C-30.

SBRR RTC MODELING PROCEDURES AND RESULTS

Exhibit III-C-2
Table 2
SBRR Crew District Assignments

	Assignment Location	Away Locations	Turn Location
	(1)	(2)	(3)
1.	Birmingham, AL	Selma, AL McIntosh, AL Marion Jct. AL Boligee, AL Carson, AL Meridian, MS Jackson, AL	Kimbrell, AL Wilton, AL Mercedes, AL
2.	Selma, AL	McIntosh, AL	
3.	Meridian, MS	Wilton, AL	Richburg, MS
4.	New Orleans, LA	Meridian, MS	

Source: e-workpaper "SBRR Crew Assignments.docx."

7. Time for a Train to Reverse Direction

The SBRR's track configuration is such that certain of the SBRR's trains must reverse direction. This occurs exclusively with local "turn trains" that reverse direction at the terminus of their outbound movement. The reversal of direction at these locations is facilitated by the SBRR's use of DP locomotives on all trains.

Mr. McDonald has allotted 45 minutes of dwell time to reverse direction for trains that do not change crews at the reverse-direction point. This accounts for any switching occurring at the turn location and the time needed for the crew to walk to the other end of the train and board the locomotive on that end. No additional time is allotted for reversing direction if the procedure occurs at a location where the train is interchanged with another railroad or otherwise undergoes a crew change. At these locations, the outbound SBRR crew boards the locomotives at the opposite end of the train from the locomotive where the inbound crew leaves the train. No extra

time is needed beyond the normal 30 minutes allotted for interchange or 15 minutes allotted for crew changes at non-interchange locations.

8. Track Inspections and Maintenance Windows

FRA rules require twice-weekly inspections for Class 4 track, which is the classification for the SBRR's main tracks. As described in Part III-D (which describes the SBRR's maintenance-of-way plan), the SBRR's main and branch lines are inspected twice a week by the railroad's Track Inspectors using hi-rail vehicles (SUV-type vehicles equipped with retractable flanged wheels so they can operate either on highways or on railroad tracks). These inspections have to be performed during the peak traffic (RTC simulation) period. However, they can be performed between train movements and during periods of heavy traffic or the hi-rail vehicle can follow a train on the same block (with the dispatcher's approval). Accordingly, there is no need to allot separate time for FRA-prescribed track inspection in the RTC Model.

Consistent with the STB's decision in *AEPCO 2011*, Messrs. Fapp and Humphrey have included delay times in the RTC simulation to account for maintenance being performed on the SBRR's line. Specifically, they identified the times that NS trains were delayed due to maintenance activity based on train delay time data provided in discovery by NS.[8] This includes delays due to bridge gangs, maintenance of way gangs and rail gangs.

9. Time for Random Outages

Random events that affect track, signals and equipment are a part of everyday railroading. It is unrealistic to expect that no such events would occur during the SBRR's peak

[8] *See* e-workpaper "Delay_2009 (Sunbelt).xlsx."

traffic period used for the RTC simulation, or that such events would not affect train operations during that period. Accordingly, time for random outages has been input into the RTC Model.

Track capacity is also impacted by program maintenance performed by the SARR. The STB indicated in its *AEPCO 2011* decision that while parties in prior SAC proceedings had not included track delays caused by program maintenance in their SARR simulations, such maintenance was common in the "real world" and therefore should be reflected in a SARR's hypothetical world.[9]

It is impossible to determine exactly what events would impact train operations during the July 30, 2020 through July 29, 2021 Peak Year, or when they will occur. However, NS did provide data in discovery on events of an unexpected or "random" nature that affected train operations on the lines being replicated by the SBRR in 2010 and 2011, including train-related, track-related and signal-related events. It also identified delays caused by maintenance of way, and bridge gangs.[10] Mr. McDonald utilized this data to identify the outages and delays that occurred on NS track replicated by the SBRR during the peak period's comparable time during the Base Year. He then provided them to Messrs. Fapp and Humphrey for input into the RTC Model during the 10-day simulation period.

Mr. McDonald selected the kinds of outages that he deemed most likely to occur including operational outages, such as a broken knuckle or drawbar, a train going into emergency braking mode, or a broken rail. Mr. McDonald excluded, however, those outages experienced by NS that would not be incurred by the SBRR due to differences in the two railroads' operations. For example, Mr. McDonald excluded delays caused by Amtrak operating on the SBRR's line,

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[9] *See AEPCO 2011* at 28.
[10] *See* e-workpaper "Delay_2009 (Sunbelt).xlsx."

since Amtrak would not be a SBRR tenant railroad. Similarly, Mr. McDonald also excluded outages caused by NS' traditional signaling system as the SBRR would operate from the beginning with a purpose built PTC system in place of traditional signals. Additionally, SBRR trains would not be stranded and block track as all through trains operate with at least two (2) locomotives and in the event of the failure of one locomotive would move under the remaining operational power to the next yard, where the inoperative locomotive would be replaced.

Consistent with the STB's decision in *AEPCO 2011*, Mr. McDonald also identified program maintenance work performed by NS that would cause train delays. This includes delays caused by maintenance-of-way gangs, bridge gangs and rail gangs. These delays are in addition to the random maintenance outages caused by such things as broken rails and power switch failures.

Mr. McDonald also assumed an average duration for each outage indicated in NS train delay data would occur in the Peak Year operations. In other words, if NS experienced a one hour delay in its 2010-2011 operation at a particular location, then the SBRR would experience a one hour delay in 2020-2021 at the same location. Mr. McDonald then instructed Messrs. Fapp and Humphrey to include the outages on the SBRR's lines (including the date and time for each outage) at the same location where NS experienced the outage.[11]

The end result of the analysis was to include 25 operational and maintenance outages as inputs to the RTC Model. The 25 total outages included in the RTC simulation are shown, by date and time, location and type in SunBelt's workpapers.[12]

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[11] The NS delay data provided in discovery indicated the date, location and duration of the delays, but not the time of day the delay occurred. Messrs. Fapp and Humphrey assigned a delay time using a random number generator to develop random delay times.

[12] *See* e-workpaper "Delay_2009 (Sunbelt).xlsx."

SBRR RTC MODELING PROCEDURES AND RESULTS

C. DEVELOPMENT OF THE PEAK TRAIN LIST

Once the SBRR network was developed and tested in the RTC model and the operating inputs were identified, the next step in the process was to identify the peak period trains that would be included for evaluation in the RTC model.

The modeling period included a two-day warm-up, the peak week and a one-day cool down.[13] Messrs. Fapp and Humphrey were able to use a shorter warm-up period than in prior cases because the peak period train list includes all trains moving from the beginning of the simulation.

SARR's presented in prior maximum reasonable rate cases have been primarily coal railroads that transport unit coal train traffic between mines and generating stations. In those cases, the SARR simulation usually began with either all the loaded coal trains beginning at the mines and moving loaded to the generating stations, or all the empty coal trains beginning at the generating stations and cycling back to the mines. In either case, additional warm-up time was needed to allow the loaded and empty trains to make a complete cycle to reflect the congestion of loaded and empty coal trains meeting along their respective routes.

In this case, SunBelt did not begin with only loaded or empty coal trains, but instead began by moving all trains, including loaded and empty unit traffic simultaneously. SunBelt was able to do this by identifying both loaded and empty unit trains as part of its peak period process. This meant loaded and empty unit trains were meeting along their routes from the beginning of

[13] The trains included in the RTC train list consist of trains originated within a 10-day period. Because many trains take more than 24 hours to reach their destination, the model actually simulated an 11-day period to allow trains dispatched on Day 10, the cool down day, to reach their destination.

the simulation. In this way, SunBelt could shorten the warm-up period since much of the operational congestion was in place from the start of the simulation.

The peak period was based on the peak volume of trains required to move traffic selected for inclusion in the SBRR's traffic group. Statistics for the peak period trains were then developed from NS car event data provided in discovery for the January 2010 to September 2011 time period. In particular, Messrs. Fapp and Humphrey matched the SBRR's revenue carloads to the NS trains that moved the relevant cars (including loaded and empty cars). The trains that the SBRR will transport during the peak period and corresponding study period for the RTC simulation are shown in SunBelt's workpapers.

Messrs. Fapp and Humphrey then determined the number of SBRR trains that would transport the general freight, coal and intermodal traffic included in the SBRR traffic group in the period of July 30, 2020 through July 29, 2021, which is the peak volume year during the DCF period. They did this by applying the traffic percentage increase between the Base Year and the Peak Year for each movement to the car/train movement data provided by NS in discovery. The "growth" trains thus developed were added to the trains that moved during the peak week on a random basis. The 10-day study period used in the RTC simulation was May 19, 2021 through May 28, 2021.[14] A total of 523 trains were analyzed during this period, of which 379 operated in the peak week.[15]

[14] The 10-day period includes a 2-day warm-up period based on preliminary modeling that indicated this would be the maximum time any train would spend on the SBRR.

[15] The list of peak period trains is included in SunBelt's Opening workpapers at "Coal RTC Train List.xlsx," and "Non-Coal RTC Train List.xlsx."

PART III-D

TAB 1

SBRR OPERATING PERSONNEL

The SBRR has a traffic group that moves primarily in trainload quantities. Consistent with the stand-alone concept of identifying the least-cost, most-efficient, feasible hypothetical alternative to the incumbent, the SBRR is a non-union railroad that is built from the ground-up to handle a defined traffic group.[1]

SunBelt's experts have developed a staffing plan and associated personnel for the SBRR to handle its projected peak traffic volume safely and efficiently by taking full advantage of modern technology. This staffing plan also permits the railroad to maintain its facilities in good condition while minimizing cost.

A. STAFFING REQUIREMENTS

The SBRR's operating personnel include train crew, line supervisory and field employees in Administration, Transportation, Engineering/Maintenance-of-Way and Mechanical departments. The Operations staff (headquartered at Birmingham, AL) report directly to the Vice President – Operations or respective Assistant Vice President ("AVP"). The SBRR's operating personnel requirements are discussed below.

1. Train/Switch Crew Personnel

The SBRR requires a total of 140 Train & Engine ("T&E") crew members to transport its Base Year trains, increased to reflect Base Period traffic levels. This count, which includes switch crews located at the SBRR's yards, is based on the number of trains that would move over the various parts of the SBRR system during the Base Year; the crew assignments developed by Mr. McDonald (as described in Part III-C-1), and the switch assignments at the SBRR's yards. The RTC Model simulation performed by Messers. Fapp and Humphrey was used to confirm

[1] The Board has accepted the concept of a non-unionized SARR. *See TMPA* at 687; *PSCo/Xcel* at 651.

that train crews operating in these crew districts generally could complete each tour of duty within twelve (12) hours and otherwise comply with the federal Hours of Service law, as amended.[2]

Consistent with Board precedent, T&E crews were developed using the total number of crew starts as determined by the actual train counts over an entire year.[3] In this instance, crews were determined for all trains moving in the Base Year. The total crew starts were adjusted upward to reflect Base Period traffic levels and to reflect the 0.3 percent re-crewing requirements indicated by the RTC simulation showing the number of crews whose on-duty time expired under the Hours of Service law. The adjusted crew count was then used to determine the total number of T&E crews required using the standard formula employed by the Board to determine how many crews are required to cover the number of crew starts assuming that each crew member is available 270 days a year.[4]

2. Non-Train Operating Personnel

The SBRR's staffing requirements for operating personnel other than train and switch crews and maintenance-of-way ("MOW") personnel are summarized in Table 1 below. MOW personnel are discussed separately in Part III-D-5 and Exhibit III-D-3.

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[2] *See* e-workpaper "Sunbelt TRAIN file analysis.xlsx".
[3] *See PSCo/Xcel* at 645.
[4] This number is not affected by the hours-of-service provisions of RSIA.

SBRR OPERATING PERSONNEL

Exhibit III-D-1
Table 1
SBRR Non-Train Operating Personnel

Operations Department Position (1)	No. of Employees (2)
a. Vice President - Operations	1
i. Assistant Vice President – Administration & Budget	1
(1) Manager – Operations, Planning & Joint Facilities	1
(2) Manager – Safety, Rules & Training	1
Assistant Manager – Safety, Rules & Training	1
(3) Customer Service Agent & Car Distributor (24/7)	5
ii. Manager – Field Operations	4
Assistant Manager – Field Operations	6
iii. Manager – Locomotive Operations	2
iv. Chief Dispatcher	1
Dispatchers (2 desks 24/7)	9
Crew Callers (1 desk 24/7)	5
v. Assistant Vice President - Engineering	1
vi. Assistant Vice President – Mechanical	1
(1) Manager – Locomotive Maintenance	1
(2) Manager – Testing & Environmental	1
(3) Manager – Equipment Maintenance	1
(a) Car Inspectors	19
Total Non-Train Operating Personnel	61

Source: e-workpaper "SBRR Operating Expense.xls"

A description of each operating position is provided below.[5]

a. Vice President - Operations

This position reports to the President-CEO, is a member of the SBRR Board of Directors, and is responsible for all operating functions. The AVPs Administration, Engineering and Mechanical, plus the Chief Dispatcher and Managers Field Operations and Locomotive Operations all report to the Vice President – Operations.

i. Assistant Vice President – Administration & Budget -- The AVP – Administration & Budget is responsible for all Operations Department administrative functions

[5] Marketing personnel are considered G&A personnel (*see* Exhibit III-D-2) as per *AEP Texas* at 51, 54.

SBRR OPERATING PERSONNEL

on the SBRR. The Manager – Operations, Planning & Joint Facilities, the Manager – Safety, Rules & Training and Customer Service Agents/Car Distributors report to the AVP – Administration & Budget.

(1) Manager – Operations, Planning & Joint Facilities -- The Manager – Operations, Planning & Joint Facilities is responsible for preparing and monitoring joint facilities and other contracts, and the design of current and projected movement of traffic on the SBRR.

(2) Manager – Safety, Rules & Training -- The Manager – Safety, Rules & Training with the help of the Assistant Manager – Safety, Rules & Training, monitors safety and conduct rules and training classes for the SBRR's transportation, maintenance, and mechanical operating personnel. They are also responsible for developing and maintaining the operating timetable, rules, and related instructions and for interfacing with the FRA and other government agencies in matters pertaining to rules and operating practices.

(3) Customer Service Agent/Car Distributor -- The SBRR has one Customer Service Agent/Car Distributor desk manned 24/7, thus requiring five (5) employees to fill the position. This position is responsible for monitoring train locations, maintaining contact with connecting carriers and destination facilities, answering customers' questions concerning the location of specific trains and cars, and responding to customers' requests for diversion of trains/cars to different origins or destinations. This position is also responsible for interacting with customers and field personnel to ensure equipment needs are met on a real time basis.

ii. Manager – Field Operations -- The SBRR also has four (4) Managers – Field Operations located at Birmingham, AL, Meridian, MS, New Orleans, LA and Selma, AL.

SBRR OPERATING PERSONNEL

All Managers report directly to the Vice President – Operations. These positions are equivalent to a Trainmaster on a Class I railroad. The Managers – Field Operations are responsible for train operations in their respective territories and for supervising train crews. They also perform FRA-mandated and other appropriate testing, and respond to and investigate accidents and day-to-day operating problems. The four (4) Managers – Field Operations are supported by six (6) Assistant Managers – Field Operations, with two (2) positions assigned to the Birmingham Yard, and one at each at Meridian, MS, New Orleans, LA, Selma, AL and McIntosh, AL.

iii. Managers – Locomotive Operations -- The SBRR has two (2) Managers – Locomotive Operations ("MLO"), who are responsible for the safe and efficient handling of locomotives and trains by the SBRR's engineers. The MLOs also report directly to the Vice President – Operations and are headquartered at Birmingham, AL and Meridian, MS. Their duties are similar to those of a Road Foreman of Engines or Traveling Engineer on a Class I railroad. They are FRA-certified locomotive engineers and qualified on their respective territories. They perform FRA-mandated training and observation of engineers in train handling, efficiency testing, and assist the Managers – Field Operations as needed.

iv. Chief Dispatcher -- The SBRR has one (1) Chief Dispatcher. The Chief Dispatcher is responsible for managing the dispatching staff and is ultimately responsible for dispatching trains, track inspection vehicles and work equipment on the SBRR. In addition, this position is responsible for all locomotive assignments, coordinating and maintaining records of run-thru operations, and in concert with the Mechanical Department, handling the timely dispatch of locomotive power to required inspections. The dispatching staff is made up of nine (9) dispatchers (two (2) desks manned 24/7) and five (5) crew callers (one desk manned 24/7).

SBRR OPERATING PERSONNEL

The Dispatchers are responsible for dispatching trains, track inspection vehicles and work equipment.

The SBRR utilizes an automated crew-management system designed to handle virtually all basic crew interactions via automated calling and response systems (including identifying the proper crews for the proper jobs and automatically routing calls from crews to the appropriate dispatcher). The Crew Callers augment this system. These positions are all based at the Birmingham, AL headquarters, working as directed by the Dispatch Center.

v. Assistant Vice President – Engineering -- The AVP – Engineering is responsible for all engineering matters on the SBRR. This primarily involves MOW since the SBRR does not need to construct any new facilities during the 10-year DCF period. In addition to supervising the MOW function and personnel (described in detail in Exhibit III-D-3), the AVP – Engineering is responsible for the annual MOW capital and operating budgets, and for interfacing with the contractors involved in program and other MOW work. Other engineering and MOW personnel are addressed in Exhibit III-D-3.

vi. Assistant Vice President – Mechanical -- This position supervises the SBRR's mechanical function, which largely involves overseeing the acquisition and maintenance of the SBRR's equipment (including rolling stock) as well as administration of the AAR Interchange Rules with respect to the SBRR's use of other railroads' locomotives and equipment on trains that operate in interline service. The AVP – Mechanical is also responsible for interfacing with the SBRR's locomotive and car maintenance contractors. Reporting to the AVP – Mechanical are the Manager – Locomotive Maintenance, the Manager – Testing & Environmental, and the Manager – Equipment Maintenance.

SBRR OPERATING PERSONNEL

(1) Manager – Locomotive Maintenance -- The SBRR has one (1) Manager – Locomotive Maintenance. This position is responsible for maintenance of the locomotive fleet and ensuring the correct complement of power and locomotive consists are available as requested by the Dispatch Center.

(2) Manager – Testing & Environmental -- The SBRR has one (1) Manager – Testing & Environmental who reports to the AVP – Mechanical. This individual is responsible for testing of materials and environmental compliance, including investigation of any problems involving cars containing hazardous commodities while on the SBRR (and related federal reporting requirements).

(3) Manager – Equipment Maintenance -- There is one (1) Manager – Equipment Maintenance that reports to the AVP – Mechanical. This position is responsible for equipment repairs and for supervision of the Car Inspectors at the SBRR's yards. This individual is also responsible for the day-to-day interface with the SBRR's car maintenance contractors, as well as contract administration.

(a) Car Inspectors -- The SBRR's nineteen (19) Car Inspectors have duties similar to those of Carmen on a Class I railroad. They are located at the SBRR's yards where the railroad performs inspections on originating trains and trains receiving 1,000-mile/1,500-mile car inspections. The number of Car Inspector positions is based on the number of daily trains requiring inspection that move through the SBRR's inspection points during the peak week. Car inspection procedures are described in Part III-C-3.

The Inspectors at Birmingham, where the highest volume of trains are inspected, are comprised of one three-person crew on duty 24/7 assigned a small ATV-type vehicle which can

travel on the roadways between the inspection tracks during the inspection process. This enhances the productivity of the crew, and the SBRR has invested capital for roadways between the inspection tracks to achieve these savings. The inspection vehicle is equipped with tools and parts (such as brake shoes) needed for performing light car repairs.

At Meridian, MS, New Orleans, LA, Selma, AL and McIntosh, AL where only originating trains are inspected, one inspector is assigned one (1) shift per day five (5) days per week.[6] Train crews are responsible for inspecting their trains in the event an inspector is not on duty or unavailable.

B. COMPENSATION

Compensation for the T&E personnel and other non-train operating personnel is derived from NS's 2010 Wage Forms A&B and is established at the same levels as those paid by NS for comparable positions, indexed to 3Q11. The wages for the 140 T&E personnel are based on the average amount paid by NS to its T&E personnel including all constructive allowances paid by NS to its train and enginemen. In 2010, NS paid its engineers and conductors an average of { [redacted] } and { [redacted] }, respectively (indexed to 3Q11 levels and excluding fringes). Based on these amounts, indexed to 3Q11 levels, the SBRR pays its T&E personnel a total of { [redacted] } million (excluding fringes) in the Base Period.

Salaries for non-train operating personnel are also derived from NS's 2010 Wage Forms A&B, indexed to 3Q11, except for the salary of the Vice President – Operations, which is based on compensation paid by P&W to its chief operating officer level personnel. Salaries and total compensation for the SBRR's non-train operating personnel are shown in Table 2 below.

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[6] *See* e-workpaper "Inspection Crews.xlsx" for inspector employee counts at each location.

SBRR OPERATING PERSONNEL

Exhibit III-D-1
Table 2
SBRR Non-Train Operating Personnel Compensation

Position	No. of Employees	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
a. Vice President Operations	1	{[redacted]}	{[redacted]}
i. AVP – Administration & Budget	1	{[redacted]}	{[redacted]}
(1) Manager – Ops Planning & Joint Facilities	1	{[redacted]}	{[redacted]}
(2) Manager – Safety, Rules & Training	1	{[redacted]}	{[redacted]}
Assistant Manager – SR&T	1	{[redacted]}	{[redacted]}
(3) Customer Service Agent/Car Distributor	5	{[redacted]}	{[redacted]}
ii. Manager – Field Operations	4	{[redacted]}	{[redacted]}
Assistant Manager – Field Ops	6	{[redacted]}	{[redacted]}
iii. Managers – Locomotive Operations	2	{[redacted]}	{[redacted]}
iv. Chief Dispatcher	1	{[redacted]}	{[redacted]}
Dispatchers (2 desks 24/7)	9	{[redacted]}	{[redacted]}
Crew Callers (1 desk 24/7)	5	{[redacted]}	{[redacted]}
v. AVP – Engineering	1	{[redacted]}	{[redacted]}
vi. AVP – Mechanical	1	{[redacted]}	{[redacted]}
(1) Manager – Locomotive Maintenance	1	{[redacted]}	{[redacted]}
(2) Manager – Testing & Environmental	1	{[redacted]}	{[redacted]}
(3) Manager – Equipment Maintenance	1	{[redacted]}	{[redacted]}
(a) Car Inspectors	19	{[redacted]}	{[redacted]}
Total Non-Train Operating Personnel	61	xxx	$4,540,675

Source: e-workpaper "SBRR Operating Expense.xls"

Fringe benefits for all SBRR employees are based on 37.5 percent of wages. This number is based on the average ratio of fringe benefits to total wages paid in 2011 to all railroad operating employees as reported by the Association of American Railroads.[7] This method of determining the fringe benefit ratio was approved by the Board in *WFA/Basin* at 66. In addition, it is the same method used by Complainants and accepted by both Defendants and the Board in *AEPCO 2011*.[8]

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[7] *See* e-workpaper "III-D-4 Salaries.pdf."

[8] The Public Version of AEPCO's Opening Evidence shows the derivation of the fringe benefit ratio in that proceeding, see AEPCO's January 25, 2010 Opening Evidence, Public Version, page III-D-25. Review of Defendants Reply evidence shows that they did not object to this fringe benefit ratio. *See* Defendants Reply Evidence dated May 7, 2010, pp. III.D-29 to 30. Moreover the STB accepted this evidence without comment in *AEPCO 2011*.

SBRR OPERATING PERSONNEL

The SBRR also incurs taxi and overnight expenses for train crews. The number of taxi trips required, the cost per trip, the number of overnight stays and the cost per stay were identified for each crew.[9]

Consistent with Board precedent, taxi trips and overnight stays were developed using the actual train counts (and the crews' related taxi and hotel requirements) over the entire Base Year.[10] The requirements for each service type were developed.

The SBRR's unit cost for taxi trips is estimated based on current rates for taxi service at each location. The cost per overnight stay ranges from $35 to $99 and is based on hotel room rates throughout the SBRR.[11]

C. MATERIALS, SUPPLIES AND EQUIPMENT

Materials, supplies and equipment for operating personnel (other than MOW personnel) include office furniture and equipment, office supplies, safety equipment, EOTDs, motor vehicles including railcar inspection vehicles, and tools and supplies. The total annual operating expense for these items equals $675,365 in the Base Period.[12] The transportation materials, supplies and equipment expense includes the cost of twelve (12) Ford Explorers, five (5) 4WD pick-up trucks and one (1) ATV vehicle for the car inspection team.

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[9] *See* e-workpaper SBRR_Overnight Hotel and Taxi Costs.xlsx."
[10] *See WFA/Basin* at 48 and *PSCo/Xcel* at 652.
[11] *See* e-workpaper "SBRR_Overnight Hotel and Taxi costs.xls."
[12] *See* e-workpaper "SBRR Materials and Supplies.xls" and "SBRR Operating Expense.xls."

TAB 2

GENERAL & ADMINISTRATIVE EXPENSE

The General and Administrative ("G&A") expenses for the SBRR include its headquarters (corporate) management and administrative staff, buildings and equipment, and other expenses, including Information Technology ("IT") requirements, training and recruiting expense, and outsourced expenses. These expenses have been developed on the basis of the experience of SunBelt's Witnesses McDonald and Burris. Mr. McDonald in particular has held a number of senior management positions at a Class I railroad. Mr. Burris developed G&A personnel salaries based on salaries paid to comparable NS or (where appropriate) other railroad personnel. SunBelt's IT expert, Joseph Kruzich, developed the SBRR's IT requirements and costs including computer hardware, systems, software, and support personnel as well as out-sourcing needs.

A. STAFFING REQUIREMENTS

The SBRR's personnel have all been designated as operating personnel or as non-operating personnel. The SBRR operating personnel are discussed in Exhibit III-D-1, the maintenance-of-way ("MOW") employees, while considered operating personnel, are discussed separately in Exhibit III-D-3. Employees considered non-operating personnel on a Class I railroad are included in the G&A staff discussed below. The SBRR's G&A staff is consistent with the G&A staffing for the SARRs approved by the Board in recent SAC cases, including *PSCo/Xcel*, *AEP Texas II*, *WFA/Basin* and *AEPCO 2011*.

The G&A staff are based at Birmingham, AL, where the SBRR's corporate headquarters building is located. This staff covers all executive and administrative functions including marketing, legal services, accounting and bookkeeping, budgeting, financial reporting, payroll, information systems, secretarial and clerical services, and supervising contractors in the performance of some out-sourced functions.

GENERAL & ADMINISTRATIVE EXPENSE

The SBRR's G&A staff is summarized in Table 1 below. This table does not include the operating and MOW employees located at the Birmingham headquarters, who are discussed elsewhere in Exhibit III-D-1 and Exhibit III-D-3, respectively.

Exhibit III-D-2
Table 1
SBRR General & Administrative
Personnel Requirements

Position	Personnel
(1)	(2)
1. Outside Directors	2
2. President and CEO	1
Administrative Assistant	1
3. Controller/Treasurer	1
a. Manager – Payrolls	1
Analysts	2
b. Manager – Budgets and Purchasing	1
c. Manager – Claims & Internal Auditing	1
4. Director – Real Estate & Security	1
a. Security Agents	2
b. Manager – Information Technology	1
c. IT Specialists	6
5. Director – Sales & Marketing	1
6. Director – Human Resources	1
7. Total General & Administrative	22

Source: e-workpaper "SBRR Operating Expense.xls."

1. Board of Directors

The SBRR is not a publicly-owned company, so it does not need the kind of large board of directors with numerous outside directors that is typical of such companies. Rather, it has a four-person Board, consisting of the President (who serves as its Chairman), the Vice President – Operations and two (2) outside directors. The outside directors would likely include a representative of the SBRR's customer group and an independent director with no other connection to the SBRR.

GENERAL & ADMINISTRATIVE EXPENSE

2. President and CEO

The President serves as the railroad's CEO and is an attorney by training. He is responsible for the SBRR's external relations (other than marketing of its transportation services). This includes community and government relations including legal and financial matters. Operating issues are the responsibility of Vice President – Operations who reports to the President. The President does not need a large staff to assist him with these functions because the company is not publicly-owned/traded and does not have to compete for business with other railroads or modes of transportation. As such, this position is only supported by an Administrative Assistant.

3. Controller/Treasurer

The SBRR's Controller/Treasurer is responsible for all accounting functions, including direction of all billing, vendor payment processing, payroll, budgeting, and auditing as well as managing the company's cash and investments. This position also manages the receipt of funds from customers and the SBRR's connecting carriers and monitors and supervises debt payment requirements.

The Manager – Payrolls, the Manager – Budgets and Purchasing, and the Manager – Claims & Internal Auditing all report to the Controller/Treasurer.

a. Manager – Payrolls

The Manager – Payrolls is responsible for overseeing all accounts payable, including employee and payroll processing, issuing vendor payments, advising the Controller/Treasurer on cash requirements, and reviewing all contracts with outside suppliers. He is assisted by two (2) Analysts.

GENERAL & ADMINISTRATIVE EXPENSE

b. Manager – Budgets and Purchasing

The Manager – Budgets and Purchasing is responsible for preparation of the annual budget and for the company-wide purchasing function. The SBRR is a new railroad with new track and bridges and new locomotives, cars and other equipment, so equipment and track-material purchases should be limited during the first five years of its existence. Purchases are limited on a daily basis, and the SBRR does not have anything remotely approaching the purchasing demand of a major railroad like NS.

c. Manager – Claims & Internal Auditing

Although the SBRR employs an outside auditing firm, SunBelt's experts have added a Manager – Claims & Internal Auditing to ensure adequate oversight of the company's various financial and accounting functions.[1] This position is also responsible for the administration of claims on a system-wide basis (including supervision of the out-sourced risk and claims management contractor), for government safety reporting and representing the SBRR in industry associations and safety forums.

4. Director – Real Estate & Security

The Director – Real Estate & Security is responsible for sales, acquisitions and easements of real estate on the SBRR. The Manager – Information Technology and the Security Agents report to the Director – Real Estate & Security.

a. Security Agents

The SBRR's security needs can be met with two (2) Security Agents, one assigned to Birmingham, AL and the other assigned to Meridian, MS. The Security Agents may also call in

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[1] *See AEP Texas* at 56-57.

local public police forces, should assistance to handle a particular incident be required. This is common practice for railroads which rely increasingly on local police.

b. Manager – Information Technology

The Manager – Information Technology oversees the IT function of the SBRR and ensures the IT requirements of the various company departments are met. The six (6) IT Specialists report to the Manager – IT. The SBRR's IT systems and associated personnel were developed by SunBelt Witness Kruzich, who has considerable experience with the IT function at Class I and other railroads. The SBRR does not have a main-frame environment, but rather a NT/PC-based system. This means far less IT effort is required than a typical Class I railroad due to the relative simplicity of a NT/PC-based system and the fact that much of the IT requirements will be outsourced to RMI (i.e., Transportation, Revenue, Intermodal and Car Hire functions).

The Manager – Information Technology also oversees the IT department's daily activities, provides senior management with updates to new technology and advises as to the future strategic direction for the department. This includes formulation of the logical and physical computer architecture plans and assessment of the cost and feasibility of all user requests.

The primary function of the IT staff is to trouble-shoot various problems with vendors, coordinate the transportation software applications with the outside vendor (RMI, Oracle, Scat, Alstom) and the business users, and monitor the network infrastructure and critical security systems. There will also be occasions when enhancements will be required to the crew-calling, accounting, human resources and dispatching systems. The SBRR's staff of management and IT specialists will be active participants in this effort.

GENERAL & ADMINISTRATIVE EXPENSE

c. Information Technology Specialists

In addition to the Manager – Information Technology, the SBRR has six (6) IT Specialists. These include: 1) an RMI Technician, responsible for all RMI applications and who serves as a liaison to RMI and other user Departments; 2) a Help Desk Technician who takes calls from the various users and reroutes the call to the appropriate IT personnel for immediate handling. This individual also follows up with the user to ensure the problem has been resolved. This assignment is during regular business hours with an answering machine to take calls during nights and weekends; 3) a Network Engineer who is responsible for network security matters and local area network ("LAN") and wide area network ("WAN") functionality. This position is responsible for planning, designing and managing transmission facilities and cabling and communications devices, and also handling any telecommunications issues that may occur; 4) a Programmer Development Technician who is responsible for maintaining and upgrading the crew calling, accounting, human resources and dispatchers systems. This position helps manage the crew calling, dispatching and accounting systems and is also responsible for a corporate information website; 5) an Exchange 2007 Engineer who is responsible for messaging design and implementation of the Windows 2007 Exchange server environment. This individual will also have responsibility for data management which includes design, configuration and implementation of data base systems, backup data bases for recovery, recovery and system monitoring; and 6) a Security Technician responsible for defining the security model to protect against cyber security vulnerabilities, protecting internal and external railroad data from malicious attack.

GENERAL & ADMINISTRATIVE EXPENSE

5. Director – Sales & Marketing

This position is responsible for the SBRR's marketing functions which include communications with the railroad's customers. The great majority of SBRR's traffic does not originate or terminate on the SBRR, rather it is interchange received or forwarded from or to other carriers in interchange operations. Therefore the SBRR has minimal direct customer contacts, as these are customers of SBRR's connecting carriers.[2] The Director – Sales & Marketing reports to the President.

6. Director – Human Resources

The SBRR's start-up and training needs are met largely by out-sourcing. This means that the primary responsibility of the in-house human resources staff is to interface with the outside contractor and assure that the SBRR has a pool of employees that enable it to engage in ongoing operations.

Human Resources lends itself well to out-sourcing, and plenty of external resources exist that could support a small operation like the SBRR.

B. COMPENSATION

The salaries and benefits for the SBRR's G&A personnel described above are based on comparable and competitive compensation packages presently available in the railroad industry (and in other service industries).

Specifically, annual salaries for the G&A personnel are based on data contained in NS's 2010 Wage Forms A and B, with the following exceptions. The salary for the President is based on the salary, including bonuses, paid by the Providence and Worcester Railroad ("P&W") to its

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[2] The concept of out-sourcing part of a SARR's marketing function with supervision/supplementation by a small in-house marketing staff was accepted by the Board in *WFA/Basin* at 45-46 and *AEP Texas* at 54.

GENERAL & ADMINISTRATIVE EXPENSE

Chairman of the Board and Chief Executive Officer. As discussed in Exhibit III-D-1, the salary for the Vice President – Operations is based on the salary, including bonuses paid by the P&W to its Chief Operating Officer and the salaries paid to the Assistant Vice Presidents are based on those paid by the P&W to its Vice Presidents. The P&W is a publicly traded, regional railroad that operates 516 route miles in five states in the Northeastern United States. The size of the P&W is very similar to the SBRR which operates about 580 route miles in three states in the Southern United States. As shown in Exhibit III-D-1, fringe benefits for all employees are 37.5 percent of wages based on information developed by the AAR. The fringe benefit ratio includes expenses related to health and welfare benefits, railroad retirement, supplemental annuities, unemployment insurance and other programs.

The G&A staff salary requirements are summarized in Table 2 below.

Exhibit III-D-2
Table 2
SBRR General & Administrative Salary Requirements

Position	Personnel	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
1. Outside Directors	2		
2. President and CEO	1	$437,231	$437,231
Administrative Assistant	1	[redacted]	[redacted]
3. Controller/Treasurer	1	[redacted]	[redacted]
a. Manager – Payrolls	1	[redacted]	[redacted]
Analysts	2	[redacted]	[redacted]
b. Manager – Budgets and Purchasing	1	[redacted]	[redacted]
c. Manager – Claims & Internal Auditing	1	[redacted]	[redacted]
4. Director – Real Estate & Security	1	[redacted]	[redacted]
a. Security Agents	2	[redacted]	[redacted]
b. Manger – Information Technology	1	[redacted]	[redacted]
c. IT Specialists	6	[redacted]	[redacted]
5. Director – Sales & Marketing	1	[redacted]	[redacted]
6. Director – Human Resources	1	[redacted]	[redacted]
7. Total General & Administrative	22	xxx	$1,828,957

Source: e-workpaper "SBRR Operating Expense.xls."

GENERAL & ADMINISTRATIVE EXPENSE

C. MATERIALS, SUPPLIES AND EQUIPMENT

Consistent with the stand-alone principles of unlimited resources and barrier-free entry, the ready availability of materials and equipment is assumed.

The SBRR owns or leases various types of vehicles and equipment used by its Operating and G&A staffs. Costs for this equipment have been included in the calculation of the SBRR's annual operating expenses.[3]

Company vehicles are needed at the SBRR's Birmingham, AL headquarters and by field operating personnel. A pool of Ford Explorers (a small SUV with all-wheel drive) is maintained at headquarters for use primarily by the headquarters G&A, Operating and Engineering staffs and Security personnel while traveling to the field on SBRR business. Four (4) Ford Explorers are included as G&A vehicles. These are in addition to the eight (8) Ford Explorers and five (5) Pick-up trucks and one (1) ATV vehicle included in the materials, supplies and equipment expense in the Operations Department.

The SBRR also acquires miscellaneous office equipment and supplies including desks, chairs, copiers, etc. are included in the materials and supplies expenses.[4]

D. OTHER

1. IT Systems

The SBRR does not require a data center facility such as those that Class 1 railroads typically have to house mainframe computer systems and associated peripheral equipment. Since the SBRR IT system design is NT/PC based, this system can be housed in a room approximately 20 feet x 30 feet, with normal office environment heating and air conditioning

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[3] *See* e-workpaper "SBRR Operating Expense.xls" and "SBRR Materials and Supplies.xls."
[4] *See* e-workpaper "SBRR Materials and Supplies.xls."

accommodations. This room would be located in the SBRR headquarters at Birmingham, AL. It should be further noted, that most of SBRR's computer requirements will be outsourced to RMI in Atlanta. The SBRR has an average of 54 train movements per day in the peak week, as well as a limited number of local customers and interchange points. It also handles primarily train-load movements, with multiple-car billing (using the RMI Revenue System to allocate revenues), rather than billing for individual railcars. This reduces the complexity of the computer and communication systems required to support operations and renders unnecessary, the colossally expensive mainframe systems that large carriers such as NS use. Thus, the SBRR does not require a large data facility to house a mainframe computer system and associated peripheral equipment.

The SBRR's computer and IT communications systems have been designed to meet the company's mission-critical technology needs to achieve operating efficiencies, customer satisfaction, optimum staffing,[5] maximum productivity, and safe train operations.

Based on the SBRR operating plan and G&A staff departments, the capital requirements for IT and communications systems equal $1.8 million and the annual annuitized capital costs are $312,762.[6] The annual operating cost for IT and related communications equals $2.5 at 3Q11 price levels.[7] Table 3 below shows the capital and annual operating expenses separately for information technology and related communications systems.

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[5] The SBRR's IT personnel requirements are described above in the discussion of G&A personnel. The IT staff size is largely a function of the systems described in this section.

[6] *See* e-workpaper "SBRR-Capital Budget.xls."

[7] *See* e-workpaper "SBRR Operating Budget.xls."

GENERAL & ADMINISTRATIVE EXPENSE

Exhibit III-D-2
Table 3
Capital And Operating Costs For
SBRR IT And Communications Systems

Item	Capital Cost	Operating Expense
(1)	(2)	(3)
1. Information Technology	$1,758,627	$2,321,668
2. Communications	32,509	130,914
3. Total	$1,791,136	$2,452,582

Source: e-workpaper "SBRR-Capital Budget.xls" and "SBRR-Operating Budget.xls."

These costs are based on the SBRR's highest daily train counts and number of annual carload transactions.

a. Transportation System

The key item in the SBRR information technology architecture is RMI's Transportation Management Services ("TMS") package. TMS is an integrated system for managing day-to-day rail operations that is currently used by several regional railroads, such as Genesee & Wyoming, Inc., the second largest operator of short line and regional railroads in North America. It includes modules for yard and inventory control, waybilling, train operations, switching settlements, demurrage, EDI consists, waybills, bills of lading, blocking instructions, work orders, switch instructions, and many other features. This system is outsourced to RMI using frame relay communications from Birmingham, AL (where the major transaction reporting occurs) to Atlanta, GA, where RMI is located. Field personnel access the RMI system via the Internet. The annual operating expense equals $1,397,037 for the RMI system.[8]

[8] *See* e-workpaper "SBRR-Operating Budget.xls."

GENERAL & ADMINISTRATIVE EXPENSE

b. Crew Management System

A crew management system is needed to efficiently manage the SBRR train crews and equipment. The SBRR will purchase a license from PS Technology for the SCAT Client Server system, and related equipment and software (Oracle Data Base). This system provides the capacity needed to schedule crew requirements involving approximately 140 train/engine/yard employees and four (4) crew-change points over the SBRR system. It also minimizes the need for a large staff of crew callers or other crew management personnel. Total capital costs for the crew management system equal $464,975.[9]

c. Dispatching System

A computerized dispatching system, assisted by two (2) dispatcher positions[10] on a 24/7 basis, monitors the movement of trains and other equipment at all times, and distributes traffic efficiently across the railroad. The SBRR will purchase and implement a PTC system for train control and communications. The IT system requirements of the PTC system are included in the signal and communications investment account.

d. Revenue Accounting

The SBRR needs a revenue system to handle interline settlements for all the trainload transactions and the multiple-car transactions (the smallest revenue block of cars handled by the SBRR in a single transaction is a single car). RMI has a revenue system that meets the SBRR's requirements. In particular, the RMI Revenue Management Services ("RMS") is a full-function revenue management system that has been certified by the AAR for Interline Settlement System ("ISS") processing. This certification allows railroads using ISS/Connect to participate in the

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[9] *See* e-workpaper "SBRR-Capital Budget.xls."
[10] A total of nine (9) dispatchers are required to man these two (2) positions on a 24/7 basis.

ISS. ISS/Connect provides complex rate management, EDI management, freight billing, support for industry reference files, revenue protection, and additional functionality. The RMS costs are based on the total monthly settlements. The SBRR has an estimated 667,500 carloads annually that are processed through the revenue management system at a cost of $542,160.[11]

e. Car Accounting

The SBRR needs a receipt and payable car hire system because the SBRR owns some railcars and uses some railcars provided by its connecting carriers. RMI has a car hire system for receipts and payables that provides the necessary features for the SBRR to keep track of its cars off-line and foreign cars on-line. This system computes charges due SBRR from foreign railroads and the SBRR's payables to foreign roads. The system separates car earnings by designnated owner groups, issues remittance and settlement summaries, flags non-moving cars and missing junctions, and helps keep track of assets with on-line access to car movement data. The annual operating expense for this system ($74,796) is based on the number of non-private interchange cars handled per month.[12]

f. General Accounting

The SBRR uses the Saga MAS 200 for its general accounting system. MAS 200 offers fully automated solutions to support the complete Financial Control and Reporting process – from establishing and managing controls, creating and interfacing transactions from operational sources, transforming ledger balances to account for enterprise allocations and re-measurement to consolidating and reporting results. Built-in best practices provide strong internal controls, save time and money, and allow for strategic analysis of the business. The software is designed

[11] *See* e-workpaper "SBRR-Operating Budget.xls."
[12] Id.

to run on Windows 7 and Windows NT operating systems. The total operating and capital costs for this system, including hardware and training, is $83,468, which includes a Dell OptiPlex 390 PC, cables, HP LaserJet 2055n printer and Dell PowerEdge T410 Servers. [13]

g. Human Resource Management

The SBRR will use Optimum Solutions package for its Human Resources ("HR") System. Optimum Solutions Human Resources Package delivers comprehensive HR capabilities, from workforce management to compensation management. Extensive business process automation and rich self-service capabilities free HR teams to perform value-added services while reducing operational costs. This system covers the SBRR's human resource data needs at an affordable cost. The software package includes all basic employee reporting features, employee profile tracking, attendance reports, benefit, insurance and COBRA reports, compensation/job history reports, EEO and citizenship reports, organizational reports, and all OSHA and workers' compensation reports. The system uses a Dell OptiPlex 390 PC, cables, an HP Laser Jet 2055 printer and a Dell PowerEdge T410 Server. The total operating and capital cost for this system, including hardware and training, is $27,606.[14]

h. Network and Router Equipment

The SBRR needs networking capability and routers because it has a number of computers in multiple locations. Networking and router equipment permit these computers to communicate with one another. The SBRR needs one router at each field reporting location and one at its headquarters. The SBRR will need e-mail capabilities for most of its employees to communicate among themselves on various issues which is provided using Microsoft Cloud, the most efficient

[13] *See* e-workpaper "SBRR-Capital Budget.xls."
[14] Id.

method. The details are identified in the Capital and Operating Budget Statements. The SBRR's communications network consists of a microwave and commercial telephone system. The costs for these items are included in the network infrastructure costs discussed in Part III-F. The IT operating-expense budget includes a network computer system for LAN and WAN, routers at various locations, and internet access for headquarters and field locations.[15]

i. Workstations and Printers

Both desktop and laptop PC's are provided, and included in the SBRR's IT costs, with a high-end configuration to run a state-of-the-art operating system while avoiding the need to purchase other applications. One PC is provided for each G&A employee as well as for operating personnel located at headquarters. Additionally, one PC is provided at each crew change point and the yard locations where employees are assigned. Laptops are provided for use by employees who are required to travel a considerable amount of their time. The total capital cost for desktop and laptop computers equals $120,970.[16]

The SBRR needs a variety of printers for work orders, safety bulletins and normal office work such as printing contracts, correspondence and reports. A color printer is needed for various maps, charts and diagrams. Printers are also needed in the field and at major interchange locations to print information relating to the work performed there. The equipment needs include a desktop laser printer for each desktop PC, a printer for laptop PCs where needed, one color and one line printer at headquarters, and one line printer at each of the SBRR's yards. The total capital cost for printers for the SBRR equals $33,364.[17]

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[15] *See* e-workpaper "SBRR-Operating Budget.xls."
[16] *See* e-workpaper "SBRR-Capital Budget.xls."
[17] Id.

GENERAL & ADMINISTRATIVE EXPENSE

j. Voice and Data Communications

The SBRR needs a telephone system and telephone service to handle external and internal telephone activity. NexPath provides this service for all of SBRR telephone service needs. This system includes traditional telephone for each administrative employee, the NTS telephone system, a voicemail system and a calling card system. NexPath telephone Server – NTS Server Rack Mounted system is capable of handling 51 outside lines and 85 extensions. This system is capable of handling internal calls over the microwave system and external calls from various parties. The external calls would consist of local and long-distance telephone service, toll-free incoming calls, paging and faxing service.

Data telecommunications to support the RMI transportation system from Birmingham, AL to Atlanta, GA is provided by AT&T. This is a frame relay system that is based on estimated transactions. The Internet is used for data communications for all the field offices. The field offices also have Internet access to the RMI transportation system in Atlanta. Cellular phones and pagers are provided for employees who need them to perform their work efficiently. The capital costs for this system equals $32,509[18] and the annual operating expenses equal $130,914.[19]

k. Automatic Equipment Identification

Automatic equipment identification ("AEI") includes a track-side scanner that reads information from each car (car number and initial) in a manner similar to reading a bar code. That information is accumulated on a PC while the train passes a specific site where the scanner is installed. These readings are then compared to the train consist residing on a computer to

[18] Id.
[19] *See* e-workpaper "SBRR-Operating Budget.xls."

determine if there are any discrepancies. If discrepancies exist, the consist record is adjusted to agree with the reading from the scanner.

The SBRR's AEI scanner locations are discussed in Part III-F-6. The capital costs for AEI scanners are included in the SBRR's road property investment costs.

l. Software Maintenance

Software products such as PC accounting packages that run on a server, and tools such as security software and monitoring software, require payment of annual maintenance fees for support and upgrades. Some of these fees are included in the licensing agreement, such as that for the Optimum Solutions Products , which has an annual fee payable for the use of its product. Other providers have a flat charge for the package with no annual fees, but they will have enhancement upgrade announcements from time to time with a specified charge for the upgrade. The annual software maintenance fees, payable by the SBRR, equal $14,250.[20]

m. Railinc Services

The SBRR requires some Railinc services to pass and receive car location information to/from NS and its other interchange partners for the various interchange locations. The annual cost for Railinc service equals $34,776.[21]

n. Network Security

The SBRR also needs security software to protect its network from exterior intrusion due to the large amount of data that is transmitted to Atlanta and other parts of the railroad. The system to be used is the Watchguard Firebox X6500e UTM Software Suite. The Watchguard

[20] Id.
[21] Id.

suite offers comprehensive Unified Threat Management and is an easily managed firewall and AV/IPS security appliance for mid-size businesses requiring a secure, private network. [22]

2. Other Out-Sourced Functions

As described earlier, several functions customarily provided in-house by large Class I railroads can be efficiently out-sourced by the SBRR. Consistent with the stand-alone concept of an efficient, least-cost railroad, out-sourcing is used wherever the economics so justify without sacrificing the SARR's feasibility or service quality.

Out-sourced functions, in addition to those described in the preceding section, include initial training of operating employees (discussed in more detail below), several finance and accounting functions, including preparation of income, property and payroll tax returns and financial/account auditing, legal services, including claims administration and investigation, and administration of the company's retirement plan.[23]

A number of independent accounting, payroll service and other firms have the experience and systems to perform these functions. For example, the payroll service firm Paychex has experience in complying with Railroad Retirement and other railroad-specific tax and regulatory reporting requirements. In the human resources area, regional and industry employers' associations are available as a resource for the SBRR's internal human resources staff.

Estimated annual costs of $615,900 have been developed for outsourcing all of the functions described above.[24]

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[22] *See* e-workpapers "SBRR-Capital Budget.xls" and "SBRR-Operating Budget.xls."
[23] *See* e-workpaper "SBRR GA Outsourcing."
[24] Id.

GENERAL & ADMINISTRATIVE EXPENSE

3. Start-Up and Training Costs

The SBRR's start-up and training costs have been calculated using the procedures approved by the Board in *WFA/Basin* at 51-54. Initial training costs for the SBRR's train crew personnel equal $4.4 million. Training for the T&E employees is based on information provided by NS in discovery as to the actual expense it incurs for training engineers and conductors.

The duration of training for conductors is based on information provided by NS in discovery. Conductors and engineers are compensated during classroom training at a rate of { } per week and { } per week, respectively. The duration of training for conductors is also based on information provided by NS in discovery and equals { } weeks of classroom training and { } weeks of on the job training for a total of { } weeks. The duration of training for engineers is { } weeks for classroom training and { } weeks for on the job training, also based on information provided by NS in discovery. [25] The average training cost for train and enginemen is { } per individual, including tuition and salary as appropriate.[26]

Training for the SBRR's dispatchers is based on information provided by NS in discovery, { } weeks of classroom training and { } weeks of field training. According to NS's data, dispatchers are paid a salary of { } per week during training. The total cost of training for dispatchers equals { } including the wages and the cost of training.

Training costs for the SBRR's MOW employees are based on the training costs incurred by NS. The training cost for all MOW field employees (except welders and signal maintainers) equals ${ } for technical training and two (2) week's pay equal to 52 percent of their

[25] *See* e-workpaper "SBRR Training Cost.xlsx."
[26] *See* e-workpaper "SBRR Operating Expense.xls" tab "T&E Training."

GENERAL & ADMINISTRATIVE EXPENSE

salary.[27] Training cost for welders and signal maintainers equals salary of {[redacted]}, respectively, plus the {[redacted]} for technical training. Salaries are increased to reflect fringe benefits and the training costs includes wages, fringes, training cost and room and board – *i.e.*, this is an all-inclusive training cost paid by NS to train MOW employees.[28]

IT Specialists are paid five (5) weeks' salary to set up the SBRR's computer system.[29]

Recruiting costs have been added at {[redacted]} per employee based on information provided by NS in discovery. The amounts provided in discovery include expenditures for advertising, outside professional and consulting services, communications, temporary services, college funding, testing, travel and meetings. The expenses provided by NS cannot be distinguished between rank and file and managerial and executive employees and as a result one amount per employee is calculated for all employees.[30] Subsequent annual recruitment and training expenses are based on a 1.8 percent average annual attrition rate, which was determined from the Report of Dr. Robert Topel, PhD., submitted to the Emergency Board No. 243 on behalf of the Railroads Represented by the National Carriers' Conference in National Mediation Board Case Nos. A-13569; A-13570; A-13572; A-13573; A-13574; A-13575; A-13592 on October 10, 2011.[31]

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[27] The 52 percent of salary for MOW field employee wages is based on the percent of salary paid to other trainee employees as calculated from data in NS discovery, *see* e-workpaper "SBRR Training Cost.xlsx", tab "Program Summary."

[28] *See* e-workpaper "SBRR Operating Expense.xls, tab "T&E Training."

[29] The public version of AEPCO's Opening Evidence in Docket No. 42113, AEPCO proposal four (4) weeks of entry cost for IT Specialists to set-up the SARR's computer systems. *AEPCO* at 63-64 shows Defendants and the Board accepted this cost which is only 80 percent of that provided for herein.

[30] *See* e-workpaper "SBRR Recruiting Cost.xlsx."

[31] A copy of the pertinent pages from Dr. Topel's report are attached in e-workpaper "Attrition Rate.pdf."

GENERAL & ADMINISTRATIVE EXPENSE

A total amount of $5.3 million has been provided for initial SBRR training and recruiting costs.[32] Consistent with *WFA/Basin*, start-up training and recruitment costs are treated as operating expense in the SBRR's first year of operations.

Travel expenses have been included for all SBRR employees at the Manager level and higher and for the two (2) outside members of the Board of Directors. Annual travel expenses of $10,475 per employee are included. This amount is based on the most recent available annual survey of corporate travel managers performed by Runzheimer International, which estimates the annual cost of corporate business travel.[33] The SBRR's other start-up costs, road property investment costs including construction of fixed facilities, which are included in the SBRR's capital costs, and equipment acquisition are discussed in other sections of Part III.

[32] *See* e-workpaper "SBRR Operating Expense.xls", tab "Training."
[33] *See* e-workpapers "SBRR Operating Expense.xls" and "III-D-3 G&A Other.pdf."

TAB 3

MAINTENANCE OF WAY

The MOW plan for the SBRR was developed by SunBelt's expert railroad engineering witness, Harvey Crouch.[1] It was also reviewed and approved by Richard McDonald, SunBelt's rail operations expert, who has engineering and operating experience with NS's predecessors.

Mr. Crouch served in the Southern Railway's and then NS's Engineering Department from 1977 to 1987, including service as a Project Engineer and Track Supervisor in the Maintenance of Way & Structures Department. His duties in these positions are detailed in his Statement of Qualifications in Part IV.

Mr. Crouch considered the kinds of terrain and climate in which the SBRR is located in developing the SBRR's MOW plan and incorporated the significant aspects of the variations in terrain and climate into the MOW plan and staffing.

Consistent with *WFA/Basin*, Mr. Crouch's MOW plan has a substantial field staff to perform day-to-day inspection and maintenance activities, supported by a managerial/office engineering and support staff that reports to the SBRR's Assistant Vice President ("AVP") – Engineering. Capital maintenance programs are also required during the 10-year DCF period to renew/replace the fixed facilities and in particular the principal elements of the track structure. The SBRR's MOW staff has been structured to include planning, budgeting and contracting related to annual capital programs.

Also consistent with *WFA/Basin*, all of the SBRR's program work (including rail grinding and crossing paving) is performed by contractors. It is more efficient to contract out program work, rather than hiring large seasonal gangs to perform most of this work as most

[1] Mr. Crouch is also sponsoring SunBelt's evidence on the SBRR's construction costs in Part III-F. The staffing for the SBRR's MOW Communications & Signals Department is also sponsored by SunBelt's communications and signals expert, Victor Grappone, PE.

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Class I railroads have done until recently.[2] Using contractors is more efficient, in part, because contractors are not subject to internal railroad union craft work-rules (which can be exacerbated for large railroads like NS that are the product of numerous mergers and consolidations among predecessor railroads) or the Railroad Retirement program, which makes internal railroad labor very expensive. In addition, it is not cost-effective to hire and equip large mechanized gangs consisting of SBRR employees because most program work is performed on an as-needed basis each year, and gangs simply are not needed throughout the entire year.[3]

In developing the SBRR's MOW plan, Mr. Crouch started by considering the maintenance functions that need to be performed, and then developed an appropriate field organization and supervisory/support staff for each function, given the railroad's geographic scope, terrain, number of trains and gross tonnages. The basic functions include track inspection and routine maintenance, communication and signal inspections, testing and maintenance, bridge inspection and minor building maintenance, and budgeting and administrative support. Mr. Crouch also considered the equipment needs for each function, as well as the maintenance work (other than capital program maintenance) that appropriately could be contracted. Each of these categories of MOW expense are discussed below and detailed in Mr. Crouch's supporting e-workpapers.

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[2] Consistent with the treatment of program renewal work in other rate cases such as *AEP Texas II* and *WFA/Basin*, the cost of capital programs is accounted for in the DCF model. In addition, CSX uses Hulcher for ballast train supply and unloading; all the Class 1's use contractors for vegetation control, rail defect testing, geometry car testing, and to some extent, inspection using hi-rail truck mounted equipment. Regional and Short Line Railroads routinely use contract services for all capital work. For example, the Central Florida Rail Corridor uses contractors for all inspection, maintenance and capital program work.

[3] Because the SBRR starts operations with a newly-constructed physical plant, there should be no need for significant program work (and thus large mechanized forces) during the first 10 years of its operations – notwithstanding the way program maintenance is treated under the DCF model, in which a portion of the SBRR's fixed assets are assumed to be renewed each year.

MAINTENANCE OF WAY

A. SBRR OPERATING STAFF

The SBRR MOW personnel are organized into the Track, Communications & Signals, Building & Bridges and Miscellaneous Administrative Support Departments. The staffing and compensation for each of these departments is summarized in Table 1 below and a discussion of the personnel requirements by department follows.

Exhibit III-D-3
Table 1
SBRR Base Year MOW Personnel Costs

Item	No. of Employees	Total Compensation
(1)	(2)	(3)
1. Track	68	$4,225,683
2. Comm. & Signals	13	$889,618
3. Bridge & Bldgs.	10	$632,321
4. Misc./Admin Support	6	$445,711
5. Total	97	$6,193,333

Source: e-workpaper "Exhibit III-D-3 SBRR MOW.xls."

Salaries for the SBRR's MOW personnel are based on the salaries paid by NS to MOW personnel as shown in NS's 2010 Wage Forms A and B, indexed to 3Q11.[4] The total annual compensation for these MOW personnel in the first year of operations (excluding fringe benefits) equals $6.2 million as summarized in Table 1 above.

1. Track Department

The SBRR's Track Department consists of sixty-eight (68) employees, organized as shown in Table 2 below. The annual compensation for each position, by employee and in total,

[4] *See* e-workpaper "Exhibit III-D-3 SBRR MOW.xls".

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is also shown.[5] The relatively small size of the SBRR allows for the management of the MOW staff from one central headquarters location rather than from several regional locations.

Exhibit III-D-3
Table 2
SBRR Base Year Track Employees And Compensation

Position	No. of Employees	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
1. General Office Staff			
a. Engineer – MOW	1	{[redacted]}	{[redacted]}
b. Manager of Welding & Grinding	1	{[redacted]}	{[redacted]}
c. Supervisor of Work Equipment	1	{[redacted]}	{[redacted]}
d. Administrative Assistant/Clerk	3	{[redacted]}	{[redacted]}
2. Field Staff			
a. Asst. Engineer - MOW (Field Production)	1	{[redacted]}	{[redacted]}
b. Roadmaster	3	{[redacted]}	{[redacted]}
c. Asst. Roadmaster	6	{[redacted]}	{[redacted]}
d. Track Crew Foreman	7	{[redacted]}	{[redacted]}
e. Track Crew Member	21	{[redacted]}	{[redacted]}
f. Roadway Machine Operator	4	{[redacted]}	{[redacted]}
g. Welder/Helper/Grinder	6	{[redacted]}	{[redacted]}
h. Rail Lubricator Repairman	2	{[redacted]}	{[redacted]}
i. Roadway Equipment Mechanic	2	{[redacted]}	{[redacted]}
j. Ditching Crew Foreman	2	{[redacted]}	{[redacted]}
k. Ditching Crew Member	2	{[redacted]}	{[redacted]}
l. Smoothing Crew Foreman	2	{[redacted]}	{[redacted]}
m. Smoothing Crew / Machine Operator	4	{[redacted]}	{[redacted]}
3. Total	68	xxx	{[redacted]}

Source: e-workpaper "Exhibit III-D-3 SBRR MOW.xls"

a. General Office Staff

The Track Department is headed by the Engineer – MOW. This position is responsible for maintenance of the SBRR's track, preparing the annual track budget, and arranging for contractor performance of track maintenance (capital) programs. The Manager of Welding & Grinding and the Supervisor of Work Equipment each report to the Engineer – MOW. Three (3)

[5] Compensation is salaries excluding fringe benefits from NS's 2010 Wage Form A & B. *See* e-workpaper "III-D-4 Salaries.pdf."

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Administrative Assistant/Clerks are assigned to the Track Department to perform administrative and secretarial duties. One (1) Administrative Assistant is assigned to the AVP Engineering and the other two Administrative Assistant/Clerks are assigned to the department.

b. Field Staff

The Track Department's field staff is headed by one (1) Assistant Engineer – MOW (Field Production) who reports to the Engineer – MOW. The Assistant Engineer – MOW is based at the Birmingham headquarters. The Assistant Engineer -- MOW oversees routine contract work (such as weed spraying, use of rail detector and track geometry cars and rail grinding), maintenance programs, and track maintenance by the SBRR's field track forces. The Assistant Engineer -- MOW also works with the Roadmasters in their assigned territory in defining annual programs and overseeing contractor performance.

i. Roadmasters and Assistant Roadmasters – The Roadmasters (equivalent to the Field Maintenance Supervisors described in *WFA/Basin*) are responsible for day-to-day track maintenance in assigned geographic districts. There are three (3) Roadmaster districts, each headed by a Roadmaster, averaging just under about 200 route miles each. The specific territories each Roadmaster is responsible for, by Subdivision and milepost, are included in the workpapers accompanying this opening evidence.[6]

Each Roadmaster is assisted by two (2) Assistant Roadmasters. Each Assistant Roadmaster has an assigned territory of about 100 miles. These individuals conduct track inspections in accordance with all applicable FRA regulations, and are trained and certified by the SBRR. They are responsible for track inspections and for routine field supervision of the track crews. Each Assistant Roadmaster inspects approximately 50 miles of track per day, four

[6] *See* e-workpaper "MOW Roadmaster Territories.xlsx."

(4) days per week (Monday, Tuesday, Thursday and Friday).[7] They also assist the Roadmasters in other activities, and on Wednesdays they perform activities such as routine switch inspections, vehicle maintenance, working with the local track crews, checking quality behind the track crews, and other light maintenance, as well as additional track inspections as dictated by temperature, weather conditions or emergency situations.

It is common in the railroad industry for Assistant Roadmasters to perform track inspections. The Assistant Roadmaster position on the SBRR is roughly equivalent to the NS Assistant Track Supervisor position. The NS Assistant Track Supervisors have the track inspection responsibilities outlined above. This means there is no need for separate Track Inspector positions. When an Assistant Roadmaster is on vacation or otherwise unavailable, the Roadmaster, or one of the Track Crew Foremen, who are cross-trained for this purpose, perform the routine track inspections.

ii. Track Crews – The SBRR has a total of seven (7) field track crews, each consisting of a Foreman and three Crew Members (track laborers). Each crew is responsible for day-to-day maintenance of the track in a defined territory averaging approximately 80 route miles.[8] They perform various tasks in connection with routine track maintenance, such as correcting track geometry defects (surface, line and gauge), repairing detected rail defects, adjusting continuous welded rail ("CWR") as necessary, repairing road crossings, replacing failed tie plates/insulators/clips, replacing occasional defective ties at critical locations such as joints, switch points and frogs, removing snow/ice from switches, and replacing/repairing damaged signs.

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[7] The frequency of track inspections is dictated by the FRA track class involved. The SBRR has mostly FRA Class IV track, which requires inspection twice per week.

[8] The track crews' territories are described in e-workpaper "MOW Roadmaster Territories.xls."

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The territory assigned to each field track maintenance crew, the four-person crew size, and the tasks they are expected to perform are all consistent with the modern practice of Class I railroads (including CSXT and NS) and regional railroads, as well as the approach approved by the Board in *WFA/Basin*. These parameters also reflect the concept that some work traditionally handled by large in-house track gangs at a Class I railroad is contracted out (as described further below). It also should be noted that each Roadmaster has a backhoe and dump truck available for his territory, which limits the need for additional track and other field personnel.

iii. Roadway Machine Operators – Mr. Crouch has provided for a total of four (4) Roadway Machine Operators, with one Operator assigned to each of the three (3) backhoes (one backhoe is assigned to each Roadmaster district) and one (1) additional Operator available system-wide. Other Machine Operators are assigned under other classifications, such as Tamper and Regulator Operators and Ditching Crew Members or Foremen. (The Track Crew members operate the Hi-Rail Boom Trucks assigned to each Track Crew, and are not considered machine operators.)

iv. Welder/Helper/Grinders – The SBRR has three (3) Welder/Helper/ Grinder crews, one for each Roadmaster District, each consisting of a two-person welding and grinding crew with a welder and a welder helper. There are very few turnouts compared to the real-world NS, and very few joints to maintain, so there will not be a need for much welding repair on the new SBRR. However, welding/grinding crews are needed to Thermite-weld joints where replacement rail is installed; repair engine wheel burns, chipped rail ends or localized rail flow problems; and maintain turnout and rail crossing frogs and switch points without removing

them from the track.[9] In addition, the welding crews can provide backup support on larger jobs such as contracted flash butt/Thermite welding programs and rail detector car/rail grinding operations. Each welding crew is assigned a hi-rail flatbed truck equipped with a self-contained, diesel-driven electric welding generator, winches for handling molds, oxygen and acetylene tanks, and the necessary hand tools and other welding equipment.

v. Rail Lubricator Repairmen – The SBRR needs two (2) Rail Lubricator Repairmen, each covering approximately 300 route miles. The Rail Lubricator Repairmen inspect and repair the SBRR's thirty (30) rail lubricators on a regular basis. The number of lubricators is based on ten (10) miles of carry per lubricator in each direction as recommended by the manufacturer (Portec). In the past, NS has used its Assistant Track Supervisors to inspect and maintain wayside rail lubricators.

vi. Roadway Equipment Mechanics – The SBRR also needs two (2) Roadway Equipment Mechanics, which are assigned as needed among the two (2) Roadmaster territories. These individuals are responsible for maintaining and performing routine repairs to the SBRR's field equipment, including tampers, regulators, backhoes, and the other specialized equipment assigned to the field MOW forces. The Machine Operators perform simple daily maintenance tasks on their machines. Trucks are maintained at dealerships and local mechanics are used for most auto or truck-related repairs and maintenance.

vii. Ditching Crews – The SBRR has two (2) two-person ditching crews. Each ditching crew consists of a Foreman and a Ditching Crew Member. The primary function of each of these crews is to keep the SBRR's ditches free flowing and to clean culverts

[9] It is much more efficient to do the welding in place rather than remove the defective frog, install a replacement, and transport the defective frog to a shop for repairs.

periodically. Each crew is assigned a Gradall or excavator, a hi-rail rotary three dump truck and a conventional pickup truck. The Foreman serves as the machine operator, and the other crew member serves as the dump truck driver. Each crew also has a normal complement of hand tools.[10]

viii. Smoothing Crews – The SBRR has two (2) three-person smoothing crews, which perform spot surfacing and lining of the track as needed to correct any significant surface irregularities noted in geometry test car data, or as directed by the Assistant Engineer - MOW (Field Production). Each crew will cover an average of approximately 300 route miles. Given the SBRR's newly-constructed status, its traffic density, and the absence of roadbed failures at former joint locations common to railroads caused by previous use of jointed rail, it is highly unlikely that there will be many surface or line irregularities within the first ten years of the railroad's existence.[11] Most of the surfacing will take place in the areas with the highest number of curves. Each smoothing crew consists of a Foreman and two Smoothing Crew Members (Machine Operators), and each crew is assigned a Tamper and a Ballast Regulator. The Tamper is used to surface and line track. The Ballast regulator is used to move ballast, restore the roadbed section and shoulder ballast, fill the tie cribs, and sweep the track following surfacing and lining. These crews also assist the field track forces and contractors with derailments or other problems requiring surfacing work. If additional labor is needed to assist a Smoothing Crew in unusual circumstances, it can be taken from the local Track Crew.

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[10] Each Roadmaster is assigned a rubber-tired backhoe and a dump truck which can also be used by the ditching crews for work in that Roadmaster's territory, as needed. It should be noted that most of the NS roadbed for the lines being replicated by the SBRR that was observed during field inspections by Mr. Crouch's team is perched, meaning the roadbed is on fill or embankment with no parallel ditches except in cut sections. Thus, most of the SBRR's route does not have any ditches that need cleaning or repairing. Some ditching is anticipated in cuts.

[11] Even where existing railroads have continuous welded rail or CWR, it usually has replaced older, jointed rail. Old roadbed damaged by trains running over jointed rail for many years will not be a factor on the SBRR.

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2. Communications & Signals Department

The SBRR's Communications & Signals ("C&S") Department consists of thirteen (13) employees. The specific positions and compensation levels for this department are shown in Table 3 below.

Exhibit III-D-3
Table 3
SBRR Base Year C&S Employees And Compensation

Position	No. of Employees	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
1. General Office Staff			
a. Communications & Signals Engineer	1	{ }	{ }
b. Asst. Engineer	2	{ }	{ }
2. Field Staff			
a. C&S Supervisors	1	{ }	{ }
b. Signal Maintainers	7	{ }	{ }
c. Communications Technicians	2	{ }	{ }
3. Total	13	xxx	{ }

Source: e-workpaper "Exhibit III-D-3 SBRR MOW.xls."

a. General Office Staff

The C&S Department is headed by the Communications & Signals Engineer. This Engineer position is responsible for the communications and signals functions, for assuring the proper tests are conducted, and that the necessary maintenance is being performed. He is also responsible for developing the necessary capital programs to keep the signal and communication equipment functioning reliably, and supervising the outside contractors who maintain the communications equipment including microwave towers and associated equipment and radios. The C&S Engineer is supported by an Assistant Engineer and an Assistant Communications Engineer.

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b. Field Staff

The field staff is led by one (1) C&S Supervisor. The C&S Supervisor position is responsible for field supervision of the Signal Maintainers and Communications Technicians. The C&S Supervisor is located at the Birmingham headquarters.

i. Signal Maintainers – The SBRR has seven (7) Signal Maintainers. This position is responsible for scheduled inspections and routine testing and maintenance of the SBRR's signal system. The Signal Maintainers also repair defective trackside signals that govern train movements and grade-crossing protection devices, and change out broken signal bulbs. The number of Signal Maintainers required is a function of the number of AAR signal units involved.[12] Based on input from SunBelt Witness Victor Grappone, SunBelt's Signals & Communications expert, Mr. Crouch has provided one signal maintainer per 2,000 signal units. This is consistent with Mr. Grappone's experience with signal design and maintenance as an employee of the Long Island Railroad.

ii. Communications Technicians – The SBRR has two (2) Communications Technicians. These employees are primarily responsible for maintaining train crew radios and other communications devices. The two (2) positions are considered "roving" positions and available to cover for one each other during vacations, etc. The Technician based at Birmingham Yard (as well as a Signal Maintainer and an IT specialist) are on call if a problem arises in the control center.

[12] An AAR signal unit is a measure of the difficulty of maintaining a particular signal device, therefore there are more AAR signal units than there are individual signals.

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3. Bridge & Building Department

The SBRR's Bridge & Building (B&B) Department consists of ten (10) employees. The specific positions and compensation levels for this department are shown in Table 4 below.

Exhibit III-D-3
Table 4
SBRR Base Year B&B Employees And Compensation

Position	No. of Employees	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
1. General Office Staff			
a. Bridge Engineer	1	{ [redacted] }	{ [redacted] }
2. Field Staff			
a. B&B Supervisor	1	{ [redacted] }	{ [redacted] }
b. B&B Inspector	1	{ [redacted] }	{ [redacted] }
c. B&B Machine Operator	1	{ [redacted] }	{ [redacted] }
d. B&B Foreman	2	{ [redacted] }	{ [redacted] }
e. B&B Carpenter/Welder/Helper	4	{ [redacted] }	{ [redacted] }
3. Total	10	xxx	{ [redacted] }

Source: e-workpaper "Exhibit III-D-3 SBRR MOW.xls."

a. General Office Staff

The SBRR's B&B Department is headed by the Bridge Engineer. This Engineer is responsible for inspections and maintenance of the SBRR's bridges, and for minor building inspections and repairs. He is also responsible for preparing the annual bridge repair budget and for supervising the contractors who perform periodic bridge maintenance and major structural repairs, as well as periodic building maintenance.

b. Field Staff

The B&B field staff is not large, reflecting the fact that all of the SBRR's bridges will be new, constructed using concrete and steel components, resulting in virtually no annual main-

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tenance to the structures – unlike older bridges, and bridges with timber components which are common on existing Class I railroads, including NS.

i. B&B Supervisors – The SBRR has one (1) B&B Supervisor, who reports to the Bridge Engineer. This position is located at the headquarters building in Birmingham, AL. He is responsible for supervising inspection and repair functions for the SBRR and supervises regular bridge, culvert and tunnel inspections and for conducting periodic inspections of the SBRR's other buildings. He also recommends minor bridge repairs/maintenance to the B&B Crews or, on occasion, the appropriate Roadmaster, to the extent the repairs (such as tightening or restoring missing bolts, clearing drift from bridge piers and cleaning debris from culvert inlets, etc.) are within the capability of the field Track Crews. Major bridge, tunnel and culvert repairs are contracted out, as are periodic detailed, extraordinary inspections of bridges.

ii. Bridge Inspectors And Other Field B&B Employees – The B&B Department's field employees include one (1) Bridge Inspector, who performs annual bridge inspections as a part of their daily routine, one (1) B&B Machine Operator, two (2) B&B Foremen and one (1) B&B Crew, that performs routine bridge, tunnel and culvert maintenance on the SBRR. The B&B Machine Operator is equipped with a bridge hoist/crane. One (1) of the B&B Foremen works with the B&B Machine Operator and the other B&B Foremen works with the B&B Crew. The B&B Crew consists of a Welder, a Helper, a Plumber and a Carpenter, each of whom are cross-trained. The crew performs bridge and tunnel repairs to the extent they do not involve major pier or superstructure repairs, which are contracted out.

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4. Miscellaneous Administrative/Support Personnel

The SBRR has six (6) Engineering administrative and support personnel at the Birmingham, AL headquarters who are dedicated to the MOW function, but who do not support any particular field department by itself. These office personnel, who report to the AVP – Engineering, develop and administer the annual MOW budget (including the capital or program budget), interface with contractors performing both program and day-to-day work and with governmental agencies involved in public projects that affect the railroad, and deal with other MOW administrative matters including environmental, safety and training. These positions and their salary requirements are summarized in Table 5 below.

Exhibit III-D-3
Table 5
SBRR Base Year Admin/Support Employees And Compensation

Position	No. of Employees	Annual Salary	Total Salary
(1)	(2)	(3)	(4)
1. Engineer – Programs and Contracts	1	{ [redacted] }	{ [redacted] }
2. Public Project Engineer	1	{ [redacted] }	{ [redacted] }
3. Manager – Administration and Budgets	1	{ [redacted] }	{ [redacted] }
4. Manager – Mechanical Operations	1	{ [redacted] }	{ [redacted] }
5. Manager – Environmental/Safety/Training	1	{ [redacted] }	{ [redacted] }
6. Water Plant and Fueling Technician	1	{ [redacted] }	{ [redacted] }
7. Total	6	xxx	{ [redacted] }

Source: e-workpaper "Exhibit III-D-3 SBRR MOW.xls."

a. Engineer – Programs and Contracts

The Engineer – Programs and Contracts is responsible for implementation and monitoring of the SBRR's contracts for program and other maintenance, as well as preparing the Engineering Department's overall budget for approval by the AVP – Engineering.

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b. Public Project Engineer

The Public Project Engineer interfaces with governmental agencies and other entities in handling requests for various types of public projects including rail/highway grade separations, new grade crossings, utility projects, and right-of-way encroachments. He also provides engineering expertise and support to the Roadmasters for issues related to such projects in their territory.

c. Manager – Administration & Budgets

The Manager – Administration & Budgets interfaces with the Manager – Human Resources with respect to hiring MOW employees. He also assists the Engineer of Programs and Contracts in preparing the annual Engineering/MOW budget, and is responsible for the MOW payroll and monitoring/payment of contractor invoices.[13]

d. Manager – Environmental/Safety/Training

The Manager – Environmental/Safety/Training interfaces with federal and state environmental authorities on compliance, and monitors environmental compliance with respect to the SBRR's MOW activities. He also manages the vegetation control program for the Track Department, and is responsible for MOW employee training and compliance with Hazmat practices and procedures.

e. Water Plant and Fuel Technician

The Water Plant and Fuel Technician maintains and repairs water and fuel equipment systems. This position is responsible for monitoring systems, performing preventative maintenance and general maintenance as necessary.

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[13] The SBRR's purchasing function has been centralized with the Budgets & Purchasing Manager who reports to the Controller/Treasurer and is discussed above under General & Administrative expenses. However, the purchasing for the MOW function is coordinated by the Manager of Administration & Budgets.

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B. NON-PROGRAM MOW WORK PERFORMED BY CONTRACTORS

While the SBRR's in-house MOW forces handle most day-to-day routine and spot maintenance of the SBRR's track and facilities, it is more cost-effective to contract out some maintenance work that is treated as operating expense. The treatment of such contracted work by SunBelt's MOW experts is consistent with the approach approved by the Board.[14]

This contracted work includes (i) planned (or routine) maintenance that can be scheduled on a regular basis, (ii) unplanned maintenance, and (iii) large magnitude unplanned maintenance.

The costs associated with the contract work performed in these areas of maintenance are summarized in Table 6 and described below.

Exhibit III-D-3
Table 6
SBRR Base Year Non-Program Contract Costs

Position	Total Costs
(1)	(2)
1. Planned Contract Maintenance	
a. Track Geometry Testing	{[redacted]}
b. Ultrasonic Rail Testing	{[redacted]}
c. Rail Grinding	{[redacted]}
d. Yard Cleaning	{[redacted]}
e. Vegetation Control	{[redacted]}
f. Crossing Repaving	{[redacted]}
g. Equipment Maintenance	{[redacted]}
h. Comm. Sys. Inspect & Repair	{[redacted]}
i. Bridge Inspections	{[redacted]}
j. Bridge Maintenance	{[redacted]}
k. Building Maintenance	{[redacted]}
2. Unplanned Contract Maintenance	
a. Storm Debris Removal	{[redacted]}
3. Large Magnitude Unplanned Maintenance	
a. Derailments and Clearing Wrecks	{[redacted]}
b. Washouts	{[redacted]}
c. Environmental Cleanups	{[redacted]}
4. Total	$3,422,212

Source: e-workpaper "Exhibit III-D-3 SBRR MOW.xls".

[14] *See WFA/Basin* at 69-73.

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1. Planned Contract Maintenance

Routine work is scheduled on a regular basis that is not performed frequently enough to justify the SBRR's investment in the equipment and personnel required for it (such as track geometry and ultrasonic rail testing and rail grinding).

a. Track Geometry Testing

Track geometry testing is included in routine maintenance. The frequency of such testing is generally a function of the annual gross tonnage moving over the track and ensures that the track and related structures meet all FRA standards in terms of alignment, gauge and profile. Track geometry test results are used to prioritize work to be performed by the Smoothing Crews. Geometry testing is required with varying frequency depending on the annual gross tonnage moving over various portions of the SBRR. Generally, track carrying between 5 and 30 million gross tons ("MGT") per year is tested once per year, track carrying 30 to 60 MGT is tested twice per year, and track carrying more than 60 MGT is tested three times per year. These frequencies are consistent with {[redacted]}[15] The frequencies for testing above 30 MGT are conservative for a newly-constructed railroad that has better roadbed compaction, drainage, ballast and sub-ballast, rail and timber. This means the track structure will hold up better than average. The SBRR also has no roadbed damage from previous use of jointed rail, where low joints developed.

The cost for track geometry testing is ${[redacted]} per track mile. This amount is based on data provided by NS in discovery. The total annual miles of testing and the related cost calculations are included in the workpapers accompanying this opening evidence.[16]

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[15] *See* e-workpaper "Exhibit III-D-3 SBRR MOW.xls."
[16] Id.

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b. Ultrasonic Rail Testing

Ultrasonic rail testing is important in preventing derailments because it helps reveal internal rail defects that could cause disruptions in the SBRR's operations. FRA regulations (49 CFR § 213.237) require testing rail in Class 3 track, over which passenger trains do not operate, for internal defects at least once every 30 MGT or once a year, whichever interval is shorter, and similar testing of Class 4 through 5 track at least once every 40 MGT or once a year, whichever interval is shorter. Consistent with these standards, the SBRR will conduct ultrasonic rail testing at least once a year on all of its main lines, and twice a year on track carrying between 40 and 80 MGT. This is more than adequate given that the SBRR starts operations with all new rail on its mainline tracks and sidings.

Based on data provided by NS in discovery, the average cost for ultrasonic rail testing in 2011 was ${[redacted]} per track mile for each pass over the track with the test car.[17] The total annual miles of ultrasonic testing and the related cost calculations are included in the workpapers accompanying this opening evidence.[18]

c. Rail Grinding

NS provided summary costs and a record of miles covered by rail grinding in 2008, 2009 and 2010 in discovery. Rail grinding is a part of some Class I railroads' MOW plans as they determine necessity based on traffic, tonnage and rail characteristics, and the potential to extend the service life of the rail. Studies have indicated that premium rail in high-density territory, even with heavy curves, can withstand well in excess of 150 MGT without the need for grinding.

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[17] Id.
[18] Id.

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Here, 136-pound premium CWR rail is being used on the SBRR's main tracks, on curves of 3 degrees or more and where annual gross tonnage is greater than 20 MGT. This rail is extremely durable under heavy loads. However, to be conservative, the SBRR will rail-grind every 100 MGT in the curve areas with premium rail. Consistent with the approach used in *WFA/Basin*, rail grinding will be performed every 30 MGT in other curves and every 60 MGT for tangent track. Tangent rail and rail in curves less than 3 degrees receive one pass, and rail in curves equal to or greater than three degrees receive two passes. Switches, rail crossings (diamonds) and rail located in at-grade road crossings will also be ground at the same time that normal rail grinding is performed.

The cost allotted for rail grinding is {[redacted]} per mile, based on information provided by NS in discovery. The total miles of grinding and the related cost calculations are included in the workpapers accompanying this opening evidence.[19] Switch grinding has been included in the total rail grinding quantity.

In *WFA/Basin*, the Board treated the cost of rail grinding as an operating expense, notwithstanding the complainant's argument that it should be capitalized because it extends rail life.[20] For the SBRR, annual rail grinding is considered a capital cost based on information provided by NS in discovery and therefore is not included in the annual MOW expense. {[redacted]}

[19] Id.
[20] *See WFA/Basin* at 71.

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[redacted][21]

d. Yard Cleaning

The SBRR's yards should be cleaned once a year in order to ensure that debris does not affect rail operations. The amount and cost of yard cleaning required for these yards is based on a verbal quote from ARS, a company used by Class I railroads for yard cleaning. The total annual cost for yard cleaning is $41,705 per year.

e. Vegetation Control

Weed spraying, brush cutting and mowing are necessary in order to prevent overgrowth into the rail bed or other structures, which can cause a safety hazard. The most critical vegetation control has to do with the ballast section. If vegetation is allowed to flourish in the ballast section, it will soon foul the ballast and interfere with the most important function of ballast which is to permit water to drain from the track structure, uninterrupted. If water is allowed to be retained in the track structure it can reduce tie life and destabilize the track structure, thus increasing the risk of track failures and derailments. Vegetation control also is critical at grade crossings for the safety of both train operations and the traveling public.

The SBRR's requirements for vegetation control work are based primarily on the climate conditions and annual rainfall in the geographic areas in which it lies. As a result, weed spraying is needed twice a year.

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[21] Copies of these documents are included in e-workpaper "NS treatment of rail grinding.pdf."

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The annual cost for vegetation control is based on a prorated value from NS's data provided in discovery [22] for vegetation control at grade crossings and for line-of-road vegetation control. The total cost per mile for vegetation control is ${[redacted]}.[23]

Very little brush-cutting should be required because the SBRR's right-of-way will be cleared during construction, and weed spraying will greatly inhibit the growth of brush. Brush or weeds tend to accumulate near road grade crossings; the SBRR's dozers will be used as needed to keep the right-of-way cleared around road crossings where contracted vegetation control work is not sufficient.

f. Crossing Repaving

Highway grade crossings must be repaved periodically. Asphalt pavement is used with treated hardwood crossing timbers in public grade crossings. The life of asphalt pavement is largely a function of road traffic, at least beyond 24 inches outside each rail, although rail traffic is also a factor within the crossing zone proper. A typical pavement application will last eight (8) to twelve (12) years, or longer. Consequently, there should be little need for the SBRR to begin paving activities immediately. However, to be conservative, and consistent with the approach used in the DCF model, Mr. Crouch has assumed that paving would begin in the SBRR's first year of operations. As the paving should last at least ten (10) years, Mr. Crouch assumed that ten (10) percent of the total crossing paving quantity would be re-paved each year. The total cost of crossing paving is {[redacted]} annually. This amount is capitalized as it is performed in conjunction with the annual capital (renewal) program.[24]

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[22] *See* e-workpaper "Exhibit III-D-3 SBRR MOW.xls."
[23] Id.
[24] Id.

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g. Equipment Maintenance

Normal maintenance of company leased equipment is contracted out, although the SBRR has two (2) in-house mechanics that perform routine maintenance and repairs to the basic equipment used by the field track forces. The equipment that is maintained by contractors includes hi-rail trucks, dozers, Gradalls and backhoes, ballast regulators, tampers, air compressors and certain power hand tools. The SBRR's mechanics are prepared and equipped to perform preventive maintenance and straightforward repairs to this equipment.

Based on Mr. Crouch's experience, the cost of annual maintenance of the SBRR's equipment is five (5) percent of its purchase price.[25]

h. Communications System Inspection and Repair

Periodic inspection and planned maintenance of the SBRR's communications system, which is described in detail in Part III-F-6, is performed by contractors. The SBRR's communications system includes microwave towers and LMR radio facilities, which are inspected annually.

Communications maintenance and inspection costs are normally a component of maintenance agreements for communications systems entered into at the time of installation. In *WFA/Basin*, the complainant proposed and the Board accepted, a communications system maintenance cost of two (2) percent of original purchase cost. Based on Mr. Crouch's experience this percentage is reasonable, and it has been applied it to the SBRR's communications-equipment

[25] NS did not provide any information on its annual equipment maintenance costs in discovery, and Mr. Crouch believes the 5 percent figure is reasonable. Details are provided in e-workpaper "Exhibit III-D-3 SBRR MOW.xls."

acquisition costs developed by SunBelt Witness Kruzich. The result is an annual cost of contracted repairs to the SBRR's communications facilities of ${[redacted]}.[26]

i. Bridge Inspections

As described earlier, the SBRR's Bridge and Building ("B&B") Supervisor and B&B Inspector perform basic bridge inspections as part of their duties, including annual inspections of all bridges. However, the SBRR's major river bridges require periodic in-depth inspection to assess integrity; these inspections are performed by professional outside contractors in the company of the B&B Inspector, using specialized equipment. These inspections involve careful examination of the substructure and superstructure of each bridge. The bridges will be new at start-up, and will be inspected on a five-year schedule by the outside contractors in addition to the annual inspections by the SBRR's B&B department. Driving inspections are not required since bridge designs incorporate scour design. Mr. Crouch applied an average cost of ${[redacted]} per track foot of bridge length for contractor inspection, which is based on a total of 88,145 track feet of bridges. On a five-year cycle, the annual cost of inspecting major bridges using contracted inspections is ${[redacted]}.[27]

j. Building Maintenance

All of the SBRR's buildings are new at start-up, so only occasional routine maintenance and repairs are required. Other than general plumbing and electrical repairs over time, HVAC systems generally require semi-annual inspections and maintenance which is performed by contractors (as is occasional outside maintenance). NS did not provide any information for building maintenance and repair costs so Mr. Crouch developed an annual cost of $352,212 for

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[26] *See* e-workpaper "Exhibit III-D-3 SBRR MOW.xls."
[27] Id.

contract building maintenance repairs, which is based on two (2) percent of the total building cost.[28]

2. Unplanned Contracted Maintenance

Experience teaches us that certain maintenance will be needed that does not occur at regular intervals and is more economically handled by contractors who have the requisite expertise and specialized equipment (such as storm debris removal and bridge superstructure repairs).

a. Storm Debris Removal

There will be infrequent occasions where severe winds bring down trees or scatter debris on the right of way. Depending on the severity and extent of the damage, outside contractors will be called upon to clean up the debris. In-house MOW forces will be available to assist, but the SBRR will not staff for this eventuality. Once again, NS did not provide any information in discovery on storm debris removal costs. Based on his experience with weather conditions in the geographic regions where the SBRR is situated, Mr. Crouch has provided $10,000 annually for this activity.[29]

b. Building Repairs

As described earlier, all of the SBRR's buildings are new. Nevertheless, the buildings will require the occasional unplanned repair. Typical occurrences include storm damage, water and sewer line repairs, electrical failure, HVAC repairs, etc. In Mr. Crouch's experience, unplanned annual expense for building maintenance generally is subsumed within the general building maintenance costs described above.

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[28] Id.
[29] Id.

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3. Large Magnitude Unplanned Maintenance

These are events requiring more people or specialized equipment than the SBRR has because of the infrequency and unusual nature of the events (such as repairing the track structure after a major derailment or washout).

a. Derailments and Clearing Wrecks

A new railroad constructed to modern standards is less likely to experience a major derailment then the older plant of existing railroads. Nevertheless, over the 10-year DCF life of the SBRR, derailments are likely to occur.

Removing rolling stock/lading and restoring the track structure after a major derailment usually involve considerable work requiring heavy equipment. Today, few railroads use in-house staff to repair the track after such derailments without assistance from a contractor; in fact, most Class I railroads no longer have auxiliary forces dedicated to derailment response. The same is true for regional/short-line railroads, which are even less able to afford this stand-by resource. These carriers rely primarily on contractors to respond to such occurrences because it is not cost-effective to have a separate complement of employees and heavy equipment on stand-by to deal with infrequent major derailments.

The SBRR's average annual cost for repairing damage from derailments (primarily contractor expense) is $418,524 based on 2011 FRA Accident Reports for NS.[30] Given the SBRR's brand-new network at start-up (including the fact that it did not replace older, jointed rail with CWR but starts operations with CWR on all of its main tracks), and considering that it moves only complete trains, the SBRR certainly should not incur a greater expense for

[30] *See* e-workpaper "SBRR Derailment and Clearing Wrecks.xlsx."

derailments than the real-world NS does. When the estimated cost of clearing wrecks[31] is added, the SBRR's total annual cost for derailments is $729,104.

b. Washouts

Again, a new railroad roadbed/track structure is not as prone to washouts as older, real-world railroad roadbed that may have experienced previous water-related damage, where ditches have not been maintained, culverts have become clogged with sediment or cut brush, or brush is allowed to accumulate in ditches, causing washouts. Nevertheless, washouts may occur – for example, when a culvert through the sub-grade becomes blocked, preventing the flow of water. Floating debris at the upstream ends of some culverts can also prevent them from serving their intended purpose.

Based on Mr. Crouch's experience with railroad washouts in the geographic regions served by the SBRR and its length in route miles, the average annual cost of washout repairs should not exceed $10,000. This cost includes furnishing and placing up to 150 tons of rip-rap. Other related work would be performed by the local field forces (including ditching and smoothing crews) as needed.

c. Environmental Cleanups

The SBRR operates locomotive inspection and servicing facilities at its major yards that might be a source of inadvertent discharge of environmentally sensitive materials. In addition, the SBRR transports some hazardous commodities over its lines. An infrequent environmental cleanup could occur if hazardous commodities are released during a derailment. Derailments are less likely to occur on the SBRR than on a Class I railroad such as NS because the SBRR begins

[31] The SBRR's estimated annual cost for clearing wrecks is $310,580 and is based on NS's 2011 R-1, Schedules 410 and 702. *See* e-workpaper "SBRR Derailments and Clearing Wrecks.xlsx."

operations July 30, 2011 with a brand-new track structure that includes CWR on all of its main tracks. It does not have to deal with situations where CWR replaced jointed rail that caused joint surface, ballast and subgrade pumping problems due to impact at rail joint locations, which increases the risk of derailments.

The SBRR is providing protective drip pans at each location where locomotives are fueled at its yards. This insures that oil emissions from idling locomotives are contained. At each yard, 320 track feet are protected by drip pans, at a cost of ${[redacted]} per track foot. These pads have PVC cross drains to remove spilled fuel from the pans.

C. PROGRAM MAINTENANCE

The AVP – Engineering and the headquarters MOW administrative/support staff spend part of their time evaluating, planning and helping to execute capital MOW projects, as well as program contractor supervision. The field MOW forces assist in this effort to some extent, but their primary focus is on the day-to-day MOW work that is expensed. Consistent with the practice of most real-world railroads, SunBelt's operating and engineering experts have concluded that one-third of the salaries of the AVP – Engineering and the MOW administrative/support staff should be capitalized and two-thirds should be treated as operating expense, and that 100 percent of the salaries and equipment used by the remaining supervisory and field forces should be treated as operating expense.

Program maintenance, such as rail and tie renewal programs, that is performed by contractors, is capitalized in the DCF model. As discussed previously with regard to rail grind-

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ing it is consistent with NS' practice to capitalize program maintenance rather than included it in operating expense. Equipment costs are also capitalized in the DCF model.[32]

1. Surfacing

The SBRR has eighteen (18) field smoothing crews which perform day-to-day surfacing of the track to correct surface and alignment defects and rough spots. In addition, heavy-tonnage track subjected to the high axle loadings of unit coal and other trains needs to be surfaced on a regular basis (once every three years) to prevent it from deviating from acceptable standards. Consistent with standard railroad practice, this additional surfacing is performed by a contractor and it is capitalized in the DCF model.

2. Rail Grinding

As noted earlier, {[redacted]}. The rail and switch grinding frequencies developed by Mr. Crouch, as described in the preceding section, were provided for purposes of capitalizing them in the DCF Model.

3. Crossing Repaving

Again, as discussed earlier, {[redacted]}. The SBRR follows the same approach. The crossing repaving frequencies developed by Mr. Crouch were also provided for purposes of capitalizing them in the DCF Model.

4. Bridge Substructure and Superstructure Repair

Bridge life expectancy under NS's depreciation accounting is 60 years. This longevity generally reflects the stability of bridge superstructure and substructure components.[33]

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[32] *See* e-workpaper "NS Treatment of Rail Grinding.pdf."
[33] The SBRR's bridges are being replaced through the DCF process.

Nevertheless, unexpected minor repairs on a bridge substructure and superstructure will be required from time-to-time. The likelihood that steel and concrete repairs will be required is negligible given that the structures are new in year one and have a life expectancy of well over 50 years.

In the experience of Mr. Crouch, the annual cost for bridge superstructure and substructure repairs typically does not exceed $4,000 per major bridge every five (5) years. This assumes a contractor's crew of five (5) working over a period of two days ($2,000) plus material ($1,000) and equipment ($1,000). This cost is capitalized.

D. EQUIPMENT

The SBRR's in-house MOW forces require a variety of equipment to perform their duties, some of which has previously been described. The MOW equipment requirements and costs (other than for small tools, whose cost is included as a materials additive to the base compensation cost for each employee) are described below and listed in the MOW workpapers.[34]

1. Hi-Rail Vehicles

Each of the SBRR's twenty-one (21) field track crews has a hi-rail truck that provides transportation for the crew and is equipped with the tools necessary for the crew to perform its duties. This crew-cab vehicle comfortably seats the Foreman and three track workers. Its hi-rail gear provides the versatility required for maintenance forces to gain access to the track and carry out their duties, particularly on the portions of the SBRR network where traffic density is high. For example, if the track crew cannot access the track at its headquarters due to imminent train arrival, the crew travels by road to a point where the dispatcher can provide positive protection for the crew to get on the track. Alternatively, if the crew is on the track, and it cannot remain or

[34] *See* e-workpaper "Exhibit "III-D-3 SBRR MOW.xls".

proceed due to an oncoming train, the hi-rail vehicle is removed until the train clears the PTC block and then either returns to the track or moves, by road, to another point where (with authority from the dispatcher) it again gains access to the track.

Each of these hi-rail vehicles is equipped with a boom crane and overhead racks. This allows the crew to load 39 ft. long rails, frogs, switch ties, cross ties and other materials necessary for track maintenance. The vehicle is also equipped with a hydraulic system providing the capability for operating portable tamping tools, impact wrenches, rail saw, rail drill, hammer, spike pullers, etc., which are included in the complement of tools carried on the vehicle.[35] Based on quotations from Stanley Tools, the cost to equip a gang truck or Assistant Roadmaster truck with these tools is $15,949 per vehicle.

Other MOW personnel are assigned smaller hi-rail vehicles. This includes the Roadmasters and Assistant Roadmasters, Signal Maintainers, Welding Crews and Lubricator Technicians. The Assistant Roadmasters' vehicles will also have a hydraulic pump and tool set similar to the system in the track crew vehicles. The Headquarter's Engineering/MOW staff is also assigned hi-rail vehicles. In addition, the SBRR has two (2) semi-trailer "lowboy" trucks. There are also trailers for the backhoe assigned to each Roadmaster. These vehicles are used to deliver equipment, tools and materials to the field track and other crews.

The smaller hi-rail vehicles for the supervisory employees are intended for their transportation and that of others who may accompany them together with some capability for small material transport. Vehicles rated 3/4 to 1 ton are suitable. Hi-rail vehicles for Signal Maintainers, Welders and Lubricator Technicians not only provide transportation for the

[35] The hydraulic systems on the track crew's hi-rail trucks can perform more functions than an air compressor. Air tools have largely been replaced by the hydraulic tools supplied to each crew and each Assistant Roadmaster.

employees but need to be equipped with service bodies for transporting equipment, tools and parts. Here, too, vehicles rated 3/4 to 1 ton are appropriate. The rating tolerance accommodates a wide variety of vehicle manufacturers. SBRR's total hi-rail vehicle cost is $606,937.[36]

2. Equipment for Track and Related Work

The SBRR's field crews responsible for track maintenance (including the track crews, smoothing crews, ditching crews and welding/grinding crews) need a variety of other specialized equipment to perform their tasks. The complete list of equipment and costs are included in the workpapers.[37]

a. Rail Drills

Rail drills are needed for installing "plugs" and temporary joints in CWR where defects have been found. Each track crew has one rail drill, and each Assistant Roadmaster also has a hydraulic rail drill as part of the hydraulic tool set on his truck. The total cost for rail drills is included in the cost of the hydraulic tool package included with every hi-rail and every track crew.

b. Impact Wrenches

Each track crew and Assistant Roadmaster also has an impact wrench in the hydraulic tool set on its hi-rail vehicle. The impact feature of these tools is especially effective where a nut and bolt are seized and manual attempts to loosen them might prove unsafe. The impact wrench is also equipped with calibration capability so that applied force can be set in accordance with the manufacturer's specifications. The cost of impact wrenches is included in the cost of the hydraulic tool package included with every hi-rail and every track crew.

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[36] *See* e-workpaper "Exhibit III-D-3 SBRR MOW.xls."
[37] Id.

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c. Tamping Tools

The field track crews are equipped with small, hand-held tampers. Major surfacing programs are incorporated into major rail and tie renewal projects to be performed by outside contractors with large tamping equipment. However, additional spot surfacing may be required for joints, switch and railroad crossing frogs, switch points, bridge approaches, at-grade crossing approaches, local spots on the high sides of curves, and as curves move out in the Spring. This spot tamping minimizes speed restrictions due to track conditions. Thus, each track crew is equipped with a set of tamping tools driven by the hi-rail vehicle's hydraulic system. These tamping tools are included in the cost of the hydraulic tool package included with every hi-rail and every track crew.

d. Tampers and Ballast Regulators

Each of the two (2) smoothing crews is equipped with a modern high-speed tamper with switch-tamping capability to perform spot tamping work, and a ballast regulator which is required for moving ballast, restoring the roadbed section and shoulder ballast, and sweeping the track. These crews perform virtually all of the spot tamping, lining and surfacing required to maintain proper track line and surface. The cost of two (2) tampers is $300,000 and the cost of two (2) ballast regulators is $450,000 per year.

e. Grinders

Each of the three (3) welding/grinding crews has a complement of rail grinding equipment, including straight and profile grinders. This equipment is used to grind rail to the designed profile at specific locations. The SBRR's welding crews use the Thermite welding process to eliminate joints created temporarily in CWR where a section of rail is replaced. They also restore, by welding, rail ends which are battered, chipped or crushed, switch and rail

crossing frogs, and switch points. Once the welding is complete, the weld zone needs to be ground to conform with the rail profile adjacent to the zone.

Each of the twenty-one (21) track crews also needs a straight grinder in connection with their occasional rail repair work. The cost for twenty-one (21) straight grinders for the track crews and three (3) sets of grinding equipment for the welding/grinding crews is included in the cost of the hydraulic tool sets.

f. 400-Amp Welders

Each of the three (3) welding/grinding crews is also provided with a 400-amp welder, which is mounted on the crew's hi-rail truck. This smaller welding tool provides the crews with the needed flexibility to access a work site regardless of the location of the track. The cost for 400-amp welders is included the tool and material additive and in the truck cost for welders.

g. Oxy-Acetylene Welders

Each of the three (3) welding/grinding crews also needs welding and cutting torches and fuel cylinders. The total cost for oxy-acetylene equipment for the three (3) welding crews is included in the cost of welder trucks and the tool and material additive.

h. Gradalls

The SBRR has one (1) hi-rail Gradall hydraulic excavators which is available for the entire system. This machine, which can be operated either on-track or off-track, is used primarily for cleaning and shaping the parallel and lateral ditches along the right-of-way. The annual cost of one (1) Gradall is $72,000.

i. Track Hoes

The SBRR also has one (1) backhoe track excavator (also known as a "track hoe"), that is used by a second ditching crew. These machines, which are operated off-track, are used

primarily for clearing slide areas, installing culverts, and other miscellaneous excavation work which is not suited to a Gradall. They are also occasionally needed by the field track and signal forces. This machine is effective for specialized ditching purposes (such as improving drainage in the vicinity of highway grade crossings and placing signal conduit) and for spot excavating. It also can clear debris and beaver dams lodged at culverts and bridges when equipped with the optional grapple attachment. The total annual cost for one (1) track hoe is $42,000.

j. Backhoes and Dump Trucks

Each of the three (3) Roadmaster territories is equipped with a small rubber-tired backhoe, dump truck, and trailer to transport the backhoe. These additional support vehicles supplement the equipment described in the preceding sections and are available to the track, ditching and smoothing crews on an as-needed basis. The annual cost of this equipment, including dump truck for the track hoe excavators is $186,288 per territory.

3. Work Trains

Contractors provide the equipment (except locomotives) for large track programs. As explained in Part III-C, the SBRR has several GP38 locomotives available for periodic use in contractor work-train service, as needed.[38] These locomotives can also be used to move the occasional car of ballast, etc. needed by the SBRR's field MOW track forces.

The SBRR will temporarily store freight cars carrying materials in local yards, setout tracks, siding or other tracks.

[38] For example, CWR is laid in 1,440-foot strings from a rail train of specialized flatcars that requires a locomotive. Other contractor equipment items such as spike pullers, nipper-spikers, tampers and ballast regulators are self-propelled and do not require motive power.

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E. OTHER – SCHEDULING OF MAINTENANCE

Spot maintenance work carried out by the SBRR's MOW crews is not scheduled in planned maintenance windows. Although much of the work is routine, some occurrences are unplanned but require immediate attention and do not reflect the normal, routine approach to spot maintenance designed by SunBelt's MOW experts. Given the flow of traffic on the railroad, spot MOW work must be fluid and flexible, as well as structured where possible.

In general, the field MOW crews (including signal maintainers) are responsible for all routine maintenance work that occurs on the SBRR's right-of-way. However, the in-house crews do not perform all the work that is required. As described earlier, any condition requiring remedial action that cannot be met by the MOW field crews is referred to the proper authority, usually the Roadmaster or an Assistant Roadmaster, who calls in the needed resources. In the meantime, the field MOW forces provide protection in the area requiring remedial action.

Each day for a SBRR field maintenance crew may involve different work than the previous day. In addition to regular duties, which the Foreman of each crew will have planned, the Roadmaster or other supervisor will have specific tasks which will be referred to a particular crew or a combination of crews.

On a given day, knowing what the expected traffic will be, and thus the work window available, a track crew (for example) may be able to move on track by hi-rail vehicle directly from its base to a location requiring the change-out of a defective rail which has precipitated a temporary slow order, thereby restricting the speed of trains. Another crew could have a similar task but, because of a differing circumstance with respect to train location and work window,

must move by road (in its hi-rail vehicle) closer to the task's location, and then obtain a work window from the dispatcher.

Other activities can be scheduled more easily. For example, following the passage of an ultrasonic rail test car, some rails will require removal and joints must be Thermite-welded. Since the testing is planned, the replacement of defective rails can be scheduled. The field track crew, assisted by a welding crew, can then be ready to replace the defective rail and weld it.

Ultimately, the SBRR's field MOW crews are not relying on specific maintenance windows that are planned substantially in advance of the needed work. Instead the crews plan their days around specific information about the number of trains expected that day in their territory and the work that needs to be completed. Obviously, no scheduled maintenance would be performed during the SBRR's peak traffic period.

PART III-F

TAB 1

ROAD PROPERTY INVESTMENT

($ in Millions)

Item (1)	Amount (2)
1. Land	$199
2. Roadbed Preparation	244
3. Track Construction	537
4. Tunnels	0
5. Bridges	316
6. Signals and Communications	95
7. Buildings and Facilities	17
8. Public Improvements	8
9. Subtotal	$1,416
10. Mobilization	33
11. Engineering	122
12. Contingencies	137
13. Total	$1,708

Source: See e-workpaper "III-F Total.xlsx"

PART III-H

TAB 1

TABLE A: SRR ANNUAL COST OF CAPITAL

Year (1)	Industry Cost of Capital (2)	Industry Cost of Debt 1/ (3)	Industry Cost of Preferred Equity 2/ (4)	Industry Cost of Equity 3/ (5)	SRR 's Cost of Debt (6)	SRR 's Cost of Preferred Equity (7)	SRR 's Cost of Equity (8)	Debt as a Percent of Total Investment (9)	Preferred Equity as a Percent of Total Investment (10)	Equity as a Percent of Total Investment (11)	Composite Cost of Capital (12)	1 + Cost of Capital (13)	STB Prescribed Debt as a % of Capital 4/ (14)
2009	10.43%	5.72%	0.00%	12.37%	5.72%	0.00%	12.37%	29.10%	0.00%	70.90%	10.43%	1.1043	29.10%
2010	11.03%	4.61%	0.00%	12.99%	4.61%	0.00%	12.99%	23.37%	0.00%	76.63%	11.03%	1.1103	23.37%
2011	11.57%	3.97%	0.00%	13.57%	3.97%	0.00%	13.57%	20.83%	0.00%	79.17%	11.57%	1.1157	20.83%
2012					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2013					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2014					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2015					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2016					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2017					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2018					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2019					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2020					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	
2021					4.71%	0.00%	12.98%	24.09%	0.00%	75.91%	10.99%	1.1099	

1/ Cost of railroad industry debt from the STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010, the STB decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011 and the Association of American Railroads Opening Evidence in STB Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital - 2011, submitted April 20, 2012.

2/ No preferred equity was issued in 2009 - 2011.

3/ Cost of railroad industry common equity from the STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010, the STB decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011 and the Association of American Railroads Opening Evidence in STB Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital - 2011, submitted April 20, 2012.

4/ Railroad industry capital structure from the STB Decision in Ex Parte No. 558 (Sub-No. 13), Railroad Cost of Capital - 2009, decided September 30, 2010, the STB decision in Ex Parte No. 558 (Sub-No. 14), Railroad Cost of Capital - 2010, decided September 30, 2011 and the Association of American Railroads Opening Evidence in STB Ex Parte No. 558 (Sub-No. 15), Railroad Cost of Capital - 2011, submitted April 20, 2012.

TABLE B: SRR INFLATION INDEXES

Period	Land 1/	Hybrid RCAF 2/	MWSExFuel 3/	Mat & Suppl 4/	Wages & Supps 5/
(1)	(2)	(3)	(4)	(5)	(6)
1Q 2009	100.0		423.9	319.5	444.1
2Q 2009	96.9		422.7	305.5	445.8
3Q 2009	94.7		425.8	312.5	448.0
4Q 2009	93.3		421.7	302.2	445.4
1Q 2010	93.7		451.4	311.2	479.7
2Q 2010	95.1		448.8	305.2	477.9
3Q 2010	97.0		448.1	304.5	477.1
4Q 2010	99.3		451.7	322.0	477.5
1Q 2011	101.1		453.9	314.7	481.9
2Q 2011	103.0		454.5	309.1	484.0
3Q 2011	105.1	100.0	460.7	329.4	486.8
4Q 2011	107.2	100.1	466.7	331.8	493.5
1Q 2012	109.5	96.9	466.4	331.4	493.2
2Q 2012	111.3	98.2	476.6	344.5	502.7
3Q 2012	113.1	97.0	486.1	346.2	513.8
4Q 2012	115.0	99.0	495.0	348.3	524.0
1Q 2013	116.9	99.7	504.1	350.7	534.5
2Q 2013	118.9	100.3	504.7	351.8	535.0
3Q 2013	120.9	100.7	509.3	355.0	539.9
4Q 2013	122.9	101.3	514.1	356.7	545.3
1Q 2014	124.9	101.7	519.3	358.5	551.3
2Q 2014	127.0	102.1	520.1	360.3	551.8
3Q 2014	129.1	102.6	526.0	362.5	558.4
4Q 2014	131.3	103.4	532.1	365.7	565.1
1Q 2015	133.5	103.9	537.5	368.2	571.1
2Q 2015	135.7	104.4	542.9	370.6	577.2
3Q 2015	138.0	105.0	548.4	373.1	583.3
4Q 2015	140.3	105.5	553.9	375.6	589.4
1Q 2016	142.7	105.9	558.5	377.3	594.7
2Q 2016	145.1	106.4	563.2	379.0	600.0
3Q 2016	147.5	106.8	567.9	380.7	605.3
4Q 2016	150.0	107.2	572.6	382.4	610.7
1Q 2017	152.5	107.7	577.5	383.8	616.2
2Q 2017	155.0	108.2	582.4	385.2	621.9
3Q 2017	157.6	108.7	587.3	386.7	627.5
4Q 2017	160.3	109.1	592.3	388.1	633.3
1Q 2018	163.0	109.6	597.4	389.6	639.2
2Q 2018	165.7	110.1	602.6	391.2	645.2
3Q 2018	168.5	110.6	607.9	392.8	651.2
4Q 2018	171.4	111.0	613.2	394.3	657.3
1Q 2019	174.3	111.5	618.4	395.8	663.3
2Q 2019	177.2	111.9	623.6	397.3	669.4
3Q 2019	180.2	112.3	628.9	398.7	675.5
4Q 2019	183.3	112.8	634.2	400.2	681.6
1Q 2020	186.4	113.1	639.4	401.7	687.7
2Q 2020	189.5	113.5	644.7	403.2	693.8
3Q 2020	192.7	113.8	650.0	404.7	700.0
4Q 2020	196.0	114.1	655.4	406.2	706.2
1Q 2021	199.3	114.9	660.8	408.2	712.3
2Q 2021	202.7	115.6	666.2	410.3	718.4
3Q 2021	206.1	116.3	671.6	412.3	724.6
Annual Inflation Rate 6/	7.00%		3.88%	2.85%	4.02%

1/ Used to index Road Property Account 2. Based on historic change in rural land prices as reported by the USDA and urban land prices as reported by the National Council of Real Estate Investment Fiduciaries.

2/ Used to index expenses in Table K. Based on the RCAF-U and RCAF-A through 3Q12 then Global Insight forecast for remaining periods.

3/ Used to index Road Property Accounts 3, 5, 6, 13, 17, 19, 20, 26, 27, 37, and 39. Based on RCR indices - East Region through 2Q12 then Global Insight forecast.

4/ Used to index Road Property Accounts 8, 9, and 11. Based on RCR indexes - East Region through 2Q12 then Global Insight forecast for remaining periods.

5/ Used to index Road Property Accounts 1, 1A and 12. Based on RCR indexes - East Region through 2Q12 then Global Insight forecast for remaining periods.

6/ 1Q2009 ÷ 3Q2021^(1/12.5) - 1. The Annual Rate is used to develop asset replacement values at the end of asset lives.

TABLE C: SRR PROPERTY INVESTMENT VALUES

Construction of the SRR occurs between February 28, 2009 and July 29, 2011.
Investments are assumed to be in July 30, 2011 dollars.

Property Account (1)	Property Component (2)	Service Life In Years 1/ (3)	Investment In 7/30/2009 Dollars 2/ (4)	Investment In 7/30/2010 Dollars 3/ (5)	Investment In 7/30/2011 Dollars 4/ (6)	2009 Investment Value 5/ (7)	2010 Investment Value 6/ (8)	2011 Investment Value 7/ (9)	Total Property Investment 3Q 2011 8/ (10)
1	Engineering	NA	$123,271,586	$131,278,736	$133,947,786	$96,856,246	$28,131,158	$0	$124,987,404
2	Land	NA	179,177,216	183,467,600	$198,900,000	179,177,216	0	0	179,177,216
3	Grading	95	241,014,263	253,636,664	$260,768,603	103,291,827	144,935,236	0	248,227,063
5	Tunnels	120	0	0	$0	0	0	0	0
6	Bridges & Culverts	96	344,391,387	362,427,855	$372,618,864	0	265,780,427	99,365,030	365,145,457
8	Ties	23	116,025,411	113,055,161	$122,300,065	0	75,370,107	40,766,688	116,136,795
9	Rails and OTM	40	275,743,766	268,684,726	$290,655,989	0	179,123,150	96,885,330	276,008,480
11	Ballast	40	79,653,521	77,614,391	$83,961,183	0	51,742,927	27,987,061	79,729,988
12	Labor	36	100,643,558	107,180,896	$109,360,009	0	71,453,931	36,453,336	107,907,267
13	Fences and Roadway Signs	95	576,023	606,191	$623,236	0	404,127	207,745	611,872
16	Stations and Office Buildings	43	0	0	$0	0	0	0	0
17	Roadway Buildings	44	16,996,727	17,886,880	$18,389,836	0	17,886,880	0	17,886,880
19	Fuel Stations	31	394,014	414,650	$426,309	0	414,650	0	414,650
20	Shops and Enginehouses	50	996,822	1,049,027	$1,078,524	0	1,049,027	0	1,049,027
26	Communications Systems	26	26,917,437	28,327,157	$29,123,681	0	4,721,193	24,269,734	28,990,927
27	Signals and Interlockers	56	71,891,762	75,656,877	$77,784,252	0	12,609,480	64,820,210	77,429,690
39	Public Improvements	13	7,905,271	8,319,286	$8,553,214	0	5,546,191	2,851,071	8,397,262
	Total		$1,585,598,765	$1,629,606,096	$1,708,491,551	$379,325,290	$859,168,483	$393,606,206	$1,632,099,980

1/ 1 ÷ Depreciation Rate shown in Schedule 332 of NS' 2011 Annual Report R-1.
2/ July 30, 2011, indexed to 2009 dollars; Investment Exhibit - 3Q11 x Inflation Index from Table B, 3Q2009 ÷ 3Q2011.
3/ July 30, 2011, indexed to 2010 dollars; Investment Exhibit - 3Q11 x Inflation Index from Table B, 3Q2010 ÷ 3Q2011.
4/ July 30, 2011, indexed to 2011 dollars; Investment Exhibit - 3Q11 x Inflation Index from Table B, 3Q2011 ÷ 3Q2011.
5/ Column (4) x Percent constructed in 2009.
6/ Column (5) x Percent constructed in 2010.
7/ Column (6) x Percent constructed in 2011.
8/ Sum of Columns (7) through (9).

TABLE D: INTEREST DURING CONSTRUCTION

Month of Installation (1)	Cost of Funds 1/ (2)	Timing of Account 1 Investment 2/ (3)	Timing of Account 2 Investment 2/ (4)	Timing of Accounts 3 and 5 Investment 2/ (5)	Timing of Accounts 6, 13 through 20 and 39 Investment 2/ (6)	Timing of Accounts 8 through 12, 26 and 27 Investment 2/ (7)	Total Investment by Month 3/ (8)	Interest During Construction 4/ (9)	Cost of Debt 5/ (10)	Deductible Interest During Construction 6/ (11)
Feb-09	0.83%	$8,805,113	$0	$0	$0	$0	$8,805,113	$0	0.46%	$0
Mar-09	0.83%	8,805,113	0	0	0	0	8,805,113	73,132	0.46%	11,905
Apr-09	0.83%	8,805,113	0	0	0	0	8,805,113	146,871	0.46%	23,908
May-09	0.83%	8,805,113	0	0	0	0	8,805,113	221,222	0.46%	36,011
Jun-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	296,192	0.46%	48,215
Jul-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	584,380	0.46%	95,127
Aug-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	874,961	0.46%	114,384
Sep-09	0.83%	8,805,113	25,596,745	0	0	0	34,401,858	1,167,956	0.46%	152,687
Oct-09	0.83%	8,805,113	25,596,745	34,430,609	0	0	68,832,468	1,463,385	0.46%	191,308
Nov-09	0.83%	8,805,113	25,596,745	34,430,609	0	0	68,832,468	2,047,234	0.46%	267,635
Dec-09	0.83%	8,805,113	25,596,745	34,430,609	0	0	68,832,468	2,635,933	0.46%	344,595
Jan-10	0.88%	9,377,053	0	36,233,809	0	0	45,610,862	3,405,632	0.38%	341,931
Feb-10	0.88%	9,377,053	0	36,233,809	24,161,857	0	69,772,719	3,834,943	0.38%	385,034
Mar-10	0.88%	9,377,053	0	36,233,809	27,386,950	0	72,997,811	4,479,637	0.38%	449,762
Apr-10	0.88%	0	0	36,233,809	27,386,950	0	63,620,759	5,158,225	0.38%	517,894
May-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	5,760,627	0.38%	578,376
Jun-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	6,470,966	0.38%	649,695
Jul-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	7,187,526	0.38%	721,638
Aug-10	0.88%	0	0	0	28,130,740	47,211,264	75,342,004	7,910,362	0.38%	707,892
Sep-10	0.88%	0	0	0	24,905,647	47,211,264	72,116,911	8,639,529	0.38%	773,145
Oct-10	0.88%	0	0	0	24,905,647	47,211,264	72,116,911	9,346,836	0.38%	836,441
Nov-10	0.88%	0	0	0	24,905,647	47,211,264	72,116,911	10,060,338	0.38%	900,292
Dec-10	0.88%	0	0	0	24,905,647	64,541,937	89,447,584	10,780,089	0.38%	964,702
Jan-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	12,199,629	0.32%	900,975
Feb-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	13,172,515	0.32%	972,825
Mar-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	14,154,318	0.32%	1,045,334
Apr-11	0.92%	0	0	0	25,605,962	68,341,093	93,947,054	15,145,120	0.32%	1,118,507
May-11	0.92%	0	0	0	0	17,817,989	17,817,989	16,145,003	0.32%	1,192,352
Jun-11	0.92%	0	0	0	0	0	0	16,456,291	0.32%	1,215,341
Jul-11	0.92%	0	0	0	0	0	0	16,607,120	0.32%	1,226,480
Total		$124,987,404	$179,177,216	$248,227,063	$393,505,148	$686,203,147	$1,632,099,980	$196,425,973		$16,784,391

1/ ((1 + Cost of Capital from Table A for the applicable year)^(1/12) - 1) x 100.
2/ Applicable account value from Table C for the applicable investment period.
3/ Sum of Columns (3) through (7).
4/ February 2009 equals Column (2) x prior Column (8), all other periods equal Column (2) x ((Sum of Column (8) for all prior periods) + (Sum of Column (9) for all prior periods)).
5/ ((1 + Cost of Debt from Table A for the applicable year)^(1/12) - 1) x 100.
6/ February 2009 equals prior Column (8) x Column (10) x Table A, Column (9) for 2009, all other periods equal Column (10) x ((Sum of Column (8) for all prior periods) + (Sum of Column (9) for all prior periods)) x Table A, Column (9) for the applicable year.

TABLE E: SRR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL

INTEREST SCHEDULE FOR THE SRR 2009 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$379,325,290	1/
2. IDC	$9,511,266	2/
3. PRINCIPAL	$113,151,438	3/
4. INTEREST	5.72%	4/
5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$1,584,472	6/

Quarter (1)	Interest 7/ (2)
1	$1,584,472
2	1,584,472
3	1,584,472
4	1,584,472
5	1,584,472
6	1,584,472
7	1,584,472
8	1,584,472
9	1,584,472
10	1,584,472
11	1,584,472
12	1,584,472
13	1,584,472
14	1,584,472
15	1,584,472
16	1,584,472
17	1,584,472
18	1,584,472
19	1,584,472
20	1,584,472
21	1,584,472
22	1,584,472
23	1,584,472
24	1,584,472
25	1,584,472
26	1,584,472
27	1,584,472
28	1,584,472
29	1,584,472
30	1,584,472
31	1,584,472
32	1,584,472
33	1,584,472
34	1,584,472
35	1,584,472
36	1,584,472
37	1,584,472
38	1,584,472
39	1,584,472
40	1,584,472

INTEREST SCHEDULE FOR THE SRR 2010 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$859,168,483	1/
2. IDC	$83,034,710	2/
3. PRINCIPAL	$220,192,886	3/
4. INTEREST	4.61%	4/
5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$2,494,996	6/

Quarter (3)	Interest 7/ (4)
1	$2,494,996
2	2,494,996
3	2,494,996
4	2,494,996
5	2,494,996
6	2,494,996
7	2,494,996
8	2,494,996
9	2,494,996
10	2,494,996
11	2,494,996
12	2,494,996
13	2,494,996
14	2,494,996
15	2,494,996
16	2,494,996
17	2,494,996
18	2,494,996
19	2,494,996
20	2,494,996
21	2,494,996
22	2,494,996
23	2,494,996
24	2,494,996
25	2,494,996
26	2,494,996
27	2,494,996
28	2,494,996
29	2,494,996
30	2,494,996
31	2,494,996
32	2,494,996
33	2,494,996
34	2,494,996
35	2,494,996
36	2,494,996
37	2,494,996
38	2,494,996
39	2,494,996
40	2,494,996

INTEREST SCHEDULE FOR THE SRR 2011 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$393,606,206	1/
2. IDC	$103,879,997	2/
3. PRINCIPAL	$103,626,376	3/
4. INTEREST	3.97%	4/
5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$1,013,525	6/

Quarter (5)	Interest 7/ (6)
1	$1,013,525
2	1,013,525
3	1,013,525
4	1,013,525
5	1,013,525
6	1,013,525
7	1,013,525
8	1,013,525
9	1,013,525
10	1,013,525
11	1,013,525
12	1,013,525
13	1,013,525
14	1,013,525
15	1,013,525
16	1,013,525
17	1,013,525
18	1,013,525
19	1,013,525
20	1,013,525
21	1,013,525
22	1,013,525
23	1,013,525
24	1,013,525
25	1,013,525
26	1,013,525
27	1,013,525
28	1,013,525
29	1,013,525
30	1,013,525
31	1,013,525
32	1,013,525
33	1,013,525
34	1,013,525
35	1,013,525
36	1,013,525
37	1,013,525
38	1,013,525
39	1,013,525
40	1,013,525

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Based on Ex Parte No. 657 20-year payment period x 4.
6/ Quarterly coupon payments on Line 3 principal and Line 4 interest rates.
7/ Line 6 coupon payment.

TABLE E: SRR INTEREST PAYMENTS FOR ASSETS PURCHASED WITH DEBT CAPITAL
(Continued)

INTEREST SCHEDULE FOR THE SRR 2009 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$379,325,290	1/
2. IDC	$9,511,266	2/
3. PRINCIPAL	$113,151,438	3/
4. INTEREST	5.72%	4/
5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$1,584,472	6/

Quarter (1)	Interest 7/ (2)
41	$1,584,472
42	1,584,472
43	1,584,472
44	1,584,472
45	1,584,472
46	1,584,472
47	1,584,472
48	1,584,472
49	1,584,472
50	1,584,472
51	1,584,472
52	1,584,472
53	1,584,472
54	1,584,472
55	1,584,472
56	1,584,472
57	1,584,472
58	1,584,472
59	1,584,472
60	1,584,472
61	1,584,472
62	1,584,472
63	1,584,472
64	1,584,472
65	1,584,472
66	1,584,472
67	1,584,472
68	1,584,472
69	1,584,472
70	1,584,472
71	1,584,472
72	1,584,472
73	1,584,472
74	1,584,472
75	1,584,472
76	1,584,472
77	1,584,472
78	1,584,472
79	1,584,472
80	1,584,472

INTEREST SCHEDULE FOR THE SRR 2010 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$859,168,483	1/
2. IDC	$83,034,710	2/
3. PRINCIPAL	$220,192,886	3/
4. INTEREST	4.61%	4/
5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$2,494,996	6/

Quarter (3)	Interest 7/ (4)
41	$2,494,996
42	2,494,996
43	2,494,996
44	2,494,996
45	2,494,996
46	2,494,996
47	2,494,996
48	2,494,996
49	2,494,996
50	2,494,996
51	2,494,996
52	2,494,996
53	2,494,996
54	2,494,996
55	2,494,996
56	2,494,996
57	2,494,996
58	2,494,996
59	2,494,996
60	2,494,996
61	2,494,996
62	2,494,996
63	2,494,996
64	2,494,996
65	2,494,996
66	2,494,996
67	2,494,996
68	2,494,996
69	2,494,996
70	2,494,996
71	2,494,996
72	2,494,996
73	2,494,996
74	2,494,996
75	2,494,996
76	2,494,996
77	2,494,996
78	2,494,996
79	2,494,996
80	2,494,996

INTEREST SCHEDULE FOR THE SRR 2011 ROAD PROPERTY INVESTMENT FOR THE 3Q2011 START-UP		
1. TOTAL INVESTMENT	$393,606,206	1/
2. IDC	$103,879,997	2/
3. PRINCIPAL	$103,626,376	3/
4. INTEREST	3.97%	4/
5. TERM (QUARTERS)	80	5/
6. QUARTERLY COUPON	$1,013,525	6/

Quarter (5)	Interest 7/ (6)
41	$1,013,525
42	1,013,525
43	1,013,525
44	1,013,525
45	1,013,525
46	1,013,525
47	1,013,525
48	1,013,525
49	1,013,525
50	1,013,525
51	1,013,525
52	1,013,525
53	1,013,525
54	1,013,525
55	1,013,525
56	1,013,525
57	1,013,525
58	1,013,525
59	1,013,525
60	1,013,525
61	1,013,525
62	1,013,525
63	1,013,525
64	1,013,525
65	1,013,525
66	1,013,525
67	1,013,525
68	1,013,525
69	1,013,525
70	1,013,525
71	1,013,525
72	1,013,525
73	1,013,525
74	1,013,525
75	1,013,525
76	1,013,525
77	1,013,525
78	1,013,525
79	1,013,525
80	1,013,525

1/ From Table D, Column (7) for the applicable year investment.
2/ From Table D, Column (8) for the applicable year investment.
3/ (Total Investment + IDC) x (Proportion of Debt from Table A, Column (9)).
4/ From Table A, Column (6) for the applicable year investment.
5/ Based on Ex Parte No. 657 20-year payment period x 4.
6/ Quarterly coupon payments on Line 3 principal and Line 4 interest rates.
7/ Line 6 coupon payment.

TABLE F: SRR PRESENT VALUE OF REPLACEMENT COST

Property Account (1)	Property Component (2)	Service Life In Years 1/ (3)	Investment 2/ (4)	Salvage 3/ (5)	Replacement Year Asset Net Cost 4/ (6)	Replacement Cost Adjusted To Reflect An Infinite Life 5/ (7)	Present Value Of Replacement Cost Adjusted To Reflect An Infinite Life (2011 Dollars) 6/ (8)
3	Grading	95	$11,154,519,902	$0	$9,509,087,481	$9,521,401,703	$454,633
5	Tunnels	120	0	0	0	0	0
6	Bridges & Culverts	96	16,990,524,875	0	11,452,137,131	11,466,047,793	497,537
8	Ties	23	264,859,815	0	168,633,550	211,206,276	19,234,873
9	Rails and OTM	40	1,016,776,389	65,289,165	610,275,741	650,075,493	9,956,962
11	Ballast	40	293,714,053	0	187,004,750	199,200,455	3,051,079
12	Labor	36	529,624,951	0	337,206,820	367,363,263	8,725,851
13	Fences and Roadway Signs	95	27,495,564	0	18,532,857	18,556,857	886
16	Stations and Office Buildings	43	0	0	0	0	0
17	Roadway Buildings	44	114,536,819	0	77,201,344	80,935,064	811,741
19	Fuel Stations	31	1,595,612	0	1,075,491	1,218,569	49,443
20	Shops and Enginehouses	50	8,423,934	0	5,677,991	5,856,341	31,556
26	Communications Systems	26	93,521,741	0	59,544,341	71,078,008	4,679,514
27	Signals and Interlockers	56	786,682,398	22,650,911	489,128,546	498,998,854	1,409,845
39	Public Improvements	13	16,226,237	0	10,936,984	18,710,350	5,027,806
	Total		$31,298,502,289	$87,940,076	$22,926,443,028	$23,110,649,026	$53,931,724

1/ From Table C, Column (3).

2/ (Table C, Column (10) after allocation of Engineering) x (Table B, 1.0 + Annual Inflation Index)^(Column (3)).

3/ [(Column (4) x Salvage %) - (Table C, Column (10) after allocation of Engineering x Salvage %)] x (1 - Current Federal Tax Rate) + (Table C, Column (10) after allocation of Engineering x Salvage %).

4/ Column (4) - (Present Value of the remaining tax deductions for depreciation, interest expense and the Present Value of any salvage).

5/ Column (6) + [(Column (6) / ((1 + Real Cost of Capital)^Column (3) - 1)].

6/ Column (7) / ((1 + Average Nominal Cost of Capital from Table A Column (2))^Column (3)).

TABLE G: SRR TAX DEPRECIATION SCHEDULES

Depreciation of Start-up investment for tax purposes using
accounting lives from Modified Accelerated Cost Recovery System (MACRS) 1/

Road Property Account (1)	Road Property Component (2)	Asset Lives Per MACRS 2/ (3)	Total 3Q 2011 Investment (4)	Depreciable Base (5)
1	Engineering	5	$124,987,404	$124,987,404
2	Land	N/A	179,177,216	0
3	Grading	50	248,227,063	248,227,063
5	Tunnels	50	0	0
6	Bridges & Culverts	15	365,145,457	365,145,457
8	Ties	7	116,136,795	116,136,795
9	Rails and OTM	7	276,008,480	276,008,480
11	Ballast	7	79,729,988	79,729,988
12	Labor	7	107,907,267	107,907,267
13	Fences and Roadway Signs	15	611,872	611,872
16	Stations and Office Buildings	15	0	0
17	Roadway Buildings	15	17,886,880	17,886,880
19	Fuel Stations	15	414,650	414,650
20	Shops and Enginehouses	15	1,049,027	1,049,027
26	Communications Systems	7	28,990,927	28,990,927
27	Signals and Interlockers	7	77,429,690	77,429,690
39	Public Improvements	15	8,397,262	8,397,262
	Total		$1,632,099,980	$1,452,922,763

1/ Applicable Depreciation Method: 200 or 150 percent
Declining Balance Switching to Straight Line
Applicable Recovery Periods: 7, 15 and 50 a/ years
Applicable Convention: Mid-quarter(property placed in service in third quarter)

The Depreciation Rates are as follows for the corresponding
Recovery Period and Recovery year:

Recovery	--- Recovery Period ---				Recovery	--- Recovery Period ---		
Year	5-Year	7-year	15-year	50-year	Year	7-year	15-year	50-year
1	20.00%	10.71%	3.750%	2.00%	10	0.00%	5.900%	2.00%
2	20.00%	25.51%	9.630%	2.00%	11	0.00%	5.910%	2.00%
3	20.00%	18.22%	8.660%	2.00%	12	0.00%	5.900%	2.00%
4	20.00%	13.02%	7.800%	2.00%	13	0.00%	5.910%	2.00%
5	20.00%	9.30%	7.020%	2.00%	14	0.00%	5.900%	2.00%
6		8.85%	6.310%	2.00%	15	0.00%	5.91.0%	2.00%
7		8.86%	5.900%	2.00%	16	0.00%	3.690%	2.00%
8		5.53%	5.900%	2.00%	17	0.00%	0.000%	2.00%
9		0.00%	5.910%	2.00%	18	0.00%	0.000%	2.00%
					19-50	0.00%	0.000%	2.00%

a/ 50 year property uses the Straight Line Method for all time periods

2/ Bonus Depreciation Per the **Economic Stimulus Act of 2008,** the **American Recovery & Reinvestment Act**, and **The Tax Relief, Unemployment Insurance Reauthorization and Job Creation Act of 2010** for the following depreciable assets:

MACRS Lives (1)	50% Bonus Depreciation (2)	100% Bonus Depreciation
7	$100,717,364	$484,768,419
15	$99,050,110	$195,404,928

TABLE G: SRR TAX DEPRECIATION SCHEDULES
(Continued)

	Amortization - 5 Years			Road Property Depreciation - MACRS 7 Years			Depreciation - MACRS 15 Years			Depreciation - MACRS 50 Years			
Year	Unamortized Investment 1/	Rate 2/	Annual Amort. 3/	Undepreciated Investment 4/	Rate 2/	Annual Amount 5/	Undepreciated Investment 6/	Rate 2/	Annual Amount 7/	Unamortized Investment 8/	Rate 2/	Annual Amount 9/	Total Annual Depreciation 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1	$124,987,404	20.00%	$24,997,481	$100,717,364	10.71%	$10,786,830	$99,050,110	3.75%	$3,714,379	$248,227,063	2%	$4,964,541	$924,404,052
2	99,989,923	20.00%	24,997,481	89,930,534	25.51%	25,693,000	95,335,731	9.63%	9,538,526	243,262,522	2%	4,964,541	65,193,547
3	74,992,443	20.00%	24,997,481	64,237,535	18.22%	18,350,704	85,797,205	8.66%	8,577,740	238,297,981	2%	4,964,541	56,890,465
4	49,994,962	20.00%	24,997,481	45,886,831	13.02%	13,113,401	77,219,466	7.80%	7,725,909	233,333,440	2%	4,964,541	50,801,332
5	24,997,481	20.00%	24,997,481	32,773,430	9.30%	9,366,715	69,493,557	7.02%	6,953,318	228,368,898	2%	4,964,541	46,282,055
6				23,406,715	8.85%	8,913,487	62,540,240	6.31%	6,250,062	223,404,357	2%	4,964,541	20,128,090
7				14,493,229	8.86%	8,923,558	56,290,178	5.90%	5,843,957	218,439,816	2%	4,964,541	19,732,056
8				5,569,670	5.53%	5,569,670	50,446,221	5.90%	5,843,957	213,475,274	2%	4,964,541	16,378,168
9							44,602,265	5.91%	5,853,862	208,510,733	2%	4,964,541	10,818,403
10					100.00%		38,748,403	5.90%	5,843,957	203,546,192	2%	4,964,541	10,808,498
11							32,904,447	5.91%	5,853,862	198,581,651	2%	4,964,541	10,818,403
12							27,050,585	5.90%	5,843,957	193,617,109	2%	4,964,541	10,808,498
13							21,206,629	5.91%	5,853,862	188,652,568	2%	4,964,541	10,818,403
14							15,352,767	5.90%	5,843,957	183,688,027	2%	4,964,541	10,808,498
15							9,508,811	5.91%	5,853,862	178,723,486	2%	4,964,541	10,818,403
16							3,654,949	3.69%	3,654,949	173,758,944	2%	4,964,541	8,619,490
17										168,794,403	2%	4,964,541	4,964,541
18								100.00%		163,829,862	2%	4,964,541	4,964,541
19										158,865,321	2%	4,964,541	4,964,541
20										153,900,779	2%	4,964,541	4,964,541
21										148,936,238	2%	4,964,541	4,964,541

1/ From Table G, Page 8, Column (5), Road Property Accounts 1 minus Page 8, 5-Year Bonus Depreciation.

2/ From Table G, Footnote 1/, Page 8.

3/ Column (2), Year 1 x Column (3).

4/ From Table G, Page 8, Column (5), Road Property Accounts 8, 9, 11, 12, 26 and 27 minus Page 10, 7-Year Bonus Depreciation.

5/ Column (5), Year 1 x Column (6).

6/ From Table G, Page 8, Column (5), Road Property Accounts 6, 13, 16, 17, 19, 20 and 39 minus Page 8, 15-Year Bonus Depreciation.

7/ Column (8), Year 1 x Column (9).

8/ From Table G, Page 8, Column (5), Road Property Accounts 3 and 5.

9/ Column (11), Year 1 x Column (12).

10/ Column (4) + Column (7) + Column (10) + Column (13) plus Page 8, 5, 7 & 15 Year Bonus Depreciation.

TABLE H: SRR AVERAGE ANNUAL INFLATION IN ASSET PRICES

Development of average annual inflation factors for all capital assets

1. 3Q2011 Land value	$179,177,216 1/
2. 3Q2011 Property asset value accounts 3, 5, 6, 13, 17, 26, 27, 39 and 52	$748,152,828 1/
3. 3Q2011 Road Property asset value accounts 8, 9, and 11	$471,875,264 1/
4. 3Q2011 Road Property asset value accounts 1 and 12	$232,894,672 1/

Period	Quarter	Inflation Index For Land 2/	Inflation Index For Line 2 Property Assets 3/	Inflation Index For Line 3 Road Property Assets 4/	Inflation Index For Line 4 Road Property Assets 5/	Land Value 6/	Road Property Value 7/	3Q2011 Inflation Index 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0		1.000	1.000	1.000	1.000	$179,177,216	$1,452,922,763	1.000
1	July 30-Sep 30, 2011	1.020	1.014	1.066	1.006	182,783,609	1,495,466,104	1.028
2	2011 4 Qtr	1.040	1.027	1.073	1.020	186,430,696	1,512,230,529	1.041
3	2012 1 Qtr	1.062	1.026	1.072	1.019	190,371,496	1,510,981,698	1.042
4	2012 2 Qtr	1.080	1.049	1.115	1.039	193,533,283	1,552,341,802	1.070
5	2012 3 Qtr	1.098	1.070	1.120	1.061	196,749,543	1,575,925,609	1.086
6	2012 4 Qtr	1.116	1.089	1.127	1.083	200,021,244	1,598,677,785	1.102
7	2013 1 Qtr	1.135	1.109	1.135	1.104	203,349,372	1,622,446,731	1.119
8	2013 2 Qtr	1.154	1.111	1.138	1.105	206,734,929	1,625,342,530	1.123
9	2013 3 Qtr	1.173	1.121	1.148	1.115	210,178,937	1,639,970,613	1.134
10	2013 4 Qtr	1.193	1.131	1.154	1.127	213,682,436	1,653,149,548	1.144
11	2014 1 Qtr	1.212	1.143	1.160	1.139	217,246,484	1,667,447,249	1.155
12	2014 2 Qtr	1.233	1.144	1.166	1.140	220,872,161	1,671,721,124	1.160
13	2014 3 Qtr	1.253	1.157	1.173	1.154	224,560,563	1,687,854,785	1.172
14	2014 4 Qtr	1.274	1.171	1.183	1.168	228,312,810	1,706,132,115	1.185
15	2015 1 Qtr	1.296	1.183	1.191	1.180	232,130,038	1,721,591,491	1.197
16	2015 2 Qtr	1.317	1.194	1.199	1.192	236,013,407	1,737,195,688	1.209
17	2015 3 Qtr	1.339	1.207	1.207	1.205	239,964,099	1,752,946,097	1.221
18	2015 4 Qtr	1.362	1.219	1.215	1.218	243,983,313	1,768,844,125	1.233
19	2016 1 Qtr	1.385	1.229	1.221	1.229	248,072,274	1,781,533,209	1.244
20	2016 2 Qtr	1.408	1.239	1.226	1.240	252,232,229	1,794,319,585	1.254

1/ Table C, Page 3, Column (10).
2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).
3/ Previous Column (4) x (1 + Quarterly Inflation Rate Change from Table B).
4/ Previous Column (5) x (1 + Quarterly Inflation Rate Change from Table B).
5/ Previous Column (6) x (1 + Quarterly Inflation Rate Change from Table B).
6/ Line 1 x Column (3) for applicable quarter.
7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5)for applicable quarter) + (Line 4 x Column (6) for applicable quarter).
8/ (Column (7) + Column (8)) ÷ (Period 0; (Column (7) + Column (8))).
9/ Annual weighted inflation using the last two quarters, used to calculate real cost of capital.

TABLE H: SRR AVERAGE ANNUAL INFLATION IN ASSET PRICES
(Continued)

Development of average annual inflation factors for all capital assets

1. 3Q2011 Land value	$179,177,216 1/
2. 3Q2011 Property asset value accounts 3, 5, 6, 13, 17, 26, 27, 39 and 52	$748,152,828 1/
3. 3Q2011 Road Property asset value accounts 8, 9, and 11	$471,875,264 1/
4. 3Q2011 Road Property asset value accounts 1 and 12	$232,894,672 1/

Period	Quarter	Inflation Index For Land 2/	Inflation Index For Line 2 Property Assets 3/	Inflation Index For Line 3 Road Property Assets 4/	Inflation Index For Line 4 Road Property Assets 5/	Land Value 6/	Road Property Value 7/	3Q2011 Inflation Index 8/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21	2016 3 Qtr	1.431	1.250	1.232	1.251	$256,464,445	$1,807,204,032	1.264
22	2016 4 Qtr	1.455	1.260	1.237	1.262	260,770,215	1,820,187,336	1.275
23	2017 1 Qtr	1.480	1.271	1.242	1.273	265,150,856	1,833,025,566	1.286
24	2017 2 Qtr	1.505	1.281	1.246	1.285	269,607,705	1,845,963,939	1.296
25	2017 3 Qtr	1.530	1.292	1.251	1.297	274,142,129	1,859,003,281	1.307
26	2017 4 Qtr	1.556	1.303	1.256	1.308	278,755,515	1,872,144,425	1.318
27	2018 1 Qtr	1.582	1.314	1.261	1.321	283,449,279	1,885,846,304	1.329
28	2018 2 Qtr	1.609	1.326	1.266	1.333	288,224,861	1,899,658,249	1.341
29	2018 3 Qtr	1.636	1.337	1.271	1.345	293,083,728	1,913,581,193	1.352
30	2018 4 Qtr	1.663	1.349	1.276	1.358	298,027,375	1,927,616,075	1.364
31	2019 1 Qtr	1.691	1.361	1.280	1.370	303,057,321	1,941,292,206	1.375
32	2019 2 Qtr	1.720	1.372	1.285	1.383	308,175,117	1,955,075,388	1.387
33	2019 3 Qtr	1.749	1.384	1.290	1.396	313,382,340	1,968,966,503	1.398
34	2019 4 Qtr	1.779	1.395	1.295	1.408	318,680,596	1,982,966,443	1.410
35	2020 1 Qtr	1.809	1.407	1.300	1.421	324,071,521	1,996,773,210	1.422
36	2020 2 Qtr	1.839	1.419	1.304	1.433	329,556,782	2,010,685,442	1.434
37	2020 3 Qtr	1.870	1.430	1.309	1.446	335,138,074	2,024,703,986	1.446
38	2020 4 Qtr	1.902	1.442	1.314	1.459	340,817,126	2,038,829,698	1.458
39	2021 1 Qtr	1.934	1.454	1.321	1.472	346,595,697	2,053,677,561	1.471
40	2021 2 Qtr	1.967	1.466	1.327	1.484	352,475,578	2,068,638,402	1.483
41	July 1 - July 29 2021	2.001	1.478	1.334	1.497	358,458,595	2,083,713,108	1.496
Annual Average 9/								3.52%

1/ Table C, Page 3, Column (10).
2/ Previous Column (3) x (1 + Quarterly Inflation Rate Change from Table B).
3/ Previous Column (4) x (1 + Quarterly Inflation Rate Change from Table B).
4/ Previous Column (5) x (1 + Quarterly Inflation Rate Change from Table B).
5/ Previous Column (6) x (1 + Quarterly Inflation Rate Change from Table B).
6/ Line 1 x Column (3) for applicable quarter.
7/ (Line 2 x Column (4) for applicable quarter) + (Line 3 x Column (5)for applicable quarter) + (Line 4 x Column (6) for applicable quarter).
8/ (Column (7) + Column (8)) ÷ (Period 0; (Column (7) + Column (8))).
9/ Annual weighted inflation using the last two quarters, used to calculate real cost of capital.

TABLE I: SRR DISCOUNTED CASH FLOW
(Road Property)

Discounted Cash Flow
Present Value of the Cash Flow Discounted at the Cost of Capital in Table A
Inflation In Asset Values From Table H

1. 3Q2011 Road Property Investment	$1,635,315,969 1/	Federal Tax Rate	35.0%
2. Interest During Construction (3Q2011 Invest.)	$196,425,973 2/		
3. Total 3Q2011 Investment	$1,831,741,942 3/	Route Mile Weighted	
4. Present Value Of Replacement Cost for the SRR	$53,931,724 4/	Average State Tax Rate	6.19% 6/
5. Total Cost Recovered From Quarterly Revenue Flow	$1,885,673,666 5/		

Period	Quarter	Quarterly Levelized Capital Carrying Charge Requirement 7/	Interest on Investment Financed With Debt 8/	Tax Depreciation 9/	Actual Federal Tax Payments 10/	Actual State Tax Payments 11/	Cash Flow 12/	Present Value Cash Flow 13/	Cumulative Present Value 14/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	July 30-Sep 30, 2011	$27,817,477	$3,487,593	$375,725,518	$0	$0	$27,817,477	$27,457,382	$27,457,382
2	2011 4 Qtr	41,116,412	5,092,994	548,678,534	0	0	41,116,412	39,540,248	66,997,630
3	2012 1 Qtr	41,181,571	5,092,994	16,298,387	0	0	41,181,571	38,584,233	105,581,863
4	2012 2 Qtr	42,259,232	5,092,994	16,298,387	0	0	42,259,232	38,575,481	144,157,344
5	2012 3 Qtr	42,907,933	5,092,994	16,298,387	0	0	42,907,933	38,160,154	182,317,498
6	2012 4 Qtr	43,537,846	5,092,994	16,298,387	0	0	43,537,846	37,724,392	220,041,889
7	2013 1 Qtr	44,193,735	5,092,994	14,222,616	0	0	44,193,735	37,307,728	257,349,618
8	2013 2 Qtr	44,345,777	5,092,994	14,222,616	0	0	44,345,777	36,473,139	293,822,757
9	2013 3 Qtr	44,783,215	5,092,994	14,222,616	0	0	44,783,215	35,885,494	329,708,251
10	2013 4 Qtr	45,187,016	5,092,994	14,222,616	0	0	45,187,016	35,277,688	364,985,939
11	2014 1 Qtr	45,619,363	5,092,994	12,700,333	0	0	45,619,363	34,699,119	399,685,058
12	2014 2 Qtr	45,810,574	5,092,994	12,700,333	0	0	45,810,574	33,948,277	433,633,335
13	2014 3 Qtr	46,290,370	5,092,994	12,700,333	0	0	46,290,370	33,421,463	467,054,798
14	2014 4 Qtr	46,823,600	5,092,994	12,700,333	0	0	46,823,600	32,936,874	499,991,672
15	2015 1 Qtr	47,290,194	5,092,994	11,570,514	0	0	47,290,194	32,409,435	532,401,107
16	2015 2 Qtr	47,761,894	5,092,994	11,570,514	0	0	47,761,894	31,890,747	564,291,854
17	2015 3 Qtr	48,238,763	5,092,994	11,570,514	0	0	48,238,763	31,380,662	595,672,516
18	2015 4 Qtr	48,720,864	5,092,994	11,570,514	0	0	48,720,864	30,879,033	626,551,549
19	2016 1 Qtr	49,126,979	5,092,994	5,032,022	0	0	49,126,979	30,335,528	656,887,077
20	2016 2 Qtr	49,537,168	5,092,994	5,032,022	0	0	49,537,168	29,802,003	686,689,080
21	2016 3 Qtr	49,951,481	5,092,994	5,032,022	0	0	49,951,481	29,278,271	715,967,352
22	2016 4 Qtr	50,369,966	5,092,994	5,032,022	0	0	50,369,966	28,764,147	744,731,499
23	2017 1 Qtr	50,786,752	5,092,994	4,933,014	0	0	50,786,752	28,256,155	772,987,655
24	2017 2 Qtr	51,207,806	5,092,994	4,933,014	0	0	51,207,806	27,757,579	800,745,234
25	2017 3 Qtr	51,633,183	5,092,994	4,933,014	0	0	51,633,183	27,268,239	828,013,473

TABLE I: SRR DISCOUNTED CASH FLOW
(Road Property Continued)

Period	Quarter	Quarterly Levelized Capital Carrying Charge Requirement 7/	Interest on Investment Financed With Debt 8/	Tax Depreciation 9/	Actual Federal Tax Payments 10/	Actual State Tax Payments 11/	Cash Flow 12/	Present Value Cash Flow 13/	Cumulative Present Value 14/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
26	2017 4 Qtr	$52,062,934	$5,092,994	4,933,014	$0	$0	$52,062,934	$26,787,959	$854,801,432
27	2018 1 Qtr	52,508,204	5,092,994	4,094,542	0	0	52,508,204	26,322,124	881,123,556
28	2018 2 Qtr	52,958,119	5,092,994	4,094,542	0	0	52,958,119	25,864,799	906,988,355
29	2018 3 Qtr	53,412,736	5,092,994	4,094,542	0	0	53,412,736	25,415,822	932,404,177
30	2018 4 Qtr	53,872,115	5,092,994	4,094,542	14,294,694	2,692,736	36,884,685	17,099,688	949,503,866
31	2019 1 Qtr	54,324,899	5,092,994	2,704,601	15,277,314	2,877,835	36,169,750	16,336,928	965,840,794
32	2019 2 Qtr	54,782,401	5,092,994	2,704,601	15,427,536	2,906,133	36,448,732	16,039,474	981,880,268
33	2019 3 Qtr	55,244,680	5,092,994	2,704,601	15,579,326	2,934,726	36,730,628	15,747,761	997,628,029
34	2019 4 Qtr	55,711,796	5,092,994	2,704,601	15,732,704	2,963,618	37,015,474	15,461,676	1,013,089,705
35	2020 1 Qtr	56,176,480	5,092,994	2,702,124	15,886,097	2,992,513	37,297,870	15,178,892	1,028,268,597
36	2020 2 Qtr	56,646,000	5,092,994	2,702,124	16,040,265	3,021,554	37,584,181	14,901,978	1,043,170,574
37	2020 3 Qtr	57,120,417	5,092,994	2,702,124	16,196,040	3,050,898	37,873,479	14,630,420	1,057,800,995
38	2020 4 Qtr	57,599,795	5,092,994	2,702,124	16,353,445	3,080,549	38,165,801	14,364,112	1,072,165,106
39	2021 1 Qtr	58,099,062	5,092,994	2,704,601	16,516,567	3,111,277	38,471,218	14,106,625	1,086,271,731
40	2021 2 Qtr	58,603,516	5,092,994	2,704,601	16,682,205	3,142,479	38,778,832	13,853,665	1,100,125,396
41	July 1 - July 29 2021	18,633,516	1,605,400	852,537	5,311,277	1,000,502	12,321,737	4,344,935	1,104,470,331
	Future	3,356,617,484	289,194,711	69,267,716	984,448,975	185,443,699	2,186,724,810	781,203,335	1,885,673,666

1/ From Table C, Column (10) + Rail Grinding Capital Costs from [MOW Costs - Final.xls].
2/ From Table D, Column (8).
3/ Line 1 + Line 2.
4/ Table F Column (8).
5/ Line 3 + Line 4.
6/ Alabama, Mississippi and Louisiana corporate income tax rates weighted on SRR route miles.
7/ Quarterly carrying costs needed to recover the total investment over 40 quarters after consideration of the applicable interest payments, tax depreciation and tax liability. The Future value is an estimate of a perpetual income stream for the SRR and is calculated by taking the Period 40, Column (3) value and dividing it by the SRR 's estimated quarterly Real Cost of Capital.
8/ Value from Table E.
9/ Value from Table G, Page 12, Column (14) divided by 4 quarters.
10/ Table J: Part 1 Page 16 of 20.
11/ Table J: Part 2 Page 17 of 20.
12/ (Column (3) - Column (6) - Column (7)).
13/ Column (8) discounted by the fourth root of the annual Cost of Capital adjusted to midquarter dollars from Table A.
14/ Cumulative total of Column (9).

TABLE J - PART 1: COMPUTATION OF FEDERAL TAX LIABILITY - TAXABLE INCOME

(Road Property)

Time Period	Taxable Income B/4 NOL's SRR 1/	Net Operating Losses Generated 2/	NOL's Generated Plus Carryforward 3/	Carryforward Utilized 4/	Carryforward Remaining 5/	Carryback Available 6/	Carryback Utilized 7/	Carryback Remaining 8/	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2009	($1,285,775)	($1,285,775)	($1,285,775)	$0	($1,285,775)	($1,285,775)	$0	($1,285,775)	$0	$0
2010	(7,826,802)	(7,826,802)	(9,112,576)	0	(9,112,576)	(9,112,576)	0	(9,112,576)	0	0
Jan 1-Jul 29, 2011	(7,671,815)	(7,671,815)	(16,784,391)	0	(16,784,391)	(16,784,391)	0	(16,784,391)	0	0
July 30-Sep 30, 2011	(351,395,634)	(351,395,634)	(368,180,026)	0	(368,180,026)	(368,180,026)	0	(368,180,026)	0	0
2011 4 Qtr	(512,655,116)	(512,655,116)	(880,835,142)	0	(880,835,142)	(880,835,142)	0	(880,835,142)	0	0
2012 1 Qtr	19,790,191	0	(880,835,142)	19,790,191	(861,044,950)	(861,044,950)	0	(861,044,950)	0	0
2012 2 Qtr	20,867,852	0	(861,044,950)	20,867,852	(840,177,099)	(840,177,099)	0	(840,177,099)	0	0
2012 3 Qtr	21,516,552	0	(840,177,099)	21,516,552	(818,660,546)	(818,660,546)	0	(818,660,546)	0	0
2012 4 Qtr	22,146,465	0	(818,660,546)	22,146,465	(796,514,081)	(796,514,081)	0	(796,514,081)	0	0
2013 1 Qtr	24,878,125	0	(796,514,081)	24,878,125	(771,635,955)	(771,635,955)	0	(771,635,955)	0	0
2013 2 Qtr	25,030,167	0	(771,635,955)	25,030,167	(746,605,788)	(746,605,788)	0	(746,605,788)	0	0
2013 3 Qtr	25,467,605	0	(746,605,788)	25,467,605	(721,138,183)	(721,138,183)	0	(721,138,183)	0	0
2013 4 Qtr	25,871,407	0	(721,138,183)	25,871,407	(695,266,777)	(695,266,777)	0	(695,266,777)	0	0
2014 1 Qtr	27,826,037	0	(695,266,777)	27,826,037	(667,440,740)	(667,440,740)	0	(667,440,740)	0	0
2014 2 Qtr	28,017,247	0	(667,440,740)	28,017,247	(639,423,492)	(639,423,492)	0	(639,423,492)	0	0
2014 3 Qtr	28,497,044	0	(639,423,492)	28,497,044	(610,926,448)	(610,926,448)	0	(610,926,448)	0	0
2014 4 Qtr	29,030,274	0	(610,926,448)	29,030,274	(581,896,174)	(581,896,174)	0	(581,896,174)	0	0
2015 1 Qtr	30,626,687	0	(581,896,174)	30,626,687	(551,269,487)	(551,269,487)	0	(551,269,487)	0	0
2015 2 Qtr	31,098,387	0	(551,269,487)	31,098,387	(520,171,100)	(520,171,100)	0	(520,171,100)	0	0
2015 3 Qtr	31,575,256	0	(520,171,100)	31,575,256	(488,595,844)	(488,595,844)	0	(488,595,844)	0	0
2015 4 Qtr	32,057,357	0	(488,595,844)	32,057,357	(456,538,488)	(456,538,488)	0	(456,538,488)	0	0
2016 1 Qtr	39,001,963	0	(456,538,488)	39,001,963	(417,536,524)	(417,536,524)	0	(417,536,524)	0	0
2016 2 Qtr	39,412,152	0	(417,536,524)	39,412,152	(378,124,372)	(378,124,372)	0	(378,124,372)	0	0
2016 3 Qtr	39,826,465	0	(378,124,372)	39,826,465	(338,297,907)	(338,297,907)	0	(338,297,907)	0	0
2016 4 Qtr	40,244,950	0	(338,297,907)	40,244,950	(298,052,958)	(298,052,958)	0	(298,052,958)	0	0
2017 1 Qtr	40,760,744	0	(298,052,958)	40,760,744	(257,292,213)	(257,292,213)	0	(257,292,213)	0	0
2017 2 Qtr	41,181,799	0	(257,292,213)	41,181,799	(216,110,415)	(216,110,415)	0	(216,110,415)	0	0
2017 3 Qtr	41,607,175	0	(216,110,415)	41,607,175	(174,503,240)	(174,503,240)	0	(174,503,240)	0	0
2017 4 Qtr	42,036,927	0	(174,503,240)	42,036,927	(132,466,313)	(132,466,313)	0	(132,466,313)	0	0
2018 1 Qtr	43,320,669	0	(132,466,313)	43,320,669	(89,145,644)	(89,145,644)	0	(89,145,644)	0	0
2018 2 Qtr	43,770,583	0	(89,145,644)	43,770,583	(45,375,061)	(45,375,061)	0	(45,375,061)	0	0
2018 3 Qtr	44,225,201	0	(45,375,061)	44,225,201	(1,149,860)	(1,149,860)	0	(1,149,860)	0	0
2018 4 Qtr	41,991,844	0	(1,149,860)	1,149,860	0	0	0	0	40,841,984	14,294,694
2019 1 Qtr	43,649,470	0	0	0	0	0	0	0	43,649,470	15,277,314
2019 2 Qtr	44,078,674	0	0	0	0	0	0	0	44,078,674	15,427,536
2019 3 Qtr	44,512,360	0	0	0	0	0	0	0	44,512,360	15,579,326
2019 4 Qtr	44,950,584	0	0	0	0	0	0	0	44,950,584	15,732,704
2020 1 Qtr	45,388,849	0	0	0	0	0	0	0	45,388,849	15,886,097
2020 2 Qtr	45,829,327	0	0	0	0	0	0	0	45,829,327	16,040,265
2020 3 Qtr	46,274,401	0	0	0	0	0	0	0	46,274,401	16,196,040
2020 4 Qtr	46,724,128	0	0	0	0	0	0	0	46,724,128	16,353,445
2021 1 Qtr	47,190,191	0	0	0	0	0	0	0	47,190,191	16,516,567
2021 2 Qtr	47,663,443	0	0	0	0	0	0	0	47,663,443	16,682,205
July 1 - July 29 2021	15,175,077	0	0	0	0	0	0	0	15,175,077	5,311,277
Future	2,812,711,358	0	0	0	0	0	0	0	2,812,711,358	984,448,975

1/ Table I, Page 13, Column (3) - Table E, Page 5, Columns (2),(4) & (6) - Table G, Column (14) / 4 - Table J Part 2, Page 15, Column (11).
Values for 2009- July 29, 2011 from Table D, Sum of Column (10).

2/ Column (2) if less than zero, otherwise zero.

3/ Cumulative total of Column (2).

4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, then Column (2), otherwise Column (4).

5/ Column (4) + Column (5) + Column (8).

6/ Previous period Column (9) + current period Column (3) - current period Column (5).

7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.

8/ Column (7) + Column (8).

9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.

10/ Column (10) times applicable Federal Statutory Tax Rate.

TABLE J - PART 2: COMPUTATION OF STATE TAX LIABILITY - TAXABLE INCOME

(Road Property)

Time Period	Taxable Income B/4 NOL's SRR 1/	Net Operating Losses Generated 2/	NOL's Generated Plus Carryforward 3/	Carryforward Utilized 4/	Carryforward Remaining 5/	Carryback Available 6/	Carryback Utilized 7/	Carryback Remaining 8/	Annual Taxable Income 9/	Annual Tax Liability 10/
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
2009	($1,285,775)	($1,285,775)	($1,285,775)	$0	($1,285,775)	($1,285,775)	$0	($1,285,775)	$0	$0
2010	(7,826,802)	(7,826,802)	(9,112,576)	0	(9,112,576)	(9,112,576)	0	(9,112,576)	0	0
Jan 1-Jul 29, 2011	(7,671,815)	(7,671,815)	(16,784,391)	0	(16,784,391)	(16,784,391)	0	(16,784,391)	0	0
July 30-Sep 30, 2011	(351,395,634)	(351,395,634)	(368,180,026)	0	(368,180,026)	(368,180,026)	0	(368,180,026)	0	0
2011 4 Qtr	(512,655,116)	(512,655,116)	(880,835,142)	0	(880,835,142)	(880,835,142)	0	(880,835,142)	0	0
2012 1 Qtr	19,790,191	0	(880,835,142)	19,790,191	(861,044,950)	(861,044,950)	0	(861,044,950)	0	0
2012 2 Qtr	20,867,852	0	(861,044,950)	20,867,852	(840,177,099)	(840,177,099)	0	(840,177,099)	0	0
2012 3 Qtr	21,516,552	0	(840,177,099)	21,516,552	(818,660,546)	(818,660,546)	0	(818,660,546)	0	0
2012 4 Qtr	22,146,465	0	(818,660,546)	22,146,465	(796,514,081)	(796,514,081)	0	(796,514,081)	0	0
2013 1 Qtr	24,878,125	0	(796,514,081)	24,878,125	(771,635,955)	(771,635,955)	0	(771,635,955)	0	0
2013 2 Qtr	25,030,167	0	(771,635,955)	25,030,167	(746,605,788)	(746,605,788)	0	(746,605,788)	0	0
2013 3 Qtr	25,467,605	0	(746,605,788)	25,467,605	(721,138,183)	(721,138,183)	0	(721,138,183)	0	0
2013 4 Qtr	25,871,407	0	(721,138,183)	25,871,407	(695,266,777)	(695,266,777)	0	(695,266,777)	0	0
2014 1 Qtr	27,826,037	0	(695,266,777)	27,826,037	(667,440,740)	(667,440,740)	0	(667,440,740)	0	0
2014 2 Qtr	28,017,247	0	(667,440,740)	28,017,247	(639,423,492)	(639,423,492)	0	(639,423,492)	0	0
2014 3 Qtr	28,497,044	0	(639,423,492)	28,497,044	(610,926,448)	(610,926,448)	0	(610,926,448)	0	0
2014 4 Qtr	29,030,274	0	(610,926,448)	29,030,274	(581,896,174)	(581,896,174)	0	(581,896,174)	0	0
2015 1 Qtr	30,626,687	0	(581,896,174)	30,626,687	(551,269,487)	(551,269,487)	0	(551,269,487)	0	0
2015 2 Qtr	31,098,387	0	(551,269,487)	31,098,387	(520,171,100)	(520,171,100)	0	(520,171,100)	0	0
2015 3 Qtr	31,575,256	0	(520,171,100)	31,575,256	(488,595,844)	(488,595,844)	0	(488,595,844)	0	0
2015 4 Qtr	32,057,357	0	(488,595,844)	32,057,357	(456,538,488)	(456,538,488)	0	(456,538,488)	0	0
2016 1 Qtr	39,001,963	0	(456,538,488)	39,001,963	(417,536,524)	(417,536,524)	0	(417,536,524)	0	0
2016 2 Qtr	39,412,152	0	(417,536,524)	39,412,152	(378,124,372)	(378,124,372)	0	(378,124,372)	0	0
2016 3 Qtr	39,826,465	0	(378,124,372)	39,826,465	(338,297,907)	(338,297,907)	0	(338,297,907)	0	0
2016 4 Qtr	40,244,950	0	(338,297,907)	40,244,950	(298,052,958)	(298,052,958)	0	(298,052,958)	0	0
2017 1 Qtr	40,760,744	0	(298,052,958)	40,760,744	(257,292,213)	(257,292,213)	0	(257,292,213)	0	0
2017 2 Qtr	41,181,799	0	(257,292,213)	41,181,799	(216,110,415)	(216,110,415)	0	(216,110,415)	0	0
2017 3 Qtr	41,607,175	0	(216,110,415)	41,607,175	(174,503,240)	(174,503,240)	0	(174,503,240)	0	0
2017 4 Qtr	42,036,927	0	(174,503,240)	42,036,927	(132,466,313)	(132,466,313)	0	(132,466,313)	0	0
2018 1 Qtr	43,320,669	0	(132,466,313)	43,320,669	(89,145,644)	(89,145,644)	0	(89,145,644)	0	0
2018 2 Qtr	43,770,583	0	(89,145,644)	43,770,583	(45,375,061)	(45,375,061)	0	(45,375,061)	0	0
2018 3 Qtr	44,225,201	0	(45,375,061)	44,225,201	(1,149,860)	(1,149,860)	0	(1,149,860)	0	0
2018 4 Qtr	44,684,579	0	(1,149,860)	1,149,860	0	0	0	0	43,534,720	2,692,736
2019 1 Qtr	46,527,305	0	0	0	0	0	0	0	46,527,305	2,877,835
2019 2 Qtr	46,984,807	0	0	0	0	0	0	0	46,984,807	2,906,133
2019 3 Qtr	47,447,085	0	0	0	0	0	0	0	47,447,085	2,934,726
2019 4 Qtr	47,914,202	0	0	0	0	0	0	0	47,914,202	2,963,618
2020 1 Qtr	48,381,362	0	0	0	0	0	0	0	48,381,362	2,992,513
2020 2 Qtr	48,850,882	0	0	0	0	0	0	0	48,850,882	3,021,554
2020 3 Qtr	49,325,299	0	0	0	0	0	0	0	49,325,299	3,050,898
2020 4 Qtr	49,804,677	0	0	0	0	0	0	0	49,804,677	3,080,549
2021 1 Qtr	50,301,468	0	0	0	0	0	0	0	50,301,468	3,111,277
2021 2 Qtr	50,805,921	0	0	0	0	0	0	0	50,805,921	3,142,479
July 1 - July 29 2021	16,175,578	0	0	0	0	0	0	0	16,175,578	1,000,502
Future	2,998,155,057	0	0	0	0	0	0	0	2,998,155,057	185,443,699

1/ Table I, Page 15, Column (3) - Table E, Page 5, Columns (2),(4) & (6) - Table G, Column (14) / 4.
Values for 2009- July 29, 2011 from Table D, Sum of Column (10).
2/ Column (2) if less than zero, otherwise zero.
3/ Cumulative total of Column (2).
4/ If Column (2) is greater than zero, and (Column (2) + Column (4) is less than zero, then Column (2), otherwise Column (4).
5/ Column (4) + Column (5) + Column (8).
6/ Previous period Column (9) + current period Column (3) - current period Column (5).
7/ If previous Column (10) is greater than zero, and previous Column (10) is less than current Column (7), then previous Column (10), otherwise zero.
8/ Column (7) + Column (8).
9/ If Column (2) is greater than zero, then Column (2) - Column (5) - Column (8), otherwise zero.
10/ Column (10) times applicable route mile weighted State Statutory Tax Rates.

TABLE K: SRR OPERATING EXPENSES

Item (1)		2011 (2)	2012 (3)	2013 (4)	2014 (5)	2015 (7)	2016 (8)	2017 (9)	2018 (10)	2019 (11)	2020 (12)	2021 (12)
1. Train & Engine Personnel		$14,095,300	$14,834,003	$15,669,095	$16,344,373	$17,015,538	$17,701,412	$18,662,331	$19,679,429	$20,756,222	$21,896,458	$23,104,135
2. Locomotive Lease Expense		3,976,920	4,185,341	4,420,958	4,611,484	4,800,851	4,994,366	5,265,485	5,552,454	5,856,266	6,177,978	6,518,718
3. Locomotive Maintenance Expense		8,919,309	9,386,750	9,915,184	10,342,491	10,767,195	11,201,206	11,809,262	12,452,868	13,134,247	13,855,773	14,619,974
4. Locomotive Operating Expense		43,591,142	45,875,656	48,458,264	50,546,627	52,622,276	54,743,411	57,715,149	60,860,628	64,190,719	67,717,015	71,451,878
5. Railcar Lease Expense		11,715,087	12,329,048	13,023,122	13,584,368	14,142,198	14,712,251	15,510,903	16,356,249	17,251,208	18,198,897	19,202,639
6. Material & Supply Operating		675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365	675,365
7. Ad Valorem Tax		5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822	5,097,822
8. Operating Managers		6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429	6,243,429
9. General & Administration		11,400,295	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429	6,161,429
10. Loss and Damage		600,803	632,290	667,885	696,668	725,276	754,511	795,470	838,823	884,720	933,322	984,799
11. Trackage Rights		0	0	0	0	0	0	0	0	0	0	0
12. Intermodal Lift Costs		416,446	438,271	462,943	482,894	502,724	522,988	551,379	581,429	613,243	646,931	682,612
13. Switching Costs		1,058,436	1,113,906	1,176,615	1,227,322	1,277,721	1,329,224	1,401,381	1,477,756	1,558,614	1,644,236	1,734,922
14. Insurance	3.89%	4,797,758	4,765,989	4,960,355	5,117,525	5,273,738	5,433,374	5,657,026	5,893,754	6,144,375	6,409,763	6,690,848
15. Maintenance of Way		15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628	15,600,628
16. Total Operating Expenses		$128,188,739	$127,339,926	$132,533,096	$136,732,426	$140,906,190	$145,171,417	$151,147,059	$157,472,063	$164,168,288	$171,259,046	$178,769,198
17. Expense Per Quarter		$32,047,185	$31,834,981	$33,133,274	$34,183,107	$35,226,547	$36,292,854	$37,786,765	$39,368,016	$41,042,072	$42,814,762	$44,692,300

TABLE K: SRR OPERATING EXPENSES, INDEXED
(Continued)

Period (1)	Quarter (2)	Hybrid Index 1/ (3)	Operating Expense Indexed For Inflation 2/ (4)	Period (5)	Quarter (6)	Hybrid Index 1/ (7)	Operating Expense Indexed For Inflation 2/ (8)
1	July 30-Sep 30, 2011	100.000	$21,945,355	27	2018 1 Qtr	109.613	$43,152,465
2	2011 4 Qtr	100.148	32,094,673	28	2018 2 Qtr	110.092	43,341,215
3	2012 1 Qtr	96.898	30,847,487	29	2018 3 Qtr	110.574	$43,530,791
4	2012 2 Qtr	98.215	31,266,588	30	2018 4 Qtr	111.043	$43,715,579
5	2012 3 Qtr	97.046	30,894,619	31	2019 1 Qtr	111.474	45,751,375
6	2012 4 Qtr	99.025	31,524,717	32	2019 2 Qtr	111.907	45,928,929
7	2013 1 Qtr	99.660	33,020,589	33	2019 3 Qtr	112.341	46,107,171
8	2013 2 Qtr	100.313	33,237,088	34	2019 4 Qtr	112.762	46,279,742
9	2013 3 Qtr	100.705	33,366,889	35	2020 1 Qtr	113.110	48,427,669
10	2013 4 Qtr	101.325	33,572,403	36	2020 2 Qtr	113.459	48,577,140
11	2014 1 Qtr	101.734	34,775,982	37	2020 3 Qtr	113.809	48,727,073
12	2014 2 Qtr	102.115	34,906,028	38	2020 4 Qtr	114.142	48,869,665
13	2014 3 Qtr	102.566	35,060,096	39	2021 1 Qtr	114.861	51,333,978
14	2014 4 Qtr	103.391	35,342,310	40	2021 2 Qtr	115.584	51,657,253
15	2015 1 Qtr	103.915	36,605,797	41	July 1 - July 29 2021	116.312	16,385,808
16	2015 2 Qtr	104.442	36,791,394				
17	2015 3 Qtr	104.972	36,977,932				
18	2015 4 Qtr	105.495	37,162,290				
19	2016 1 Qtr	105.928	38,444,391				
20	2016 2 Qtr	106.363	38,602,237				
21	2016 3 Qtr	106.800	38,760,730				
22	2016 4 Qtr	107.225	38,915,193				
23	2017 1 Qtr	107.703	40,697,549				
24	2017 2 Qtr	108.183	40,878,857				
25	2017 3 Qtr	108.665	41,060,973				
26	2017 4 Qtr	109.136	41,238,829				

1/ 3Q11 equals 100.0, all other quarters equal Quarterly Inflation Indexes for the Hybrid Index from Table B).

2/ (Quarterly expense from Table K, Page 18, for the applicable time period x Column (3) or Column (7) ÷ 3Q11.

TABLE L : SRR - Stand-Alone Costs and Revenues

Revenue Requirements to Cover Total Stand-Alone Costs

Period (1)	Quarter (2)	Quarterly Capital Requirement Road Property (3)	Quarterly Operating Expense (4)	Annual Stand-Alone Requirement (5)	Quarterly Stand-Alone Revenues (6)	Annual Stand-Alone Revenues (7)	Overpayments Or Shortfalls In Revenues (8)	PV Difference (9)	Cumulative PV Difference (10)
1	July 30-Sep 30, 2011	$27,817,477	$21,945,355		$74,142,504				
2	2011 4 Qtr	41,116,412	32,094,673	$122,973,917	108,271,594	$182,414,098	$59,440,182	$59,440,182	$59,440,182
3	2012 1 Qtr	41,181,571	30,847,487		114,489,236				
4	2012 2 Qtr	42,259,232	31,266,588		114,489,236				
5	2012 3 Qtr	42,907,933	30,894,619		114,489,236				
6	2012 4 Qtr	43,537,846	31,524,717	294,419,993	114,489,236	457,956,942	163,536,950	147,348,944	206,789,126
7	2013 1 Qtr	44,193,735	33,020,589		124,009,637				
8	2013 2 Qtr	44,345,777	33,237,088		124,009,637				
9	2013 3 Qtr	44,783,215	33,366,889		124,009,637				
10	2013 4 Qtr	45,187,016	33,572,403	311,706,713	124,009,637	496,038,547	184,331,835	149,645,139	356,434,265
11	2014 1 Qtr	45,619,363	34,775,982		137,287,193				
12	2014 2 Qtr	45,810,574	34,906,028		137,287,193				
13	2014 3 Qtr	46,290,370	35,060,096		137,287,193				
14	2014 4 Qtr	46,823,600	35,342,310	324,628,325	137,287,193	549,148,773	224,520,448	164,228,794	520,663,059
15	2015 1 Qtr	47,290,194	36,605,797		153,274,526				
16	2015 2 Qtr	47,761,894	36,791,394		153,274,526				
17	2015 3 Qtr	48,238,763	36,977,932		153,274,526				
18	2015 4 Qtr	48,720,864	37,162,290	339,549,128	153,274,526	613,098,105	273,548,977	180,285,016	700,948,075
19	2016 1 Qtr	49,126,979	38,444,391		170,172,106				
20	2016 2 Qtr	49,537,168	38,602,237		170,172,106				
21	2016 3 Qtr	49,951,481	38,760,730		170,172,106				
22	2016 4 Qtr	50,369,966	38,915,193	353,708,146	170,172,106	680,688,426	326,980,280	194,167,811	895,115,887
23	2017 1 Qtr	50,786,752	40,697,549		186,404,753				
24	2017 2 Qtr	51,207,806	40,878,857		186,404,753				
25	2017 3 Qtr	51,633,183	41,060,973		186,404,753				
26	2017 4 Qtr	52,062,934	41,238,829	369,566,883	186,404,753	745,619,011	376,052,128	201,203,189	1,096,319,076
27	2018 1 Qtr	52,508,204	43,152,465		203,026,495				
28	2018 2 Qtr	52,958,119	43,341,215		203,026,495				
29	2018 3 Qtr	53,412,736	43,530,791		203,026,495				
30	2018 4 Qtr	53,872,115	43,715,579	386,491,223	203,026,495	812,105,979	425,614,755	205,179,808	1,301,498,884
31	2019 1 Qtr	54,324,899	45,751,375		220,916,882				
32	2019 2 Qtr	54,782,401	45,928,929		220,916,882				
33	2019 3 Qtr	55,244,680	46,107,171		220,916,882				
34	2019 4 Qtr	55,711,796	46,279,742	404,130,992	220,916,882	883,667,528	479,536,536	208,291,132	1,509,790,016
35	2020 1 Qtr	56,176,480	48,427,669		240,287,295				
36	2020 2 Qtr	56,646,000	48,577,140		240,287,295				
37	2020 3 Qtr	57,120,417	48,727,073		240,287,295				
38	2020 4 Qtr	57,599,795	48,869,665	422,144,240	240,287,295	961,149,180	539,004,940	210,946,808	1,720,736,824
39	2021 1 Qtr	58,099,062	51,333,978		258,756,565				
40	2021 2 Qtr	58,603,516	51,657,253		261,631,638				
41	July 1 - July 29 2021	18,633,516	16,385,808	$254,713,133	83,377,115	$603,765,318	349,052,185	126,333,616	1,847,070,440

TAB 2

Railroad Industry Debt - 1998 to 2009

($ in Thousands)

	Railroad	Bonds	ETC	CSA	Other	Total
		(1)	(2)	(3)	(4)	(5)	(6)
	1998					
1.	BNSF	$3,567,245	$384,003	$0	$1,465,800	$5,417,048
2.	Conrail	1,315,232	164,531	0	486,888	1,966,651
3.	CSX	4,751,927	606,877	165,555	1,167,181	6,691,540
4.	NS	5,553,302	382,253	0	2,196,875	8,132,430
5.	UP	6,083,074	374,485	121,483	1,856,527	8,435,569
6.	Total	$21,270,780	$1,912,149	$287,038	$7,173,271	$30,643,238
	1999					
7.	BNSF	$3,788,968	$434,180	$0	$1,633,315	$5,856,463
8.	CSX	4,646,421	675,181	150,904	1,235,278	6,707,784
9.	NS	5,586,787	411,447	0	2,096,136	8,094,370
10.	UP	6,400,711	324,661	95,627	1,835,651	8,656,650
11.	Total	$20,422,887	$1,845,469	$246,531	$6,800,380	$29,315,267
	2000					
12.	BNSF	$3,874,165	$479,450	$0	$1,616,226	$5,969,841
13.	CSX	4,301,219	722,600	130,993	777,661	5,932,473
14.	NS	5,303,625	399,607	0	1,880,779	7,584,011
15.	UP	5,900,352	264,294	72,433	1,900,215	8,137,294
16.	Total	$19,379,361	$1,865,951	$203,426	$6,174,881	$27,623,619
	2001					
17.	BNSF	$4,753,585	$477,866	$0	$1,491,266	$6,722,717
18.	CSX	5,322,289	757,043	130,975	268,512	6,478,819
19.	NS	6,830,019	506,733	0	356,197	7,692,949
20.	UP	5,923,562	237,954	54,863	1,775,176	7,991,555
21.	Total	$22,829,455	$1,979,596	$185,838	$3,891,151	$28,886,040
	2002					
22.	BNSF	$5,346,700	$431,510	$0	$1,271,585	$7,049,795
23.	CSX	5,398,556	608,004	124,985	675,212	6,806,757
24.	NS	7,059,667	338,868	0	506,454	7,904,989
25.	UP	6,038,802	187,827	32,287	1,711,672	7,970,588
26.	Total	$23,843,725	$1,566,209	$157,272	$4,164,923	$29,732,129
	2003					
27.	BNSF	$5,718,153	$386,023	$0	$1,098,941	$7,203,117
28.	CSX	5,237,473	490,636	115,990	174,600	6,018,699
29.	NS	6,952,242	293,619	0	939,125	8,184,986
30.	UP	6,332,851	168,355	2,773	2,019,969	8,523,948
31.	Total	$24,240,719	$1,338,633	$118,763	$4,232,635	$29,930,750

Railroad Industry Debt - 1998 to 2009

($ in Thousands)

	Railroad	Bonds	ETC	CSA	Other	Total
		(1)	(2)	(3)	(4)	(5)	(6)
	2004					
32.	BNSF	$5,444,619	$324,213	$0	$790,901	$6,559,733
33.	CSX	6,418,995	427,920	159,558	136,431	7,142,904
34.	NS	6,911,770	246,784	0	784,506	7,943,060
35.	UP	6,132,695	247,642	0	1,301,462	7,681,799
36.	Total	$24,908,079	$1,246,559	$159,558	$3,013,300	$29,327,496
	2005					
37.	BNSF	$5,464,515	$368,458	$0	$1,195,009	$7,027,982
38.	CSX	5,062,299	366,722	142,197	306,737	5,877,955
39.	NS	6,787,492	195,483	0	326,245	7,309,220
40.	UP	5,812,182	208,593	0	1,251,308	7,272,083
41.	Total	$23,126,488	$1,139,256	$142,197	$3,079,299	$27,487,240
	2006					
42.	BNSF	$5,948,542	$315,007	$0	$1,472,626	$7,736,175
43.	CSX	4,637,108	287,070	74,489	293,002	5,291,669
44.	NS	6,409,527	157,391	0	147,213	6,714,131
45.	UP	5,966,313	169,828	0	1,166,408	7,302,549
46.	Total	$22,961,490	$929,296	$74,489	$3,079,249	$27,044,524
	2007					
47.	BNSF	$6,194,580	$262,421	$0	$1,201,743	$7,658,744
48.	CSX	4,959,289	221,209	63,389	230,126	5,474,013
49.	NS	6,034,279	131,643	0	286,067	6,451,989
50.	UP	4,931,853	189,350	0	1,140,434	6,261,637
51.	Total	$22,120,001	$804,623	$63,389	$2,858,370	$25,846,383
	2008					
52.	BNSF	$7,098,663	$227,997	$0	$1,443,114	$8,769,774
53.	CSX	6,785,450	192,631	54,389	179,534	7,212,004
54.	NS	5,860,071	112,996	0	273,935	6,247,002
55.	UP	6,142,454	233,118	0	1,468,746	7,844,318
56.	Total	$25,886,638	$766,742	$54,389	$3,365,329	$30,073,098
	2009					
57.	BNSF	$7,915,817	$236,659	$0	$1,554,082	$9,706,558
58.	CSX	7,657,784	158,159	43,349	78,462	7,937,754
59.	NS	6,685,553	97,756	0	124,709	6,908,018
60.	UP	7,288,352	215,499	0	2,075,919	9,579,770
61.	Total	$29,547,506	$708,073	$43,349	$3,833,172	$34,132,100

Sources: STB Ex Parte No. 558 - Railroad Cost of Capital.

TAB 3

SunBelt MMM Results

	Year	MMM R/VC Ratio
	(1)	(4)
1.	2011	130.9%
2.	2012	124.9%
3.	2013	122.6%
4.	2014	117.1%
5.	2015	113.3%
6.	2016	110.6%
7.	2017	107.3%
8.	2018	104.4%
9.	2019	101.7%
10.	2020	99.0%
11.	2021	96.1%

Source: "SBRR MMM Model.xlsm."