BEFORE THE
SURFACE TRANSPORTATION BOARD

RATE REGULATION REFORMS	)	Docket No. EP 715

OPENING SUBMISSION OF WESTERN COAL TRAFFIC LEAGUE, CONCERNED CAPTIVE COAL SHIPPERS, AMERICAN PUBLIC POWER ASSOCIATION, EDISON ELECTRIC INSTITUTE, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION, WESTERN FUELS ASSOCIATION, INC., AND BASIN ELECTIC POWER COOPERATIVE, INC.

C. Michael Loftus
Andrew B. Kolesar III
Stephanie M. Archuleta
Slover & Loftus LLP
1224 Seventeenth St., N.W.
Washington, D.C. 20036
(202) 347-7170

Counsel for Concerned Captive Coal Shippers

William L. Slover
John H. LeSeur
Robert D. Rosenberg
Peter A. Pfohl
Daniel M. Jaffe
Slover & Loftus LLP
1224 Seventeenth St., N.W.
Washington, D.C. 20036
(202) 347-7170

Counsel for Western Coal Traffic League, American Public Power Association, Edison Electric Institute, National Rural Electric Cooperative Association, Western Fuels Association, Inc., and Basin Electric Power Cooperative, Inc.

Dated: October 23, 2012

TABLE OF CONTENTS

GLOSSARY

APPA	American Public Power Association
ATC	Average Total Cost
CCCS	Concerned Captive Coal Shippers
CMP	Constrained Market Pricing
DARA	Density Adjusted Revenue Allocation
EEI	Edison Electric Institute
I&I	Intertrain and Intratrain Switching
ICC	Interstate Commerce Commission
JT	Jurisdictional Threshold
MGT	Million Gross Tons
Mileage Block	Modified Mileage Block Prorate
MMM	Maximum Markup Methodology
MSP	Modified Straight-Mileage Prorate
NRECA	National Rural Electric Cooperative Association
PRB	Powder River Basin
RFA	Regulatory Flexibility Act of 1980
RPI	Road Property Investment
SAC	Stand-Alone Cost
SARR	Stand-Alone Railroad
STB/Board	Surface Transportation Board
3BM	Three Benchmark
URCS	Uniform Railroad Costing System
WCTL	Western Coal Traffic League

BEFORE THE
SURFACE TRANSPORTATION BOARD

RATE REGULATION REFORMS	)	Docket No. EP 715

OPENING SUBMISSION OF WESTERN COAL TRAFFIC LEAGUE, CONCERNED CAPTIVE COAL SHIPPERS, AMERICAN PUBLIC POWER ASSOCIATION, EDISON ELECTRIC INSTITUTE, NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION, WESTERN FUELS ASSOCIATION, INC., AND BASIN ELECTIC POWER COOPERATIVE, INC.

In response to the Surface Transportation Board's ("STB" or "Board") decision served in this proceeding on July 25, 2012 ("*July 2012 Decision*"), the Western Coal Traffic League ("WCTL"), Concerned Captive Coal Shippers ("CCCS"), American Public Power Association ("APPA"), Edison Electric Institute ("EEI"), the National Rural Electric Cooperative Association ("NRECA"), Western Fuels Association, Inc. ("Western Fuels"), and Basin Electric Power Cooperative, Inc. ("Basin Electric") (collectively "Coal Shippers")[1] present the following opening submission.

SUMMARY

Coal Shippers' submission focuses on the Board's two proposed changes in how it develops stand-alone costs ("SAC") in coal rate cases, which the Board calls "Full-SAC" cases. The Board characterizes these changes as "technical"[2] in nature, and

[1] Western Fuels and Basin Electric shall be jointly referred to as "WFA."

[2] *July 2012 Decision*, slip op. at 1.

ones intended to "improve ways to protect captive rail shippers from unreasonable rates."[3] However, as Coal Shippers demonstrate, the Board's two Full-SAC proposals are neither "technical," nor ones that "improve" the SAC process. Instead, the proposals in effect gut the SAC test, and will make it difficult, if not impossible, for most (if not all) shippers to obtain any relief in a "Full-SAC" case.

The Board's first proposal strikes at the heart of the SAC test: a complainant shipper's right to "group" traffic in configuring a Stand-Alone Railroad ("SARR"). The Board, however, proposes to gut a shipper's grouping rights. Specifically, the Board proposes to preclude SARRs from carrying large classes of traffic in cross-over service, either by eliminating the SARR's access to all cross-over traffic moving in "overhead service," – *i.e.*, service where the SARR does not originate or terminate the traffic – or by eliminating the SARR's access to all cross-over traffic moving in single-car or multi-car service. [4]

The Board's second proposal also strikes at the heart of the SAC test: a fair allocation of revenues to the SARR. The Board proposes changes in current revenue allocation procedures that will demonstrably under-allocate revenue to high-density segments in most cases. The Board proposes to do so by adopting a new alternative average total cost ("Alternative ATC") method for allocating cross-over traffic revenues.

---

[3] STB News Release No. 12-13 at 1 (July 25, 2012).

[4] Cross-over traffic "refers to those movements included in the [SARR] traffic group that would be routed over the SARR for only a part of their trip from origin to destination." *July 2012 Decision*, slip op. at 6.

The Board's two proposed changes appear to be a response to the last two shipper "wins" in coal rate cases: *AEPCO*[5] and *WFA*.[6] If the Board's new grouping principles were applied to the AEPCO SARR configuration, AEPCO would have lost its case. Similarly, if the Board's new revenue allocation procedures were applied to WFA's SARR configuration, its rate relief would have been gutted.

The adverse impact of the Board's proposed changes is not limited to past cases. If the Board adopts the proposals in their present form, it is highly unlikely that any shipper could prevail in a "Full-SAC" case. Thus, SAC is likely to be relegated to the same regulatory graveyard as the other "constraints" on rail pricing that were adopted in 1985 – management efficiency, revenue adequacy, and phasing. Since 1985, no rail shipper has obtained any relief under these three constraints.

Coal Shippers request that the Board make no changes to its current grouping/SARR configuration principles. As discussed in detail below, it appears to Coal Shippers that the Board's grouping concerns really involve issues concerning the application of the Board's Uniform Railroad Costing System ("URCS") Phase III program to cross-over moves. While Coal Shippers do not share the Board's concerns, the appropriate place to address them would be in a proceeding addressing URCS. The Board should not throw the baby out with the bathwater by limiting traffic grouping due to its concerns with URCS.

---

[5] *Ariz. Elec. Power Coop., Inc. v. BNSF Ry.*, NOR 42113 (STB served Nov. 22, 2011) ("*AEPCO*").

[6] *W. Fuels Ass'n, Inc. v. BNSF Ry.*, NOR 42088 (STB served Feb. 18, 2009, June 5, 2009, July 27, 2009, and June 15, 2012) ("*WFA*").

Coal Shippers also urge the Board not to adopt Alternative ATC, but instead to use a slightly corrected version of the method now employed by the Board to divide revenues on cross-over traffic, or to adopt other suggested alternatives that are superior to Alternative ATC.

Finally, Coal Shippers address briefly the remaining noticed proposals. Coal Shippers demonstrate that the Board's Simplified SAC proposals are more harmful than helpful to captive coal shippers; that the Board's proposed changes to the Three Benchmark ("3BM") relief caps are not sufficient in Coal Shippers' view to meet the Board's objectives to assist small shippers; and that the Board's proposal to increase interest payments on reparations awards is sound, but unfortunately may be moot for large coal shippers in light of the Board's Full-SAC proposals.[7]

IDENTITY AND INTEREST

WCTL is an association whose membership is composed of organizations that purchase and transport coal mined west of the Mississippi River. WCTL members transport over 140 million tons of coal annually, nearly all of which moves by rail. Since its formation in 1977, WCTL has actively participated in all major proceedings before the Board and its predecessor, the Interstate Commerce Commission ("ICC" or "Commission"), involving issues of concern to western coal shippers.

[7] The Board also has failed to comply with the Regulatory Flexibility Act of 1980 ("RFA"), 5 U.S.C. §§ 601-612.

CCCS is an ad hoc group of coal shippers that has participated in a number of major STB proceedings in recent years. For purposes of the instant proceeding, CCCS includes the following entities: Dairyland Power Cooperative; Duke Energy Corporation; Intermountain Power Project; South Carolina Public Service Authority (Santee Cooper); and South Mississippi Electric Power Association. Each entity utilizes large volumes of coal to generate electricity and relies upon rail carriers to transport that coal.[8]

APPA is the national service organization representing the interests of over 2,000 municipal and other state- and locally-owned electric utilities in 49 states (all but Hawaii). Collectively, public power utilities deliver electricity to one of every seven electric consumers (approximately 46 million people), serving some of the nation's largest cities, but also many of its smallest towns. Over 40% of public power utilities generate power from coal.

EEI is the association of U.S. shareholder-owned electric utility companies. EEI's members serve 95 percent of the ultimate customers in the shareholder-owned segment of the industry, and they represent approximately 70 percent of the U.S. electric power industry. EEI's diverse membership includes utilities operating in all regions, including in regions with Regional Transmission Organizations and Independent System Operators, and companies supplying electricity at wholesale in all regions.

NRECA is the national service organization for more than 900 not-for-profit rural electric utilities that provide electric energy to approximately 42 million

[8] Attachment 1 to this Opening Submission sets forth the Identity and Interest of the CCCS Members in greater detail.

consumers in 47 states or 12 percent of the nation's population. Kilowatt-hour sales by rural electric cooperatives account for approximately 11 percent of all electric energy sold in the United States. NRECA members generate approximately 50 percent of the electric energy they sell and purchase the remaining 50 percent from non-NRECA members.

The vast majority of NRECA members are not-for profit, consumer-owned cooperatives. NRECA's members also include approximately 65 generation and transmission ("G&T") cooperatives, which generate and transmit power to 668 of the 841 distribution cooperatives. The G&Ts are owned by the distribution cooperatives they serve. Remaining distribution cooperatives receive power directly from other generation sources within the electric utility sector. Both distribution and G&T cooperatives were formed to provide reliable electric service to their owner-members at the lowest reasonable cost.

Western Fuels is a nonprofit fuel supply cooperative corporation that supplies coal and transportation services to consumer-owned electric utilities throughout the Great Plains, Rocky Mountain, and Southwest regions. Western Fuels offers its Members diverse and extensive expertise in coal mining, coal procurement, and transportation management.

Basin Electric is a not-for-profit regional consumer-owned wholesale electric generation and transmission cooperative headquartered in Bismarck, North Dakota. Basin Electric's core business is generating and transmitting wholesale bulk electric power to customers, primarily its 134 member rural electric systems, which are

located in Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, and Wyoming. Basin Electric will own 3,749 megawatts (MW) and operate 4,737 MW of electric generating capacity by the end of year 2012. Most of Basin Electric's baseload capacity comes from coal.

Coal Shippers have actively participated in all major STB and ICC rulemaking proceedings involving coal transportation since the mid-1970's. In addition, several of Coal Shippers' member companies, along with Western Fuels and Basin Electric, have pursued maximum rate cases.

BACKGROUND

Coal Shippers' objections to the Board's Full-SAC proposals are best understood in historical context. For many years, the Board's predecessor, the ICC, set maximum rates using a simple balancing test that considered several factors including the cost of service, the value of service, comparable rates, and the public interest.[9] The ICC applied this balancing test in its first coal rate decision involving unit train transportation of Powder River Basin ("PRB") coal – the 1976 *San Antonio I* decision.[10]

The railroad industry was not happy with the level of maximum rates prescribed by the ICC in *San Antonio I* and the coal rate case decisions that followed. The industry urged the ICC to develop new tests to measure maximum rate

[9] *See Westinghouse Elec. Corp. v. United States*, 388 F. Supp. 1309, 1317 (W.D. Pa. 1975).

[10] *San Antonio, Tex. v. Burlington N., Inc*., 355 I.C.C. 405, 415-18 (1976) ("*San Antonio I*"), *aff'd sub nom. Burlington N., Inc. v. United States*, 555 F.2d 637 (8th Cir. 1977).

reasonableness. The ICC responded by initiating a proceeding in 1978 to develop such standards – ultimately denominated *Coal Rate Guidelines – Nationwide* ("*Coal Rate Guidelines*"), and took over seven years to complete it.[11]

The ICC's final decision in *Coal Rate Guidelines* was served in August of 1985.[12] In that decision, the ICC adopted a Constrained Market Pricing ("CMP") approach, which consists of four "constraints" on the rates railroads could charge on market dominant coal traffic:

> - **management efficiency constraint**, a constraint intended to prevent captive shippers from "bear[ing] the cost of demonstrated management inefficiencies in the carrier's operations and pricing structure;"[13]
>
> - **revenue adequacy constraint**, a constraint intended to limit "rate increases . . . only . . . to the extent needed for the carrier to reach and maintain revenue adequacy;"[14]
>
> - **phasing constraint**, a constraint intended to limit rail rate increases by "balancing the equities of the particular situation;"[15] and
>
> - **stand-alone cost constraint**, a constraint intended to preclude carriers from charging a shipper "more than the 'stand-alone cost' of providing service."[16]

---

[11] *See Coal Rate Guidelines – Nationwide*, 1 I.C.C.2d 520, 522 (1985) ("*Coal Rate Guidelines*"), *aff'd sub nom. Consolidated Rail Corp. v. United States*, 812 F.2d 1444 (3d Cir. 1987).

[12] *Id.*,1 I.C.C.2d at 520.

[13] *Id.*,1 I.C.C.2d at 521.

[14] *Id.*

[15] *Id.*, 1 I.C.C.2d at 547.

[16] *Id.*, 1 I.C.C.2d at 521.

The management efficiency, revenue adequacy, and phasing constraints – however well intentioned – have proven to be of absolutely no value to captive coal shippers. Between 1985 and 2012, no coal shipper has obtained any rate relief under these three standards. That's 0 for the last 27 years. The only constraint that has proven to be of any value to captive coal shippers is the SAC constraint, and that value has been hard-earned.

Under the SAC constraint, a maximum rate is set at the greater of the jurisdictional threshold ("JT") – 180% of the defendant carrier(s) variable costs – or SAC.[17] For many years, both the ICC, and the STB, set the jurisdictional threshold using "adjusted" variable costs.[18] These adjusted costs reflected the inherent economies of unit train coal transportation.[19] However, in 2006, the Board decided to ban the use of most unit train variable cost adjustments.[20] The result has been to drive up the variable costs, and the resulting JT calculations, on unit train coal traffic.[21]

---

[17] *See Major Issues in Rail Rate Cases*, EP 657 (Sub-No. 1), slip op. at 47 (STB served Oct. 30, 2006) ("*Major Issues*"), *aff'd sub nom. BNSF Ry. v. STB*, 526 F.3d 770 (D.C. Cir. 2008).

[18] *Major Issues*, slip op. at 48.

[19] *See Rate Guidelines – Non-Coal Proceedings*, 1 S.T.B. 1004, 1037 n.104 (1996).

[20] *Major Issues*, slip op. at 59-60.

[21] *See, e.g., Ark. Elec. Coop. Corp. – Petition For Declaratory Order*, FD 35305, Reply Evidence and Argument of Western Coal Traffic League and Concerned Captive Coal Shippers (filed April 30, 2010), Crowley VS at 6 n.8 (adjusted variable costs on coal moves are approximately 83% of variable costs calculated under the *Major Issues* procedures).

SAC has also proven to be very challenging for coal shippers. During the 1990's, coal shippers prevailed in two SAC cases.[22] In response, the defendant railroads began engaging in scorched-earth litigation tactics to drive up case costs. Shippers were forced to answer in kind, and SAC case records expanded exponentially, as did shippers' costs to litigate SAC cases. The Board's decision to make major changes in its SAC case rules in its 2006 *Major Issues* decision resulted in further complications and addition of new case costs.

The *WFA* case is the paradigm here. In 2004, WFA filed a rate complaint alleging that BNSF Railway Company's rates on WFA's PRB coal moves exceeded SAC.[23] Midway through the case, the Board concluded *Major Issues*, and retroactively applied its new SAC rules, necessitating that WFA develop a new SARR.[24] WFA ultimately obtained significant rate relief in a Board decision served in 2009,[25] but, as a result of subsequent BNSF appeals,[26] a technical remand,[27] and yet another BNSF

---

[22] *See W. Tex. Utils. Co. v. Burlington N. R.R.*, 1 S.T.B. 638 (1996); *Ariz. Pub. Serv. Co. v. Atchision, T. & S.F. Ry.*, 3 S.T.B. 70 (1998).

[23] *WFA* (complaint filed Oct. 19, 2004).

[24] *Id.*, slip. op. at 9-10 (STB served Feb. 18, 2009), *as corrected and clarified* (STB decisions served June 5, 2009 and July 27, 2009).

[25] *Id.*, slip. op. at 31 (STB served Feb. 18, 2009).

[26] *See BNSF Ry. v. STB*, 604 F.3d 602 (D.C. Cir. 2010) (affirming in part the 2009 *WFA* decisions, and remanding one issue).

[27] *See WFA* (STB served June 15, 2012) (addressing remanded issue).

appeal,[28] the case is still being litigated eight years later, at a total cost to WFA that is approaching $10 million.

While pursuit of a SAC case has not been easy, and many shippers' cases have failed,[29] some shippers have obtained meaningful rate relief under the SAC constraint.[30] This record stands in stark contrast to relief accorded to coal shippers under the other three constraints since 1985: zero. Unfortunately, as discussed in the next sections of this submission, if the Board adopts its two proposed Full-SAC proposals, the SAC test will no longer provide any meaningful rate relief to most coal shippers. Instead, SAC will join the other failed constraints, leaving most captive coal shippers with NO effective remedy against monopoly pricing by market dominant rail carriers.

ARGUMENT

The Board should not adopt its proposal to arbitrarily limit traffic that can be included in a SARR and should not adopt its flawed Alternative ATC proposal.

[28] *See BNSF Ry. v. STB*, No. 12-1327 (D.C. Cir. filed July 23, 2012).

[29] *See Rail Rate Cases at the STB*, http://www.stb.dot.gov/stb/industry/Rate_Cases.htm (listing 7 Full-SAC coal rate cases decided since 2000 where the STB found the challenged "[r]ates [r]easonable").

[30] *Id*. (listing 5 Full-SAC coal rate cases decided since 2000 where the STB found the challenged "[r]ates [u]nreasonable").

I.

THE BOARD'S PROPOSED RESTRICTIONS ON THE USE OF CROSS-OVER TRAFFIC IN FULL-SAC RATE CASES ARE IMPROPER AND SHOULD NOT BE ADOPTED

In its *July 2012 Decision*, the Board proposes to adopt improper, unprecedented, and massively overbroad restrictions upon the ability of complainants in Full-SAC cases to utilize cross-over traffic. The *July 2012 Decision* speaks of the Board's "growing concern" associated with the inclusion of "large amounts of carload and multi-carload cross-over traffic" in SAC systems. *Id.*, slip op. at 16. The Board then proposes to restrict the use of cross-over traffic to movements where (1) "the SARR would either originate or terminate the rail portion of the movement," or (2) "the entire service provided by the defendant railroad in the real world is in trainload service." *Id.*, slip op. at 16-17. The proposed restrictions are flatly inconsistent with SAC theory, over-rule twenty-five years of agency precedent applying SAC theory, and effectively would eliminate maximum rate relief for most captive coal shippers.

As explained below, the Board has not identified any legitimate basis for the proposed restrictions. While the *July 2012 Decision* speaks of a "disconnect" with how URCS assigns costs and ATC allocates revenues on cross-over traffic, that disconnect is not identified, explained, documented, or quantified, nor is any reason offered why such a "disconnect" should result in the gutting of longstanding SAC grouping principles.

Under Modified ATC, cross-over traffic revenues are allocated between the involved traffic segments based on each segment's percentage share of the incumbent's

average total costs for the combined move. The average total costs are the sum of the variable and fixed costs of the segments, with variable costs calculated using the Board's URCS Phase III costing program. URCS Phase III assigns a substantial premium to any activities conducted by the carrier "originating, terminating, and gathering" cars (*id.*, slip op. at 16), and there is no explanation why that premium is understated or results in an under-allocation of cross-over traffic revenues to the carrier providing these services.

Similarly, the SARR or other SAC competitor (*e.g.*, a pipeline) serves as a functional replacement for the incumbent, and the Board has made it clear that revenue allocation for cross-over traffic must be based upon the incumbent railroad's operations and costs, not those of the SARR. There is thus no explanation why the revenue allocation to the SARR segment could be overstated based on the operations of the SARR (which do not govern the revenue allocation), as opposed to the operations of the incumbent railroad (which do govern the revenue allocation).

To the extent that there can be any "disconnect," it appears that it can only be related to some perceived limitation or flaw in the URCS Phase III methodology, the use of which the Board mandated in *Major Issues*. No such flaw has been identified by the Board. Even if such a flaw were demonstrated, the proper course would be to identify and address that flaw, rather than adopt blunderbuss restrictions that are overbroad and do nothing to address the alleged flaw. *See* Verified Statement of Thomas D. Crowley and Daniel L. Fapp ("Crowley/Fapp VS") at 41-53. Simply stated, the Board should not throw the baby out with the bathwater.

The proposed restrictions are also completely contrary to SAC theory and precedent because they would create an impermissible barrier not faced by incumbent carriers. *See* Verified Statement of Dr. Mark N. Lowry ("Lowry VS") at 3-6; Crowley/Fapp VS at 52-58. These restrictions would substantially complicate the process of seeking rate relief from the Board and ultimately could have the effect of forcing shippers to replicate the entirety of a defendant carrier's system in order to litigate a SAC case. Such SAC cases would be inordinately expensive and complicated, and to the extent the cases remain capable of presentation and review, the results would have little linkage to the facilities actually used to serve the issue traffic. *See* Crowley/Fapp VS at 58-60. The proposed restrictions are thus fundamentally inconsistent with the stand-alone cost constraint as conceived and administered by the Board and ICC for over twenty-five years.

These matters are addressed further below.

A. There is No Disconnect that Justifies Any Restriction on Cross-Over Traffic

In the *July 2012 Decision*, the Board claims to perceive a "disconnect between the hypothetical cost of providing service to [carload and multi-carload cross-over] movements over the segments replicated by the SARR and the revenue allocated to those facilities." *Id.*, slip op. at 16. It comments that some recent SARRs have generally handled carload and multi-carload traffic "for only a few hundred miles *after* the traffic would be combined into a single train" at a very low cost, and that recent "litigants have proposed SARRs that would simply hook up locomotives to the train, would haul it a few

hundred miles without breaking the train apart, and then would deliver the train back to the residual defendant." *Id*. (original emphasis). In contrast, "[a]ll of the costs of handling that kind of traffic (meaning the costs of originating, terminating, and gathering the single cars into a single train heading in the same direction) would be borne by the residual railroad." *Id.* The Board then claims that this arrangement creates a disconnect when these relative costs are calculated under URCS and revenues are then allocated under ATC:

> However, when it comes time to allocate revenue to the facilities replicated by the SARR, URCS treats those movements as single-car or multi-car movements, rather than the more efficient, lower cost trainload movements that they would be. As a result, the SAC analysis appears to allocate more revenue to the facilities replicated by the SARR than is warranted.

Id. The *July 2012 Decision* further claims that there is a "bias that is created by the disconnect between the revenue allocation and the costs of providing service." *Id.*

The nature of the "disconnect" or "bias" asserted by the Board cannot be readily determined. The Board provides no quantification, documentation, or even an actual example of the alleged disconnect. Moreover, the Board does not explain if the problem arises from: (a) any difference in the operations between the SARR and the incumbent over the segment; (b) the allocation of insufficient costs/revenues to the residual incumbent's segment(s) (whichever segment(s) they might be in a particular case); or (c) the allocation of excessive costs/revenues to the SARR segment (again,

whichever segment that may be).[31] Given the Board's vagueness, it becomes prudent to address each possibility.

The disconnect cannot relate to any difference between how the SARR and the incumbent physically handle the traffic over the SARR segment since their operations are functionally equivalent. Indeed, if the SARR failed to perform any service provided by the incumbent for the selected traffic group, the SARR would be rejected as an inadequate replacement for the defendant. Moreover, the Board has ruled, as explained below and in Crowley/Fapp VS at 42-44, that the activities of the incumbent, and not those of the SARR, govern for purposes of revenue allocation, especially as the SARR need not even be a railroad *per se*. "Revenue divisions are intended to allocate the incumbent's revenues to discrete segments of the incumbent's end-to-end movements based on the relative costs of the incumbent's operations over those segments and are not intended to allocate revenues based on the SARR's operations." Crowley/Fapp VS at 42.

Since there is no meaningful physical disconnect, the Board's concern, to the extent it can have any foundation at all, must instead relate to how costs are assigned for purposes of allocating revenues under ATC and presumably reflects a perception by the Board that insufficient costs/revenues are assigned to the originating and/or terminating movement segment(s) or excessive costs/revenues are assigned to the bridge

[31] In different cases (or different movements within the same case), the SARR might be the originating, bridge, or terminating segment. The allocation should not vary according to which individual segment of a movement the SARR happens to replicate. An allocation that did vary would be biased and result driven. *See* Crowley/Fapp VS at 48.

segment(s). Crowley/Fapp VS at 45-46. However, the Board uses its Phase III URCS for both purposes. Moreover, the Phase III URCS assigns a premium, sometimes a hefty one (where warranted by the underlying URCS methodology), to both the originating segment and the terminating segment relative to the bridge segment.[32] It is thus entirely unclear whether the Board's concern is with something the SARR does or does not do, or whether the concern is with URCS itself.

The Board's newly-found concern may be that intertrain and intratrain ("I&I") switching costs associated with handling carload or multi-car traffic are assigned to the SARR segment, when the incumbent's operations over that segment, like those of the SARR, may more resemble trainload operations (what the *July 2012 Decision* calls "hook" and "haul" service) in that the SARR's operations I&I switching. A related possibility may be that the Board's concern is that URCS Phase III allocates "insufficient" costs to the residual incumbent to cover activities in originating, terminating, and interchanging the non-trainload cross-over traffic. Crowley/Fapp VS at 45.

[32] Table 8 in the Crowley/Fapp VS at 51 and Exhibit No. 3 illustrates the premiums for originating and terminating different types of movements. Significantly, the Board's earlier methodologies actually assigned larger premiums for originating and terminating traffic, and the Board adopted ATC in response to railroad claims that those premiums were overstated, as discussed in Crowley/Fapp VS at 42-43. The Board's proposed restrictions on cross-over traffic thus do not reflect any disconnect, but rather reflect ongoing vacillation in attempting to restrict the SARR's revenues. The vacillation appears to arise because the SARR's efforts to be a least-cost, most-efficient replacement may lead it to be an originating, terminating, and/or bridge carrier depending on the situation.

The *July 2012 Decision* provides no support for either premise. The Board has held repeatedly that it relies upon URCS for cost determinations in maximum rate reasonableness proceedings. Moreover, the Board mandated the use of system-average Phase III URCS and prohibited movement-specific adjustments in *Major Issues*. The Board has provided no basis for discerning how what it claims is a "disconnect" or "bias" is anything but the straightforward application of the approach and methodology that it requires shippers to utilize. There is absolutely no basis for the Board to rely upon such an unspecified and unexplained disconnect as a means of preventing shippers from utilizing cross-over traffic in their SARR systems. Crowley/Fapp VS at 45, 47-52.

Perhaps the Board's concern is that the application of system-average Phase III URCS costs produces a cost and associated revenue allocation that does not conform to what the Board anticipates or speculates would result from a movement-specific costing analysis on the segment of the SARR and/or residual incumbent. But inherent in reliance on system-average costs is the possibility that activities and associated costs for originating, terminating, or I&I switching (or virtually any other function) that are imputed to any particular segment will not precisely match the actual operations conducted on that or any other segment. The actual activities and associated costs may be greater or lesser in certain instances, in particular respects, or on certain segments. Crowley/Fapp VS at 49.[33] "System-average" is exactly that – an average – and is not

[33] Crowley/Fapp at 49 and 53 further explain that if the Board is concerned about a disconnect on the SARR segment, it must also consider the possibility of other disconnects on the residual incumbent segment(s).

assured to reflect an individually measured value in any particular instance. Indeed, as granularity increases, divergences are more likely to result.

Such a "disconnect" should be of no surprise to the Board, as the Board's own choices and actions create the so-called disconnect. *Id.* at 45 ("The perceived disconnect arises from the fact that the STB's model develops individual movement costs based on unit costs that reflect system-average operations."). Coal Shippers vigorously explained in *Major Issues* that system-average costs systematically overstate the actual costs incurred in transporting unit coal trains by ignoring such matters as the number of locomotives, fuel consumption, tare weight, *etc.*, associated with unit coal trains. Overall, the use of system-average costs leaves Coal Shippers worse off than they would be otherwise. However, the Board found that "the use of movement specific-adjustments is inordinately complex, time consuming, and expensive, and does not necessarily result in more reliable results than using the URCS system averages." *Major Issues*, slip op. at 60. The Board further warned that "selective replacement of system-average statistics . . . may bias the entire analysis, rendering the modified URCS output unreliable." *Id.*, slip op. at 52.

The Board's focus on isolated aspects of the SARR and/or the residual incumbent segments would constitute exactly the sort of selective adjustment that was the subject of the Board's warning. However, it would be even more outrageous to restrict, meaning effectively ban, the use of cross-over traffic generally on the basis of such a selective observation. Crowley/Fapp VS at 52-53. Rather than claim it is "[w]ithout a means of correcting or minimizing the bias that is created by the disconnect" (*July 2012*

Decision, slip op. at 16), the more appropriate course for the Board would be to attempt to define and quantify any such disconnect and propose an appropriate adjustment. Crowley/Fapp VS at 40 ("Instead of addressing this issue by reviewing and adjusting the cost inputs used to allocate revenues, the STB has taken the extreme approach of proposing to radically restrict cross-over traffic movements.").

The more likely explanation for the Board's failure to propose an adjustment directed to the perceived flaw is that it recognizes that any such adjustment would be inconsequential. In the recent *AEPCO* case, the Board required the parties to recost the non-trainload traffic moving over the SARR segment as if it were trainload traffic for determining Maximum Markup Methodology ("MMM") relief. That approach has the virtue of at least being directed to a possible basis for the claimed disconnect, and the adjustment was to the effect of removing the I&I switching from the SARR segment (and adjusting the empty return ratio to 2.0), which constitutes the primary difference between trainload and non-trainload traffic on a bridge SARR segment. However, the adjustment proved to have an immaterial impact. *AEPCO* (STB served June 27, 2011), and slip op. at 36 (STB served November 22, 2011). *See also* Crowley/Fapp VS at 47-50.

The lack of material impact is to be expected. Fifteen years ago, the Board, relying on data submitted by the railroads, found that "I&I switching of intermodal trains is relatively uncommon" and decided to "use an I&I switching factor of 4,163 miles for all future TOFC/COFC waybill and URCS movement costing," as opposed to the 200-mile factor previously used that rested "on a 50-year old study that predates the advent of

TOFC/COFC service." *Review of the General Purpose Costing System*, 2 S.T.B. 754, 755 (1997). Intermodal trains now constitute a very substantial portion of the railroads' traffic base,[34] and the significance of I&I switching is reduced accordingly.[35] When the *July 2012 Decision* says that the Board lacks a means to address the disconnect, it appears to really be saying that the Board lacks a means to address the disconnect that results in a materially different outcome. The reason is that even if a disconnect existed, it would be of no real significance. Crowley/Fapp VS at 48-52.

In short, the claimed disconnect is not a disconnect at all, but simply the natural consequence of the Board's decision in *Major Issues* to rely on the incumbent's operations when calculating cross-over divisions. *See* Crowley/Fapp VS at 45. Even if there were a disconnect under some approach prohibited by *Major Issues*, it would not begin to justify the drastic proposed restrictions on cross-over traffic, which would render SAC unworkable in many instances. *Id.* Similarly, to the extent that the Board does not believe that URCS accurately reflects the origination, termination, and interchange costs of the residual incumbent, the Board needs to address URCS directly, not engage in *sub*

[34] According to the weekly statistics released by the AAR, intermodal traffic comprises over 40% of the carloads originated by the major United States railroads.

[35] Any claim of an I&I disconnect for other types of non-trainload traffic presumably relates to the same study (now at least 65 years old), but the Board provides no indication that the study is any more representative for that other traffic. Relevant developments in the past 65 years include transistors, commercially available mainframe and then ever smaller and more powerful computers, associated computer programs and computer-based technology, communication systems (fax machines, internet, email, *etc.*), the interstate highway system, and the large number of railroad mergers that have vastly expanded the footprint of the remaining carriers. All of these technological advances and other developments have the potential to alter the need for and the frequency of I&I switching.

silentio movement-specific adjustments, or conclude that such imperfections require broad restrictions on cross-over traffic. *Id.* at 46.[36] These and related matters are addressed below.

B. Any Board Focus on the Operations of the SARR Violates the Board's Rule that Cross-Over Revenues are to Reflect the Operations and Costs of the Incumbent Calculated Under System-Average Costs

As noted above, the Board's perceived "disconnect" may be founded on activities that the SARR allegedly does not conduct on its segment.[37] However, this focus on the activities of the SARR violates the Board's established rule that divisions on cross-over traffic are to be derived based upon the operations of the incumbent carrier using system-average costs. The operations, costs, and/or densities of the SARR are thus irrelevant in the divisions process, just as movement-specific adjustments are prohibited. Crowley/Fapp VS at 42-44. The *July 2012 Decision* does not acknowledge the Board's established rule, nor does it provide any sort of reasoned explanation for departing from the underlying principles.

---

[36] Likewise, to the extent that the Board wishes to engage in movement-specific analysis, it cannot do so on a selective basis, but must also recognize the numerous disparities that might favor shippers.

[37] "[T]he proposed SARR includes cross-over traffic of carload and multi-carload traffic," but "generally . . . handle[s] the traffic for only a few hundred miles *after* the traffic would be combined into a single train" and "simply hook[s] up locomotives to the train, . . . haul[s] it a few hundred miles without breaking the train apart, and then would deliver the train back to the residual defendant." *July 2012 Decision*, slip op. at 16 (original emphasis). In contrast, "when it comes time to allocate revenue to the facilities replicated by the SARR, URCS treats those movements as single-car or multi-car movements, rather than the more efficient, lower cost trainload movements that they would be." *Id.*

In *Major Issues*, the Board made clear that the ATC divisions would be calculated using system-average costs:

> Using the URCS variable and fixed costs for the carrier, and the density and miles of each segment, parties can calculate the railroad's average total cost per segment of a move. The revenues from each portion of the movement would then be allocated in proportion to the average total cost of the movement on- and off-SARR.

Major Issues, slip op. at 26. The Board explained that "we are persuaded that the use of movement specific-adjustments is inordinately complex, time consuming, and expensive, and does not necessarily result in more reliable results than using the URCS system averages." *Id.*, slip op. at 60. On that basis, the Board ordered that "[t]he variable costs used in rate reasonableness proceedings will be the system-average variable costs generated by URCS, using the nine movement-specific factors inputted into Phase III of URCS." *Id.* The Board further noted that "selective replacement of system-average statistics . . . may bias the entire analysis, rendering the modified URCS output unreliable," especially if the railroads do not provide shippers with information needed "for counterbalancing adjustments that benefit shippers." *Id*., slip op. at 58.

To the extent there remained any questions after *Major Issues* as to whether the differing characteristics of the SARR could be considered in allocating cross-over revenues, they were resolved in the Board's first rate case decisions after *Major Issues* in *WFA* (served Sept. 10, 2007) ("*WFA 2007*") and *AEP Texas*.[38] In particular, in *WFA*

[38] *AEP Tex. N. Co. v. BNSF Ry.*, NOR 41191 (Sub-No. 1) (STB served Sept. 10, 2007) ("*AEP Texas*").

2007, the Board specifically rejected shipper efforts to have ATC reflect the SARR's switching activity at its hypothetical interchanges with the residual incumbent and made clear that it would rely on system-average costs of the incumbent over the SARR segment:

> BNSF contends that WFA improperly allocated a larger share of the revenues to the SARR by developing variable cost information that included fictional interchanges costs between the SARR and the residual railroad. We agree. The purpose of the ATC revenue allocation is to determine *how much of the revenue that the defendant carrier collects* for the total movement should be allocated to each segment of the movement based on the costs that need to be recovered on each segment and the amount of other traffic on each segment available to share the joint and common costs. *See Major Issues* at 25 ("*By focusing on the ratio of actual costs incurred by the carrier*, the revenue allocation method should maintain, to the extent possible, the relationship between revenues and costs that would exist in a full SAC analysis); *id*. at 31 ("ATC is a suitable methodology that meets the Board's stated goals *of reflecting, to the extent practical, the carrier's relative average costs* of providing service over the two segments."); *id*. at 35 ("the ATC method . . . is keyed to *the defendant carrier's relative costs* of providing service . . . .") (emphasis added). Accordingly, we use BNSF's variable cost evidence.

WFA 2007, slip op. at 12 (emphasis altered). The Board similarly explained in the *AEP Texas* decision served the same day:

> BNSF argues that the purpose of ATC is to determine the *defendant carrier's relative costs* for the various line segments, and *because the defendant does not incur interchange costs with itself, those costs are irrelevant for purposes of calculating ATC. We agree*. The proper place to account for costs that would be introduced by failing to replicate all of the defendant's move is in the computation of the TNR's costs, as it is the SARR that would need to interchange this traffic. Accordingly, the ATC revenue

> allocation we use here properly focuses on determining the *relative costs to the defendant carrier* of handling the movement on each part of its system.

AEP Texas, slip op. at 13 (emphasis added) (footnotes omitted).

Furthermore, in its 2009 *WFA* decisions,[39] the Board agreed with BNSF that the ATC calculation should reflect the real-world densities of the incumbent, and not the lower densities of the SARR. The Board explained that "the objective of ATC is to reflect the defendant carrier's relative costs of providing service over the relevant segments of its network," and that using the SARR's densities would create a mismatch with the incumbent's variable costs, especially as the SARR need not be a railroad at all. *Id.*, slip op. at 13-14 (served Feb. 18, 2009); Crowley/Fapp VS at 42-43. Likewise, the Board based the ATC revenue allocations for internally rerouted cross-over traffic on the predominant route of movement over the incumbent, ignoring different routings that might be used by the SARR. *WFA*, slip op. at 14-15 (served Feb. 18, 2009); Crowley/Fapp VS at 44.

The Board's suggestion of a disconnect in the operations of the SARR, as opposed to the operations of the incumbent as reflected in the URCS Phase III costing, represents a major, unexplained, and unjustified departure from the Board's established approach. Furthermore, if the Board were to begin altering its approach to reflect some characteristics of the SARR, *i.e.*, the equivalent of movement-specific adjustments, such as the SARR's supposed lack of I&I switching, it would become at least as appropriate to

[39] *See, e.g., WFA* (STB served Feb. 18, 2009).

reflect other areas, including those where the SARR incurs higher costs than the incumbent. Those areas encompass the interchange costs excluded in *WFA 2007* and *AEP Texas*, the SARR's lower densities excluded in the 2009 *WFA* decisions, and the higher capital costs resulting from the SARR's having to pay for the replacement cost of assets. Those costs are significant, especially compared to I&I switching, and would likely result in greater revenues being allocated to the SARR than under the Board's current approach.

C. The Proposed Restrictions Would Render SAC Unworkable by Forcing Shippers Either to Forego Cross-Over Traffic, thus Creating an Impermissible Entry Barrier, or to Expand their SARRs to Approximate the Full Incumbent, Making Rate Cases Infeasible and Undermining the Accuracy of the Results

As explained above, the SARR's operations do not give rise to any sort of cognizable disconnect under the Board's established principles. However, even if there were some sort of disconnect, it would not begin to support the proposed restrictions on cross-over traffic. Those restrictions go to the core of the SAC test and fly in the face of the purpose and history of the stand-alone cost test.

When it adopted SAC over 25 years ago, the ICC recognized the critical importance of allowing shippers to decide which traffic to include, and exclude, from their SARRs:

> The ability to group traffic of different shippers is essential to [the] theory of contestability. It allows the captive shipper to identify areas where production economies define an efficient subsystem or alternative system whose traffic is divertible to a hypothetical competitor. Without grouping, SAC would not be a very useful test . . . .

> We see no need for any restrictions on the traffic that may potentially be included in a stand-alone group.

Coal Rate Guidelines, 1 I.C.C.2d at 544. The Board now proposes to reduce that freedom severely. The proposed restrictions would force captive shippers either to forego desirable cross-over traffic or to expand the footprint of their SARRs substantially to include the origin or destination, or both, for such traffic. Neither option comports with SAC theory, and either choice would eviscerate the SAC constraint in most instances. Lowry VS at 3-6; Crowley/Fapp VS at 52-60. In essence, a measure entitled "Rate Regulation Reforms" would prove to be the end of meaningful rate regulation for most shippers.

As the ICC recognized in *Nevada Power II* and repeatedly thereafter, the use of cross-over traffic greatly simplifies the stand-alone cost analysis by allowing the shipper to take into account the economies of scale, scope, and density that the defendant enjoys over the routes replicated without unduly complicating the analysis. *Bituminous Coal – Hiawatha, UT to Moapa, NV*, 10 I.C.C.2d 259, 265-68 (1994) ("*Nevada Power II*"). "The modeling device of cross-over traffic has become an indispensable part of administering a workable test." *Otter Tail Power Co. v. BNSF Ry.*, NOR 42071, slip op. at 12 (STB served Jan. 27, 2006) ("*Otter Tail*"). "Creating a SARR to serve the same traffic group without using the cross-over traffic device would dramatically enlarge the geographic scope of a SARR." *Pub. Serv. Co. of Colo. d/b/a Xcel Energy v. The Burlington N. and S.F. Ry.*, 7 S.T.B. 589, 600-603 (2004) ("*Xcel I*"). "The use of cross-

over traffic to simplify a SAC presentation is a well-established practice. *AEP Texas*, slip op. at 11.

As noted above, the shippers' first option if the Board were to adopt its proposed restrictions would be to reduce the volume of traffic handled by their SARRs by excluding otherwise desirable overhead traffic (under the first proposed restriction) or carload and multi-car cross-over traffic (under the second proposed restriction) in violation of this long history of agency approval of cross-over traffic. The traffic restrictions would amount to an impermissible entry barrier that prevents the SARR from realizing the economies of density, scale, and scope achieved by the incumbent. *See, e.g., Xcel I*, 7 S.T.B. at 601 (explaining that cross-over traffic "enables the SAC analysis to take into account the economies of scale, scope and density that the defendant carrier enjoys over the routes replicated"). The exclusion of the cross-over traffic would leave the SARR at a significant disadvantage relative to the incumbent, especially as the SARR would have to cover its replacement capital costs (which are replaced on an ongoing basis under the Board's DCF model) and operating costs. Lowry VS at 3-6; Crowley/Fapp VS at 56-58.

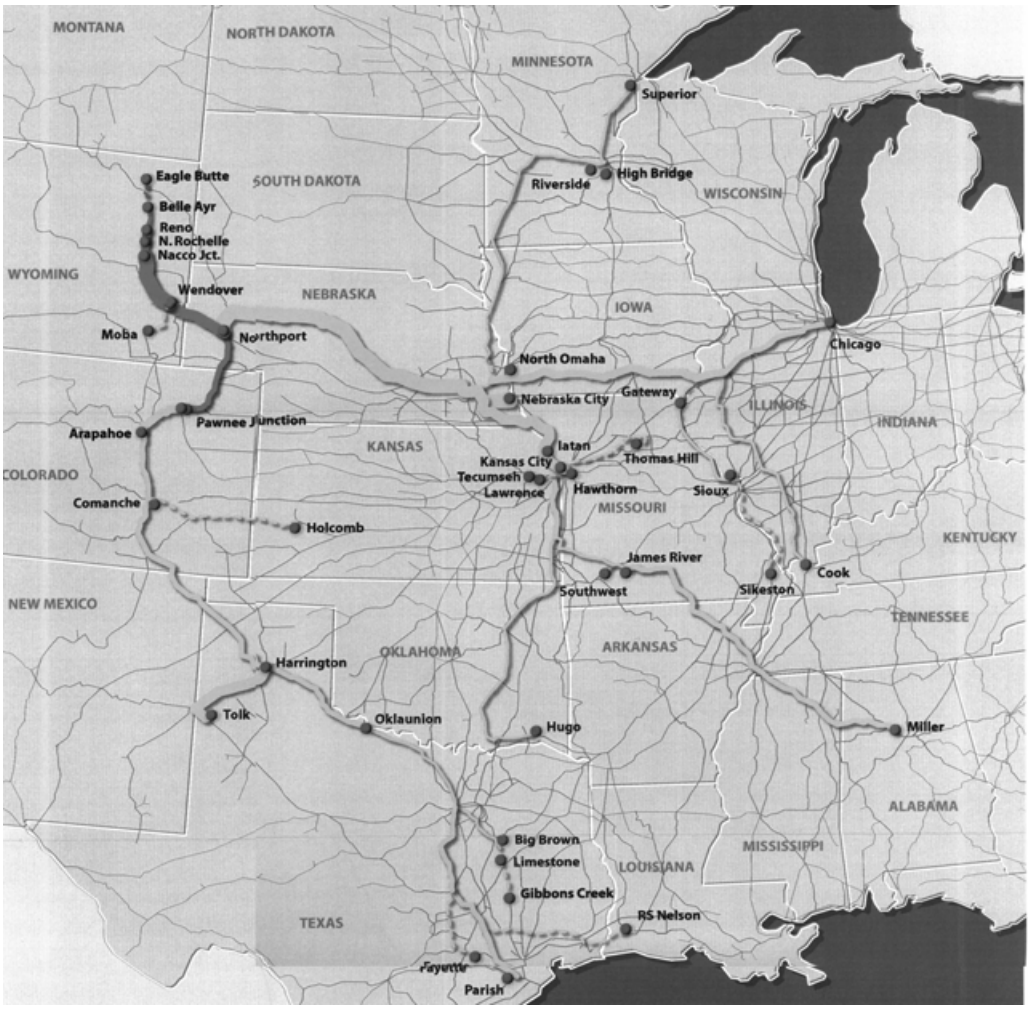
Moreover, the Board's adoption of the internal cross-subsidy tests in *PPL Montana*[40] and *Otter Tail* magnifies the need to include cross-over traffic in the SAC analysis. The internal cross-subsidy test requires the shipper to demonstrate not only that the SARR's total revenues exceed its capital carrying and operating costs on a system-

[40] *PPL Mont., LLC v. Burlington N. & Santa Fe Ry.*, 6 S.T.B. 286 (2002).

wide basis, but also that there are no individual segments where the attributable revenues fail to cover the unavoidable costs. The exclusion of cross-over traffic undermines the basis for that internal cross-subsidy test. Crowley/Fapp VS at 60 n.54.

The shippers' other option under the Board's proposal would be to expand the footprint of their SARRs to include the relevant origin(s) or destination(s), or both in the case of the second restriction proposed by the Board (*i.e.*, the shipper would have to handle the carload or multi-carload traffic in single-line service). However, after the initial extension, the expanded lines would need cross-over traffic of their own to achieve desirable densities, and so on. The cascade would ultimately require the SARR to replicate a substantial portion, or even most or all, of the incumbent. Crowley/Fapp VS at 58-60.

The Board has previously recognized the problems inherent in such a cascade. In the *Xcel* case, the Board found that "[c]reating a SARR to serve the same traffic group without using the cross-over traffic device would dramatically enlarge the geographic scope of a SARR," which "would need to be at least 10 times larger than the WCC to reach the destinations" for the cross-over traffic, as shown on the following map:



Id., 7 S.T.B. at 601-602. The Board further noted that "the geographic scope of the expanded SARR might not end there," since:

> If one were to extend the SARR south of Pawnee Junction down to the Gulf Coast region, for example, more traffic would need to be included in the traffic group (e.g., intermodal, general manifest, or chemical traffic from the Gulf Coast region) to generate the same economies of density that BNSF enjoys along that corridor. But to add such traffic, the geographic scope of the SARR would need to be extended even further to include other portions of BNSF's system that would be needed to serve that added traffic. The cascading analysis could result eventually in a complainant having to replicate almost all of BNSF's system. The scope and complexity of the proceeding would expand exponentially.

Id. at 602.[41] As a result, what was otherwise a manageable, although still resource-demanding, SAC case would likely become unmanageable:

> While the WCC is a relatively small and straight-forward SARR, the parties had to produce, and the Board analyze, dozens of volumes of evidence on the costs associated with acquiring the land, designing, building, and operating this short SARR (approximately 400 route-miles). It is difficult to imagine the amount of materials that would have to be produced and analyzed to put together the evidence needed to design a railroad 10 times larger. The number of disputed issues would also escalate, and the operating plans and computer simulation models would become so complicated as to risk being intractable.

Id., 7 S.T.B. at 602-03.

The Board has recognized the absurdity of such an approach. "[W]e must guard against the SAC process becoming so complex and expensive as to deny captive shippers meaningful access to the rate review provided for under *Guidelines*." *WFA 2007*, slip op. at 11. Moreover, the Board, which is already experiencing difficulty resolving much simpler cases in an expeditious manner, would also be hard-pressed to begin to evaluate the evidence in such a presentation.

Even assuming that such an expanded SAC analysis were somehow practicable for the shipper, the railroad, and the Board, the resulting comparison of total stand-alone revenues to stand-alone costs, and even the allocation of SAC relief under MMM, would have relatively little linkage to the facilities needed or used to serve the

[41] *See also Otter Tail*, slip op. at 12 ("Without cross-over traffic, the SARR would replicate the entire service provided by the defendant railroad for all of the traffic included in the SAC analysis, so that all capital and operating costs associated with serving the traffic group would be included in the SAC analysis . . . .").

issue traffic. The resulting analysis would thus fail to comport with the objectives of SAC analysis in this respect as well:

> [I]t is appropriate for the SAC analysis to focus on the particular facilities and services needed to serve that shipper . . . . Permitting Xcel to use cross-over traffic in its SAC presentation thus keeps the SAC analysis properly focused on the core inquiry—whether the defendant railroad is earning adequate revenues on the portion of its rail system that serves the complaining shipper.

Xcel I, 7 S.T.B. at 601. In this sense, SAC would fail in its basic objective to determine the rate that would need to be charged to serve the issue traffic on a least-cost, most-efficient basis.[42]

Cross-over traffic is thus not just a simplification device. Instead, it is an entirely legitimate, and in virtually all cases, an absolutely necessary mechanism to achieve a SAC result that reflects the rate that would be charged to the captive shipper operating in a least-cost, most-efficient manner over the facilities needed to serve the issue traffic.

While the Board's predecessor adopted four prongs of constrained market pricing in *Coal Rate Guidelines*, SAC is the only constraint that has ever proved practicable and meaningful for judging the reasonableness of railroad rates. Phasing has never been applied and can provide, at best, only temporary relief from large rate

[42] At best, a SAC analysis with a SARR expanded to eliminate cross-over traffic might begin to approximate a replacement-cost version of the revenue adequacy constraint. However, this system-wide replacement-cost approach is exactly the revenue adequacy approach that the Board properly rejected in *Ass'n of Am. R.R. – Petition Regarding Methodology for Determining R.R. Revenue Adequacy*, EP 679 (STB served Oct. 24, 2008).

increases. It is not a mechanism for determining if rates are too high. The management efficiency constraint has proven to be a quagmire for any shipper that pursued it, and shippers quickly learned to avoid it. The Board has never developed the revenue adequacy constraint for use in railroad maximum reasonable rate proceedings (although Coal Shippers believe it is long past time for the Board to do so). Accordingly, the practical import of the Board's proposed restrictions on cross-over traffic would be to eliminate any prospect of rate relief for captive shippers.

Evisceration of the only viable form of rate relief is especially unwarranted at the present time. The railroads are far healthier than they have been for at least fifty years, and the use of cross-over traffic in SAC cases for nearly twenty years plainly has not impeded the economic advancement of the railroad industry. A neutral observer could easily conclude that the railroads have achieved revenue adequacy (and Wall Street seems to agree). Not coincidentally, the railroads are exercising their market power to a greater extent than ever before, meaning that there is even more need for meaningful rate regulation. The Board should not be proposing to effectively eliminate rate regulation precisely at the time that it is needed the most.

D. The Board's Proposed Restrictions are Inconsistent with its Analysis in Past Merger Decisions

An additional problem with the Board's proposed restrictions on cross-over traffic is that they would violate assurances that the Board provided in past railroad merger decisions.

At the time of the railroad mergers that occurred in the 1980's and 1990's, the Board repeatedly assured captive shippers that they would not be prejudiced by those mergers. The Board's explanation relied upon the "one lump" theory to the effect that once a shipper was captive, a merger would not exacerbate that captivity:

> It has been our experience that end-to-end restructurings of this kind rarely result in a diminution of competition. We have adopted a presumption, knows as the one-lump theory, that vertical combinations will not result in competitive harm…. Although several parties have attempted to argue that we should not apply the one-lump theory to rail mergers, repeating argument that have been raised and rejected in previous merger proceedings, no party has rebutted the application of the theory here. Our use of the one-lump theory has been judicially approved, and we will not go back over that ploughed ground here. *See, Western Resources, Inc. v. STB*, 109 F.3d 782 (D.C. Cir. 1997).

CSX Corp. & CSX Transp., Inc., et al., 3 S.T.B. 196, 248 (1998); *see also Lamoille Valley R.R. v. ICC*, 711 F.2d 295, 318 (D.C. Cir. 1983).

Those assurances would no longer hold under the Board's proposed restrictions. Mergers, especially end-to-end mergers, expand the footprint of the surviving carrier. As a result, movements on the incumbent's predecessor that were previously shorter because they involved interchanges with the other predecessor become longer movements on the merged carrier. The mergers thus create new cross-over movements and can extend the cross-over portion of pre-existing cross-over movements, in both events increasing the extent to which the SARR relies on cross-over traffic. Accordingly, a shipper constructing a SARR under the Board's new rules may well need to expand the footprint of its SARR to include an origin or destination (or both, under the

Board's second approach) for non-trainload cross-over traffic. In this manner, the shipper is forced, as a result of the merger, either to develop a SARR with a larger footprint or else forgo needed cross-over traffic.

The Board's proposed new restrictions on cross-over traffic would thus amount to a regulatory bait-and-switch.

II.

THE BOARD SHOULD NOT ADOPT ALTERNATIVE ATC

Coal Shippers respectfully request that the Board not adopt the Alternative ATC methodology. This methodology is fatally flawed in numerous respects and is demonstrably inferior to the Board's current cross-over traffic revenue allocation procedure, Modified ATC. There is one flaw in Modified ATC that should be corrected, and, given changes in the rail industry, the Board may want to consider a simpler approach to allocating cross-over traffic revenues. However, Coal Shippers emphasize that if the choice is Modified ATC versus Alternative ATC, Modified ATC must be retained.

A. The Historical Array of Cross-Over Traffic Revenue Allocation Methodologies

The Board, and its predecessor the ICC, have considered, and utilized, an array of different procedures to allocate revenue on SARR cross-over traffic. Chronologically, those methods are:

1. Mileage Prorate

In *Nevada Power II* – the first case involving the use of cross-over traffic – the ICC set cross-over traffic divisions using a straight mileage prorate.[43] For example, if the SARR moved the traffic 500 miles, and the residual incumbent moved the traffic 1,000 miles, the SARR would be allocated 33.3% of the movement revenues (500/1500).

2. Modified Mileage Block Prorate ("Mileage Block")

In *McCarty Farms*,[44] and several subsequent cases, the Board set cross-over traffic revenues using a Mileage Block approach. Under this approach, the SARR, and the residual incumbent, were assigned one block for every 100 miles or part thereof which they carried the traffic plus an additional block for originating or terminating the traffic.[45] For example, if the SARR was assigned four blocks, and the residual incumbent was assigned 12 blocks, the SARR would be allocated 25% of the movement revenues (4/16).

3. Modified Straight-Mileage Prorate ("MSP")

In *Duke/NS*,[46] and several subsequent cases, the Board set cross-over traffic revenues using MSP. Under this approach, movement revenue is allocated on a mileage prorate basis, with the originating or terminating carrier receiving a 100-mile additive.[47]

---

[43] *Id*., 10 I.C.C.2d at 268.

[44] *McCarty Farms, Inc. v. Burlington N., Inc*., 2 S.T.B. 460 (1997) ("*McCarty Farms*").

[45] *Id*., 2 S.T.B. at 472.

[46] *Duke Energy Corp. v. Norfolk S. Ry*., 7 S.T.B. 89 (2003) ("*Duke/NS*").

[47] *Id*., 7 S.T.B. at 110.

For example, if the SARR originated the traffic, moved it 100 miles and the residual incumbent moved the traffic 700 miles and terminated it, the SARR would be allocated 20% of the movement revenue (200/1000).

4. Density Adjusted Revenue Allocation ("DARA")

DARA was a methodology sponsored by several railroads, starting with Norfolk Southern in *Duke/NS*,[48] but never accepted by the Board. Under this approach, movement revenue was first allocated to cover on-SARR and off-SARR variable costs, and contribution (*i.e.*, total movement revenue minus total movement variable cost) was allocated in inverse proportion to on-SARR and off-SARR movement densities.

For example, if the on-SARR variable cost was $1.50 per ton, the on-SARR density was 200 million gross tons ("MGT"), the off-SARR variable cost is $8.00 per ton, the off-SARR density is 50 MGT, and the movement rate is $25.00 per ton (revenue above variable cost = $15.50), the SARR would be allocated 18.4% of the movement revenue ([($1.50) +($15.50 x 50/250)] ÷ $25).

5. Original Average Total Cost ("Original ATC")

In *Major Issues*, the Board adopted the first average total cost methodology,[49] which is referred to here as the Original ATC methodology. Under this approach, which was never utilized in a decided case, movement revenue is allocated as a

[48] *See id.*, 7 S.T.B. at 106-108.

[49] *Major Issues*, slip op. at 31.

percentage of the average total cost for the movement cost.[50] For example, if the on-SARR average total cost was $2.00 per ton, and the off-SARR average total cost was $12.00 per ton, the SARR would be allocated 14.3% of the movement revenue ($2/$14).

6. Modified ATC

The Board developed Modified ATC in *WFA 2007* and *AEP Texas.* Under this approach, movement revenue is first allocated to cover on-SARR and off-SARR variable costs, and remaining contribution (total movement revenue – total movement variable cost) is allocated using the Original ATC procedure.[51]

For example, if the on-SARR variable cost was $1.50 per ton, the on-SARR ATC was $2.00 per ton, the off-SARR variable cost was $8.00 per ton, the off-SARR ATC was $12.00 per ton, and total movement revenue equaled $25.00 per ton (revenue above variable cost = $15.50), the SARR would be allocated 14.9% of the movement revenue ([$1.50 + ($15.50 x $2/$14)] ÷ $25).

For movements where movement revenues did not exceed variable costs, movement revenue is allocated based on variable cost percentages.[52] For example, if the on-SARR variable cost was $1.50 per ton, the off-SARR variable cost was $8.00 per ton, and the movement revenue equaled $9.00 per ton, the SARR would be allocated 15.8% of the movement revenue ($1.50/$9.50).

---

[50] *Id*., slip op. at 26; *see also Major Issues*, slip op. at 19-20 (STB served Feb. 27, 2006) (notice of proposed rulemaking) ("*Major Issues NPR*").

[51] *See WFA 2007*, slip. op. at 14; *AEP Texas*, slip op. at 15-16.

[52] *See WFA 2007*, slip. op. at 14 n.18; *AEP Texas*, slip op. at 16 n.37.

7. Proposed Alternative ATC

In its *July 2012 Decision* instituting the present proceeding, the Board is proposing another ATC methodology ("Alternative ATC").[53] Under this approach, movement revenue would be allocated using the Original ATC procedure unless the revenue allocation for the SARR or off-SARR segment resulted in revenues that were less than the variable costs for that segment, in which case the revenue for the segment would be raised to equal the segment's variable costs.[54]

For example, if the on-SARR variable cost was $1.50 per ton, the on-SARR ATC was $2.00 per ton, the off-SARR variable cost was $8.00 per ton, the off-SARR ATC was $12.00 per ton, and movement revenue equaled $10.00 per ton, application of Original ATC would produce on-SARR revenues less than variable costs ($10 x $2/$14 = $1.43), so the on-SARR revenue allocation would be increased to $1.50 per ton, for a SARR allocation of 15% of movement revenues ($1.50/$10).

Also, in cases where movement revenue was less than movement variable costs, revenues would be allocated in the same manner as called for under Modified ATC, *i.e*., based on variable cost percentages.[55] For example, if the on-SARR variable cost was $1.50 per ton, the off-SARR variable cost was $8.00 per ton, and the movement revenue equaled $9.00 per ton, the SARR would be allocated 15.8% of the movement revenue ($1.50/$9.50).

---

[53] *July 2012 Decision*, slip op. at 17.

[54] *Id*.

[55] *Id*., slip op. at 18.

8. Calculation of Variable and Fixed Costs

DARA, Original ATC, Modified ATC, and proposed Alternative ATC all include variable cost calculations. Under each method, on-SARR and off-SARR variable costs are calculated in a base year using the Board's URCS Phase III program. This program calculates movement variable costs using the following nine inputs: (i) the railroad; (ii) loaded miles; (iii) shipment type (local, originated delivered, bridge, received terminated); (iv) number of freight cars; (v) tons per car; (vi) commodity (for loss and damage only); (vii) type of movement (single car, multiple car, unit train); (viii) car ownership (railroad or private); and (ix) type of car.[56]

Original ATC, Modified ATC, and Alternative ATC all include fixed cost calculations as well. The fixed costs are determined by calculating the total system fixed costs in a base year for the involved carrier.[57] For major railroads, this total is the difference between total URCS costs and total URCS variable costs.[58] The total fixed costs are then divided by system route miles to develop a total fixed cost per route mile.[59] Fixed costs per ton are then determined by multiplying the system fixed cost per route mile by the segment route miles, and dividing the product by the total tons of density on the segment to develop a fixed cost per ton per density segment for each on-SARR and

[56] *See Major Issues*, slip op. at 52 n.166.

[57] *See AEP Texas*, slip. op. at 2 (STB served Nov. 8, 2006).

[58] *See Major Issues NPR*, slip op. at 20.

[59] *Id.*

off-SARR segment.[60] The sum of the fixed costs per ton per density segment for each on-SARR segment utilized by a cross-over movement equals the on-SARR fixed costs per ton for that movement, and the sum of the fixed costs per ton per density segment utilized by a cross-over movement for each off-SARR segment equals the off-SARR fixed costs per ton.[61]

For example, if a carrier's total fixed costs equaled $2 billion and its route miles equaled 20,000, its system-average fixed costs equal $100,000 per route mile. If the on-SARR route was 100 miles, and there was a single uniform density over this 100 miles of 200 million tons, the fixed cost for the on-SARR route would equal $0.05 per ton (($100,000 x 100 miles) ÷ 200 million tons).

B. The Rationales for the Board's Choices

The Board has provided the following explanations over the years for its decisions concerning its sequential choice of revenue allocation procedures.

1. Mileage Prorate v. Mileage Block

The ICC initially adopted the Mileage Prorate method because it represented a reasonable means of developing "market-based divisions" between the SARR and the residual incumbent. *See Nevada Power II*, 10 I.C.C.2d at 268. As Chairman McDonald explained:

> Because this [cross-over] traffic is not currently interlined, there are no actual revenue shares, or "divisions" data available. We find that the proper approach is to estimate

[60] *Id.*

[61] *See WFA 2007*, slip. op. at 13.

> what the current market-placed divisions would be, and this will be the standard in future cases.

Id., 10 I.C.C.2d at 280 (Chairman McDonald commenting).

In *McCarty Farms*, the STB switched from the Mileage Prorate method to the Mileage Block method. The ICC did so because it concluded that the Mileage Block approach provided a more accurate estimate of market-based divisions because "it takes into consideration differing handling costs" and "mirror[ed] the procedures" the Board used "in our Waybill costing to assign costs and revenues to particular segments of a move." *Id*., 2 S.T.B. at 472. The Board proceeded to apply the Mileage Block approach in *FMC*,[62] *WPL*[63] and *PPL Montana*.[64]

2. Mileage Block v. DARA

In *Duke/NS*, the Board shifted gears, holding that market-based divisions have "no place in a SAC analysis."[65] The Board predicated this about-face on a hypothetical postulating that market-based revenues would be insufficient to sustain two hypothesized SARRs and concluded "the end result [of such a market-based revenue allocation] would deprive each complaining shipper of the benefit of grouping traffic (i.e., realizing the economies of scale, scope, and density) held out to them in [*Coal Rate*]

[62] *See FMC Wyo. Corp. v. Union Pac. R.R.*, 4 S.T.B. 699, 725 n.62 (2000) (applying the Mileage Block method and holding that "[t]his is the best procedure for allocating revenues to carriers where market-based divisions are not available").

[63] *Wis. Power & Light Co. v. Union Pac. R.R.*, 5 S.T.B. 955, 975 (2001).

[64] *PPL Montana*, 6 S.T.B. at 293 n.14.

[65] *Duke/NS*, 7 S.T.B. at 105-106.

Guidelines."[66] Under the Board's new approach, "the revenue allocation issue should reflect, to the extent practicable, the defendant carrier's relative costs of providing service over the [on-SARR and off-SARR] segments."[67]

The Board proceeded to apply its new "relative cost" standard in addressing NS's argument that the Mileage Block method was allocating too much revenue to "high-density" SARR's and not enough to "light-density" residual incumbents.[68] NS advocated that the Board adopt DARA to address this concern. As the Board observed, "[t]he premise of [DARA] is that proportionately more revenues should be allocated to lighter density lines because (all other factors being equal), they would have higher average total costs."[69]

The Board rejected DARA in *Duke/NS* because DARA mistakenly assumed that the fixed costs per mile are the same on light density lines as they are on heavy density lines. The Board concluded that this result defied common sense, as the fixed investments required for a high-density superhighway, or high-density rail line, are not the same as the fixed investments needed for a low-density country road, or low-density rail line:

> NS's proposed [DARA] formula contains the critical assumption that light-density lines have the same fixed costs per mile as heavy density lines…. If the fixed costs per mile

[66] *Id*., 7 S.T.B. at 105.

[67] *Id*., 7 S.T.B. at 106.

[68] *Id*., 7 S.T.B. at 106.

[69] *Id*.

> are not roughly the same, then NS's methodology could allocate too much revenue to the light density lines. . . .
>
> But there is no evidence that fixed costs per mile are the same for the [high density SARR's] segment of any move as they are for the residual NS's. By definition, fixed costs are those costs that do not vary with output and would include investments in land, tunnels, track and bridges. But this does not mean that the fixed investment costs are the same for light- and heavy-density lines. The fixed investments required for a superhighway are not the same as the fixed investments needed for a country road. The two roads may share certain basic investments, but it would be implausible to just assume that total fixed investment would not depend on the expected use of a road or, in this case, a rail line.
>
> There may be merit to allocating revenues based on the relative variable cost and average fixed cost to haul traffic over each segment of the move, if those costs can be fairly approximated. But NS has not shown how its proposed formula would account for differences in fixed cost per mile. . . . This deficiency strikes at the heart of NS's proposed methodology, and thus the Board will not adopt it.

Id., 7 S.T.B. at 107-108.

3. Mileage Block v. MSP

In *Duke/NS*, the Board expressed concerns about the "lumpy" nature of the Mileage Block Methodology because revenues were allocated in blocks, not on a straight mileage basis. To address these concerns, the Board replaced the Mileage Block Methodology with MSP for use in *Duke/NS*. *See id*., 7 S.T.B. at 111 ("[t]he only difference between the two approaches is that the lumps in the Block Methodology have been smoothed out").

The Board also held that "the MSP Methodology should better approximate the relative costs the defendant railroad incurs to haul this traffic over each of the

segments, by applying the reasonable assumption that average total costs are a continuous function of distance." *Id*. The Board proceeded to apply MSP to set cross-over traffic revenue allocations in all coal rate cases it decided prior to *Major Issues*.

4. MSP v. DARA

In *Xcel I*, BNSF urged the Board to set cross-over traffic revenues using DARA. The Board rejected BNSF's request for the same reason it had rejected DARA in *Duke/NS* – DARA impermissibly "assume[s] that the fixed investment costs are the same for light- and heavy-density lines."[70] The Board proceeded to set cross-over traffic revenues using MSP.[71]

The Board also addressed cross-over traffic revenue allocation issues in its decision on reconsideration in *Xcel*.[72] In this decision, the Board reaffirmed its decision to set cross-over traffic revenues using MSP, but offered a new explanation for its rejection of DARA. The Board found that DARA, a procedure designed to take into account economies of density "is actually insensitive to economies of density, ignoring the well-accepted principle that economies of density will vary with different levels of output."[73]

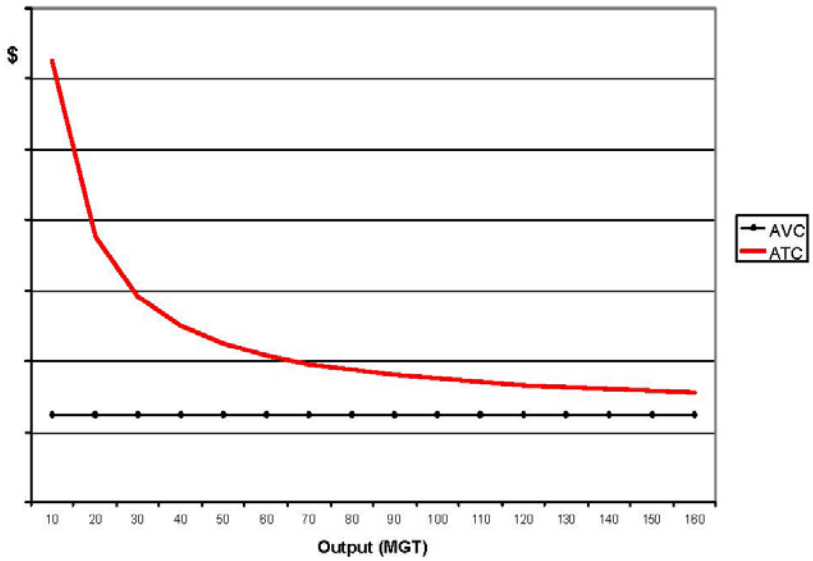
[70] *Id.*, 7 S.T.B. at 605.

[71] *Id*., 7 S.T.B. at 606.

[72] *Xcel* (STB served Jan. 19, 2005) ("*Xcel Recon.*").

[73] *Id*., slip op. at 8-9.

To illustrate its new criticism of DARA, the Board drew "[a] typical cost curve, with constant average variable cost (AVC) and diminishing average total cost (ATC)":[74]



The Board observed that its chart showed that "the economies of density diminish with higher output, as the fixed threshold costs are spread over more output."[75] The Board next provided three hypothetical examples showing how DARA would allocate $10 in revenue on a 1,000 mile cross-over move, where the on-SARR and off-SARR routes were each 500 miles, the on-SARR and off-SARR routes had identical threshold costs of $100 million, the average variable cost for the on-SARR and off-SARR movement was $2.50 per ton, and "the only cost difference distinguishing the [on-SARR and off-SARR] parts of the movement is that the average fixed costs per ton of traffic are

[74] *Id.*, slip op. at 9.

[75] *Id.*

twice as high on the light-density (off-SARR) line because there is only half as much traffic among which to distribute the fixed costs."[76]

The Board's hypothetical examples showed that "the dollar amount that DARA would allocate to the light- and heavy-density lines would not vary in any of the scenarios, regardless of the degree of economies of density:"[77]

Example 1
Strong Economies of Density

	Residual	SARR
Density	10 MGT	20 MGT
AVC	$2.50	$2.50
ATC	$12.50	$7.50
DARA	AVC+($5×(10÷30)) = $5.83	AVC+($5×(20÷30)) = $4.17

Example 2
Significant Economies of Density

	Residual	SARR
Density	40 MGT	80 MGT
AVC	$2.50	$2.50
ATC	$5.00	$3.75
DARA	AVC+($5×(80÷120)) = $5.83	AVC+($5×(40÷120)) = $4.17

Example 3
Weak Economies of Density

	Residual	SARR
Density	80 MGT	160 MGT
AVC	$2.50	$2.50
ATC	$3.75	$3.13
DARA	AVC+($5×(160÷240)) = $5.83	AVC+($5×(80÷240)) = $4.17

The Board concluded that DARA was not superior to MSP because DARA did not do what it set out to do – "take into account the degrees of economies of density."[78]

The Board's reconsideration decision also discussed the Board's URCS formula, a discussion the Board later characterized as holding that "because the first step

[76] *Id.*

[77] *Id.*, slip op. at 10.

[78] *Id.* The Board reached the same conclusion in *Otter Tail*, slip op. at 15-17 (holding that MSP was superior to DARA).

of DARA requires the hypothetical division to cover each carrier's variable costs as calculated by URCS, the remaining fixed costs (*i.e.*, costs that do not vary with output) would indeed be the same on average for light-density as for heavy-density lines."[79] Thus, the Board later interpreted its *Xcel Recon.* decision as over-ruling its prior holdings that light-density and heavy-density lines would have different fixed costs.

5. Original ATC v. MSP

In *Major Issues*, the Board concluded that MSP should be replaced by Original ATC because ATC, in the Board's judgment, more accurately measured the defendant carrier's "relative average costs of providing service over the two segments (the segment replicated by the SARR and the residual facilities needed to serve the traffic, at times referred to as the off-SARR segment)."[80]

As the Board explained it, "[t]he MSP approach allocates revenues according to a crude estimate of the relative variable costs of hauling traffic over the relevant segments, rather than total costs."[81] This approach, in the Board's view, led to inaccurate results because it failed to take into account unexhausted economies of density:

> [MSP] fails to take into account the defining characteristic of the railroad industry – economies of scale, scope and density. There is no reason to believe that economies of density in this industry have been exhausted. Yet only under such an assumption would a mileage-based approach provide an allocation based on average total costs.

[79] *See Major Issues*, slip op. at 34 n.85.

[80] *Id.*, slip op. at 25.

[81] *Id.* (emphasis in original).

Id. (footnotes omitted).

On the other hand, the Board found that Original ATC did take into account economies of density, and the diminishing returns thereto. The Board concluded that "[w]hile this approach is similar to DARA, it does not suffer from the deficiency that led to the Board's rejection of DARA."[82]

6. Original ATC v. Modified ATC

The Board first attempted to apply Original ATC in two pending rate cases: *WFA* and *AEP Texas*. The Board found that the application of Original ATC produced an "illogical and unintended result" in each case – the allocation of revenues to some movements over high-density segments that were less than the incumbent carrier's variable costs for providing service over these high-density segments while allocating more than the incumbent's variable costs for providing service over the low-density segments.[83]

To avoid this "illogical and unintended result," the Board decided to apply a refined version of ATC – Modified ATC – to set cross-over traffic divisions in *WFA* and *AEP Texas*. Under Modified ATC, revenues are first allocated to cover variable costs, and contribution is allocated using the Original ATC procedure.[84]

---

[82] *Id*.

[83] *See WFA 2007*, slip op. at 14; *WFA*, slip op. at 4 (STB served Feb. 29, 2008); *WFA*, slip op. at 13 (STB served Feb. 18, 2009); *AEP Texas*, slip op. at 15.

[84] *Id.*

The Board concluded that Modified ATC was superior to Original ATC because it avoided these "illogical and unintended results," avoided impermissible cross-subsidies, and was fully consistent with its over-riding objective of developing a "non-biased, cost-based method" to set cross-over traffic revenues:

> To avoid such an illogical and unintended result, we make a necessary refinement to the ATC approach here. Instead of applying ATC allocation procedure to total revenue, we will apply the same allocation procedure to total revenue *contribution* (i.e., revenue in excess of variable cost as calculated by URCS) . . . .
>
> This refinement is reasonable and consistent with our objective in Major Issues. Traffic must cover its variable costs before it can be expected to make any contribution to joint and common costs. Therefore, the objective is how to allocate the revenue *contribution* (if any is available) between the facilities replicated by the SARR and those of the residual incumbent. While the language in Major Issues to explain the basic ATC approach led the parties to allocate total revenue rather than total revenue contribution, we did not contemplate this situation, where a procedure would result in other traffic on the SARR cross-subsidizing those cross-over traffic movements with on-SARR revenue allocations below variable costs. Such a result would plainly conflict with our express purpose to find a non-biased, cost-based method. *See Major Issues* at 32.[85]

The Board also found in *WFA* that BNSF's objections to Modified ATC were "inconsistent" with positions it had taken in support of DARA.[86] The BNSF-sponsored DARA procedures called for the allocation of revenues using a two-step procedure where in step one, cross-over traffic revenues were allocated to cover variable

[85] *WFA 2007*, slip op. at 14.

[86] *WFA*, slip op. at 5 (STB served Feb. 29, 2008).

costs, and in step two, contribution was allocated in an attempt to account for economies of density. The Board observed that Modified ATC was simply a corrected version of DARA: in step one of Modified ATC, revenues were allocated to cover variable costs and, in step 2, contribution was allocated using a corrected metric to "adequately account for economies of density."[87]

The Board recently reaffirmed these conclusions. *See WFA*, slip op. at 9 (STB served June 15, 2012) ("The Board has determined that modified ATC strikes a more appropriate balance than original ATC between sound revenue allocation and accounting for economies of density.").

7. Modified ATC v. Proposed Alternative ATC

In this proceeding, the Board asks for public comments on whether it should replace Modified ATC with Alternative ATC.[88] The Board asserts that Alternative ATC may be superior to Modified ATC because, according to the Board, Alternative ATC "give[es] more weight to the important role that economies of density should play in a cost-based revenue allocation approach" while, at the same time, "avoid[ing] driving the revenue allocation below variable costs."[89] The Board also asks the parties to propose any "alternative approaches" they believe are superior to either Modified ATC or Alternative ATC.

---

[87] *Id*. at 5 n.9.

[88] *July 2012 Decision*, slip op. at 18.

[89] *Id.*

C. Alternative ATC is Not Demonstrably Superior to Modified ATC

The Board will not adopt a new cross-over traffic revenue allocation procedure unless the new procedure is "demonstrably superior" to the procedure it is replacing.[90] Alternative ATC is not "demonstrably superior" to Modified ATC because: (1) Alternative ATC produces illogical and unintended results when applied to low contribution moves; (2) Alternative ATC produces illogical and unintended results when applied to medium and high contribution moves; (3) Modified ATC properly weights economies of density; (4) it is inappropriate to give more "weight" to economies of density in the revenue allocation process; and (5) constant changing of cross-over traffic revenue allocation methodologies to decrease SARR revenues is manifestly unfair to captive coal shippers.

1. Alternative ATC Produces Illogical and Unintended Results When Applied to Low Contribution Moves

The Board refined Original ATC, with Modified ATC, because Original ATC produced "illogical and unintended result[s]"[91] when applied to low contribution moves. These "illogical and unintended result[s]" are simply illustrated by reference to a hypothetical move where total movement revenue equals $11 per ton, total movement variable costs are $10 per ton ($5 per ton on a high-density segment and $5 per ton on a low-density segment) and, under Original ATC, $6.25 per ton was allocated to the low-

[90] *See WFA*, slip op. at 10 (STB served June 15, 2012).

[91] *See WFA 2007*, slip op. at 14; *WFA*, slip op. at 4 (STB served Feb. 29, 2008); *WFA*, slip op. at 13 (STB served Feb. 18, 2009); *AEP Texas*, slip op. at 15.

density segment and $4.75 was allocated to the high-density segment. *See* Crowley/Fapp VS at 5-6.

As demonstrated in this example, Original ATC produces "illogical and unintended results" because the high-density segment is allocated $0.25 per ton less than its variable costs whereas the low-density segment is allocated $1.25 per ton more than its variable costs. Modified ATC corrects this "illogical and unintended result" by first allocating $5 per ton in revenues to the low-density segment and $5 per ton in revenues to the high-density segment to cover each segment's variable costs, and then allocating the remaining fixed costs and profits using the ATC metric. *See* Crowley/Fapp VS at 6.

The Modified ATC approach produces logical results because movement revenues are allocated in two distinct steps. In step one, revenues to cover variable costs are allocated using variable costs. In step two, contribution is allocated using an average total cost metric that accounts for economies of density and diminishing returns thereto. Step one does not use an average total cost metric because variable costs under STB costing procedures are insensitive to changes in traffic density. In contrast, Original ATC's one step approach mistakenly applies a density-sensitive average total cost metric to allocate variable costs. *See* Crowley/Fapp VS at 1-7.

Modified ATC's two step approach is not new. It is the same approach that was used in the railroad-sponsored DARA procedure. The railroads recognized that any cost-based revenue allocation procedure that attempted to address economies of density must be at least a two-step procedure since variable costs do not vary with changes in

density.[92] Therefore, DARA had two steps, just like Modified ATC. The only difference between the two approaches is that Modified ATC corrects the second step in DARA to "adequately account for economies of density."[93]

Alternative ATC does not follow the Modified ATC two step revenue allocation procedure. Instead, like Original ATC, Alternative ATC applies the ATC metric to movement revenue, unless this results in the high-density segment obtaining less revenue than its variable costs, in which case the revenue allocation on the high-density segment is increased to equal its variable costs.

The Board's proposed adjustment – adding revenues to equal variable costs – is simply an artificial mathematical manipulation of the Original ATC formula, which produces equally illogical and unintended results. Referring to the example discussed above, Alternative ATC would allocate $5 per ton to the low-density segment and $6 per ton to the high-density segment. The result is that the total movement contribution ($1 per ton) is allocated to the low-density segment, while $0 per ton is allocated to the high-density segment. *See* Crowley/Fapp VS at 7.

Allocating all movement contribution to the low-density segment is arbitrary. There is no logical reason why all movement contribution should be allocated to a low-density segment in cases where the total movement revenues exceed total

---

[92] *See Xcel*, The Burlington Northern and Santa Fe Railway Company's Statement of Clarification Regarding Allocation of Revenues Under Density Adjusted Revenue Allocation Method at 12 (filed Jan. 20, 2004) ("[t]here is no . . . density adjustment involved in this first step of the DARA procedure that calculates the revenue associated with attributable costs").

[93] *WFA*, slip op. at 5 n.9 (STB served Feb. 29, 2008).

movement variable costs. Stated another way, the fundamental flaw the Board identified when Original ATC was applied to low contribution movements cannot be fixed by the Board's proposed back-end second step in the Alternative ATC procedures. *See* Crowley/Fapp VS at 7.

The only way to correct Original ATC to produce logical results when applied to low contribution moves is through the two step Modified ATC procedures where revenue is first allocated to cover variable costs, and contribution is allocated using ATC. *See* Crowley/Fapp VS at 6.

2. Alternative ATC Produces Illogical and Unintended Results When Applied to Medium and High Contribution Moves

The Board's focus to date has been on the illogical and unintended results produced when Original ATC was applied to low contribution moves. However, it is also clear that both Original ATC, as well as Alternative ATC, produce illogical and unintended results when applied to medium and high contribution moves: skewing profit allocations in a manner that defies basic economic principles.

A fundamental principle of railroad economics is that a carrier's profit increases as its average total cost decreases. For example, if a carrier charged $10 per ton, and the average total cost for the move was $8, it would earn a profit of $2. However, if the average total cost decreased to $6 per ton due to traffic increases, the carrier's profit would increase to $4 per ton.

Any density-based revenue allocation procedure must recognize that as average total costs decrease, per ton profits increase in a manner that results in high-

density lines being more profitable than low-density lines. Modified ATC conforms to this basic principle, but Alternative ATC does not. This result is illustrated by two examples set forth in the Crowley/Fapp verified statement.

The first example applies the Modified ATC and Alternative ATC procedures to a hypothetical movement with an R/VC ratio of 1.50. Application of Alternative ATC produces an "illogical" result – profits on the low-density segment ($0.68 per ton) which are higher than the profits on the high-density segment ($0.57 per ton). However, application of Modified ATC produces a "logical" result: profits on the high-density segment ($1.02 per ton) are higher than profits on the low-density segment ($0.23 per ton):

Crowley/Fapp VS Table 3
Comparison of Revenue Division
Methodologies, Hypothetical, R/VC = 1.50

Item (1)	**Original and Alternate ATC** (2)	**Modified ATC** (3)
1. Revenue	$15.00	$15.00
2. High-Density Segment Total Costs	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. HD Segment Division	$6.82	$7.27
5. LD Segment Division	$8.18	$7.73
6. HD Segment Profit	$0.57	$1.02
7. LD Segment Profit	$0.68	$0.23
8. Result	Illogical	Logical

Crowley/Fapp VS at 25.

The second example applies the Modified ATC and Alternative ATC procedures to a hypothetical movement with an R/VC ratio of 2.20. Once again,

application of Alternative ATC produces an "illogical" result, as profits on the low-density segment ($4.50 per ton) are greater than profits on the high-density segment ($3.75 per ton), while application of Modified ATC produces a "logical" result, profits on the high-density segment ($4.20 per ton) are greater than the profits on the low-density segment ($4.05 per ton):

Crowley/Fapp VS Table 4
Comparison of Revenue Division
Methodologies Movement R/VC = 2.20

Item (1)	**Original and Alternative ATC** (2)	**Modified ATC** (3)
1. Revenue	$22.00	$22.00
2. High-Density Segment Total Costs	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. HD Segment Division	$10.00	$10.45
5. LD Segment Division	$12.00	$11.55
6. HD Segment Profit	$3.75	$4.20
7. LD Segment Profit	$4.50	$4.05
8. Result	Illogical	Logical

Crowley/Fapp VS at 26.

The bottom line here is clear: Alternative ATC "produce[s] absurd results by making low-density lines more profitable on a per ton basis than high-density lines" and illogically "transfer[s] the profitability associated with traffic moving on high-density lines to traffic moving on low-density lines, in effect robbing the high-density lines of the very scale economies that incented the railroads to invest in capacity enhancements on those high-density lines in the first place." Crowley/Fapp VS at 23-24.

Conversely, Modified ATC does not produce these absurd and illogical results. Modified ATC reflects the basic economic principle that high-density lines are

more profitable than low-density lines "because less of the revenues on the high-density line are needed to defray joint and common costs." *Id*. at 24.

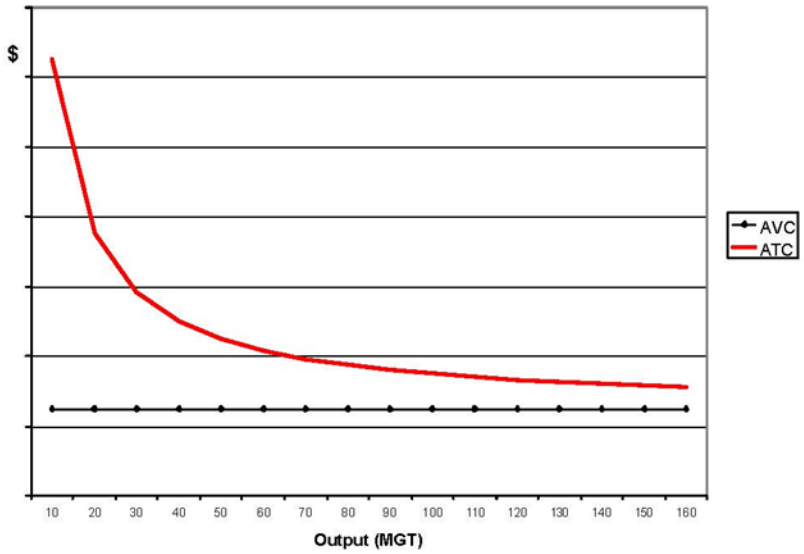
3. Modified ATC Properly Weights Economies of Density

The two step Modified ATC method first allocates movement revenue to cover variable costs, and then allocates contribution using ATC. The first step in Modified ATC uses variable costs as the allocation metric because variable costs are not sensitive to economies of density. The second step allocates movement contribution using an ATC procedure that properly takes into account economies of density.

The Board defines economies of density as "[e]conomies which exist when the average cost of transportation declines as a result of increasing traffic volumes while track or route miles are held constant."[94] Such economies were graphically illustrated in the chart the Board prepared in *Xcel*[95]:

[94] *Coal Rate Guidelines*, 1 I.C.C.2d at 553.

[95] *See Xcel Recon.*, slip op. at 9.



The Board's chart shows average total costs (the red line) decreasing as density increases, because fixed costs are spread over a larger number of traffic units. The Board's chart also illustrates that as fixed costs per ton decrease, average variable cost, as a percentage of average total costs, increases.

The Board correctly recognized in *WFA* that Modified ATC does "account for" economies of density, as well as diminishing returns thereto.[96] For example, assume that the variable costs of service over a line are $5 per ton, and the line's fixed cost is $1,000,000. As traffic density increases over the line, the average fixed cost per ton and the average total cost per ton decrease, while the average variable costs as a percentage of average total costs increases:

[96] *WFA*, slip op. at 9-10 (STB served June 15, 2012).

Crowley/Fapp VS Table 1.
Comparison of Average Variable Cost, Average Fixed Cost and Average Total Costs Across Increasing Levels of Traffic Density

Traffic Density (tons) (1)	Average Variable Cost Per Ton (2)	Average Fixed Cost Per Ton 1/ (3)	Average Total Cost Per Ton 2/ (4)	Average Variable Costs As A Percentage Of Average Total Costs 3/ (5)
1. 1,000,000	$5.00	$1.00	$6.00	83.3%
2. 25,000,000	$5.00	$0.04	$5.04	99.2%
3. 50,000,000	$5.00	$0.02	$5.02	99.6%
4. 100,000,000	$5.00	$0.01	$5.01	99.8%
5. 150,000,000	$5.00	$0.007	$5.007	99.9%

1/ An assumed fixed cost of $1,000,000 divided by Column (1).
2/ Column (2) + Column (3).
3/ Column (2) ÷ Column (4).

Crowley/Fapp VS at 9.

These economies of density are also captured in the Modified ATC revenue allocation process, which can be seen by reference to the hypothetical examples posed by the Board in *Xcel* to demonstrate the flaws in DARA[97]:

[97] *Xcel Recon.*, slip op. at 10.

Example 1
Strong Economies of Density

	Residual	SARR
Density	10 MGT	20 MGT
AVC	$2.50	$2.50
ATC	$12.50	$7.50
DARA	AVC + ($5 × (20 ÷ 30)) = $5.83	AVC + ($5 × (10 ÷ 30)) = $4.17

Example 2
Significant Economies of Density

	Residual	SARR
Density	40 MGT	80 MGT
AVC	$2.50	$2.50
ATC	$5.00	$3.75
DARA	AVC + ($5 × (80 ÷ 120)) = $5.83	AVC + ($5 × (40 ÷ 120)) = $4.17

Example 3
Weak Economies of Density

	Residual	SARR
Density	80 MGT	160 MGT
AVC	$2.50	$2.50
ATC	$3.75	$3.13
DARA	AVC + ($5 × (160 ÷ 240)) = $5.83	AVC + ($5 × (80 ÷ 240)) = $4.17

The Board concluded that DARA was insensitive to economies of density because it produced the same revenue allocation to the SARR – $ 4.17 per ton regardless of line density.[98] However, when Modified ATC is applied to the same hypothetical inputs, the revenue allocations change, with the SARR obtaining more revenue ($4.36 per ton, $4.64 per ton, and $4.77 per ton) as density increases and ATC decreases:

[98] *Id.*, slip op. at 10.

Example 1
Strong Economies of Density

	Residual	SARR
Density	10 MGT	20 MGT
AVC	$2.50	$2.50
ATC	$12.50	$7.50
Modified ATC	AVC + ($5 x ($12.50 ÷ $20)) = $5.63	AVC + ($5 x ($7.50 ÷ $20)) = $4.37

Example 2
Significant Economies of Density

	Residual	SARR
Density	40 MGT	80 MGT
AVC	$2.50	$2.50
ATC	$5.00	$3.75
Modified ATC	AVC + ($5 x ($5 ÷ $8.75)) = $5.36	AVC + ($5 x ($3.75 ÷ $8.75)) = $4.64

Example 3
Weak Economies of Density

	Residual	SARR
Density	80 MGT	160 MGT
AVC	$2.50	$2.50
ATC	$3.75	$3.13
Modified ATC	AVC + ($5 x ($3.75 ÷ $6.88)) = $5.23	AVC + ($5 x ($3.13 ÷ $6.88)) = $4.77

See Crowley/Fapp VS at 12.

Thus, the two step Modified ATC procedure clearly takes into account economies of density, and diminishing returns thereto.

4. It is Inappropriate to Give More "Weight" to Economies of Density in the Revenue Allocation Process

The Board appears to believe that Alternative ATC is superior to Modified ATC because Alternative ATC "giv[es] more weight to the important role that economies of density should play in any cost-based revenue allocation approach."[99] It is unclear to Coal Shippers exactly what "weight" the Board is referring to, since the ATC calculation in both Modified ATC and Alternative ATC is the same. The only difference is whether the ATC component is applied to total movement revenue (Alternative ATC) or movement contribution (Modified ATC). *See* Crowley/Fapp VS at 18.

[99] *July 2012 Decision*, slip op. at 18.

For present purposes, Coal Shippers assume that the Board's reference to "weight" means that application of Alternative ATC to total movement revenue means that economies of density are given more "weight" in the revenue allocation process. It is inappropriate to give more "weight" to economies of density for three interrelated reasons.

First, the Board should consider and balance all pertinent economic considerations when making cross-over traffic revenue allocations. Certainly unexhausted economies of density should be considered in the revenue allocation process. However, the Board should not focus solely on one economic concept to the exclusion of all others, particularly when such a narrow focus produces illogical results when viewed through the prism of other basic principles of railroad economics. Yet that is exactly what happens when Alternative ATC is used.

As discussed above, application of Alternative ATC can arbitrarily strip high-density lines of any profit on low contribution moves, and can shift arbitrarily shift profits from high-density lines to low-density lines on medium and high contribution moves. Both results fly in the fact of another basic rule of railroad economics: high-density lines are more profitable than low-density lines since there is more traffic to defray fixed costs. *See* Crowley/Fapp VS at 23-25.

Modified ATC better balances basic economic principles. Step 1 of Modified ATC allocates cross-over traffic revenues to cover variable costs using a variable cost metric. That allocation is economically sound, as variable costs should be used to allocate variable costs. Step 2 of Modified ATC then allocates contribution using

ATC. Application of the ATC component to contribution produces results that take into account economies of density in a manner that is consistent with other governing principles of railroad economics, including a fair allocation of movement contribution and profits.

Second, Modified ATC weights variable costs and fixed costs in the revenue allocation process using a two-step procedure. Step 1 allocates revenues using variable costs and Step 2 allocates contribution using ATC, which has both variable and fixed components. This approach gives reasonable "weight" to variable and fixed costs in the revenue allocation process, as the ATC component is applied to movement contribution – the only revenue component impacted by economies of density.

In *WFA*, BNSF argued that Modified ATC "diluted" the relative weighting of fixed costs in the revenue allocation process.[100] For example, BNSF presented a hypothetical movement where variable costs were 75% of total costs, fixed costs were 25% of total costs, and movement revenue equaled total costs.[101] BNSF argued that under Modified ATC only 6.3% of movement revenues were allocated using fixed costs, whereas the actual movement fixed costs were 25% of the movement rate.[102] BNSF

[100] *WFA*, *Comments of BNSF Railway Company on Remand* (filed Nov. 22, 2010), Joint Verified Statement of Michael R. Baranowski and Benton V. Fisher at 11.

[101] *Id.* at 13-14.

[102] *Id.* at 14. The 6.3% was calculated as follows: 75% of the revenue was allocated under Step 1 of Modified ATC using variable costs so 0% of the Step 1 movement revenues were allocated using fixed costs. In Step 2, 25% of the remaining 25% of movement revenues was allocated using fixed costs, so the amount of revenue allocated using fixed costs was 6.3% (0.25 x 0.25).

further contended that Original ATC correctly weighted fixed costs in its example because fixed costs were used to allocate 25% of the revenues.

BNSF's example starts out from a misguided premise: the ATC component should be applied to movement revenue, not movement contribution. *See* Crowley/Fapp VS at 18-19. Moreover, putting that issue to one side, what the BNSF example's logic really shows is that both Original ATC and Alternative ATC systematically over-weight fixed costs on all movements where revenues exceed 100% of total cost. *See* Crowley/Fapp VS at 21.

Crowley/Fapp present detailed testimony demonstrating that Modified ATC gives proper weight to economies of density because the ATC component is applied to movement contribution, not total movement revenue. *See* Crowley/Fapp at 18-32. This testimony also shows that Alternative ATC's application of the ATC component to total movement revenue does not properly weight economies of density. *Id*. They conclude "Modified ATC gives proper weight to economies of density in the revenue allocation process, whereas Alternative ATC does not." *Id*. at 2

Third, the Board's focus on economies of density in the cross-over revenue allocation process is predicated on its assumption that "there is no reason to believe that economies of density in [the rail] industry have been exhausted."[103] That assumption was clearly correct in 1985 when the ICC adopted the SAC standard. However, since 1985,

[103] *See Major Issues*, slip op. at 25.

the rail industry has shed excess capacity, improved productivity, and right-sized itself.[104] These efforts have had a profound impact on economies of density, as confirmed by the Board's own independent economic consultants, Laurits R. Christensen Associates, Inc. ("Christensen"). *See* Crowley/Fapp at 38-40.

In 2007, the Board commissioned Christensen to conduct a comprehensive "independent study" of competition and capacity in the rail industry. Christensen proceeded to issue a multi-volume study,[105] which it updated in a 147 page report ("Updated Report") released in January of 2010.[106] In its Updated Report, Christensen conducted a detailed review of the "industry average economies of density" from 1987 to 2008.[107] Christensen found that "early in the [study] period, railroads appear to have experienced fairly strong economies of density."[108] However, "those economies have been diminishing since around 1995"[109] and "have been exhausted in recent years."[110]

---

[104] *See, e.g.*, STB, *Studies from Christensen Associates, Inc*. http://www.stb.dot.gov/stb/elibrary/CompetitionStudy.html (noting that "in the 1980s and 1990s . . . railroads shed excess lines, reduced crew sizes, and streamlined operations").

[105] *See* Christensen, *A Study of Competition in the U.S. Freight Industry and Analysis of Proposals That Might Enhance Competition* (Nov. 2009), http://www.stb.dot.Gov/stb/elibrary/CompetitionStudy.hmtl.

[106] *See* Christensen, *An Update to the Study of Competition in the U.S. Freight Railroad Industry* (Jan. 2010), http://www.stb.dot.Gov/stb/elibrary/ CompetitionStudy.hmtl.

[107] *Id.* at 3-6.

[108] *Id*.

[109] *Id.*

[110] *Id*. at 4-13.

Since economies of density "have been exhausted in recent years," it is clearly inappropriate for the Board to replace Modified ATC with a procedure the Board believes gives more "weight" to economies of density.

5. Constant Changing of Cross-Over Traffic Revenue Allocation Methodologies to Decrease SARR Revenues is Manifestly Unfair to Captive Coal Shippers

The Board's SAC test calls on captive shippers to model SARRs that "maximize revenues while minimizing costs."[111] In order to engage in this modeling exercise, a shipper needs to know the methodology the Board will use to set SARR revenues on cross-over traffic.

In 1994, the ICC set cross-over traffic revenues in *Nevada Power II* – the first case involving cross-over traffic – using a simple mileage prorate approach.[112] That procedure was fine with coal shippers. However, since 1994, railroad defendants have constantly harped that the mileage prorate approach, or the Board's successor iterations, provided "too much" revenue to the SARR and "not enough" to the residual incumbent. These complaints have led to the succession of revenue allocation procedures the Board has employed since 1994. As a general rule, each new procedure has decreased SARR revenues when compared to the method it was replacing. Modified ATC is the exception to this general rule, but the Board now proposes to stop using it.

The changes in cross-over traffic revenue allocations can make huge differences in how a shipper designs a SARR. The Board saw this first hand in *WFA*.

---

[111] *See, e.g.*, *WPL*, 5 S.T.B. at 965 n.20; *Duke v. NS*, 7 S.T.B. at 98 n.11.

[112] *Id.*, 10 I.C.C.2d at 268.

The Board's retroactive shift from MSP to Modified ATC in *WFA* stripped WFA's original SARR configuration of over $ 2.9 billion in revenues, turning a very profitable SARR – *i.e.*, one where SARR revenues exceeded SAC by a wide margin – into one that was not profitable.[113] As a result, WFA had to go back to the drawing board and develop a revised SARR, which once again was profitable, and formed the basis for the Board's 2009 rate relief orders.[114]

The Board's Alternative ATC proposal appears to be one intended to preclude many shippers from replicating the results in *WFA*. WFA built a SARR that provided service from the PRB to WFA's Laramie River Station – a distance of approximately 180 miles, with one branch line added to avoid externally rerouted traffic.[115] This SARR was a short one, since the issue traffic movement was short, and traversed the highest density segments in BNSF's network, since the issue traffic traversed these segments.

If Original ATC had been applied retroactively to WFA's revised SARR configuration, this application would have "wipe[d] out most of [WFA's] rate relief."[116] It appears that retroactive application of Alternative ATC to the revised WFA SARR configuration would have produced a very similar result.

---

[113] *See WFA 2007*, slip op. at 139.

[114] The Board has wisely decided not to retroactively apply any new cross-over traffic revenue allocation procedures developed in this case "to existing rate prescriptions or to any pending rate dispute." *July 2012 Decision*, slip op. at 17 n.11.

[115] *See WFA*, slip op. at 10 (STB served Feb. 18, 2009).

[116] *See WFA*, Complainants' Reply to Comments of BNSF Railway Company on Remand at 3 (filed March 18, 2011).

Coal Shippers urge the Board not to adopt yet another cross-over traffic revenue allocation procedure that appears to be designed – and intended – to arbitrarily reduce cross-over revenues allocated to SARRs.

D. Suggested Alternatives

As between Modified ATC and Alternative ATC, the choice is clear: Modified ATC. The Board has requested parties to present alternatives for the Board's consideration. Coal Shippers present three: (1) Corrected Modified ATC; (2) Three Step ATC; and (3) Variable Cost Allocation.

1. Corrected Modified ATC

The Board's Modified ATC procedure contains an erroneous assumption that high-density lines and low-density lines have the same fixed cost per route-mile. This same erroneous assumption is also used in Original ATC and Alternative ATC.

In *Duke/NS*, the Board rejected DARA on grounds that the fixed costs per mile over high-density lines were not the same as the fixed costs per mile over low-density lines.[117] The Board demonstrated this point through an apt analogy: "the fixed investments required for a superhighway are not the same as the fixed investments needed for a country road."[118]

However, the Board later shifted gears. In a footnote in *Major Issues* the Board reversed its ruling in *Duke/NS*, holding that "because the first step of DARA requires the hypothetical division to cover each carrier's variable costs as calculated by

[117] *Duke/NS*, 7 S.T.B at 108.

[118] *Id.*

URCS, the remaining fixed costs (*i.e.*, costs do not vary with output) would indeed be the same on average for light-density as for heavy-density lines."[119]

The Board got it right the first time. While fixed costs in URCS do not vary with changes in traffic levels, they do vary with location. For example if a bridge is built, the cost of the bridge is treated as 50% variable and 50% fixed under URCS.[120] Similarly, all other costs URCS treats as fixed can in most instances be traced to a particular location, or route of movement, on a rail carrier. As one might expect, higher density lines have higher total fixed costs because these lines – generally speaking – have more facilities per route-mile (*e.g.*, double track, triple track, etc.) than lower density lines, and thus higher total fixed costs per route or track mile.[121]

Modified ATC (and all forms of ATC), like DARA, contains the mistaken assumption that high-density lines have the same total fixed costs as low-density lines. This mistake occurs under Modified ATC through the allocation of the same system-average fixed cost per route-mile for all miles on a rail carrier's system. This result defies common sense.

Just as the "fixed investments required for a superhighway are not the same as the fixed investments needed for a country road," the fixed costs for high-density rail lines are not the same as the fixed investments in low-density lines on a per-route mile

---

[119] *Major Issues*, slip op. at 34 n.85. The Board said that this result was supported by its discussion of URCS in *Xcel Recon. Id.*

[120] *See* Crowley/Fapp VS at 41 n.39.

[121] *Id.* These higher fixed costs are spread over more traffic units, which produces economies of density, and lower fixed costs per ton.

basis. The Board need only picture the massive rail infrastructure in the PRB, and the vast rail operations conducted there, and compare it to a little used single track in the middle of a rural corn field, to see that this assumption simply is wrong.

The Board can also look at the results of its own cross-subsidy analysis in *Otter Tail*. In that case, the Board divided the Otter Tail SARR into two segments, a high-density PRB segment, and a low-density segment stretching from the north and east of the PRB to South Dakota. The total road property investment on the high-density SARR segment ($3.46 million per route-mile) was substantially higher that the total road property investment on the low-density SARR segment ($1.93 million per route-mile).[122] Similarly, the total operating expense per route mile on the high-density SARR segment ($486,000 per route mile) was substantially higher than the operating expense per route mile on the low-density segment ($205,000 per route mile).[123]

Coal Shippers' propose a Corrected Modified ATC methodology that allocates higher total fixed costs to higher density rail lines and lower total fixed costs to lower density rail lines. This correction is accomplished by calculating system average fixed costs per track mile. This system average fixed cost per track mile would then be applied to the miles of track along each segment and divided by the segment's annual tons to develop a fixed average cost per ton.

---

[122] *See Otter Tail*, slip op. at 23, *on reconsideration* slip op. at 3-4 (STB served March 28, 2006).

[123] *Id.*

The logic behind this correction is simple and straight-forward. High-cost, high-density segments invariably have more track-miles than low-density segments, as high-density segments are double, triple and sometimes quadruple tracked, whereas low-density segments may consist of only single track. Allocation of total system fixed costs on a track-mile basis would produce the intended result: high-density segments would be allocated more total fixed costs per route mile than low-density segments because high-density segments have more track miles. *See* Crowley/Fapp VS at 34-35.

2. Three Step ATC

Coal Shippers present another alternative with an ATC component if the Board decides not to adopt Corrected ATC or Modified ATC: Three Step ATC. Three Step ATC produces cross-over traffic revenue allocations that are superior to Alternative ATC, but not superior to Modified ATC or Corrected Modified ATC.

As its name connotes, Three Step ATC has three steps. In step 1, cross-over traffic revenues would be allocated to cover on-SARR and off-SARR using URCS Phase III variable costs. In step 2, revenues would be allocated to cover on-SARR and off-SARR fixed costs as calculated using the corrected procedures discussed above. In Step 3, remaining revenues would be allocated on a variable cost basis. Also, if there were insufficient revenues to cover movement variable costs (Step 1) or movement fixed costs (Step 2), the revenues in each step would be allocated on a pro-rata basis, using variable costs in Step 1, and fixed costs in Step 2. *See* Crowley/Fapp VS at 36-38.

Three Step ATC is intended to address the fact that revenues are used by rational firms for three prioritized purposes: coverage of variable costs; coverage of

fixed costs; and generation of profit (defined here as excess revenue above total cost). The logical metric to allocate variable cost recovery is variable costs; the logical metric to allocate fixed costs is fixed costs (and taken together they allocate average total costs); and the logical metric to allocate profit is variable costs, as is evidenced by the Board's extensive use of R/VC ratios to measure rail traffic contribution and profit.

3. Variable Cost Allocation

The Board rejected MSP, which it deemed to be a "crude estimate of the relative variable costs," because "there is no reason to believe that economies of density in [the rail] industry have been exhausted":

> The MSP approach allocates revenues according to a crude estimate of the relative variable costs of hauling traffic over the relevant segments, rather than the total costs. The approach therefore fails to take into account the defining characteristic of the railroad industry – economies of scale, scope and density. There is no reason to believe that economies of density in this industry have been exhausted. Yet only under such an assumption would a mileage-based approach provide an allocation based on average total costs.[124]

The Board now does have "reason to believe that economies of density in [the rail] industry have been exhausted"[125] – the Board's own independently commissioned study finding that "[e]conomies of density [in the rail industry] have been exhausted in recent years."[126]

---

[124] *Major Issues*, slip op. at 25 (footnotes omitted).

[125] *Id.*

[126] *Christensen Updated Report* at 4-13.

In light of these findings, Coal Shippers suggest that the Board consider replacing ATC-based cross-over traffic revenue allocation methods with a Variable Cost Allocation method. Under this method, revenues would be allocated based on variable costs alone. For example, if the total movement revenue was $10 per ton, the on-SARR variable cost was $1 per ton and the off-SARR variable cost was $3 per ton, the SARR would be allocated $2.50 per ton ($10 x 1/4).

The Variable Cost Allocation Method would utilize the Board's Phase III program and be very inexpensive to apply when compared to approaches using an ATC component, since the latter require the costly development of both on-SARR and off-SARR average fixed cost statistics. In addition to being comparatively inexpensive to implement, the Variable Cost Allocation method would produce results that conform to the Christensen Updated Report findings that economies of density in the rail industry have been exhausted.

III.

OTHER MATTERS

Coal Shippers present the following comments on other issues raised in the this proceeding.

A. The Board's Proposed Changes to Simplified SAC are Insufficient

The Board proposes to alter Simplified SAC by removing the $5 million limit on rate relief, but requiring complaining shippers to make a full demonstration of road property investment ("RPI"). Coal Shippers support eliminating the limit on relief,

but oppose requiring a full RPI demonstration. Indeed, the second change would negate any potential benefit from the first change, and the combined effect of both changes would make Simplified SAC overall a less desirable and less effective regulatory approach than it currently is. Coal Shippers also recommend that a Simplified SAC prescription be for ten years, not five.

Only one Simplified SAC case has been brought, and it settled before decision.[127] The Board is correct in focusing on the cost of litigation as one deterrent to bringing Simplified SAC cases.[128] Requiring a full RPI showing, however, will make Simplified SAC rate cases more expensive and further discourage shippers from bringing them, thereby undermining the Board's ostensible objective.

The Board appears to posit that a Full-SAC case will cost the shipper some $5.5 million or so and that a Simplified SAC case "even without the RPI simplification, should be significantly less than 50% of the cost to bring a Full-SAC case (*i.e.*, less than $2.75 million in current dollars)." *July 2012 Decision*, slip op. at 15. The Board's figures are very optimistic. A Full-SAC case under current SAC standards might cost the shipper $5-$6 million, but only if all goes smoothly, *e.g.*, much of the route has been addressed in a previous rate case, there are no data problems, the Board does not change the applicable rules or precedent during the pendency of the rate case, there are no major

[127] *See US Magnesium, L.L.C. v. Union Pac. R.R.*, NOR 42115 (STB served April 2, 2010).

[128] *See July 2012 Decision*, slip op. at 3, 13-15. Other deterrents include the five-year prescription period, "litigation costs," and the fact that Simplified SAC is designed to produce higher maximum rates than Full-SAC maximum rates calculated under current Full-SAC standards.

discovery disagreements, *etc*. There is a lack of experience with actual Simplified SAC cases, but the $2.75 million estimate for a Simplified SAC case appears to be too low, especially if a full RPI showing is required. Moreover, the absence of some Full-SAC issues may simply mean that other issues, such as RPI, are more extensively contested. Coal Shippers estimate that the cost of Simplified SAC would likely be well above $2.75 million.[129]

Rather than link the removal of the limit on Simplified SAC relief to a requirement to make a full RPI showing, the Board should instead eliminate the relief cap outright, retain the current RPI calculation procedures, and permit Simplified SAC prescriptions to last for ten years. This would perhaps incent some shippers to pay less in litigation costs than they would incur in a Full-SAC case, but with a trade-off: less rate relief than they could obtain in a Full-SAC case (assuming some semblance of reasonable Full-SAC regulation remains, which, as discussed above, will not be the case if the Board adopts its two new Full-SAC proposals).

B. The Board's Proposed Changes to Three Benchmark ("3-B") are Insufficient

Coal Shippers agree that the $1 million limit on 3-B cases needs to be raised. However, Coal Shippers urge the Board not to put any cap on 3-B rate relief and

[129] As Coal Shippers stated in its evidence in *Major Issues*, even shifting much of the work in identifying and developing traffic and revenues to the defendant railroad will not likely lead to a substantial reduction in the shipper's costs in these areas. The shipper will still need to build a traffic and revenue data base from raw data provided in discovery to ensure the railroad's evidence is accurate. The advent of the ATC division methodology substantially increases the time and cost of this exercise.

to set 3-B prescriptions for 10 years. The tradeoff here is the same as that described above for Simplified SAC cases: lower case costs, but higher rate prescriptions (once again assuming that Full-SAC survives as a regulatory constraint).

C. Interest on Reparations Should be Increased

The Board proposes to raise the interest rate on shipper reparations from the 90-day United States Treasury bill (which approximates 0% in the current environment) to the prime rate (approximately 3.25% at the current time). The proposed change is a positive development, but it is long overdue. In particular, FERC has used the prime rate on refunds for decades, starting before the Staggers Rail Act of 1980.[130] However, as discussed above, interest on reparations in a Full-SAC case may become a moot point if the Board adopts its proposed Full-SAC proposals.

D. The Board has Misconstrued and Failed to Comply with the Regulatory Flexibility Act

In its *July 2012 Decision*, the Board construes the RFA,[131] 5 U.S.C. §§ 601-612, to apply only to entities directly regulated by the Board, meaning railroads. The Board then certifies that the proposed rule will not have a significant economic impact on a substantial number of small entities within the meaning of the legislation because the rule imposes no additional requirements on small railroads. *Id.* at 19-20.

---

[130] *Rate of Interest on Amounts Held Subject to Refund; Order Clarifying Order Nos. 47 and 47-A*, 45 Fed. Reg. 3888 (Jan. 21, 1980) (codified at 18 C.F.R. § 35.19a).

[131] *July 2012 Decision*, slip op. at 19 (citing *White Eagle Coop. Ass'n v. Conner*, 553 F.3d 467, 480 (7th Cir. 2009), and *United Dist. Cos. v. FERC*, 88 F.3d 1105, 1170 (D.C. Cir. 1996)).

The Board has misconstrued and failed to comply with the RFA. The proposed rules impose additional requirements on shippers, a number of which qualify as small entities.[132] For example, small entities would have to make a full RPI showing to seek relief under Simplified SAC, and comply with the Board's new Full-SAC proposals, each of which, at a minimum, would increase the cost and complexity of presenting evidence in any surviving rate cases. While the Board regulates railroads and not shippers, the Board's new requirements would apply to shippers, and the RFA requirements thus apply to the Board's proposal.

The two RFA precedents cited by the Board do not support the Board's analysis. *United Distribution* is inapposite, at best, as the proposed FERC rule at issue in that case did not impose any additional procedural burdens upon the local distribution companies that raised the RFA issue. However, the D.C. Circuit's key analysis relied on an earlier precedent that focused on whether the adversely affected entities were subject to the requirements of the rule:

> However, in *Mid–Tex Elec. Co-op., Inc. v. FERC,* 773 F.2d 327, 340–43 (D.C. Cir.1985), we conducted an extensive analysis of the RFA provisions governing when a regulatory flexibility analysis is required and concluded that no analysis is necessary when an agency determines "that the rule will not have a significant economic impact on a substantial number of small entities *that are subject to the requirements of the rule.*" *Id.* at 342 (emphasis added).

[132] For example, Arizona Electric Power Cooperative, Inc., is a small electric utility entity, as it disposes of less than 4 million megawatt hours of electricity annually. *See* http://www.sba.gov/sites/default/files/files/Size_Standards_Table.pdf, n.1 on p. 39.

United Distribution, 88 F.3d at 1170. Here, however, the requirements of the Board's proposed rule apply directly to shippers – in fact, they apply to shippers. Significantly, the Board quotes *White Eagle* for the proposition that there "must be a direct impact on small entities 'whose conduct is circumscribed or mandated' by the proposed rule." *July 2012 Decision*, slip op. at 19 (quoting *White Eagle*, 553 F.3d at 480); *see also Aeronautical Repair Station Ass'n, Inc. v. FAA*, 494 F.3d 161, 175-78 (D.C. Cir. 2007) (holding that RFA requirements needed to be satisfied where proposed rule would apply to lower level contractors not directly regulated by the FAA). The Board's proposed rule has precisely such a direct impact on shippers, as the new requirements will make it much more difficult, if not impossible, for them to obtain rate relief from the Board.

Since the requirements of the rule apply directly to shippers, some of whom are small, the Board's certification is defective, and the Board's *July 2012 Decision* fails to comply with the requirements of the RFA, which precludes adoption of the proposed Full-SAC and Simplified SAC procedures.

CONCLUSION

Coal Shippers respectfully request that the Board decide the issues raised in this proceeding in the manner set forth above.

Respectfully submitted,

C. Michael Loftus
Andrew B. Kolesar III
Stephanie M. Archuleta
Slover & Loftus LLP
1224 Seventeenth St., N.W.
Washington, D.C. 20036
(202) 347-7170

Counsel for Concerned Captive Coal Shippers

William L. Slover
John H. LeSeur
Robert D. Rosenberg
Peter A. Pfohl
Daniel M. Jaffe
Slover & Loftus LLP
1224 Seventeenth St., N.W.
Washington, D.C. 20036
(202) 347-7170

Counsel for Western Coal Traffic League, American Public Power Association, Edison Electric Institute, National Rural Electric Cooperative Association, Western Fuels Association, Inc., and Basin Electric Power Cooperative, Inc.

Dated: October 23, 2012

Attachment 1

IDENTITY AND INTERST OF THE CONCERNED CAPTIVE COAL SHIPPERS

(1) Dairyland Power Cooperative. Dairyland Power Cooperative. Dairyland Power Cooperative, which is headquartered in La Crosse, Wisconsin, is a generation and transmission cooperative (G&T) that provides the wholesale electrical requirements and other services for 25 electric distribution cooperatives and 15 municipal utilities in the Upper Midwest. Dairyland delivers electricity via more than 3,100 miles of transmission lines and nearly 300 substations located throughout the system's 44,500 square mile service area, which encompasses 62 counties in four states (Wisconsin, Minnesota, Iowa and Illinois).

Dairyland's coal-fired generating stations include the 387-MW John P. Madgett Station, the 345-MW Genoa Station #3, and the 136-MW Alma 4-5 Station. Dairyland's coal-fired units consume more than 2 million tons of coal annually. These units are located in western Wisconsin and their coal requirements must be transported over substantial distances. Dairyland also owns a 30 percent share (162 MW) of the Weston 4 Station, which is operated by Wisconsin Public Service Company.

(2) Duke Energy Corporation. Duke Energy is a diversified energy company with a portfolio of electric and natural gas businesses, both regulated and non-regulated. Duke Energy is the largest electric power holding company in the United States, supplying and delivering energy to approximately 7 million U.S. customers. Duke Energy has approximately 58,200 megawatts of electric generating capacity in the

Carolinas, the Midwest and Florida – and natural gas distribution services in Ohio and Kentucky. Duke Energy's commercial and international businesses own and operate diverse power generation assets in North America and Latin America, including a portfolio of renewable energy assets.

Headquartered in Charlotte, N.C., Duke Energy's service territory covers approximately 104,000 square miles in the Southeast and Midwest.

(3) Intermountain Power Project. Intermountain Power Agency ("IPA"), a political subdivision of the State of Utah, is the owner of the Intermountain Power Project ("IPP"). IPP is located in the great basin of western Utah near Lynndyl, Millard County, Utah. The project generates more than 13 million megawatt hours of energy each year from its two coal-fired units and serves approximately 2 million customers. The units have a total capacity of 1,900 MW Gross and consume approximately 6 million tons of coal per year.

IPP's generation rights are held, respectively, by the Los Angeles Department of Water and Power (44.6%), five California cities (30%), twenty-three municipal Utah purchasers (14%), six cooperative Utah purchasers (7%), and one investor-owned Utah purchaser (4%).

IPP's generating station is served only by the Union Pacific Railroad Company.

(4) South Carolina Public Service Authority (Santee Cooper). Santee Cooper serves over 162,000 retail customers in Berkeley, Georgetown, and Horry Counties, South Carolina, and supplies power to the municipalities of Bamberg and

Georgetown, 32 large industries, and one military installation in North Charleston. The state-owned electric and water utility generates the power distributed by the state's 20 electric cooperatives. Santee Cooper power now flows in all 46 counties in the state serving over 625,000 customers.

Santee Cooper owns and operates four large-scale, coal-fired generating stations in South Carolina: Jefferies Station in Moncks Corner, Cross Station in Cross, Winyah Station in Georgetown, and Grainger Station in Conway. All of these plants are served exclusively by CSXT, with the exception of Grainger which is served by a short line carrier from Mullins, SC to Conway. Collectively, these four stations consume approximately 9.4 million tons of coal per year with a capacity of approximately 3,951 MW.

(5) South Mississippi Electric Power Association ("SMEPA"). SMEPA is a rural electric power association formed for the purposes of generating and transmitting electric energy. SMEPA is headquartered in Hattiesburg, Mississippi, and provides wholesale electric energy to eleven member-owners. The member-owners, in turn, are each rural electric distribution cooperatives who sell power through more than 400,000 meters to homes, farms, and businesses in 56 of the 82 counties in Mississippi. SMEPA recovers its cost of providing electric energy through wholesale rates to its eleven members. Fuel costs, including the costs to transport fuel, are eventually passed on to the electric customers by the local cooperatives.

SMEPA owns and operates an electric generating facility at Richburg, Mississippi known as the Morrow Station. This 400 MW facility consists of two

coal-burning electric generating units. The Morrow Station consumes from 600,000 to 1,000,000 tons of coal per year, and operates on a nearly continuous basis. Rail transportation is the only economical means of delivering large volumes of coal to the Morrow Station, and rail access to the Morrow Station is exclusively over the lines of NS. As such, SMEPA is captive to NS, and SMEPA has no other current transportation option for delivering its coal purchases. NS currently provides transportation service to SMEPA pursuant to a contract.

CERTIFICATE OF SERVICE

I hereby certify that this 23rd day of October, 2012, I have served a copy of the foregoing to be served via first-class mail, postage prepaid, upon the parties of record to this case.

_____
Andrew B. Kolesar III

BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. EP 715	)	**Rate Regulation Reforms**

Verified Statement

Of
Thomas D. Crowley
President

And
Daniel L. Fapp
Vice President

L. E. Peabody & Associates, Inc.
On Behalf Of

Western Coal Traffic League, Concerned Captive Coal Shippers, American Public Power Association, Edison Electric Institute, the National Rural Electric Cooperative Association, Western Fuels Association, Inc., and Basin Electric Power Cooperative, Inc.

Filed: October 23, 2012

TABLE OF CONTENTS **PAGE**

LIST OF EXHIBITS

EXHIBIT NO. (1)	EXHIBIT DESCRIPTION (2)
1	Statement Of Qualifications Of Thomas D. Crowley
2	Statement Of Qualifications Of Daniel L. Fapp
3	Impact of I&I Switching Costs on Variable Cost Based Revenue Divisions

I. INTRODUCTION

We are Thomas D. Crowley and Daniel L. Fapp. We are economists and, respectively, the President and a Vice President of L. E. Peabody & Associates, Inc., an economic consulting firm that specializes in solving economic, transportation, marketing, financial, accounting and fuel supply problems. Mr. Crowley has spent most of his consulting career of over forty (40) years evaluating fuel supply issues and railroad operations, including railroad costs, prices, financing, capacity and equipment planning issues. His assignments in these matters were commissioned by railroads, producers, shippers of different commodities, and government departments and agencies. A copy of his credentials is included as Exhibit No. 1 to this verified statement ("VS").

Mr. Fapp has been with L. E. Peabody & Associates, Inc. since 1997. During this time, he has worked on numerous projects dealing with railroad revenue, operational, economic and financial issues. Prior to joining L. E. Peabody & Associates, Inc., Mr. Fapp was employed by BHP Copper Inc. in the role of Transportation Manager - Finance and Administration, where he also served as an officer and Treasurer of the three BHP Copper Inc. subsidiary railroads. Mr. Fapp has also served as a guest lecturer in graduate level finance and economics classes. A copy of his credentials is included as Exhibit No. 2 to this VS.

Our consulting assignments regularly involve working with and determining various facets of railroad financial and costing issues. We have been requested by Counsel for the Western Coal Traffic League ("WCTL"), Concerned Captive Coal Shippers ("CCCS"), American Public Power Association ("APPA"), Edison Electric Institute ("EEI"), the National Rural Electric Cooperative Association ("NRECA"), Western Fuels Association, Inc. ("Western Fuels"), and Basin Electric Power Cooperative, Inc. ("Basin Electric") (collectively "Coal

Shippers"), to address specific issues raised by the Surface Transportation Board ("STB") in its decision in Ex Parte No. 715, *Rate Regulation Reforms*, served July 25, 2012 ("*EP 715*") related to the division of revenues in stand-alone cost ("SAC") presentations.

First, counsel has requested us to address whether the Board's proposed new approach for allocating revenues on cross-over traffic using average total cost ("ATC") metrics, an approach that we refer to as "Alternative ATC," is a demonstrably superior approach to the Board's current ATC methodology for allocating revenues on cross-over traffic, an approach we refer to as "Modified ATC." We conclude that Alternative ATC is not demonstrably superior to Modified ATC because Alternative ATC, unlike Modified ATC, produces economically unreasonable, and economically illogical, revenue allocations. We also conclude that Modified ATC gives proper weight to economies of density in the revenue allocation process, whereas Alternative ATC does not. We also suggest a proposed correction to Modified ATC that we conclude would provide a more accurate calculation of the fixed cost component in Modified ATC. Secondly, we have been requested to explain why the STB's proposal to restrict the use of cross-over traffic in SAC cases violates the very underpinnings of the SAC test and makes SAC presentations virtually unmanageable.

The remainder of our VS is organized under the following topical headings:

II. Modified ATC v. Alternative ATC
III. Cross-Over Traffic

II. MODIFIED ATC v. ALTERNATIVE ATC

The STB proposes in *EP 715* to replace Modified ATC with Alternative ATC. The Board should not do so because Modified ATC is an economically superior methodology for allocating revenues on cross-over traffic.

A. THE EVOLUTION OF ATC REVENUE DIVISIONS

The STB held in *Major Issues*[1] that the goal in allocating revenue from cross-over traffic to the stand-alone railroad ("SARR") and residual incumbent is to ensure that revenue is equitably distributed to the movement segments in relation to the cost incurred by the incumbent to move the traffic that generates the revenues. The STB found that consideration of the incumbent carrier's relative variable and fixed costs – or average total costs ("ATC") – incurred to move a shipment for the on-SARR and off-SARR segments was necessary to achieve its stated objective of reflecting the economies that define the railroad industry. Specifically, the STB asserted that using ATC in the revenue division formula serves to capture the effect of the economies of density inherent in the railroad industry while also reflecting the diminishing incremental economies as density increases. Pursuant to these considerations, the STB applied its ATC division methodology by multiplying the on-SARR ATC division percentage to the incumbent's total movement revenue to develop the amount of revenue allocated to the SARR. This approach subsequently became known as the "Original ATC" method.

In Docket No. 42088, *Western Fuels Association, Inc. and Basin Electric Power Cooperative v. BNSF Railway Company*, served September 10, 2007 ("*WFA/Basin*") and Docket No. 41191 (Sub-No. 1) *AEP Texas North Company v. BNSF Railway Company* served September 10, 2007 ("*AEP Texas*") the STB modified its formula to reflect a refined and

[1] See Ex Parte No. 657 (Sub-No. 1) *Major Issues in Rail Rate Cases*, October 30, 2006 ("*Major Issues*").

corrected methodology that did not defy basic economic principles. The STB correctly acknowledged that a reasonable cross-over traffic revenue division methodology must not only capture economies of density, it must also satisfy other economic axioms, including a requirement to allocate revenues to the movement segments sufficient to cover all segments' variable costs of service before any segment receives any contribution to fixed costs and profits. In applying Original ATC, however, the STB found that in some cases the revenue allocated to one section of the movement was less than that section's variable costs, while the revenue allocated to another section not only covered that section's variable costs, but also contributed towards fixed cost. The STB therefore modified its approach to correct for the flaws inherent in Original ATC. The new approach, "Modified ATC," is a two-step approach that first calculates the variable costs of service for the on-SARR and off-SARR portions of a SARR movement, and then, after assuring each segment recovers its full or pro-rata portion of variable costs, allocates any contribution based on the average total costs for each portion of the move.[2]

The defendant railroad, the BNSF Railway Company ("BNSF"), argued against the STB's logical and practical changes to Original ATC, largely on procedural grounds, but also offered theoretical arguments in support of the continued use of the flawed approach.

In *EP 715*, the STB is proposing a further modified formula that it believes may offer a reasonable middle ground in the theoretical discussion regarding the validity of the two previously discussed options. The new alternate formula ("Alternative ATC") is based largely on an alternative BNSF proposed at the tail end of the *WFA/Basin* proceeding. Although the new Alternative ATC formula attempts to correct -- through mechanical manipulation -- one flaw in the Original ATC formula when applied to one subset of railroad movements (i.e., very

[2] See *WFA/Basin* at 14.

low-rated traffic), it still incorporates most of the remaining flaws of the Original ATC formula that create biases and make Alternative ATC demonstrably inferior to the STB's current Modified ATC approach as we discuss below.

B. MODIFIED ATC IS LOGICAL

The STB originally proposed an ATC approach to cross-over revenue divisions because incorporating average total costs into the revenue division formula would help capture economies of density in the railroad industry. The *Major Issues* decision inferred that the segment revenues could be calculated by applying the ATC division percentage to a movement's total revenue. Upon its first application of the formula to real world movements in two rate cases, the STB was confronted with an obvious critical flaw inherent to the formula that it had failed to consider. The Original ATC approach produced illogical and biased results by allocating revenue to one segment that was insufficient to cover the segment's variable costs of service while allocating revenue to the other segment that not only covered the segment variable costs, but also provided additional revenues to defray fixed costs and contribute to profits.

In fact, Original ATC served to overstate the amount of revenue in excess of variable costs ("contribution") on several movements. For example, assume a 1,000 mile movement with variable costs per ton of $10 and revenues of $11 per ton. This movement clearly contributes $1 per ton in excess of variable costs to help defray fixed costs and contribute to the profits of the incumbent. Now assume the movement is split between two 500-mile segments, one over high-density lines and one over low-density lines. Assume Original ATC divided revenues such that the high-density segment was allocated $4.75 and the low-density segment was allocated $6.25. The high-density segment was allocated revenues insufficient to cover its variable costs ($5), while the low-density segment was allocated revenues sufficient to cover its variable costs ($5)

and contribute $1.25 to defray fixed costs and provide profit. The hypothetical contribution on the 500-mile low-density segment was assumed to be greater than the actual contribution on the entire 1,000 mile real-world movement.

To address this erroneous outcome, the STB developed the Modified ATC approach. Such an approach is logical because it conforms to basic economic principles, while also reflecting the scale economies that exist in the railroad industry.

It is axiomatic that for an operation to continue in the long-run, its revenues must recover its total cost of operations. It is also axiomatic that in the short-run, an operation's revenue must cover its average variable cost of operations, or else the operation would be better-off shutting down.[3] This is because average variable costs by definition do not change with changes in production. While total variable costs will increase with increases in output, average variable costs per unit will remain constant across certain output ranges.[4] If an operation is not recovering its variable costs from its revenues, it would lose less money by producing no products or services at all and absorbing only the loss from its fixed costs.

From a revenue division stand-point, any revenue allocation approach must allow each segment to recover its variable costs of service before allowing another segment to make a contribution to fixed costs. Otherwise, the segment to which revenues were over allocated would be falsely reliant on assumed contributions to fixed costs that were in reality unavailable. Modified ATC meets this bedrock economic principle by assuring in Step 1 that a movement's

[3] See for example, "Principles of Micro-Economics" Amacher, Ryan, C. or any other introductory economics text.

[4] This is particularly the case with ATC since the variable costs used are URCS Phase III costs, which are the same regardless of the line density of the movements being costed. This point is shown by the fact that there are no density related inputs when developing variable costs using the Uniform Rail Costing System ("URCS") Phase III costing model. Whether a movement occurs in the heart of the Powder River Basin Joint Line or on lightly traveled branch lines, the URCS Phase III model will produce the same variable costs for movements on high-density and low-density segments, holding all other factors constant.

revenue at least covers each segment's variable costs prior to allocating revenues in excess of variable costs to defray any segment's fixed costs or contribute to its profits.

The STB's proposed Alternative ATC formula would partially correct the illogical results of applying the Original ATC formula in this instance because it would ensure that both segments were allocated revenues sufficient to cover their respective variable costs. However, Alternative ATC would allocate all of the contribution that is spread over the entire movement in the real world to only a portion of the movement. This result is also illogical. The railroad industry is defined, in part, by economies of density, which lead to lower average fixed costs per ton.[5] However, though these costs decrease as volumes increase, they do not entirely disappear, and even the highest density lines will incur some average fixed cost. There is no reason a railroad will assign all of its contribution to one segment, while ignoring fixed cost recovery on another segment. This effectively requires one rail line segment to cross-subsidize another rail line segment.

The problems with the Alternative ATC formula become much more evident when it is evaluated as applied to a wide spectrum of representative moves. We discuss these shortcomings in detail in the following sections.

C. MODIFIED ATC REFLECTS ECONOMIES OF DENSITY

The ICC explained in *Coal Rate Guidelines* that the railroad industry exhibited the existence of significant production economies, including economies of scale, scope and density.[6] Economies of density reflect the fact that the greater use of a fixed plant results in declining average total costs as fixed costs are spread over a larger number of units. "Economies of

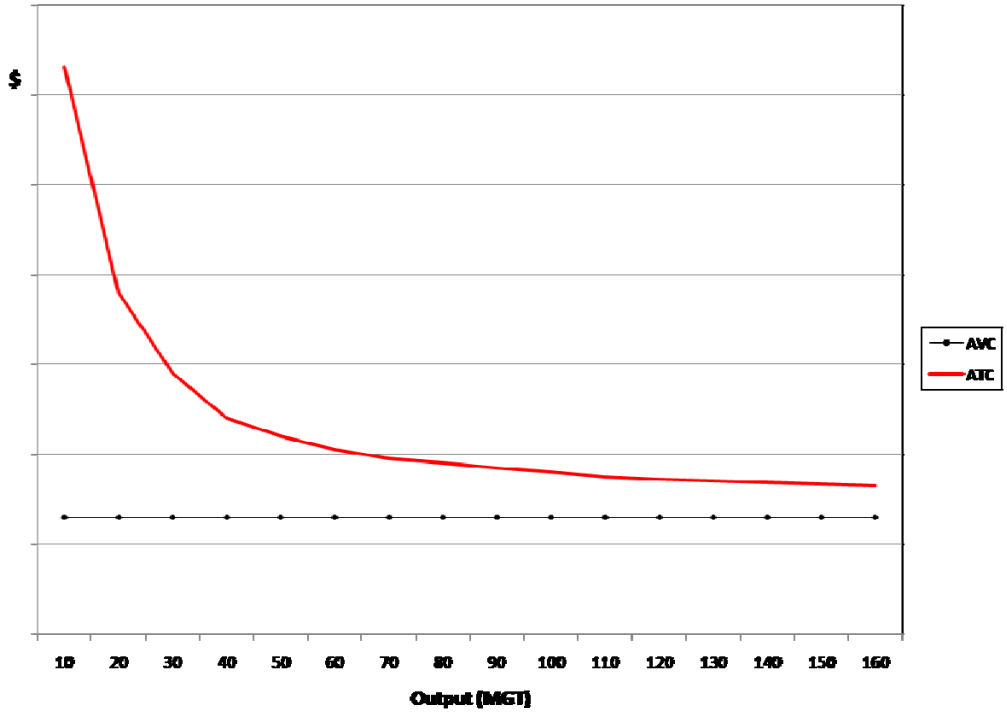
[5] In this instance, we define economies of density as did the Interstate Commerce Commission ("ICC") in STB Ex Parte No. 347 (Sub-No. 1), *Coal Rate Guidelines, Nationwide* ("*Coal Rate Guidelines*") where the greater use of the fixed plant results in declining fixed cost.

[6] See *Coal Rate Guidelines* at 526.

density are defined as an increase in output resulting in a less than proportional increase in total costs."[7] Therefore, the only way to incorporate economies of density is through the use of a total cost function.

The STB illustrated this basic principle in *Xcel II*, where it included a graph, reproduced as Figure 1 below, showing the diminishing decline in average total costs as production output measured in million gross ton ("MGT") increases.[8]

Figure No. 1
Railroad Cost Functions



As the STB correctly concluded in *Xcel II*, the graph in Figure 1 above shows that "the economies of density diminish with higher output, as fixed threshold costs are spread over more output."[9]

---

[7] See *Analysis of Economies of Size and Density For Short Line Railroads*, Mountain Plains Consortium, October 2001.

[8] See Docket No. 42057, *Public Service Company of Colorado D/B/A Xcel Energy v. The Burlington Northern & Santa Fe Railway Company*, served January 19, 2005 ("*Xcel II*") at 9.

[9] Id at 10.

The second step in Modified ATC properly captures economies of density, as well as diminishing returns because as densities increase, the average fixed cost per ton gets smaller until at very high densities, the fixed cost is so small that the allocation is effectively based on the variable cost component, i.e, the reflection of diminishing returns on density. For example, Table 1 below compares the average variable costs, average fixed costs and average total costs per ton for a hypothetical movement over tracks with different traffic densities.

Table 1
Comparison of Average Variable Cost, Average Fixed Cost and Average Total Costs Across Increasing Levels of Traffic Density

Traffic Density (tons)	Average Variable Cost Per Ton	Average Fixed Cost Per Ton 1/	Average Total Cost Per Ton 2/	Average Variable Costs As A Percentage Of Average Total Costs 3/
(1)	(2)	(3)	(4)	(5)
1. 1,000,000	$5.00	$1.00	$6.00	83.3%
2. 25,000,000	$5.00	$0.04	$5.04	99.2%
3. 50,000,000	$5.00	$0.02	$5.02	99.6%
4. 100,000,000	$5.00	$0.01	$5.01	99.8%
5. 150,000,000	$5.00	$0.007	$5.007	99.9%

1/ An assumed fixed cost of $1,000,000 divided by Column (1).
2/ Column (2) + Column (3).
3/ Column (2) ÷ Column (4).

As Table 1 above demonstrates, as traffic density increases, the impact of the average fixed cost component of ATC declines to the point where the percentage of variable costs to ATC nears 100 percent.

Modified ATC also responds to the concerns the Board raised in *Xcel II* concerning BNSF's proposed Density Adjusted Revenue Allocation ("DARA") procedure. BNSF's DARA approach first calculated the attributable costs for the on-SARR and off-SARR portions of a movement using the incumbent's URCS variable costs, and then distributed the remaining contribution, e.g., the difference between the revenue and attributable costs, based on the relative

densities of each line segment. BNSF boasted that its DARA approach was superior to other revenue division methodologies then used by the STB because it first determined each part of a movement's attributable costs before attempting to allocate the contribution:

> BNSF's DARA procedure involves an explicit calculation of attributable costs on both portions of cross-over movements and an allocation of the residual revenue….Thus, in the current case, DARA represents a refinement over MMP because it provides a principled basis for allocating that portion of revenue on cross-over movements that is available to cover unattributable costs.[10]

In rejecting the BNSF's use of the DARA methodology in *Xcel II*, the STB found no fault with dividing cross-over revenues using a two-step process. Rather, the STB faulted the DARA approach for its failure to reflect the declining returns on density that are critical to railroad costing principles.[11] The STB observed that the dollar amount that DARA would allocate to the light-density and heavy-density lines would not vary as long as the relative densities between the different lines were held constant.[12] For example, the DARA approach would assign the same revenue divisions whether the so-called light-density and heavy-density segments carried 10 and 20 million gross tons ("MGT"), respectively, or 80 and 160 MGT, respectively. As long as the ratio of tons remained 1 to 2, DARA would produce the same cross-over revenue allocations. This result is demonstrated in the three examples below:

[10] See BNSF *Xcel II* Brief at 23.
[11] See *Xcel II* at 7 to 11.
[12] Id at 10.

Example 1
Strong Economies of Density

	Residual	SARR
Density	10 MGT	20 MGT
AVC	$2.50	$2.50
ATC	$12.50	$7.50
DARA	AVC + ($5 × (20 ÷ 30)) = $5.83	AVC + ($5 × (10 ÷ 30)) = $4.17

Example 2
Significant Economies of Density

	Residual	SARR
Density	40 MGT	80 MGT
AVC	$2.50	$2.50
ATC	$5.00	$3.75
DARA	AVC + ($5 × (80 ÷ 120)) = $5.83	AVC + ($5 × (40 ÷ 120)) = $4.17

Example 3
Weak Economies of Density

	Residual	SARR
Density	80 MGT	160 MGT
AVC	$2.50	$2.50
ATC	$3.75	$3.13
DARA	AVC + ($5 × (160 ÷ 240)) = $5.83	AVC + ($5 × (80 ÷ 240)) = $4.17

DARA failed because it did not take into consideration the diminishing returns as traffic density increased. The STB's Modified ATC division approach follows the same basic two-step process advocated by BNSF in *Xcel II*, but corrects for the failure to reflect diminishing returns on density economies in Step 2. First, under both the DARA and Modified ATC approaches, in Step 1 each segment's attributable costs are first estimated using the incumbent carrier's URCS variable costs. Next, any remaining contribution, which includes unattributable costs and profits, are allocated in Step 2 to the on-SARR and off-SARR segments of each movement. However, the STB's Modified ATC approach corrects the failings of DARA by allocating the Step 2 contribution using average total costs, which reflects the fact that economies of density become less pronounced at higher density levels.

This point is demonstrated by restating the example used in *Xcel II*, but substituting ATC Step 2 for DARA Step 2.

Example 1
Strong Economies of Density

	Residual	SARR
Density	10 MGT	20 MGT
AVC	$2.50	$2.50
ATC	$12.50	$7.50
Modified ATC	AVC + ($5 x ($12.50 ÷ $20)) = $5.63	AVC + ($5 x ($7.50 ÷ $20)) = $4.37

Example 2
Significant Economies of Density

	Residual	SARR
Density	40 MGT	80 MGT
AVC	$2.50	$2.50
ATC	$5.00	$3.75
Modified ATC	AVC + ($5 x ($5 ÷ $8.75)) = $5.36	AVC + ($5 x ($3.75 ÷ $8.75)) = $4.64

Example 3
Weak Economies of Density

	Residual	SARR
Density	80 MGT	160 MGT
AVC	$2.50	$2.50
ATC	$3.75	$3.13
Modified ATC	AVC + ($5 x ($3.75 ÷ $6.88)) = $5.23	AVC + ($5 x ($3.13 ÷ $6.88)) = $4.77

The restated example from *Xcel II* demonstrates how the Modified ATC approach fixes the primary flaw with DARA. Unlike the DARA approach, which produces the same division percentages as long as the relationship between traffic densities on the residual and on-SARR segments remains the same, the Modified ATC approach explicitly takes into consideration the diminishing returns on density economies.

As noted by the STB in *Major Issues*, by focusing only on which of the segments has higher traffic densities, the DARA formula ignores the principles of diminishing economies of

density.[13] The STB's Modified ATC approach fixes the flaw in the DARA approach by allocating contribution based on average total costs.

D. MODIFIED ATC CORRECTS THE FLAWS IN ORIGINAL ATC, WHEREAS ALTERNATIVE ATC MERELY REDUCES THE IMPACT OF CERTAIN FLAWS

The STB adopted the ATC approach to cross-over revenue divisions based on the premise that the then current mileage based division methodology, Modified Straight-Mileage Prorate ("MSP"), reflected only a crude estimate of the relative variable costs of hauling traffic over the relevant segments, and did not take into consideration economies of scale, scope and density. As stated by the Board:

> The MSP approach allocates revenues according to a crude estimate of the relative variable costs of hauling traffic over the relevant segments, rather than the total costs. The approach therefore fails to take into account the defining characteristic of the railroad industry – economies of scale, scope and density. There is no reason to believe that economies of density in this industry have been exhausted. Yet only under such an assumption would a mileage-based approach provide an allocation based on average total costs.[14]

In describing its ATC division approach in the *Major Issues* Notice of Proposed Rulemaking ("*Major Issues NPRM*"), the STB indicated that revenues from a cross-over movement would be allocated based on the ratio of the on-SARR segment's ATC to total ATC for the movement, and included an example as to how revenue divisions should be calculated.[15]

Based on *Major Issues*, both WFA/Basin and AEP Texas North Company ("AEP Texas"), the complainant shippers SAC cases then before the STB, developed revenues

[13] See *Major Issues* at 26. The STB noted in its February 2008 *WFA/Basin* decision that ATC fixes the problems inherent with the DARA approach. See *WFA/Basin* February 2008 at 5, n. 9.
[14] See *Major Issues*, slip op. at 25 (footnotes omitted).
[15] See *Major Issues NPRM* at 20.

consistent with the Original ATC division methodology described by the STB. However, when reviewing the evidence from both cases, the STB found that applying ATC division percentages to total revenues produces economically illogical results. As noted by the STB in *WFA/Basin* and *AEP Texas*, because the traffic groups in both cases included traffic with total revenue either below or barely above variable costs, and because the off-SARR segments of the movements have lower densities, the practical effect of applying the ATC percentage to total revenues would be to drive the R/VC percentages of the segments replicated by the SARR movements below 100 percent.[16] The unstated companion axiom is that the contribution allocated to the other segment was greater than the real-world contribution on the entire movement.

As discussed above, the STB found such results to be illogical and contrary to basic economic principles. Moreover, the STB determined that such results ran counter to the purpose of SAC, which was to identify and eliminate cross-subsidies. Forcing one segment of a movement to recover less than its variable cost of operations while attributing sufficient revenue to cover another portion's variable costs, plus contribute to fixed costs and profit clearly creates a cross-subsidy. Original ATC also falsely implies that a greater portion of the revenue is available to defray fixed costs than is actually available.

Finally, it is clearly erroneous to use an ATC metric, which includes a fixed cost component, to allocate variable costs because average variable costs do not vary with volume. This is the same rational that BNSF and its consultants used in supporting the DARA approach in *Xcel II*. In describing DARA in that case, BNSF and its consultants stated that it was appropriate to first allocate revenue based on the variable costs of each movement because these

[16] See *WFA/Basin* at 14 and *AEP Texas* at 15.

were the only costs that varied with changes in volume.[17] More importantly, BNSF stated that the allocation of fixed costs occurs only in Step 2 for allocating contribution.[18] Simply stated, they contended it would be inappropriate to consider the impact of fixed cost when allocating revenue to cover variable costs between the on-SARR and off-SARR segments.

The Modified ATC approach corrects for the deficiencies inherent to the Original ATC approach by using a two-step process. First, by assuring in the first step that each segment covers its variable costs before contributing to the fixed costs of other segments, the Modified ATC approach produces economically logical results and avoids improper cross-subsidies. Second, it results in the proper quantification of the contribution available to all segments after total movement variable costs are allocated. Third, by applying the ATC division percentage to only the contribution, the Modified ATC approach assures that contribution is allocated using an average total cost metric that accounts for both economies of density and the diminishing returns thereto at higher density levels.

E. MODIFIED ATC DOES NOT DOUBLE COUNT VARIABLE COSTS

In *WFA/Basin*, BNSF argued that Modified ATC impermissibly "double counts" variable costs. BNSF's argument was, and remains, incorrect. In support of its double count allegation, BNSF presented a corrupted version of the Modified ATC formula and argued that because "the VC_{SARR} term clearly appears twice"[19] in the formula as presented, variable costs are improperly double counted.

[17] See Klick/Fisher VS at 31 in BNSF Petition for Clarification filed January 20, 2004 in *Xcel II* ("*BNSF Petition For Clarification*").
[18] See Id at 31.
[19] See Comments of BNSF Railway on Remand (Nov. 22, 2010) ("*BNSF Comments*") at 15.

The double count contention is not correct from an economic perspective because the purpose of Modified ATC is not to allocate (or weight) costs, but instead to equitably allocate revenues between the on-SARR and off-SARR portions of the residual incumbent's movement using a two-step process where in Step 1 revenues are allocated to cover on-SARR and off-SARR variable costs, and in Step 2 contribution (revenues in excess of variable costs) is allocated using an average total cost metric that captures economies of density and diminishing returns thereto. The allocation of revenues in each of the separate steps must be done equitably based on economically logical allocation methods. It is in this context that the formula used to allocate revenues must be evaluated (i.e., the two allocation formulae must be evaluated on their own merits for the specific purpose for which they are used.) Combining the two formulae into one is improper and confuses the economic theory that necessitates a two-step process in the first place.

As discussed above, Modified ATC is based on a simple and singular premise: for cross-over movements, the revenue required to cover variable costs associated with a given movement must be allocated between the on-SARR and off-SARR portions of the movement before any contribution may be allocated. The reason is also simple: any revenue division methodology that allocates revenues less than variable costs to one portion of an incumbent's movement while allocating revenues greater than variable costs to the other fails the most basic principle of railroad economics. Specifically, no contribution is available to defray joint and common costs until variable costs are first recovered.

In the second step of Modified ATC, contribution is allocated between the on-SARR and off-SARR segments of the movement. As discussed above, the STB has correctly determined that economies of density should be considered in allocating contribution between the parties.

Thus, the second step of the Modified ATC incorporates the average fixed costs of the movement segments as components and allocates contribution unevenly – with more going to relatively lower density lines to reflect that the traffic on those lines must contribute somewhat more to joint and common costs than the traffic on higher-density lines.

Importantly, the second step of Modified ATC does not consider only the relative average fixed costs of the two movement segments. This is correct because *the second step of Modified ATC is not intended to allocate average fixed costs between the parties* – it is intended to allocate contribution, which includes both fixed costs and revenues in excess of total costs (i.e., profit) using a metric that accounts for economies of density and diminishing returns thereto. It would be inappropriate and theoretically unsound to allocate contribution based solely on the relative fixed costs of the two segments in question.

The best and most equitable way to allocate revenues at or below variable costs is based on the ratio of variable costs. The best and most equitable way to allocate revenues above variable costs is based on the ratio of total costs. This is exactly what Modified ATC does.

A simple analogy may be drawn between the application of Modified ATC and the application of a graduated tax code. Within a given tax bracket, a specific tax rate is applied to each dollar within that bracket's range. For revenues in the next bracket, a separate tax rate is applied to each dollar within that bracket's range. This is done to ensure that every rise in pre-tax income results in an increase in after-tax income. The rates applied within each distinct tax bracket have no bearing on the rates applied in the other brackets, *despite the fact that many of the same macroeconomic indicators are considered in the development of the rates in all of the brackets*. That is, rates in separate brackets may be conceived and calibrated with reference to common components and/or cost indices. This does not imply a double count of those indices.

A similar construct is needed in the allocation of revenue between the on-SARR and off-SARR portions of the residual incumbent's movements. The "first bracket" in the revenue allocation formula is the revenue up to variable costs – to which a specific ratio is applied. The "second bracket" in the revenue allocation formula is the revenue in excess of variable costs (contribution) – to which another unrelated (despite comprising a common component) ratio is separately applied.

F. MODIFIED ATC DOES NOT UNDERWEIGHT ECONOMIES OF DENSITY

The Board suggests in *EP 715* that Alternative ATC may be superior to Modified ATC because, according to the Board, Alternative ATC "giv[es] more weight to the important role that economies of density should play in any cost-based revenue allocation approach."[20] Thus, it appears that the Board believes that Modified ATC does not give enough weight to economies of density.

The Board offers no explanation why it believes Alternative ATC places "more weight" on economies of density than Modified ATC. Both Modified ATC, and Alternative ATC, develop the same ATC calculations, and the only difference is that Modified ATC applies the ATC metric to movement contribution, whereas Alternative ATC applies the ATC metric to total movement revenue (as did Original ATC). Thus, it appears that the Board is saying that applying ATC to movement revenue places "more weight" on economies of density than applying ATC to movement contribution.

As discussed above, the ATC metric should be applied only to allocate movement contribution, so by definition – assuming the ATC calculations are being made correctly – they

[20] See *EP 715* at 18.

are given the proper "weight" under Modified ATC. It may be that the Board is relying here on contentions BNSF raised late in the WFA/Basin Case, that Modified ATC underweights "fixed costs" and therefore fails to properly take into account economies of density. However, the fact of the matter is that the weight given to fixed costs in the revenue allocation process depends on the level of the movement revenue being allocated.

In *WFA/Basin*, BNSF and its witnesses argued that the ATC metric contains two components: a variable cost per ton component which "do[es] not reflect economies of density"[21] and a fixed cost component that does "reflect economies of density."[22] They then contended that application of the Modified ATC formula is wrong in part because it improperly "dilute[d] the impact of economies of density"[23] in the revenue allocation process by improperly "dilut[ing] the relative weighting of fixed costs.[24] In an attempt to illustrate their point, BNSF's witnesses purport to show an "over-weighting" of variable costs and a corresponding "under-weighting" of fixed costs associated with a hypothetical example movement where the average total costs are split between variable and fixed costs on a 75% variable/25% fixed basis and total movement revenue equals total average total cost.[25]

In their example, the witnesses show that in the first step of Modified ATC, 75% of the total revenues (the amount equal to the total movement variable costs) are allocated based entirely on the relative variable costs of the SARR and residual incumbent segments. They then

[21] See *BNSF Comments* at 10.
[22] Id at 6.
[23] Id at 19.
[24] Baranowski/Fisher VS at 11.
[25] BNSF's example is not dependent on the use of actual per ton inputs, since the results are the same, so long as the 75%/25% is maintained, and revenues equal fixed costs. However, an illustration using hypothetical per ton figures would be as follows: (i) total movement revenue of $12 per ton; (ii) total movement variable costs of $9 per ton; (iii) incumbent on-SARR route variable costs of $4.50 per ton; (iv) incumbent off-SARR route variable costs of $4.50 per ton (iv) on-SARR incumbent route fixed costs of $1.00 per ton; and (vi) off-SARR incumbent route fixed costs of $2.00 per ton. Note that total movement revenues ($12 per ton) are exactly equal to total average costs ($9 per variable cost + $3 per ton fixed, with a movement R/VC ratio of 133% ($12/$9).

show that in the second step of Modified ATC, the remaining 25% of the total revenues (the amount equal to the total revenues less total movement variable costs) are allocated based on the relative total costs (which include variable costs plus fixed costs) of the SARR and residual incumbent segments. They then assert that (a) 75% of the revenues are allocated based 100% of the segments' relative variable costs, and (b) the remaining 25% of the revenues are allocated based on (i) 75% on the segments' relative variable costs, and (ii) 25% on the segments' relative fixed costs. They eventually conclude that variable costs are "weighted" at 94% ((0.75 x 1.00) + (0.25 x 0.75)), whereas fixed costs are "weighted" at 6% ((0.75 x 0.00) + (0.25 x 0.25)).

BNSF then argues that because contribution is exactly equal to fixed costs in the hypothetical example constructed and presented, the fixed cost component of total costs is under-weighted in the allocation of SARR revenues. The problem, BNSF claims, is that for this particular move, fixed costs account for 25% of total revenues but only 6% of the weighting in the revenue allocation formula.

In fact, it is Original and Alternative ATC that improperly over weight fixed costs. Importantly, BNSF's arguments were premised on a very limited range of contribution scenarios that, when expanded to reflect the diverse traffic actually moved by the railroads, shows that (1) Modified ATC properly allocates contribution, and (2) Original ATC and Alternative ATC systematically bias the results in favor of low-density segments. Below we present the analysis properly constructed to include a full range of revenue-to-cost scenarios.

In all of the examples included in the table below, we use the same assumption BNSF used in its *WFA/Basin* argument, that variable costs account for 75% of total costs and fixed costs account for 25% of total costs for the studied movement. Each column in the table is an

evaluation of the impact of applying Original ATC, Modified ATC, and the new Alternative ATC to the movement at differing revenue-to-cost ratio levels.

The table includes a statement of the extent to which fixed costs are increasingly over-weighted (and revenues are increasingly over-allocated to low-density segments) under Original and Alternative ATC as revenue-to-cost ratios increase.

Table 2
Fixed Cost Weighting at Different R/VC Levels

Item (1)	**Revenue = 75% of Total Costs** (2)	**Rev. = 100% of Total Costs** (3)	**Rev. = 125% of Total Costs** (4)	**Rev. = 150% of Total Costs** (5)	**Rev. = 175% of Total Costs** (6)	**Rev. = 200% of Total Costs** (7)	**Rev. = 225% of Total Costs** (8)	**Rev. = 250% of Total Costs** (9)
1. Original ATC	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
2. Modified ATC	0.0%	6.3%	10.0%	12.5%	14.3%	15.6%	16.7%	17.5%
3. Alternative ATC	0.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
4. Fixed Cost as a Percent of Total Revenue	33.3%	25.0%	20.0%	16.7%	14.3%	12.5%	11.1%	10.0%
5. Original ATC Over Weighting of Fixed Costs 1/	xxx	xxx	25.0%	50.0%	75.0%	100.0%	125.0%	150.0%
6. Alternative ATC Over Weighting of Fixed Costs 2/	xxx	xxx	25.0%	50.0%	75.0%	100.0%	125.0%	150.0%

1/ Line 1 ÷ Line 4 – 1 x 100.
2/ Line 3 ÷ Line 4 – 1 x 100.

As shown in Table 2 above, for a movement with revenues equal to 175% of total costs, fixed costs equal 14.3% of total revenues (which is exactly the weighting ATC is given using Modified ATC.) Both Original and Alternative ATC give the fixed cost component 25% weighting for this move. This results in fixed costs being over-weighted by 75% [(0.250/0.143)-1]. For a movement where revenues equal 200% of total costs, Original and Alternative ATC (25%) over-weights fixed costs (12.5% of revenues) by 100%.

As Table 2 shows, when the full range of railroad movements is evaluated, it is clear that for high-R/VC (i.e., high-contribution) movements, the impact of fixed costs is vastly overstated under both the Original and Alternative ATC formulae, which results in dramatic over-allocation of revenues to cross-over movements over low-density segments for the highest revenue movements on a railroad system. Modified ATC does not systemically bias the results of the analysis.

Original and Alternative ATC serve to essentially eliminate high R/VC movements from all high-density segments, as a disproportionate share of revenues for all high-R/VC movements are allocated to the low-density portions of the movement (i.e., both formulae turn high-R/VC movements into low-R/VC movements on high-density segments). This severely distorts the analysis.

G. MODIFIED ATC DOES NOT BREAK REVENUE AND COST ALIGNMENTS

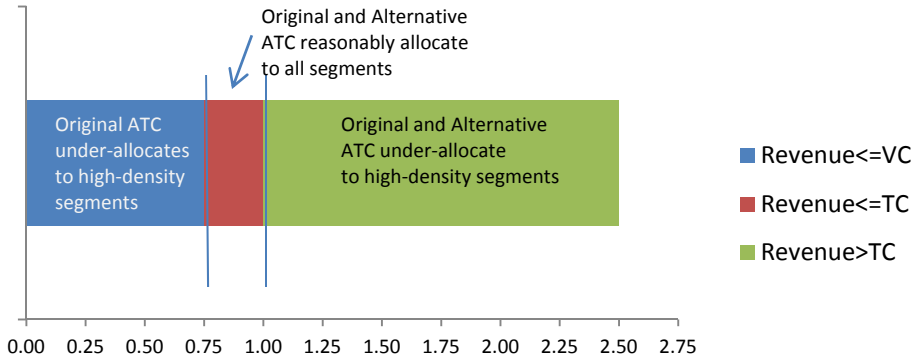
As demonstrated in Table 2 above, fixed costs as a percentage of total revenues decrease as revenues increase, even as fixed costs as a percentage of total costs remain static. As a result, Original and Alternative ATC only produce "fair" revenue allocation at one point on the revenue-to-cost scale. For moves where revenue-to-cost is above that level (i.e., high-revenue movements), Original and Alternative ATC under-allocate revenues to high-density segments. For moves where revenue-to-cost is below that level but above variable cost, (i.e., low-revenue movements), Original and Alternative ATC reasonably allocate revenue to the different segments in most cases.[26]

[26] As explained above, there are some instances where the Alternative ATC approach will illogically allocate all contribution to one line segment while providing no contribution to another.

For moves where total movement revenue is less than variable cost (i.e., very-low-revenue movements), Original ATC again under-allocates revenues to high-density segments. Alternative ATC remedies the flaw in Original ATC of allocating revenue below variable costs, but still under allocates revenues to high-density segments.

Figure 2 below shows this problem graphically.

Figure 2
Original ATC Under/Over-Allocation, Full Spectrum
(Assumes Variable Cost = 75% of Total Cost)



Evaluation of moves that fall into all three bands on the spectrum is required to judge the relative merits of one revenue allocation formula over another.

H. MODIFIED ATC CORRECTLY CAPTURES SCALE ECONOMIES AND PER-UNIT PROFITABILITY

Original and Alternative ATC produce absurd results by making low density lines more profitable on a per ton basis than high density lines. In contrast, Modified ATC produces reasonable results that reflect basic economic principles.

Modified ATC more appropriately considers economies of density than Original or Alternative ATC, because Original and Alternative ATC serve to systematically restrict high-density lines from the benefits of economies of density. Within a system, scale economies are

not universal across all operations. For freight railroads, the greatest per-unit profitability on a movement is enjoyed on the highest density segments, all else being equal. A 100-mile unit coal train movement over a high-density line is more profitable than a 100-mile unit coal train movement over a low-density line, specifically because less of the revenues on the high-density line are needed to defray joint and common costs. This fundamental principle is the very incentive railroads have to invest their capital strategically to maximize scale economies. Application of Original and Alternative ATC strips the benefits of scale economies from high-density lines and reallocates them to low-density lines.

Economies of density reflect how per-unit profits for a network of a given size initially increase with increases in output. Railroads strategically invest to accommodate growth on high-density lines to leverage scale economies and *maximize profit on the traffic moving over those lines*. Original and Alternative ATC transfer the profitability associated with traffic moving on high-density lines to traffic moving on low-density lines, in effect robbing the high-density lines of the very scale economies that incented the railroads to invest in capacity enhancements on those high-density lines in the first place.

High-density lines *are* more profitable on a per-unit basis than low-density lines. A revenue allocation methodology should reflect that truth. In a hypothetical example:

1. A 1,000-mile movement is split between a 500-mile segment over a 50-million-ton line and a 500-mile segment over a 25-million-ton line.
2. The variable costs for each 500-mile segment are $5.00 per ton.
3. The fixed costs are $1.25 per ton for the high-density segment and $2.50 per ton for the low-density segment.
4. The total costs are ($5.00 per ton x 2) + $1.25 per ton + $2.50 per ton, or $13.75 per ton.
5. The rate for the movement is $15.00 per ton.
6. Under Original and Alternative ATC, the high-density segment revenue allocation is $6.25 per ton ÷ $13.75 per ton, or 45.5 percent.
7. When applied to the movement revenue ($15.00 per ton), the resulting high-density segment revenues are $6.82 per ton.

8. The high-density segment profit is $6.82 per ton - $6.25 per ton, or $0.57 per ton.
9. The revenues allocated to the low-density segment are $8.18 per ton.
10. The low-density segment profit is $8.18 per ton - $7.50 per ton, or $0.68 per ton.

The move on the low-density segment is therefore more profitable, after total costs are subtracted, than the move on the high-density segment. This is an economically illogical result.

Under Modified ATC, the allocation is as follows:

1. $5.00 per ton is allocated to both the high-density and low-density segments to cover the variable costs of service of both segments.
2. The remaining $5.00 per ton in revenue is allocated based on the percentage calculated above, 45.5 percent to the high-density segment and 54.5 percent to the low-density segment.
3. The high-density segment receives $5.00 + (0.455 x $5.00), or $7.27 per ton.
4. The high-density segment profit on the move is $7.27 per ton - $6.25 per ton, or $1.02 per ton.
5. The low-density segment receives $5.00 + (0.545 x $5.00), or $7.73 per ton.
6. The low-density segment profit is $7.73 per ton - $7.50 per ton, or $0.23 per ton.

The move on the high-density segment is therefore more profitable, *after total costs are subtracted*, than the move on the low-density segment. This is an economically logical result. Table 3 below, compares the methodologies discussed above.

Table 3
Comparison of Revenue Division
Methodologies, Hypothetical, R/VC = 1.50

Item (1)	**Original and Alternative ATC** (2)	**Modified ATC** (3)
1. Revenue	$15.00	$15.00
2. High-Density Segment Total Costs	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. High-Density Segment Division	$6.82	$7.27
5. Low-Density Segment Division	$8.18	$7.73
6. High-Density Segment Profit	$0.57	$1.02
7. Low-Density Segment Profit	$0.68	$0.23
8. Result	Illogical	Logical

As shown in Table 3 above, Original and Alternative ATC produce per unit profits that do not comport with actual railroad economics. The problem is even more evident when a

relatively high rated move is evaluated. Table 4 below compares the impact of applying Original ATC and Modified ATC to a move with a revenue-to-variable cost ratio ("R/VC") of 2.20.

Table 4
Comparison of Revenue Division
Methodologies Movement R/VC = 2.20

Item (1)	**Original ATC** (2)	**Modified ATC** (3)
1. Revenue	$22.00	$22.00
2. High-Density Segment Total Costs	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. High-Density Segment Division	$10.00	$10.45
5. Low-Density Segment Division	$12.00	$11.55
6. High-Density Segment Profit	$3.75	$4.20
7. Low-Density Segment Profit	$4.50	$4.05
8. Result	Illogical	Logical

Finally, as a reminder of the reason why the STB properly introduced Modified ATC in the first place, it is helpful to consider a move with an R/VC of 1.00, as depicted in Table 5 below.

Table 5
Comparison of Revenue Division
Methodologies Movement R/VC = 1.00

Item (1)	**Original ATC** (2)	**Modified and Alternative ATC** (3)
1. Revenue	$10.00	$10.00
2. High-Density Segment Total Costs	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. High-Density Segment Division	$4.55	$5.00
5. Low-Density Segment Division	$5.45	$5.00
6. High-Density Segment Profit	($0.45)	$0.00
7. Low-Density Segment Profit	$0.45	$0.00
8. Result	Antithetical to rate-setting procedures: SARR does not recover incremental costs, Residual Incumbent recovers incremental costs and contribution to joint and common costs	Reflective of rate-setting procedures: SARR and Residual Incumbent recover incremental costs, no contribution to joint and common costs for either entity

In each of the three examples above (R/VC=1.00, R/VC=1.50, R/VC=2.20) it is clear that Original ATC allocates far too much revenue to the low-density segment, making the low-density segment more profitable on a per-unit basis after all costs (variable and fixed) are covered for movements where revenues are greater than total costs. This in turn means the high-density segment is a money loser (allocated revenues are less than variable costs) while allocating variable costs plus contribution to the low-density segment on movements where revenues are less than total costs. Alternative ATC only corrects the most glaring problem on a movement where R/VC=1.0, but it incorporates the critical flaws inherent to Original ATC when allocating revenues on movements with R/VC greater than 1.00.

I. MODIFIED ATC MORE EQUITABLYALLOCATES REVENUES

The purpose of cost-based revenue allocation is to ensure cost-coverage for both segments and an equitable allocation of revenues in excess of total costs. As shown below, Modified ATC comes much closer to this result than Original ATC. Table 6 below builds off the Table 4 example above.

Table 6
Comparison of Revenue Division
Methodologies Movement R/VC = 2.20

Item (1)	**Original and Alternative ATC** (2)	**Modified ATC** (3)
1. Revenue	$22.00	$22.00
2. High-Density Segment Total Costs	$6.25	$6.25
3. Low-Density Segment Total Costs	$7.50	$7.50
4. Ratio of High-Density Segment total costs to through movement total costs	0.455	0.455
5. High-Density Segment Division	$10.00	$10.45
6. Low-Density Segment Division	$12.00	$11.55
7. Ratio of High-Density Segment revenues to through movement revenues	0.455	0.475
8. High-Density Segment Profit	$3.75	$4.20
9. Low-Density Segment Profit	$4.50	$4.05
10. Ratio of High-Density Segment revenues above total costs to through movement revenues above total cost	0.455	0.509

Table 6 above tells the full story. The problem with Original and Alternative ATC is shown on line 10 of Column (2). For high-R/VC movements, Original and Alternative ATC systematically over allocate revenues to the low-density segment. In the example move (which assumes equal segment length and equal variable costs between the high-density and low-density segments), both carriers receive revenues in excess of their total costs. Under Original ATC and Alternative ATC, the high-density segment receives 45.5 percent of the revenues above total costs. Under Modified ATC, the high-density segment receives 50.9 percent of the revenues above total costs. Evaluation of high-revenue (highly profitable) moves demonstrates a critical flaw with the Original and Alternative ATC methodologies. Original and Alternative ATC may ensure that total costs are covered for both segments, but they allocate a disproportionate share of the revenue above total costs to the low-density segment.

In the Table 6 example above, the movement traverses the high-density and low-density segments for equal distances at equal variable costs.

1. Under Original and Alternative ATC, the high-density segment portion of total costs, the high-density segment *contribution* division, the overall high-density segment revenue division, and the high-density segment portion of revenue in excess of total costs (profit) are *all* 45.5 percent.

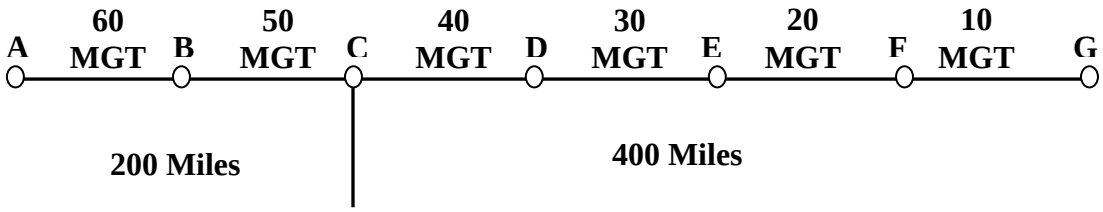
2. Under Modified ATC, the high-density segment portion of total costs and the high-density segment *contribution* division remain 45.5 percent, but the overall high-density segment revenue division is 47.5 percent, and the high-density segment portion of revenue in excess of total costs (profit) is 50.9 percent, a much more logical and reasonable allocation of revenue in excess of total costs than under Original ATC.

On higher-revenue movements, ensuring that the high-density segment's portion of costs equals its *overall* revenue division – as Original and Alternative ATC do – clearly under-allocates revenues to the high-density segment and creates an economically illogical *disincentive* for a high-density SARR to include high-R/VC traffic in its traffic group.

J. MODIFIED ATC RESULTS IN MORE LOGICAL R/VC SPLITS

In Figure 3 below, we examine the allocation of revenues to high- and low-density line segments on a hypothetical system. The system consists of a 200-mile high-density segment and a 400-mile low-density segment. The system becomes ever lower in density in a graduated manner at 100-mile increments as it moves away from the high-density segment. Specifically:

Figure 3
Hypothetical SARR Movement



Fixed costs for the system are assumed to equal $125,000 per route mile over the entire system, and variable costs for the traffic on the system are assumed to equal $0.01 per ton-mile

per 100 miles. All traffic is assumed to originate at point A and flow towards point G, with 10 million gross tons terminating at the other six points on the network.

We evaluate the impact of applying Original, Alternate, and Modified ATC to all of the traffic that moves over both portions of the system under three hypothetical scenarios where movement revenues are assumed to equal: (1) 100 percent of variable costs, (2) 100 percent of total costs, and (3) 125 percent of total costs. In each of the three scenarios, we examine the impact of applying Original, Alternate and Modified ATC to the segments' R/VC ratios in Table 7 below.

Table 7

Demonstration of Problems with Original and Alternative ATC Allocations at Various Revenue Levels

Item (1)	High-density segment Portion of Total Costs (2)	% Original ATC Revenue (3)	% Modified and Alternative ATC Revenue (4)	Total Movement R/VC (5)	Original ATC High-density segment R/VC (6)	Original ATC Low-density segment R/VC (7)	Modified and Alternative ATC High-density segment R/VC (8)	Modified And Alternate ATC Low-density segment R/VC (9)
				Revenues = Variable Costs				
1. Moves A-D	65%	65%	67%	100%	**98%**	**104%**	100%	100%
2. Moves A-E	47%	47%	50%	100%	**95%**	**105%**	100%	100%
3. Moves A-F	36%	36%	40%	100%	**90%**	**107%**	100%	100%
4. Moves A-G	27%	27%	33%	100%	**81%**	**109%**	100%	100%
Item (1)	**High-density segment Portion of Total Costs** (2)	**% Original and Alternative ATC Revenue** (3)	**% Modified ATC Revenue** (4)	**Total Movement R/VC** (5)	**Original and Alternative ATC High-density segment R/VC** (6)	**Original and Alternative ATC Low-density segment R/VC** (7)	**Modified ATC High-density segment R/VC** (8)	**Modified ATC Low-density segment R/VC** (9)
				Revenues = Total Costs				
5. Moves A-D	65%	65%	66%	126%	**123%**	**131%**	125%	127%
6. Moves A-E	47%	47%	49%	130%	**123%**	**136%**	128%	131%
7. Moves A-F	36%	36%	39%	136%	**123%**	**145%**	133%	139%
8. Moves A-G	27%	27%	31%	151%	**123%**	**165%**	142%	156%
Item (1)	**High-density segment Portion of Total Costs** (2)	**% Original and Alternative ATC Revenue** (3)	**% Modified ATC Revenue** (4)	**Total Movement R/VC** (5)	**Original and Alternative ATC High-density segment R/VC** (6)	**Original and Alternative ATC Low-density segment R/VC** (7)	**Modified ATC High-density segment R/VC** (8)	**Modified ATC Low-density segment R/VC** (9)
				Revenues = 125% of Total Costs				
9. Moves A-D	65%	65%	66%	157%	**154%**	**164%**	156%	160%
10. Moves A-E	47%	47%	49%	162%	**154%**	**171%**	159%	165%
11. Moves A-F	36%	36%	38%	170%	**154%**	**181%**	163%	175%
12. Moves A-G	27%	27%	30%	189%	**154%**	**206%**	172%	197%

As shown in Table 7 above, substantial problems arise when Original and Alternative ATC are applied in most situations. First, in the system where revenues equal variable costs for all movements, Original ATC clearly under-allocates revenue to the high-density segment, as the segment is allocated less than its variable costs while the low-density segment is allocated its full variable costs plus some contribution to joint and common costs *that in the real world does not exist*. This is precisely the reason why the STB instituted Modified ATC in the first place.

Second, in the system where revenues equal 100% of total costs for all movements, Original and Alternative ATC results are clearly nonsensical. Under this scenario, the R/VC ratios for the full movements increase steadily as the movements increase in length. In other words, fixed costs account for a larger portion of total costs. However, under Original and Alternative ATC, the high-density segment R/VC is capped at a level well below the total movement R/VC while the low-density segment R/VC increases at a far greater rate than the rate at which the overall R/VC increases. The application of Original and Alternative ATC clearly has the effect of restricting the high-density segment from access to real-world high-R/VC movements, and improperly diverting the revenues on those movements to low-density segments.

Under Modified ATC, the high-density segment R/VC remains at a level that is consistently below the total movement R/VC, but it properly increases as total movement R/VC increases. The low-density segment R/VC is consistently above total movement R/VC, but it tracks changes in total movement R/VC much more reasonably.

K. MODIFIED ATC BETTER ALLOCATES REVENUES IN ALL CASES

Modified ATC was developed in response to the STB's realization that Original ATC was critically flawed. Revenue divisions must equitably divide the incumbent's revenues over the incumbent's segments based on the incumbent's relative costs. As indicated by the STB in *Major Issues*, the objective of ATC is to select a revenue allocation methodology that reflects the incumbent railroad's relative costs of providing service over the two segments.[27] The STB reaffirmed this position in its February 2009 *WFA/Basin* decision stating that the objective of ATC is to "reflect the defendant carrier's relative costs of providing service over the relevant segments of its network."[28] A SARR may replicate any incumbent segment and select any subset of incumbent traffic it so chooses. The revenue division methodology must be fair regardless of the particular segment and traffic group selected in any given SARR.

L. CORRECTING MODIFIED ATC

As we discussed above, the STB's Modified ATC approach is clearly superior to Original ATC and Alternative ATC. However, Modified ATC continues to have one flaw which can and should be corrected: the methodology used to calculate total fixed costs per route mile.

Under the current methodology, a segment's average fixed cost per ton is developed by multiplying each segment's route miles by the incumbent's system average fixed cost per route mile and dividing the product by annual tons moving along the segment. This approach assumes that a railroad's fixed cost is equal for low and high density line segments. We believe such an assumption is incorrect. Just as a ten-lane super highway has greater fixed costs per mile than a

[27] See *Major Issues* at 25.

[28] See *WFA/Basin* February 2009 at 13. If the purpose were to measure the costs of the SARR instead of the incumbent carrier, then the SARR densities would have to be used in developing the ATC divisions, which, given the much lower density of the SARR system, would shift more revenue to the SARR railroad.

one-lane country route, a high density rail segment in the Powder River Basin ("PRB") has higher fixed costs per mile than a low density line that may see two or three trains per day.

To adjust for this difference in fixed costs, we propose making a slight adjustment to the average fixed cost calculation. Instead of developing an average fixed cost per route mile, we propose developing an average fixed cost per track mile. The total fixed costs used in the numerator would remain the same as currently used, but the denominator would use the total incumbent track miles from Schedule 720, Lines 1 to 4.[29] This would produce an average fixed cost per track mile. This average fixed cost per track mile would then be applied to the miles of track along each segment and divided by the segment's annual tons to develop an average fixed cost per ton.

The logic behind allocating fixed costs on a track mile basis is straightforward. High density segments invariably have more track miles than low density segments, as high density segments are double, triple and sometimes quadruple tracked, whereas low density segments may consist of only single track. These high density lines also have additional track related facilities and have more trains, crews, etc. operating over them than low density lines. The additional investments in, and greater operations over, high density lines produce higher total fixed costs per track mile than the total fixed costs per track mile incurred on lower density lines. Allocating fixed costs on a track-mile basis is a simple way to capture the higher fixed costs associated with high density rail lines.

Allocating fixed costs on a track mile basis takes into consideration the fact that fixed costs differ along different segments of a railroad's network and insures that the ATC metric is not skewed by artificially inflating the total fixed costs per route mile for low density line

[29] Lines 1 to 4 include mainline tracks, including all passing sidings, turnouts and crossovers, but exclude way and yard switching tracks.

segments, and artificially deflating the total fixed costs per route mile for high density line segments.[30]

M. THREE STEP ATC

If the STB believes that the Modified ATC approach and the corrected Modified ATC approach do not meet the goals set out in *Major Issues* for revenue allocation (which we believe they do for the reasons we set forth above), then the best alternative with an ATC component is not to default to the Alternative ATC approach proposed in *EP 715*, but to rather consider a Three Step ATC approach.

The STB stated in *Major Issues* that the objective of revenue division methodology in a SAC case is to reflect, to the extent practicable, the incumbent carrier's relative average costs of providing service over the segment replicated by the SARR, and the residual facilities needed to serve the traffic. By focusing on the actual costs incurred by the incumbent carrier, the revenue allocation method should maintain, to the extent possible, the relationship between revenues and costs that would exist in a Full SAC analysis.[31] In addition, the STB indicated that the revenue division approach should also consider the defining characteristics of the railroad industry including economies of scale, scope and density.

The revenue allocation approach must also make logical sense as to how revenues greater than ATC are allocated. As we clearly demonstrated above, high density line segments are more profitable on a per-unit basis in the real world than low density line segments. [32] The STB's

[30] We note that the error in the fixed cost calculation applies not just to Modified ATC, but to Original and Alternative ATC as well.

[31] See *Major Issues* at page 25.

[32] This is one reason coal is the western railroad's most profitable product. The extremely high densities the BNSF and the UP have in Powder River Basin ("PRB") Line segments drives down the ATC for coal shipments, even considering the higher fixed costs per mile in the PRB. This fact is supported by the railroads themselves as evidenced by BNSF CEO Matt Rose's comments in a meeting with BNSF employees, "As far as coal, I do know the numbers and understand the profitability. Coal is the most profitable commodity we haul. We never want to limit coal's growth." See www.newslink.com/pubs/PRR/PRR0309.pdf *at page 6 accessed October 22, 2012.*

current Modified ATC approach reflects this axiom as shown in Tables 3 and 4 above, while Original ATC and the Alternative ATC do not. The Three Step approach we propose is also consistent with this profit per unit truism, as profits are distributed based on the relative proportions of variable costs. In this fashion, low density/high costs lines are not allocated profits that make them appear more profitable than they actually are in the real world.

We discuss our proposed Three Step ATC approach below.

1. Step 1 – Allocation Of Variable Costs

Step 1 of the Three Step ATC approach would allocate revenues to cover in-part or in-whole each segment's URCS Phase III variable cost of service. Under this step, a movement with a revenue to variable cost ("R/VC") ratio of greater than or equal to 100 percent based on the incumbent's Phase III URCS variable costs would receive monies sufficient to cover the Phase III URCS costs for the on and off-SARR segments.[33] For those incumbent movements with R/VC ratios less than 100 percent, revenues would be distributed between the SARR and the incumbent based on the ratio of each segment's variable cost to the total variable cost for the combined movement. This matches the current methodology used in the Modified ATC approach when total revenues are less than the variable costs of service.

Step 1 is a sound initial step in that it takes the economically rational approach that each segment must recover its variable costs of service prior to making any contribution to fixed costs and profits.

[33] The adjustment to the Phase III URCS costs removes the interchange costs between the SARR and the incumbent railroad. In this way, the sum of each segment's Phase III URCS variable costs equals the variable costs for the entire movement.

2. Step 2 – Allocation Of Fixed Costs

Once each segment's variable costs have been recovered, Step 2 allocates revenue up to the level of each segment's average fixed cost per ton. These fixed costs per ton would be calculated using the track-mile procedure discussed above as a necessary correction to current Modified ATC. Where an incumbent movement's contribution (e.g., the incumbent's rate less the Phase III variable cost) is greater than the combined average fixed costs per ton for the on- and off-SARR segments, each segment is allocated revenue equal to that segment's average fixed cost per ton. Where the contribution is less than the combined average fixed costs, the contribution is allocated based on each segment's ratio of average fixed cost per ton to the average fixed cost per ton for the entire movement.

The above approach meets the STB's desired goal of considering economies of density in the railroad industry as well as recognizing the realities of railroad construction and operations. Allocating each segment revenues sufficient to cover its average fixed cost per ton takes into consideration declining economies of density.

3. Step 3 – Allocation Of Profit

After allocating costs to recover each segment's variable cost of service and allocated fixed cost, the third step of the Three Step ATC process would allocate any remaining revenue, e.g., profit, based on the ratio of each segment's variable cost to the total variable cost of the movement. Allocating the profit in this manner avoids the issues we described above with the Original ATC and Alternative ATC approaches of over-allocating profits on a per unit basis to lower density segments. If, for example, parties were to allocate profits based on ATC percentages, lower density lines would receive a greater proportion of the profits because of their

relatively high average fixed cost component. This result is nonsensical based on the acknowledged fact that higher density lines are more profitable on a per unit basis than lower density lines.

On the other hand, distributing the profits based on a pro rata share of variable costs avoids this issue of over-allocating profits to lower density lines. Each segment's URCS Phase III variable costs are constant on a per mile basis, and provide fair allocation of the remaining revenues.

N. SIMPLER APPROACHES TO REVENUE ALLOCATION

The STB stated in *Major Issues* that a revenue allocation methodology that relies primarily on variable costs to allocate revenue fails to take into account the economies of density that characterize the railroad industry.[34] This is not the case however, when the railroad industry has exhausted its economies of density. In the situation where economies of density have been exhausted, a variable cost based approach would provide revenue allocations that are functionally equivalent to those based on average total costs.[35]

At the time of its *Major Issues* decision, the STB believed that economies of density had not been exhausted based upon on a 2001 journal article. The article "*Density and Integration Effects on Class I U.S. Freight Railroads,*"[36] relied upon an analysis of railroad industry data from 1978 to 1997, and surmised that the railroad industry had, at least through 1997, not exhausted economies of density.[37]

---

[34] See *Major Issues* at 25.
[35] Id.
[36] See Ivaldi, M. and McCullough, G. J., "Density and Integration Effects on Class I U.S. Freight Railroads," Journal of Regulatory Economics, 19:2, 161-182, 2001 ("Ivaldi and McCullough").
[37] See Ivaldi and McCullough at page 177-178.

While the railroad industry may have had economies of density to gain as of 1997, recent studies sponsored by the STB indicate that the railroad industry and individual railroads have exhausted the economies of density. The STB commissioned Laurits R. Christensen Associates, Inc. ("Christensen") to study competition within the railroad industry. Christensen published the results of its study in November 2008 in the report "A Study of Competition in the U.S. Freight Railroad Industry and Analysis of Proposals That Might Enhance Competition" ("Christensen 2008 Study"), and updated its results in 2010 in the report "An Update to the Study of Competition in the U.S. Freight Railroad Industry" ("Christensen 2010 Update"). After examining data through 2008, Christensen concluded:

> Early in the sample period, railroads appear to have experienced fairly strong economies of density, but those economies have been diminishing since around 1995. The updated analysis indicates that this decline has continued in 2007 and 2008 such that the Class I railroad industry overall now appears to be experiencing approximately constant returns to density, with stronger density economies resulting from adding more shipments rather than from increasing the average distance of a shipment.
>
> Table 3-4 presents updated railroad-specific estimates of density economies. Our updated findings are similar to those of the original report. Examination of the updated estimates shows that the BN-ATSF merger in 1996 and the UP-SP merger in 1997 apparently resulted in the full extraction of economies of density resulting from increasing the average length of haul. By 2008, BNSF and UP appear to have just mild economies of density from increasing the number of shipments and diseconomies of density from increasing the average length of haul. In contrast, in 2008 CSX and NS appear to experience small economies of density from increasing the average length of haul and slight diseconomies of density from increasing the number of shipments. However, in 2008 we cannot conclude that either of the density measures for any of the largest four Class I railroads is statistically different than 1.0.[38]

[38] See Christensen 2010 Update at 3-6 to 3-7.

Christensen indicated that a density measure of 1.0 indicates that a railroad is experiencing constant returns to density, or, in simple terms, economies of density have been exhausted.

While the Modified ATC approach (corrected in the manner set forth above) should produce a reasonable revenue allocation that captures economies of density, and diminishing returns thereto, on a line-specific basis, Modified ATC -- like all of the other ATC procedures discussed above – requires extensive time, effort, and cost, to gather line-specific density data – the Board may decide that there is no longer any need to do so in light of the Christensen study findings.

III. CROSS-OVER TRAFFIC

The STB perceives a problem in the SAC test in that its ATC revenue division model in some instances allocates allegedly more revenue to the SARR than reflected in the cost of the SARR's operations. There are several fundamental issues with the STB's perceived problem. First, whether the allocation of the incumbent's revenues is in line with the SARR's operations is irrelevant since the purpose of ATC is to divide the incumbent's revenues based on the incumbent's cost and operations. In other words, how the SARR or other stand-alone replacement for the incumbent operates has no bearing on how the incumbent's revenues are allocated along the incumbent's route. Second, any misalignment between URCS variable costs and the incumbent's operations is based, in part, on the STB's URCS Phase III variable cost model that does not precisely reflect the operations of each individual movement over each movement segment over the incumbent's railroad system.[39] As a result, the ATC formula may in some cases allocate "too much" or "too little" revenue to certain movement segments that may or may not be included in a SARR system.

Rather than acknowledging that a stand-alone replacement's operations have no influence on how to allocate the incumbent carrier's revenues along the incumbent's route of movement or addressing this perceived problem in its URCS variable cost program, the STB proposes to restrict all SARRs from carrying certain types of cross-over traffic. This overreaction is disconcerting, and it threatens to undermine the validity of the SAC test and the economic theory on which it is based.

[39] This misalignment comes primarily from the URCS Phase III models use of system average cost, system average operating factors and assumptions on investment variability factors. For example, the URCS variable cost model assumes system average fuel consumption even when new, highly fuel efficient locomotives are used on a movement. Similarly, the URCS Phase III model assumes return on road property investment is 50 percent variable and 50 percent fixed. This includes the return on railroad bridges, which can in almost all cases only be expanded for changes in traffic volumes by removing the existing bridge and adding a new bridge.

A. SAC REVENUE DIVISIONS MUST REFLECT THE INCUMBENT'S OPERATIONS AND NOT THE SARR'S

The STB expresses concerns in *EP 715* that there is a disconnect or mismatch between the amount of the incumbent's revenues that are allocated to the SARR and the cost of the SARR's operations. Specifically, the STB believes that the SARR receives too much revenue when it performs "hook and haul" operations on the portion of the system where it replaces the incumbent. While this disconnect is more illusion than reality, it is irrelevant from a SAC standpoint. Revenue divisions are intended to allocate the incumbent's revenues to discrete segments of the incumbent's end-to-end movements based on the relative costs of the incumbent's operations over those segments and are not intended to allocate revenues based on the SARR's operations.

1. The SARR's Operations Have No Bearing On Revenue Divisions

In *Major Issues*, railroads and shippers offered comments that the STB carefully considered in its development and implementation of the ATC formula. One of the issues left unclear from the STB's discussions in *Major Issues* was how traffic densities used in the ATC calculation would be determined.[40] The STB resolved the issue in *WFA/Basin* when it stated that the proper approach is to use the actual densities of the incumbent railroad, and not traffic densities based on the SARR's traffic. The STB noted that it was appropriate to include the incumbent's densities – not the SARR's densities – in the formula because revenue allocation has nothing to do with SARR's operations, but rather with the incumbent railroad's relative costs of service over the relevant segments of its network. Moreover, the unadjusted URCS Phase III

[40] See *Major Issues* at 34. The STB stated that system average fixed cost should be combined with the actual route miles and "traffic tons" of a segment in question, but never states whether the "traffic tons" are for the SARR or the incumbent carrier.

costs used in the ATC formula reflect the incumbent's operations, and it is inherently inconsistent to combine variable cost based on the incumbent's cost of operations with average fixed costs based on the SARR's operations.

The STB now appears to be abandoning its position that SARR operations are unrelated to the division of the incumbent's revenues. The STB's complete reversal of its position on mixing and matching incumbent and SARR operations and costs – first articulated in *AEPCO*[41] – relative to rate prescription methodologies,[42] and now in *EP 715* regarding cross-over divisions – threatens to undermine the validity of SAC analysis.

2. The Stand-Alone Replacement Need Not Be Another Railroad

The STB's attempt to align the SARR's operations with the ATC revenue divisions is also inconsistent with the fact that the stand-alone replacement for the incumbent railroad need not even be another railroad. The ICC stated in *Coal Rate Guidelines*[43] that the stand-alone replacement does not need to be another railroad, but any other (theoretically) feasible alternative. The STB affirmed this bedrock position in *WFA/Basin*, indicating "…under SAC the hypothetical competitor to BNSF does not even need to be a railroad at all."[44]

---

[41] STB Docket No. 42113, *Arizona Electric Power Cooperative, Inc. v. BNSF Railway Company and Union Pacific Railroad Company*, served November 22, 2011 ("*AEPCO*").

[42] One issue the STB presented in its *AEPCO* decision but failed to address in *EP 715* regarding the mixing and matching of incumbent and SARR operations deals with what is the proper empty/return ratio to use when developing URCS Phase III variable costs. When the STB ordered the parties in *AEPCO* to develop new URCS Phase III variable costs based on unit train operating statistics, AEPCO relied on the URCS Phase III default empty/return ratio of 2.0 that is consistent with unit train operations. The incumbent railroads stated that movement specific adjustments should be made to the variable costs to reflect non-unit train empty/return ratios. The STB stated at page 36 of its AEPCO decision that it did not resolve this issue since it was immaterial to the case, but the issue had been framed for future litigants to fully brief.

[43] See *Coal Rate Guidelines* at 543.

[44] See *WFA/Basin* at 14.

3. Revenues Must Be Based On The Incumbent's Routing

The STB has held when calculating the ATC divisions for traffic that is internally rerouted on the SARR, the proper mileage to use is the mileage reflecting the shipment's route over the incumbent carrier and not the on-SARR mileage.[45] Using the mileage based on the SARR instead of the incumbent could lead to a "gaming" issue in that internal reroutes used in SARR cases are in most cases longer than the actual route used by the incumbent carrier.[46] The STB felt that this would allow a shipper to artificially increase SARR revenues by rerouting traffic. To eliminate this possibility, the STB ruled that the ATC divisions must be based on the actual route of movement on the incumbent, since it is the incumbent's cost and operations that dictate the allocation.

B. PROPOSING TO ELIMINATE CROSS-OVER TRAFFIC IS AN IMPROPER RESPONSE TO PERCEIVED REVENUE FLAWS

If the STB perceives a problem with the revenues allocated to the SARR and incumbent through its revenue allocation methodology on cross-over traffic, the STB should review its revenue allocation methodology, it should not eliminate the use of cross-over traffic. The STB indicates in *EP 715,* that there is an apparent disconnect between the hypothetical cost of providing SARR service and the revenue allocated to the facilities.

> There is a disconnect between the hypothetical cost of providing service to these movements over the segments replicated by the SARR and the revenue allocated to those facilities. When the proposed SARR includes cross-over traffic of carload and multi-carload traffic, it generally would handle the traffic for only a few hundred miles after the traffic would be combined into a single train. As such, the "cost" to the SARR of handling this traffic would be very low. In recent cases, litigants have proposed SARRs that would simply hook up locomotives to the train, would haul it

[45] See *WFA/Basin* at 14-15.

[46] Shippers perform these reroutes to increase traffic density along the SARR. These reroutes are perfectly viable and consistent with SAC theory. See *Coal Rate Guidelines* at page 544.

> a few hundred miles without breaking the train apart, and then would deliver the train back to the residual defendant. All of the costs of handling that kind of traffic (meaning the costs of originating, terminating, and gathering the single cars into a single train heading in the same direction) would be borne by the residual railroad. However, when it comes time to allocate revenue to the facilities replicated by the SARR, URCS treats those movements as single-car or multi-car movements, rather than the more efficient, lower cost trainload movements that they would be. As a result, the SAC analysis appears to allocate more revenue to the facilities replicated by the SARR than is warranted.[47]

In actuality, there is no disconnect. The perceived disconnect arises from the fact that the STB's model develops individual movement costs based on unit costs that reflect system-average operations.

In *AEPCO*, the SARR served as an overhead carrier interchanging with the residual incumbent on both ends of the movement for much of its non-issue cross-over traffic. The STB perceived that the SARR segment was allocated "too much" revenue based on the variable costs assigned to the overhead SARR segments using the URCS Phase III costing model. Because line-haul costs are uniform under URCS Phase III, the STB concluded that the "problem" must lie in the terminal, interchange, and switching costs assigned to the movement segments: either the terminal and interchange costs must have been understated, or the inter- and intratrain ("I&I") switching costs (which are allocated on a mileage basis in the URCS Phase III model) must have been overstated, or both. Instead of addressing this issue by reviewing and adjusting the cost inputs used to allocate revenues, the STB has taken the extreme approach of proposing to radically restrict cross-over traffic movements.

[47] See *EP 715* at 16-17.

In *EP 715*, the STB outlined the following two proposed options that would limit the use of cross-over traffic in a SAC presentation.[48] The STB asked the parties to comment on which of the two alternatives is superior or to offer alternative solutions.

1. The first proposed option would restrict the SARR's use of cross-over traffic to movements for which the SARR would either originate or terminate the rail portion of the movement.[49]

2. The second proposed option would restrict the SARR's use of cross-over traffic to movements where the entire service provided by the defendant railroad in the real world is in trainload service.[50]

The STB never specifically indicated the flaw it meant to address through its two proposed restrictions on cross-over traffic. Instead, it seems that the STB has broadly identified two possible deficiencies in the Phase III costing program and suggested very crude cross-over traffic limitations under which it can avoid the issue in future rate cases rather than addressing any costing deficiencies that may exist. As noted above, the STB implicitly assumes that there must be a "problem" with the terminal, interchange, and switching costs assigned to movement segments under URCS. The STB believes either the terminal and the interchange costs must be understated in the URCS variable costs, the I&I switching costs must be overstated, or both.

In actuality, no deficiencies exist. Even assuming, *arguendo*, that deficiencies do exist, limiting access to cross-over traffic is not the proper approach to address the problem. The STB's perceived problem is not solved by eliminating cross-over traffic.

---

[48] See *EP 715* at 16-17.

[49] The STB does not describe in detail what it means to "originate," or "terminate" the rail portion of a movement in *EP 715*. We assume that the originate or terminate rules would include situations where the SARR replaces an incumbent that is forwarding or receiving a movement in interchange with another real world railroad, but the Notice is not explicit in this regard.

[50] The STB did not include in *EP 715* a definitive description of what constitutes "trainload service." For example, under URCS Phase III costing, a movement of 50 or more cars is considered trainload service; however, we have seen many instances where railroads have built and moved trains of well under 50 railcars between origins and destinations.

1. Restricting Traffic That The SARR Does Not Originate or Terminate

The STB's first proposed restriction would force the SARR to build out to the incumbent's origin, destination, or interchange location. This appears to be a crude remedy designed to address the possibility that terminal and interchange costs are understated under URCS variable costs. The real remedy, if terminal and interchange costs actually are truly understated for certain traffic types, would be to revisit the URCS calculations. This could be accomplished by adjusting the make-whole factors designed to account for the relative efficiencies of single car ("SC"), multiple car ("MC"), and unit train ("UT") traffic. If the STB believes the make-whole factors are inadequate or erroneous, it should readjust the factors.

The real question is whether the current ATC approach understates the costs to originate or terminate traffic, and therefore understates revenue. We believe it does not. ATC was originally conceived as a means by which the incumbent's revenues could be divided to reflect the incumbent's costs along discrete segments and operations of an end-to-end movement. Prior to the Surface Transportation Board's ("STB" or "Board") introduction of the ATC revenue division methodology, cross-over traffic revenues were allocated using the modified mileage-block prorate ("MMP") and later the modified straight-mileage prorate ("MSP") approaches. Under both methodologies, the railroad originating or terminating the traffic (either the SARR or the residual incumbent) was awarded an additional mileage credit for performing those operations. In several cases decided using the MMP/MSP methodology, SARRs presented before the STB included traffic where the SARR would originate a shipment and move it a few dozen miles to interchange with the residual incumbent. The railroads argued – and the STB ultimately agreed – that SARRs were overcompensated for merely originating the movement and

then handing off to the residual incumbent, who was undercompensated for the line-haul portion of the movement. In fact, the STB introduced the ATC methodology in part to ensure that terminal and line-haul costs would be properly reflected in the revenue divisions. The STB now seems to believe, based on evaluation of a SARR that included significant traffic that was originated and terminated by the residual incumbent and moved by the SARR in line-haul service, that its ATC revenue division formula overcompensates SARRs for merely performing the line-haul operations, while the residual incumbent is undercompensated for the terminal operations it "is left to" perform.

Under the previous model, the STB believed originating/terminating carriers (whether the SARR or residual incumbent) were overcompensated for performing terminal operations, so it changed the model to ensure that terminal and line-haul costs were properly weighted. Now under its current model, the STB claims to believe that originating/terminating carriers are undercompensated for performing terminal operations. But rather than adjusting its revenue division methodology as it did before, it proposes to eliminate the use of broad classes of cross-over traffic.

In reality, the STB's policy on revenue allocation seems to change based on the role of the SARR. In other words, if the SARR originates and terminates traffic, then terminal costs are low and line-haul costs are high, but if the SARR does not originate or terminate traffic, then terminal costs are high and line-haul costs are low.

2. Restricting Carload and Multiple Carload Shipments

The STB's second proposed restriction would limit cross-over traffic on the SARR to train-load only. This appears to be a crude remedy designed to address the possibility that I&I switching costs are overstated or misallocated under URCS. The real remedy, if I&I switching

costs actually are misstated for all or certain types of traffic, would again be to revisit the URCS calculation. Specifically, I&I cost allocation could be adjusted from the current standard assumption that I&I switching occurs every 200 miles on all non-UT traffic, or some of the I&I costs could be reallocated on some basis other than the current mileage basis.

The STB essentially has said that if a SARR performs no I&I switching, it should not be credited with costs for I&I switching (this position is incorrect because the ATC calculation is based solely on the incumbent's costs and operations, not the SARR's). Implicit in the STB's position is that it believes it is acceptable to assume that the residual incumbent performs I&I switching every 200 miles, based on the URCS system average, on the traffic over the off-SARR portions of the same movements. That is, the STB seems to think an assumption that I&I switching occurs every 200 miles on the residual incumbent segment is reasonable but the same assumption is unreasonable over the SARR segment of the same movement. If the STB wishes to evaluate whether and where I&I switching occurs it must do so on all movement segments, not just the on-SARR segment.

Regardless of the inconsistency in the STB's logic, the fact is that the exclusion of I&I costs has no real impact on the ATC divisions regardless of the type of movement involved. This is because using the URCS Phase III model to estimate variable costs ensures that the incumbent's costs for all types of traffic are properly and adequately reflected in the ATC formula. In Exhibit No. 3, we show eight hypothetical movements over a hypothetical 900-mile incumbent system that is divided into three equal segments of 300 miles each. The eight movements are:

1. Unit train coal shipment in the west;
2. Unit train coal shipment in east;
3. Single unit intermodal shipment in the west;
4. Single unit intermodal shipment in the east;

5. Single car chemical shipment in the west;
6. Single car chemical shipment in the east;
7. Multiple-car grain shipment in the west; and
8. Multiple-car grain shipment in the east.

We calculate variable costs for each of the three segments using the STB's URCS Phase III costing program and 2010 URCS data tables.[51] The resulting variable costs are then used to determine the relative cost allocation for each of the movement segments. Next, we removed the I&I switching costs assigned to each of the three segments for each of the eight hypothetical movements and recalculated the relative cost allocation for each of the movement segments based on the variable costs less the I&I switching costs allocated to each segment. We then compared the revenue allocation based on variable costs including I&I switching costs to the revenue allocation based on variable costs excluding I&I switching costs to determine the impact of I&I switching costs on the result. As shown in Exhibit No. 3 and summarized in Table 8 below, the exclusion of I&I costs had no appreciable impact on the revenue divisions for less than unit train shipments.

[51] We exclude the costs for the hypothetical interchange between the three segments to reflect the STB's logical and correct requirement that *only costs the incumbent actually incurs should be considered and reflected in the revenue division model*.

Table 8
Variable Cost-Based Revenue Divisions for
Three 300-mile Segments Over a 900-mile System

Item	Segment 1	Segment 2	Segment 3	Total
(1)	(2)	(3)	(4)	(5)
Unit Train Coal Shipment - West				
1. Variable Cost Division	34.3%	31.5%	34.3%	100%
2. Variable Cost Less I&I Division	34.3%	31.5%	34.3%	100%
3. Impact of I&I on Division Percentage	0.0%	0.0%	0.0%	---
Unit Train Coal Shipment - East				
4. Variable Cost Division	33.9%	32.2%	33.9%	100%
5. Variable Cost Less I&I Division	33.9%	32.2%	33.9%	100%
6. Impact of I&I on Division Percentage	0.0%	0.0%	0.0%	---
Single Unit Intermodal Shipment - West				
7. Variable Cost Division	37.8%	24.4%	37.8%	100%
8. Variable Cost Less I&I Division	37.8%	24.4%	37.8%	100%
9. Impact of I&I on Division Percentage	0.0%	0.0%	0.0%	---
Single Unit Intermodal Shipment - East				
10. Variable Cost Division	37.6%	24.9%	37.6%	100%
11. Variable Cost Less I&I Division	37.6%	24.9%	37.6%	100%
12. Impact of I&I on Division Percentage	0.0%	0.0%	0.0%	---
Single Car Chemical - West				
13. Variable Cost Division	36.0%	28.0%	36.0%	100%
14. Variable Cost Less I&I Division	36.2%	27.7%	36.2%	100%
15. Impact of I&I on Division Percentage	-0.2%	0.3%	-0.2%	---
Single Car Chemical - East				
16. Variable Cost Division	35.7%	28.5%	35.7%	100%
17. Variable Cost Less I&I Division	35.8%	28.3%	35.8%	100%
18. Impact of I&I on Division Percentage	-0.1%	0.2%	-0.1%	---
Multiple-Car Grain Shipment - West				
19. Variable Cost Division	34.4%	31.1%	34.4%	100%
20. Variable Cost Less I&I Division	34.5%	31.0%	34.5%	100%
21. Impact of I&I on Division Percentage	-0.1%	0.2%	-0.1%	---
Multiple-Car Grain Shipment - East				
22. Variable Cost Division	34.2%	31.5%	34.2%	100%
23. Variable Cost Less I&I Division	34.3%	31.4%	34.3%	100%
24. Impact of I&I on Division Percentage	0.0%	0.1%	0.0%	---

Source: Exhibit No. 3

As shown in Table 8 above, the impact of I&I switching on the variable cost component of the revenue allocation formula is *de minimis*, even for single car, non-intermodal shipments.

C. THE STB'S PROPOSED RESTRICTIONS ON CROSS-OVER TRAFFIC ARE OVERLY BROAD

There *is* a tremendous disconnect between the perceived "problem" the STB identified in the *AEPCO* case wherein the STB adjusted the variable costs used in the Maximum Markup Methodology ("MMM"), and its two *EP 715* proposals to limit the amount of cross-over traffic a shipper may use in a Full-SAC presentation. The STB's two *EP 715* proposed options would act as hack saws, and both would serve to eliminate not only the perceived "problem" traffic, but also a significant amount of traffic that does not possess the problem characteristics the STB says it wishes to address.

The vast majority of the non-coal traffic on the *AEPCO* SARR was intermodal and other traffic not considered "unit train" traffic by URCS. This non-coal traffic moved in so-called "hook-and-haul" overhead service over the SARR, where the SARR would receive intact trains in interchange, transport the trains several hundred miles, and interchange the intact trains back to the incumbent. The SARR's operations would treat these effectively as unit trains because it would not perform any I&I switching on the cars. Because the cars on the train were billed as individual or multi-car units by the incumbent, they would be costed as single or multi-car units while on the SARR for ATC division purposes, and the movements would be allocated some I&I switching costs for both the on-SARR and off-SARR portions of the movement in the URCS Phase III program.

Because URCS Phase III costs determine, in part, the revenue division the SARR receives under the ATC methodology, the STB felt the SARR was receiving too much revenue

on these specific overhead movements as the SARR was receiving revenue to cover I&I switching costs it was not incurring.

There is a significant problem with the STB's conclusion in that the STB failed to evaluate the off-SARR portions of the movements in question to gauge the extent to which the incumbent performed I&I switching on those segments. Because much of the traffic in question was highly efficient long-haul intermodal traffic that moves in dedicated service trains that are built at the point of origin (e.g., the Ports of Los Angeles and Long Beach) and move intact over long distances, the incumbent performed little to no I&I switching on the traffic in question over any segment, on-SARR or off-SARR. Therefore, to the extent that the URCS Phase III costing program overstated the line-haul costs for the on-SARR portion of the movement, the same URCS Phase III costing program overstated the line-haul costs for the off-SARR portions of the movements in question to the same extent.

If the STB wishes to evaluate the incumbent's operations over the portion of the movement replicated by the SARR using the URCS Phase III costing program formula, it must also evaluate the incumbent's operations over the portion of the movement not replicated by the SARR.

D. ARBITRARILY RESTRICTING THE USE OF CROSS-OVER TRAFFIC WOULD UNDERMINE THE SAC TEST

The ICC adopted Constrained Market Pricing ("CMP") principles in *Coal Rate Guidelines* as the preferred approach to regulating railroad pricing instead of relying upon pure Ramsey pricing as a regulatory tool. Two economic theories are central to CMP: (1) differential pricing, and (2) the contestability of markets.[52] These two concepts provide the analytical basis

[52] See *Coal Rate Guidelines* at 525.

for determining those costs which a shipper may properly be charged and the extent to which a shipper should bear the costs.

An important feature of CMP is that a captive shipper need not bear the costs of any facilities or services from which it does not derive benefits.[53] One means of ensuring that such cross-subsidization does not occur is the SAC test, which is used to compute the rate a competitor in the market place would charge a shipper or group of shippers who benefit from sharing joint and common costs.

The theory behind SAC is rooted in the concept of contestable markets. Unlike the model of pure competition (which relies on the assumption that a large number of firms operate within the market), even a monopoly can be a contestable market. Rather than hypothesizing a large number of competitors taming an incumbent's pricing, the contestable market model focuses on entry and exit from an industry as a measure of economic efficiency. In this way, even a monopolist's prices can be restricted by the threat of entry from a single new entrant.

The SAC test creates a contestable market through the elimination of entry and exit barriers that exist in the real world. It would therefore be inappropriate to restrict the size and/or scope of the market being evaluated by the SAC model under contestable market theory.

> We define a perfectly contestable market as one that is accessible to potential entrants and has the following two properties: First, the potential entrants can, without restriction, serve the same market demands and use the same productive techniques as those available to the incumbent firms. Thus, there are no entry barriers in the sense of the term used by Stigler. Second, the potential entrants evaluate the profitability of entry at the incumbent's pre-entry price.[54]

---

[53] Id at 528.

[54] See Baumol, William J., John C. Panzar, and Robert D. Willig, "*Contestable Markets and the Theory of Industry Structure*," New York, Harcourt Brace Jovanovich (1982) ("Baumol, Panzar and Willig") at page 5. Stigler defined a barrier to entry as a cost of producing (at some or every level of output) that must be borne by firms seeking to enter an industry but not borne by the firms already in the industry. See Stigler, George, "The Organization of Industry," Chicago, IL: University of Chicago Press (1968) at page 67.

By precluding an entrant from using the same productive techniques as the incumbent, the STB's proposed cross-over traffic restrictions would effectively create a barrier to entry by forcing the new entrant (the SARR) to bear a cost (manifested as an artificially high level of fixed cost per unit) not incurred by the incumbent. This creates a cost disadvantage relative to the firm already operating within the industry, which would allow the incumbent to drive the new entrant from the market in the long run by exploiting the two firm's different cost structures. If this cost advantage is built into the SAC test, the new entrant (SARR) will never be able to effectively limit the prices charged by the incumbent railroad, i.e., the market will not be contestable.

Without the ability to use the same productive techniques as the incumbent, the new entrant would not be able to impose strong pricing discipline on the incumbent firm, and would encounter a clear barrier to entry that is impermissible in a contestable market. As described by William B. Tye, an economist and an expert in railroad economics:

> Very importantly for the theory of contestable markets, potential entrants are able to impose this strong discipline on the incumbent only if they are able to compete on equal terms with no cost or efficiency disadvantages that would impose barriers to entry. The theory of contestability defines as "entry barriers" any cost advantages enjoyed by the incumbents but not available to potential entrants. Such entry barriers would afford a "pricing umbrella" for incumbents and allow them to enjoy excess profits because cost disadvantages for the potential entrant would help generate immunity to the incumbent from the threat of entry.[55]

Simply stated, any rule that creates a cost disadvantage for the SARR relative to the incumbent carrier (such as limiting access to cross-over traffic) creates a barrier to entry and

[55] See Tye, William B., "The Applicability of the Theory of Contestable Markets to Rail/Water Carrier Mergers," *Logistics and Transportation Review*, Volume 21, Number 1, March 1985, 57-76, at page 58.

makes the market no longer contestable. Any such action would therefore undermine the use of the SAC test.

1. Cross-Over Traffic Limitations Create A Clear Entry Barrier

Cross-over traffic limitations would undermine the SARRs ability to group traffic, would severely and unfairly restrict the SARR from access to the same scale economies the incumbent enjoys, and would render the SAC test incomplete. The underlying premise of a contestable market is that a monopolist or oligopolist will behave from a pricing perspective, or lose all of its markets to a new entrant.[56] The extension of this logic is that the ability to group traffic of different shippers is essential to the theory of contestability.[57] Without grouping, SAC would not be a very useful test, since the captive shipper would be deprived of the benefits of any inherent production economies.

The STB's two proposals to restrict the use of cross-over traffic would place a SARR at a clear cost and efficiency disadvantage to the incumbent, and create a classic barrier to entry that is expressly disallowed under contestable market theory. The STB, and its predecessor the ICC, have long recognized that significant production economies exist within the railroad industry, including economies of density. As the ICC explained in *Coal Rate Guidelines*, economies of density within the railroad industry refer to the fact that greater use of a railroad's fixed plant results in declining average cost, and thus, the marginal cost of rail service is less than the average cost, because the fixed plant is used in a progressively efficient manner.[58] The STB clearly illustrated the economies of density inherent in the railroad industry in Figure 1

[56] See *Coal Rate Guidelines* at 528.
[57] Id at 544.
[58] Id at 526.

included on page 8 above, which shows that as output increases, a railroad's average total cost per unit declines as the railroad's fixed cost is spread over greater levels of output.

Outside of the short run, a railroad can exploit these declining average total costs brought about by economies of density to price competition out of business. This point is illustrated in Table 9 below.

Table 9
Example of Economies of Density

	Item	Railroad 1	Railroad 2
	(1)	(2)	(3)
1.	Railroad Output (Million Tons)	100	50
2.	Total Fixed Cost (Millions)	$100	$100
3.	Average Fixed Cost Per Ton[1/]	$1.00	$2.00
4.	Average Variable Cost Per Ton	$5.00	$5.00
5.	Average Total Cost Per Ton[2/]	$6.00	$7.00
6.	Price Per Ton	$6.50	$6.50
7.	Profit / (Loss) Per Ton[3/]	$0.50	($0.50)

[1/] Line 2 ÷ Line 1.
[2/] Line 3 + Line 4.
[3/] Line 6 – Line 5.

As shown in Table 9 above, the two railroads have the same total fixed costs and the same average variable costs per ton. However, because Railroad 1 carries twice as much traffic as Railroad 2, Railroad 1's average fixed costs per ton are half of Railroad 2's average fixed costs per ton. This difference leads to lower average total cost for Railroad 1 and a clear business advantage. Within the short-run, Railroad 2 could continue to operate because it is covering its variable costs and making a contribution towards its fixed costs. However, if in the medium to long-term it could not reduce its fixed costs to below $75 million,[59] it could not cover its total costs and would not stay in business. Railroad 1 could drive Railroad 2 from the market

[59] $75 million in fixed costs divided by 50 million tons equals an average fixed cost $1.50 per ton. When this is added to an average variable cost of $5 per ton, Railroad 2 arrives at a breakeven point of $6.50 per ton.

by setting its average price above its average total cost, but below the average total cost of Railroad 2.

The above example illustrates the impact of restricting cross-over traffic in a SAC case on the SARR. The STB's two proposals to limit cross-over traffic would remove the SARR's ability to group traffic and enjoy the productivity that allows the incumbent carrier to capture the economies of density inherent in the railroad industry. Holding all else constant, the SARR would face higher average total costs than the incumbent solely due to an artificial limitation on the size of the market available to the SARR. This is exactly the sort of barrier to entry that is disallowed in a contestable market.

2. Disallowing Cross-Over Traffic Will Result In Ever-Expanding SARRs

As the ICC recognized in *Nevada Power II* and repeatedly thereafter, the use of cross-over traffic greatly simplifies the stand-alone analysis by allowing the shipper to take into account the economies of scale, scope, and density that the defendant enjoys over the routes replicated without unduly complicating the analysis.[60] *EP 715* proposes either to categorically prevent shippers from including certain cross-over traffic in their systems or to require shippers to build SARR systems sufficiently large to reach the origin and/or destination of their system's cross-over traffic. In the former case, absent the availability of cross-over traffic, the shipper would bear the burden of constructing and operating the entire length of the lines that are used by

[60] See, *e.g.*, *Bituminous Coal – Hiawatha, UT to Moapa, NV*, 10 I.C.C.2d 259, 265-68 (1994) ("*Nevada Power II*"); *Otter Tail Power Co. v. BNSF Ry.*, STB Docket No. 42071, at 12 (STB served Jan. 27, 2006) ("The modeling device of cross-over traffic has become an indispensable part of administering a workable test."); *Pub. Serv. Co. of Colo. d/b/a/ Xcel Energy v. The Burlington N. and S.R. Ry.*, 7 S.T.B. 589, 600-603 (2004) ("*Xcel*") ("Creating a SARR to serve the same traffic group without using the cross-over traffic device would dramatically enlarge the geographic scope of a SARR."); *AEP Tex. N. Co. v. BNSF Ry.*, STB Docket No. 41191 (Sub-No. 1), at 18 (STB served Sept. 10, 2007) ("The use of cross-over traffic to simplify a SAC presentation is a well-established practice.").

the defendant to serve the subject traffic without the additional traffic available to the incumbent that could share the joint and common costs. In the latter case, the complaining shipper would be forced to expand its system to encompass facilities that are not required to serve the issue traffic. If this second option were pursued, voluminous additional discovery would be required.[61] In addition, after the first SARR extension is made, a complainant would then be required to consider whether it should (or must) construct any additional lines needed to serve the origin or destination of any cross-over traffic on the new segment.

Once the shipper extends the SARR in order to reach a terminal for traffic it wishes to serve over the core SARR, it will in almost all cases need to include more traffic in the traffic group to generate the same economies of density enjoyed by the incumbent railroad over the newly added line. But adding this additional traffic will likely require the shipper to extend the SARR even further to include the origins or destinations of this new additional traffic. Once again, the shipper would fall into an ever-escalating chase for traffic to match the incumbent's traffic densities. It is simple to see that once a shipper is required to step outside the network footprint necessary to serve the issue traffic that it will fall into the trap of endlessly chasing traffic for the expanding SARR system.

The STB correctly indicated in *Xcel* that excluding cross-over traffic would dramatically enlarge the geographic scope of the SARR, and lead to a cascading analysis that could eventually result in a shipper replicating virtually all of the incumbent's system.[62] This idea of an ever-

[61] S*ee, e.g., Otter Tail* at 12 ("Without cross-over traffic, the SARR would replicate the entire service provided by the defendant railroad for all of the traffic included in the SAC analysis, so that all capital and operating costs associated with serving the traffic group would be included in the SAC analysis . . . ."); *id*. ("We must guard against the SAC process becoming so complex and expensive as to deny captive shippers meaningful access to the rate review provided for under *Guidelines*.").

[62] See *Xcel* at 601 and 602.

expanding SARR is not a new one, and was brought to the attention of the ICC in the 1980's during the hearings that propagated *Coal Rate Guidelines* by the railroads' cost experts.[63]

The proposed restrictions on cross-over traffic would make the regulatory process more cumbersome, time consuming, and expensive to litigate, and the proposed restrictions violate the economic theory that has been carefully formed by the preceding STB/ICC decisions over the last several decades.[64]

The inclusion of cross-over traffic allows the complainant to properly scope its analytical framework by focusing the analysis on the facilities and services that are used by the issue traffic and preventing the case from becoming unmanageable. From a practical perspective, requiring a shipper to build to a movement's origin or destination in order to serve a market subset unnecessarily complicates and diverts the exercise from its core purpose.

[63] See Marion L. Hall VS No. 3 in Ex Parte No. 347, May 11, 1981 at pages 89-90 "… shippers with a multitude of route origins and destinations would soon turn the stand-alone shipper into the owner of the full railroad."

[64] One of the primary reasons shippers have come to rely so extensively on cross-over traffic in Full SAC cases is the STB's institution of internal cross-subsidy tests for the SARR. Shippers in Full SAC cases have been required to add as much traffic as possible to ensure each SARR segment covers its cost of construction and operation, or else run the risk of losing the case because of perceived internal cross-subsidy. If the STB is considering limiting the amount of cross-over traffic that can move on a SARR, it also must consider limiting or eliminating the internal cross-subsidy analyses used in SAC cases.

VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

I, THOMAS D. CROWLEY, verify under penalty of perjury that I have read the foregoing Verified Statement of Thomas D. Crowley, 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

Sworn to and subscribed
before me this 23rd day of October, 2012

Diane Kavounis
Notary Public for the State of Virginia

My Commission Expires: November 30, 2012
Registration Number: 7160645

VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

I, DANIEL L. FAPP, verify under penalty of perjury that I have read the foregoing Verified Statement of Daniel L. Fapp, 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

Sworn to and subscribed
before me this day 22nd day of October 2012.

Diane R. Kavounis
Notary Public for the State of Virginia

My Commission expires: November 30, 2012
Registration Number: 7160645

STATEMENT OF QUALIFICATIONS

My name is Thomas D. Crowley. I am an economist and President of the economic consulting firm of L. E. Peabody & Associates, Inc. The firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, Virginia 22314, 760 E. Pusch View Lane, Suite 150, Tucson, Arizona 85737, and 21 Founders Way, Queensbury, New York 12804.

I am a graduate of the University of Maine from which I obtained a Bachelor of Science degree in Economics. I have also taken graduate courses in transportation at George Washington University in Washington, D.C. I spent three years in the United States Army and since February 1971 have been employed by L. E. Peabody & Associates, Inc.

I am a member of the American Economic Association, the Transportation Research Forum, and the American Railway Engineering and Maintenance-of-Way Association.

The firm of L. E. Peabody & Associates, Inc. specializes in analyzing matters related to the rail transportation of all commodities. As a result of my extensive economic consulting practice since 1971 and my participation in maximum-rate, rail merger, service disputes and rule-making proceedings before various government and private governing bodies, I have become thoroughly familiar with all rail carriers in the United States. This familiarity extends to subjects of railroad service, costs and profitability, cost of capital, railroad capacity, railroad traffic prioritization and the structure and operation of the various contracts and tariffs that historically have governed the movement of traffic by rail.

STATEMENT OF QUALIFICATIONS

As an economic consultant, I have organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, for shippers, for associations and for state governments and other public bodies dealing with transportation and related economic problems. Examples of studies I have participated in 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 enabled me to become familiar with the operating practices and accounting procedures utilized by railroads in the normal course of business.

Additionally, I have inspected and studied both railroad terminal and line-haul facilities used in handling various commodities, including unit train coal movements from coal mine origins in the Powder River Basin and in Colorado to various utility destinations in the eastern, mid-western and western portions of the United States and from the Eastern coal fields to various destinations in the Mid-Atlantic, northeastern, southeastern and mid-western portions of the United States. These operational reviews and studies were used as a basis for the determination of the traffic and operating characteristics for specific movements of numerous commodities handled by rail.

STATEMENT OF QUALIFICATIONS

I have frequently been called upon to develop and coordinate economic and operational studies relative to the rail transportation of various commodities. My responsibilities in these undertakings included the analyses of rail routes, rail operations and an assessment of the relative efficiency and costs of railroad operations over those routes. I have also analyzed and made recommendations regarding the acquisition of railcars according to the specific needs of various shippers. The results of these analyses have been employed in order to assist shippers in the development and negotiation of rail transportation contracts which optimize operational efficiency and cost effectiveness.

I have developed property and business valuations of privately held freight and passenger railroads for use in regulatory, litigation and commercial settings. These valuation assignments required me to develop company and/or industry specific costs of debt, preferred equity and common equity, as well as target and actual capital structures. I am also well acquainted with and have used the commonly accepted models for determining a company's cost of common equity, including the Discounted Cash Flow Model ("DCF"), Capital Asset Pricing Model ("CAPM"), and the Farma-French Three Factor Model.

Moreover, I have developed numerous variable cost calculations utilizing the various formulas employed by the Interstate Commerce Commission (“ICC”) and the Surface Transportation Board (“STB”) for the development of variable costs for common carriers,

STATEMENT OF QUALIFICATIONS

with particular emphasis on the basis and use of the Uniform Railroad Costing System ("URCS") and its predecessor, Rail Form A. I have utilized URCS/Rail form A costing principles since the beginning of my career with L. E. Peabody & Associates Inc. in 1971.

I have frequently presented both oral and written testimony before the ICC, STB, Federal Energy Regulatory Commission, Railroad Accounting Principles Board, Postal Rate Commission and numerous state regulatory commissions, federal courts and state courts. This testimony was generally related to the development of variable cost of service calculations, rail traffic and operating patterns, fuel supply economics, contract interpretations, economic principles concerning the maximum level of rates, implementation of maximum rate principles, and calculation of reparations or damages, including interest. I presented testimony before the Congress of the United States, Committee on Transportation and Infrastructure on the status of rail competition in the western United States. I have also presented expert testimony in a number of court and arbitration proceedings concerning the level of rates, rate adjustment procedures, service, capacity, costing, rail operating procedures and other economic components of specific contracts.

Since the implementation of the *Staggers Rail Act of 1980*, which clarified that rail carriers could enter into transportation contracts with shippers, I have been actively

STATEMENT OF QUALIFICATIONS

involved in negotiating transportation contracts on behalf of shippers. Specifically, I have advised shippers concerning transportation rates based on market conditions and carrier competition, movement specific service commitments, specific cost-based rate adjustment provisions, contract reopeners that recognize changes in productivity and cost-based ancillary charges.

I have been actively engaged in negotiating coal supply contracts for various users throughout the United States. In addition, I have analyzed the economic impact of buying out, brokering, and modifying existing coal supply agreements. My coal supply assignments have encompassed analyzing alternative coals to determine the impact on the delivered price of operating and maintenance costs, unloading costs, shrinkage factor and by-product savings.

I have developed different economic analyses regarding rail transportation matters for over sixty (60) electric utility companies located in all parts of the United States, and for major associations, including American Paper Institute, American Petroleum Institute, Chemical Manufacturers Association, Coal Exporters Association, Edison Electric Institute, Mail Order Association of America, National Coal Association, National Industrial Transportation League, North America Freight Car Association, the Fertilizer Institute and Western Coal Traffic League. In addition, I have assisted numerous government agencies, major industries and major railroad companies in solving various transportation-related problems.

STATEMENT OF QUALIFICATIONS

In the two Western rail mergers that resulted in the creation of the present BNSF Railway Company and Union Pacific Railroad Company and in the acquisition of Conrail by Norfolk Southern Railway Company and CSX Transportation, Inc., I reviewed the railroads' applications including their supporting traffic, cost and operating data and provided detailed evidence supporting requests for conditions designed to maintain the competitive rail environment that existed before the proposed mergers and acquisition. In these proceedings, I represented shipper interests, including plastic, chemical, coal, paper and steel shippers.

I have participated in various proceedings involved with the division of through rail rates. For example, I participated in ICC Docket No. 35585, *Akron, Canton & Youngstown Railroad Company, et al. v. Aberdeen and Rockfish Railroad Company, et al.* which was a complaint filed by the northern and mid-western rail lines to change the primary north-south divisions. I was personally involved in all traffic, operating and cost aspects of this proceeding on behalf of the northern and mid-western rail lines. I was the lead witness on behalf of the Long Island Rail Road in ICC Docket No. 36874, *Notice of Intent to File Division Complaint by the Long Island Rail Road Company*.

STATEMENT OF QUALIFICATIONS

My name is Daniel L. Fapp. I am a Vice President of the economic consulting firm of L. E. Peabody & Associates, Inc. The firm's offices are located at 1501 Duke Street, Suite 200, Alexandria, VA 22314; 760 E. Pusch View Lane, Suite 150, Tucson, Arizona 85737; and 21 Founders Way, Queensbury, New York 12804.

I received a Bachelor of Science degree in Business Administration with an option in Marketing (cum laude) from the California State University, Northridge in 1987, and a Master of Business Administration degree from the University of Arizona's Eller College of Management in 1993, specializing in finance and operations management. I am also a member of Beta Gamma Sigma, the national honor society for collegiate schools of business.

I have been employed by L. E. Peabody & Associates, Inc. since December 1997. Prior to joining L. E. Peabody & Associates, Inc., I was employed by BHP Copper Inc. in the role of Transportation Manager - Finance and Administration, and where I also served as an officer and treasurer 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. I have also held operations management positions with Arizona Lithographers in Tucson, AZ and MCA-Universal Studios in Universal City, CA.

While at BHP Copper Inc., I was responsible for all financial and administrative functions of the company's transportation group. I 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. I served on the company's Commercial and Transportation Management Team and the company's Railroad Acquisition Team where I was responsible for evaluating the acquisition of new railroads,

STATEMENT OF QUALIFICATIONS

including developing financial and economic assessment models. While with MCA-Universal Studios, I held several operations management positions, including Tour Operations Manager, where my duties included vehicle routing and scheduling, personnel scheduling, forecasting facilities utilization, and designing and performing queuing analyses.

As part of my work for L. E. Peabody & Associates, Inc., I have 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 I have participated in organizing and directing include, traffic, operational and cost analyses in connection with the rail movement of coal, metallic ores, pulp and paper products, and other commodities. I have 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 me to become familiar with the operating procedures utilized by railroads in the normal course of business.

Since 1997, I have participated in the development of cost of service analyses for the movement of coal over the major eastern and western coal-hauling railroads. I have conducted on-site studies of switching, detention and line-haul activities relating to the handling of coal. I have also participated in and managed several projects assisting short-line railroads. In these engagements, I 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.

I have been frequently called upon to perform financial analyses and assessments of Class I, Class II and Class III railroad companies. I have determined the Going Concern Value

STATEMENT OF QUALIFICATIONS

of privately held freight and passenger railroads, including developing company specific costs of debt and equity for use in discounting future company cash flows. My consulting assignments regularly involve working with and determining various facets of railroad financial issues, including cost of capital determinations. In these assignments, I have calculated railroad capital structures, market values, cost of railroad debt, cost of preferred railroad equity and common railroad equity. I am also well acquainted with and have used financial industry accepted models for determining a firm's cost of equity, including Discounted Cash Flow Model ("DCF") models, Capital Asset Pricing Model ("CAPM"), Farma-French Three Factor Model and Arbitrage Pricing Models. Based on these assignments, I have frequently spoken and provided guest lectures on developing divisional, corporate and industry costs of equity to undergraduate and graduate level classes.

In my tenure with L. E. Peabody & Associates, Inc., I have presented stand-alone cost evidence in numerous proceedings before the STB, and presented evidence in several STB Ex Parte proceedings, including proceedings addressing railroad fuel surcharges and railroad industry cost of capital. In addition, my reports on railroad valuations have been used as evidence before the Nevada State Tax Commission.

Impact of I&I Switching Costs On Variable Cost Based Revenue Divisions

Item	Source		Chemicals			Grain			Coal			Intermodal (Ramp-to-Ramp)		
			Seg 1	Seg 2	Seg 3	Seg 1	Seg 2	Seg 3	Seg 1	Seg 2	Seg 3	Seg 1	Seg 2	Seg 3
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						Nine Inputs, EAST (2010)								
1. RR	Assumed		US East	US East	US East	US East	US East	US East	US East	US East	US East	US East	US East	US East
2. Loaded Miles	Assumed		300	300	300	300	300	300	300	300	300	300	300	300
3. Ship Type	Assumed		OD	RD	RT	OD	RD	RT	OD	RD	RT	OD	RD	RT
4. Number of Cars	Assumed		1	1	1	25	25	25	100	100	100	1	1	1
5. Tons per Car	Assumed	1/	100	100	100	100	100	100	115	115	115	70	70	70
6. Commodity	Assumed		281	281	281	0113	0113	0113	11	11	11	46	46	46
7. Move Type	Assumed		SC	SC	SC	MC	MC	MC	UT	UT	UT	SC	SC	SC
8. Car Owner	Assumed		P	P	P	P	P	P	P	P	P	P	P	P
9. Car Type	Assumed		Tank > 22	Tank > 22	Tank > 22	Cov Hopper	Cov Hopper	Cov Hopper	OT Hopper	OT Hopper	OT Hopper	Flat (TOFC)	Flat (TOFC)	Flat (TOFC)
						Variable Costs Per Ton by Category, EAST (2010)								
10. Line-haul Costs	Sum of URCS Phase III Output Lines 601-622	2/	$7.63	$7.39	$7.63	$6.74	$6.54	$6.74	$4.47	$4.41	$4.47	$9.17	$9.05	$9.17
11. Terminal Costs	URCS Phase III Output Line 311 x (315+317+319)		$0.83	$0.00	$0.83	$0.42	$0.00	$0.42	$0.18	$0.00	$0.18	$0.65	$0.00	$0.65
12. Interchange Costs	URCS Phase III Output Line 312 x (315+317+319)	3/	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13. I&I Switching Costs	URCS Phase III Output Line 313 x (315+317+319)	4/	$0.37	$0.37	$0.37	$0.36	$0.36	$0.36	$0.00	$0.00	$0.00	$0.01	$0.01	$0.01
14. Freight Car and Special Service Costs	Sum of URCS Phase III Output Lines 632-695		$0.12	$0.12	$0.12	$0.06	$0.06	$0.06	$0.07	$0.07	$0.07	$4.99	$0.75	$4.99
15. Loss and Damage	URCS Phase III Output Line 699		$0.00	$0.00	$0.00	$0.01	$0.01	$0.01	$0.00	$0.00	$0.00	$0.02	$0.02	$0.02
16. Make-Whole Adjustment	URCS Phase III Output Line 587		$1.07	$0.12	$1.07	$0.11	$0.11	$0.11	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
17. Segment Variable Costs	Sum of Lines 10-16		$10.04	$8.01	$10.04	$7.70	$7.08	$7.70	$4.72	$4.48	$4.72	$14.84	$9.83	$14.84
18. Segment Percent of Total VC	Segment VC / Total VC		35.7%	28.5%	35.7%	34.2%	31.5%	34.2%	33.9%	32.2%	33.9%	37.6%	24.9%	37.6%
19. Segment Variable Costs Less I&I Costs	Line 17 - Line 13		$9.66	$7.63	$9.66	$7.34	$6.73	$7.34	$4.72	$4.48	$4.72	$14.83	$9.82	$14.83
20. Segment Percent of Total VC less I&I Cost	Segment VC Less Segment I&I VC / Total VC Less Total I&I VC		35.8%	28.3%	35.8%	34.3%	31.4%	34.3%	33.9%	32.2%	33.9%	37.6%	24.9%	37.6%
21. Impact of I&I Costs on Variable Cost Division	Line 18 - Line 20		-0.1%	0.2%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Impact of I&I Switching Costs On Variable Cost Based Revenue Divisions

Item	Source		Chemicals			Grain			Coal			Intermodal (Ramp-to-Ramp)		
			Seg 1	Seg 2	Seg 3	Seg 1	Seg 2	Seg 3	Seg 1	Seg 2	Seg 3	Seg 1	Seg 2	Seg 3
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
						Nine Inputs, WEST (2010)								
22. RR	Assumed		US West	US West	US West	US West	US West	US West	US West	US West	US West	US West	US West	US West
23. Loaded Miles	Assumed		300	300	300	300	300	300	300	300	300	300	300	300
24. Ship Type	Assumed		OD	RD	RT	OD	RD	RT	OD	RD	RT	OD	RD	RT
25. Number of Cars	Assumed		1	1	1	25	25	25	100	100	100	1	1	1
26. Tons per Car	Assumed	1/	100	100	100	100	100	100	115	115	115	80	80	80
27. Commodity	Assumed		281	281	281	0113	0113	0113	11	11	11	46	46	46
28. Move Type	Assumed		SC	SC	SC	MC	MC	MC	UT	UT	UT	SC	SC	SC
29. Car Owner	Assumed		P	P	P	P	P	P	P	P	P	P	P	P
30. Car Type	Assumed		Tank > 22	Tank > 22	Tank > 22	Cov Hopper	Cov Hopper	Cov Hopper	OT Hopper	OT Hopper	OT Hopper	Flat (TOFC)	Flat (TOFC)	Flat (TOFC)
						Variable Costs Per Ton by Category, WEST (2010)								
31. Line-haul Costs	Sum of URCS Phase III Output Lines 601-622	2/	$6.26	$6.05	$6.26	$5.51	$5.34	$5.51	$3.56	$3.47	$3.56	$8.58	$8.38	$8.58
32. Terminal Costs	URCS Phase III Output Line 311 x (315+317+319)		$0.97	$0.00	$0.97	$0.48	$0.00	$0.48	$0.21	$0.00	$0.21	$0.77	$0.00	$0.77
33. Interchange Costs	URCS Phase III Output Line 312 x (315+317+319)	3/	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34. I&I Switching Costs	URCS Phase III Output Line 313 x (315+317+319)	4/	$0.45	$0.45	$0.45	$0.42	$0.42	$0.42	$0.00	$0.00	$0.00	$0.02	$0.02	$0.02
35. Freight Car and Special Service Costs	Sum of URCS Phase III Output Lines 632-695		$0.13	$0.13	$0.13	$0.23	$0.23	$0.23	$0.00	$0.00	$0.00	$5.34	$1.12	$5.34
36. Loss and Damage	URCS Phase III Output Line 699		$0.00	$0.00	$0.00	$0.01	$0.01	$0.01	$0.00	$0.00	$0.00	$0.03	$0.03	$0.03
37. Make-Whole Adjustment	URCS Phase III Output Line 587		$0.93	$0.17	$0.93	$0.16	$0.16	$0.16	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
38. Segment Variable Costs	Sum of Lines 31-37		$8.74	$6.80	$8.74	$6.83	$6.17	$6.83	$3.78	$3.47	$3.78	$14.74	$9.54	$14.74
39. Segment Percent of Total VC	Segment VC / Total VC		36.0%	28.0%	36.0%	34.4%	31.1%	34.4%	34.3%	31.5%	34.3%	37.8%	24.4%	37.8%
40. Segment Variable Costs Less I&I Costs	Line 38 - Line 34		$8.29	$6.35	$8.29	$6.40	$5.75	$6.40	$3.78	$3.47	$3.78	$14.72	$9.52	$14.72
41. Segment Percent of Total VC less I&I Cost	Segment VC Less Segment I&I VC / Total VC Less Total I&I VC		36.2%	27.7%	36.2%	34.5%	31.0%	34.5%	34.3%	31.5%	34.3%	37.8%	24.4%	37.8%
42. Impact of I&I Costs on Variable Cost Division	Line 39 - Line 41		-0.2%	0.3%	-0.2%	-0.1%	0.2%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

1/ For Intermodal Moves, the Tons are associated with the flat car consist (4.57 units per car in the East and 5.36 units per car in the West).

2/ Includes GTM, LUM, car-mile, and train-mile costs.

3/ Costs for hypothetical interchanges between segments are not included in ATC variable cost calculations because segment variable costs reflect incumbent costs actually incurred.

4/ Allocated on a per-mile basis assuming an I&I switching event occurs every 200 miles for all non-unit train traffic.

STB Docket No. EP 715
Rate Regulation Reforms

VERIFIED STATEMENT
OF
MARK NEWTON LOWRY

I. Qualifications

My name is Mark Newton Lowry. I am the President of Pacific Economics Group ("PEG") Research LLC. My business address 22 East Mifflin Street, Suite 700, Madison WI.

PEG Research is a company in the Pacific Economics Group consortium which specializes in regulatory economics and statistical research on utility industry cost. The practice has four PhD economists with extensive utility experience. Our clients include utilities, regulators, consumer groups, trade associations and public agencies. This diverse client mix has given us a reputation for objectivity and dedication to regulatory science. The chief focus of our regulatory economics practice has been alternatives to the traditional North American approach to regulation ("Altreg"). Altreg and statistical cost research often involve considerations of utility operating efficiency and scale, scope, and density economies.

My duties as President of PEG Research include the management of the firm, Altreg consulting, supervision of statistical cost research, and expert witness testimony. In totality, I have served as a consultant or expert witness on more than one hundred and fifty matters. Venues for my Altreg and cost research testimony have included California, Colorado, Delaware, the District of Columbia, Georgia, Hawaii, Illinois, Kentucky, Maine, Maryland, Massachusetts, Missouri, Oklahoma, New Jersey, New York, Rhode Island, Vermont, Washington, Alberta, British Columbia, Ontario, and Quebec.

Before assuming my present position, I was a partner of Pacific Economics Group for ten years and managed that company's Madison, WI office. Before that, I worked for nine years at Christensen Associates in Madison, first as a Senior Economist and later as a Vice President. My career has also included work as an academic economist. I was for several years a professor of mineral economics at the Pennsylvania State University and was a visiting professor at the Ecole des Hautes Etudes Commerciales in Montreal.

In total, I have twenty-seven years of experience as a practicing economist, spending the last twenty-one years doing work on utility industries. I have numerous professional publications, been a referee for several scholarly journals, and chaired several conferences on Altreg and utility cost research. I hold an undergraduate degree in Ibero-American Studies and a PhD in Applied Economics from the University of Wisconsin. My full curriculum vitae is attached as Exhibit A.

II. Assignment

The Surface Transportation Board recently issued a notice of proposed rulemaking (Notice) in Ex Parte 715, *Rate Regulation Reforms*. I have been asked by counsel for a group of Coal Shippers, consisting of the Western Coal Traffic League, Concerned Captive Coal Shippers, American Public Power Association, Edison Electric Institute, National Rural Electric Cooperative Association, Western Fuels Association, Inc., and Basin Electric Power Cooperative, Inc., to respond to the Board's proposal to impose restrictions on the use of cross-over traffic in calculating stand-alone cost (SAC) levels in railroad rate cases.

III. The Board's Proposed Restrictions on Cross-Over Traffic Undermine the Usefulness of the Stand-Alone Cost Test in Railroad Regulation

The Board's proposed restrictions on the use of cross-over traffic would reduce the usefulness of the SAC test in railroad regulation. This is of great concern given the important role that SAC currently plays in limiting rail freight overcharges.

By way of background, I understand that SAC is used in US railroad regulation to determine whether a particular shipper or group of shippers is paying too much for the services it receives from the incumbent. The concerns are that a captive shipper may be paying an excessive amount that subsidizes other incumbent services (*e.g.,* traffic on other portions of the incumbent's system) that the shipper does not utilize and/or enriches the incumbent excessively. The SAC test compares the amount paid by the shipper to that which would be charged by a hypothetical least-cost, most-efficient stand-alone replacement railroad (SARR) that did not face barriers to entry or exit. A customer should not have to pay an amount for service that exceeds that which the SARR would charge.

Since 1994, SAC calculations have routinely involved the consideration of cross-over traffic. This is traffic that is handled jointly by the SARR (developed by the shipper to handle the issue traffic) and the residual incumbent, which refers to portions of the defendant's railroad that are not incorporated in the SARR. As the Board observes in its Notice, the cross-over traffic of a SARR in recent SAC cases often includes carload, multi-carload, and trainload movements.

The Board requests comment on two proposed restrictions on the allowable cross-over traffic included in SAC calculations. The first consists of "restricting the use of cross-over traffic

to movements for which the SARR would either originate or terminate the rail portion of the movement." The second consists of "restricting the use of cross-over traffic to movements where the entire service provided by the defendant railroad in the real world is in trainload service."

The realization of scale, scope, and density economies is an important aspect of business operating efficiency and a key to the success of a business in the marketplace. These economies play a key role in the design of a stand-alone railroad. An efficient SARR with no barriers to entry would aggressively pursue opportunities to boost system utilization and much of the additional service would take the form of cross-over traffic. The resulting economies of density, scale, and scope help the SARR to provide service at lower rates to its customers, including the complaining shipper.

A key aspect of the SAC test is therefore the SARR's ability to select its traffic group for the purpose of optimizing its economies of scale, scope, and density in serving the complaining shipper and other traffic that may be combined in a least-cost, most-efficient manner. The effect of imposing "limitations" or "restrictions" that preclude the SARR from serving desirable traffic is to effectively impose an entry barrier on the SARR.

The Board's proposed restrictions on a shipper's ability to include cross-over traffic in a SARR system would each do exactly that. Under the first proposed restriction, the shipper would have to forgo all types of cross-over traffic (*i.e.*, carload, multi-carload, and trainload traffic) unless the complainant were to expand its SARR system to include either the origin or destination for each cross-over traffic movement. Requiring the shipper to expand its SARR in

this manner is not a reasonable requirement. The usefulness of a SAC approach is in taking a large system or network and then carving out only those portions needed to serve a particular customer, service, or group of same. To the extent that the Board requires a shipper to replicate large portions of the incumbent in its SARR system, the SARR becomes a replacement for the incumbent as a whole, rather than a selected portion of the incumbent needed to serve the captive shipper. I understand that it would be very difficult to apply the SAC test using a SARR that replicated a substantial portion of any of the nation's largest railroads. This first option is all the more limiting since it seems to apply to trainload, carload, and multi carload traffic alike. This option seems contrary to the stated purpose of the Board's initiative, which is "to ensure that the Board's simplified and expedited tests for resolving rate disputes are more accessible to parties".

The Board's second proposed restriction likewise is improper. The proposal would impose a direct and impermissible barrier to entry and would contravene the grouping principle on which SAC is based. If the Board were to adopt this proposed restriction, then a complaining shipper either would be required to support its SARR system without access to categories of traffic that are available to the incumbent, or the complaining shipper would be forced to expand the footprint of its system even beyond the scope envisioned by the Board in its first proposed restriction. Specifically, since the Board proposes to restrict access to carload and multi-carload cross-over traffic entirely, then the shipper's only means of including this subset of the incumbent's actual traffic base in its SARR system would be to handle all of this traffic on a *single-line* basis. Stated differently, under the Board's second proposal, the complaining shipper's only potential approach to handling carload or multi-carload traffic would be to build

to both the origin *and* destination of that traffic, such that the traffic no longer would be cross-over traffic at all.

Under both of the Board's proposed restrictions, desirable cross-over traffic would be excluded unless the shipper expanded its SARR (arguably to the full extent of replicating the entire system of the defendant carrier). Absent such expansion, the hypothetical charge of the SARR would not then represent a least-cost, most-efficient result. This makes the SAC test less suitable as a means for identifying overcharging.

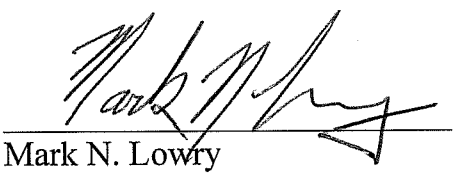
The end result of either approach is thus diminished usefulness of the SAC test as a means to protect captive shippers from being overcharged. It is noteworthy that many of these shippers are electric utilities whose customers, member-owners, and constituents bear the burden of overcharges and benefit from their elimination.

IV. Conclusion

The Board's proposed restrictions on cross-over traffic undermine the value of SAC tests as a protection from overcharges in railroad regulation. If these restrictions are implemented, the Board's SAC test will become more difficult to review, less widely used, and more likely to understate rail freight overcharges that injure shippers and their customers.

VERIFICATION

I, Mark N. Lowry, Ph.D., verify under penalty of perjury that I have read the foregoing Verified Statement and 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.



Mark N. Lowry

Executed on: October 22, 2012

Exhibit A

RESUME OF
MARK NEWTON LOWRY

October 2012

Home Address: 1511 Sumac Drive
Madison, WI 53705
(608) 233-4822

Business Address: 22 E. Mifflin St., Suite 302
Madison, WI 53703
(608) 257-1522 Ext. 23

Date of Birth: August 7, 1952

Education: High School: Hawken School, Gates Mills, Ohio, 1970
BA: Ibero-American Studies, University of Wisconsin-Madison, May 1977
Ph.D.: Agricultural and Resource Economics, University of Wisconsin -Madison, May 1984

Relevant Work Experience, Primary Positions:

Present Position **President, Pacific Economics Group Research LLC, Madison WI**

Chief executive of the research unit of the Pacific Economics Group consortium. Leads internationally recognized practice in alternative regulation ("Altreg") and utility statistical research. Other research specialties include: codes of competitive conduct, markets for oil and gas, and commodity storage. Duties include senior management, supervision of research, and expert witness testimony.

October 1998-February 2009 Partner, Pacific Economics Group LLC, Madison, WI

Managed PEG's Madison office. Specific duties include project management and research, written reports, public presentations, expert witness testimony, personnel management, and marketing.

January 1993-October 1998 Vice President
January 1989-December 1992 Senior Economist, Christensen Associates, Madison, WI

Directed the company's Regulatory Strategy group. Participated in all Christensen Associates testimony on energy utility PBR and statistical benchmarking during these years.

Aug. 1984-Dec. 1988 **Assistant Professor, Department of Mineral Economics, The Pennsylvania State University, University Park, PA**

Responsibilities included research and graduate and undergraduate teaching and advising. Courses taught: Min Ec 387 (Introduction to Mineral Economics); 390 (Mineral Market Modeling); 484 (Political Economy of Energy and the Environment) and 506 (Applied Econometrics). Teaching and research specialty: analysis of markets for energy products and metals.

August 1983-July 1984 **Instructor, Department of Mineral Economics, The Pennsylvania State University, University Park, PA**

Taught courses in Mineral Economics (noted above) while completing Ph.D. thesis.

April 1982-August 1983 **Research Assistant, Department of Agricultural and Resource Economics, University of Wisconsin-Madison**

Dissertation research under Dr. Peter Helmberger on the role of speculative storage in markets for field crops. Work included the development of an econometric rational expectations model of the U.S. soybean market.

March 1981-March 1982 **Natural Gas Industry Analyst, Madison Consulting Group, Madison, Wisconsin**

Research under Dr. Charles Cicchetti in two areas:

- Impact of the Natural Gas Policy Act on the production and average wellhead price of natural gas in the United States.
- Research supporting litigation testimony in an antitrust suit involving natural gas producers and pipelines in the San Juan Basin of New Mexico.

Relevant Work Experience, Visiting Positions:

May-August 1985 **Professeur Visiteur, Centre for International Business Studies, Ecole des Hautes Etudes Commerciales, Montreal, Quebec.**

Research on the behavior of inventories in non-competitive metal markets.

Major Consulting Projects:

1. Research on Gas Market Competition for a Western Electric Utility. 1981.
2. Research on the Natural Gas Policy Act for a Northeast Trade Association. 1981
3. Interruptible Service Research for an Industry Research Institute. 1989.
4. Research on Load Relief from Interruptible Services for a Northeast Electric Utility. 1989.
5. Design of Time-of-Use Rates for a Midwest Electric Utility. 1989.
6. PBR Consultation for a Southeast Gas Transmission Company. 1989.
7. Gas Transmission Productivity Research for a U.S. Trade Association. 1990.
8. Productivity Research for a Northeast Gas and Electric Utility. 1990-91.
9. Comprehensive Performance Indexes for a Northeast Gas and Electric Utility. 1990-1991.
10. PBR Consultation for a Southeast Electric Utility. 1991.
11. Research on Electric Revenue Adjustment Mechanisms for a Northeast Electric Utility. 1991.
12. Productivity Research for a Western Gas Distributor. 1991.
13. Cost Performance Indexes for a Northeast U.S. Gas and Electric Utility. 1991.
14. Gas Transmission Rate Design for a Western U.S. Electric Utility. 1991.
15. Gas Supply Cost Indexing for a Western U.S. Gas Distributor. 1992.
16. Gas Transmission Strategy for a Western Electric Utility. 1992.
17. Design and Negotiation of Comprehensive Benchmark Incentive Plans for a Northeast Gas and Electric Utility. 1992.

18. Gas Supply Cost Benchmarking and Testimony for a Northeast U.S. Gas Distributor, 1992.
19. Bundled Power Service Productivity Research for a Western Electric Utility. 1993-96.
20. Development of PBR Options for a Western Electric Utility. 1993.
21. Review of the Regional Gas Transmission Market for a Western Electric Utility. 1993.
22. Productivity and PBR Research and Testimony for a Northeast Electric Utility. 1993.
23. Productivity and PBR Research and Testimony for a Northeast Electric Utility. 1994.
24. Productivity Research for a Western Gas Distributor. 1994.
25. White Paper on Price Cap Regulation for a U.S. Trade Association. 1994.
26. Bundled Power Service Benchmarking for a Western Electric Utility. 1994.
27. White Paper on PBR for a U.S. Trade Association. 1995.
28. Productivity Research and PBR Plan Design for a Northeast Gas and Electric Company. 1995.
29. Regulatory Strategy for a Restructuring Canadian Electric Utility. 1995.
30. PBR Consultation for a Japanese Electric Utility. 1995.
31. Regulatory Strategy for a Restructuring Northeast Electric Utility. 1995.
32. Productivity Research and Plan Design Testimony for a Western Gas Distributor. 1995.
33. Productivity Testimony for a Northeast Gas Distributor. 1995.
34. Speech on PBR for a Western Electric Utility. 1995.
35. Development of a PBR Plan for a Midwest Gas Distributor. 1996.
36. Stranded Cost Recovery and Power Distribution PBR for a Northeast Electric Utility. 1996.
37. Benchmarking and Productivity Research and Testimony for a Northeast Gas Distributor. 1996.
38. Consultation on Gas Production, Transmission, and Distribution PBR for a Latin American Regulator. 1996.
39. Power Distribution Benchmarking for a Northeast Electric Utility. 1996.
40. Testimony on PBR for a Northeast Power Distributor. 1996.
41. Bundled Power Service Benchmarking for a Northeast Electric Utility. 1996.
42. Design of Gas Distributor Service Territories for a Latin American Regulator. 1996.
43. Bundled Power Service Benchmarking for a Northeast Electric Utility. 1996.
44. Service Quality PBR for a Canadian Gas Distributor. 1996.
45. Productivity and PBR Research and Testimony for a Canadian Gas Distributor. 1997.
46. Bundled Power Service Benchmarking for a Northeast Electric Utility. 1997.
47. Design of a Price Cap Plan for a South American Regulator. 1997.
48. White Paper on Utility Brand Name Policy for a U.S. Trade Association. 1997.
49. Bundled Power Service Benchmarking and Testimony for a Western Electric Utility. 1997.
50. Review of a Power Purchase Contract Dispute for a Midwest City. 1997.
51. Research on Benchmarking and Stranded Cost Recovery for a U.S. Trade Association. 1997.
52. Research and Testimony on Productivity Trends for a Northeast Gas Distributor. 1997.
53. PBR Plan Design, Benchmarking, and Testimony for a Southeast Gas Distributor. 1997.
54. White Paper on Power Distribution PBR for a U.S. Trade Association. 1997-99.
55. White Paper and Public Appearances on PBR Options for Australian Power Distributors. 1997-98.
56. Gas and Power Distribution PBR Research and Testimony for a Western Energy Utility. 1997-98.
57. Research on the Cost Structure of Power Distribution for a U.S. Trade Association. 1998.
58. Research on Cross-Subsidization for a U.S. Trade Association. 1998.
59. Testimony on Brand Names for a U.S. Trade Association. 1998.
60. Research and Testimony on Economies of Scale in Power Supply for a Western Electric Utility. 1998.
61. PBR Plan Design and Testimony for a Western Electric Utility. 1998-99.
62. PBR and Bundled Power Service Testimony and Testimony for Two Southeast U.S. Electric Utilities. 1998-99.
63. Statistical Benchmarking for an Australian Power Distributor. 1998-9.

64. Testimony on Functional Separation of Power Generation and Delivery for a U.S. Trade Association. 1998.
65. Design of a Stranded Benefit Passthrough Mechanism for a Restructuring Electric Utility. 1998.
66. Consultation on PBR and Code of Conduct Issues for a Western Electric Utility. 1999.
67. PBR and Bundled Power Service Benchmarking Research and Testimony for a Southwest Electric Utility. 1999.
68. Power Transmission and Distribution Cost Benchmarking for a Western Electric Utility. 1999.
69. Cost Benchmarking for Three Australian Power Distributors. 1999.
70. Bundled Power Service Benchmarking for a Northeast Electric Utility. 1999.
71. Benchmarking Research for an Australian Power Distributor. 2000.
72. Critique of a Commission-Sponsored Benchmarking Study for Three Australian Power Distributors. 2000.
73. Statistical Benchmarking for an Australian Power Transco. 2000.
74. PBR and Benchmarking Testimony for a Southwest Electric Utility. 2000.
75. PBR Workshop (for Regulators) for a Northeast Gas and Electric Utility. 2000.
76. Research on Economies of Scale and Scope for an Australian Electric Utility. 2000.
77. Research and Testimony on Economies of Scale in Power Delivery, Metering, and Billing for a Consortium of Northeast Electric Utilities. 2000.
78. Research and Testimony on Service Quality PBR for a Consortium of Northeast Energy Utilities. 2000.
79. Power and Natural Gas Procurement PBR for a Western Electric Utility. 2000.
80. PBR Plan Design for a Canadian Natural Gas Distributor. 2000.
81. TFP and Benchmarking Research for a Western Gas and Electric Utility. 2000.
82. E-Forum on PBR for Power Procurement for a U.S. Trade Association. 2001.
83. PBR Presentation to Florida's Energy 2000 Commission for a U.S. Trade Association. 2001.
84. Research on Power Market Competition for an Australian Electric Utility. 2001.
85. TFP and Other PBR Research and Testimony for a Northeast Power Distributor. 2000.
86. PBR and Productivity for a Canadian Electric Utility. 2002
87. Statistical Benchmarking for an Australian Power Transco. 2002.
88. PBR and Bundled Power Service Benchmarking Research and Testimony for a Midwest Energy Utility. 2002.
89. Consultation on the Future of Power Transmission and Distribution Regulation for a Western Electric Utility. 2002.
90. Benchmarking and Productivity Research and Testimony for Two Western U.S. Energy Distributors. 2002.
91. Workshop on PBR (for Regulators) for a Canadian Trade Association. 2003.
92. PBR, Productivity, and Benchmarking Research for a Mid-Atlantic Gas and Electric Utility. 2003.
93. Workshop on PBR (for Regulators) for a Southeast Electric Utility. 2003.
94. Strategic Advice for a Midwest Power Transmission Company. 2003.
95. PBR Research for a Canadian Gas Distributor. 2003.
96. Benchmarking Research and Testimony for a Canadian Gas Distributor. 2003-2004.
97. Consultation on Benchmarking and Productivity Issues for Two British Power Distributors. 2003.
98. Power Distribution Productivity and Benchmarking Research for a South American Regulator. 2003-2004.
99. Statistical Benchmarking of Power Transmission for a Japanese Research Institute. 2003-4.
100. Consultation on PBR for a Western Gas Distributor. 2003-4.
101. Research and Advice on PBR for Gas Distribution for a Western Gas Distributor. 2004.
102. PBR, Benchmarking and Productivity Research and Testimony for Two Western Energy Distributors. 2004.

103. Advice on Productivity for Two British Power Distributors. 2004.
104. Workshop on Service Quality Regulation for a Canadian Trade Association. 2004.
105. Strategic Advice for a Canadian Trade Association. 2004.
106. White Paper on Unbundled Storage and Local Gas Markets for a Midwestern Gas Distributor. 2004.
107. Statistical Benchmarking Research for a British Power Distributor. 2004.
108. Statistical Benchmarking Research for Three British Power Distributors. 2004.
109. Benchmarking Testimony for Three Ontario Power Distributors. 2004.
110. Indexation of O&M Expenses for an Australian Power Distributor. 2004.
111. Statistical Benchmarking of O&M Expenses for a Canadian Gas Distributor. 2004.
112. Benchmarking Testimony for a Canadian Power Distributor. 2005.
113. Statistical Benchmarking for a Canadian Power Distributor. 2005.
114. White Paper on Power Distribution Benchmarking for a Canadian Trade Association. 2005.
115. Statistical Benchmarking for a Southeast Bundled Power Utility. 2005.
116. Statistical Benchmarking of a Nuclear Power Plant and Testimony. 2005.
117. White Paper on Utility Rate Trends for a U.S. Trade Association. 2005.
118. TFP Research for a Northeast U.S. Power Distributor, 2005.
119. Seminars on PBR and Statistical Benchmarking for a Northeast Electric Utility, 2005.
120. Statistical Benchmarking and Testimony for a Northeast U.S. Power Distributor, 2005.
121. Testimony Transmission PBR for a Canadian Electric Utility, 2005.
122. TFP and Benchmarking Research and Testimony for Two California Energy Utilities. 2006.
123. White Paper on Power Transmission PBR for a Canadian Electric Utility. 2006.
124. Testimony on Statistical Benchmarking for a Canadian Electric Utility. 2006.
125. White Paper on PBR for Major Plant Additions for a U.S. Trade Association. 2006.
126. PBR Plan Design for a Canadian Regulatory Commission. 2006.
127. White Paper on Regulatory Benchmarking for a Canadian Trade Association. 2007.
128. Productivity Research and Testimony for a Northeastern Power Distributor. 2007.
129. Revenue Decoupling Research and Presentation for a Northeast Power Distributor. 2007.
130. Gas Utility Productivity Research and PBR Plan Design for a Canadian Regulator. 2007.
131. Productivity Research and PBR Plan Design for a Western Bundled Power Service Utility. 2007.
132. Statistical Benchmarking for a Canadian Energy Regulator. 2007.
133. Research and Testimony in Support of a Revenue Adjustment Mechanism for a Northeastern Power Utility. 2008.
134. Consultation on Alternative Regulation for a Midwestern Electric Utility. 2008.
135. Research and Draft Testimony in Support of a Revenue Decoupling Mechanism for a Large Midwestern Gas Utility. 2008.
136. White Paper: Use of Statistical Benchmarking in Regulation. 2005-2009.
137. Statistical Cost Benchmarking of Canadian Power Distributors. 2007-2009.
138. Research and Testimony on Revenue Decoupling for 3 US Electric Utilities. 2008-2009.
139. Benchmarking Research and Testimony for a Midwestern Electric Utility. 2009.
140. Consultation and Testimony on Revenue Decoupling for a New England DSM Advisory Council. 2009.
141. Research and Testimony on Forward Test Years and the cost performance of a Vertically Integrated Western Electric Utility. 2009.
142. White Paper for a National Trade Association on the Importance of Forward Test Years for U.S. Electric Utilities. 2009-2010.
143. Research and Testimony on Altreg for Western Gas and Electric Utilities Operating under Decoupling. 2009-2010.
144. Research and Report on PBR Designed to Incent Long Term Performance Gains. 2009-2010.
145. Research and Report on Revenue Decoupling for Ontario Gas and Electric Utilities. 2009-2010.

146. Research and Testimony on the Performance of a Western Electric Utility. 2009-2010.
147. Research on Decoupling for a Western Gas Distributor. 2009-2010.
148. Research on AltReg Precedents for a Midwestern Electric Utility. 2010.
149. Research on Revenue Decoupling for a Northwestern Gas & Electric Utility. 2010.
150. Benchmarking Research and Report on the Performance of a Midwestern Electric Utility. 2010.
151. Research and Testimony on Forward Test Years and the cost performance of a large Western Gas Distributor. 2010-2011.
152. Research and Testimony in Support of Revenue Decoupling for a Midwestern Power Distributor. 2010-2011.
153. Benchmarking Research and Report on the Generation Maintenance Performance of a Midwestern Electric Utility. 2010-2011.
154. Research and Testimony on the Design of an Incentivized Formula Rate for a Canadian Gas Distributor. 2010-2011.
155. White Paper for a National Trade Association on Remedies for Regulatory Lag. 2010-2011.
156. Benchmarking Research and Report on the Performance of a Midwestern Electric Utility. 2011.
157. Assistance with an Alternative Regulation Settlement Conference for a Northeastern Power Distributor. 2011.
158. Research and Testimony on Remedies for Regulatory Lag for Three Northeastern Power Distributors. 2011-2012.
159. Research and Testimony on the Design of Performance Based Ratemaking Mechanisms for a Canadian Consumer Group. 2011-2012.
160. Research and Testimony on Projected Attrition for a Western Electric Utility. 2011-2012.
161. Research and Testimony on the Design of a Performance Based Ratemaking Plan for a Canadian Gas Utility. 2012-2013.

Publications:

1. Public vs. Private Management of Mineral Inventories: A Statement of the Issues. Earth and Mineral Sciences 53, (3) Spring 1984.
2. Review of Energy, Foresight, and Strategy, Thomas Sargent, ed. (Baltimore: Resources for the Future, 1985). Energy Journal 6 (4), 1986.
3. The Changing Role of the United States in World Mineral Trade in W.R. Bush, editor, The Economics of Internationally Traded Minerals. (Littleton, CO: Society of Mining Engineers, 1986).
4. Assessing Metals Demand in Less Developed Countries: Another Look at the Leapfrog Effect. Materials and Society 10 (3), 1986.
5. Modeling the Convenience Yield from Precautionary Storage of Refined Oil Products (with junior author Bok Jae Lee) in John Rowse, ed. World Energy Markets: Coping with Instability (Calgary, AL: Friesen Printers, 1987).
6. Pricing and Storage of Field Crops: A Quarterly Model Applied to Soybeans (with junior authors Joseph Glauber, Mario Miranda, and Peter Helmberger). American Journal of Agricultural Economics 69 (4), November, 1987.
7. Storage, Monopoly Power, and Sticky Prices. les Cahiers du CETAI no. 87-03 March 1987.
8. Monopoly Power, Rigid Prices, and the Management of Inventories by Metals Producers. Materials and Society 12 (1) 1988.
9. Review of Oil Prices, Market Response, and Contingency Planning, by George Horwich and David Leo Weimer, (Washington, American Enterprise Institute, 1984), Energy Journal 8 (3) 1988.
10. A Competitive Model of Primary Sector Storage of Refined Oil Products. July 1987, Resources and Energy 10 (2) 1988.

11. Modeling the Convenience Yield from Precautionary Storage: The Case of Distillate Fuel Oil. Energy Economics 10 (4) 1988.
12. Speculative Stocks and Working Stocks. Economic Letters 28 1988.
13. Theory of Pricing and Storage of Field Crops With an Application to Soybeans [with Joseph Glauber (senior author), Mario Miranda, and Peter Helmberger]. University of Wisconsin-Madison College of Agricultural and Life Sciences Research Report no. R3421, 1988.
14. Competitive Speculative Storage and the Cost of Petroleum Supply. The Energy Journal 10 (1) 1989.
15. Evaluating Alternative Measures of Credited Load Relief: Results From a Recent Study For New England Electric. In Demand Side Management: Partnerships in Planning for the Next Decade (Palo Alto: Electric Power Research Institute,1991).
16. Futures Prices and Hidden Stocks of Refined Oil Products. In O. Guvanen, W.C. Labys, and J.B. Lesourd, editors, International Commodity Market Models: Advances in Methodology and Applications (London: Chapman and Hall, 1991).
17. Indexed Price Caps for U.S. Electric Utilities. The Electricity Journal, September-October 1991.
18. Gas Supply Cost Incentive Plans for Local Distribution Companies. Proceedings of the Eight NARUC Biennial Regulatory Information Conference (Columbus: National Regulatory Research Institute, 1993).
19. TFP Trends of U.S. Electric Utilities, 1975-92 (with Herb Thompson). Proceedings of the Ninth NARUC Biennial Regulatory Information Conference, (Columbus: National Regulatory Research Institute, 1994).
20. A Price Cap Designers Handbook (with Lawrence Kaufmann). (Washington: Edison Electric Institute, 1995.)
21. The Treatment of Z Factors in Price Cap Plans (with Lawrence Kaufmann), Applied Economics Letters 2 1995.
22. Performance-Based Regulation of U.S. Electric Utilities: The State of the Art and Directions for Further Research (with Lawrence Kaufmann). Palo Alto: Electric Power Research Institute, December 1995.
23. Forecasting the Productivity Growth of Natural Gas Distributors (with Lawrence Kaufmann). AGA Forecasting Review, Vol. 5, March 1996.
24. Branding Electric Utility Products: Analysis and Experience in Regulated Industries (with Lawrence Kaufmann), Washington: Edison Electric Institute, 1997.
25. Price Cap Regulation for Power Distribution (with Larry Kaufmann), Washington: Edison Electric Institute, 1998.
26. Controlling for Cross-Subsidization in Electric Utility Regulation (with Lawrence Kaufmann), Washington: Edison Electric Institute, 1998.
27. The Cost Structure of Power Distribution with Implications for Public Policy (with Lawrence Kaufmann), Washington: Edison Electric Institute 1999.
28. Price Caps for Distribution Service: Do They Make Sense? (with Eric Ackerman and Lawrence Kaufmann), *Edison Times*, 1999.
29. Performance-Based Regulation of Utilities (with Lawrence Kaufmann), Energy Law Journal, 2002.
30. "Performance-Based Regulation and Business Strategy" (with Lawrence Kaufmann), Natural Gas, February 2003
31. "Performance-Based Regulation and Energy Utility Business Strategy (With Lawrence Kaufmann), in Natural Gas and Electric Power Industries Analysis 2003, Houston: Financial Communications, 2003.
32. "Price Control Regulation in North America: The Role of Indexing and Benchmarking", Methods to Regulate Unbundled Transmission and Distribution Business on Electricity Markets: Proceedings,

Stockholm: Elforsk, 2003.

33. "Performance-Based Regulation Developments for Gas Utilities (with Lawrence Kaufmann), Natural Gas and Electricity, April 2004.
34. "Econometric Cost Benchmarking of Power Distribution Cost" (with Lullit Getachew and David Hovde), Energy Journal, July 2005.
35. "Alternative Regulation for North American Electric Utilities" (with Lawrence Kaufmann), Electricity Journal, 2006.
36. "Regulating Natural Gas Distributors with Declining Average Use" (with Lullit Getachew and Steven Fenrick), USAEE Dialogue, 2006.
37. "AltReg Rate Designs Address Declining Average Gas Use" (with Lullit Getachew, David Hovde and Steve Fenrick), *Natural Gas & Electricity*, April 2008.
38. "Price Control Regulation in North America: Role of Indexing and Benchmarking", Electricity Journal, January 2009
39. "Statistical Benchmarking in Utility Regulation: Role, Standards and Methods," (with Lullit Getachew), Energy Policy, 2009.
40. "Alternative Regulation, Benchmarking, and Efficient Diversification", USAEE Dialogue, August 2009.
41. "The Economics and Regulation of Power Transmission and Distribution: The Developed World Case" (with Lullit Getachew), in Lester C. Hunt and Joanne Evans, eds., International Handbook on the Economics of Energy, 2009.
42. "Econometric TFP Targets, Incentive Regulation and the Ontario Gas Distribution Industry," Review of Network Economics, December 2009.

Professional Presentations:

1. American Institute of Mining Engineering, New Orleans, LA, March 1986
2. International Association of Energy Economists, Calgary, AL, July 1987
3. American Agricultural Economics Association, Knoxville, TN, August 1988
4. Association d'Econometrie Appliqué, Washington, DC, October 1988
5. Electric Council of New England, Boston, MA, November 1989
6. Electric Power Research Institute, Milwaukee, WI, May 1990
7. New York State Energy Office, Saratoga Springs, NY, October 1990
8. National Association of Regulatory Utility Commissioners, Columbus, OH, September 1992
9. Midwest Gas Association, Aspen, CO, October 1993
10. National Association of Regulatory Utility Commissioners, Williamsburg, VA, January 1994
11. National Association of Regulatory Utility Commissioners, Kalispell, MT, May 1994
12. Edison Electric Institute, Washington, DC, March 1995
13. National Association of Regulatory Utility Commissioners, Orlando, FL, March 1995
14. Illinois Commerce Commission, St. Charles, IL, June 1995
15. Michigan State University Public Utilities Institute, Williamsburg, VA, December 1996
16. Edison Electric Institute, Washington DC, December 1995
17. IBC Conferences, San Francisco, CA, April 1996
18. AIC Conferences, Orlando, FL, April 1996
19. IBC Conferences, San Antonio, TX, June 1996
20. American Gas Association, Arlington, VA, July 1996
21. IBC Conferences, Washington, DC, October 1996
22. Center for Regulatory Studies, Springfield, IL, December 1996
23. Michigan State University Public Utilities Institute, Williamsburg, VA, December 1996
24. IBC Conferences, Houston TX, January 1997

25. Michigan State University Public Utilities Institute, Edmonton, AL, July 1997
26. American Gas Association, Edison Electric Institute, Advanced Public Utility Accounting School, Irving, TX, Sept. 1997
27. American Gas Association, Washington, DC [national telecast], September 1997
28. Infocast, Miami Beach, FL, Oct. 1997
29. Edison Electric Institute, Arlington, VA, March 1998
30. Electric Utility Consultants, Denver, CO, April 1998
31. University of Indiana, Indianapolis, IN, August 1998
32. Edison Electric Institute, Newport, RI, September 1998
33. University of Southern California, Los Angeles, CA, April 1999
34. Edison Electric Institute, Indianapolis, IN, August 1999
35. IBC Conferences, Washington, DC, February 2000
36. Center for Business Intelligence, Miami, FL, March 2000
37. Edison Electric Institute, San Antonio, TX, April 2000
38. Infocast, Chicago, IL, July 2000
39. Edison Electric Institute, July 2000
40. IOU-EDA, Brewster, MA, July 2000
41. Infocast, Washington, DC, October 2000
42. Wisconsin Public Utility Institute, Madison, WI, November 2000
43. Infocast, Boston, MA, March 2001
44. Florida 2000 Commission, Tampa, FL, August 2001
45. Infocast, Washington, DC, December 2001
46. Canadian Gas Association, Toronto, ON, March 2002
47. Canadian Electricity Association, Whistler, BC, May 2002
48. Canadian Electricity Association, Montreal, PQ, September 2002
49. Ontario Energy Association, Toronto, ON, November 2002
50. Canadian Gas Association, Toronto, ON, February 2003
51. Louisiana Public Service Commission, Baton Rouge, LA, February 2003
52. CAMPUT, Banff, ALTA, May 2003
53. Elforsk, Stockholm, Sweden, June 2003
54. Edison Electric Institute, national e forum, June 2003
55. Eurelectric, Brussels, Belgium, October 2003
56. CAMPUT, Halifax, May 2004
57. Edison Electric Institute, national eforum, March 2005
58. Edison Electric Institute, Madison, August 2005
59. Edison Electric Institute, national e forum, August 2005
60. Edison Electric Institute, Madison, WI, August 2006
61. EUCI, Arlington, VA, 2006
62. EUCI, Arlington, VA, 2006 [Conference chair]
63. EUCI, Seattle, WA, 2007. [Conference chair]
64. Massachusetts Energy Distribution Companies, Waltham, MA, July, 2007.
65. Edison Electric Institute, Madison, WI, July-August 2007.
66. Institute of Public Utilities, Lansing, MI, 2007.
67. EUCI, Denver, CO, 2008. [Conference chair]
68. EUCI, Chicago, IL, 2008. [Conference chair]
69. EUCI, Toronto, ON, 2008. [Conference chair]
70. Edison Electric Institute, Madison WI, August 2008
71. EUCI, Cambridge, MA, March 2009 [Conference chair]
72. Edison Electric Institute, national eforum, May 2009
73. Edison Electric Institute, Madison WI, July 2009

74. EUCI, Cambridge, MA, March 2010[,Conference chair]
75. Edison Electric Institute, Madison, WI, July 2010
76. EUCI, Toronto, ON, November 2010[Conference chair]
77. Edison Electric Institute, Madison, WI, July 2011
78. EUCI, Philadelphia, PA, November 2011 [Conference chair]
79. Edison Electric Institute, Madison, WI, July 2012
80. EUCI, Chicago, IL, forthcoming [Conference chair]

Journal Referee:

Agribusiness
American Journal of Agricultural Economics
Energy Journal
Journal of Economic Dynamics and Control
Materials and Society