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June 1, 2006

**Via HAND DELIVERY**

The Honorable Vernon A. Williams  
Secretary  
Surface Transportation Board  
1925 K Street, NW  
Washington, DC 20423



Re: **Major Issues in Rail Rate Cases, STB Ex Parte No. 657 (Sub-No. 1)**  
**Reply Comments of BNSF Railway Company**

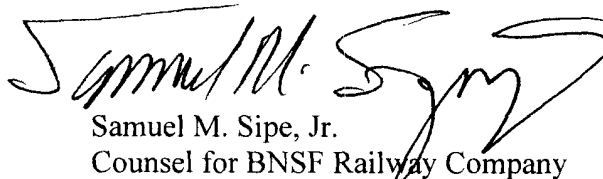
Dear Secretary Williams:

BNSF Railway Company ("BNSF") attempted to file a physical copy of the Reply Comments of BNSF Railway Company and related materials with the Board at approximately 3:00 p.m. on May 31, but was unable to complete the filing because the Board's building was closed due to a broken water main. Shortly thereafter, BNSF filed a .pdf version of its Reply Comments using the Board's electronic filing system. Copies of the Reply Comments were served on interested parties on May 31. BNSF is now submitting the paper copy of its filing, as well as CDs containing electronic versions.

Enclosed are the original and twenty copies of the Reply Comments of BNSF Railway Company submitted in response to the Board's Notice of Proposed Rulemaking dated February 27, 2006 in the above-captioned proceeding. Also enclosed are three CDs containing PDF copies of these Reply Comments and three CDs containing electronic versions of BNSF's Reply Comments in Word format.

Please date stamp the extra copy of this letter and return it with our messenger.

Sincerely,

  
Samuel M. Sipe, Jr.  
Counsel for BNSF Railway Company

Enclosures

cc: Parties of Record

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**BEFORE THE  
SURFACE TRANSPORTATION BOARD**

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

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**MAJOR ISSUES IN RAIL RATE CASES**

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**REPLY COMMENTS OF  
BNSF RAILWAY COMPANY**

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May 31, 2006

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BNSF RAILWAY COMPANY

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**BEFORE THE  
SURFACE TRANSPORTATION BOARD**

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

**MAJOR ISSUES IN RAIL RATE CASES**

**REPLY COMMENTS OF  
BNSF RAILWAY COMPANY**

On May 1, 2006, BNSF Railway Company ("BNSF") submitted comments addressing the rules proposed by the Board in the February 27, 2006 Notice of Proposed Rulemaking in Ex Parte No. 657 (Sub-No. 1), *Major Issues In Rail Rate Cases* ("NPRM"), regarding the application of the SAC test in rail rate cases and the procedures for reopening and vacating existing rate prescriptions. The Board also received comments from other railroads, shippers, shipper associations, and government agencies. BNSF hereby submits its reply comments addressing the opening comments of other parties in this proceeding.

**I. INTRODUCTION**

More than a quarter of a century after the Staggers Act, shippers and their advocates continue to deny the basic principles that govern the Board's regulation of railroad rates. There is a pervasive sense in the shippers' comments that rate prescriptions should be favored over market-based rates, that railroads should be restrained from setting rates based on market forces, and that differential pricing should be severely restricted because it is unfair to shippers with high demand for rail services. The shippers' emphasis on regulation and disregard for market-based rate setting would turn the statute on its head. In the Staggers Act, Congress sought to *remove* the burdens of regulation that had produced ruinous financial results for the Nation's railroads. Congress expressly instructed the Board to "allow, to the maximum extent possible,

competition and the demand for services to establish reasonable rates for transportation by rail.” 49 U.S.C. §10101(1). Congress also instructed the Board to assist railroads to achieve revenue adequacy. 49 U.S.C. §10704(a)(2). There is no dispute that revenue adequacy can only be achieved if railroads are permitted to engage in differential pricing.

The scheme of regulation under the current statute is to give railroads the freedom to set rates based on market forces. Rate regulation is limited to circumstances where there is an abuse of market power. It is not an abuse of market power for a railroad to set differential prices based on perceived demand for service by individual shippers. Differential pricing is critical to the financial viability of the railroad industry and it has been at the heart of regulatory policy since the Staggers Act. Nothing has changed in the railroad industry to make differential pricing any less important now. The Board and its predecessor have repeatedly stated that railroads can recover their substantial joint and common costs only by setting relatively high prices for shippers with high demand for rail service.

Some shippers and their advocates suggest that railroads no longer need to engage in differential pricing because they have already achieved revenue adequacy. *See, e.g.*, Verified Statements of Curtis M. Grimm, at 1-2 (“Grimm Op. VS”) and George H. Borts, at 1-2, (“Borts Op. VS”), attached to the Joint Opening Comments of Western Coal Traffic League, Concerned Captive Coal Shippers, Western Fuels Association, Inc, Edison Electric Institute, National Rural Electric Cooperative Association & American Public Power Association (hereinafter “WCTL” or “Coal Shippers”). This claim flies in the face of the Board’s own revenue adequacy findings. The Board cannot ignore its calculations showing that the Nation’s largest railroads are not consistently earning their cost of capital. If railroads cannot earn their cost of capital on a sustained basis, their ability to provide the services that shippers demand is at risk. The Board’s

standards for measuring revenue adequacy are not at issue in this proceeding. If shippers believe that a different revenue adequacy standard should be used, they should seek to convene a separate rulemaking proceeding to address that issue. In the meantime, the Board must be guided by its findings that no Class I railroad has become revenue adequate on a sustained basis.

It is particularly important for the Board carefully to consider the impact of regulatory policy on the adequacy of railroad revenues now, since it is widely agreed that rail capacity needs to be expanded in the face of growing demand. As the Department of Transportation noted in its comments, "[t]he single most critical problem facing railroads today, if not the entire freight transportation industry, is providing the capacity to handle growing demand for transportation." Initial Comments of the United States Department of Transportation at 2 ("DOT Op. Comments"). Railroads can meet this growing demand only if they have revenues that are adequate to fund the costly expansion of their capacity. Regulation that cuts railroad revenues by restricting differential pricing would limit the ability of railroads to make capital investments and therefore would be detrimental to the community of railroad users. The Board regulates railroads in the broad public interest, and the public's interest is in a financially healthy railroad industry that can make the investments necessary to ensure adequate transportation service.

The shippers' comments also assert that the Board has shown a pro-railroad bias in recent coal rate cases. This claim is demonstrably wrong. Where complaints have been dismissed, it has been the result of ill-conceived SAC presentations where the shippers have sought to test the outer limits of the SAC test. The recent upsurge in litigation has not been the result of any market dislocation but rather has resulted from a widespread view that the SAC standard is capable of manipulation, particularly on the issue of cross-over traffic. Rail rate increases have been modest, considering the strong increases in demand. Rail rates have increased far less than

price increases in related energy markets, such as the market for oil, natural gas and coal. *See* Verified Statement of Darius W. Gaskins, Jr. at 9 (“Gaskins Op. VS”) attached to the Comments of BNSF Railway Company (“BNSF Op. Comments”). Moreover, where shippers have prevailed in the recent cases, the Board has set rates very low – at or near the jurisdictional threshold.

The commenting shippers also repeat their complaint over the Board’s decision to address issues of SAC methodology in a rulemaking proceeding. The shippers’ disapproval of rulemakings reflects their hostility toward the economic principles underlying the SAC test. A rulemaking proceeding allows the Board to evaluate and adopt standards based on a broad and careful examination of the economic principles that are supposed to guide the Board’s regulation of railroad rates. Shippers have apparently concluded that they can achieve better results when SAC issues are addressed in individual cases, where complex and difficult issues of economic policy may take a back seat to the myriad evidentiary issues that must be decided. It is appropriate for the Board to step back and ask for interested parties’ views on broader, recurring issues of SAC methodology.

As BNSF noted in its opening comments, this rulemaking proceeding does not cover all of the issues that BNSF believes should be addressed in a full review of SAC methodology. And the shippers, while opposing the rulemaking, also – inconsistently – ask the Board to expand the scope of the rulemaking to cover additional issues, including the Board’s cross-subsidy test, the treatment of debt amortization and the extent to which new SAC methodologies will be considered in the reopening of an existing rate prescription. The Board’s rulemaking could have been more comprehensive, but it was not. Given the scope of the Board’s initial notice and the fact that the Board has not chosen to expand it, there are limits to the issues that can be addressed

in this proceeding. *See, e.g., Environmental Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005). Unless the scope of the rulemaking is expanded by order of the Board and an opportunity is given to all parties to comment on specific new proposals, the Board must limit the scope of this rulemaking to the issues specifically identified in the February 27, 2006 NPRM.

BNSF's reply comments follow the same format as its opening comments. BNSF addresses the opening comments of other parties on each of the Board's six proposals in sections II through VII below. BNSF responds briefly to the Coal Shippers' comments on the cross-subsidy issue in Section VIII. BNSF's reply comments are also supported by verified statements of Professors Kalt and Willig and Messrs. Klick and Baranowski, all of whom presented testimony on BNSF's behalf on opening. In addition, these reply comments are supported by a verified statement of Martin M. Baily, a Senior Fellow at the Institute for International Economics and an Academic Advisor to the Congressional Budget Office, who addresses the economic issues raised by the shippers' comments on the question of productivity that would be experienced by a SARR.

## **II. MAXIMUM RATE DETERMINATION**

### **A. Railroad Commenters Agree That The Board's Proposals Are Flawed**

The most extensive railroad comments on the Board's proposed MCM and MMM approaches to setting a maximum rate were from BNSF. On opening, BNSF and its expert witnesses explained at length why both approaches were fundamentally inconsistent with differential demand-based pricing and the contestable market principles embraced by the *Guidelines*.<sup>1</sup> BNSF showed that the effect of the Board's proposals would be to drive rates on railroads' most demand inelastic traffic down to a common level, in violation of the economic

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<sup>1</sup> *Coal Rate Guidelines – Nationwide*, 1 I.C.C.2d 520 (1985)(“*Guidelines*”).

principles that govern railroad rate regulation, longstanding agency and court decisions, and several explicit provisions of the governing statute. BNSF also showed that the sole rationale for proposing to depart from the percent reduction methodology was an unsupported presumption that railroads will attempt to “game” the results of a SAC analysis in setting a common carrier rate. There is no evidence that would support such a conclusive presumption, which in any event is at odds with a railroad’s statutory right to set rates of its own choosing in the first instance.<sup>2</sup>

The joint comments of Norfolk Southern and CSX similarly note that “there is simply no evidence that the hypothetical concern addressed by the Board’s proposed alternatives to the [percent reduction methodology] . . . is a real problem that requires abandonment of the fundamentally sound approach that the [percent reduction methodology] takes to allocating excess revenues across the users of a stand-alone railroad system.”<sup>3</sup> As to the Board’s proposed solution to this nonexistent problem, NS and CSX note that under both of the Board’s approaches, the railroads’ existing rate structure is destroyed because lower rates do not change while higher rates are forced to a common level.<sup>4</sup> As Norfolk Southern and CSX properly note, the principles of demand-based differential pricing and contestability dictate that any rate reduction methodology should produce lower rates for all movements in a SARR’s traffic group when an overcharge has been demonstrated while preserving to the extent possible the existing rate relationships in the railroad’s rate structure. UP similarly expresses concern in its comments that MCM and MMM “depart from the concept of differential pricing, which lies at the very core

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<sup>2</sup> See generally BNSF Op. Comments, at 18-45; Verified Statement of Joseph P. Kalt, at 4-34 (“Kalt Op. VS”); Verified Statement of Robert D. Willig, at 5-27 (“Willig Op. VS”); Verified Statement of John C. Klick, at 3-23 (“Klick Op. VS”).

<sup>3</sup> Joint Comments of Norfolk Southern Railway Co. and CSX Transportation Co., at 4 (“NS/CSXT Op. Comments”).

<sup>4</sup> *Id.*, at 6.

of the approach the agency has properly taken to rate regulation in the past.”<sup>5</sup> UP notes, in addition, that these approaches closely resemble the “ton-mile method” and “ratio method” that the ICC rejected more than 20 years ago.<sup>6</sup>

**B. The Shippers Advocate That The Board Should Abandon Percentage Reduction And Adopt No Fixed Approach As A Replacement**

The most extensive shipper comments on the rate reduction issue are contained in the Coal Shippers Opening Comments. First, the Coal Shippers support the Board’s proposal to discontinue use of the percent reduction methodology. While they refer to the Board’s “gaming” rationale for seeking alternatives to the percent reduction methodology, they point to no evidence that such “gaming” has actually occurred. The Coal Shippers discuss the issue briefly in a single paragraph. Indeed, the Coal Shippers make it clear that their real purpose in seeking to eliminate the percent reduction methodology is to eliminate a railroad’s ability to engage in differential pricing. This should be troubling to the Board. The Board’s proposal was prompted by shippers’ repeated claims about the possibility of railroad gaming, and now it is clear that the shippers have in fact been searching for a back door way of eliminating differential pricing, which is a bedrock principle in the *Guidelines*.

The Coal Shippers’ tortured argument is that the SARR is, by definition, a revenue *adequate* railroad, while differential pricing is only allowed for revenue *inadequate* railroads. “By continuing to maintain a differential pricing profile attributable to a revenue inadequate incumbent for the revenue adequate SARR, the percent reduction method offends this essential principle of the Guidelines.”<sup>7</sup> In other words, once a railroad is found to have charged a rate that

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<sup>5</sup> Opening Submission of Union Pacific Railroad Co, at 20 (“UP Op. Comments”).

<sup>6</sup> The Coal Shippers’ comments suggest in passing that MMM and MCM are consistent with Ramsey pricing principles, but make no effort to actually demonstrate such consistency.

<sup>7</sup> Coal Shippers Op. Comments, at 16.

exceeds a reasonable maximum rate, its prices must be set as though it were a revenue adequate SARR that is no longer permitted to price differentially based on shipper demand.

What this argument ignores is that the issue traffic rate is being set for a revenue inadequate railroad. The *Guidelines* unambiguously endorsed demand-based pricing as the “essential principle” governing the Board’s regulation of rates for railroads that are revenue inadequate. The ICC acknowledged that a demand-based pricing structure must be preserved if a railroad is to have any chance to achieve revenue adequacy. As the ICC explained in the 1983 *Guidelines*, “[i]t is only through a demand-based pricing system that the nonattributable costs can be allocated in an efficient manner.”<sup>8</sup> The ICC explicitly stated that a railroad’s demand-based pricing system must be preserved in the setting of a maximum rate even if the challenged rates are found to exceed a SAC maximum rate: “In considering a rate prescription and/or reparations, we will attempt to provide an effective remedy for the complaining shipper, but in a manner that would not introduce further distortion into the carrier’s pricing structure.” *Guidelines* at 548. Preservation of the railroad’s basic pricing structure, which is accomplished through the percent reduction methodology, was the express goal of the ICC in the *Guidelines*.

Second, the Coal Shippers state that the Board’s proposed alternative methodologies are “superior to the percent reduction formula,” but they urge the Board not to adopt a single, standard methodology in place of the percent reduction methodology. Instead, they assert that the Board “should consider alternative methodologies that may be developed and proposed in individual proceedings.” Coal Shippers Op. Comments at 17. The two shippers with pending cases who filed comments – AEP Texas and Western Fuels/Basin Electric – each advocate that

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<sup>8</sup> *Coal Rate Guidelines – Nationwide*, Ex Parte No. 347 (Sub-No.1), slip op. at 9 (Feb. 8, 1983).

the approaches they proposed in their individual cases should be accepted as “appropriate,” but non-exclusive, methodologies.

In his attached statement, Professor Kalt explains why the open-ended, results-oriented approach advocated by the shippers is senseless from a regulatory and public policy perspective. The economic principles underlying the *Guidelines* are general and can be applied across the spectrum of cases. They provide a rational framework and add coherence and predictability to the regulatory process. Abandoning the *Guidelines* for a case-by-case approach with no governing principles would undermine the regulatory process and produce negative consequences for the economy as a whole.

The Board’s proposed changes to the percent reduction methodology purport to stem from a concern over the possibility of railroad manipulation of the SAC process. But the history of recent cases demonstrates that the real manipulation problem has been created by shippers who construct grotesquely distorted SARRs with huge volumes of cross-over traffic that make minimal use of the SARR but nevertheless generate vast revenue windfalls. The Coal Shippers’ proposal that the Board permit complainants to use different rate reduction methods in different cases is an obvious attempt to preserve the ability to manipulate the SAC process. It is an invitation to the Board to unleash wholesale gaming upon rate cases by permitting shippers to choose, without any governing rules, whatever approach results in the lowest rates in a particular case.

### **C. Alternatives To Percent Reduction Proposed By Shippers Are Flawed**

#### **1. AEP Texas**

AEP Texas purports to resubmit in this proceeding for adoption “as an acceptable approach to the allocation of rate relief” the General Percent Reduction Methodology (“GPRM”) that it advocated in STB Docket No. 41191 (Sub-No. 1). Opening Comments of AEP Texas

North Company, at 8 (“AEP Texas Op. Comments”). AEP Texas promotes GPRM as a modification to the percent reduction methodology that allocates rate relief in proportion to the ratio of price markups over marginal cost. *Id.* at 11. In fact, AEP Texas did not promote a single or consistent GPRM approach in Docket No. 41191. Rather, AEP Texas proposed, on opening, an approach that was described as reducing rates in proportion to mark up over marginal cost but which, as applied, actually set all rates for higher-rated traffic to the same revenue to marginal cost ratio.<sup>9</sup> AEP Texas defended that approach on rebuttal, but then proposed a new allocation method in its brief in violation of the Board’s rules governing the scope of final briefs. For purposes of this proceeding, AEP Texas appears to be proposing that the Board adopt the GPRM approach as modified by AEP Texas in its brief. AEP Texas Op. Comments at 13-14.<sup>10</sup>

AEP Texas argues that GPRM is consistent with Ramsey pricing principles because it focuses on the markup over marginal cost rather than absolute rate levels. But two fatal defects render the approach unworkable. First, the markup over marginal cost under Ramsey pricing is related to demand. But GPRM considers the supposed markup over marginal costs only for the cross-over portion of a movement, not for the through movement. There is no shipper demand for a portion of a through movement. The Board’s own precedent confirms that it is inappropriate to view the revenue allocated to the SARR for its portion of a movement as a rate

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<sup>9</sup> See BNSF Reply Nar. at III.G-40 to 41. Such an approach would be similar to the Board’s MMM proposal and would suffer from the defects of that proposal as described in the opening statements of Professors Willig and Kalt and Mr. Klick.

<sup>10</sup> Some confusion remains because AEP Texas attaches as an exhibit to its comments Exhibit III-H-1 from its opening evidence in Docket No. 41191. AEP Texas describes the exhibit as “[a]n example of the calculation of the resulting percent markups for each movement.” AEP Texas Op. Comments at 13. In fact, the exhibit shows nothing of the kind. Instead, it is the typical DCF exhibit presented in rate cases with an extra column added to Table L to report what purports to be a GPRM SAC rate. That GPRM SAC rate was not calculated using the approach described in AEP Texas’ brief, but instead was calculated using the flawed iterative approach that reduced all highly-rated traffic to a common R/VC ratio that AEP Texas appeared to have abandoned by the time it filed its final brief.

that reflects demand for through transportation, or as in any way reflective of shipper demand. In the *Bottleneck*<sup>11</sup> decision, the Board declined to allow shippers to force railroads to establish local rates over bottleneck portions of a through route because, in part, it recognized that a shipper's demand was for origin to destination transportation, not transportation over a specific routing or segment. Quoting *Great Northern Ry. Co. v. Sullivan*, 294 U.S. 458, 463 (1935), the Board affirmed that "[t]he shipper's only interest is that the charge shall be reasonable as a whole." 1 S.T.B. at 1072 (internal quotation marks omitted).

Shipper demand is for a through movement, therefore Ramsey prices would make sense, if they could be calculated, only for the through movement. Mr. Klick explains in his reply verified statement that if it were not for the difficulty in calculating marginal costs – one of the reasons that the ICC concluded that true Ramsey pricing could not be implemented as a regulatory standard – a Ramsey-type rate reduction approach would have to focus on the markup over marginal costs *on the through movement*. Thus, a Ramsey-based approach would first assume that the SAC analysis using cross-over traffic identifies the dollar amount of any overcharge by the incumbent on the movements included in the SARR traffic group. As Mr. Klick explains, this assumption – that the overcharge would not be larger if the SARR were extended – is reasonable in light of the fact that the complainant chose not to build out to include a larger portion of the through movement in the SARR and in light of the incumbent's real world revenue inadequacy. The dollar overcharge thus identified in the cross-over analysis could then be eliminated by applying an equal percentage reduction to the markup over marginal cost on the

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<sup>11</sup> *Central Power & Light Co. v. Southern Pacific Transportation Co.*, 1 S.T.B. 1059 (1996), *clarified*, 2 S.T.B. 235 (1997), *aff'd sub nom. MidAmerican Energy Co. v. STB*, 169 F.3d 1099 (8th Cir. 1999).

through movement, thereby preserving the relative demand-based markups (on the through movements) for the group of shippers in the SARR traffic group.

But the second problem with GPRM, relating to the calculation of marginal cost, is insurmountable. An accurate calculation of marginal costs for specific movements is an essential requirement for any Ramsey-based pricing system. GPRM is based on calculating an exceedingly crude URCS-based proxy for marginal cost. BNSF witnesses Kalt, Willig and Klick address in detail the numerous pitfalls involved in attempting to use URCS variable cost calculations as a proxy for true marginal costs.

AEP Texas acknowledges that accurate calculation of marginal costs for each member of a SARR traffic group would be "extremely burdensome." AEP Texas Op. Comments at 11. AEP Texas reasons, however, that it does not matter whether the calculation is accurate, because all that is necessary is to know the relationship between "comparable markups above similarly determined cost levels." *Id.* at 12. That argument is obviously flawed. If marginal costs do not really matter in Ramsey pricing, then why would Ramsey prices focus on the markup over marginal cost? Professor Kalt demonstrates in his reply statement the importance of an accurate calculation of marginal costs in Ramsey pricing. Moreover, as Mr. Klick points out in his reply statement, the ICC recognized that an accurate calculation of marginal costs for particular through movements would be necessary for any Ramsey-based pricing scheme, and that is one of the reasons it did not adopt pure Ramsey pricing as the model for maximum rate regulation.

As an alternative to pure Ramsey pricing, the ICC adopted an approach to maximum rate regulation that allowed railroads to set rates in the first instance based on perceived market demand, and then, if those demand-based prices were shown to generate excessive revenues for a group of shippers, to reduce those demand-based prices to eliminate the overcharge while

preserving the railroad's price structure as much as possible. *See Guidelines* at 548. The Board's percent reduction methodology reflects this regulatory approach and it should continue to be used in SAC cases.

## **2. Arkansas Electric Cooperative**

Arkansas Electric Cooperative, through its witness Michael A. Nelson, proposes that the Board adopt a variant of MMM based on fixed-dollar allocations and train miles.<sup>12</sup> Under the proposed approach, the SARR's costs in excess of variable costs are allocated among shippers on a dollar-per-train-mile basis. The iterative approach proposed by the Board is followed so that no shipper is required to pay more than its existing rate. Mr. Nelson asserts that the approach is reasonable because train-miles are a more accurate measure of the rail capacity used by each shipper and because the approach would encourage shippers to use a smaller number of longer, heavier trains.

Mr. Klick points out in his reply statement that Mr. Nelson's approach suffers from the defects in MMM that were identified in BNSF's opening comments. In addition, selecting train-miles as the measure for allocating unattributable costs is no less arbitrary than ton-miles or car-miles because all of these measures are divorced from the demand elasticities of individual shippers. Ignoring demand does not comply with Ramsey principles. The proposed approach also does not preserve the incumbent's rate structure.

## **3. Western Fuels/Basin Electric**

WFA/Basin ask the Board to adopt as appropriate rate reduction methods the two approaches submitted by them in Docket No. 42088. They label these the Reasonable Allocation Method ("RAM") and the "Reduced Mark-Up." Neither approach is valid.

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<sup>12</sup> Written Testimony of Michael A. Nelson on Behalf of Arkansas Electric Cooperative Corporation, at 5-8 ("AECC Op. Comments").

**a. RAM**

WFA/Basin's RAM approach divides a SARR's traffic group into two groups, designated captive and non-captive. All shippers receive revenues sufficient to cover their variable costs. However, responsibility for all unattributable SARR costs is assigned to the so-called captive shippers. The unattributable costs are distributed on a pro-rata ton-mile basis to the shippers labeled captive and then combined with each shipper's variable cost to identify the maximum rate level for each shipper.

WFA/Basins' RAM approach is similar to the Board's MCM approach in that demand for service by individual shippers is utterly ignored. It therefore suffers from the defects of MCM that were pointed out in BNSF's opening comments and the statements of witnesses Willig, Kalt, and Klick. For example, RAM assumes that all shippers designated as captive exhibit identical demand characteristics and that all shippers designated as non-captive exhibit identical demand characteristics. RAM assumes that all captive shippers will pay the same dollar-per-ton mile markup. But as BNSF pointed out in its opening comments, the ICC and the Board have long recognized that demand varies widely among railroad shippers, even among so-called captive shippers. In addition, the statement of Dr. Darius Gaskins submitted by BNSF on opening demonstrates that demand varies widely even among shippers that would be considered captive under RAM. For shippers designated non-captive, RAM assumes that there would be no mark-up over variable cost.

RAM violates the *Guidelines* by imposing on railroads a rate structure that disregards altogether a railroad's demand-based prices. Setting one group of rates (non-captive) equal to variable cost while forcing the other group of rates (captive) to an average rate per ton-mile is completely inconsistent with what would occur if Ramsey principles were applied to reduce rates. As BNSF and its witnesses indicated in their prior filings, if Ramsey principles were

applied, differences in demand elasticity among sole-served shippers would produce different markups, in inverse proportion to demand elasticity, if an overcharge was found. Assuming that a railroad's existing price structure is based on perceived differences in demand elasticity among shippers, application of Ramsey principles would not produce a fundamentally different rate structure, as RAM would do, if overall revenue levels had to be reduced. RAM also distorts the pricing structure because of its treatment of shippers who have more than one rail alternative. It is quite possible that many of these "non-captive" shippers would be willing and able to contribute some amount above their variable costs, but RAM assumes that they cover only their variable costs.

In the attached reply statement, Professor Kalt, who addressed the deficiencies in RAM in Docket No. 42088, further describes the deficiencies in RAM. Professor Kalt explains how RAM is inconsistent with demand-based differential pricing, Ramsey pricing, and contestable market principles.

**b. Reduced Mark-Up**

WFA/Basin's alternative proposal is the Reduced Mark-Up method. This approach is similar to the GPRM approach advocated by AEP Texas, except that it does not purport to calculate marginal cost. Rather, the "profit contribution" for each shipper – defined as the difference between the SARR's variable cost and revenue – is calculated and reduced in equal proportion to eliminate any excess of SAC over revenues. WFA/Basin continue to assert that RAM is their preferred approach.

The Reduced Mark-Up approach shares with GPRM the obvious defect that it is applied to a cross-over movement where revenues have been arbitrarily assigned to the SARR. The markup, or "profit contribution," that is the focus of this methodology says nothing about shipper

demand for service, because there is no shipper demand for a portion of a through movement. It is simply not possible to apply Ramsey principles to cross-over traffic.

Another major defect in Reduced Mark-Up is its focus on variable cost of the SARR. As discussed previously, variable costs calculated using URCS are not a good measure of marginal cost, which must be identified if Ramsey-based prices are to be constructed. But the Reduced Mark-Up approach distorts the marginal cost calculation even further by using the variable costs of the SARR, which are not the same as that of the incumbent. If the objective of a Ramsey-based approach is to maintain the relative markups in the traffic group based on the incumbent's perception of relative demand elasticity, then the use of a marginal cost calculation based on something other than the incumbent's marginal costs makes no sense at all. The multiple defects in Reduced Mark-Up clearly make it unusable as an approach to determining maximum reasonable rates.

### **III. REVENUE ALLOCATION FOR CROSS-OVER TRAFFIC**

#### **A. Introduction**

On opening, BNSF and its expert witnesses supported the Board's proposal to discontinue use of the Modified Straight-Mileage Prorate ("MSP") methodology for allocating revenues on cross-over traffic. As BNSF explained, that methodology has several shortcomings, including its failure to consider the impact of density on cost, that encourage the use of highly contrived SARR configurations dominated by short-haul traffic and that create bias in the SAC results. In lieu of the MSP methodology, BNSF proposed adoption of an approach based on contestability principles to determine the SARR's revenues on cross-over traffic. This approach, which calculates revenues on cross-over traffic based on the incumbent's avoided cost for the portion of a movement handled by the SARR, was described by Professor Kalt in BNSF's opening comments. Union Pacific Railroad Company ("UP") proffered a similar approach based

on the principle of efficient component pricing ("ECP").<sup>13</sup> BNSF also stated that if the Board decides not to base revenues on cross-over traffic on contestable market principles, but rather to allocate through revenues based on relative on-SARR and off-SARR costs, then the Board should adopt the Average Total Cost ("ATC") approach that it proposed in its NOPR. The ATC approach is superior to MSP in that it takes account of the important relationship between density and costs and reduces incentives to game the SAC process by relying on large volumes of very short-haul cross-over traffic that benefits from the 100-mile revenue credit for originating cross-over traffic.

The shippers argue that the Board should reject the ATC approach. Most shippers contend that the Board should continue to use the MSP approach or its predecessor, the Modified Mileage Prorate ("MMP") approach to allocate revenues on cross-over traffic. The primary comments submitted by the shippers on the issue of cross-over traffic revenue allocation are the Coal Shippers Op. Comments. The Coal Shippers Comments on cross-over revenue allocation were also incorporated into the separate comments of several other shippers.<sup>14</sup>

The shippers' support for MSP and MMP is based upon several faulty premises, including the following: (1) the *Guidelines* as properly construed by ICC/STB precedent up to 2003 require that the methodology for allocating revenue to the SARR on cross-over traffic be a market-based approach reflecting real world divisions, and that the MSP/MMP approaches used by the Board are good proxies for real world divisions; (2) a cost-based approach to determining revenue allocations on cross-over traffic is inconsistent with the *Guidelines* and supposedly undermines shippers' entitlement to the use of cross-over traffic, and (3) the specific cost-based

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<sup>13</sup> UP Op. Comments at 29-31 and attached Verified Statement of Kevin Neels (hereafter "Neels Op. VS") at 14-17.

<sup>14</sup> Additional Opening Comments of Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc., at 25 ("WFA/Basin Op. Comments"); AEP Texas Op. Comments at 3.

approach proposed by the Board, the ATC approach, has various flaws, including the flaws that led the Board to reject DARA. As explained below, none of these arguments is supported by the *Guidelines*, ICC/Board precedent or relevant economic theory. BNSF addresses each of these arguments in turn.

Another shipper, Arkansas Electric Cooperative Corporation ("AECC"), proposes an alternative methodology for determining the SARR's revenues on cross-over traffic that would provide the SARR with the full contribution over total variable costs realized by the incumbent on the entire through movement. AECC acknowledges that if its proposed methodology were adopted, rail rates would likely be set at the jurisdictional threshold in SAC cases. As explained below, the Board should reject this proposed methodology because it is inconsistent with principles of contestability.

Finally, a few shippers, WFA/Basin and AEP Texas, submitted comments addressing the issue whether the ATC approach should be applied in pending cases if adopted by the Board. WFA/Basin take the position that it would be manifestly unfair for the Board to apply the ATC approach to the pending WFA/Basin case because doing so would require the submission of a new case. In taking this position, WFA/Basin essentially concede that they used the MSP methodology to "game" the results of the SAC analysis by relying heavily on short-haul cross-over traffic to skew the SAC results in their favor. The Board should not sanction such attempts to manipulate the SAC test by giving the complainant another opportunity to present evidence when its strategy is revealed.

**B. Revenue Allocation Based On Real World Divisions Is Not Called For By The *Guidelines*, Economic Theory, Or ICC/Board Precedent**

The Coal Shippers argue that the principles endorsed by the *Guidelines*, as construed by ICC/STB precedent up to 2003, require that the Board adopt a market-based approach reflecting

real world divisions as the methodology for allocating revenue on cross-over traffic. *See, e.g.,* Coal Shippers Op. Comments at 26-33, 43-48. Specifically, the shippers argue that use of real-world divisions, or a proxy for real-world divisions like MSP/MMP, conforms to “certain basic principles underlying the *Guidelines*.” *Id.* at 27. One such principle, according to the Coal Shippers, is that “the SARR is an independent replacement for the defendant carrier over the involved SARR route.” *Id.* The Coal Shippers’ theory is that since the SARR replaces the incumbent for a portion of through movements on cross-over traffic, the SARR would have to engage in bi-lateral negotiations with the incumbent to determine the SARR’s share of revenue for its portion of the movement. In those negotiations, both parties would use their market power, just as real-world railroads do, to produce results most favorable to them. *Id.* at 27-28; 32-33.

As discussed below, the Coal Shippers’ theory is entirely at odds with contestable market theory. Similarly, their claim that the Board impermissibly broke with precedent in rejecting the use of real-world divisions in favor of a cost-based approach is demonstrably inaccurate. *Id.* at 32-33, 38, 43.

**1. A Revenue Allocation Methodology Based On Real World Divisions Is Inconsistent With Contestable Market Theory**

Contrary to the shippers’ claims, contestable market theory does not support a revenue allocation methodology for cross-over traffic based on real-world divisions. As Professor Borts, the Coal Shippers’ expert, admits, the most basic principle of contestable markets is that the participants lack market power that is derived from the existence of entry and exit barriers.<sup>15</sup> It would turn contestable market theory on its head to posit SARR revenue divisions based on the outcome of negotiations between real world carriers that use their respective market power to

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<sup>15</sup> Borts Op. VS at 3.

influence the results. Indeed, Professor Borts notes that a contestable market “is hardly a realistic description of the railroad industry” given the high entry and high exit barriers in the industry. *Id.*

There is nothing in the *Guidelines* suggesting that a SARR would act as a monopolist simply because it “replaces” the incumbent for a portion of the through movement. To the extent the SARR “replaces” the incumbent for a portion of the through movement, the SARR and the incumbent become partners in an interline movement. Revenues would be established by reference to the principle of contestability that allows either of them to enter or exit without cost and would have nothing to do with the exercise or influence of market power.<sup>16</sup> As Professor Kalt explained, real world market-based divisions are driven by precisely the kind of factors that make them not contestable and, therefore, they cannot be the basis of rates that a SARR would receive in a contestable market. *See Kalt Reply VS at § IV.A.*

Professor Kalt also explained on opening and reiterates in his reply verified statement that it is possible to determine the revenues that would be available to a SARR in a contestable world – *i.e.*, a world with no entry and exit barriers and no market power created by those barriers – in situations where the SARR “replaces” the incumbent for a portion of the through movement. As Professor Kalt explains, in a cross-over scenario the SARR is assumed to have superior efficiency on the portion of the movement for which it replaces the incumbent, which is why, in a contestable market, it would be able to replace the incumbent for that portion of the movement. The SARR would receive as revenues the full avoided cost of the incumbent over

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<sup>16</sup> The Coal Shippers’ argument that the SARR is entitled to exercise market power in setting revenue divisions because the incumbent exercises market power in the real world to negotiate divisions is similar to its argument that a SARR can rely on internal cross-subsidies to reduce the issue traffic rates because the incumbent relies on cross-subsidies in the real world. In both cases, the shippers’ argument ignores the purpose of the SAC test, which is to simulate a competitive market where market power and cross-subsidies would not exist.

that route, thereby realizing the benefit of its superior efficiency.<sup>17</sup> UP's expert, Dr. Neels, presents a similar analysis and proposes a similar calculation methodology based on ECP for setting revenues on cross-over traffic.<sup>18</sup> If the Board uses the principles of contestability to establish revenues on cross-over traffic, it should adopt the avoidable cost theory proposed by Professor Kalt.

**2. Neither The ICC/Board Decisions In SAC Cases Prior To 2003 Nor ICC Precedent Outside The SAC Context Require Use Of Real-World Divisions To Allocate Revenues On Cross-Over Traffic**

The Coal Shippers Op. Comments mischaracterize precedent in arguing that ICC/Board SAC cases prior to 2003 required the use of real-world divisions to allocate revenues on cross-over traffic to the SARR. In the handful of ICC/Board decisions that addressed the issue of revenue allocation for cross-over traffic prior to 2003, the agency never definitively established that cross-over revenues should be determined on the basis of real-world divisions. The ICC/STB explained that several factors, including costs, should be considered and it repeatedly stated that it did not have a well-established method for allocating revenues on cross-over traffic. There was considerable confusion and uncertainty regarding this issue in the early cases and the ICC/STB made it clear it was searching for guiding principles to govern its selection of a cross-over traffic revenue allocation methodology. In *Duke/NS*, the Board finally settled on the principle that cross-over revenues should be based on an allocation of through revenues in

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<sup>17</sup> BNSF Op. Comments at 50-53 and Kalt Op. VS at 37-46; Kalt Reply VS at § IV. When cross-over revenues are determined in this manner, it would be unnecessary and inappropriate to adjust these revenues in any way in the rate reduction phase of the SAC analysis, thus simplifying the SAC test. If SAC revenues were found to exceed SAC costs, only the revenues on through movements would need to be adjusted. BNSF Op. Comments at 51-52.

<sup>18</sup> UP Op. Comments at 29-31 and attached Neels Op. VS at 14-17.

proportion to on-SARR and off-SARR costs.<sup>19</sup> Since then, the Board has been searching for ways to calculate those costs as accurately as possible, and in the NPRM, it settled on ATC.

Contrary to shippers' claims, neither the *Nevada Power*<sup>20</sup> decision nor subsequent SAC cases decided prior to 2003 constituted an unqualified adoption of a standard for cross-over revenues that was based on real-world negotiated divisions. In the 1994 *Nevada Power* decision, which was quoted extensively by shippers, the ICC stated that "[i]n the absence of any better evidence, we will prorate the revenues attributable to the cross-over traffic among the SARR and incumbent carriers on a mileage basis, as proposed by NPC." 10 I.C.C. 2d at 268 (emphasis added). While the ICC referred to market-based divisions as a reference point in calculating cross-over revenues, it also acknowledged the cost-based nature of such divisions. Indeed, Chairman McDonald explained that "market-based divisions result from the interaction of supply considerations (*the relative costs incurred by the carriers in providing the interline movement*) and demand considerations (the relative bargaining power of the two carriers)." 10 I.C.C. 2d at 280 (emphasis added). However, the Chairman also concluded that "with our determination that the SARR is to be a replacement for segments of the incumbent lines, it appears that there are no significant differences in the relative bargaining power of the carriers." *Id.* In other words, the bargaining power factor dropped out of the supposed market-based analysis, leaving only the supply consideration, *i.e.* the relative costs of the carriers. Chairman McDonald then went on to suggest that relative density of on-SARR and off-SARR lines might need to be factored into the allocation of cross-over revenues, a clear recognition of the importance of costs.<sup>21</sup>

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<sup>19</sup> *Duke Energy Corp. v. Norfolk Southern Railroad Co.*, STB Docket No. 42069 (served Nov. 6, 2003) ("*Duke/NS*").

<sup>20</sup> *Bituminous Coal – Hiawatha, Utah to Moapa, Nevada*, 10 I.C.C. 2d 259 (1994).

<sup>21</sup> *Id.* at 281 ("... mileage-based divisions would not be appropriate approximations of market-based rates for a long-haul, high density SARR, using efficient unit trains, that interlined

Subsequent cases also emphasized the importance of relative on-SARR and off-SARR costs in allocating revenues for cross-over traffic. In *McCarty Farms*, the Board justified its use of the MMP methodology to allocate revenues on cross-over traffic not because it found MMP to estimate market-based divisions but because it “account[ed] for the non-mileage-based costs incurred when carriers switch freight cars.”<sup>22</sup> See also *PPL Montana, LLC v. The Burlington Northern and Santa Fe Railway Co.*, STB Docket No. 42054, slip op. at 10 n.20 (“*PPL I*”)(served Aug. 19, 2002) “A residual carrier would agree to move the traffic so long as the revenue division would allow it to cover its attributable costs associated with handling the traffic”); *Texas Municipal Power Agency v. The Burlington Northern and Santa Fe Railway Co.*, STB Docket No. 42056, at 31 n. 73 (served Mar. 24, 2003)(“*TMPA*”)(“The revenue each carrier receives should cover the attributable costs of the service it provides and makes some contribution to its unattributable costs. As long as the traffic makes any contribution to a carrier’s unattributable cost, the railroad is better off participating in the transportation than not participating in it.”).

Several of the SAC cases decided subsequent to *Nevada Power* did not even address the issue of the appropriate revenue division allocation method for cross-over traffic either because the complainant did not include any cross-over traffic in the SARR traffic group, *i.e.* *WTU/BNSF* and *APS/ATSF*,<sup>23</sup> or the parties agreed to use the MMP method for allocating cross-over

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with a number of short-haul, light density branch lines that distributed traffic a few cars at a time.”).

<sup>22</sup> *McCarty Farms Inc. v. Burlington Northern, Inc.*, 2 S.T.B. 460, 472 (1997). The Board also stated that “[w]e find that the modified mileage proration method is superior to a straight mileage proration, because it takes into consideration differing handling costs.” *Id.*

<sup>23</sup> *West Texas Utilities Co. v. Burlington Northern Railroad Co.*, 1 S.T.B. 638 (1996); *Arizona Public Service Co. v. The Atchison, Topeka & Santa Fe Railway Co.*, 2 S.T.B. 367 (1997).

revenues without addressing underlying principles, *i.e.* *WPL/UP*.<sup>24</sup> In the other pre-2003 cases in which the ICC or Board addressed the issue of the proper revenue allocation methodology, the agency never required the adoption of a market-based approach. In *FMC Wyoming Corp. v. Union Pacific Railroad*, STB Docket No. 42022, slip op. at 30-31 (served May 12, 2000), the ICC rejected UP's effort to use actual market-based divisions in favor of the shipper's proposed use of the MMP methodology. In *PPL I* and *TMPA*, the Board continued to use the MMP methodology but acknowledged that "[w]e have not adopted a single preferred procedure for developing revenue divisions on cross-over traffic."<sup>25</sup>

The Coal Shippers also argue that ICC/Board precedent *outside* the SAC context supports the use of a market-based approach reflecting real-world divisions in determining revenue divisions on cross-over traffic. Coal Shippers Op. Comments at 41-42. Specifically, the shippers argue that historically the ICC "routinely . . . consider[ed] evidence of negotiated divisions to determine divisions set under comparable market circumstances." *Id.* at 41. The shippers point to a solitary 1914 ICC decision to establish the existence of this alleged routine practice.<sup>26</sup> In the only other case cited, *Boston and Maine R.R. v. United States*, 208 F. Supp. 661 (D. Mass 1962), the ICC did not (as the shippers suggest) prescribe rate divisions by looking to negotiated divisions on comparable traffic.<sup>27</sup> Rather, the Commission applied a group

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<sup>24</sup> *Wisconsin Power & Light Co. v. Union Pacific Railroad*, STB Docket No. 42051 (served Sept. 13, 2001).

<sup>25</sup> *PPL I* slip op. at 7, n.14; *TMPA* slip op. at 31, n.75.

<sup>26</sup> See Coal Shippers Op. Comments at 41 citing *Rates on Lumber and Other Forest Products from Points in Arkansas* in which the Commission prescribed a common per pound rate for lumber delivered to Northern carriers at East St. Louis.

<sup>27</sup> The language the shippers misleadingly quote from *Boston and Maine* refers to the Commission's ability to establish divisions on a group basis. See, e.g., *The New England Divisions Cases*, 261 U.S. 184 (1923) (affirming as Constitutional the Commission's decision to

divisional scale, developed in a 1953 proceeding, that was roughly designed to allocate revenue based on the joint carriers' respective costs. *Id.* at 676-677.<sup>28</sup>

In fact, the shippers' argument is belied by the case law. Outside the SAC context, the ICC routinely used a cost-based rather than a market-based approach for determining revenue divisions between carriers. In *Trackage Rights - Lehigh Valley Railroad Company*, 342 I.C.C. 793 (1973), the ICC explained that:

the cost and revenues of moving the issue traffic should be the primary criteria for determining the proper division of through revenue. Indirect as well as direct costs should be included in the cost of service because each segment of traffic should carry its share of this burden. To do otherwise would result in a disproportionate share of these costs being borne by part of the traffic.

*Id.* at 812.<sup>29</sup>

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adjust divisions applicable to individual carriers based on group cost and revenue data believed to reflect the similar operating costs and revenue needs of the individual carriers).

<sup>28</sup> In 1965, the Commission re-constructed the divisional scale at issue in *Boston and Maine* "directly from costs" so that it would more accurately reflect each carrier's relative cost of service. See *Chicago & North Western Railway Co. v. Atchison, Topeka, and Santa Fe Railway Co.*, 387 U.S. 326 at 359 (1967), discussing *Official Southern Divisions*, 325 I.C.C. 1, 449 (1965).

<sup>29</sup> This statement is consistent with the ICC's decades-long practice of using a cost-based approach to determine revenue divisions on service provided by interline carriers. See, e.g., *New England Divisions*, 66 I.C.C. 196, 198-199 (1922) ("the relative amount and cost under economical and efficient management of the service rendered is a prime factor in determining the fair and equitable share of joint revenue which each carrier shall receive"); *Divisions of Rates, Official and Southern Territories*, 234 I.C.C. 175 (1939) (allocating more revenue per-mile on joint rates to Southern carriers due to higher relative operating expenses); *Official Southern Divisions*, 325 I.C.C. 1, 449 (1965) (constructing detailed divisional scales based on carriers' relative costs of service); *Baltimore & Ohio Railroad Co. v. Aberdeen and Rockfish*, 393 U.S. 87, 88 (1968) ("Commission found that existing divisions violated § 15 (6) because they allocated to Northern lines a lesser share of the revenues than would be warranted by their share of the expenditures made in providing joint service"); *Chicago & Northwestern*, 387 U.S. at 360 ("the Commission's action in this case was based not on revenue needs, but cost of service, and it found that the divisions which it established would produce moderate overall increases in the shares of the Midwestern group, in accord with its costs findings"); *Increases in Freight Rates and Charges of the Long Island Railroad Company*, 346 I.C.C. 305 (1973) (prescribing divisions

**3. The Board Explained In *Duke/NS* Why It Adopted A Cost-Based Approach For Allocating Revenues On Cross-Over Traffic**

Coal Shippers further argue that the Board's rejection in *Duke/NS* of a market-based approach in favor of a cost-based approach for allocating revenues for cross-over traffic "was made without ever explaining that it was radically departing from longstanding and contrary precedent." See Coal Shippers Op. Comments at 34. As explained above, the predicate for this argument – that there was a longstanding precedent inconsistent with use of a cost-based standard – is wrong. In addition, the Board's rationale for adopting a cost-based standard was adequately explained.

The Board's *Duke/NS* decision devotes several pages to its explanation of why it adopted a cost-based revenue allocation methodology. Shippers may not like that explanation, and BNSF disagrees with several points made by the Board in that discussion, but to claim that the Board failed to explain its decision is ludicrous. In that lengthy discussion, the Board "first considered the more general question posed by NS of whether divisions should be based on a market-based or a cost-based inquiry, and concluded that a market-based inquiry is not appropriate for a SAC analysis." *Duke/NS* slip op. at 17. The Board explained that the existence of market power should not factor into the allocation of revenues on cross-over movements, and therefore that "a debate over how much of the revenues from cross-over traffic the hypothetical carrier could negotiate with the residual defendant has no place in the SAC analysis." *Id.* at 19. The Board further explained that real world divisions between NS and other carriers would not "be

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allocating revenues in proportion to costs); *Expedition Handling of Divisions of Revenue Cases*, 353 I.C.C. 349 (1981) (requiring detailed production of cost of service information in divisions cases); *Increases in Freight Rates and Charges of the Long Island Railroad Company*, 365 I.C.C. 193 (1981) (having set each carrier's revenue to cost ratio equally in 1973, the Commission refused to readjust the division when it found that Long Island's intervening cost of service increases were due to inefficient operations).

particularly instructive, as those divisions presumably reflect a wide range of commercial considerations across a broad spectrum of traffic and gateways.” *Id.* at 20, n. 29.

The Board provided further explanation of why a market-based approach reflecting real world divisions was not an appropriate methodology for allocating revenues to the SARR on cross-over traffic in its recent *Otter Tail* decision.<sup>30</sup> Since *Duke/NS*, the Board has consistently applied a cost-based approach to revenue allocation, although it has continued to search for an appropriate methodology for assessing relative on-SARR and off-SARR costs.<sup>31</sup>

**4. A Cost-Based Revenue Allocation Approach Does Not Undermine Shippers’ Supposed Entitlement To The Use Of Cross-Over Traffic In A SAC Analysis**

As a corollary to their argument that the *Guidelines* require the use of real-world divisions in establishing revenues for cross-over traffic, the Coal Shippers argue that the *Guidelines* do not permit the use of a cost-based revenue allocation procedure because such an approach undermines the right that shippers have to use cross-over traffic in SAC cases. Their argument on this issue is largely incoherent. But the underlying principles they assert and the premises to their argument are clearly wrong.

The Coal Shippers’ first premise is that the *Guidelines* explicitly allow complainants in SAC cases to rely on cross-over traffic. *See* Coal Shippers Op. Comments at 25-26. The only support provided for this far-fetched claim is the Coal Shippers’ assertion that the *Guidelines* “encourage shippers to augment the issue traffic with other traffic; that is to ‘group’ traffic in

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<sup>30</sup> *Otter Tail Power Company v. BNSF Railway Co.*, STB Docket No. 42071, slip op. at 13-15 (served Jan. 27, 2006) (“*Otter Tail*”).

<sup>31</sup> *See Carolina Power & Light Co. v. Norfolk Southern Railway Co.*, STB Docket No. 42072, slip op. at 20-21 (served Dec. 23, 2003) (“*CPL/NS*”); *Duke Energy Corp. v. CSX Transportation, Inc.*, STB Docket No. 42070, slip op. at 20-21 (served Feb. 4, 2004) (“*Duke/CSX*”); *Public Service Co. of Colorado v. The Burlington Northern and Santa Fe Railway Co.*, STB Docket No. 42057, slip op. at 17 (served June 8, 2004) (“*Xcel/BNSF*”).

logical and efficiency-maximizing configurations.” *Id.* at 30. Shippers are clearly entitled to group non-issue traffic with issue traffic. However, this cited passage says nothing about whether the “other traffic” can consist of partial movements rather than through movements. There is no indication that the drafters of the *Guidelines* ever contemplated the use of cross-over traffic. Indeed, the *Guidelines*’ references to the incumbent’s existing rates as the basis for assigning revenues to the SARR make it clear that the ICC assumed that non-issue traffic would be included in a SAC analysis on a through movement basis, since the incumbent’s rates exist only for through movements. Indeed, if cross-over traffic had been contemplated in the *Guidelines*, surely the ICC would have said something on the critical issue of revenue allocation that has received so much attention in the SAC cases where cross-over traffic has been used. Cross-over traffic was a foreign concept, never addressed in the *Guidelines*.

Second, the Coal Shippers claim that the use of a cost-based revenue allocation approach in effect requires the complainant to replicate all lines used by its traffic group. *See* Coal Shippers Op. Comments at 35-37. This argument is nonsense. The Board has repeatedly made it clear that the fundamental purpose for allowing complainants to use cross-over traffic in a SAC analysis is to enable complainants to *avoid* having to posit the costs of constructing and operating all of the lines that are used to provide service to the shippers included in the SARR traffic group. *See, e.g., Xcel/BNSF*, slip op. at 14-16; *Otter Tail*, slip op. at 12-13. There is nothing about the use of a cost-based approach that precludes a complainant from using cross-over traffic.

The Coal Shippers’ real complaint about a cost-based approach appears to be that it makes the use of cross-over traffic less attractive to complainants because it allocates to the SARR less revenue than their supposed market-based approaches, particularly in cases where

cross-over traffic moves only a short distance on the SARR. Shippers apparently believe that they are entitled to take advantage of economies of density without any responsibility for the costs incurred on low density lines by the incumbent to make those economies of density possible. Such a position is illogical and untenable.

It would be anathema to the statutory revenue adequacy policy for the Board to conclude that a complainant in a SAC case does not need to account in any way for the revenue needs of the incumbent's low density delivery network, without which there would be no partial movements for the SARR to handle. The Board allows a complainant to refrain from building a far-flung delivery network because of the difficulty in presenting SAC evidence relating to the entire network of lines required to provide service to the SARR shippers, not because the high costs associated with BNSF's far-flung delivery network should be borne entirely by the incumbent. *Otter Tail*, slip op. at 12-13. A cost-based revenue allocation approach, when done properly, attempts to ensure that the revenues on through movements are allocated so as to cover the costs associated with different segments of those movements by allocating revenues in proportion to the costs of the various segments. Such an approach does not ensure that there will be revenues to cover the costs of off-SARR portions of a movement, but it can limit the distortions resulting from shippers' decisions not to build low density lines.

**C. The Shippers' Claims Regarding The Purported Flaws In The ATC Methodology Proposed By The Board Also Lack Merit**

As noted in BNSF's opening comments, BNSF endorses the Board's proposed ATC approach in the event the Board decides not to use contestability principles in establishing revenues on cross-over traffic. It is appropriate for the Board to seek ways to simplify SAC cases, so long as the simplification methodologies do not distort the outcome of the analysis. By taking account of the relative density of on-SARR and off-SARR lines in allocating through

revenues between the SARR and the residual incumbent, the Board's ATC approach is less likely than any cost-based approach used to date in SAC cases to produce distortions. Moreover, under ATC, the results of the SAC analysis are less likely to be driven by the complainant's choice of how much of the incumbent's network should be reproduced by the SARR, thus reducing complainants' incentives to game the SAC test through heavy use of short-haul traffic. The shippers uniformly object to the adoption of the ATC approach but, as explained below, they fail to present any valid basis for rejecting the methodology.

The shippers erroneously assert that the Board should not adopt the ATC methodology because it purportedly contains the same flaws that led the Board to reject the DARA methodology proposed by various railroads. *See Coal Shippers Op. Comments at 48-52.* To the contrary, as shown by Mr. Klick, ATC does achieve a different result than DARA as densities increase and, consequently, does not have the purported flaws in DARA that were identified by the Board. *See Klick Reply VS at § III.* Coal Shippers related claim that by adopting ATC the Board is ignoring its directive from *Duke/NS* that it would need actual line-specific investment data to approximate line-specific fixed costs per mile (Coal Shippers Op. Comments at 52) is based on a misreading of the *Duke/NS* decision and, consequently, has no merit.

Shippers claim that the ATC methodology should be rejected for various other reasons, including that it purportedly creates barriers to entry. *See Coal Shippers Op. Comments at 39-42).* As explained in section IV.B of the reply verified statement of Professor Kalt, the ATC methodology does not create entry barriers. The shippers' argument is based upon an apparent misunderstanding of the economics of barriers to entry. Nor do the other criticisms of the ATC methodology made by Mr. Borts or Mr. Crowley, experts testifying on behalf of the Coal Shippers, have any validity. *See Klick Reply VS at § III.*

Mr. Nelson, an expert retained by the AECC, proposes that the Board adopt a methodology for cross-over traffic that would provide the SARR with the full amount of the contribution that exists on the through movement. Mr. Nelson erroneously asserts that this alternative methodology is consistent with contestable market principles. To the contrary, as explained by Professor Kalt at § IV, the proposed methodology is inconsistent with contestability principles.

**D. If The ATC Approach Is Adopted In This Rulemaking, The Board Should Apply It In The Pending Cases**

The comments submitted by AEP Texas and WFA/Basin both address the issue whether the Board should apply the ATC methodology in pending cases if the methodology is adopted in this rulemaking proceeding. However, AEP Texas and WFA/Basin take opposite positions on this issue. AEP Texas takes the position that, if adopted, the ATC approach should be mechanically applied to the current record and no new evidence should be allowed in the case. *See* AEP Texas Op. Comments at 5-7. In contrast, WFA/Basin argue that it would be “manifestly unjust” to apply the ATC approach in their pending case because applying it would “require the submission of an essentially new SAC case.” *See* WFA/Basin Op. Comments at 25.

WFA/Basin’s argument is not based on legal standards governing retroactivity, but on the supposed “unfairness” that would result from application of a cost-based methodology.

WFA/Basin essentially admit that they designed their SARR with heavy use of short-haul cross-over traffic to take advantage of the gaming opportunities available by application of the MSP methodology and, consequently, to bias the results in WFA/Basin’s favor. WFA/Basin assert that they relied on the MSP approach “as the central building block in determining the LRR’s configuration” and that the ATC approach “is a significantly different divisions procedure that MSP, since it, among other things, eliminates the MSP origin and destination revenue blocks and

does not allocate the remaining revenues on a straight mileage prorate.” *Id.* at 26. WFA/Basin state that if they had known that the Board would apply the ATC methodology when their evidence was being developed, they “would have most likely configured a SARR that was significantly longer and carried significantly more tons.” *Id.* at 27.

WFA/Basin would not be treated unfairly if the Board were to apply a methodology other than MSP to calculate cross-over revenues. The Board had made it abundantly clear before WFA/Basin presented evidence that it would apply a cost-based methodology to allocate revenues between the SARR and the residual incumbent on cross-over traffic. The Board also made it clear that it was concerned about the impact of relative density on costs and that it was open to adopting a new methodology that correctly takes account of economies of density. *See, e.g., Duke/CSX slip op.* at 20 (while it rejected CSX’ proposed methodology intended to account for economies of density, the Board noted that it “has not foreclosed an approach that would incorporate relative densities, as densities could affect the defendant carrier’s relative costs of providing service over the relevant segments.”).

WFA/Basin effectively admit that they were seeking to game the results of the SAC analysis by positing a SARR that relied heavily on short-haul traffic. They either knew or should have known that any cost-based approach that considered relative density of on-SARR and off-SARR lines would have produced a dramatically different allocation of revenues, but they chose to take the chance that the distortions produced by MSP would continue to be available to them. The Board should not sanction WFA/Basin’s attempt to manipulate the SAC outcome by positing a short-haul SARR that was profitable only because of the distortions produced by the revenue allocation methodology that had previously been used. WFA/Basin should not get

another opportunity to present SAC evidence. If ATC is adopted, the Board should apply it in the pending cases.

#### **IV. INDEXING OPERATING EXPENSES**

The Board's NPRM seeks to resolve a conflict over whether SAC operating costs should be indexed by the RCAF-U (unadjusted for productivity) or the RCAF-A (adjusted for productivity) by proposing a mix of the two indices. The hybrid index would phase in the RCAF-A beginning with 5% in year two and increasing incrementally to 100% in year 20. The railroads universally oppose the Board's proposal. As SAC theory already assumes that the hypothetical SARR is the most efficient, most technologically advanced railroad from its inception, it is unrealistic to also assume that the SARR would achieve any productivity at all in its initial years of operation.<sup>32</sup> The railroads contend that the Board should establish a presumption of no productivity for the first ten years, unless there is compelling evidence of specific improvements the SARR purports to make, including the timing, costs, and anticipated benefits of implementing such improvements.<sup>33</sup> The railroads further contend that adopting the Board's proposed 10-year DCF period would moot the issue, as there clearly would be no need to address productivity on the SARR during that period.

Shippers also object to the Board's proposal. They advocate an aggressive phase-in of the RCAF-A beginning with 50% in year one and increasing incrementally to 100% in year ten.

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<sup>32</sup> UP Op. Comments at 31-35 and attached Verified Statement of Thomas C Haley ("Haley Op. VS"); BNSF Op. Comments at 55-59; Comments of Canadian Pacific Railway Company, at 3-5 ("CP Op. Comments"); NS/CSXT Op. Comments at 8-11.

<sup>33</sup> BNSF offered as an alternative applying RCAF-A starting in year 11 to those items of operating costs where productivity gains are most likely to occur. Verified Statement of Michael R. Baranowski, at 20-21 ("Baranowski Op. VS"), included with BNSF Op. Comments.

Coal Shippers Op. Comments at 70.<sup>34</sup> They argue that the SARR would achieve significant productivity *even in the first year* from technological advancements, particularly improvements brought about through advances in information technology (IT) and through “learning by doing.”

The shippers’ position rests heavily on “strawman” arguments that have no merit. First, the Coal Shippers assert, without any support, that the Board’s proposal “does not go far enough to eliminate the illogical and unsupported disparity between the manner in which the Board indexes operating expenses and the manner in which the Board forecasts SARR revenues.” Coal Shippers Op. Comments at 69. They imply that their proposed mix is the solution to a “problem” that must be fixed, but they offer no evidence that a problem actually exists or that their solution would cure it. As BNSF witness Michael R. Baranowski explains in his reply verified statement, because the three indices used in the DCF – one for revenues, one for operating costs, and one for construction costs – are designed to forecast different elements that are in no way related, there is no disparity between the ways revenues and operating costs are indexed. The revenue index reflects revenues available to a SARR that replaces the incumbent. Those revenues are compared to the operating (and other) costs of an efficient SARR to determine whether, on a present value basis, the revenues exceed costs that need to be covered. The indices are *suppose* to measure different future trends. Moreover, to the extent that productivity is reflected in the forecasts for revenues, that productivity reflects the future efforts

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<sup>34</sup> AECC and WFA suggest alternative methodologies. AECC proposes using the anticipated productivity on heavy haul operations rather than the RCAF to phase in productivity on the SARR (AECC Op. Comments at 17-19), but its proposal is based on the same flawed assumptions implicit in Coal Shippers’ witness Caves’ statement supporting the Coal Shippers’ methodology, which is addressed *infra*. WFA reasserts by reference the arguments and proposed index submitted in its pending rate case. AEP Texas, on the other hand, endorses the Coal Shippers’ approach rather than the approach it advocated in its pending rate case. Consultants Snavelly King & Moros agree with the Board’s phase-in proposal, but suggest that under a 10-year DCF scenario, the percentages should be adjusted.

of the industry to achieve the efficient operations that are already captured in the base year SARR operating expenses.

The Coal Shippers' second argument is that the Board's proposal is improperly based on the assumption that most productivity comes from asset replacement. Coal Shippers Op. Comments at 73. The Coal Shippers attack this strawman by pointing to potential productivity gains unrelated to asset replacement (*e.g.*, increased train size, heavier car loadings, updated IT software, improved MOW practices, and labor productivity) which could begin "even in the first year." The shippers' argument, however, is based on a false premise. The Board has not assumed that productivity comes only from asset replacement. The Board simply gave one indisputable example relating to the SARR's assets showing why the SARR would not have the same opportunities to achieve productivity in the early years as real-world railroads. It is a quantum leap to go from that simple, obvious example to the assertion that the Board ignored all other forms of productivity.<sup>35</sup>

Even if the sources of productivity were related to operations rather than assets, that still would not justify productivity for a SARR in the early years of operation. As Mr. Baranowski explains in his attached reply statement, the benefits from many of the technological advances cited by the shippers have already been incorporated into the SARR from the beginning.<sup>36</sup> In

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<sup>35</sup> Based on this reading of the Board's decision, the Coal Shippers' witness William J. Brennan constructed an elaborate exercise attempting to justify the shippers' proposed 50/50 mix of RCAF-A and RCAF-U in year one. Brennan Op. VS. at 13-14. As Mr. Baranowski shows in his statement, the analysis of the percentage of Class I railroads' system-wide operating costs "associated with assets" has no rational connection with SARR operating costs, and clearly provides no basis for determining the percentage of system-wide productivity reflected in the RCAF-A that would be available to the SARR.

<sup>36</sup> In his opening statement, Mr. Baranowski discussed at length how many potential improvements require substantial outlays of capital beyond what would be reasonable for the SARR to incur in the early years, while others, such as one-man crews, are far too speculative to

effect, the SARR's operations already include the benefit of productivity that it will take many years for real-world railroads to achieve. It would double-count those productivity benefits to reflect future productivity improvements in SARR operations that are already vastly more efficient than real-world operations.

Mr. Baranowski explains that there are many reasons that the SARR would not be able to achieve claimed productivity gains. For example: (1) the SARR is assumed to be optimally sized from a network perspective from day one – shippers build it to the peak year traffic levels, so there cannot be any improvement through additional investment in the right of way; (2) the process used by the Board to adjust operating expenses year-to-year automatically adjusts the rolling stock and operating labor to fit the level of the traffic handled in each year; (3) the G&A expenses are bare-bones from day one, so the concept of management efficiency is moot; (4) the traffic is assumed to be handled from the beginning in the most efficient manner possible – long unit trains for coal, which is the major if not exclusive commodity on a SARR, and hook-and-haul operations for any limited volumes of intermodal or general merchandise that the SARR might carry; and (5) the SARR starts from day one with the most efficient models of rolling

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assume they would be available in the near future to either the industry or the SARR.

In his reply statement, Mr. Baranowski points out that the technologies cited, or the investments needed to support them, often have been spurned by SARR proponents. For example, while they now claim heavier-loading cars as a potential productivity improvement, they rejected the use of concrete ties and heavier rail required for such loadings, claiming they were unnecessary, either because the SARR would not have the same tonnage as the incumbent or because a least-cost railroad would not incur the added expense. *See e.g.*, Docket No. 42088, WFA/Basin Reb. Nar. at III-F-96 (September 30, 2005). Thus, they avoided the costs for such investments, yet assume productivity benefits from operational changes dependent on those investments. Similarly, they cut operating costs by assuming an exceptionally streamlined staff with unprecedented labor productivity from day one (significantly greater than any achieved by a real-world railroad), yet assume future labor productivity comparable to that of industry participants through learning by doing. *See e.g.*, Docket No. 42088, WFA/Basin Reb. Nar. at III-D-48 through 49 (September 30, 2005).

stock (cars and locomotives), which are almost exclusively under lease by the SARR at an expense that reflects the lowest dollar level the incumbent has been able to negotiate – both for the actual units and, usually, for maintenance. Because of these efficiencies, the SARR would have nothing to gain from technological advances in the early years. They already have the benefits available from existing technologies. And as to future technologies, the FRA points out in its March 2002 strategic plan that technologies currently under development may not be available for implementation for more than five years and the benefits not seen for at least ten years.<sup>37</sup>

In addition to productivity from technological advances, the Coal Shippers and their witnesses Dr. Caves et al (Caves) also claim early benefits through replacement of assets “when economically feasible to do so” regardless of asset lives.<sup>38</sup> They attempt to bolster their argument through reference to an exhibit submitted by AEP Texas in its rate case purportedly showing that the average age of Class I rail assets is seven years, and thus not that different from the SARR’s assets. Mr. Baranowski explains that the asset lives calculated from the R-1, which reflect purchase accounting adjustments following recent rail mergers, bear no relationship to the actual physical age of the assets. For example, as part of the purchase accounting adjustment, the accumulated depreciation for assets is written down to zero. Under the shippers’ calculations, such assets would have a useful life equal to their remaining life, and as such, would have an age of zero, even though they had been in service for many years. These

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<sup>37</sup> *Five Year Strategic Plan for Railroad Research, Development, and Demonstrations, March 2002*, Federal Railroad Administration, at ES-8.

<sup>38</sup> Mr. Baranowski pointed out in his opening statement that for railroad assets the point at which it becomes economically feasible to replace the assets is highly unlikely to occur anytime within the first ten years.

adjustments for newly acquired assets made for accounting purposes do not reflect the actual age of the assets.

The Coal Shippers' third argument is that the complex interconnections between various sources of productivity gains makes it "futile" to examine specific evidence related to the specific sources of process improvements that would impact productivity on the SARR. For this reason, the Coal Shippers claim that the Board should merely assume that the SARR is just like a real-world railroad except where the SARR uses technologies that have not been used by real-world railroads. This argument, presented by Caves, should be a non-starter for use in a SAC case, where the burden of proof is on the complainant. If there is no concrete evidence supporting a productivity adjustment, then there would be no basis for the Board even to consider the question further. In any event, BNSF's expert Dr. Martin N. Baily rejects both the rationale and the assumptions underlying Caves' analysis. He points out that far from being "futile," looking at the specific sources of productivity in the railroad industry and determining whether they *would* or *would not* affect a SARR is the only valid way to address the issue, and the fact that the sources of productivity are interconnected does not preclude their being identified and their likelihood and timing evaluated. He then demonstrates that the underlying assumptions about the SARR's productivity in relation to that of the industry are wrong.

Dr. Baily explains that in assessing the potential productivity for a SARR, Caves overemphasizes the impact that IT improvements would have on the SARR. Research shows that productivity improvements are engendered from IT investments *only* when specific process improvements are *enabled* by these investments. Such process improvements are much more likely in complex networks with large volumes of heterogeneous transactions such as those of

the real-world railroads, than in the simple network of homogeneous traffic, limited activities, and a defined client base characteristic of a hypothetical SARR.

Dr. Baily likewise refutes two of Caves' other arguments that seek to put the SARR on equal footing with real-world railroads with respect to productivity. Caves argues that the SARR would achieve benefits from improving its management practices, as would any other railroad. However, research shows that the most significant gain in productivity comes from companies implementing the best practices of the leading company, and that they most often achieve that goal through opening new best-practices establishments rather than improving best practices themselves. As the SARR is already assumed to be the industry leader – the most efficient railroad that is feasible – the productivity that can be expected from the industry seeking to attain that level would not be available to the SARR. Dr. Baily further notes that Caves' and witness Brennan's reliance on "learning by doing," to the extent it might be considered relevant in a SAC analysis, actually cuts the other way. If the SARR workforce is capable of "learning by doing," then it is a workforce that would – like any other real-world workforce – have *less* efficient operations at the beginning of operations while it "learned the ropes." But the SAC test allows the SARR to achieve all the benefits available from "learning by doing" from day one.

Dr. Baily also rejects Caves' argument that the convergence of rail industry productivity and productivity in the economy as a whole leads to the conclusion that the SARR will experience the same level of productivity as real-world railroads from day one. Whether the railroad industry and the economy as a whole converge is irrelevant to the question of whether the SARR and the rail industry will have the same productivity growth in the SARR's first years of operation. As Dr. Baily explains, the substantial advantage that the SARR has over real-world

railroads leads to the opposite conclusion – that it is reasonable to assume that the SARR will achieve *no* additional productivity in the early years of its operations.

Dr. Baily emphasizes that there is no evidence linking the qualitative arguments in Caves' testimony with the quantitative solution that it supports. Rather, the evidence shows that it is unreasonable to *assume* any productivity for the SARR in the early years of its operation. Therefore, the Board should adopt a presumption of no productivity and apply the RCAF-U for the first ten years of the SARR's operations, unless productivity improvements advocated by the proponents of a SARR can be tied to a specific source of productivity increase that can be identified and evaluated on the evidence.

## **V. USE OF URCS SYSTEM-AVERAGE COSTS IN RAIL RATE CASES**

### **A. The Board's Proposal Would Simplify SAC Litigation**

Class I railroads generally support the Board's proposal to rely more heavily on system-average URCS costs in SAC cases.<sup>39</sup> The Board's proposal addresses three basic problems with the current approach to calculating variable costs for purposes of determining the jurisdictional threshold. First, as BNSF explained in its opening comments, litigation over movement-specific adjustments to URCS system-average costs is burdensome, complex and seldom justified.<sup>40</sup> Second, use of movement-specific adjustments raises complex and difficult issues relating to the variability percentages used in URCS. Third, the current practice promotes uncertainty as to the jurisdictional threshold and encourages unnecessary litigation, thereby undermining one of Congress's objectives in requiring the Board to establish a simple and clear variable costs standard for use in assessing the statutory jurisdictional threshold.

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<sup>39</sup> Of the railroad commenters, only CP, a carrier that has not litigated a SAC rate case before the Board, objected to the Board's proposal. CP Op. Comments at 5-9.

<sup>40</sup> BNSF Op. Comments at 61-64.

BNSF suggested modest changes to the Board's proposal that would realize the benefits of simplification that the Board is attempting to achieve through its proposal while preserving some role for movement-specific adjustments where consideration of movement-specific adjustments to URCS might actually have an impact on rates. Specifically, BNSF proposed that the Board (1) include in its calculation of URCS system-average costs the payments that railroads make to third parties for providing some portion of the transportation service; and (2) address movement-specific adjustments at the end of a SAC case if it can be shown by clear and convincing evidence that the adjustments are justified and that they would affect the level of a prescribed rate.<sup>41</sup> BNSF anticipates that such adjustments would include the use of additional, easily ascertainable, operating characteristic inputs such as tare weights, empty miles and number of locomotives.<sup>42</sup>

CSX, NS and UP also agree with the Board's objective to increase reliance on system-average costs in an effort to simplify SAC litigation and to avoid complex disputes over issues that may not need to be litigated in every case. They also propose modest changes that would promote simplification while preserving the ability to consider movement-specific adjustments in appropriate circumstances. Like BNSF, CSX, NS and UP advocate that payments made to third parties for providing a portion of the transportation service be included in the variable cost calculation.<sup>43</sup> They also propose that the Board take into account additional operating characteristic inputs, including some of the same operating characteristics identified by BNSF.

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<sup>41</sup> *Id.* at 64-67.

<sup>42</sup> *Id.* at 66-67.

<sup>43</sup> NS/CSXT Op. Comments, at 17; UP Op. Comments at 37-40. *See also* Comments of Snavelly King Majors O'Connor & Lee, Inc., at 2-3.

CSX/NS make an additional proposal: that the carrier be permitted to elect at the outset of a case whether to contest quantitative market dominance. If the carrier elects not to contest market dominance, the parties would conduct discovery and present evidence regarding only the SAC portion of the case. If the Board then determines that a rate exceeds a maximum reasonableness level, a party could then elect to present variable cost evidence including movement-specific adjustments.<sup>44</sup>

#### **B. Shippers' Objections Are Unfounded**

The Coal Shippers flatly oppose the Board's proposal.<sup>45</sup> They urge the Board to continue to accept movement-specific URCS adjustments and to allow full litigation over such adjustments under the same open-ended procedures that have been followed in the past. In some respects, they ask the Board to expand the scope and expense of litigation over variable costs. Only Arkansas Electric Cooperative Corporation expressed qualified support for the Board's proposal.<sup>46</sup>

The Coal Shippers' primary concern appears to be that reliance on unadjusted URCS system-average costs will "raise the jurisdictional threshold rate level and rate prescription floor."<sup>47</sup> There are two problems with this contention. First, there is no reason to believe that the actual variable costs of unit coal train service are below BNSF's system-average variable costs. In fact, there is evidence that suggests that unit coal train variable costs may be higher than system-average variable costs. Second, the Coal Shippers completely disregard the Board's

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<sup>44</sup> NS/CSXT Op. Comments at 15.

<sup>45</sup> Coal Shippers Op. Comments at 89-101.

<sup>46</sup> AECC Op. Comments at 20-22.

<sup>47</sup> Coal Shippers Op. Comments at 92.

cost/benefit analysis and its conclusion that the benefits of simplification outweigh the complexities and costs of dealing with variable cost issues from the start in all cases.

The premise of the Coal Shippers' concern that reliance on unadjusted URCS system-average costs will result in an increase in the jurisdictional threshold is their assertion that "adjustments are called for to reflect the economies and efficiencies of unit train service."<sup>48</sup> While there are undoubted efficiencies in unit coal train service, this does not necessarily translate into variable costs that are below a carrier's system-average costs. For example, there is credible evidence that BNSF's current unit coal train operations are more costly in some respects than other types of traffic on BNSF's system. In its opening comments, BNSF identified two examples of costs – locomotives and fuel – that are demonstrably higher for BNSF's unit coal train operations than for other services.<sup>49</sup>

Moreover, even if concerns about the relative efficiency of unit train operations were valid in the past, they do not carry weight today. System-average costs, at least for western railroads, are substantially more reflective of unit train costs today than they were when URCS was developed in the 1980s. Over time, unit trains have accounted for an increasing proportion of the total car miles on western railroads, rising from approximately 25 percent in the early

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<sup>48</sup> *Id.* at 90.

<sup>49</sup> BNSF Op. Comments at 60 nn. 46, 47. The Coal Shippers' argument presupposes the accuracy of the movement-specific adjustments for which complainants typically advocate, in particular the adjustments to road property costs which, in BNSF's experience, typically account for more than half of the difference between the parties' variable cost estimates. However, BNSF has demonstrated, and the Board has now acknowledged, that there is a significant problem with the road property adjustment. NPRM at 24-25. Specifically, the use of the system-average variability factor to calculate a movement-specific road property adjustment substantially understates the variable road property costs on high density lines. BNSF has also identified problems with the shippers' improper use of data that are not maintained by the railroad for the purpose of making movement-specific cost estimates, which further distorts shipper sponsored adjustments. *See e.g. AEP Texas*, BNSF Reply Evidence, II-36 to II-38 and Exhibit II.A-4 (filed May 24, 2004).

1980s to 43 percent in 2004.<sup>50</sup> Consequently, a significant portion of current system-average costs for the western railroads are based on unit train operations.

As to the Board's cost/benefit analysis, shippers are dismissive of the Board's concern that the limited benefits of allowing movement-specific adjustments outweigh the costs. According to the Coal Shippers, "movement specific adjustments are not the driving factor behind the expense of maximum rate cases."<sup>51</sup> The Coal Shippers miss the point. Regardless of whether the calculation of variable costs is the "driving factor," behind rate case complexity, it is undeniably a significant expense, particularly in light of the fact that each party to a rate case typically files three rounds of evidence on variable cost issues, more than on any other issue in a SAC case. It also should be an unnecessary expense in most cases. Indeed, shippers identify just one case out of the nine coal rate cases that the Board has decided since 2000 in which the jurisdictional threshold was implicated.<sup>52</sup> In light of these facts, it is difficult to comprehend the Coal Shippers' flat-out rejection of the Board's proposal to eliminate from SAC litigation an expense that yields little or no demonstrable benefit.

**C. Shippers' Proposals Would Increase Expense, Complexity And Uncertainty Of The Jurisdictional Determination**

Coal Shippers suggest that there are other ways besides using system-average costs to deal with the concerns that underlie the Board's proposal to do away with movement-specific adjustments, particularly the Board's concern that data are insufficient to produce reliable movement-specific adjustments. They make three proposals to address perceived problems with railroad recordkeeping: (1) Where adequate data on which to calculate a reliable movement-

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<sup>50</sup> *Compare Analysis of Class I Railroads, AAR (1984) with Analysis of Class I Railroads, AAR (2004).*

<sup>51</sup> Coal Shippers Op. Comments at 91.

<sup>52</sup> *Id.* at 97 (citing *Wisconsin Power & Light*).

specific adjustment are unavailable, the Board should give “deference” to adjustments advocated by the shipper; (2) The Board should permit discovery and use of railroad internal management costs; and (3) The Board should direct railroad defendants to perform special studies, i.e., create evidence at a shipper’s request.<sup>53</sup> Each of the shippers’ proposals defies the concerns over efficiency, simplification and certainty that the Board is trying to address in this proceeding. Each proposal is also directly at odds with Congress’s effort to reduce carriers’ regulatory recordkeeping burden.

The Coal Shippers’ proposal that the Board show deference to shipper-sponsored movement-specific adjustments effectively asks the Board to relax its long-standing requirement that a proponent of an adjustment show that it is “demonstrably superior” to unadjusted URCS system-average variable costs.<sup>54</sup> Particularly since recordkeeping requirements have been relaxed as part of the deregulatory thrust of the Staggers Act, shippers’ proposal opens the door to massive gaming of the URCS calculations on grounds that the railroad’s data are supposedly insufficient. This proposal would also substantially increase the uncertainty surrounding the determination of the jurisdictional threshold.

As to the Coal Shippers’ proposal that the Board allow discovery and use of internal management costs, the Board has already soundly and repeatedly rejected use of internal management cost data in rate cases on the grounds that “costs in Board proceedings are to be

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<sup>53</sup> *Id.* at 93-95.

<sup>54</sup> *Potomac Electric Power Co. v. CSX Trans. Inc.*, STB Docket No. 41295, slip op. at 2 n.10 (served May, 27, 1997) citing *Adoption of the Uniform Rail Costing System As a General Purpose Costing System for All Regulatory Costing Purposes*, Ex Parte No. 431 (Sub-No. 1), 5 I.C.C. 2d 894, 899 n. 12 (1989).

determined using . . . URCS,” while internal management data are not based on URCS standards.<sup>55</sup>

The Coal Shippers’ proposal that carriers should be forced to create new evidence for shippers by conducting special studies would impose new and significant burdens on the carriers. It would also create complex evidentiary issues, and undoubtedly would lead to additional discovery disputes between the parties to a rate case, imposing additional burdens on the Board and the parties.

In its separately filed comments, Arkansas Electric Cooperative Corporation, through its witness, Michael A. Nelson, proposes using SARR operations simulations “to verify or refute the accuracy of the aggregate results of the URCS analysis.”<sup>56</sup> Apart from being vague, the problem with AECC’s proposal is that the costs of providing service on a least cost, most efficient, hypothetical, stand-alone railroad bear little relationship to the incumbent’s real world costs of serving the issue traffic. Accordingly, a simulation of SARR operations would be completely irrelevant to the variable cost calculations.

**D. No Movement Specific Adjustments Are Appropriate Unless They Properly Account For The Relationship Between Variability And Density**

The Coal Shippers address one substantive issue: the use of the same variability percentage that is used to calculate system-average road property variable costs to calculate a movement-specific adjustment to those costs. The Coal Shippers and their witness, Joseph

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<sup>55</sup> See *Kansas City Power & Light Co. v. Union Pacific R.R. Co.*, STB Docket No. 42095, 2-3 (served Feb. 15, 2006); *Northern States Power Co. D/B/A Xcel Energy v. Union Pacific R.R. Co.*, STB Docket No. 42059, slip op. at 8-9 (STB served May 23, 2002); *Texas Municipal Power Agency v. The Burlington Northern & Santa Fe Ry.*, STB Docket No. 42056 (STB served Feb. 9, 2001) (*TMPA*); *Minnesota Power v. Duluth, Missabe and Iron Range Ry.*, STB Docket No. 42038 (STB served July 8, 1999); *Arizona Public Service Co. v. Atchison, T. & S.F. Ry. Co.*, 2 S.T.B. 367, 372 (1997); *Potomac Elec. Power v. CSX Trans.*, STB Docket No. 41989, *et al.* (STB served May 27, 1997).

<sup>56</sup> AECC Op. Comments at 21.

Plaistow, incorrectly argue that the ICC long ago settled this issue in the shippers' favor.<sup>57</sup>

Shippers have made this argument, as well as the others set forth in Mr. Plaistow's statement, in recent rate cases. With one exception that BNSF addresses below, BNSF has explained in prior rate cases why each of Mr. Plaistow's arguments is wrong, and BNSF does not repeat those discussions here.<sup>58</sup> BNSF showed, and the Board acknowledged in the NPRM, that use of the wrong variability percentage causes substantial distortions. Unless and until a method is found to account for the relationship between variability and density, no movement-specific adjustment is appropriate.

Mr. Plaistow raises one new argument. Mr. Plaistow claims that "depreciation rates [that the Board] has approved for application to each Class I railroad already reflect higher costs for higher traffic densities."<sup>59</sup> He does not explain, however, how this fact, even if true, supports the use of the system-average variability factor regardless of density. Indeed, the very fact that depreciation rates are higher on high density lines makes it all the more important to deal with the variability percentage if a movement-specific adjustment is made. Mr. Plaistow appears to

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<sup>57</sup> Coal Shippers Op. Comments at 96 and Verified Statement of Joseph J. Plaistow attached thereto (Plaistow Op. VS).

<sup>58</sup> In *AEP Texas*, BNSF Rebuttal Evidence, at I-3 to I-33 (filed July 27, 2004), BNSF presented a comprehensive summary of its experts' evidence demonstrating that substantial distortions result from complainant's calculation of movement-specific adjustments to road property costs using the same variability factor that is used to calculate system-average road property variable costs. BNSF also explained that the Board has never addressed the issue of whether it is proper to use the system-average variability factor to make a movement-specific adjustment. BNSF also presented in Exhibit II.A-4 to that rebuttal an econometric analysis that demonstrates that there is a strong relationship between density and the variability of road property investment costs, and that the average variability of road property investments on BNSF's system is 58 percent – higher than the 50 percent variability percentage assumed by URCS. See also *OTP*, BNSF Rebuttal Evidence, at II-9 to II-20, (filed April 29, 2004) (explaining that changes in railroad accounting practices since the adoption of URCS is another factor underlying the strong relationship between variability of road property investment and density).

<sup>59</sup> Plaistow Op. VS at 11.

concede this point, noting that “[a]ny alteration to the variability factor applying to road property return and depreciation costs must take this depreciation rate-density relationship into account.”<sup>60</sup> However, Mr. Plaistow never proposes how this could be done.<sup>61</sup>

#### **E. Other Comments**

BP Amoco objects to the Board’s proposal as it applies to large rate cases but supports it as it applies to small shipper rate cases, i.e., rate cases brought under the *Simplified Guidelines*.<sup>62</sup> As to large rate cases, BP Amoco objects to the Board’s proposal because it is “conceivable that a complainant . . . may file a complaint and allege that a rate close to or at the jurisdictional threshold should be prescribed.”<sup>63</sup> However, the possibility that variable costs might be a factor in a case is not a legitimate basis for imposing the extensive burdens on the parties associated with litigating movement-specific adjustments. Like the Coal Shippers, BP Amoco ignores the simplification objective that underlies the Board’s proposal and presents no evidence suggesting that system-average URCS costs are an unreasonable measure of variable costs for large scale unit coal movements for purposes of determining whether the Board has jurisdiction to entertain a rate complaint.

As to cases brought under the *Simplified Guidelines*, BP Amoco supports the Board’s proposal and urges the Board to disallow any adjustments whatsoever to unadjusted URCS system-average variable cost estimates.<sup>64</sup> As BNSF stated in its opening comments, BNSF

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<sup>60</sup> Plaistow Op. VS at 11-12.

<sup>61</sup> Mr. Plaistow also completely ignores the unreliability of the depreciation data that complainants have tried to use in recent cases to make a purported movement-specific road property and depreciation costs adjustment. *See e.g. AEP Texas*, BNSF Reply Evidence, II-36 to II-38 and Exhibit II.A-4 (filed May 24, 2004).

<sup>62</sup> Initial Comments of BP Amoco Chemical Co. at 2-3.

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*

agrees with the thrust of the Board's proposal to rely principally on a system-average calculation of URCS costs in small-shipper cases, but urges the Board to apply this approach with flexibility given the lack of significant experience in small shipper cases.<sup>65</sup> BP Amoco provides no valid reason for adopting an inflexible rule that adjustments to system-average costs should be disallowed in all cases.

## **VI. DCF PERIOD**

The parties commenting on the Board's proposal to shorten the SAC analysis period from the usual 20 years to ten years expressed qualified acceptance of the proposal. BNSF and UP do not oppose the Board's proposal, even though they recognize that the truncated analysis period could negatively impact the railroads, particularly in cases where the SAC analysis shows over-recovery of SAC costs in the outer years that offset under-recovery in the earlier years. They agree with the Board that a shortened DCF analysis period reduces reliance on speculative forecasts, adequately reflects the business cycles, and that an accompanying limitation on the rate prescription would reduce the need for reopening to vacate or modify existing rate prescriptions that have become obsolete due to changed circumstances. BNSF also supports the use of a shorter DCF period because it allows the Board to avoid grappling with the difficult and speculative issue of SARR productivity, since any productivity that would be experienced by a SARR would only occur in the later years of a SARR's life. NS/CSXT agree generally that a shorter DCF period makes sense, but they propose that the Board establish only a presumptive length of analysis period, allowing the parties to present evidence for different length periods based on the specific circumstances of the case.

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<sup>65</sup> BNSF Op. Comments at 68-69.

Commenting shippers had mixed views. Albemarle contends that the Board should not mandate a 10-year DCF period, but instead should address the issue on a case-by-case basis. Comments of Albemarle Corporation, at 8 (“Albemarle Op. Comments”). AECC contends that a 10-year DCF period would impede the SARR’s ability to benefit from outer year growth (AECC Op. Comments at 24), and that the Board’s proposed procedures for reopening would eliminate any need to shorten the DCF analysis period.<sup>66</sup> *Id.* at 22. The Coal Shippers support the shortened DCF period so long as (1) the Board modifies the DCF model to incorporate a new methodology for amortizing debt, and (2) the rate prescription is allowed to extend indefinitely until the railroad can prove on reopening that there are changed circumstances that justify termination. Coal Shippers Op. Comments at 102-103.

BNSF opposes the Coal Shippers’ conditions. The proposed modification to the debt amortization schedule has no place in this proceeding. The treatment of debt amortization is unrelated to the DCF period. The length of the debt amortization period is not a function of the DCF analysis period. As discussed by Mr. Baranowski in the attached verified statement, changes can be made to the DCF period without any need to address the debt amortization period. Indeed, shippers have sought changes in the debt amortization schedule in pending cases without seeking any change in the DCF period.<sup>67</sup> The two issues are separate.

It would therefore be inappropriate even to consider the Coal Shippers’ proposal in this proceeding. The NPRM sought comments on the proposed shortening of the DCF period and “how the electronic spreadsheets used in these cases should be modified to make this change [in

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<sup>66</sup> AECC’s argument is rather circular as the Board proposes to shorten the DCF period and the length of the rate prescription precisely to make such reopenings unnecessary.

<sup>67</sup> See BNSF discussion of complainants’ attempts in Docket No. 42088, BNSF Reply Nar. at III.G-19 to 20 (July 20, 2005) and in Docket No. 41191 (Sub-No. 1), BNSF Reply Nar. at III.G-23 (May 24, 2005).

the DCF period] if adopted.” NPRM at 31. The Board did not seek comments on substantive changes to other economic assumptions used in the DCF analysis and it would be inappropriate to do so now. Moreover, any change to the Board’s longstanding practices relating to the debt amortization period would require the evaluation of substantial evidence relating to railroad practices, interest rate assumptions, and the Board’s cost of capital determinations, as explained by Mr. Baranowski. This rulemaking proceeding is not the proper forum to consider such a fact-specific inquiry.<sup>68</sup>

The shippers’ second request that a rate prescription be allowed to extend beyond the 10-year DCF period and that the railroad be burdened with justifying its termination defeats the purpose of shortening the SAC analysis period. The Board was correct in recognizing that long-term rate prescriptions often becomes obsolete because they are based on projections and assumptions about the future that are inherently speculative. The purpose of the Board’s proposal is to reduce the impact of those speculative future projections on rate prescriptions and thereby reduce the litigation burdens that result from reopening proceedings that assess the continued validity of those projections. The shippers’ proposal to continue the prescription indefinitely and force the railroad to seek reopening based on changed circumstances undermines the purpose of reducing the DCF period in the first place.

Finally, all parties agree that changes to the DCF analysis period should not be applied to pending rate cases in which the evidentiary period is closed so as to avoid needless complication of those cases. Coal Shippers Op. Comments at 103.

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<sup>68</sup> In the pending WFA/Basin case (Docket No. 42088), the complainant also sought to have the Board change its treatment of the debt amortization period without any consideration of evidence by burying its proposal in a workpaper on opening. Docket No. 42088, BNSF Brief at 22-23 (December 6, 2005). If complainants want to have a serious discussion of this issue, they must raise it properly in their opening evidence with supporting evidence so that the railroad defendant has an opportunity to address the issue on the merits.

## VII. STANDARD FOR REOPENING, VACATING AND FILING A NEW CASE

The Board's NPRM proposes to amend the rules governing the reopening of Board decisions to implement the ruling of the D.C. Circuit in *BNSF v. STB*, 403 F.3d 771 (D.C. Cir. 2005), that railroads and shippers should be treated in the same way when they seek to reopen and vacate an existing rate prescription. Any party seeking to vacate an existing rate prescription – whether a shipper or a railroad – must establish that material error, new evidence or substantially changed circumstances justify reopening and vacatur. The railroad commenters, including BNSF, support the Board's proposed rule change. One shipper urges the Board to continue to apply disparate standards to shippers and railroads, although the largest group of shipper commenters – the Coal Shippers – accepts the Board's conclusion that “a common standard will be applied to all prescription reopening/vacation petitions.” Coal Shippers Op. Comments at 105.

In addition, the Board's NPRM sets out a proposed “multi-tier” procedure for addressing requests to reopen and vacate existing rate prescriptions. Under that approach, the Board will lift the prescriptive effect of the prescription upon finding that there is sufficient evidence of changed circumstances to call the validity of the existing prescription into question, and then either call for additional evidence or vacate the prescription and allow the filing of a new rate complaint. The Coal Shippers object to this proposal and instead favor a single evidentiary hearing in which the parties are allowed to present evidence beyond the scope of the original SAC assumptions, including selection of a new traffic group and revision of the SARR configuration. Coal Shippers Op. Comments at 109-14. While the hearing is pending, the rate prescription would remain in effect. Finally, the Coal Shippers argue that the Board should not allow the new standards emerging from this rule making to be used as a basis for reopening

Board decisions with respect to existing rate prescriptions. *Id.* at 115-17. BNSF addresses each of these positions below.

**A. The Board Correctly Interpreted The Court's Decision In *BNSF* As Mandating Similar Treatment For Railroads And Shippers Seeking *Vacatur* Of A Rate Prescription**

Xcel takes issue with the Board's conclusion that any party seeking to reopen and vacate an existing rate prescription must show, to the satisfaction of the Board, that material error, new evidence or substantially changed circumstances justify reopening. Xcel argues that the court's decision in *BNSF* does not mandate identical standards for railroads and shippers, but only requires that the Board provide a well-articulated reason for treating them differently. Xcel further claims that disparate treatment of shippers and railroads could be justified by the supposedly disparate effect of vacatur on shippers and railroads. According to Xcel, "*vacatur* of a rate prescription enables the railroad to regain complete rate-setting autonomy to charge a new rate pending the new case, and imposes on the complainant the high burden of preparing and submitting a new SAC analysis." Comments of Xcel Energy, at 6 ("Xcel Op. Comments").

This argument is a rehashed version of the same argument that was presented to the D.C. Circuit in support of disparate treatment in *BNSF v. STB* and rejected by the court in that case. The D.C. Circuit noted that one of the Board's justifications for disparate treatment was that "vacation of the rate prescription affords the carrier rate-making freedom while the shipper bears a substantial burden to show a new rate is unreasonable." *BNSF* at 777. Thus, the Board's rationale in *BNSF v. STB* was essentially the same rationale that Xcel now asks that the Board resuscitate and use in support of disparate treatment of shippers and railroads. But the D.C. Circuit found that "the Board's *Decision* is arbitrary and capricious," *Id.* at 778, and specifically concluded that "the Board's justification in the *Decision* for disparate treatment is flawed." *Id.* at

777. Thus, the shippers' "better rationale" has already been considered and rejected by the court.

**B. Interim Suspension Of A Prescribed Rate Is Within The Board's Authority**

The Coal Shippers object to the Board's proposal for an interim suspension of a rate prescription where the party seeking vacatur has demonstrated that there are sufficient grounds for questioning the continued validity of the rate prescription. They claim that the Board lacks the authority to take such an action, arguing that a rate prescription must remain in effect until the Board eliminates it altogether after a full hearing on the merits. Coal Shippers Op. Comments at 106. While BNSF agrees that an existing rate prescription must remain in effect until the Board has made a finding that material error, new evidence or substantially changed circumstances calls the validity of the rate prescription into question, such a finding could support a prospective lifting or suspension of the rate prescription while additional evidence is considered.

The Board is authorized under 49 USC 722(b) to "change, suspend, or set aside" a prior action by the Board. The conditions under which the Board may suspend a prior action under Section 722(b) are specified in Section 722(c), which states that the "Board may, at any time on its own initiative because of material error, new evidence or substantially changed circumstances - (1) reopen a proceeding; (2) grant rehearing, reargument, or reconsideration of an action of the Board; or (3) *change* an action of the Board." (emphasis added). So long as the Board makes specific findings of material error, new evidence or substantially changed circumstances, it may "change" the rate prescription by suspending it while additional evidence is considered. There is nothing in the statute that requires the Board to conduct a full evidentiary hearing before taking action under Section 722(b).

The Coal Shippers contend that lifting the prescriptive effect of a rate prescription is indistinguishable from a *vacatur* and is therefore unlawful absent a full evidentiary hearing. Coal Shippers Op. Comments at 107. But lifting the prescriptive effect is not a final determination on the prescribed rate; it is only a temporary action pending further investigation. As such, it is a "suspension," not a "vacation" of the prescription. "Suspension" is temporary by nature. "Suspend" means "to set aside or make temporarily inoperative," to "stop temporarily," or to "hold in an undetermined or undecided state awaiting further information." *Merriam Webster's Collegiate Dictionary* 1187 (10<sup>th</sup> ed. 1993). *Vacatur*, on the other hand, implies permanence. "Vacate" means to "make legally void," or to "annul." *Id.* at 1303. The Board's objective in the proposed standard for reopening is not to void the prescription permanently when it lifts the prescriptive effect, but to put the rate prescription on temporary hold pending further investigation. As the prescription may or may not be vacated after consideration of further evidence, the shippers' contention that lifting the prescriptive effect is the equivalent of *vacatur* is incorrect.

The Coal Shippers also contend that under *Arizona Grocery*<sup>69</sup> it is unlawful for the Board to lift the prescriptive effect of a rate prescription prior to a full evidentiary hearing. Coal Shippers Op. Comments at 101-109. But *Arizona Grocery* does not address the scope of the Board's authority under Section 722(b). It is clearly unlawful under *Arizona Grocery* to lift or eliminate the prescriptive effect of a rate prescription at any time prior to a specific finding by the Board that changed circumstances affect the continued validity of the prescription. But *Arizona Grocery* does not preclude the suspension of a rate prescription after such a finding is

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<sup>69</sup> *Arizona Grocery Co. v. Atchison, Topeka & Santa Fe Rwy. Co.*, 284 U.S. 370 (1932).

made to enable the Board fully to assess evidence on the question whether to modify the rate prescription, eliminate it altogether, or keep it in place.

**C. The Board's Proposed Limits On The Scope Of A Reopening Are Appropriate**

The Coal Shippers also complain that any limits on the scope of the reopening proceeding would unduly constrain the hearing that must be carried out before a rate prescription may be vacated. But the shippers misunderstand the question that is at issue in a reopening of an existing rate prescription. The question is not whether *any* rate prescription would be appropriate, but whether the specific rate prescription imposed on the basis of specific SAC assumptions remains valid. For example, since the original rate prescription is typically based on assumptions about future events, it is appropriate to consider whether key assumptions have turned out, over the passage of time, to be accurate. It is not appropriate to relitigate the basic assumptions about the configuration of the SARR or the composition of the SARR traffic group. New evidence relating to a SARR that is different from the SARR in the original SAC analysis would say nothing about the continued validity of the original rate prescription. It would merely indicate that different results could be obtained by changing the underlying SAC assumptions.

Shippers are not prejudiced by the proposed rule. After a rate prescription is vacated, the ratemaking initiative returns to the railroad. If the railroad then establishes a new rate that the shipper believes is unreasonable, the Board's proposed rule would allow the shipper to challenge that rate in a new SAC proceeding.

**D. The Board Should Not Adopt A Rule Addressing The Extent To Which Changes In SAC Methodology Will Be Considered In Reopening Proceedings**

The Coal Shippers ask the Board to declare that no changes in SAC methodology that result from this rulemaking proceeding can be the basis, standing alone, for a decision to reopen an existing rate prescription. Coal Shippers Op. Comments at 115-16. It would not be

appropriate for the Board to issue such a rule in this proceeding since the issue was not raised in the Board's NPRM. In any event, the question of whether a new standard or methodology constitutes or contributes to "substantially changed circumstances" that would justify reopening cannot be determined in the abstract. It must be decided on a case-by-case basis. The Coal Shippers' concerns over administrative finality and the importance of changes in the factual assumptions underlying the rate prescription would need to be considered in any request to reopen an existing rate prescription. But there is no reason to issue a rule that prohibits the Board from considering changes in SAC methodology in deciding whether to reopen a rate prescription.

#### **VIII. OTHER ISSUES – TESTING FOR CROSS-SUBSIDY**

The Coal Shippers argue that the Board's cross-subsidy test, as applied in *PPL* and *Otter Tail*, is inconsistent with the *Guidelines* and constrained market pricing, and must therefore be abandoned. Coal Shippers Op. Comments at 55. The Coal Shippers argue that the *Guidelines* are concerned only with the question whether a *complainant* is cross-subsidizing other traffic, not whether other traffic in a proposed SARR is cross-subsidizing the complainant. The Coal Shippers assert that it is therefore inappropriate to test whether other traffic in the SARR cross-subsidizes the issue traffic and that preventing such cross-subsidies is, in fact, inconsistent with the complainant's prerogative to group traffic in a beneficial manner. *See, e.g.*, Coal Shippers Op. Comments at 65-66. In essence, the Coal Shippers argue that a complainant is entitled to create a SARR in which the issue traffic is cross-subsidized by other shippers and the cross-subsidy that the issue traffic receives from other shippers can be used to reduce the issue traffic rate.

As a preliminary matter, it is clear that the Board's cross-subsidy rules are not part of this proceeding. The cross-subsidy rules did not form a part of the NOPR, and the Board has not

issued any subsequent order that would expand the rulemaking to include new issues. It was therefore inappropriate for the joint shippers to submit detailed comments on this issue, and the Board should disregard those comments.

Moreover, the Board's cross-subsidy rules are economically sound, grounded in rational application of the cross-subsidy principles set out in the *Guidelines*, and judicially approved. When it adopted the cross-subsidy test, the Board explained that the elimination of the effects of cross-subsidies was a "fundamental principle" of constrained market pricing. *PPL Montana, LLC v. Burlington Northern & Santa Fe Railway Co.*, STB Docket No. 42054, slip op. at 6 (served Mar. 24, 2003). Rejecting the same arguments made here, the Board reasoned that "[i]t would turn the CMP principle against cross-subsidization on its head to protect a captive shipper from subsidizing other traffic, while at the same time allowing that shipper's rates to be subsidized by other traffic." *Id.*

The Board's cross-subsidy test was affirmed by the D.C. Circuit in *PPL Montana, LLC v. Surface Transportation Board*, 437 F.3d 1240 (D.C. Cir. 2006). PPL made the same argument to the Court that the Coal Shippers make here. As the Court noted, "PPL suggested the SAC test only prevented the complaining shipper from being forced to subsidize other traffic, and that the complaining shipper was free to design a SARR in which other traffic subsidized the complaining shipper." *Id.* at 1243. But the Court agreed with the Board that "the primary purpose of the SAC test . . . is to guard against 'both cross-subsidization by and cross-subsidization of the captive issue traffic' when determining the reasonableness of the issue traffic's rates." *Id.* at 1245 (quoting the Board's August 2002 decision). As the court recognized, SAC is grounded in competitive market principles, and cross-subsidies would not exist in competitive markets. Moreover, the Court agreed with the Board's obvious conclusion

that a rate cannot be unreasonably high if it does not generate enough revenues, along with revenues from other shippers using the same facilities, to cover the costs of the facilities used by the issue traffic: “[T]he Board’s decision advances the reasonable proposition that the captive issue traffic cannot be improperly subsidizing other traffic if the issue traffic cannot even cover its own attributable costs; in other words, it is difficult to steal from a penniless Peter to pay Paul.” *Id.* at 1245-46.

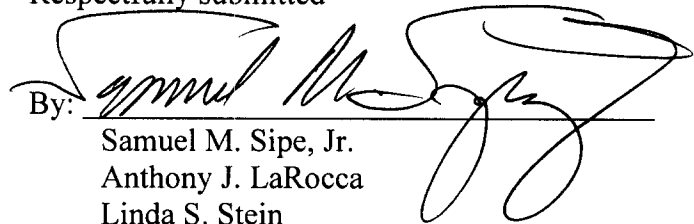
The Board’s extension of the cross-subsidy rule in *Otter Tail* to the rate reduction phase was a logical application of the same principles articulated by the Board in *PPL* and confirmed by the D.C. Circuit. As the Board explained, if it were to allow shippers to rely on cross-subsidies in the presentation of SAC evidence, a “test designed to root out costs associated with cross-subsidization would be transformed into one where captive shippers seek out cross-subsidies to pay for the facilities needed to serve them.” *Otter Tail*, slip op. at 25. Shippers should not be able to use cross-subsidies to create the appearance that a challenged rate is unreasonably high, and they should not be able to use cross-subsidies to produce unwarranted rate reductions.

Professor Willig explains in his reply statement that it is entirely appropriate for the Board to apply its cross-subsidy test both initially and as a check to the level of the prescribed rate. It is undesirable for the regulatory process itself to introduce or exacerbate inefficiencies in the incumbent’s rate structure. The Board’s cross-subsidy test guards against such problems. Moreover, the concern that the cross-subsidy test will unnecessarily complicate SAC proceedings is based on a misperception of what the test actually requires. The cross-subsidy test does not require a complainant to posit an optimal SARR, it merely requires that the SARR posited by complainant should be free of cross-subsidy.

Mr. Klick explains in his reply statement that Professor Borts' discussion of cross-subsidy is in error because Professor Borts does not recognize how the Board's cross-subsidy test treats different kinds of costs. Contrary to Professor Borts' contention, and the example he uses, the Board's treatment of costs ensures that the test for cross-subsidy is conservative and will not show a cross-subsidy except in fairly extreme cases.

Respectfully submitted

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May 31, 2006

ATTORNEYS FOR  
BNSF RAILWAY COMPANY

**CERTIFICATE OF SERVICE**

I, Anthony J. LaRocca, hereby certify that on this 31<sup>st</sup> day of May, 2006, I caused a copy of BNSF Railway Company's Reply Comments to be served by first-class mail or a more expeditious method of delivery upon all persons who have filed a notice of intent to participate in STB Ex Parte No. 657 (Sub-No. 1).

  
\_\_\_\_\_  
Anthony J. LaRocca

Kalt

**BEFORE THE  
SURFACE TRANSPORTATION BOARD**

**Ex Parte No. 657 (Sub-No. 1)  
MAJOR ISSUES IN RAIL RATE CASES**

**Verified Reply Statement of  
Joseph P. Kalt, Ph.D.  
On Behalf of BNSF Railway Company**

May 31, 2006

## I. INTRODUCTION

### A. Witness Background and Qualifications

My name is Joseph P. Kalt. I am the Ford Foundation Professor of International Political Economy at the John F. Kennedy School of Government, Harvard University. The Kennedy School is Harvard's graduate school of public policy and public administration. In addition to my work at the Kennedy School, I am also a Senior Economist at Lexecon, an economics consulting firm and a division of FTI Consulting. I hold B.A., M.A., and Ph.D. degrees in economics and am a specialist in the economics of competition, antitrust, and regulation, with particular emphasis on the energy, natural resource, and transportation sectors. Throughout my professional career I have conducted research, published, taught, and testified extensively on the economics of competition and regulation, with a particular emphasis on regulated industries. I have studied extensively the economics and regulation of the railroad industry and have presented expert testimony before the Surface Transportation Board (STB or Board) on numerous occasions, most recently in *WFA*.

I previously filed a Verified Statement in this proceeding, *EP 657: Major Issues in Rail Rate Cases* (Opening V.S.). In this Reply Verified Statement (Reply V.S.), I have been asked by BNSF Railway Company (BNSF) to comment specifically on the submissions of the Western Coal Traffic League (WCTL); AEP Texas North Company (AEPTX); Western Fuels Association, Inc., and Basin Electric Cooperative, Inc. (WFA); and Arkansas Electric Cooperative Corporation (AECC). In each case, I consider the economic and policy implications of these submissions' analyses and recommendations relative to two primary issues raised by the Board in *EP 657*: (1) the appropriate rate prescription methodology, and (2) the appropriate principles of revenue allocation for cross-over traffic under the Stand-Alone Cost (SAC) test for rate reasonableness originally set forth in the *Coal Rate Guidelines (Guidelines)*.<sup>1</sup>

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<sup>1</sup> *Coal Rate Guidelines*, Nationwide, 1 ICC 2d 520C (August 8, 1985) (hereinafter, *Guidelines*).

## **B. Summary of Findings**

**Rate Reduction Methodology:** In my Opening V.S., I compared the two proposals (plus variants) for rate reduction methodology set out by the Board in *EP 657* – Maximum Contribution Methodology (MCM) and Maximum Markup Methodology (MMM) – to the Board’s longstanding Percentage Reduction Method (PRM). As I explained therein, the PRM approach to rate prescription recognizes that pre-reduction pricing by the commercially rational incumbent can be presumed to reflect Ramsey principles of differential pricing under which customers with less elastic demand exhibit generally higher rates and higher percentage mark-ups over marginal cost. I noted that these basic relative rate relationships must be maintained, even if rate prescriptions are imposed, if a rate prescription methodology is to be consistent with Ramsey pricing and contestable market theory – the two principles the Interstate Commerce Commission (ICC) cited in the *Guidelines* as underpinning Constrained Market Pricing (CMP) and the SAC test.

Compared to PRM, both MCM and MMM are markedly inconsistent with the simulated competition of contestability and the Ramsey principles that are clearly articulated in the *Guidelines*. Although described as “demand-based” in the *EP 657* rulemaking decision, both MCM and MMM are, at their core, fully distributed cost methodologies that attempt to focus on equal distribution of costs among shippers without regard for the differences in value (i.e., demand elasticities) that individual shippers place on rail transportation. By embracing cost-based methodologies, MCM and MMM fly in the face of the *Guidelines*, which were highly critical of the arbitrariness of establishing rail rates based on cost allocation.<sup>2</sup>

**Rate Reduction Methodology (Reply):** In this Reply V.S., I apply the economics of Ramsey pricing principles and contestability to evaluate alternatives to the PRM methodology that have been proposed by intervening parties. WCTL, in particular, is aggressive in asserting that rate reduction should be determined in both methodology

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<sup>2</sup> *Guidelines* at 523, 526.

and magnitude on a case-by-case basis.<sup>3</sup> This is a recommendation for no generalizable methodology. But the principles of Ramsey pricing and the economics of contestability do not vary from case to case. They are generalizable frameworks; that is why the *Guidelines* could be built upon them. The Board's rate reduction methodology should be consistent across cases with the economics of contestability and Ramsey pricing principles.

AEPTX proposes, with WCTL's endorsement, that the Board adopt the General Percent Reduction Method (GPRM) proposed by AEPTX in *Docket No. 41191 (Sub-No. 1) (AEP Texas)*. Relative to the Board's current PRM methodology, GPRM is decidedly inferior. GPRM's purported goal is to make the Board's rate reduction methodology consistent with Ramsey principles and to eliminate purported incentives for carriers to "game" the SAC process by establishing rates above commercially reasonable levels in the hope that SAC tests will not lower such rates to below the level carriers' desire. GPRM fails in meeting both of its stated objectives. The proposed rate reduction method requires measurement of the true marginal costs of serving all of the shippers contained in the Stand-Alone Railroad's (SARR's) proposed traffic group. GPRM's proposal to employ the Uniform Railroad Costing System (URCS) as a proxy for economic marginal cost represents a vain hope of achieving the impossible. This is not a matter of whether URCS cost proxies could be "good enough." Rather, as I discuss below, the use of URCS proxies for marginal cost would introduce distinct biases into GPRM – biases that would point in the direction of systematically lowering rail rates below Ramsey levels for services such as rail transportation of coal.

WFA proposes that the Board adopt WFA's so-called Reasonable Allocation Method (RAM) or, in the alternative, WFA's Reduced Mark-Up Method as these have been advanced by WFA in its pending rate case challenging certain rates of BNSF (i.e., *Docket No. 42088 (Western Fuels)*). The RAM approach to rate reduction in SAC

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<sup>3</sup> See, e.g., Joint Opening Comments of Western Coal Traffic League, Concerned Captive Shippers, Western Fuels Association, Inc., Edison Electric Institute, National Rural Electric Cooperative Association and American Public Power Association, Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases, (hereinafter WCTL Opening) at 13; Verified Statement of Thomas D. Crowley, on behalf of Western Coal Traffic League et al, Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases (hereinafter, Crowley Opening V.S.) at 3.

analyses would be starkly inconsistent with Ramsey principles and, even on its own terms, would require wholly unrealistic assumptions regarding shippers' demands and demand elasticities. From a public policy perspective, the Percentage Reduction Method that the Board has repeatedly employed is clearly preferable to RAM. WFA's Reduced Mark-Up Method is similarly dominated from a public policy perspective by the Board's extant Percent Reduction Methodology.<sup>4</sup>

**Revenue Allocations for Cross-Over Traffic:** In my Opening V.S., I noted that the Board has recognized that its current system of cross-over allocation creates strong incentives for shippers to design grossly inefficient and biased SARRs. A complainant can selectively choose highly rated (i.e., high revenue and low cost) traffic on the SARR and use rules-based revenue divisions to "game" the process by designing a SARR to capitalize on divisions that reward small SARRs with very large amounts of revenue from highly rated cross-over traffic.<sup>5</sup> With the overwhelming majority of a SARR's revenues coming from cross-over traffic, the challenged traffic is required to provide proportionately less of the revenue burden needed to ensure that overall SARR revenues just cover its stand-alone costs. This increases the likelihood that the incumbent's challenged rates will be found to exceed the rates that would exist in a contestable market.

In *EP 657*, the Board suggests an alternative to its current Modified Straight-Mileage Prorate (MSP) method of allocating revenues to SARRs' cross-over traffic. Under the alternative, the Board would employ a measure of Average Total Cost (ATC) to create a proxy for what the Board refers to as a "full" SAC analysis of a full SARR that would compete to replace all of incumbent carrier's facilities and operations utilized by the SARR's traffic groups.<sup>6</sup> As I showed in my V.S., there is no need to turn to a

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<sup>4</sup> Although vague, Arkansas Electric Cooperative Corporation appears to endorse the MCM or MMM methodologies. (See Written Testimony of Michael A. Nelson on behalf of Arkansas Electric Cooperative Corporation, Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases (hereinafter "AECC Opening"). I have addressed these options in detail in my V.S. in this proceeding. My analyses there apply to AECC's comments.

<sup>5</sup> STB Docket No. 42072, *Carolina Power & Light Company v. Norfolk Southern Railway Company*, Decision (December 22, 2003) (hereinafter *CP&L/NS Decision*) at 31-32.

<sup>6</sup> Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases; Docket No 41191, *West Texas Utilities Company v. BNSF Railway Company*; STB Docket 41191 (Sub no. 1), *AEP Texas North*

proxy approach in order to properly incorporate cross-over traffic. The economics of contestability readily yield cross-over allocations for SARR's actually proposed by shippers. Specifically, these economics yield cross-over revenues equal to the incumbent's avoided costs on cross-over traffic, and doing so provides shippers with proper incentives to design efficient SARRs.

**Revenue Allocations for Cross-Over Traffic (Reply):** Shipper intervenors in this proceeding vociferously oppose changes to the MSP approach. If the MSP approach is to be abandoned, WCTL would prefer to determine cross-over revenue allocation via empirical estimation of "real world" rate divisions. As discussed in my Opening V.S., the MSP approach is wholly inconsistent with the economics of contestability embraced by the *Guidelines*. WCTL's alternative of "actual market divisions" is similarly inconsistent with these economics. The SARRs actually proposed by shippers are properly allocated revenues in accord with incumbents' avoided fixed and variable costs when a SARR replaces the incumbent on system segments that carry the SARR's cross-over traffic. As explained in my Opening V.S., for SARRs that choose to compete for non-issue traffic as *partial* SARRs competing to attract cross-over traffic, this avoided cost standard for determining cross-over revenues follows directly from the economics of contestability. However, if the Board determines that SAC analysis should proceed as if "full" SARRs are competing to replace the incumbent in serving Complainants' traffic groups, the ATC method for allocating revenues to cross-over traffic, set out by the Board in *EP 657*, would represent a sound starting point.

Finally, the treatment of cross-over traffic in SAC analysis must be harmonized with whatever rate reduction methodology is applied when an incumbent's rates are found to generate SARR revenues which exceed the stand-alone cost of a Complainant's SARR. Specifically, whatever rate reduction approach is applied in such cases must be applied to the *through* rates associated with cross-over traffic carried by the SARR. The Ramsey pricing principles and the economics of contestable markets are unambiguous in

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Company v. BNSF Railway Company; STB Docket No. 42088, Western Fuels Association Inc., & Basin Electric Power Cooperative v. BNSF Railway Company; STB Docket No. 42095, Kansas City Power and Light Company v. Union Pacific Railroad Company, Decision (February 27, 2006) at 7 (hereinafter *EP 657: Major Issues in Rail Rate Cases*) at 17.

indicating: (1) that Ramsey prices and principles only apply to the through rates that interact with shippers' demand elasticities to determine the volume of rail service shippers purchase; and (2) that, in the simulated competition of contestable markets that is the heart of SAC analysis, a "full" SARR would put downward pressure on all of the incumbent's *through* rates.<sup>7</sup> For rate reduction in SAC cases to be coherently consistent with the principles of Ramsey pricing and contestable markets, this means that reduction or mark-up percentages emanating from PRM, MCM, MMM, GPRM, RAM or whatever method the Board adopts must be applied to through rates.

## **II. RATE PRESCRIPTION AND THE ECONOMICS OF THE COAL RATE GUIDELINES**

### **A. Shipper Proposals for a "Case-by-Case" Standard**

With respect to the matter of rate prescription methodologies in SAC cases, WCTL and other shippers filing comments in this proceeding advocate no outcome at all, arguing that the appropriate method for resolving rate disputes be decided on a "case-by-case" basis.<sup>8</sup> This approach, however, would leave rate prescription in SAC cases unguided by any overarching, generalized framework grounded in sound application of the economics the *Guidelines* rely upon for why SAC analyses should be done in the first place. Those economics – of contestability and Ramsey prices – have their roots deep in concepts of the public interest and designs of regulatory mechanisms that serve the public interest.<sup>9</sup>

In fact, it is telling in a context such as this when one side of the private interests at stake seeks to avoid adoption of guidelines and principles of sound policy and, instead, invokes a claimed need for case-by-case determinations on a recurring issue. Such a strategy asks for a move away from regulatory policymaking according to coherent frameworks and rules, and toward regulatory policy more susceptible to political forces and pressures. While such a move may be desirable from the perspective of a private

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<sup>7</sup> As discussed at length in my Opening V.S., in a contestable market, a partial SARR would realize the incumbent's avoided fixed and variable costs on partial (i.e., cross-over) traffic moves.

<sup>8</sup> See, e.g., Crowley Opening V.S. at 3; WCTL Opening at 13 and 22-25.

<sup>9</sup> Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases, Verified Statement of Joseph P. Kalt, Ph.D. on behalf of BNSF Railway Company, (hereinafter Kalt Opening V.S.), at 11-13.

party that fares better wielding political influence than wielding applicable rules and principles, considerable research tells us that, in the realm of governmental policy, stable and coherent rules of the game are critical to satisfying the public's interest in a healthy economy.<sup>10</sup> It is wholly appropriate that an agency such as the Surface Transportation Board undertake, as it is doing here, to build regulatory systems on firm principles that point its decisions toward service of the public interest. Adoption of such principles and procedures will provide information to future participants in rate cases; provide the basis around which parties might enter into independent agreements to resolve rate disputes; and remove the temptation that one party or the other may perceive in taking unfair advantage of a regulatory vacuum by advancing results-oriented methodologies designed to yield the best results for that party in a given case.

### **B. Guiding Economic Principles**

For these reasons, it is appropriate and necessary to develop a framework for rate prescription that is grounded in the basic economic principles of the rail industry. As I noted in my Opening V.S.,<sup>11</sup> the *Guidelines* appropriately employed such a framework. The policies implemented under the *Guidelines* are intended to set maximum rates for coal transportation in the face of a tension between railroads' need for differential pricing and concerns over potential railroad market dominance. The *Guidelines* approach this tension by relying upon the results of simulated competition to establish maximum rates on coal (and other traffic) over which a carrier may be found to be market dominant. This is accomplished by invoking the principles of contestable markets and Ramsey-based differential pricing.

**Contestability:** Under the *Guidelines*' Constrained Market Pricing, the total revenue needed by a rail system or subset of a rail system to ensure that it is able to cover its costs plus a reasonable rate of return is determined using the principles of contestability. A market is contestable when it is free of barriers to entry and exit that can otherwise impede competitors from entering the market to compete as a supplier of

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<sup>10</sup> A classic in this regard is by Nobel Laureate Douglass C. North, *Institutions, Institutional Change, and Economic Performance* (Cambridge, UK: Cambridge University Press, 1990).

<sup>11</sup> Kalt Opening V.S. at 4-13.

customers' needs. Under such conditions of free entry and exit, even if the market is served at lowest cost by a single large firm that maximizes economies of scale and scope, that single large firm will not be able to extract monopoly prices and profits. This is because if it tries to do so, it is immediately subject to entry and attack by freely entering (and freely exiting) competitors. Under contestable market conditions, surviving suppliers can realize only their costs plus a reasonable (i.e., competitive) rate of return.<sup>12</sup> The real world of the railroad industry obviously is not actually contestable – if it were, there would be no need at all for railroad rate regulation. SAC analysis is designed to simulate the results of contestability. The hypothetical entrant envisioned in the SAC analysis must charge rates sufficient to permit long-term viability, but can earn revenues no higher than those required for long-term viability (i.e., by covering costs plus a reasonable return to reflect the cost of capital).

**Ramsey Pricing:** The *Guidelines* also invoke the principles of Ramsey pricing.<sup>13</sup> As discussed in my Opening V.S. and the Opening V.S. of Prof. Robert Willig,<sup>14</sup> Ramsey pricing describes a set of rules that simultaneously address the paired challenges of (1) limiting the total revenues of a firm to no more than its total costs (including a reasonable return to cover the cost of capital), and (2) minimizing the distortions to efficiency and the associated public interest in an economy that maximizes consumers' well-being when some of this distortion is unavoidable because the existence of joint and common costs requires differential mark-ups on each movement above its attributable costs.<sup>15</sup> Indeed, the Ramsey pricing rules are derived mathematically in economics by maximizing the benefit to the public of a sector such as railroading. This means limiting the system to no more total revenue than needed to attract and hold investors, and differential pricing that sets rates relative to costs highest for those movements with the highest valuation of their

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<sup>12</sup> *Guidelines* at 528, EP 657 at 5.

<sup>13</sup> *Guidelines* at 526-528.

<sup>14</sup> Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases Verified Statement of Robert D. Willig, on behalf of BNSF Railway Company (hereinafter Willig Opening V.S.) at 5-11 and 13-15.

<sup>15</sup> This minimization of the loss to consumer well-being that arises because first-best pricing at variable cost is not achievable causes Ramsey pricing to be labeled "second-best" pricing. In other words, the best we can do in the real world in which differential pricing is unavoidable.

rail service in the sense that demands are least discouraged (least elastic) in the face of higher prices. The mathematics of this exercise yields the Ramsey pricing rule:

$$[(P_1 - MC_1)/P_1] \div [(P_2 - MC_2)/P_2] = \epsilon_2/\epsilon_1 ;$$

for any two shippers, 1 and 2, with elasticities of demand  $\epsilon_1$  and  $\epsilon_2$ .

Thus, under Ramsey pricing, prices across different shippers are set such that each movement's relative mark-up above marginal costs<sup>16</sup> per unit of service varies inversely with its elasticity of demand, and relative mark-ups of any two moves are inversely proportional to the ratio of those movement's relative demand elasticities. The implication is that for, say, non-captive traffic where a shipper might turn relatively easily to, for example, another railroad or another transport mode, elasticities of demand can be expected to be relatively high, and corresponding Ramsey-derived prices would be marked up relatively little (albeit, generally not by zero) compared to marginal cost. Shippers with low elasticities of demand – reflecting more limited alternatives, inelastic ultimate consumer demand, and the like – would see higher relative mark-ups of prices over marginal costs. The evident tight dependency of mark-ups on elasticities of demand is what it means for the *Guidelines* to refer to proper (Ramsey) pricing of rail service as “demand-based.”<sup>17</sup>

### C. Implications for SAC Analysis

As discussed in my Opening V.S., the basic Ramsey pricing rule with respect to price mark-ups is, to a first approximation, applicable to an unregulated, profit-maximizing firm. The difference between Ramsey pricing applied to the regulated firm and the unregulated firm is that, in the former case, the sum of all revenues –the portions covering both marginal costs and mark-ups – is set equal to cost plus a reasonable return. The unregulated firm charges higher relative mark-ups to less elastic customers in order to maximize *unconstrained* profit. In the contestable setting of SAC analysis, the SARR is attempting to do the same thing, but conditions of free entry mean that the SARR

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<sup>16</sup> I.e., expressing mark-up of price above marginal cost as a percent of price.

<sup>17</sup> *Guidelines* at 526-527.

cannot realize excess profits (i.e., revenues in excess of costs plus a competitive return to capital). The SARR is appropriately treated in the simulated competition of SAC analysis as being economically compelled to offer the shippers whose business the SARR is chasing prices which are simultaneously sufficient to allow the SARR to break even, and which generate maximum benefit for shippers being served. These are the Ramsey prices. If the SARR doesn't offer them, the SARR does not "win" in the contestable market because the conditions of free entry implicate other competitors able to offer shippers more benefit.

The observation that the incumbent railroad that has not had its rates rolled back by regulation would rationally set relative mark-ups inversely proportional to demand elasticities means that, upon coming into a contestable market against the incumbent, the "winning" SARR will put downward pressure on all rates by following the formula above, reducing mark-ups so as to preserve the Ramsey formula, but pulling down total revenues so that SARR realizes only its costs plus a competitive return. As discussed at length in my Opening V.S., the MCM and MMM methodologies proposed by the Board in *EP 657* for rate reduction in SAC cases would both fail, as a general matter, to exhibit this basic attribute of the contestability foundations of the *Guidelines*.<sup>18</sup> In the same spirit, let us now examine intervening shippers' additional proposals for rate reduction methodologies.

### **III. SHIPPER PROPOSALS RE: RATE REDUCTION METHODOLOGIES**

#### **A. AEPTX's/WCTL's GPRM Proposal**

In AEP Texas, AEPTX proposed what it terms a General Percentage Reduction Method (GPRM). AEPTX, along with WCTL, now suggests to the Board that, if this rulemaking is to yield a general rule for rate reduction, that rule should be GPRM. GPRM is purported by AEPTX (and, implicitly, WCTL) as a more consistent with the

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<sup>18</sup> Testimony submitted in this proceeding by Michael Nelson as an expert on behalf of AECC proposes an iterative allocation of a SARR's stand-alone revenue requirement. Like the MCM and MMM approaches, Mr. Nelson's proposed rate reduction methodology results in rate compression and rate equalization across select shippers. (See AECC Opening at 6.) As discussed at length in my Opening V.S., this is wholly inconsistent with Ramsey pricing and the economics of contestable markets.

Ramsey pricing rules and as overcoming the purported “gaming” of initial rates by carriers.<sup>19</sup> As I show here, neither of these claims withstands scrutiny.

GPRM attempts to invoke the Ramsey formula set out above. According to AEPTX’s Opening submission in this rulemaking, GPRM would proceed by calculating relative mark-ups,  $(P_i - MC_i)/P_i$ , for all traffic for which the SARR sets itself up to compete in the contestable market. Based on the Ramsey formula set out above, “[t]he estimated mark-ups are used to infer the relative demand elasticities”<sup>20</sup> (i.e.,  $\epsilon_2/\epsilon_1$ ). This gives GPRM its target: Reduce all rates so as to leave relative mark-ups equal to original relative demand elasticities. To be meaningful, the attempt to “infer” the Ramsey value,  $\epsilon_2/\epsilon_1$ , could only be made with respect to prices and elasticities of demand for *through* moves. For purposes of the Ramsey pricing rule set out above, neither prices nor elasticities are even defined over, for example, sub-portions (e.g., cross-over portions) of a through move. For this reason, as I discuss below in the context of harmonizing cross-over revenue allocation with SAC rate reduction, any coherent rate reduction methodology must be applied to through rates under which cross-over traffic moves.

In implementing PRM, the rates paid by individual movements,  $P_i$ , would apparently be based on extant rates at the time of calculation for purposes of the SAC analysis.<sup>21</sup> Marginal cost,  $MC_i$ , of serving each individual movement would be estimated using Phase III URCS variable cost items, adjusted for individual movements. Each individual movement’s total contribution of mark-up revenues,  $M_i$ , would then be

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<sup>19</sup> Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases, Opening Comments of AEP Texas North Company (hereinafter AEPTX Opening) at 15-16.

<sup>20</sup> AEPTX Opening at 12.

<sup>21</sup> AEPTX refers to the prices to be used as starting points under GPRM as the “original rates[s].” See AEPTX Opening at 13. My analysis in the text treats these as referring to the rates in place at the time of a rate challenge (i.e., with the challenged rate being the  $P_i$  of the issue traffic). If, as applied to the challenged rate, “original rate” were to refer to the rate in place for the issue traffic *before* a rate increase occasioning the rate challenge, GPRM would be rendered logically incoherent on its own terms. GPRM relies on rates prevailing in the market to provide Ramsey-relevant information on mark-ups and (implicitly) elasticities of demand. Such an approach requires, at a minimum (i.e., ignoring, for the sake of argument, the method’s infeasible reliance on true marginal costs) that the  $P_i$  of the issue and non-issue traffic be the rates that the rational, unconstrained carrier sets absent the rate challenge in light of the carrier’s perceptions of elasticities of demand and marginal costs. Pre-increase rates on the issue traffic are out of step with these market-driven rates; that is why issue traffic rates get raised.

calculated as the product of  $(P_i - MC_i)$  per ton of movement  $i$  traffic times the volume,  $Q_i$ , in tons of movement  $i$  traffic. In the event a SAC analysis found that extant rates of the incumbent applied to the SARR's traffic group yielded an overage of revenues for the SARR relative to the SARR's break-even total costs, rates for issue and non-issue movements would be reduced by subtracting from each movement's total mark-up contribution a share of the overage equal to that movement's share of the total mark-up revenues of all of the issue and non-issue traffic.<sup>22</sup>

The foregoing formulas and calculations are offered by AEPTX as means of purportedly making SAC rate reductions "consistent with Ramsey pricing principles."<sup>23</sup> In fact, GPRM is subject to a number of shortcomings and irresolvable questions of calculational feasibility that render this claim unsupportable. Consider, for example, the underlying premise of GPRM – that it allocates rate reductions across all issue and non-issue traffic in a manner which preserves pre-challenge ratios of relative mark-ups (*per* the Ramsey formula above) and, hence, results in ratios of relative mark-ups at post-reduction rates that continue to equate to pre-reduction ratios of elasticities,  $\epsilon_2/\epsilon_1$ . The very premise is unsupportable: There is, in fact, no basis for asserting that the Ramsey ratio of  $\epsilon_2/\epsilon_1$  "should" remain constant when an incumbent's extant rates are subject to substantial reduction of the type routinely requested by Complainants in SAC cases. Let us examine why.

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<sup>22</sup> As originally proposed by AEP Texas in AEP Texas v. The Burlington Northern Santa Fe Railway Company, GPRM would employ an iterative approach similar to MMM and MCM. I have discussed the infirmities of such an approach in my Opening V.S. See, also, STB Docket No. 41191 (Sub-No. 1), AEP Texas North Company v. The Burlington Northern and Santa Fe Railway Company, Reply Evidence of The Burlington Northern and Santa Fe Railway Company (May 24, 2004) (hereinafter "BNSF Reply, AEP Texas v. BNSF") at III-G-40-41. AEPTX now appears to have abandoned this approach.

<sup>23</sup> AEPTX Opening at 10. See, also, AEPTX Opening at 9, 15, 16. AEPTX also asserts (at 15) that GPRM "eliminates the risk of gaming," referring to the Board's description of such "risk" in *EP 657*. (*EP 657: Major Issues in Rail Rate Cases* at 7-9) The Board sees these risks as arising when the challenged carrier can establish the challenged rate as the starting point for a rate reduction calculation. In so far as AEPTX intends the GPRM to employ the carrier's challenged rate (see note 21 above) in determining an applicable rate reduction, GPRM does not eliminate the asserted "risk." As I discuss in my Opening V.S., the "risk" the Board perceives is properly addressed as an evidentiary matter, rather than through manipulation of rate reduction calculations such as are contained in MCM and MMM.

**GPRM's Treatment of Demand Elasticities:** AEPTX's proposed GPRM methodology is built on assumptions and calculations regarding both demand elasticities and marginal costs. The *Guidelines* note with force, however, that (at 257):

We did not consider it to be practical to impose pure Ramsey pricing as a regulatory requirement for across the board application in all cases. Ramsey pricing is based on a mathematical formula that requires both the marginal cost and the elasticity of demand to be quantified for every movement in the carrier's system. Thus, the amount of data and degree of analysis required seemed overwhelming. We concluded that while formal Ramsey pricing is useful as a theoretical guideline, it is too difficult and burdensome for universal application.

With respect to demand elasticities, the underlying premises of GPRM are that the ratio of elasticities,  $\epsilon_2/\epsilon_1$ , can be "inferred" from the original ratios of relative mark-ups; and that this inferred ratio of demand elasticities can then be employed by GPRM as the target at which SAC rate reduction should aim.<sup>24</sup> This approach, however, presumes constancy in relative elasticities of demand as rates are reduced via GPRM. Yet, there is no foundation for believing that, as volumes demanded by shippers change in response to a change in rates, elasticities of demand are constant.

Indeed, demands of constant elasticity have a particular, even peculiar, logarithmic mathematical form which is but one form from among an infinite possible number of forms of mathematical representations of demand. Moreover, nature – or human nature – is not so cooperative as to provide meaningful guidance as to how demand elasticities may change as prices change. Thus, for example, if a shipper's alternatives to a carrier's rail service only become attractive when rail rates are quite high, the carrier's unregulated rates might well be pushed toward those high levels – where the availability of alternatives can start to make demand for the carrier's service more elastic. Lowering rates (e.g., in the simulated competition of SAC analysis) can then move rates into ranges of less elastic demand. On the other hand, if pushing rates to higher levels doesn't call practical alternatives into play, but does squeeze out less urgent

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<sup>24</sup> Even on its own terms (including the implicit assumption that volumes of traffic are not affected by rates), GPRM's calculations do not (except in mathematically peculiar settings) produce relative rates and mark-ups that "hit" the presumed target of the pre-reduction  $\epsilon_2/\epsilon_1$ . The direction of bias in failing to hit this target can go in either direction for any individual shipper.

ranges of rail use, shippers may well exhibit lower elasticity of demand at higher rates, and higher elasticity of demand at lower rates. Moreover, the permutations and magnitudes of these types of problems only escalate when we wish to know how much demand elasticities change over large ranges of price movements – such as the movements that complaining shippers understandably hope for in SAC analyses.

The “anything could happen” character of this discussion of changes in demand elasticity as one moves over the range of price and volume combinations that describe shipper demands is not empty speculation or quibbling. It is why the *Guidelines* are correct in concluding that credibly quantifying and employing demand elasticities to justify rates would require an “overwhelming” “amount of data and degree of analysis.”<sup>25</sup> This conclusion of the *Guidelines* applies with equal force to claims that GPRM is an implementation of Ramsey pricing or can be concluded to be consistent with the Ramsey pricing formula.

**GPRM’s Treatment of Marginal Costs:** Even more profound difficulties for GPRM lie in its treatment of the other primary component of the Ramsey pricing rules – marginal cost. GPRM cannot proceed without calculation of marginal cost, since it is the ratio of percentage mark-ups,  $(P_i - MC_i)/P_i$ , that is used in GPRM to “infer” and set the target value of  $\epsilon_2/\epsilon_1$  from the Ramsey pricing rule. As noted, in order to calculate marginal cost, AEPTX proposes to use Phase III URCS costing procedures, presumably employing such URCS cost components as seem to represent variable costs. AEPTX proposes to approximate marginal cost for use in the GPRM calculations with URCS proxies for “system average marginal costs,” adjusted for distance.<sup>26</sup> In AEP Texas, the proposed adjustment for distance employed URCS Phase III costing procedures, including the *Ex Parte* 270 trainload adjustments, to generate “marginal costs” for movements of 300, 600, 900, and 1200 miles. For GPRM purposes, URCS variable unit costs were modified to eliminate overhead rates, to eliminate various supervision and superintendence costs, to eliminate fixed plant depreciation and lease rentals, to eliminate

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<sup>25</sup> *Guidelines* at 527.

<sup>26</sup> AEPTX Opening at 12.

returns to fixed plant, to eliminate certain CLOR costs not associated with coal service, and to add certain replacement costs for track.<sup>27</sup>

GPRM's proposed calculations and use of URCS costs would be inconsistent with Ramsey pricing and the *Guidelines*. As the *Guidelines* note (at 532, n. 31):

Ramsey pricing requires the use of *economic* costs rather than accounting costs. Although Rail Form A or URCS might be useful as a rough indicator of economic costs, we recognize that local factors and circumstances may cause the economic costs to differ greatly from accounting estimates. Such local factors might include, for example, where the movement is a backhaul or off-peak movement or whether the facilities are congested.

The emphasis on *economic* marginal costs is critical in this context. The overriding goals of Ramsey pricing are protection and promotion of the public interest. As discussed in my Opening V.S., Ramsey pricing pursues these public interest objectives by setting prices above marginal costs so as to allow the firm under analysis to cover its costs, while minimizing the distortion to the efficient use of society's resources that comes from pricing above marginal cost.<sup>28</sup> The true, economic marginal cost of providing a good or service (such as rail transportation) to any particular use and customer consists of the value of the resources used up or otherwise forgone by devoting resources to that use and customer, relative to other uses to which those resources might be put (including using the rail service to serve other shippers, or using the associated fuel, labor, and other inputs employed in rail service in some other sector of the economy).

As a general matter and as the *Guidelines* note, true, economic marginal cost differs from accounting costs (including URCS-based accounting costs). Nevertheless, it is tempting to think of, and proxy, marginal cost with accounting measures of unit (average) variable cost. After all, marginal cost is the change in – variation in – the total resource cost of providing a good or service as the volume of output of that service is

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<sup>27</sup> See STB Docket No. 42088, *Western Fuels Association Inc., & Basin Electric Power Cooperative v. BNSF Railway Company*, Reply Evidence of BNSF Railway Company, (hereinafter *BNSF Reply Evidence*, *WFA et al. v. BNSF*), at III-G-37 for further discussion.

<sup>28</sup> Kalt Opening V.S. at 7-9. See, also, Willig Opening V.S. at 12-15.

varied. In terms of average variable costs, however, true marginal cost can be properly conceived of as including both average variable cost *plus or minus* any output-induced changes in average variable cost.<sup>29</sup> Unit variable cost only equates to marginal cost under the special case where unit variable costs are the same no matter what level of output is produced. When marginal cost is, say, above average variable cost, it is pulling that average up (since marginal additions to output add variable costs at the margin which exceed average variable costs up to that point).<sup>30</sup>

As a general matter, accounting costs do not capture marginal cost, even if accounting techniques can measure unit variable cost. Instead, marginal cost is the province of careful and sophisticated statistical estimation techniques of the “burdensome” kind suggested in the *Guidelines*. Moreover, as a general matter, accounting measures of variable cost do not and commonly cannot recognize the kind of “local factors and circumstances” the *Guidelines* correctly identify as influencing economic marginal cost. Such factors include movement-specific contractual terms, movement- and/or contractually specific risks, movement-specific handling and logistics necessities, and degrees of congestion encountered in serving particular movements and/or line segments. Thus, for example, a rail carrier would be expected to incur higher marginal costs to serve customers with whom it has agreed to particular performance standards or particular handling and logistics techniques. Similarly, where non-performance or operational risks are differentially present, a carrier can be expected to take actions and incur costs that minimize those risks and add to the marginal cost of service.

Of particular relevance to today’s coal transportation sector, true economic marginal costs of serving particular shippers are subject to costs attributable to system congestion. In key respects, these costs are inherently outside of the scope of accounting

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<sup>29</sup> Note, again, the difficulty arising from GPRM’s contradictory holding of volume constant in the face of the rate reductions in generates. With volumes held constant, no changes in variable cost are induced. Yet, as explained here, marginal costs are intimately tied to how variable cost changes as volume changes.

<sup>30</sup> Like adding a person who is six feet tall to a group of people that otherwise average five feet six inches tall: The six footer pulls the average of the group up.

measures of cost. Congestion occasions the need for carriers to incur costs to relieve that congestion and, during periods of congestion, ration away that congestion by making decisions on where to allocate resources and whom to serve (or whom to serve first or with the highest quality). Indeed, basic economic principles recognize that under conditions of congestion, one of the components of true economic marginal cost is the cost of having to “bump” certain customers off the system (or “bump” them to the back of the queue in terms of service timing and quality).<sup>31</sup> This forgone service (or quality of service) is a cost of serving those who do not get “bumped” – because the forgone service reflects society’s having to forgo the value of the service that is adversely affected by congestion. As the Board and the public have experienced in instances of congestion, such as the service problem following the merger of the Union Pacific and Southern Pacific rail systems, the economic values destroyed and forgone when a rail system is congested are very real costs to the economy.

Congestion arises when market supply conditions tighten relative to demand. Under such supply and demand conditions, well-functioning markets exhibit rising prices: Congestion implies higher true economic marginal costs, and prices in well-functioning, but congested, markets move up with marginal cost and bring supply and demand back into balance. Such supply and demand forces are at work in current coal transportation and, with world energy markets forecasted to remain strong,<sup>32</sup> can be expected to continue into the indefinite future. The Department of Energy’s Energy Information Administration estimates that Powder River Basin (PRB) coal production will grow from a level of 398 million tons per year in 2004 to 615 million tons annually in 2024.<sup>33</sup>

As described in detail in BNSF’s Opening Narrative in Western Fuels, growing

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<sup>31</sup> See, Alfred E. Kahn, The Economics of Regulation: Principles and Institutions, MIT Press (Cambridge, MA) 1988 at 87-89.

<sup>32</sup> See, Joseph P. Kalt, ‘Economics, Law and Politics: What Will Drive Energy’s Future,’ July 2004, in Proceedings of the 50<sup>th</sup> Annual Institute of the Rocky Mountain Mineral Law Foundation, Vol. 50, p. 1-1 (2004) December 2005 at 20-23.

<sup>33</sup> U.S. Energy Information Administration, *Annual Energy Outlook 2005*, Supplemental Table 111 (hereinafter EIA AEO Table 111), included in BNSF’s Rebuttal electronic workpapers as “EIA, Annual Energy Outlook (2005) Supplemental Table 111.pdf.”

demand is creating tight rail capacity for PRB coal.<sup>34</sup> Market demand for PRB coal is strong and is expected to continue to grow as, for example, utilities in midwestern and eastern states increasingly have been switching to low-sulfur coal produced in the PRB. This comes in response to Clean Air Act Amendments with more stringent emissions requirements that went into effect in 2000. Much of PRB coal moves out of the Basin on track over which Union Pacific Railroad (UP) and BNSF operate jointly. In the last 20 years, coal produced in mines in the southern PRB along this track has increased by a factor of four, while track miles have increased by less than a factor of two.<sup>35</sup> From January 2003 to December 2004, alone, the number of coal trainsets hauling PRB coal increased *over 40%*.<sup>36</sup> Despite investments in tracks, terminal capacity, train sets, and locomotives, track expansion has not been able to keep pace with the very rapid growth in demand for PRB coal. As a result, capacity in the PRB has become considerably tighter in recent years and scheduling conflicts have arisen.<sup>37</sup> Between 2003 and the present, the coal trade press has routinely reported to the effect that “rail capacity on the Southern PRB’s Joint Line, operated by both UP and Burlington Northern Santa Fe, is at or very near maximum.”<sup>38</sup>

The tightness in PRB rail capacity for moving coal has direct implications for the rates that carriers charge to move coal through the PRB. Higher prices reflect higher marginal costs as shippers seeking PRB transportation “bump” each other off the system or to lower quality, back-of-the-queue service, and as they call more of society’s

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<sup>34</sup> For a more detailed discussion, see STB Docket No. 42088, *Western Fuels Association Inc., & Basin Electric Power Cooperative v. BNSF Railway Company*, Opening Evidence of BNSF Railway Company, (hereinafter *BNSF Opening Evidence, WFA et al. v. BNSF*), Narrative and Exhibits, Volume I of I at II-28 – II-30.

<sup>35</sup> In 1984, there were 181 running track miles on the Orin line. By 2004, this had increased to 304.

<sup>36</sup> The average trainsets increased from 270 in January 2003 to 390 in December 2004, a 44% increase. Ex Parte 657, *Rail Rate Challenges Under the Stand-Alone Cost Methodology*, Statement of John Lanigan (April 26, 2005) (hereinafter Lanigan Statement).

<sup>37</sup> See, for example, Energy Information Administration, *Annual Coal Report 2001*, at 34; “Capacity Issues and Trends in the PRB,” *Platts Coal Outlook*, November 17, 2003; “PRB Demand Boosts Railroad Outlooks, Pressures on Train Capacity,” *Platts Coal Outlook*, February 28, 2005; and “Grand River Dam Authority,” *Platts Coal Outlook*, November 8, 2004.

<sup>38</sup> “Coal Market Reaching Fever Pitch as Prices, OTC Volumes Soar,” *Platts Coal Outlook* (December 8, 2003). See also “KFx Project Raises Possibility of Arch Reviving Coal Creek Mine,” *Platts Coal*

resources – from new and/or upgraded tracks needed to carry heavier trains and additional sidings to accommodate more trains, to more advanced signaling equipment, purchasing additional locomotives, etc.<sup>39</sup> – into PRB service. From the perspective of the public interest, it is desirable that rail rates rise in response to these kinds of upward pressure on marginal costs. It is the role of prices to bring supply and demand back into balance. They do so in two ways. First, higher prices dampen demand and allow the customers who value the transportation of PRB coal the most to use the network's constrained capacity. Second, higher prices provide railroads with the means to make additional capital investments in PRB infrastructure and thereby expand the ability of the rail network to carry additional traffic.

In short, matters such as rail congestion imply true economic marginal costs that differ materially from accounting measures of variable costs. They also imply material and substantial deviations between true economic marginal costs and the kind of proxy for "system average marginal cost" that AEPTX proposes to build from URCS costing procedures and apply under its GPRM proposal. Indeed, with true economic marginal costs driven above GPRM's measures of URCS-proxied marginal cost by, for example, congestion, contract performance clauses, and the like, any pretext that GPRM is an approximation of, or is consistent with, Ramsey pricing collapses.

Consider, for example, the simple cases of Tables 1 and 2. Table 1 employs an URCS-proxy for marginal cost. The Table shows a straightforward case in which the Complainant shipper is paying a rate of \$12 per ton on 10 tons of issue traffic, while the Other Shipper (or Shippers) in the SARR's traffic group is paying a rate of \$10 per ton on 10 tons of non-issue traffic movement. The respective URCS-proxied "marginal costs" of serving these issue and non-issue movements are taken to be \$5/ton and \$3/ton for the purposes of this illustration. The SARR's total costs are assumed to be \$150. In Table 1, however, extant pre-reduction rates yield total revenues of \$225. Thus, the incumbent's rates generate \$75 in excess of SAC revenues. GPRM allocates this \$75 reduction in

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*Outlook* (March 29, 2004), and "Shippers, Railroads Need Joint Solutions to Problems," *Platts Coal Outlook* (March 21, 2005).

<sup>39</sup> See June 23, 2004 letter to The Honorable Roger Nober from Matt Rose.

proportion to each shipper's contribution to total mark-up, and reduces rates for the Complainant shipper to \$8.50/ton, while the Other Shipper(s)' rates are reduced to \$6.50/ton. (See Table 1 ) Assuming that traffic volume is not stimulated by the reduction in rates,<sup>40</sup> these rates generate total revenues of \$150 – i.e., the revenues needed by the SARR to “stand alone” (i.e., break even).

Table 1

|               | Original Rate (P) | URCS-Proxy Marginal Cost (MC) | Original (P-MC) ÷ P | Tons (Q) | Mark-Up Contrib. (P-MC)*Q | Share of Mark-Up Contrib. | GPRM SAC Rate | GPRM (P-MC) ÷ P |
|---------------|-------------------|-------------------------------|---------------------|----------|---------------------------|---------------------------|---------------|-----------------|
| Complainant   | \$12              | \$5                           | .58                 | 10       | \$70                      | .5                        | \$8.50        | .41             |
| Other Shipper | \$10              | \$3                           | .70                 | 10       | \$70                      | .5                        | \$6.50        | .54             |

In Table 1, marginal costs to be used by GPRM are proxied by URCS-based variable costs. What if true economic marginal costs differed from these URCS-proxies?. Table 2 addresses this question. In Table 2, Table 1 has been modified by assuming for purposes of illustration that the true economic marginal cost of serving the Complainant's movements is actually \$10 per ton (as compared to the URCS-proxied “marginal cost” of \$5 per ton in Table 1). For sake of illustration, the economic marginal cost and the URCS-proxied “marginal cost” of serving the Other Shipper is taken to be \$3 per ton in both tables. SARR costs are assumed to continue to be \$150.

Table 2

|               | Original Rate (P) | Economic Marginal Cost (MC) | Original (P-MC) ÷ P | Tons (Q) | Mark-Up Contrib. (P-MC)*Q | Share of Mark-Up Contrib. | GPRM SAC Rate | GPRM (P-MC) ÷ P |
|---------------|-------------------|-----------------------------|---------------------|----------|---------------------------|---------------------------|---------------|-----------------|
| Complainant   | \$12              | \$10                        | .17                 | 10       | \$20                      | .22                       | \$10.44       | .04             |
| Other Shipper | \$10              | \$3                         | .70                 | 10       | \$70                      | .78                       | \$4.56        | .34             |

As indicated in Table 2, if GPRM were applied to true economic marginal cost, the resulting SAC rate for the Complainant's movement would be \$10.44 – fully 23%

<sup>40</sup> Albeit, inconsistent with the very notion of elasticity of demand. As discussed above, this represents a source of deep conflict with basic economic principles inherent in the GPRM rate reduction proposal.

higher than the \$8.50 rate that AEPTX's URCS-based GPRM yields in Table 1. In fact, these results and implications of the inability of GPRM to capture and employ economic marginal cost belie assertions by AEPTX to the effect that: "The use of [URCS] system average costs is sufficient" for the purpose of inferring the relative demand elasticities employed as the target in GPRM.<sup>41</sup> Indeed, the source of the gross error introduced by GPRM in Table 1 is the fact that the use of URCS-proxied marginal costs yields the GPRM's relative elasticity target of  $\varepsilon_2/\varepsilon_1 = .58/.70 = .83$ . On GPRM's own terms, the target GPRM should be aiming for is for the ratio of *post*-reduction relative mark-ups,  $(P_i - MC_i)/P_i$ , to equate to  $\varepsilon_2/\varepsilon_1 = .17/.70 = .24$  in Table 2. All else equal, the inability of URCS-proxied accounting costs to reflect marginal cost drivers such as congestion, when congestion is a reality of western coal transportation, imparts a systematic bias toward excessive coal rate reduction under GPRM.

By the same token, AEPTX is wrong in claiming that "there is no need to compute the actual marginal costs of a particular movement with specificity [since] the goal [of GPRM] is to measure the mark-up of the rate over a determined cost level *relative* to comparable mark-ups above similarly determined cost levels on other rates in the traffic group."<sup>42</sup> Clearly, Tables 1 and 2 demonstrate that it matters a great deal under GPRM whether the *levels* of economic marginal costs are measured accurately and, hence, whether pre-reduction ratios of the  $(P_i - MC_i)/P_i$  are measured accurately. Moreover, there is no basis for assuming that the errors between AEPTX's URCS-proxied "system average cost" and true economic marginal cost would be proportionately the same for all shippers and all movements (such that it might be claimed that the ratios of the  $(P_i - MC_i)/P_i$  are not distorted). In terms of Tables 1 and 2, for example, there is no reason to maintain that both the Complainant's movement and the Other Shipper's movement are subject to the marginal cost impacts of congestion, or the same proportionate marginal cost impacts of congestion – just as there is no foundation for asserting that a Complainant moving Powder River Basin coal is subject to the same congestion as all other shippers in a SARR's traffic group.

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<sup>41</sup> AEPTX Opening at 12.

<sup>42</sup> AEPTX Opening at 11-12 (emphasis in the original).

Finally, note that Tables 1 and 2 make it clear that, while AEPTX would interpret the (apparently) relatively high mark-up of the pre-reduction rate paid by the Complainant to relatively inelastic demand on the part of the Complainant, the foregoing makes it clear that what appears to be a high mark-up over URCS-proxied marginal cost can well be due to the inaccuracy of the URCS proxy. In Table 2, the mark-up of the rate paid by the Complainant relative to true economic marginal cost is, in fact, relatively low. The erroneously large rate reduction that GPRM would impose on the challenged rate (*per* Table 1) arises because GPRM cannot accurately measure economic marginal costs – as GPRM’s invocation of Ramsey principles requires. More generally, claims to the effect that GPRM yields the greatest percent reduction to the shippers with the least elastic demand and that this means that GPRM “conforms to Ramsey pricing principles” are rendered empty by the inability of GPRM to measure true mark-ups of rates relative to true marginal costs.

**Summary re: GPRM:** The *Guidelines* sagely recognized that credible quantification of the ingredients needed for explicit implementation of Ramsey pricing rules – particularly demand elasticities and marginal costs – was a hopeless task for real world regulatory practices before the Board. The fact that GPRM falls on these same rocks simply serves to reinforce the useful insight of the *Guidelines*. The kinds of internal contradictions and contradictions of Ramsey pricing rules (and, hence, of the public interest) that systems such as GPRM (and MCM and MMM) introduce in their attempts to get more formulaic and complicated in their focus on mark-ups above costs recommend eschewing them in favor of the Board’s longstanding PRM methodology of rate prescription in SAC cases.

The PRM method, too, does not purport to achieve the impossible goal of explicit Ramsey pricing. But it does invoke the basic Ramsey result, discussed above, that the introduction of contestability into rail markets would imply downward movement of all rates if an incumbent’s rates generated greater than stand-alone costs for an efficient SARR; and it does so without the pretext that manipulations of accounting-measured

mark-ups are manipulations of mark-ups required by Ramsey pricing.<sup>43</sup> As we have seen, such manipulations can readily move us directly away from the Ramsey principles of the *Guidelines* and, in so doing, away from protection of the public interest.

**B. WFA's RAM and "Reduced Mark-Up Method" Approaches to SAC Rate Reduction**

In Western Fuels, WFA has proposed that the Board adopt WFA's so-called Reasonable Allocation Method (RAM) or, in the alternative, WFA's Reduced Mark-Up Method as the method of rate reduction to be applied in SAC cases. WFA reiterates these recommendations here. I have previously addressed these methodologies in the course of filings made on behalf of BNSF in Western Fuels.<sup>44</sup> I here briefly summarize my findings.

**WFA's RAM Methodology:** RAM would allocate joint and common SAC costs (that is, SAC costs above the asserted variable cost of each movement) across different groups of traffic based on methods that the WFA asserts are consistent with Ramsey pricing. Specifically, after dividing the SARR traffic's shippers into two groupings ("competitive" and "captive"), RAM *assumes* that the price elasticities of demand are identical within each group of shippers.<sup>45</sup> In setting the rates, the "competitive" group would pay only variable costs, making no contribution at all to joint and common costs. All of the joint and common costs would be allocated – on the basis of ton-miles – to the shippers in the "captive" group. The rates for each "captive" movement under this method would be the sum of the movement's variable costs and its allocated share of joint and common costs.<sup>46</sup>

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<sup>43</sup> In fact, as shown in BNSF's Reply Evidence in AEP Texas v. BNSF at III-G-1-13 (Declaration of Richard S. Higgins and Fred S. McChesney), GPRM's noted assumption that traffic volumes are invariant with respect to GPRM's rate reductions actually yield PRM as the GPRM result.

<sup>44</sup> STB Docket No. 42088, Western Fuels Association Inc., & Basin Electric Power Cooperative v. BNSF Railway Company, Reply Statement of Joseph P. Kalt, Ph.D. at 39-45 (hereinafter *Kalt WFA Reply Statement*).

<sup>45</sup> To the extent that any of the shippers are incorrectly classified in the captive group, this would decrease the allocation to the captive traffic by spreading joint and common costs over a larger group of shippers. The RAM method can be quite sensitive to how shippers are classified.

<sup>46</sup> Subject to an imposed constraint on the allocation of joint and common costs to ensure that the rate assigned to each plant does not exceed its actual rate.

The WFA's RAM recommendation suffers from the fact that ton-miles are an arbitrary mechanism for allocating joint and common costs to individual movements. Such allocation is inherently arbitrary because it does not recognize that demand elasticities vary across shippers, including across shippers that RAM might designate as "captive." RAM's ton-miles allocation of joint and common costs would preclude meaningful, Ramsey-consistent demand-based differential pricing. In fact, in part for this reason, the Board has rejected allocating costs on the basis of ton-miles in a number of prior rulings.<sup>47</sup> As recognized in the *Guidelines*, "non-demand-based cost apportionment methods do not necessarily reflect the carrier's ability (or inability) to impose the assigned allocations and cover its costs."<sup>48</sup> Allocation according to ton-miles is just such a non-demand-based method of cost apportionment.

For such an allocation to be non-arbitrary and consistent with the demand-based principles of Ramsey pricing, it would have to be the case (1) that all of the shippers in the group that RAM would label as "captive" would have the same elasticity of demand; and (2) that all of the shippers in the group labeled "competitive" would have the same, infinitely elastic demands.<sup>49</sup> Such requirements of RAM are not remotely plausible. Certainly, an assumption of equal elasticity for all of the shippers that RAM might label as "captive" in a particular group cannot be based on a simple-minded notion<sup>50</sup> that being, say, solely served by a railroad (and, hence, putatively "captive") gives all such shippers the same demand responsiveness, irrespective of such matters as: individual shippers' access to other modes of transportation; their other alternatives for sourcing the product at issue; the profit margins they might realize – or not – from shipping their

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<sup>47</sup> ICC Docket No. 38301S, *Coal Trading Corporation, et al., v. The Baltimore and Ohio Railroad Company, et al.* (January 17, 1990) (hereinafter *Coal Trading*) at ¶39-40; *CP&L/NS Decision* at 33.

<sup>48</sup> *Guidelines* at 526.

<sup>49</sup> Infinitely elastic demand has the characteristic that even a very small increase in price causes buyers demand to evaporate, as those buyers turn to perfect substitutes (for example). Under Ramsey pricing, the only customers bearing no mark-up above marginal cost would be customers with infinitely elastic demand. Trying to recover contribution to the coverage of joint and common costs from such customers is necessarily unsuccessful, since raising price above marginal cost drives those customers completely away.

<sup>50</sup> See, for example, STB Docket Number 42088, *Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. The Burlington Northern and Santa Fe Railway Company*, Opening Evidence of Western Fuels Association, (hereinafter, "WFA Opening Evidence, WFA v. BNSF") at III-H-23, III-H-25 to III-H-28.

products by rail at a given level of rail rates; the ability of shippers to pass on higher rail rates in the form of higher prices charged to the shippers' respective and different customers; and so on.

Even if RAM's designated group of "captive" shippers were to consist solely of, say, coal-fired electric generation utilities, an assumption of equality of elasticities of demand across those shippers vastly oversimplifies the complexities of electric generation. Individual utilities have their own set of reasonable alternatives available to them for meeting the demands of their customers, and the presence of these alternatives affects how elastic the demand of any particular utility is. A railroad could readily find itself facing multiple sources and degrees of "product" or "geographic" competition on the margin for one shipper, and another set of such factors in the case of the next shipper. Thus, for example, other fuels, a utility's other plants, the technical suitability of alternative coals from alternative mines, and a utility's ability to buy electricity from others on the electricity grid, all provide differential sources and degrees of alternatives to the services of a coal-shipping railroad making deliveries from an array of mines to an array of coal-burning power plants. Such sources and degrees of alternatives significantly affect a plant's elasticity of demand for a railroad's coal transportation services, and they can vary substantially from plant to plant and buyer to buyer.

The assumption of homogeneous and infinitely elastic demands among the group of shippers that RAM would label as "competitive" is similarly unsupportable. First, the case of infinitely elastic demand – and, hence, no mark-up under Ramsey pricing or rational unconstrained pricing by a railroad – is an extremity that is belied by the fact that actual railroads set actual prices differentially, with wide variations in mark-ups across a wide variety of customers (including customers that RAM would undoubtedly label as "competitive"). As noted, such differential pricing is rational for profit-seeking railroads because of cross-shipper differences in demand elasticity, ranging from the very elastic to the very inelastic.

Second, just as the converse is the case for "captive" shippers," having access to multiple railroads might, indeed, make that shipper rail-competitive, but that is not the same as making all multiple-served shippers have the same elasticity of demand. For one

shipper, having access to rail may be nice, but trucking may be the particularly preferred alternative. For another shipper, demands of its marketplace may place a premium on quality of rail service relative to price. Another shipper may need a portfolio of rail alternatives to manage risks in its business, making it less able to play one railroad off against another on the basis of price. One shipper may find it easy to pass rail rates onto downstream customers, while another finds rail rates to be the make-or-break determinant of its profitability. For one shipper, the rail freight charges it bears may be but tiny portions of its overall costs of production, making that shipper relatively price-insensitive (inelastic); another shipper may be extremely price-sensitive because rail costs make up very large portions of its overall costs of doing business in its markets. And so on.

Third, if RAM is to assert any Ramsey-like attributes, RAM's assumption that all "competitive" traffic has infinitely elastic demand must underlie RAM's allocation of *no* mark-up above variable cost to the rates for "competitive" traffic served by a SARR. Yet, if "competitive" traffic generates no revenues in excess of variable costs, it is unclear why any railroad – SARR or incumbent – would service such traffic or invest in needed replacement facilities over time to service such traffic over the long run. The assumption of infinitely elastic demand and RAM's allocation of no mark-up above variable cost are patently unrealistic.

In short, RAM's implicit assumptions (1) that the shippers it would designate as "competitive" would share the same, infinitely elastic demands, and (2) that the shippers it would label as "captive" would thereby all have the same less-than-infinite demand elasticities are untenable. RAM is, in fact, an attack on the differential pricing that the *Guidelines* recognize is necessary for both the health and survival of railroads and the protection of the public interest via Ramsey pricing principles.

**WFA's "Reduced Mark-Up Method":** As a "fallback" to RAM, WFA proposes an alternative method for adjusting rates. In contrast to RAM, the Reduced Mark-Up Method assumes that there is a wide spectrum of demand elasticities within a SARR's traffic group, and that each movement is capable of providing some contribution to the SARR's joint and common costs. Akin to AEPTX's GPRM methodology discussed above, WFA's Reduced Mark-up Method would utilize accounting estimates of the

variable cost of serving each SARR shipper and the incumbent's extant rates to calculate a mark-up and contribution of price above variable cost for each movement. If a SAC analysis found excess revenues relative to the SARR's stand-alone cost, each shipper's estimated dollar contribution of price above variable cost would be reduced *pro rata* until SARR revenues equal SARR costs.<sup>51</sup>

From the discussion of GPRM, it is clear that WFA's Reduced Mark-up Method suffers from similar incapacitating infirmities. While its precept is that preservation upon rate reduction of the relative size of mark-ups above cost would, in some sense, hearken to Ramsey principles, it does not go the step, as does GPRM, of tying this reasoning to the Ramsey pricing formula set out above. Rather than targeting relative mark-ups expressed as  $(P_i - MC_i)/P_i$  (*per* the Ramsey pricing rule), the Reduced Mark-up Method expresses mark-ups as price minus variable cost (i.e.,  $P_i - VC_i$ ) and targets the maintenance of proportionate shares of such margin contribution (i.e.,  $(P_i - VC_i) \times Q_i$ ). Not only does this methodology not target a Ramsey price; as we have seen, the use of accounting measures of variable costs cannot be relied upon for the task at hand as a "good enough" proxy for true economic marginal costs. Accordingly, the Reduced Mark-up Method is subject to creating direct contradictions between itself and Ramsey principles and, hence, between itself and the public interest. It does not qualify as viable method for use in SAC analyses and rate reductions.

### **C. The Board's Current PRM Approach Is the Feasible, Ramsey-Consistent Rate Reduction Methodology**

A finding under SAC analysis that a complainant's candidate SARR would earn excess profits if it charged extant incumbent rates provides justification under CMP for lowering the challenged rate. Since the ICC's *Coal Trading* decision in 1990,<sup>52</sup> challenged rates that are found to be excessive under the SAC analysis have been subject to a Percent Reduction Methodology for bringing such rates into compliance with the *Guidelines*. Under PRM, the challenged rate is reduced by the percentage by which

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<sup>51</sup> Additional Opening Comments of Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc., Ex Parte No. 657 (Sub-No. 1), Major Issues in Rail Rate Cases, (hereinafter WFA Opening) at 17.

<sup>52</sup> *Coal Trading* at ¶184.

calculated SARR revenues at extant rates exceed the SARR's stand-alone costs.<sup>53</sup> This is consistent with the economics of contestability and the economics of Ramsey pricing insofar as it recognizes that the opening up of a rail market to contestability would put downward pressure on all rates and, as a general matter, preserve the ranking of rates.

As noted above, the *Guidelines*' recognition that it is not feasible to implement or test for perfect Ramsey pricing applies to PRM.<sup>54</sup> Yet, upon adopting the PRM rate reduction procedure in *Coal Trading*, the ICC appropriately observed that "[t]he rate structure exhibited by the defendants over the complaint period is the necessary consequence of differential pricing and cost of service. Any revision to rates due to the imposition of rate prescriptions should, to the extent possible, retain the underlying relationships. Thus, overcharges must be distributed to the SARR traffic group in a manner which will not substantially change rate relationships and, thus, disrupt the existing pattern of differential pricing unless it is demonstrated that the pattern is seriously flawed."<sup>55</sup> As we have seen, the alternative methodologies that have been introduced in this proceeding – MCM, MMM, GPRM, RAM, Reduced Mark-up – attempt to justify themselves as moving rate reduction closer to Ramsey principles. In each case, however, these methodologies either directly violate Ramsey principles (e.g., as when MCM compresses challenged rates to equality with otherwise different rates on non-issue traffic<sup>56</sup>) or ask too much of the data (e.g., on economic marginal cost) and end up introducing stark distortions of Ramsey principles.

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<sup>53</sup> The ambiguity in the calculation of this percentage that is introduced when candidate SARRs involve cross-over traffic is discussed at length below.

<sup>54</sup> Owing to the informational burdens that would be engendered by attempting to figure out each shipper's or shipper type's demand elasticity and the marginal costs of serving each shipper. See *Guidelines* at 527.

<sup>55</sup> *Coal Trading* at ¶170.

<sup>56</sup> See *Kalt Opening V.S.* at 19-22.

#### IV. REVENUE ALLOCATION ON CROSS-OVER TRAFFIC

Current practice with respect to the allocation of revenues to cross-over traffic carried by the SARR has introduced biases and distortions to the SAC process. Under the Board's standard approach, cross-over revenues have been based on the so-called Modified Straight-Mileage Prorate methodology. Under MSP, revenue is allocated based on the mileage hauled over the SARR relative to the mileage the traffic in question travels on the residual incumbent, with an additional 100-mile block credited for originating or termination the traffic. This MSP approach lacks grounding in the economics of contestability that properly should guide our determinations as to the revenues a SARR electing to compete with the incumbent for only portions of moves carried in the real world by the incumbent would receive.<sup>57</sup> Moreover, the approach provides strong incentives for Complainants in SAC cases to "game" the process by designing manifestly inefficient SARRs to capitalize on divisions that reward small SARRs with very large amounts of revenue from highly rated cross-over traffic.<sup>58</sup> The more such traffic a Complainant can claim, the less the revenue burden to be carried in a SAC analysis by the issue traffic for which Complainants seek rate reductions.

In my Opening V.S., I examined the economics of contestability that underlie SAC analyses. I reported that those economics clearly demonstrate that a contestant SARR seeking to capture cross-over traffic in a contestable market would find itself in competition with an incumbent for provision of facilities and services to the cross-over portions of certain moves. In such a competition, the SARR would "win" by offering rates on its cross-over moves that could "beat" the incumbent's fixed and variable-type expenditures that the incumbent would avoid if it did not carry the cross-over portions at issue principles.<sup>59</sup>

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<sup>57</sup> See Kalt Opening V.S. at 34-37.

<sup>58</sup> *CP&L/NS Decision* at 31-32.

<sup>59</sup> Kalt Opening V.S. at 37-46. I note that Mr. Nelson opines on behalf of AECC that a partial SARR should be allocated revenues on cross-over traffic such that the SARR captures the margin otherwise realized by the incumbent. (AECC Opening at 9-10.) This is inconsistent with the applicable economics of partial SARRs in contestable markets. These economics yield partial SARRs cross-over revenues no greater than the partially-replaced incumbent's avoidable costs on the partial segments that SARRs typically propose.

**A. “Actual Market Divisions” v. Contestable Market Revenue Allocation for Cross-Over Traffic**

Albeit indirectly, a number of shipper interests – most vociferously, WCTL – have challenged the conclusions that follow from the economics of contestable markets. Citing the decision by the Interstate Commerce Commission (ICC) in *Nevada Power*,<sup>60</sup> these shippers argue that revenues should be “allocated on the basis of market principles.”<sup>61</sup> They argue further that this objective can be accomplished by use of statistical data on “actual market divisions” that arise when two (or more) carriers participate in a move.<sup>62</sup> These “actual market divisions” are represented as being “market-based” and, therefore, consistent with the *Guidelines* and contestable market theory.<sup>63</sup> This representation of proposed “actual market divisions” as consistent the *Guidelines* and contestable market theory is wrong. In fact, it turns contestability on its head.

It is clearly the shippers’ view that the term “market principles” is synonymous with the use of real world, “actual market” arrangements between a defendant railroad and its real world connections. Yet, clearly, real world divisions do not plausibly reflect the “market principles” of a contestable market. Real world rail markets are not contestable. In particular, they are subject to fixed and sunk costs that, as a result of being sunk, constitute barriers to entry and exit. Moreover, real world divisions are arrived at by real world railroads, subject to the array of barriers to entry and exit that keep rail markets from being contestable. Consequently, the typical case of two railroads implicitly or explicitly negotiating over divisions on a through move fits what economics refers to as a setting of bilateral bargaining power.<sup>64</sup> Divisions that result in such settings are driven first and foremost by precisely the kinds of factors that make real world rail

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<sup>60</sup> 10 I.C.C.2d at 268.

<sup>61</sup> WCTL at 26.

<sup>62</sup> WCTL at 33.

<sup>63</sup> WCTL further argues that, in the event the Board does not adopt shippers’ “actual market divisions” approach to cross-over revenue allocation, the Board should continue use of MSP (or the original Modified Mileage Prorate, or MMP), rather than an ATC methodology. WCTL Opening at 47-49 and Crowley Opening V.S. at 8.

markets *not* contestable – i.e., which railroad has the most market power, which railroad has the most irretrievably sunk costs, which railroad has most credible threat of surmounting entry barriers and building out to replace the counterparty's facilities and operations, and the like.

In a contestable market (including the simulated contestable market of SAC analysis), on the other hand, both the prospectively entering SARR and the incumbent being challenged compete on “completely symmetric terms.”<sup>65</sup> This symmetry means that both the SARR and the incumbent are free of barriers to entry. As a result, when the SARR “wins” the contestability contest, it replaces those services and facilities of the incumbent that it “beats”: Because the incumbent faces no barriers to exit, upon losing the contest, the incumbent simply takes its assets and deploys them in some other use at full, fair market value. Furthermore, because the contestable market is free of barriers to entry and exit, the contestable market produces the results of competitive markets.<sup>66</sup> A competitive market drives pricing – including divisions applicable to cross-over traffic – to the level at which the efficient firm can just break even as a stand-alone enterprise.

As Prof. Willig and the other authors of the contestable market framework note, there are two ways to generate the conclusion that contestable markets will yield SAC revenue recovery: “either the absence of sunk costs or the prevention of post-entry responses by incumbents.”<sup>67</sup> The absence of sunk costs means that, even if the contest is restricted to solely the SARR and the incumbent, competition to be the “winner” of the traffic will continue, with revenues (including divisions on cross-over traffic) being driven downward until they reach the level of stand-alone costs of efficient carriage. From the perspective of the incumbent, being symmetrically situated vis-à-vis the SARR means that the incumbent, like the SARR, is free of entry and exit barriers. In particular,

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<sup>64</sup> Robert S. Pindyck and Daniel L. Rubinfeld, Microeconomics, Prentice Hall (Englewood Cliffs, NJ) 1995 at 352.

<sup>65</sup> Baumol, Panzar and Willig, Contestable Markets and the Theory of Industry Structure, Harcourt Brace Jovanovich, Inc., 1982 at 349.

<sup>66</sup> *Guidelines* at 528.

<sup>67</sup> Baumol, Panzar and Willig, Contestable Markets and the Theory of Industry Structure, Harcourt Brace Jovanovich, Inc., 1982 at 301.

sunk costs are not a barrier to entry or exit; hence, the incumbent has every incentive to stay in the competition until revenues are driven to stand-alone competition. If and when the incumbent loses, it can take its resources and redeploy them at full market value.

Alternatively, a market is made contestable when there are no barriers to entry and exit for SARRs and the incumbent is taken to be unable to make its own price responses to the appearance of SARRs. The conditions of free entry and exit mean that any SARR that enters the contest to serve a selected traffic group cannot sustain prices and associated revenues (including the divisions on cross-over traffic) that exceed the stand-alone costs of an efficient SARR. If, for example, a first SARR to enter and price all movements at but one cent below the incumbent's extant rates (including taking cross-over revenue divisions at one cent below the divisions the incumbent grants to other carriers in "actual" market divisions), *and* if resulting revenues exceed the SARR's stand-alone costs, the conditions of free entry guarantee that some other SARR will come in and drive rates and divisions lower. Indeed, this is what the condition of free entry means. If SAC analysis were performed as if the first SARR were protected by barriers to entry and the incumbent was presumed to be unable to respond to that SARR's competition, SAC analysis would not reproduce the results of competition as envisioned by the *Guidelines* and would not satisfy the criterion set out by the authors of the contestability framework, to the effect that regulatory intervention to set rates "should be governed by the performance perfect contestability can be expected to produce."<sup>68</sup> Rather, the SARR would be able to reproduce the results – less one cent – of a market that is decidedly not contestable and subject to the pricing of the incumbent, with its presumed elements of market dominance and associated monopoly power on the part of the incumbent.

As the foregoing suggests, the treatment of sunk costs plays a particularly important role in the economics of contestability. Specifically, sunk costs are a barrier to entry. As such, they can destroy contestability if an incumbent can employ sunk costs to its advantage. It might do so in the face of threatened entry by a SARR, for example, by

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<sup>68</sup> Baumol, Panzar and Willig, Contestable Markets and the Theory of Industry Structure, Harcourt Brace Jovanovich, Inc., 1982 at 479.

responding to the threat with retaliatory pricing in which the incumbent moves its prices below its own stand-alone costs – since it would be rational for an incumbent with sunk costs to protect itself by ignoring those sunk costs when pricing to deter a new entrant, if necessary. Under such circumstances, the SARR, needing to cover its variable and not-yet-sunk fixed costs, could be precluded from entering, leaving the market uncontested and uncontestable. As the ICC observed in Nevada Power:

Because of the prevalence of “sunk costs” in railroading, however, post-entry competition between a SARR and an incumbent will not mirror contestable outcomes. That is because an incumbent could remain in the market even if it were to offer rates that do not cover costs that are already sunk.<sup>69</sup>

Interestingly, in subtle but important ways, WCTL shippers in this proceeding do not accept the conclusion that the contestable market framework yields the results of a competitive marketplace. In support of its contention that cross-over revenue allocations should be made based on “actual market divisions,” WCTL’s version of SAC analysis allows the SARR is protected by barriers to entry by other SARRs,<sup>70</sup> and is competing against an incumbent who cannot respond in any fashion. In the view of WCTL (at 45 and citing to the Opening V.S. of Grimm): “If a new SARR is viewed as a competitor to the existing SARR, and the entrant can take away the existing SARR’s revenues before the existing SARR can recoup its costs, then the latter will shun the market. Stated another way, the “no retaliation” applies equally to any market participant, whether it is the incumbent or a prospective new SARR.” Given this premise, the SARR in a SAC analysis can actually earn excess revenues (i.e., excess profits). According to WCTL (at 47):

If the SARR can provide rail service at a profit relative to the incumbent’s exiting price for the same service by operating more efficiently, the SARR will enter the market, and set its rate a level below the incumbent’s price. How low the SARR sets its rate is dependent upon its overall costs, but in a contestable market, how high the SARR sets its rate is a function of the incumbent’s existing price. The SARR’s overall costs act as a floor for the SARR’s pricing structure, not a cap

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<sup>69</sup> 10 I.C.C.2d at 266-267.

<sup>70</sup> WCTL Opening at 45.

From the perspective of basic economic principles, WCTL's reasoning is incredible. Under its version of contestability, contestability does not yield what the *Guidelines* seek in SAC analysis: "The stand-alone cost, as we define it here, approximates the full economic costs, including a normal profit, that need to be met for an efficient producer to provide service to the shipper(s) identified. This cost calculation provides a simulated competitive price standard against which actual rates can be compared."<sup>71</sup> And contrary to the *Guidelines*' observation that "contestable markets have competitive characteristics which preclude monopoly pricing,"<sup>72</sup> WCTL's novel version of such markets does not result in the *sine qua non* of competitive markets recognized by the *Guidelines* – i.e., profits in excess of costs, with costs including a reasonable return.<sup>73</sup> Instead, in WCTL's version of "contestability," the SARR can realize excess profits since it need only price at a level below the incumbent's prices; its costs are only a "floor." Indeed, under WCTL's conception, the SARR does not engage in the simulated competition of SAC analysis. Rather, the Complainant's proposed SARR is a monopolist: subject to no threat of entry by other possible SARRs; subject to no threat of even non-retaliatory, competitive responses by incumbents; and subject only to a cap at the existing rates and revenues of the incumbent.

The value to shippers of this is obvious: If the SARR's costs are only a revenue "floor" and the Complainant's SARR can earn revenues in the WCTL version of the contestable market at the level of the incumbent's revenues (less one cent, in order to "beat" the otherwise unresponsive incumbent) irrespective of the SARR's costs, any and all excess of revenues on non-issue traffic relative to competitive market outcomes will leave less revenue for the issue traffic to bear in order for total revenues to add up to total costs. Indeed, WCTL's "SARR costs are only a floor" can readily imply that, since non-issue revenues are capped at the incumbent's existing revenues on such traffic (less one cent), such traffic can generate sufficient revenues in WCTL's version of SAC analysis to render it unnecessary to collect any revenue from the issue traffic.

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<sup>71</sup> *Guidelines* at 529.

<sup>72</sup> *Guidelines* at 528.

<sup>73</sup> *Guidelines* at 529.

While this is a wonderful result from the short-term, narrow self-interest perspective of complaining shippers, it is a ludicrous result economically and from the perspective of the public interest. Indeed, the fact that contestability implies rates to SARRs which, in the aggregate, just cover the SARR's stand-alone costs is the reason SAC analysis employs rate reduction methods (by precedent, PRM) that apply to all of the SARR's traffic. That is, the very idea of some form of SARR traffic-wide rate reduction methodology is an invocation of the principle that serves as the basis of the *Guidelines* – i.e., that contestable markets put downward pressure on issue and non-issue traffic rates until rates available in the contestable market are no greater than needed to allow the SARR to stand alone (i.e., cover its total costs).

Of course, carriers might prefer WCTL's framework: Taken to its logical conclusion, WCTL's notions that a Complainant SARR would be protected from competitive response by the incumbent *and* from entry by other SARRs. As a result, the Complainant SARR could price up to the level of the existing rates and rate divisions of the incumbent; the Complainant SARR would have no reason to set rates on issue traffic at more than one cent below the challenged rates of the incumbent carrier. Such are the implications of WCTL's unique version of contestability under SAC analysis.

The chains of reasoning by which WCTL reaches its conclusions regarding contestability are remarkably convoluted and (apparently) reflect a notable lack of basic economic understanding. Consider, for example, WCTL's assertion that the Complainant's SARR can price up to the level of the incumbent's existing rates and revenue divisions. According to WCTL, any price response by the incumbent to the appearance of a SARR is impermissible "retaliation"<sup>74</sup> and constitutes a barrier to entry by the SARR.<sup>75</sup> Yet, it is clear from our discussion of sunk costs above that price responses by incumbents that represent "retaliatory" pricing and barriers to entry are price responses by incumbents which push incumbent prices below recovery of the incumbent's full, SAC costs. In the presence of sunk costs, this prospect arises because

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<sup>74</sup> WCTL Opening at 45.

<sup>75</sup> WCTL Opening at 41.

incumbents could rationally ignore those costs and reduce prices all the way to variable costs if necessary to discourage entry by a SARR that has not yet sunk its costs.<sup>76</sup>

[W]here truly sunk costs constitute a high proportion of the incumbent's expenses, entrants should expect incumbents to respond to entry with sharp price reductions, even if they will preclude recovery of investment. Responsive pricing patterns, and rational threats of such behavior, may then effectively prevent replacement of the incumbent.<sup>77</sup>

On the other hand, pricing by an incumbent down to the level of its full costs is not a retaliatory response or barrier to SARR entry; it is a competitive response in a contestable market.

WCTL's reasoning regarding why, in its view, contestable market theory requires that the Complainant's SARR be protected from competition by possible subsequent SARR's is similarly confused. As noted, in WCTL's view, such protection is necessary because without it, "the entrant [SARR] can take away the existing SARR's revenues before the existing SARR can recoup its costs, [and] the latter will shun the market."<sup>78</sup> But the very premise of SAC analysis is that the Complainant's SARR is efficient, or should only "win" in the contestable market if it is efficient. This means that a subsequently entering SARR, by assumption, is not more efficient than the Complainant's "existing SARR" and cannot afford to, and would not rationally, price below the prices and rate divisions the Complainant SARR needs to "recoup" its efficient costs. Moreover, because under contestability, the Complainant SARR is free of barriers to entry and exit, and sunk costs are a barrier to both, the Complainant SARR doesn't need time to "recoup" its costs. If another SARR were to come along and displace it (which could only happen under contestability if this subsequent SARR were more efficient than the Complainant's SARR), the Complainant SARR in SAC analysis can

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<sup>76</sup> William J. Baumol and Robert D. Willig "Fixed Costs, Sunk Costs, Entry Barriers, and Sustainability of Monopoly," *The Quarterly Journal of Economics*, August 1981.

<sup>77</sup> Baumol, Panzar and Willig, Contestable Markets and the Theory of Industry Structure, Harcourt Brace Jovanovich, Inc., 1982 at 429.

<sup>78</sup> WCTL Opening at 45.

freely exit and redeploy its assets and resources to other uses that also yield it a competitive, reasonable rate of return (i.e., its cost of capital).<sup>79</sup>

WCTL is struggling mightily to justify Complainants' SARRs capturing prices on and rate divisions on non-issue traffic that do not reflect competitive market outcomes, but instead reflect "actual market" outcomes and the ready prospect of excess profits for Complainant SARRs. In the process, however, WCTL has created the antithesis of contestability in the markets where the SARR and the incumbent meet under SAC analysis. Notwithstanding the confused and flatly wrong economics employed by WCTL, the bottom line is that allocation of cross-over traffic revenues to the SARR must be based on the way market principles would be applied *in a contestable market*. In my Opening V.S. in this proceeding, I demonstrated that if the SAC proponent chooses to compete in the contestable market with a SARR that depends heavily on cross-over traffic, then application of market principles, *as they would be applied in a contestable market*, would generate cross-over revenue allocations equal to the fixed and variable costs that the incumbent avoids by having the SARR replace it for the SARR's portion of cross-over movements. Applying this principle of "contestability pricing" is not only consistent with the economics of contestability as invoked by the *Guidelines*, it also would give Complainant shippers the incentive to design truly efficient systems that can legitimately "beat" incumbents.

#### **B. "Full" SAC Analysis and ATC-Based Cross-Over Revenue Allocation**

In *EP 657*, the Board suggests that rather than incenting Complainants to propose efficient SARRs, efficient SARRs may be so large as to create an undue burden on rate cases and may require the introduction of "simplified" short-cuts to approximate the "full" SARRs that may be maximally efficient and, hence, competitive.<sup>80</sup> Thus, the Board proposes an alternative to its current MSP method of allocating revenues to SARRs' cross-over traffic. Under the alternative, the Board would employ a measure of Average Total Cost (ATC) to create a proxy for what the Board refers to as a "full" SAC

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<sup>79</sup> In fact, this ability to redeploy assets without suffering any losses from not having enough time to "recoup" costs is what freedom of exit technically means in economics.

<sup>80</sup> *EP 657: Major Issues in Rail Rate Cases*, at 17.

analysis of a full SARR that would compete to replace all of incumbent carrier's facilities and operations utilized by the SARR's traffic groups.<sup>81</sup>

The Board reasons, in essence, that if a full SARR were to be designed to replace the entirety of the incumbent's facilities from which the SARR's traffic group benefits, the resulting SARR would be far more extensive than the actual SARRs Complainants have come to routinely propose. Such full SARRs would not rely on cross-over traffic; they would propose the facilities to serve such traffic as through traffic. As such, full SARRs would have to cover the total costs of associated facilities, suggesting the use of ATC in allocating revenues to actual proposed SARRs' cross-over traffic. As I showed in my Opening V.S., however, there is no need to turn to such a proxy approach in order to properly incorporate cross-over traffic. The economics of contestability readily yield cross-over allocations for SARRs actually proposed by shippers. Specifically, these economics yield cross-over revenues equal to the incumbent's avoided costs on cross-over traffic, and doing so provides shippers with proper incentives to design efficient SARRs.

It is telling that WCTL, representing shipper interests, adamantly opposes the Board's introduction of the notion of a "full" SAC analysis for a "full" SARR.<sup>82</sup> Clearly, garnering "actual market divisions" on non-issue cross-over traffic, with those divisions' values set in decidedly *not* contestable settings, is preferable to shippers interested in depressing rates on issue traffic. In fact, WCTL asserts that the use of ATC to determine SARR cross-over revenues is tantamount to imposing "construction" and "productive technique" barriers to entry on SARRs by implicitly imagining SARRs "building" "full" systems when they might prefer to build "partial" SARRs.<sup>83</sup> In keeping with its treatment of contestability, however, WCTL has erred in its apparent understanding of the economics of barriers to entry.

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<sup>81</sup> EP 657: *Major Issues in Rail Rate Cases* at 17.

<sup>82</sup> WCTL Opening at 25, 35-36, 39, 42; Crowley Opening V.S. at 7.

<sup>83</sup> WCTL Opening at 39-42.

In the context at hand, a barrier to entry by a SARR would have to consist of a cost borne (albeit, hypothetically in SAC analysis) by a SARR that is not borne by an incumbent and that imparts a competitive advantage to the incumbent in the sense of allowing an otherwise symmetrically situated incumbent to be able to survive as a stand-alone enterprise at lower total revenues than an efficient SARR. Such is not the case with the Board's concept of a "full" SARR.

First, consider the implication that Complainants might have to incur additional litigation costs (e.g., in the form of additional need for analysis and consultants) if Complainants were unable to rely on cross-over traffic and were, instead, required to actually propose "full" SARRs that could replace the entirety of an incumbent's system that serves the SARR's selected traffic group. Such a cost to Complainants *as litigants*, however, would not be a barrier to entry for Complainants' SARRs *as railroads* as these SARRs enter the hypothetical "contests" created by SAC analysis. Not only is the Board's proposed ATC approach to "full" SAC analysis a short-cut to considering "full" SARRs in SAC cases; it is a short-cut intended to avoid the imposition of additional litigation costs on Complainants and carriers. Moreover, such costs are ignored in the simulated market competition of SAC analysis. SARRs *as railroads* (rather than litigants) compete in SAC analyses free of such costs.

Second, implicitly imagining (through the Board's proposed ATC short-cut) "full" SARRs as the competitors in SAC analyses would imply more expensive SARRs than Complainants have been routinely proposing. But such increased expense is not a "construction," "productive technique," or any other kind of barrier to entry. Rather, the "full" SARR would be presumed to be able to freely redeploy fixed assets and realize full market value on those assets if exit proved necessary. The absence of barriers to exit in the contestable setting guarantees this. Furthermore, the costs of "building" "full" facilities would be assumed in "full" SAC analysis to be borne symmetrically by the incumbent.<sup>84</sup> That is, the costs of "full" facilities would not provide incumbents with any

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<sup>84</sup> This also follows from the contestability precept of no barriers to exit. In the absence of barriers to exit, the going-forward costs of even an already-built incumbent system include the opportunity costs of not redeploying the incumbent's assets at full market value to other uses. Accordingly, the rational

competitive advantage that otherwise might serve as a barrier to entry. Indeed, Complainants routinely assert that their SARRs – whether large or small – are more efficient than the incumbent’s relevant systems. Thus, SAC analysis of either “full” or partial SARRs essentially entails the arguable assumption that SARRs start out in the SAC “contest” on no worse than equal footing with incumbents.

The Board’s proposal in *EP 657* is to allocate cross-over traffic revenues to a SARR in the proportion that the average total cost of the proposed SARR’s partial move (adjusted as appropriate for mileage and density) bears to the average total cost of the movement on- and off-SARR.<sup>85</sup> As noted above and in my Opening V.S., while the proposal would constitute a short-cut and an approximation, it properly recognizes the principle that, if a “full” SARR were in the “contest” of the simulated competition of SAC analysis, its willingness and ability to stand alone as a successful competitor for the full movement of the traffic would depend on its ability to realize revenues sufficient to cover the total costs of “full” operations.

At the same time, because the proposed ATC approach would be a short-cut and an approximation, it is appropriate to heed Prof. Willig’s admonition in his Opening V.S.: If an approximation is to be used to estimate revenues to be allocated to cross-over traffic, both shippers and carriers *must* be afforded the opportunity in SAC cases to demonstrate that the ATC approximation is biased.<sup>86</sup> Without such an opportunity, the ATC short-cut could readily result in short-cuts to conclusions that are inconsistent with the concepts of contestability and stand-alone survival that undergird Constrained Market Pricing in the *Guidelines*.

### **C. Harmonizing Cross-Over Revenue Allocation and Rate Reduction Methodologies**

Finally, it is important that an adoption of the Board’s proposed ATC approach to allocation of cross-over traffic revenues be coherently integrated with the accompanying

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incumbent has to treat its already-built system as not sunk and, hence, price and compete on a symmetrical basis with SARRs.

<sup>85</sup> *EP 657: Major Issues in Rail Rate Cases* at 19.

<sup>86</sup> Willig Opening V.S. at 30.

rate reduction methodology. In particular, as indicated above, the introduction of “full” SAC analysis via the proposed ATC approach to cross-over revenues would entail the concept of “full” SARRs competing with incumbents for through moves of what would otherwise be cross-over traffic. This implies a shift in focus from the question of rate divisions in contestable markets to price competition on through moves in such markets. This leads us back to Ramsey pricing principles.

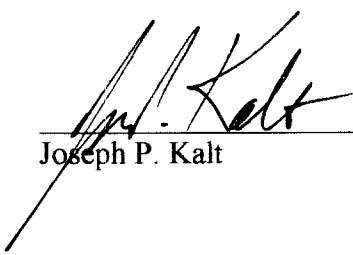
Specifically, competition in contestable markets between partial SARRs and incumbents for the carriage of cross-over, as opposed to through, traffic leads to the result reported in my Opening V.S. Namely, such competition would yield the partial SARR divisions of cross-over revenues no greater than the incumbent’s avoidable costs of serving the partial move of cross-over traffic. Competition for cross-over portions of through traffic between a partial SARR and an incumbent is not competition over the through rates that are relevant to customer’s demand choices and to which Ramsey principles apply.<sup>87</sup> Rather, such partial competition is competition for an incumbent’s “make or buy” choice with respect to the partial segment serving what the SARR proposes should be cross-over movements. The incumbent “buys” from the SARR when the SARR accepts rate divisions that are more attractive than the avoidable costs the incumbent would incur to handle the cross-over portions of moves.

On the other hand, competition by “full” SARRs for the full movement of what otherwise would be interchanged as the cross-over traffic of a partial SARR represents competition over the rates paid for through movements by customers. These rates are the rates to which Ramsey principles apply. As such, simulated competition from full SARRs in the contestable market of SAC analysis would be expected to put downward pressure on the through moves sought by a “full” SARR. Thus, to be coherent, rate reduction in SAC analyses that allocate revenues to cross-over traffic via the short-cut of an ATC methodology would apply the rate reduction percentages (e.g., under PRM) to the through revenues associated with cross-over traffic. It is these revenues that “full” SARRs would put under competitive pressure in “full” SAC analyses.

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<sup>87</sup> See note 20 above.

I declare under penalty of perjury that the foregoing is true and correct.



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Joseph P. Kalt

Executed on May 31, 2006.

Willig

## REPLY VERIFIED STATEMENT

OF

ROBERT D. WILLIG

### I. INTRODUCTION

My name is Robert D. Willig. I filed an Opening Verified Statement in this proceeding on May 1, 2006, and a copy of my CV was attached as Exhibit No. \_\_ (RDW-1) to that statement.

In this Reply Verified Statement, I have been asked by BNSF Railway Company ("BNSF") to address three issues raised by testimony that accompanies the *Pro-Shipper Opening Comments*, filed on May 1, 2006.<sup>1</sup> First, I have been asked to address the shippers' discussions of the cross-subsidy tests that the Surface Transportation Board ("STB" or "Board") applied in the recent *PPL* and *Otter Tail* proceedings – which are set forth in the verified statements filed by Curtis M. Grimm and George H. Borts. Second, I address certain issues raised by two rate reduction proposals made in filings by Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. ("WFA"), and one proposal in the Opening Comments of AEP Texas North Company ("AEP Texas"). The first of these issues relates to the view, implicit in both proposals, that one can infer Ramsey price-to-marginal cost relationships for movements in the stand-alone traffic group from rate-to-URCS variable cost relationships. The second issue I address relates to how the use of cross-over traffic affects the way in which rate reductions are actually calculated.

As background for my discussion, it is useful to put the Constrained Market Pricing ("CMP") and the stand-alone cost ("SAC") test into their larger regulatory context. As I noted in

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<sup>1</sup> See *Joint Opening Comments of Western Coal Traffic League, Concerned Captive Shippers, Western Fuels Association, Inc., Edison Electric Institute, National Rural Electric Cooperative Association, and American Public Power Association*.

my Opening Verified Statement, where there is effective competition for rail services, there is no need for regulatory intervention, since the effects of competition would lead to prices that maximize the utilization of railroad facilities, while ensuring that shippers need not pay the forward-looking costs of facilities and services from which they derive no benefit. In short, effective competition for rail services will lead to prices that are economically and socially efficient. Furthermore, I noted that when a railroad is revenue inadequate, it has every incentive to price its services in accordance with Ramsey Pricing principles, because doing so will maximize the contribution all services, combined, can make to the coverage of fixed, joint and common costs.

*Guidelines* recognized, however, that certain *real world* rail markets may not be competitive or contestable, due to the existence of significant barriers to competitive entry into and exit from those markets. When a shipper contends that its rate is unreasonably high, it is in essence asserting that real world entry/exit barriers have rendered the market for its services not effectively competitive, creating an opportunity for the incumbent railroad to charge rates that exceed levels that would exist if the market were contestable, even though consistent with the shippers' real world market demands. The regulatory process embodied in CMP, and the SAC test on which it relies, is therefore designed to assist the Board in determining the economically appropriate level of unattributable costs that should be charged to the shippers that use the railroad (or a delineated subset of the railroad), along with the distribution of those unattributable costs in a manner consistent with Ramsey Pricing principles. *Guidelines* describes this process this way:

Although we have described the constraints in CMP separately, they are necessarily interrelated. They represent different means of approaching the same basic issue, i.e., the extent

of unattributable costs to be covered through differential pricing and the portion that can be charged to the shipper involved.

The revenue adequacy constraint is a limit on the total revenues a carrier can collect. The adjustments to eliminate plant and operational inefficiencies reduce the costs which may be covered by differential pricing. The adjustments to account for revenues lost through inefficient pricing practices also reduce the allowable differential pricing. Through these steps, the total amount of permissible differential pricing is determined. The pricing efficiency constraint directs that the resulting pool of unattributable costs be allocated among the carrier's shippers in accordance with Ramsey principles (i.e., on the basis of relative demand elasticities), recognizing that contract solutions may be superior to Ramsey prescriptions.

Alternatively, the pool of unattributable costs to which the shipper must contribute may be determined through a stand-alone cost analysis. This permits the shipper to avoid contributing to the costs of facilities and services from which it does not benefit. Again, the pricing efficiency constraint directs that the unattributable costs of the SAC system be allocated among the users of the SAC system on the basis of the demand elasticities.

Thus, the various constraints contained in CMP may be used individually or in combination to analyze whether the rate at issue is unreasonably high, i.e., set at a level greater than necessary to collect the portion of unattributable costs that can properly be charged to that shipper. If we determine that a rate has been set at an unreasonably high level, we will take whatever action is appropriate, based upon the nature and extent of the violation shown, to afford relief to the complaining shipper and to promote proper pricing by the carrier. In considering a rate prescription and/or reparations, we will attempt to provide an effective remedy for the complaining shipper, but in a manner that would not introduce further distortions into the carrier's pricing structure. *Guidelines* at 1 I.C.C.2d 547-548, (footnotes deleted).

Thus, Guidelines views CMP and SAC as appropriate tools for adjusting railroad rates in those limited circumstances in which market forces are deemed inadequate, not as *carte blanche* for wholesale revision of the incumbent's rate structure. At the end of the day, in other words, application of CMP and the SAC test – where appropriate – should result in a real world rate structure for the real world incumbent that is closer to what would be observed if the market for

all rail services were contestable. Any regulatory action that would distort the incumbent's rate structure by rendering it *less* consistent with what would be observed if real world markets were actually competitive or contestable would be inconsistent with *Guidelines*.

With this background in mind, I now turn my attention to each of the three issues I have been asked to address.

## II. TEST FOR CROSS-SUBSIDY

The Board's cross-subsidy test, initially applied in *PPL*, and discussed more fully in *Otter Tail*, comes into play when the proponent of a given stand-alone railroad ("SARR") seeks to make it appear that the issue traffic rates are too high by designing a system that is composed of two essentially separate parts that do not extensively overlap – a lighter-density segment (or group of segments) that is utilized by the issue traffic and certain other non-issue traffic, and a heavier-density segment (or group of segments) that is used relatively little or not at all by the issue traffic (and, therefore, is used exclusively, or primarily, by non-issue traffic).<sup>2</sup> In *PPL*, the Board found that if the attributable forward-looking costs of the lighter-density segment used by the issue traffic are higher than the revenues that would be generated by this traffic, then the proponent of the particular SARR configuration is deemed to have failed in its effort to

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<sup>2</sup> As explained in the Reply Verified Statement of John C. Klick, the Board addresses the potential complexity introduced when traffic that predominantly uses the lighter-density segment also makes minor use of the heavier-density segment by excluding – from the attributable costs of the lighter-density segment – *all* of the construction costs associated with the overlapping portion of the SARR network, and *all* of the operating costs associated with non-issue traffic that does not utilize the lighter-density segment, and including all of the revenues generated by the traffic that uses the lighter-density segment. In terms of the schematic set forth at page 11 of the Grimm V.S., the Board would include in the attributable forward-looking costs of the Shipper 1 and Shipper 2 traffic *only* the construction and operating costs for the B-to-A segment (used by both Shipper 1 and Shipper 2), and only the Shipper 2 operating costs for the C-to-B segment (used by both Shipper 2 and Shipper 3) – and it would compare these attributable costs to all of the revenues generated by Shippers 1 and 2. If the revenues from Shippers 1 and 2 are not sufficient to offset these forward-looking costs, a railroad operating in the contestable market envisioned by the SAC test would exit the market because the costs it would save would be greater than the revenues it would lose.

demonstrate that the issue traffic rates are unreasonably high. In upholding the Board's decision in *PPL*, the United States Court of Appeals for the District of Columbia Circuit found in part:

*Guidelines* explains the SAC test is a means of assuring that a "captive shipper should not bear the costs of any facilities or services from which it derives no benefit." 1 I.C.C.2d at 523. The Board reasonably extrapolated from this that a basic principle of *Guidelines*, and the primary purpose of the SAC test, is to guard against "both cross-subsidization by and cross-subsidization of the captive issue traffic" when determining the reasonableness of the issue traffic's rates. *Decision I*, 2002 WL 1905118 at \*5. As previously described, the SAC test, rooted in the concept of contestable markets, "is used to compute the rate a competitor in the market-place would need to charge in serving a captive shipper or a group of shippers who benefit from sharing joint and common costs." *Guidelines*, 1 I.C.C.2d at 528. In a contestable market, a competitor would always enter the market to compete for, and charge a lower price for, any traffic that is subsidizing other traffic on the line. Therefore, just as a "captive shipper should not bear the costs of any facilities or services from which it derives no benefit," *id.* at 523, it was not unreasonable for the Board to require the captive shipper in this case to hypothesize its SARR in accordance with the same standard—i.e., the viability of the western segment (including the issue traffic) could not depend on a cross-subsidy. Faced with PPL's SARR, the Board's decision advances the reasonable proposition that the captive issue traffic cannot be improperly subsidizing other traffic if the issue traffic cannot even cover its own attributable costs; in other words, it is difficult to steal from a penniless Peter to pay Paul.<sup>3</sup>

The Board's February 27, 2006 decision in the instant proceeding did not seek comment on the cross-subsidy issue, which is not surprising, given the D.C. Circuit's endorsement of the logic of the Board's cross-subsidy test. Nevertheless, both Grimm and Borts seek to inject the issue into this proceeding, and BNSF has asked that I therefore briefly address some of the obvious errors in their analyses in this Reply Verified Statement.

Dr. Grimm makes three arguments in opposition to the Board's test. First, he argues that the cross-subsidy test originally envisioned in the *Guidelines* was meant to ensure that the issue

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<sup>3</sup> See D.C. Circuit No. 04-1369 at 9.

(and other “grouped) traffic was not cross-subsidizing other traffic that does not use the issue traffic facilities, *not* the other way around. Grimm Opening V.S. at 4-5. Second, he argues that contestability theory “posits” that “if *any* SARR can be constructed which generates excess profits, the challenged rates are too high,” even if that SARR incorporates a cross-subsidy of the issue traffic by non-issue traffic that does not share facilities with the issue traffic. Grimm Opening V.S. at 6-8.<sup>4</sup> Here, Dr. Grimm raises a “doomsday scenario,” interpreting the “sustainability” argument made by the Board in defending its cross-subsidy test as potentially leading “toward a requirement that the complainant devise a SARR which represents the lowest cost, optimum system for any member of the SARR group located anywhere along the SARR route.” Finally, Dr. Grimm suggests that the Board’s cross-subsidy test must be flawed because BNSF has not yet abandoned the “west line” used by the PPL issue traffic, even though it has “for the past 25-30 years had the ability to abandon unprofitable line segments.” Grimm Opening V.S. at 8-9.

What the cross-subsidy test tells us is that if the shipper has indeed posited a SARR that reflects the contribution available from the defendant’s traffic selected for inclusion in the traffic group, the real world rates on the lighter-density portion of the network are not yielding revenues that would be generated in a hypothetical contestable market, that is, revenues sufficient to cover the collective attributable cost of handling the traffic over the light density lines in the long term.<sup>5</sup> The implication of this conclusion is that the only appropriate adjustment to the rates on the lighter-density segment, including the issue traffic rates, would be to increase the rates to

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<sup>4</sup> This point is the essence of Dr. Borts’s criticism of the Board’s cross-subsidy test as well. I understand that Dr. Borts has mischaracterized the nature of the Board’s cross-subsidy test, which is addressed in Mr. Klick’s Reply V.S.

<sup>5</sup> The inclusion of allocated revenues from cross-over traffic movements makes it impossible to know for certain that the revenues generated by the SARR accurately reflect the contribution of the defendant’s real world traffic.

levels at which they would cover their traffic's collective attributable costs, assuming that shipper demand for the services involved were sufficient to permit such an increase.<sup>6</sup> The result sought by the complaining shipper, i.e. a *reduction* in the issue traffic rates because contribution can be claimed from other traffic that does not share the lighter-density lines, would yield precisely the opposite result from the rate increase that would occur in a contestable market and would introduce inefficiency into the defendant's real world pricing structure. Because proper rate regulation should always serve to increase the economic efficiency of the incumbent's rate structure, not to introduce new or exacerbate existing departures from contestable-market behavior, the cross-subsidy test is clearly appropriate. This is the essence of the D.C. Circuit's observation, in the above quote, that "the Board's decision advances the reasonable proposition that the captive issue traffic cannot be improperly subsidizing other traffic if the issue traffic cannot even cover its own attributable costs; in other words, it is difficult to steal from a penniless Peter to pay Paul."<sup>7</sup>

The test promulgated in *PPL* relied upon a finding that an internal cross-subsidy existed at the *current* level of revenues allocated to the SARR. In *Otter Tail*, the Board took the next logical step – concluding that even if no cross-subsidy exists at the current level of revenues allocated to the SARR, rate reductions that are indicated by a finding that current revenue levels exceed SAC could not be significant enough, on the light-density portion of the SARR, to create

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<sup>6</sup> If demand is not sufficient to permit rates that recover long-run collective attributable costs, the real world defendant whose costs in the lighter-density lines are sunk, will nonetheless appropriately continue to handle the traffic as long as it recovers collective short-term attributable costs.

<sup>7</sup> Note that while Dr. Grimm suggests that in a "more typical context" cross-subsidy analyses are performed with respect to "estimates of incremental, marginal, or variable costs," which he describes as "more tractable," his discussion at pages 9 and 10 makes clear that he agrees with the commonly-held view of economists that the proper way to assess whether cross subsidy exists is to determine whether the portion of the rail system under study is "a viable component of a presumptively efficient, de novo railroad system," i.e., that the right way to assess whether a cross-subsidy exists *in the real world* is to compare revenues to the forward-looking costs of efficiently constructing and operating the portion of the rail system under study – precisely what the Board's cross-subsidy test does.

a cross-subsidy – *after* the rate reduction – where one does not exist today. The conclusion that the cross-subsidy test properly acts as a constraint on the size of the rate reduction that can be imposed on traffic that moves over the light-density segment also is logical. If one is going to establish reasonable rates by asking what rates would exist on the issue and non-issue traffic in a contestable market, it makes no sense to assume rate levels on the light-density portion of a network that could exist only if a cross-subsidy from the heavier-density portion of the network were available. Over the long run, this approach would merely and unnecessarily replace one distortion (*i.e.*, rates above a reasonable level) with another (*i.e.*, a cross-subsidy of the lighter-density segment by the heavier-density segment). The right approach is the one advocated by the Board, *i.e.*, to reduce rates on the lighter-density segment only until they just cover the forward-looking attributable costs of that segment.

One other brief comment is in order. One can certainly conceive of a process that would result in identifying an “optimal” stand-alone configuration for each combination of traffic movements over an incumbent railroad’s system, but nothing in the Board’s adoption of the cross-subsidy test forces shippers to take on this burden. All that is required is that the complainant posit a SARR that does not depend upon a cross-subsidy to make the facilities used by the issue traffic look more profitable than they are. To paraphrase Dr. Grimm, identification of *any* low-cost, hypothetical SARR serving the issue traffic and a logical shipper group that is earning excess profits system-wide based upon existing SARR rate levels, *without simultaneously cross-subsidizing the issue traffic rate*, would establish that the complaining shipper’s rates are excessive. Just as clearly, as discussed above, it would not be good regulatory policy intentionally to increase the level of distortion in the incumbent’s rate structure by means

of an issue traffic rate reduction in excess of one that would exist in a competitive or contestable market.

Dr. Grimm suggests that BNSF's continued operation – over an extended period of time – of the light-density line at issue in *PPL* indicates that the line *does*, in fact, cover its forward-looking costs. As an initial matter, this is tantamount to claiming that the Board significantly overstated the attributable forward-looking costs that it calculated for the “west leg” of the *PPL* SARR. The time is long past for making this claim, but I note that the Board's decision is explicit that it calculated these costs in a manner that would tend to *understate* these costs, not overstate them.<sup>8</sup> In addition, the fact that the stand-alone rail systems relied upon by shippers in *PPL* and *Otter Tail* make such extensive use of cross-over traffic renders it difficult to draw *any* conclusion about the real world incumbent's rail lines.

More fundamentally, the fact that BNSF has continued to operate this line for years is not inconsistent with the Board's conclusion that revenues fail to cover forward-looking attributable cost. Many significant railroad assets, such as grading, tunnels and bridges, have useful lives much longer than the 25 years that have passed since the Staggers Rail Act of 1980 made abandonment of unprofitable rights-of-way by carriers more feasible. As the I.C.C. recognized repeatedly in *Guidelines*, it is economically rational and socially efficient for a railroad to operate segments of railroad that do not cover their long-run incremental costs as long as they are covering the costs that they incur in the short run. *See*, for example, *Guidelines* at 1 I.C.C.2d at 537-538.

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<sup>8</sup> *PPL Montana, LLC, v. BNSF*, STB Docket No. 42054, slip op. at 10 (served August 20,2002)

### III. ADDITIONAL RATE PRESCRIPTION METHODOLOGIES PROPOSED BY SHIPPERS

In addition to commenting on the Board's rate prescription proposals, Western Fuels Association, Inc. and Basin Electric Power Cooperative ("WFA") proposed two alternatives to the Percent Reduction Methodology, *i.e.*, a "Reasonable Allocation Methodology," or "RAM," and a "Reduced Mark-Up Method." Further, AEP Texas North Company ("AEP Texas") proposed what it calls a "Generalized Percent Reduction Method," or "GPRM." I understand that other BNSF witnesses are addressing these proposals in detail. I limit my focus to implications that exist in both of these filings that the marginal costs relied upon in calculations for both the Reduced Mark-Up method and GPRM are somehow consistent with marginal costs as that term is construed in Ramsey Pricing theory, and that reliance on either of these two methods to establish reduced rates on the issue traffic would therefore somehow be "consistent with" Ramsey pricing.

As WFA explains in its pleading, under the Reduced Mark-Up method, "contribution" on each stand-alone movement is calculated as the difference between "the revenues paid by each [SARR] shipper and the variable costs the [SARR] incurs to provide that shipper with service." While it is not explained in detail in the May 1, 2006 filing, I understand that the following are features of the Reduced Mark-Up method:

1. "variable costs" are based on an effort to put the operating and capital costs of the SARR into an URCS variable cost format,<sup>9</sup> and
2. the term "revenues paid by each [SARR] shipper," when applied to cross-over traffic movements, is in fact a reference to the portion of the BNSF's actual

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<sup>9</sup> As an economic matter, it is the marginal costs of the incumbent, not the SARR, that should be used in any rate reduction methodology based on "Ramsey Pricing" principles. Afterall, the aim of the application of regulation to reduce rates is to improve the economic performance of the actual prices with respect to the real world railroads and their actual demands. This is the function of the principles of Ramsey Pricing, and avoidance of cross-subsidy as well. As such, it is the real world marginal costs of the real railroad incumbents that should inform the setting of rates.

revenues that is allocated to the SARR for providing only a portion of the service provided by BNSF on each movement, *i.e.*, it is based on a formulaic allocation of through revenues.

AEP Texas ties GPRM more directly to the concept of Ramsey pricing (*see* the equation set forth on page 11 of its Opening Comments), and specifically states in its discussion of marginal costs:

As a practical matter, coal rate proceedings do not readily permit the specific calculation of marginal service costs for each member of the SARR traffic group. Such a showing would be extremely burdensome. This limitation should not affect the use of GPRM, however, as there is no need to compute the actual marginal costs of a particular movement with specificity. Instead, the goal is to measure the markup of the rate over a determined cost level *relative* to the comparable markups above similarly determined cost levels on other rates in the traffic group. As long as the rates are measured against a consistent cost standard, the relative markups can be determined in order to allocate the excess SARR revenues over SAC. AEP Texas Rebuttal at III-G-46 to 47. The average marginal costs for a movement can be determined using publicly available Phase III URCS data for the defendant railroad in the base year of the SAC analysis. AEP Texas Opening at III-G-32 to 33. . . . The calculation of system average marginal costs in this manner has come under attack as not determining shipper-specific marginal costs with certainty. BNSF Reply at III-G-36 to 40. However the Board and ICC each have recognized that complex precision must be tempered with practicality when determining a workable regulatory formula. The marginal cost calculations in this instance are used to estimate the percentage markup for each movement. The estimated markups are used to infer the relative demand elasticities. The use of system average costs is sufficient for such a purpose. AEP Texas Rebuttal at III-G-46 to 47. AEP Texas Opening Comments at 11-12.

Again, although it is not clear from this description, I understand that certain categories of expense have been eliminated from BNSF's URCS to create what AEP Texas calls "marginal costs," and that the revenues and revenue markups calculated for cross-over movements reflect only the portion of the BNSF's actual revenues that is allocated to the SARR, *i.e.*, GPRM also relies upon a formulaic allocation of BNSF's total revenues to the SARR's portion of each cross-

over traffic movement. These features of the reduced mark-up method and the GPRM have implications for several aspects of the rate prescription issue that the Board has raised in this proceeding.

First and foremost, it is something akin to an economic “twilight zone” for shippers to be talking about Ramsey pricing while at the same time relying so extensively on cross-over traffic movements that ignore the revenues and “marginal costs” for the *full service* that is provided on each cross-over traffic movement by BNSF today. Relative elasticities of demand for individual shippers are reflected only in the end-to-end rates they pay, and it is an indefensible leap of faith to *assume*, as WFA and AEP Texas do, that the revenues allocated to the SARR for its portion of each cross-over traffic movement – using MSP, ATC or some other cost-based approximation – could somehow reflect each movement’s elasticity of demand.

While I understand the Board’s desire to simplify the SAC process through the cross-over traffic convention, there is a real danger in individual rate proceedings that formulaic approximations can bias the results that would be obtained under a “full SAC” analysis that would explicitly reflect each shipper’s demand-based rates. The way to address this problem in the rate reduction context was suggested by BNSF in recent rate proceedings, and is alluded to in the Opening V.S. submitted by John Klick in this proceeding, *i.e.*, to apply the rate reduction procedure in a manner that ensures that whatever excess of revenues over SAC results from applying the SAC test is eliminated by reducing the *full* rates on the stand-alone traffic movements, or the *full* contribution generated by this traffic. While this approach does not entirely address the implications of focusing only on the SARR’s allocated revenues and “marginal costs,” it is a significant step in the right direction.<sup>10</sup>

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<sup>10</sup> As I read Mr. Klick’s statement, evidence submitted in the *Laramie River* proceeding demonstrates that this approach would *overstate* the reduction required because, as the system is

Second, one cannot expect that URCS-based variable costs – whether for the incumbent railroad or the SARR, un-diluted, or with the sorts of modifications made by AEP Texas – would reflect the marginal costs that are consistent with Ramsey pricing principles. This is so because system-average costs, based on embedded book values, do not accurately reflect marginal costs for individual movements.

In *Guidelines*, the ICC found that:

Rail Form A and the Uniform Railroad Costing System (URCS) are both cost accounting systems which transform reported railroad expense and activity data into estimates of the intermediate- to long-run variable cost of providing rail service. URCS offers a number of refinements to Rail Form A designed to increase both its flexibility and accuracy. Adoption of URCS is being considered in Ex Parte No. 431.

However, both these systems yield cost estimates which are based largely on system-wide averages. Ramsey pricing requires the use of economic costs rather than accounting costs. Although Rail Form A or URCS might be useful as a rough indicator of economic costs, we recognize that local factors and circumstances may cause the economic costs to differ greatly from accounting estimates. Such local factors might include, for example, whether the movement is a backhaul or off-peak movement or whether the facilities involved are congested. Parties presenting cost estimates should be prepared to show that they have taken account of relevant local factors.<sup>11</sup>

These observations apply with full force to the supposed development of marginal costs reflected in the WFA and AEP Texas proposals. As Mr. Klick explains in more detail, for example, AEP Texas started with standard URCS variable unit costs, and modified those costs to eliminate

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expanded to look more and more like a “full SAC” analysis, the excess of revenues over SAC declines (not surprising, given the revenue inadequate status of the major railroads). By assuming that the “overage” that is calculated for the “short SARR” (relying on cross-over traffic) would be the same if a “full SAC” were conducted – which is functionally what Mr. Klick’s proposal assumes, this method overstates the average reduction required from each member of the stand-alone traffic group, including the issue traffic, *whatever* method is used to develop the rate prescription.

<sup>11</sup> *Guidelines*, 1 I.C.C.2d at 532 n.31.

general overhead and supervisory expenses, depreciation and "return" on fixed assets, added the current year's capital investment in track assets, and eliminated certain carload billing expenses that were deemed inapplicable to coal unit train service. I understand that these modified "system-average marginal costs" were used to generate a series of "cost factors" that AEP Texas alleges can be used to "approximate" movement costs for other lengths of haul (and differences in other shipment characteristics, such as termination vs. interchange and car ownership).

The outcome of such an approach would seem to be an implicit assumption that all movements with identical operating parameters (*e.g.*, the same length of haul, same class of traffic and same car ownership characteristics) would exhibit the same marginal cost. Such an assumption is inconsistent with a basic premise of Ramsey pricing, which requires that the marginal costs used for each individual movement must reflect all of the relevant forward-looking economic costs associated with that particular movement.

If a movement uses a portion of the railroad that is particularly congested, its marginal costs must reflect the costs of this congestion (*i.e.*, either the slower transit times and higher probability of crews outlawing on congested routes, or the investment costs that will be required to eliminate this congestion). On the other hand, if the movement uses a portion of the railroad where there is considerable available capacity, the costs of such capacity would not be part of the marginal costs used in a proper implementation of Ramsey pricing.

Similarly, properly-developed marginal costs would reflect differences in the "risk-profile" of individual movements. Movements under contract are more certain than movements under common carrier rates; movements from or to solely-served locations are more certain than movements between competitively-served locations. As a result, investments in locomotives, freight cars and rights-of-way to handle some movements carry less risk than similar investments

associated with other traffic. Furthermore, while contracts tend to improve certainty, the obligations associated with individual contracts differ, and these differences can impose costs that vary significantly for movements of the same length of haul. Some contracts impose service standards on railroads, while others do not; some impose obligations on railroads to provide railroad-owned equipment or to move additional trainsets of coal at the shipper's request, while others do not. These sorts of requirements affect a railroad's marginal cost of handling these movements, but are not reflected in the URCS-based marginal costs developed for BNSF by AEP Texas.

AEP Texas attempts to down play this long-held view that URCS is not a suitable surrogate for the marginal costs required to implement Ramsey Pricing by arguing that it is only the *relative* costs that are important, not the absolute level of marginal costs. This statement is wrong for two reasons. First, as I have already noted, is the fact that URCS system-average costs are not sensitive to a host of factors that can radically change relative costs, such as diverse contract terms and extent to which certain movements do or do not move over capacity-constrained facilities. As a result, it is a false hope that they get the "relative costs" right. However, even if the *relative* costs were accurate, the absolute level of cost does matter for Ramsey Pricing calculations. If costs are overstated on average, even if the relative level of costs for each movement were accurate, this would lead to a different pattern of rate reductions across the movements in the stand-alone traffic group than if the lower, more accurate marginal costs were employed.<sup>12</sup>

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<sup>12</sup> A simple way to illustrate this is to assume that all marginal costs were overstated – by the same amount across the board to maintain the proper *relative* cost levels touted by AEP Texas – and that this overstatement was sufficient to generate costs for certain movements that equaled or exceeded their existing rate levels. Under such circumstances, if a reduction in the amount of unattributable cost that needs to be recovered is indicated by a SAC test, these movements would incur none of this reduction, which would not be the case if the proper marginal costs had been employed.

Reliance on the sort of “system-average” approach to developing marginal costs that is advocated by WFA and AEP Texas also obviously distorts the rate/marginal cost relationships that it relies upon to infer relative demand elasticities. For example, all other things being equal, one would expect BNSF to charge a higher rate per ton for a movement on which it has agreed to a service performance standard (with penalties when it fails to perform) than on one where it has no such obligation. The higher rate reflects the higher risk and, therefore, higher marginal cost to BNSF of handling this movement. Yet the “system-average” approach would calculate identical marginal costs for both movements and infer that the movement that involved the service performance standard is more demand inelastic than the movement that does not because the contribution ratio is higher. Similarly, when a movement makes substantial use of congested BNSF facilities, one would expect BNSF to assess a higher rate per ton – all other things being equal – to offset the costs associated with the congestion (or, alternatively, the costs of eliminating this congestion). Once again, the “system-average” approach to calculating marginal costs would pick up the higher rate per ton, but fail to account for the higher costs, and lead it to conclude, generally, that movements over congested facilities are more demand inelastic than they are.

This discussion highlights a second, critically important flaw introduced by using URCS system average costs as the basis for calculating marginal costs for use in rate reduction methodologies that are allegedly based on Ramsey Pricing principles. I understand that significant network congestion is a real world factor on each of the major railroads that filed opening comments in this proceeding – particularly on lines used by traffic that has been part of stand-alone traffic groups in prior rate cases – yet stand-alone railroads are presumably constructed with sufficient network capacity to handle the traffic included in the stand-alone

traffic group during peak time periods. It obviously makes no economic sense in the real world to *reduce* rates for traffic that makes extensive use of rail facilities that are congested, because this will only encourage more demand for facilities whose capacity is already over-subscribed. But it is certainly possible that a properly-conducted SAC test of these same movements could demonstrate that revenues exceed the long-run forward-looking costs developed to construct and operate the SARR. In these circumstances, how should the Board reconcile the real world “state of play” with the results of a SAC analysis that relies upon a hypothetical efficient service provider?

The answer to this apparent conundrum lies in the principle set forth at the outset of this statement, *i.e.*, that the SAC test is merely a starting point for determining how to modify real world rates to eliminate distortions caused by barriers to entry and exit, and to be more economically and socially efficient in the long-run (it is obviously not efficient to encourage expanded use of facilities that are operating at or above capacity). Traffic that utilizes congested facilities experience very high marginal costs – costs that include a *pro rata* share of the full, forward-looking costs of expanding the network capacity to eliminate the congestion that these movements help to cause. In Ramsey Pricing terms, these very high marginal costs result in relatively small (or even negative) margins on the traffic moving over congested facilities, which in turn suggests that while facilities used by the issue traffic remain congested, minimal or no rate reductions would be warranted, *even if revenues seem to exceed SAC*.<sup>13</sup>

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<sup>13</sup> As SAC is routinely calculated, depreciation is annuitized to reflect level conditions of deployment and utilization of capital facilities. However, where traffic is growing fast, or is subject to significant variations over time, facilities will sometimes be congested and sometimes be slack. Optimally, under the dynamics of Ramsey Pricing principles, depreciation should be relatively high when congestion makes contemporaneous marginal costs high, and depreciation should be relatively low when capital facilities are uncongested or even temporarily underutilized, and short-run marginal costs are correspondingly low. With such time-varying depreciation, revenues need not necessarily exceed SAC during times of congestion when optimal prices are high, because depreciation should be high as well.

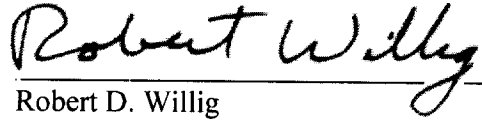
In short, as the ICC recognized long ago, URCS-based system average variable costs – or variants on these costs – are not sufficiently movement-specific and network-specific to generate rate-to-cost ratios from which one can infer relative demand elasticities – and if marginal costs are not calculated in a manner that properly reflects what the I.C.C. termed “local factors” such as congestion and/or specific contract terms, economically and socially inefficient rate reductions could result.

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Under such a dynamic pattern however, prices should fall to reflect the easing of congestion, as depreciation is backed down as well. Here, over time, the overall depreciation should average out (in appropriate discounted values) to the annuitized level, and revenues should be compared to SAC over the full cycle of congestion, capacity enlargement and congestion alleviation.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 29, 2006

  
Robert D. Willig

Klick

**STB Ex Parte No. 657 (Sub-No. 1)**  
**MAJOR ISSUES IN RAIL RATE CASES**

REPLY VERIFIED STATEMENT  
OF  
JOHN C. KLICK

May 31, 2006

## I. INTRODUCTION

My name is John C. Klick. I am a Senior Managing Director in FTI Consulting Inc.'s economic practice. My office is located at 1201 I Street, NW, Suite 400, Washington, D.C., 20005. A statement of my qualifications is attached as Exhibit No. \_\_ JCK-1 to the Opening Verified Statement I filed in this proceeding on May 1, 2006.

I have been asked by BNSF Railway Company ("BNSF") to address certain issues raised in the WCTL Comments,<sup>1</sup> the *Additional Opening Comments of Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc.* ("WFA"), *Opening Comments of AEP Texas North Company* ("AEP Texas"), and *Comments of Arkansas Electric Cooperative Corporation* ("AECC"). The specific areas I have been asked to address are summarized below:

### Rate Reduction

- The reduced mark-up methodology proposed by WFA, and the Generalized Percent Reduction Methodology ("GPRM") proposed by AEP Texas
- The train-mile allocation approach proposed by AECC witness Nelson

### Revenue Allocation

- Criticisms of the Average Total Cost ("ATC") proposal, and the market based approach to revenue allocation, made in WCTL Comments

### Cross-Subsidy

- Discussion of the cross-subsidy issue set forth in the Borts and Grimm Verified Statements attached to the WCTL Comments

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<sup>1</sup> *Joint Opening Comments of Western Coal Traffic League, Concerned Captive Coal Shippers, Western Fuels Association, Inc., Edison Electric Institute, National Rural Electric Cooperative Association, and American Public Power Association* ("WCTL Comments").

## II. RATE REDUCTION ISSUES

### A. AEP Texas's Generalized Percentage Reduction Method Does Not Implement Ramsey Principles

In its Opening Comments, AEP Texas North Company (AEP Texas) identifies significant flaws in both MCM and MMM, and proposes that the Board adopt instead the Generalized Percentage Reduction Method ("GPRM") that it first proposed in STB Docket No. 41191 (Sub-No.1).<sup>2</sup> AEP Texas states that GPRM "modifies the Board's [percentage reduction] methodology to be consistent with Ramsey pricing principles," and contends that it "allocates rate relief based on the maintenance of the ratios of price markups over marginal cost." AEP Texas's suggestion that its rate reduction approach is consistent with the principles of Ramsey pricing is wrong for several reasons.

As several witnesses for BNSF noted on Opening, in formulating the *Guidelines*<sup>3</sup> the ICC was guided by the economic principles underlying Ramsey pricing. The ICC found it to be impractical to impose pure Ramsey pricing as the mechanism for determining rate reasonableness, because doing so "requires both the marginal cost and the elasticity of demand to be quantified for every movement in the carrier's system. Thus, the amount of data and degree of analysis required seemed overwhelming."<sup>4</sup> The ICC determined to rely upon "formal" Ramsey pricing only as a theoretical *guideline*, and adopted Constrained Market Pricing ("CMP") and the stand-alone cost ("SAC") test as practical alternatives for assessing rate reasonableness that it anticipated would promote Ramsey prices in the freight rail industry.<sup>5</sup>

In advocating GPRM, AEP Texas effectively claims to have found a shortcut that eliminates all of the difficulties and burdens of calculating true Ramsey prices that the ICC

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<sup>2</sup> AEP Texas Opening Comments, referencing STB Docket No. 41191 (Sub-No. 1) ("*AEP Texas*") at AEP Texas Opening Nar. at III-G-25 to 32; and AEP Texas Rebuttal Nar. at III-G-35 to 40.

<sup>3</sup> ICC Docket No. 347 (Sub-No. 1), *Coal Rate Guidelines, Nationwide*, 1 I.C.C.2d at 520.

<sup>4</sup> *Guidelines* at 527.

<sup>5</sup> *Id.* at 534.

identified during the *Guidelines* proceeding.<sup>6</sup> As a logical matter, if calculation of Ramsey prices is not practical because it is too complex, the likelihood that Ramsey prices could be closely approximated using GPRM is highly implausible.<sup>7</sup> Although GPRM does exhibit some superficial consistency with Ramsey pricing principles, it suffers from two fundamental problems – neither the revenues nor the marginal costs used in the GPRM rate reduction calculations are meaningful for calculating demand elasticity.

**1. AEP Texas's Opening Comments Do Not Clearly Identify Which Version of GPRM It is Proposing in this Proceeding**

In Docket No. 41191 (Sub-No.1) – in response to criticisms of its Opening evidence made by BNSF – AEP Texas changed the way it performed its GPRM calculations when it filed its brief in that proceeding. The confusion in this proceeding arises because AEP Texas's Opening Comments do not acknowledge the change that was made in its Docket No. 41191 (Sub-No. 1) pleadings, and it includes documents from the rate case that both precede and succeed the change made on brief as attachments to its GPRM discussion in this proceeding.

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<sup>6</sup> Specifically, AEP Texas states:

As a practical matter, coal rate proceedings do not readily permit the specific calculation of marginal service costs for each member of the SARR traffic group. Such a showing would be extremely burdensome. This limitation should not affect the use of GPRM, however, as there is no need to compute the actual marginal costs of a particular movement with specificity. Instead, the goal is to measure the markups above similarly determined cost levels on other rates in the traffic group. As long as the rates are measured against a consistent cost standard, the relative markups can be determined in order to allocate the excess SARR revenues over SAC. AEP Texas Rebuttal at III-G-46 to 47. The average marginal costs for a movement can be determined using publicly available Phase III URCS data for the defendant railroad in the base year of the SAC analysis. AEP Texas Opening at III-G-32 to 33. The SARR revenue per ton attributable to each member of the traffic group then can be compared to the appropriate marginal cost figure, based upon distance, to arrive at the relative markups. *Id.* at 32 to 33. AEP Texas Opening Comments at 11-12.

<sup>7</sup> If it were appropriate to determine the Ramsey optimal prices for the subset of the defendant's system represented by the stand-alone shipper group, the way to determine them would be to calculate the revenue need for the stand-alone railroad (configured to handle the historical and projected volumes of the shipper group) and then set the rates for the shippers in the group based on their demand elasticity and marginal cost. The ICC's discussion of difficulties in implementing pure Ramsey pricing suggests that these calculations cannot be feasibly made, and if this is so it is not likely that one could "back into" reliable Ramsey prices for the subset of the defendant's system in the manner proposed by AEP Texas.

At page III-G-30 of its Opening Narrative in Docket No. 41191 (sub-No. 1), AEP Texas

states:

Following Ramsey principles, a rate reduction or rate relief allocation methodology should attempt to maintain price mark up ratios across the market in question. Herein, AEP Texas proposes and applies an alternative formula -- called the "generalized percentage reduction" rule -- that allocates relief *based on the maintenance of the ratios of price markups over marginal cost*.<sup>8</sup>

A very similar claim is made for GPRM in this proceeding.<sup>9</sup> Note, too, that these claims support BNSF's view -- expressed in its Opening Comments by Professors Willig and Kalt, that any acceptable rate reduction methodology must (1) reduce rates for *all* members of the stand-alone traffic group, and (2) maintain the existing rate/cost relationships that are established by the incumbent railroad based on its assessment of market demand.

In Docket No. 41191 (Sub-No. 1), however, examination of the workpapers in which AEP Texas had actually implemented its GPRM calculations revealed that AEP Texas had not in fact maintained the ratios of price markups over marginal cost.<sup>10</sup> Instead, the way AEP Texas computed the rate reduction for the movements in its stand-alone traffic group, including the issue traffic, was to employ the following iterative process for each quarter of the DCF period:

1. Rank order the SARR traffic movements in each quarter by revenue-to-"marginal cost" ratios, highest to lowest.<sup>11</sup>
2. Determine the amount by which TNR revenues in the quarter must be reduced to ensure that overall stand-alone revenues are equal to overall stand-alone costs across the DCF period.

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<sup>8</sup> AEP Opening Nar. at III-G-30, emphasis supplied.

<sup>9</sup> "The goal of GPRM is to allocate excess revenues over SAC in a manner which simultaneously provides reductions to all shippers in a group whose contributions exceed marginal costs, and closely maintains the relative relationship of each shipper's respective demand elasticity to every other shipper's." AEP Texas Opening Comments at 13.

<sup>10</sup> AEP Texas's application of the "generalized percentage reduction" rule to the TNR is reflected in AEP Texas's Opening electronic workpapers "2000-Q2 AARM.xls" through "2020-AARM.xls," and "Alternative Rate Reduction Rev Ton and Mile Inputs1.xls," "Final SAC Netting and Index.xls," and "AARM Template.xls."

<sup>11</sup> Marginal costs are those developed by the process that I critiqued earlier in this verified statement.

3. Begin the iterative process by reducing revenues for the movement with the highest revenue-to-“marginal cost” ratio until its revenue-to-“marginal cost” ratio just equals the revenue-to-“marginal cost” ratio for the movement rank ordered just below (*i.e.*, the movement with the second highest revenue-to-“marginal cost” ratio).
4. Check to see whether the resulting revenue reduction is sufficient to completely eliminate the quarter’s excess revenues, as identified in step 2. If yes, go to step 7; if not, proceed to step 5.
5. Sequentially reduce the revenues for the movements with the highest *two* revenue-to-“marginal cost” ratios until their revenue-to-“marginal cost” ratios just equal the revenue-to-“marginal cost” ratio of the movement rank ordered 3.
6. Repeat steps 4 and 5, sequentially reducing the revenue-to-“marginal cost” ratios for each move above the iteration cut-off point down to the revenue-to-“marginal cost” ratio of the rank ordered move just below the iteration cut-off point until the cumulative revenue reductions are sufficient to eliminate the quarter’s excess revenues, as identified in step 2.
7. The prescribed rate for the issue traffic is the revenue per ton shown for the issue traffic movement at the end of the *prior* iteration.

This approach does not come close to “maintaining the ratios of price markups over marginal costs,” as AEP Texas claimed it intended. Instead, all of the movements above the iteration cut-off point end up exhibiting *identical* ratios of revenue to “marginal costs,” while *none* of the movements below the iteration cut-off point experience any rate reduction at all. Thus, the prescribed rates that AEP Texas calculated in its opening evidence in Docket No. 41191 (sub-No. 1) were characterized by flaws similar to those BNSF identified for MCM and MMM in its Opening Comments in this proceeding, and thus bore no resemblance at all to an outcome consistent with Ramsey pricing principles.

On brief in the Docket No. 41191 (Sub-No. 1) proceeding, AEP Texas modified the way it applied GPRM to be more Ramsey-like, *i.e.*, it modified GPRM to develop rate reductions for each movement in the stand-alone traffic group as described at pages 13 and 14 in its Opening Comments. If revenues exceed SAC, the *corrected* GPRM approach does in fact reduce revenue

levels for each and every movement in the stand-alone traffic group (assuming revenues generated by a movement exceed its “marginal costs”), and does leave each movement’s revenue-to-”marginal cost” rank-ordering unchanged.

The witnesses that developed GPRM for AEP Texas in Docket No. 41191 (Sub-No. 1) – Douglas Caves, Kelly Eakin and Mark Meitzen – showed in Exhibit III-G-11 to the opening evidence in the rate proceeding that GPRM was intended to reduce rates for all traffic movements in the stand-alone traffic group, and maintain the relative revenue-to-“marginal cost” rank order of each movement (*see* pages 4 through 5 of Exhibit III-G-11, attached as Exhibit A to the AEP Texas Opening Comments). This, coupled with the fact that on brief AEP Texas conformed *application* of GPRM in the way it was described by its witnesses, strongly supports the criticisms of MCM and MMM made by BNSF in its Opening Comments in this proceeding.

Nevertheless, because it relies upon marginal cost calculations that are fatally flawed, even the corrected GPRM approach is inferior to the Board’s traditional percentage reduction method (“PRM”), which does not require marginal cost calculations, but does reduce each issue traffic rate, and does maintain each movement’s revenue-to-”marginal cost” rank order.

## **2. AEP Texas’s Calculations Do Not Use Prices that Reflect Demand for Through Service**

The contribution margins that Ramsey pricing calculations would rely upon, if they could be done properly, are presumably an indicator of how valuable rail service is to each individual customer of the incumbent. However, when the vast majority of movements in a stand-alone traffic group are cross-over movements – as has been the case in virtually all of the recent SAC proceedings before the Board – the revenues that GPRM uses to develop its markup ratios do not reflect the prices set in the real world for the end-to-end transportation service provided by the incumbent for each cross-over movement, but are allocations of end-to-end revenues derived

using MSP, ATC or some other formulaic methodology. Thus, the revenues used by AEP Texas in its GPRM are not prices for through service and, as a result, cannot possibly reflect the value of rail service to each shipper, because there is no shipper demand for only a portion of an end-to-end movement, and no way of determining the shipper's willingness to pay for transportation to an imaginary interchange point. Thus, any "Ramsey-based" rate reduction would have to be calculated in light of the rate for the *through* movement.

As I suggested in my Opening V.S., this can be done without altering the fundamental nature of SAC presentations. The first step is to assume that the dollar amount of the overcharge developed from a SAC study, using cross-over traffic, would be no larger if a "full SAC" study were conducted.<sup>12</sup> This overage can then be eliminated by applying an equal percentage reduction to the mark-ups over marginal costs developed for the *through* movements of each movement in the stand-alone traffic group, including each cross-over traffic movement (information that is easily developed from data routinely available in SAC cases). This approach preserves the relative demand-based markups across all *through* movements, consistent with Ramsey pricing principles.

### **3. AEP Texas Has Not Determined Marginal Costs in the Manner Necessary for Proper Calculation of Ramsey Prices**

AEP Texas's proxy for demand elasticities requires a calculation of marginal costs. In Docket No. 41191 (sub-No. 1), AEP Texas's witness Whitehurst calculated marginal costs based on BNSF URCS costs. As the ICC recognized long ago, and as Professors Willig and Kalt

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<sup>12</sup>This is a reasonable assumption, because if building a full SAC would substantially increase the amount by which revenue exceeds SAC, complainants have every incentive to do so. In fact however – consistent with this logic and with the overall revenue inadequacy of railroads – the "serial build out" analysis conducted by BNSF in *Laramie River* demonstrates that a "full SAC" analysis is most likely to exhibit a lower excess of revenue over SAC. Reply Evidence and Argument of BNSF Railway Company, STB Docket No. 42088, *Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railway Company* ("Laramie River"), Narrative, Volume I of II, at III.A-14.

explain in their Reply Verified Statements, use of URCS (or modifications of URCS) for this purpose does not yield proper Ramsey prices. In *Guidelines*, the ICC stated that both Rail Form A and URCS costs:

yield cost estimates which are based largely on system-wide averages. Ramsey pricing requires the use of economic costs rather than accounting costs. Although Rail Form A or URCS might be useful as a rough indicator of economic costs, we recognize that local factors and circumstances may cause the economic costs to differ greatly from accounting estimates. Such local factors might include, for example, where the movement is a backhaul or off-peak movement or whether the facilities involved are congested.<sup>13</sup>

The ICC's observations apply with equal force to AEP Texas's supposed development of "marginal costs" for use in GPRM.

In its Opening Exhibit III-G-12, from Docket No. 41191 (sub-No. 1), AEP Texas explained how W. W. Whitehurst & Associates, Inc. supposedly calculated "marginal costs for standard BNSF system-average unit coal train movements based on the Board's URCS costs for the year 2001" for the purpose of applying the GPRM. As described therein, AEP Texas started with standard URCS variable unit costs, and modified those costs by:

- eliminating the URCS general overhead rates;
- eliminating supervision and superintendence for maintenance-of-way ("MOW"), maintenance of equipment ("MOE") and transportation;
- eliminating fixed plant depreciation and lease rentals ("DLR") and fixed plant ("ROI");
- adding current year replacement costs for track structure to maintenance-of-way operating expenses (i.e., the URCS gross ton-mile Table D1 unit costs); and
- eliminating certain CLOR costs that are not associated with coal unit train service.

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<sup>13</sup> *Guidelines*, 1 I.C.C.2d at 532 n.31.

These modified “system-average marginal costs” were then applied, using the URCS Phase III costing procedures, employing the Ex Parte No. 270 trainload adjustments, to generate costs for movements of 300, 600, 900 and 1200 miles. These costs, in turn, were used to develop a series of “cost factors” that AEP Texas alleges can be used to “approximate” movement costs for other lengths of haul (and differences in other shipment characteristics, such as termination vs. interchange and car ownership). This approach to developing marginal costs is inappropriate for the purpose of developing Ramsey prices for two primary reasons.

First, the basic assumption of AEP Texas’s approach – *i.e.*, that all movements with the same length of haul, same class of traffic and same car ownership characteristics will exhibit the same marginal cost – is not sufficiently movement-specific to yield meaningful Ramsey prices. As explained in the Reply Verified Statements of Professors Kalt and Willig, economic theory requires that the marginal costs used in applying Ramsey prices use costs calculations that reflect, with precision, the specific characteristics of each movement. If a movement uses a portion of the railroad that is particularly congested, its marginal costs must reflect the costs of this congestion (*i.e.*, either the slower transit times and higher probability of crews outlawing on congested routes, and/or the investment costs that will be required to eliminate this congestion). On the other hand, if the movement uses a portion of the railroad where there is excess capacity, such costs would not be part of the marginal costs required to properly implement Ramsey pricing. Similarly, properly-developed marginal costs should reflect differences in the “risk-profile” of individual movements. Movements under contract are more certain than movements under common carrier rates; movements from or to solely-served locations are more certain than movements between competitively-served locations. As a result, investments in locomotives,

freight cars and rights-of-way to handle some movements carry less risk than similar investments associated with other traffic.

More mundane examples exist of the sorts of movement-specific detail that should be reflected in Ramsey prices. In Docket No. 41191 (Sub-No. 1), AEP Texas's application of GPRM assumed that all movements would load to 111 tons per car, move in trains of 110 cars, and require a system-average consist of system-average locomotives to move a system-average number of miles per day. The reality is, however, that these characteristics for individual coal unit train movements exhibit considerable variation.

Contract obligations differ from movement to movement and can impose significantly different costs on BNSF for otherwise similar movements. Some contracts impose service standards on BNSF, while others do not; some impose obligations on BNSF to provide railroad-owned equipment or to move additional trainsets of coal at the shipper's request, while others do not. These sorts of requirements affect BNSF's marginal cost of handling these movements, but are not reflected in the URCS-based marginal costs developed by AEP Texas.

AEP Texas's "system-average" approach to developing marginal costs for GPRM therefore distorts the rate/marginal cost relationships from which GPRM infers relative demand elasticities.<sup>14</sup> For example, all other things being equal, one would expect BNSF to charge a higher rate per ton for a movement where it has agreed to a service performance standard (with penalties when it fails to perform) than where it has no such obligation. The higher rate reflects the higher risk and, therefore, higher marginal cost to BNSF of handling this movement. Yet AEP Texas would calculate identical marginal costs for each movement and infer that the

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<sup>14</sup>See AEP Texas Opening Comments at 12: "The marginal cost calculations in this instance are used to estimate the percentage markup for each movement. The estimated markups are used to infer the relative demand elasticities."

movement that involved the service performance standard is more demand inelastic than the movement that does not because the contribution ratio is higher.

Similarly, when a movement makes substantial use of congested BNSF facilities, one would expect BNSF to assess a higher rate per ton – all other things being equal – to offset the increase in marginal costs that is associated with operating a railroad at or above capacity. GPRM would pick up the higher rate per ton, but fail to account for the higher marginal costs, leading to the result that movements over congested facilities generally are more demand inelastic and subject to relatively high rate reductions in the event revenues are found to exceed SAC.

The second flaw implicit in the GPRM approach to developing marginal costs is somewhat theoretical, since it is overshadowed by the lack of precision inherent in GPRM's use of system-average URCS costs as the basis for its estimates of marginal costs. It is important, however, because AEP Texas's reliance on this view implies that precision in calculating marginal costs is not so critical (and, implicitly, suggests that the ICC had it wrong long ago when it concluded that Ramsey prices could not feasibly be calculated). This flaw is AEP Texas's contention, highlighted in the quotation cited above in footnote 6, that the absolute level of marginal cost for each individual movement does not need to be calculated accurately as long as the relative marginal costs for the movements in the stand-alone traffic group is approximated accurately. As Professor Willig explains, this assertion is simply wrong. Even if AEP Texas could demonstrate that the URCS-based procedure it uses to calculate marginal costs accurately reflected relative differences in "true" marginal cost – a demonstration that cannot in fact be made, since the URCS-based procedure cannot take differences in utilization of congested and un-congested facilities, differences in third party payments, differences in contract terms, and

other operational differences into account – departures from “true” marginal cost distort the allegedly “Ramsey-based” rate reductions from those that would be calculated if “true” marginal costs were used.

In summary, even if one could infer relative demand elasticities from existing revenue/marginal cost relationships (and, because of the extensive use of cross-over traffic and the consequent revenue allocation, one cannot), the system-average approach to calculating marginal costs employed by AEP Texas would render the numbers unreliable for purposes of a Ramsey-based analysis. For all of these reasons, the rate/marginal cost relationships relied upon by AEP Texas cannot accurately reflect “true” relative demand elasticities and, therefore, cannot produce “Ramsey-like” reductions in rates when revenues are found to exceed SAC for a given SARR.

**B. WFA’s Reduced Mark-Up Method Suffers from the Same Core Deficiencies as GPRM, and Exhibits an Additional Inconsistency with Proper Use of Ramsey pricing Principles to Calculate Rate Reductions When SAC Exceeds Stand-Alone Revenues**

WFA also has a rate case pending at the STB in Docket No. 42088. In *Laramie River*, WFA proposed two alternatives to PRM to be applied if revenues were found to exceed SAC, the “Reasonable Allocation Method,” or “RAM” (which is addressed in Professor Kalt’s Reply V.S.) and the “Reduced Mark-Up Method.”

The Reduced Mark-Up Method is similar to corrected GPRM. It relies upon URCS-based costs as “estimates” of marginal cost, and it reflects only the portion of the incumbent’s end-to-end revenues that are allocated to the SARR. In this respect, it also suffers from the two fatal flaws of corrected GPRM. Like corrected GPRM, the Reduced Mark-Up Method generates rate reductions for all members of the stand-alone traffic group that exhibit contribution above

marginal costs, and as a result it preserves each movement's revenue-to-"marginal cost" rank order. Thus, it too highlights the shortcomings of MMM and MCM, and is also inferior to PRM.

In developing its URCS-based estimates of "marginal cost," however, the Reduced Mark-Up Method does not rely upon BNSF's URCS costs as a starting point, as does GPRM. Instead, it tries to "force" the costs developed for the SARR into an URCS format, and then uses these "unit costs" to develop its marginal cost estimates. As Professors Kalt and Willig explain, it is the marginal costs of the incumbent railroad that would be appropriate for any "Ramsey-based" rate reduction procedure (of course, as noted above, URCS-based estimates of "marginal costs" are not sufficiently precise for this purpose), not the marginal costs of the hypothetical competitor.

**C. The Ton-Mile Alternative to MMM Proposed by Mr. Nelson Also Suffers from the Flaws Identified in BNSF's Opening Evidence**

In the *Decision*, the Board suggested an alternative to the Maximum Mark-Up Methodology ("MMM") procedure that would apply a "fixed dollar" markup above variable costs, for each movement, to account for the excess of SAC over total variable costs for all movements in the stand-alone traffic group. *Decision* at 15-16. As I noted in my Opening V.S. in this proceeding, it is unclear whether the Board is proposing a fixed dollar mark-up per ton, per ton-mile, or per car-mile. Klick Opening V.S. at 9, fn 10.

In an Opening V.S. filed on behalf of Arkansas Electric Cooperative Corporation ("AECC"), Michael A. Nelson suggests yet another version of this "alternative formulation" of MMM that would use train-miles, as opposed to ton-miles or car-miles, to attribute the excess of SAC over total variable costs. Specifically, Mr. Nelson suggests a rate prescription procedure that would (1) first ensure that each movement covers its on-SARR variable costs, and then (2)

attribute the difference between SAC and the sum of all on-SARR variable costs (*i.e.*, the “contribution”) to each individual movement on the basis of train-miles.

As an initial matter, whether the alternative formulation of MMM relies upon ton-miles, car-miles or train-miles, the fact remains that this particular methodology is fatally flawed for the same reasons I discussed in my Opening V.S. Klick V.S. at 9-23. Mr. Nelson’s version of MMM also would create rate compression in railroad rate structures by ensuring that the highest-contribution movements in the stand-alone traffic group will all have their margins above variable cost driven to an identical amount per train-mile, and that the lowest-contribution movements will experience no rate reduction at all. This destroys the existing railroad pricing structure (contrary to the intent of *Guidelines*) and is inconsistent with the outcomes that would result from proper application of the principles of Ramsey pricing and contestability. Significantly, Mr. Nelson makes no effort to explain how his suggested approach might be deemed consistent with the economic principles of demand-based Ramsey pricing and contestable market theory that underpin the *Guidelines*.

Mr. Nelson is critical of “ton- and car-based measures” for allocating the excess of SAC over variable cost because, in his view, they are too “heterogeneous” to be reliable. Nelson Opening V.S. at 5. Instead, he asks the Board to “address this heterogeneity” by taking into account his view that “achievable capacity throughput for any given rail line is primarily governed by train movements rather than by more specific measures of commodity volume (*i.e.*, cars or tonnage).” This effort to convince the Board that train-miles are more suitable than are ton-miles or car-miles, for allocation of SAC “contribution” to individual movements, serves to underscore that *all* rate prescription proposals that ignore individual shipper demand are

inherently arbitrary and, thus, inconsistent with the basic economic precepts relied upon by the ICC in *Guidelines*.

As experience with the RTC model in various rate proceedings has demonstrated, train-miles are not the homogeneous building block of railroad operations that Mr. Nelson suggests. High-speed train-miles associated with Intermodal trains are not the equivalent of train-miles generated by long, heavy unit coal trains, or unit grain trains, or general merchandise trains; and train-miles on congested main lines are not the equivalent of train-miles generated on underutilized branch lines. Furthermore, a *mix* of different train types can require more capacity than the same number of trains that are all essentially identical. And main line capacity requirements can be significantly affected by circumstances hundreds of miles away, as evidenced by the siding track capacity required on BNSF and UP mainlines and yards to stage unit coal trains into the capacity constrained PRB.

At bottom, Mr. Nelson's recommended approach suffers from *both* of the primary flaws that characterize all of the alternatives to PRM that have been proposed in this proceeding, *i.e.*, it (1) ignores the outcomes that Ramsey pricing principles would dictate – by creating rate compression at the highest-contribution end of the spectrum of stand-alone traffic and generating no rate reduction at all at the lowest-contribution end of the spectrum – and (2) relies upon URCS-based variable costs (or variations thereof) as a surrogate for the movement-specific marginal cost determination required for proper application of Ramsey pricing principles.

### **III. REVENUE ALLOCATION ISSUES**

Shippers universally attack the Average Total Cost ("ATC") procedure that the Board proposed in its *Decision*. Instead, they argue that divisions should be "market based," and recommend as an alternative to "market based" divisions, continued use of MSP in allocating the

incumbent's end-to-end revenues to the SARR for its portion of each cross-over movement.<sup>15</sup>

Most shippers also attack the Board's view that the outcome of a "full SAC" is the proper standard for evaluating bias – effectively confirming the railroads' long-held view that their use of cross-over traffic to-date has permitted them to achieve a better result than they could have obtained had they built all of the railroad required to replicate the incumbent's service for the movements in the stand-alone traffic group.<sup>16</sup> Professor Kalt addresses most of these arguments, but BNSF has asked that I address a couple of specific points.

As a threshold matter, it is important to recognize that real world divisions are not relevant to a SAC analysis. As Professor Kalt explains in his Reply V.S., the relevant "market-based" inquiry is what market behavior *in a contestable market* would dictate. Because real world railroad operations are by definition not contestable, real world divisions cannot be relevant to how revenues on cross-over traffic would be allocated in the contestable market environment that the Board seeks to replicate by applying the SAC test.

Evidence filed by the complainant in the *Otter Tail* proceeding makes it obvious why shippers seek to utilize real world divisions data, even though it is so clearly irrelevant to the SAC inquiry – it provides such fertile ground for manipulation of the SAC test.<sup>17</sup> WCTL's witness Crowley acknowledges as much in his Opening V.S. when he states:

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<sup>15</sup> Some shipper witnesses do embrace "full SAC" as the proper standard. AECC's witness Nelson does so by effectively embracing the "willing" and "able" standard articulated by Professor Willig's Opening V.S. He is critical of all of the methods for revenue allocation that are under discussion in this proceeding because "none of the methods limit the off-SARR allocation of revenues to the level that ensures the revenue adequacy of off-SARR segments." Nelson Opening V.S. at 10. Of course, Mr. Nelson's concern is that railroads may be earning unreasonably high profits on cross-over traffic that might be allocated to the off-SARR portions of cross-over movements – a circumstance that is unlikely given railroad revenue inadequacy. I note that if this were the case, however, shippers can (and would) "take credit" for these high earnings, regardless of what revenue allocation procedure is adopted, by presenting a "full SAC" study – so no particular change is required in current SAC procedures to prevent Mr. Nelson's concern from being realized. As Professor Kalt explains, Mr. Nelson's proposed solution, in contrast, is inconsistent with contestable market principles.

<sup>16</sup> See Nelson Opening V.S. at 9-10.

<sup>17</sup> STB Docket No. 42071, *Otter Tail Power Company v. BNSF Railway Company* ("Otter Tail"). In that proceeding, the complaining shipper employed data produced by BNSF on unit train coal divisions to conduct

Obviously, no complainant wants to have to redo an entire stand-alone case because the STB changed the method for calculating divisions on cross-over traffic but that is exactly what could happen. Stated differently, as the ATC divisions approach produces different revenues than does the MSP approach promulgated by the STB in recent proceedings, the traffic group selected using MSP will not necessarily maximize profitable traffic when using the ATC approach. The ATC approach will force a complainant to evaluate and include longer haul traffic in the stand-alone group. Therefore the complainant in proceedings where the traffic group was selected using the MSP approach will be forced to reevaluate the selection of the traffic group if the ATC approach is adopted. *Crowley Opening V.S.* at 10.

The sentiment so candidly expressed by Mr. Crowley explains why shippers oppose so vehemently the Board's view, which is clearly correct, that use of cross-over traffic should not create a SAC result that is radically different from the outcome that would be achieved if a "full SAC" study were conducted; and it explains why they argue so strenuously for real-world "market-based" divisions for cross-over traffic – which clearly are irrelevant to the contestable market environment that informs the SAC test – instead of addressing substantively the evidence that Professor Kalt has presented on what *contestable market behavior* would establish as the appropriate allocation of cross-over traffic revenue to the SARR. Finally, it underscores the importance of Professor Willig's view that if the Board is going to use an approximation such as MSP or ATC to establish cross-over traffic revenues attributable to the SARR in the first

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regression analyses (using revenue divisions as the dependent variable, and shipment distance as the independent variable). These regression results were then used to estimate the SARR revenue allocation for the cross-over movements. Otter Tail used this regression approach to argue that its SARR was entitled to a significant division of revenues even when it performed minimal or *no* line haul service. Had the Board accepted this approach, it would have created even more incentive for shippers to reduce, as much as possible, the on-SARR distances traveled by cross-over traffic.

In response, to Otter Tail's evidence, BNSF argued that real world divisions were irrelevant to the SAC test, and demonstrated that Otter Tail's analysis was rife with statistical errors, the most significant of which was a "relevant range" problem created by the fact that the shortest real world length of haul for which real world divisions were available was substantially longer than the on-SARR lengths of haul for the vast majority of the cross-over traffic movements, rendering the real world divisions of no statistical value in analyzing the cross-over traffic movements. In addition, BNSF identified a host of other statistical problems with the conclusions drawn by Otter Tail that rendered its analysis unusable. In its decision, the Board rejected the market-based approach in favor of a cost-based approach. *Otter Tail* decision at 13-15.

instance, it is critical that the parties be provided an opportunity to demonstrate potential bias, vis a vis a “full SAC” presentation.

A second attack shippers have launched against ATC is to suggest that there is no mathematical difference in the way DARA and ATC work. Borts Opening V.S. at 19. As a result, they argue, the Board’s prior rejection of DARA because “the DARA formula did not actually factor in economies of density” should apply with equal force to ATC.<sup>18</sup> There are two responses to this criticism. First, as the table below demonstrates, ATC does in fact treat economies of density differently than does DARA as densities increase.

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<sup>18</sup> As the Board states in *Otter Tail*, DARA was rejected because “as the relative economies of density changed (reflected in changes in average total costs) DARA would not adjust the portion of the revenues allocated to each segment, and thus would not achieve its stated objective . . . The defining feature of industries with strong economies of density is decreasing average total cost with output.” *Otter Tail* decision at 16, citing *Public Serv. Co. of Colo. d/b/a Xcel Energy v. Burlington N. & S.F. Ry.*, STB Docket No. 42057 (“*Xcel*”), slip op. at 11 (STB served Jan. 19, 2005).

| Table 1<br>Demonstration that ATC and DARA Perform Differently<br>As Densities Increase |           |                    |           |                    |
|-----------------------------------------------------------------------------------------|-----------|--------------------|-----------|--------------------|
|                                                                                         | ATC       |                    | DARA      |                    |
|                                                                                         | SARR      | Residual Incumbent | SARR      | Residual Incumbent |
| Mileage                                                                                 | 500       | 500                | 500       | 500                |
| Variable Cost Per Ton                                                                   | \$5.00    | \$5.00             | \$5.00    | \$5.00             |
| Fixed Costs Per Mile                                                                    | \$160,000 | \$160,000          | \$160,000 | \$160,000          |
| End-to-End Rate                                                                         | \$20.00   | \$20.00            | \$20.00   | \$20.00            |
| <b><i>First Hypothetical</i></b>                                                        |           |                    |           |                    |
| Density (Millions of Tons)                                                              | 50        | 25                 | 50        | 25                 |
| Fixed Costs Per Ton-Mile                                                                | \$0.0032  | \$0.0064           | xxx       | xxx                |
| Fixed Costs Per Ton                                                                     | \$1.60    | \$3.20             | xxx       | xxx                |
| Variable Costs Per Ton                                                                  | \$5.00    | \$5.00             | \$5.00    | \$5.00             |
| Total Cost Per Ton                                                                      | \$6.60    | \$8.20             | xxx       | xxx                |
| DARA Allocation of Contribution                                                         | xxx       | xxx                | \$3.33    | \$6.67             |
| DARA Total Revenue Allocation                                                           | xxx       | xxx                | \$8.33    | \$11.67            |
| Division of End-to-End Rate                                                             | 44.6%     | 55.4%              | 41.7%     | 58.3%              |
| <b><i>Second Hypothetical</i></b>                                                       |           |                    |           |                    |
| Density (Millions of Tons)                                                              | 100       | 50                 | 100       | 50                 |
| Fixed Costs Per Ton-Mile                                                                | \$0.0016  | \$0.0032           | xxx       | xxx                |
| Fixed Costs Per Ton                                                                     | \$0.80    | \$1.60             | xxx       | xxx                |
| Variable Costs Per Ton                                                                  | \$5.00    | \$5.00             | \$5.00    | \$5.00             |
| Total Cost Per Ton                                                                      | \$5.80    | \$6.60             | xxx       | xxx                |
| DARA Allocation of Contribution                                                         | xxx       | xxx                | \$3.33    | \$6.67             |
| DARA Total Revenue Allocation                                                           | xxx       | xxx                | \$8.33    | \$11.67            |
| Division of End-to-End Rate                                                             | 46.8%     | 53.2%              | 41.7%     | 58.3%              |

Table 1 compares results for ATC and DARA under two hypothetical examples in which, in each case, densities on the SARR are twice as high as densities off the SARR. In the second hypothetical, however, densities on- and off-SARR are twice as high as they are in the first hypothetical. Table 1 demonstrates that as overall densities increase – even though the relationship *between* on-SARR and off-SARR densities remains in proportion – the ATC-based divisions get systematically closer to the 50/50 split that would exist if there were no economies

of density, as is assumed for example by MSP.<sup>19</sup> In contrast, DARA would generate the same division *regardless* of densities, as long as the relationship between on-SARR and off-SARR densities remains in proportion. In short, while both ATC and DARA take economies of density into account – which is clearly a failing of MSP – Table 1 demonstrates that under ATC those effects decline as overall densities increase. This is fully consistent with the Board’s view that at higher densities, economies of density become less pronounced. In contrast, the DARA result is unaffected by increases in overall line density, as the Board noted in *Otter Tail* and *Xcel*.

Professor Borts’s criticisms also exhibit a fundamental misunderstanding of URCS. For example, he states that:

It is reasonable to allocate the variable cost of a particular movement on a route mile basis, because variable costs do increase with the length of haul among other indicia of rail output. But there is no rationale for allocating fixed costs on the same basis. For if fixed costs did vary with length of haul they would not be measure as fixed. Borts Opening V.S. at 19.

As the Board recognizes, URCS employs measures of both output and capacity as independent variables in its regressions. When URCS uses the term “variable,” it is describing costs that change over the medium to long run as changes in *output* occur, given a specified level of railroad capacity. Thus, the “percent variable,” in URCS parlance, is calculated as the ratio of total variable expenses (output coefficient multiplied by total units of output) divided by the total variable costs *plus* total “fixed costs” (in which “fixed costs” are calculated by multiplying the capacity coefficient by total units of capacity). Because URCS itself calculates a cost per unit of capacity (*e.g.*, each mile of road), it is obvious that total capacity costs will increase as the size of

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<sup>19</sup> At page 9 of his Opening V.S., Mr. Crowley states “. . . ATC also fails because the STB’s proposal intends to rely on system average variable costs as determined by the URCS Phase III calculation and an allocation of fixed costs based on route miles. The application of these system factors to movement-specific rates will in no way recognize the economies of scale, scope and density which the STB is seeking.” I do not understand the point Mr. Crowley seeks to make here, but Table 1 clearly demonstrates that his conclusion is wrong – ATC obviously does reflect economies of density.

the railroad increases, but that does not change the fact that these costs are a fixed cost for a given plant size across *all* levels of output.

Both WCTL witnesses Borts and Crowley also criticize ATC as a form of fully-allocated pricing. Borts, for example, states that:

There is no theoretical justification for allocating fixed costs. Indeed, if such a justification did exist we wouldn't need a SAC approach to the determination of freight rates on captive movements. We would just allocate all of the fixed costs of the railroad's traffic on a route mileage basis." *Id.* at 19-20.

Clearly, fully-allocated costs are not an appropriate basis for setting prices, for all of the reasons articulated in *Guidelines*. But here, we are seeking to allocate the incumbent's end-to-end revenues on cross-over traffic to the SARR – for providing only a portion of the incumbent's end-to-end service – in a manner that “reflects, to the extent practicable, the defendant carrier's relative average costs of providing service over the two segments” *Decision* at 18. Clearly, significant differences in the utilization of fixed plant facilities on-SARR as compared to off-SARR affect the relative average costs – and ATC incorporates those differences. If a “full SAC” analysis were undertaken, different levels of fixed plant utilization experienced in providing end-to-end service would automatically be incorporated into the analysis; the Board has designed its ATC revenue allocation mechanism to reflect this reality in the context of a “partial SAC” analysis that relies heavily on cross-over traffic. *Otter Tail* decision at 14.

In summary, the Board is right in finding that economies of density need to be taken into account in developing a cost-based alternative of cross-over traffic revenues to the SARR, and it is obvious that MSP does not do so. *Decision* at 18. The Board is also correct in observing that the outcome of a “full SAC” is conceptually the right standard for evaluating whether a given cross-over revenue allocation mechanism constitutes a reasonable “approximation.” ATC is

clearly superior to other cost-based mechanisms that have been suggested in this proceeding, because it takes economies of density into account (as is implicitly the case in a “full SAC” analysis).<sup>20</sup>

#### IV. BORTS’S CRITIQUE OF THE *PPL* CROSS-SUBSIDY ANALYSIS REFLECTS A SERIOUS MISUNDERSTANDING OF THE BOARD’S PROCEDURES

In his Reply V.S., Professor Willig addresses the conceptual issues raised by the views expressed by WCTL’s witnesses Grimm and Borts in arguing that the Board should cease applying the cross-subsidy test proposed by the Board in *PPL*<sup>21</sup> and *Otter Tail*. BNSF has asked me to focus on the schematic displayed at page 12 of the Borts Opening V.S., and the conclusions that Dr. Borts draws from that schematic at pages 12 through 15. For the Board’s convenience, I reproduce the schematic below:



As a threshold matter, the Borts schematic is misleading in two respects. First, it suggests that the “BC Segment” over which there is some “overlap” between the traffic that utilizes the lighter-density route required by the issue traffic (Shippers 1 and 2 in the Borts example) and the traffic that uses the heavier-density segment (Shipper 3) is relatively long. Second, the schematic in the *Otter Tail* decision is a hypothetical illustration of how a “second-

<sup>20</sup> Because a “full SAC” analysis would rely upon efficient, forward-looking costs for various assets and operations required to handle the cross-over traffic end-to-end, while ATC relies upon URCS (which reflects an embedded investment base for the incumbent’s assets), there are differences between ATC and a “full SAC” analysis that could render ATC inconsistent with the outcome of a “full SAC” analysis. For this reason, the recommendation made by Professor Willig in his Opening V.S. that ATC be used as an approximation for the purposes of allocating cross-over revenues to the SARR, and that parties be provided with an opportunity to demonstrate in the context of a specific case that it creates a biased result, is sound regulatory policy.

<sup>21</sup> STB Docket No. 42054, *PPL Montana, LLC v. The Burlington Northern and Santa Fe Railway Company*.

order” cross-subsidy test would be conducted, not an illustration of the way the Board actually applied the cross-subsidy test in either *Otter Tail* or *PPL*.

Borts implies that the existence of a BC segment, in which there is an overlap between the traffic that uses the lighter-density AB segment and the traffic that uses the heavier-density CD segment, is a significant problem for the Board’s cross-subsidy approach because neither of the two groups of traffic is “solely responsible for the . . . cost of the BC segment.” Specifically., Borts states:

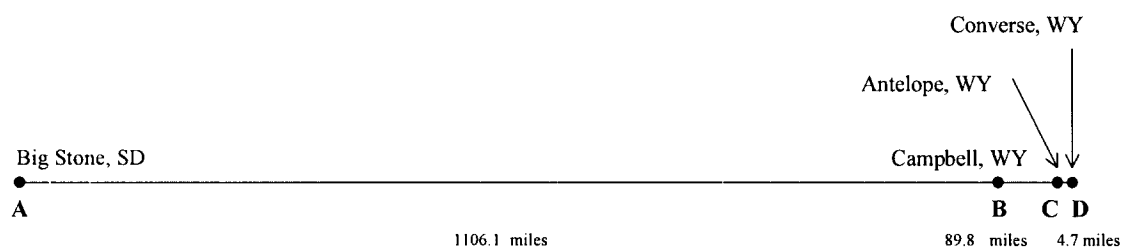
Under a correct application of the PPL test, Shippers 1 and 2 must cover the \$70 cost of the AB segment, but they alone are not responsible for the \$30 cost of the BC segment. That cost will be shared with Shipper 3. There is no reason why Shipper 3 should be permitted to use the SARR’s BC segment for nothing. The only truly attributable costs are those that would disappear if the shipper’s traffic disappeared. If Shippers 1 and 2 disappeared, Shipper 3 would still have to cover the cost of the BC segment. Borts Opening V.S. at 13.

This statement is clearly correct – and the Board’s cross-subsidy test does nothing that is inconsistent with it. What Borts either fails to recognize, or chooses to ignore, is that the Board’s application of the cross-subsidy test explicitly addresses this problem by distinguishing between “right-of-way” costs and “operating” costs, and properly considering whether or not these should be included in the attributable costs of the lighter-density segment.

In applying the cross-subsidy test, the Board includes *all* of the revenues generated by Shippers 1 and 2, but explicitly *excludes* all of the right-of-way costs of the BC segment from the attributable costs it calculates for Shippers 1 and 2. It also explicitly *excludes* all of the operating costs incurred on the BC segment by Shipper 3. As a result, the only BC segment costs that the Board’s cross-subsidy test includes in the attributable costs calculated for Shippers 1 and 2 would be the operating costs incurred by Shipper 2 (since Shipper 1 does not traverse the BC

segment) – which (to use Borts’s formulation) clearly would disappear if Shipper 2 disappeared.<sup>22</sup>

I noted above that the Borts schematic is misleading, because it does not reflect the fact that in the STB’s real world applications of the cross-subsidy test, the equivalents of the BC segment have been relatively small in comparison to the real world equivalent of the AB segment. To be more realistic, I produce below a schematic of the actual *Otter Tail* cross-subsidy analysis.



In *Otter Tail*, the equivalent of the BC segment – where there is some overlap between the traffic using the lighter-density segment and the traffic using the heavier-density segment – is only 90 miles long, or 7.5 percent of the total SARR route mileage. The AB segment is over 1,100 miles long.

While the validity of the Board’s approach is not a function of the relative lengths of these segments, the likelihood that a cross-subsidy will be found to exist increases when the BC segment is relatively short. Note that if the BC segment were relatively long in relation to the AB and CD Segments – implying that Shippers 1, 2 and 3 shared a significant portion of total SARR facilities – the Board’s approach of including the full Shipper 1 and 2 revenues, but

<sup>22</sup> It is on this point that the Borts example goes awry. He asserts that the “cost” of the BC segment is \$30, without distinguishing between right-of-way and operating costs. Because the Board’s process would include only Shipper 2’s operating costs in the attributable costs of Shippers 1 and 2, the \$30 is clearly attributable to Shipper 2. But Borts treats the \$30 as though it were entirely right-of-way cost that would remain to be covered by Shipper 3, even if Shipper 2 disappeared – which is clearly not consistent with the way the Board applies the test.

excluding all of the right-of-way costs for the BC segment, would make it more difficult to show the existence of a cross-subsidy of Shippers 1 and 2, because most of the construction costs of the SARR would be eliminated from the attributable costs of Shippers 1 and 2.

Because the Board's cross-subsidy test assumes that Shippers 1 and 2 (the potentially subsidized traffic) incur *none* of the right-of-way costs of the BC segment, the only BC segment costs that the Board attributes to Shippers 1 and 2 are the operating costs for Shippers 1 and 2, which clearly are attributable to this traffic; and by assuming that Shipper 3 will cover no more than the full right-of-way costs of the BC segment plus its own operating costs, the Board's cross-subsidy test prevents Shipper 3 from paying for any facilities or services that it does not use. In short, the Board's continued application of the cross-subsidy test is appropriate and, as Professor Willig explains, fully consistent with the principles set forth in *Guidelines*.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 30, 2006

  
John C. Klick

Baranowski

## REPLY VERIFIED STATEMENT

OF

MICHAEL R. BARANOWSKI

### I. INTRODUCTION

My name is Michael R. Baranowski. I am the same Michael R. Baranowski who filed a verified statement in this proceeding on behalf of BNSF on May 1, 2006. A statement of my qualifications is attached as Exhibit No. \_\_ MRB-1 to that statement.

In my opening statement, I addressed two of the issues for which the Board sought comments in its February 27, 2006 Decision in Ex Parte No. 657 (Sub-No. 1), *Major Issues in Rail Rate Cases* ("X-657 Decision") -- the Board's proposal to reflect productivity in indexing operating costs and its proposal to shorten the DCF period to ten years. Specifically, I (1) explained why it was unrealistic to assume that the SARR would achieve any productivity in the first ten years of its operations, (2) examined the extent to which future productivity improvements should be reflected in forecasts of stand-alone operating expenses beyond year 10 of a SARR's life; and (3) offered a proposal to reflect future productivity gains that is consistent with the manner in which SARR operating expenses are determined beginning in year 11 of the DCF period. I also addressed the advisability of shortening the DCF period used in SAC studies from 20 to 10 years and explained the relatively minor changes that would be required to the Board's DCF process to implement such a proposal.

BNSF has now asked me to address certain of the opening comments made by parties relating to these two topics. In Section II of my testimony, I address shippers'

comments related to adjustments to SARR operating expenses to reflect the benefits of future productivity, and in particular, I address the following points:

- I discuss the fallacy of shippers' claims that forecasts of future productivity need to be reflected in SARR operating expenses to avoid a disparity between the treatment of SARR operating costs and revenues.
- I explain that the vast majority of the potential productivity improvements identified by shippers (1) are already captured in the SARR operating expenses, (2) are unavailable to a SARR entrant, or (3) would not be realized within the first ten years of SARR operations.
- I explain why shippers' assertion that Class I railroad assets average only seven years in age is wrong.
- I explain why shippers' proposals for determining SARR productivity, which align future SARR productivity with the productivity that will be experienced by the railroad industry as a whole, overstate SARR productivity.

In Section III of my testimony, I address the shippers' unfounded assertion that a change in the DCF period from 20 to 10 years necessitates a change to the SARR debt amortization period.

## **II. EVALUATION OF THE PARTIES' PRODUCTIVITY COMMENTS**

In the Joint Opening Comments of Western Coal Traffic League, et al. ("WCTL" or "Coal Shippers"), WCTL, not surprisingly, lauds the Board's efforts to introduce a productivity adjustment that begins with the second year of SARR operations, but argues that the Board has not gone far enough to eliminate what it describes as the "illogical and unsupported disparity between the manner in which the Board indexes operating expenses and the manner in which the Board forecasts SARR revenues".<sup>1</sup> WCTL further

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<sup>1</sup> Joint Opening Comments of Western Coal Traffic League, Concerned Captive Coal Shippers, Western Fuels Association, Inc., Edison Electric Institute, National Rural Electric Cooperative Association and American Public Power Association, May 1, 2006 at 69.

complains that the Board has erred by assuming that a SARR will not enjoy the benefits of any productivity enhancements in its first year of operations and that it is wrong to assume that a SARR's ability to benefit from productivity enhancements in a manner that is comparable to the rail industry as a whole will only be achieved after the twentieth year of SARR operations. WCTL at 69. In place of the Board's proposal, WCTL opines that the Board should adopt an index that is weighted 50 percent RCAF unadjusted for productivity ("RCAF-U") and 50 percent RCAF adjusted for productivity ("RCAF-A") for the first year of SARR operations and transition to 100 percent of the RCAF-A by the tenth year of operations. *Id.* at 70. This proposal is more aggressive in shippers' favor than any of the shipper productivity alternatives currently before the Board.

While WCTL devotes substantial verbiage to potential sources of future productivity, nowhere in its submission does it (1) acknowledge the substantial productivity already reflected in the SARR base year operating expenses, (2) recognize the difference between the limited SARR customer base and the myriad of customers served and commodities moved by the railroad industry as a whole, or (3) explain how anticipated industry-wide productivity is in any way relevant to a SARR. In the remainder of this section, I explain why the shippers' logic is misguided and why its alternative proposal overstates grossly the level of productivity a SARR could achieve – particularly in the early years of its existence.

1. **There Is No Disparity Between the Manner In Which the Board Indexes Operating Expenses and the Manner In Which It Forecasts SARR Revenues**

The shippers' alleged need for a productivity adjustment to SARR operating expenses, although hotly contested, is a relatively recent argument that was borne from an assertion by complainants in large coal rate proceedings of a conceptual inconsistency

between the index used to adjust revenues for the SARR and the index used to adjust operating expenses. In this proceeding, Dr. Brennan, in testimony sponsored by the Western Coal Traffic League of Concerned Captive Shippers ("WCTL"), echoes that unfounded logic and asserts that the forecast used to project SARR revenues into the future "implicitly" includes a productivity component while the RCAF used for projecting operating expenses does not.<sup>2</sup> From this he concludes that if the forecast of rates being used in the DCF analysis includes productivity, then consistency requires that a productivity adjustment must also be included in the operating expense forecast in the SAC calculations in the DCF analysis.

Dr. Brennan's assessment is wide of the mark for two key reasons. First, any perceived link between the index used to predict SARR revenues and the index used to inflate stand-alone operating expenses is merely a made-for-litigation figment of shippers' imagination. The Board's SAC test is comprised of three independent analyses that are brought together in the discounted cash flow model. Based on the traffic and network configuration posited by a shipper in a SAC rate proceeding, the Board seeks to determine the following:

- The tonnages that need to be moved and the associated revenues that will be available to the SARR entrant over the DCF period.
- The operating expenses that will be incurred in moving the posited traffic over the DCF period.
- The network configuration and cost of building the facilities needed to move the projected traffic volumes, which is converted to an annual capital recovery requirement.

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<sup>2</sup> Comments of William J. Brennan, Ph.D. (Brennan) at 5, footnote 5. "This position is also consistent with the Board's preference that forecasts, to the maximum extent possible, come from the same source. To the extent that future revenue streams implicitly include a productivity adjustment, so too should the expense stream."

The DCF model combines the annual operating expense with the annual capital recovery and compares the sum to the annual revenue forecast for each year of the DCF period. Forecasts for each component are derived independently and are not linked in any way. For example, the revenue forecast looks at the forecasted trend in rates that will be charged by the incumbent railroads. These rates will reflect market conditions (including competition), costs, capacity and other relevant factors considered by the incumbent railroads in pricing their services and have nothing whatsoever to do with the projected cost structure of a SARR. Similarly, the forecast applied to SARR operating expenses is focused on the specific inflation anticipated for each of the SARR operating expense categories and is unrelated to cost trends for the incumbent railroad. Because the inflation indexes are designed to forecast different elements that are in no way related, Dr. Brennan is wrong in asserting they should be linked.

Second, Dr. Brennan's argument disregards the significant level of productivity beyond that of the incumbent that is already captured in the base year SARR operating expenses. Because the SARR is more efficient than the residual incumbent, it has already captured all of the productivity that it will take the incumbent years to achieve and to pass along to its shippers. As such, to the extent there is any productivity reflected in the index used to forecast future revenues, that productivity reflects the efforts of the incumbent railroads to catch up to the productivity levels enjoyed by a SARR from the first day of its operation. In other words, the SARR receives as a revenue windfall the difference between the productivity reflected in its base year operations and the productivity that the incumbent railroads have yet to achieve and pass along to their customers through reduced rates.

2. WCTL's Argument that the SARR Will Begin to Achieve Additional Productivity at the Outset of Operations is Wrong

WCTL identifies three principal reasons why it believes the Board is wrong to assume that a SARR would not enjoy productivity benefits at the outset of its operations. First, WCTL argues that there are significant sources of productivity that are not asset related and which could be implemented in the first year of operations. Second, the shippers contend that a SARR would upgrade assets when it would improve efficiency and lower costs, which, the shippers allege, could occur immediately after operations start. And, third, they allege that the SARR would be better situated than the industry as a whole to improve its operation beginning as early as the first year. WCTL at 73-74. None of WCTL's assertions ring true when evaluated in the context of the way in which SARR operating expenses are developed and the substantial productivity above that of the incumbent that a SARR enjoys.

a. Productivity Benefits Unrelated to Asset Replacement

In its opening comments, WCTL attempts to separate potential SARR productivity between that associated with the replacement of assets and productivity derived from non-asset related sources. It argues that there are a number of areas in which productivity gains that are unrelated to asset replacement will be available to the SARR even in its first year of operations and lists seven categories of potential improvement. *Id.* at 74-82. As explained below, all of the potential productivity sources identified by WCTL are either unavailable to a SARR or the full benefits of such productivity are already enjoyed by the SARR. I address each category individually.

1. More Efficient Train Sizes. WCTL asserts that, like incumbent railroads, a SARR will increase its train sizes "when it is economically and technically feasible to do so." It offers no timetable, nor is there any suggestion that such a change would or could occur in the first year of SARR operations. WCTL argues that trains are

sized as the incumbents operate them today, but that the history of unit coal train operations in the west has shown a pattern of increasing train sizes. In fact, train sizes have increased historically, but this trend has leveled off in recent years, suggesting that further increases, particularly in the short term, are unlikely. More importantly, however, a SARR is typically designed at inception to accommodate efficiently the train sizes assumed in the operating plan. In this regard, mine leads, storage tracks, yards, passing sidings, interchange tracks and other SARR facilities are sized for the planned train lengths. Further, the facilities of the residual incumbent and those of the originating mine and terminating shipper are also appropriately sized. As such, any change in SARR train size would likely require additional investment to cover the substantial reconfiguration of on-SARR and off-SARR facilities. To date, no party has included in the SAC costs any provision for such incremental investment, and without those investments, the productivity benefits of longer trains could not accrue to a SARR. Indeed, if the proponents of a SARR consider longer trains a substantial benefit, they have the opportunity in developing the peak year operating plan to incorporate the efficiencies of longer trains, provided, however, that they also include the costs of all incremental investment required to effect such a change, both on and off the SARR.

2. More Efficient Train Operating Systems. In this category, WCTL lists ongoing industry research and development initiatives such as new management systems that will dynamically track locomotive performance and alert users to pending maintenance problems, leading to a decrease in costly unplanned locomotive maintenance. While such an initiative will likely benefit existing railroads, it will have absolutely no benefit to a SARR for two reasons. First, the cost of these and other types of cutting edge systems are typically rejected by complainants in SAC cases as unnecessary. Since they find them unnecessary for cost purposes, complainants should not be allowed to assume future benefits from such investments. Second, SARR operating expenses, to date, have not included any additional costs for unscheduled locomotive maintenance. In the SARR world, locomotive maintenance costs are predictable and scheduled. Thus, complainants are not entitled to the benefits of improvements that would lower costs that were never even included in the SAC operating costs.

WCTL also cites developments in positive train control and GPS tracking systems as ways to improve system usage and run more trains over particular routes. Here again, these developments will certainly help existing, capacity constrained railroads improve efficiency, but the SARR track configuration is designed to accommodate peak period demand. As such, the SARR has no need for, and thus cannot benefit from, techniques designed to increase capacity.

3. More Efficient Maintenance Procedures. WCTL describes several initiatives under development at the AAR that may improve future maintenance practices and reduce costs. Each of the items identified – Rail Profile Maintenance Software to identify areas of high stress, performance-based track geometry

inspection procedures, and rail flaw and broken rail inspection systems – if implemented, appear to trade increased maintenance of way operating expenditures in the form of preventative maintenance in the short term for lower capital expenditures down the road. Because these additional preventative maintenance expenditures are not included in SARR maintenance of way expenses, the SARR is ineligible for these benefits. In addition, unlike real-world railroads, a SARR typically does not incur any research and development expenditures for these new technologies, and, as it is not a member of the AAR and does not explicitly pay AAR dues, would not be in a position to claim the same benefits as dues-paying, cost-sharing members.

4. Increased Labor Productivity. WCTL, with support from witness Caves et al, argues that productivity improvements will be derived from enterprising workers who will somehow find ways to increase system productivity. But, according to complainants in recent cases, the staff of the SARR is already more efficient than real-world railroads. Indeed, WFA, in its recent rebuttal, claimed that any “peer group” comparisons “lead down a false path because the LRR has no peer group to which it can be compared. Unlike any real-world railroads . . . , the LRR is a single-commodity railroad that operates only unit coal trains in high-volume service . . .”<sup>3</sup> Although the SARR is apparently “peerless” when it comes to G&A staffing costs, exhibiting employee productivity far beyond that ever achieved by any Class I railroad, shippers nonetheless assume that the SARR would share again in the productivity that will render incumbent railroads more efficient, effectively double counting productivity.

WCTL also argues that there will be substantial over capacity in the early years of SARR operations which will lead to increases in system velocity and, according to WCTL, reduce system unit costs. Notably, WCTL does not identify the costs that would be saved. In reality, from a cost perspective increased velocity on the coal-only SARR will result in increases to SARR fuel consumption and, because heavy unit coal trains moving at higher speeds will inflict exponentially more damage on the track structure, substantially increased maintenance costs. As such, higher train speeds will translate into higher, not lower, costs.

5. Traffic-Based Efficiencies. Here WCTL argues that because the costs for train operating personnel and locomotive related costs move up in lock-step with SARR tonnage increases, complainants are missing out on the traffic based productivity improvements that typically occur when changes in outputs increase faster than changes in inputs. In fact, just the opposite occurs in the Board’s SAC process. The operating plan for a SARR is developed based on peak year traffic levels, thus capturing all traffic-based efficiencies. Peak year operating statistics are then ratcheted down to base year levels on a pro-rata basis with tonnage. As a result, the SARR enjoys, in the base year, all of the traffic based efficiencies that would not otherwise be achieved until the peak year volumes are met.

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<sup>3</sup> Docket No. 42088, WFA/Basin Reb. Nar. at III-D-48.

6. Information Technology ("IT") System Improvements. WCTL claims that IT systems will generate productivity as older systems are replaced with even more efficient systems, as these systems become available. Unfortunately, WCTL misses the mark. Over the years, improvements in IT have resulted in the substitution of technology for human capital. A SARR, however, is staffed with the bare minimum of personnel (and is more likely understaffed), so there is little opportunity for traditional benefits attributable to IT improvements. In addition, IT comprises a very small portion of annual stand-alone costs – typically around one percent. As such, any cost savings or productivity driven by the substitution of more efficient systems is likely to be minute. Finally, it is extremely unlikely that a SARR would begin replacing its IT systems beginning in the first year of operations.
7. Track-Related Efficiencies. WTCL cites a number of studies the AAR is performing to reduce stress on, and increase the operating life of, track and roadbed structure. The initiatives raised by WCTL, like those associated with improved maintenance practices discussed above, would require more in the way of up-front SARR construction cost that is typically spurned by SAC complainants. If a SARR does not invest in the cutting-edge technology required to improve efficiency, it cannot turn around and claim the associated productivity benefits.

b. The Asset Replacement Criteria Set Forth By Shippers  
Cannot Be Met By A SARR, Particularly in the Early  
Years of Operation

In its comments, WCTL maintains that a SARR will replace its assets at any time necessary to improve its efficiency, assuming that a net cost savings can be realized.

Witness Caves et al expand this argument, stating, "[g]enerally, a firm will invest in new assets if the expected total cost of producing with the new assets is less than the variable costs of producing with existing assets, regardless of the remaining life of the existing assets."<sup>4</sup> While conceptually accurate, from a practical perspective, there are no SARR assets that could satisfy this test, particularly in the early years of SARR operations. If more efficient assets existed, they would be part of the SARR investment cost. If they do

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<sup>4</sup> Joint Verified Statement of Douglas W. Caves, Ph.D., B. Kelley Eakin, Ph.D., Mark E. Meitzen, Ph.D., and Philip E. Schoech, Ph.D. (Caves) at 9.

not yet exist, because of the long lead times for research and development of new railroad products, it is extremely unlikely that these new products could be invented and deployed in time to achieve any productivity in the first 10 years of SARR operations.

c. Because It Has Achieved Productivity Greater Than The Railroad Industry as a Whole, A SARR Is Poorly Situated For Additional Productivity Gains

WCTL argues that productivity improvements could occur as early as the first year of SARR operations due to over-capacity in its network produced by sizing the infrastructure to accommodate their peak year traffic. It claims that as a result the SARR would have the flexibility to improve its operations relative to real-world carriers. As I explained previously, the operating plan for a SARR is developed based on peak year traffic levels, thus capturing all traffic based efficiencies. Those efficiencies are carried back to the base year. Excess capacity in the early years of SARR operations will not produce cost saving efficiencies. Because under SAC theory, the SARR's traffic base is defined, and the labor and equipment scaled in each year to match the actual traffic load for that year, there would be no way that it could productively use its overcapacity. A SARR cannot fill the excess capacity with additional traffic, it cannot further reduce staffing or equipment in any year, and it certainly cannot downsize its plant to remove extra capacity as it will need that capacity in the peak year.

3. Shipper Claims That The Average Age of Class I Railroad Assets in Service as of 2002 Was Seven Years is Wrong

In an effort to dispute the Board's conclusion that a SARR will not reach comparability with the railroad industry in terms of productivity until year 20, WCTL asserts that the SARR is much more closely aligned with the railroad industry than the Board allows. To support that argument, it includes an analysis that AEP Texas

submitted in its rate case purportedly showing that, based on R-1 data, the average age of Class I railroad assets in service as of 2002 was only seven years. Caves at 8-9.

The shippers' reliance on R-1 annual report data to develop the average age of existing railroad assets is critically flawed, and produces an average age that is well below the actual physical life of the assets. Shippers calculate the average age of assets from the R-1 by dividing the accumulated depreciation balance for each roadway account by the annual depreciation recorded for each account. In a simplistic world, such a calculation might yield a reasonable estimate of the average asset age. However, railroads are more complex. Changes in annual depreciation rates produced by increased traffic volumes can distort the analysis. In addition, as shippers' experts should be aware, the accounting for recent railroad mergers and changes in the treatment of removal costs have further distorted the relationship between accumulated and annual depreciation charges, rendering efforts to calculate the average age of assets in place from these data sources futile. For example, as part of the purchase accounting adjustment for mergers, the accumulated depreciation for assets acquired is written down to zero. Under the shippers' calculations, such assets would have a useful life equal to their remaining life and would, as such, have an age of zero, even though the assets have been in service for many years.

**4. Shippers' Proposal to Align SARR Productivity With The Productivity Anticipated For the Railroad Industry as a Whole Overstates Dramatically The Productivity That Could Be Achieved By a SARR**

In their discussion of potential productivity for the SARR, shippers assert that a SARR is very similar to the real world railroad and, as such, should be expected to enjoy the future productivity benefits predicted for the industry. On this basis, WCTL proposes

that the Board should adopt an index that is weighted 50 percent RCAF-U and 50 percent RCAF-A for the first year of SARR operations and transition to 100 percent of the RCAF-A by the tenth year of operations. As I explained in detail in the prior sections of my Verified Statement, because of the manner in which SARR operating expenses are developed, a SARR is vastly more productive than the railroad industry as a whole. There is thus no basis to assume that a SARR would achieve any additional productivity in the early years of its operation, and likely will not achieve any measurable productivity until after year 10 as new technologies emerge and the SARR begins the process of replacing certain of its assets.

In fact, shippers' claims are belied by their prior submissions. In its recent rebuttal evidence, WFA / Basin noted that, "...no currently operating real-world railroad is comparable to a SARR that handles a single commodity exclusively in unit train service."<sup>5</sup> Single commodity unit train service is the most efficient type of movement made by real world railroads. As such, a SARR that handles only unit train operations has already achieved a level of productivity that real world railroads could only dream of.

WCTL offers another alternative for why it believes it is appropriate to begin with an inflation index that is weighted 50 percent RCAF-A. WCTL witness Brennan asserts that the Board has inappropriately used 100% RCAF-U in year one to index operating expenses and that this, "denies a SARR the benefit of *any* productivity improvements in labor, existing capital or purchased services."<sup>6</sup>

Dr. Brennan begins his analysis on the unfounded presumption that the Board concludes that a SARR will not achieve any additional productivity gains in its first year

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<sup>5</sup> Docket No. 42088, WFA/Basin Reb. Nar. at I-31.

<sup>6</sup> Brennan at 11.

of operation simply because a SARR cannot be expected to further increase the productivity attributable to its new capital assets. From this erroneous start,<sup>7</sup> he leaps to the bizarre conclusion that SARR operating expenses can somehow be separated between those associated with the railroad's capital base (including fuel consumption) and those that are not, and that the SARR is eligible to share in productivity benefits for those operating expenses he deems to be not associated with the railroad's capital base. He then embarks on an exercise, using R-1 data, to calculate the percentage of *incumbent railroad* operating expenses associated with capital expenditures and materials and supplies. From this he concludes that more than half of railroad operating expenses are not related to capital assets and could be expected to capture normal productivity gains, rendering shippers' proposal to begin with a 50/50 split of RCAF-U, RCAF-A conservative.

As I describe in more detail, Dr. Brennan's "analysis" suffers innumerable flaws which render his conclusion meaningless. Listed below are just a few of the fatal flaws:

- The gist of Dr. Brennan's analysis is that all Class I railroad operating expenses relating to labor, general expenses and purchased services can benefit from improvements in efficiency. While this certainly may be true for real-world Class I carriers because of the myriad of services they provide, the same does not hold true for a SARR, regardless of the expense category, because as discussed above a SARR already captures all available productivity.
- All of the SARR operating expenses are associated either directly or indirectly with the SARR assets, so any attempt to segregate them is meaningless. For example, Dr. Brennan's approach, if translated to a SARR, would suggest that all train and enginemen labor is unrelated to a SARR's assets. Yet, SARR train and

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<sup>7</sup> The Board did not assume, as WCTL claims, that all productivity gains come from asset replacement, but simply noted the SARR would not have equal opportunities for productivity gains as real-world railroads, and it gave as an example the fact that the SARR, with its new assets, would have less opportunity to achieve productivity gains from asset replacement than would real-world railroad with a mix of old and new assets.

enginemen productivity are tied directly to the SARR's locomotive assets and track facilities.

- The cost structures of the incumbent railroads are vastly different from those of a SARR. A Class I railroad's system-wide operating expenses will include, among other things, costs for significantly more complex yard operations, switching operations, varied types of transactions and services for multiple heterogeneous customers, and significantly greater marketing costs than those associated with operating the relatively simple SARR network. As there is no rational nexus between the system-wide operating costs of a Class I railroad and those of the much simpler SARR, there is certainly no logical ground for assuming that the percentage of operating expenses associated with assets (as Dr. Brennan calculates them) will be the same on a Class I railroad and on the SARR.

As such, Dr. Brennan's analysis does not in any way support the shippers' assertion that a 50/50 split of RCAF-U and RCAF-A is the appropriate starting point for indexing SARR operating expenses.

### **III. CHANGING THE DCF PERIOD DOES NOT REQUIRE A CHANGE IN THE PERIOD OVER WHICH DEBT IS AMORTIZED**

In his opening Verified Statement, WCTL witness Thomas D. Crowley discusses what he describes as a problem with the Board's proposal to shorten the DCF period from 20 to 10 years. According to Mr. Crowley, the period over which the stand-alone debt is amortized is the same as the DCF period and, if the Board shortens the DCF period, it must also shorten the amortization period for the SARR debt. As an alternative, Mr. Crowley proposes an approach that has been rejected numerous times by this Board and its predecessor the ICC, which is to amortize the SARR debt over the life of the SARR assets. Crowley at 13-14.

There are a number of problems with Mr. Crowley's proposal. The first is that his starting premise – that the debt amortization period is the same as the DCF period – is wrong. As I explained in my opening comments, the DCF period is simply the time period over which the Board compares stand-alone costs to stand-alone revenues in

determining whether or not a challenged rate is reasonable. Other inputs to the DCF, such as the assumed asset lives, the replacement of assets as they are anticipated to wear out, the calculation of Federal and state income taxes, and the amortization of the debt are not tied to the DCF period and, as such, any consideration of substantive changes to such inputs, including the amortization period, are beyond the scope of this proceeding. Moreover, it is clear that this issue is not one "necessitated" by the change in the DCF period, as WCTL asks the Board to make this change in the amortization period *regardless of whether it uses a 10 or 20 year DCF period.* WCTL at 103. Rather, Mr. Crowley's proposal is a rehash of shippers' continued attempts to have the Board change the economically sound and long-accepted practice of amortizing debt over a 20 year period.

The second problem with Mr. Crowley's argument against the current practice is that the 20 year debt amortization period, although coincidentally the same as the 20 year DCF period, was actually the result of a compromise by the ICC as articulated by the ICC Bureau of Economics staff in a September 9, 1991 memo from Howard K. Face, Director, Office of Economics to David M. Konschnik, Director, Office of Proceedings in ICC Docket Nos. 37063 and 38025S *Dayton Power and Light v. Louisville and Nashville Railroad Company*. In that memo, the staff explained that Complainants Dayton Power and Light had argued to lock in the SARR cost of debt at the weighted average of the cost of debt during the SARR construction period, weighted by the amount of investment assumed to occur in each year. In that proceeding, complainants also advocated that the debt be amortized over the expected life of the SARR assets. In addressing the issue, the staff accepted the Complainants' argument that the cost of debt be locked in at the

average of the cost of debt during the construction period, but rejected the argument that the debt be amortized over the life of the asset and instead chose a 20 year debt amortization period. The staff explained that locking in debt would be consistent with an assumption of a 20 year bond with a fixed interest coupon and that Complainants' proposal to amortize debt over the asset life failed to consider the increased risk and higher yield that would be required if the maturity of the debt instruments were extended from 20 years to the average life of the assets. As the staff explains, it is well established that the longer term a bond or debenture has, the higher the risk premium, and, thus, the yield.

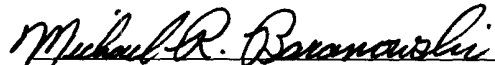
Ironically, the same is true of Mr. Crowley's current proposal. Amortization over the life of the assets would result in long term debt with terms exceeding 50 years, which would clearly elicit concerns over the costs associated with greater risk that were addressed by the ICC in *Dayton Power & Light*. In addition, any change to the Board's longstanding practices relating to the debt amortization period would require the evaluation of substantial evidence relating to railroad debt financing practices, the appropriate interest rate assumption, and the relevance of the Board's cost of capital determinations in SAC proceedings.

Third, Mr. Crowley appears to have inadvertently misspoken in his Verified Statement. At page 20 of his statement, Mr. Crowley states that "In order for the STB's proposed 10-year model to produce the same answer as the current 20-year model produces, the STB has to amortize the Table E debt over the life of the asset and not over the life of the model. With this one adjustment, the two models will produce the same answer(assuming all other inputs are the same)." In fact, the only way for the 10-year

model to produce the same answer as the 20-year model produces (for the first 10 years) is for the debt to continue to be amortized over 20 years. The proposed changes to the DCF model set forth in my opening statement will accomplish this, without any need to change the amortization period.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 30, 2006

  
Michael R. Baranowski



# REPLY VERIFIED STATEMENT

OF

MARTIN N. BAILY

## I. INTRODUCTION

My name is Martin N. Baily. I am a Senior Fellow at the Institute for International Economics, a position I have held since March, 2001. In addition, I am a Senior Advisor to the McKinsey Global Institute, the economics think-tank of McKinsey & Company, and I am an Academic Advisor to the Congressional Budget Office. Between October, 1994 and August, 1996, I was a member of the President's Council of Economic Advisors; from August 1999 to January 2001, I was Chairman of the Council of Economic Advisors and a member of the President's Cabinet.

My main field of expertise is productivity. I have conducted academic research projects over the course of over 25 years in this field, looking at the sources of productivity growth in the overall economy, in individual industries, and in individual manufacturing establishments. I co-authored *Innovation and the Productivity Crisis*, published by The Brookings Institution in 1988 and I have written numerous journal articles in the field, before and since—see for example articles in the *Review of Economics and Statistics* 2001, *Brookings Papers on Economic Activity* various issues, *Journal of Economic Perspectives* 2001, 2002, *International Productivity Monitor* 2006, in the attached curriculum vitae.

As well as this academic work, I have also been an advisor to a series of studies of U.S. and overseas productivity performance that examine the behavior of individual companies and industries. Most recently, I presented the results of a study of productivity growth in the U.S.

auto industry at the Chicago Federal Reserve's auto conference in Detroit, in April 2006.<sup>1</sup> The focus of my current work is on the revival of U.S. productivity growth, and the effect of the strong dollar on the U.S. economy. In the early 1990s, I participated in two commercial arbitrations in which I studied the causes of improved productivity on the Burlington Northern Railroad Company. My CV is attached as Exhibit\_\_(MNB\_\_1).<sup>2</sup>

I have been asked by BNSF Railway Company ("BNSF") to address the testimony of Caves, et al.<sup>3</sup> Where relevant to the issues I address in *Caves*, I also discuss the comments of William J. Brennan.<sup>4</sup>

*Caves* concludes

that "the Coal Shipper's proposal to attribute 50% of RCAF-A productivity gains to the SARR in the first year of the DCF period (i.e., 50% RCAF-A and 50% RCAF-U) and increase this incrementally to 100% of RCAF-A productivity gains after the tenth year is a reasonable proposal. It is based on the structure of the Board's proposal. However, in contrast to the Board's proposal, the Coal Shipper's proposal more accurately reflects the productivity gains the SARR is likely to enjoy immediately as well as the path of the SARR's gains over time." *Caves* at 3.

A close reading of *Caves* reveals that this conclusion does not actually follow from the discussion of productivity contained in the statement. More fundamentally, for the reasons I describe in detail below, I believe these witnesses have substantially overstated the importance of future improvements in productivity in assessing operating costs for a stand-alone railroad

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<sup>1</sup> Available at their website, [www.chicagofed.org](http://www.chicagofed.org)

<sup>2</sup> This statement reflects my own views as an independent expert. The views do not necessarily represent those of the Institute for International Economics, McKinsey & Company or the Congressional Budget Office and should not be attributed to these organizations.

<sup>3</sup> See *Joint Verified Statement of Douglas W. Caves, Ph.D., B. Kelly Eakin, Ph.D., Mark E. Meitzen, Ph.D., and Philip E. Schoech, Ph.D.*, attached to the *Joint Opening Comments of Western Coal Traffic League, Concerned Captive Coal Shippers, Western Fuels Association, Inc., Edison Electric Institute, National Rural electric Cooperative Association, and American Public Power Association* in Ex Parte No. 657 (sub-No. 1), dated May 1, 2006 ("*Caves*").

<sup>4</sup> See *Comments of William J. Brennan, Ph.D.*, attached to the *Joint Opening Comments of Western Coal Traffic League, Concerned Captive Coal Shippers, Western Fuels Association, Inc., Edison Electric Institute, National Rural electric Cooperative Association, and American Public Power Association* in Ex Parte No. 657 (sub-No. 1), dated May 1, 2006 ("*Brennan*").

("SARR") over a multi-year discounted cash flow ("DCF") period. An efficient firm entering the market with new assets, the technology tailored to its operational requirements, and an operating plan reflecting the industry's best practices would begin to experience productivity improvements at some point in the future. But, given its starting point, it is unlikely that the SARR would experience *any* productivity improvement in the early years of its existence. I understand that the Board is considering the possibility of reducing the DCF period used in its SAC analysis from 20 years to 10. In either case, it would be appropriate to assume that the SARR experiences no productivity improvement during its first 10 years *unless* such improvements can be tied to a specific source of productivity increase that can be identified and evaluated on the evidence.

*Caves* makes three principal points in an effort to support its conclusions. First it implies that it is futile to try to identify *specific* sources of process improvements that would improve productivity on the SARR (*Caves* at 6-7). Instead, *Caves* suggests that it would be "a more useful exercise" to (1) identify how the SARR differs from the railroad industry generally, (2) examine "qualitatively" whether these differences result from technology that is available to the SARR but not to the industry as a whole, and (3) quantify how much of future productivity gain in industry productivity improvement would be driven by adopting this new technology. *Caves* asserts that all other productivity improvement would be enjoyed by *both* the SARR and the industry. Note that this paradigm *assumes*, without any evidence, (1) that there would be no circumstance in which the SARR would benefit *less* from technological improvements than the real-world industry participants, and (2) that productivity improvements that are not technologically driven would apply equally to both the SARR and the real-world industry participants. As I explain below, both of these implicit assumptions are incorrect.

Second, *Caves* argues that the SARR will have the same access as do real-world railroads to the same pool of human capital and, therefore, can expect to experience the same levels of productivity gain from “the latest innovation and management techniques,” which they recognize will lead to productivity improvements in “operations, management practices [and] learning by doing.” *Caves* at 8-11.

Third, *Caves* presents evidence to the effect that railroad productivity – which had significantly exceeded economy-wide productivity throughout the 1982 to 2000 time period – seems to be “trending” toward levels that are comparable to those experienced overall in the U.S. economy. *Caves* suggests that this means the railroads have “largely exhausted the productivity gains resulting from deregulation,” and asserts as a result that “current railroad productivity is more reflective of economy-wide productivity than of gains from past deregulation.” From this line of argument, *Caves* leaps to conclude that “near-future productivity gains by an efficient SARR would also be more reflective of the economy productivity and therefore not much different from gains experienced by an incumbent railroad, or the industry overall.” *Caves* at 13-14.

I address each of these three arguments below and show that they do not support the position that a SARR would experience productivity improvement in the early years of its life. Furthermore, it is worth emphasizing that apart from my disagreement with the arguments made by *Caves*, those arguments do not support a conclusion that applying a 50/50 mix of RCAF-A and RCAF-U in Year 1 of a SARR’s life, and increasing this mix steadily, year-by-year, to 100% of the RCAF-A by Year 10 of a SARR’s life, is appropriate. There is no evidence linking the qualitative comments in *Caves* to the quantitative solution that it advocates.

As a threshold matter, I disagree with the implication in *Caves* that these issues are not amenable to analysis based on evidence. It is important to look at specific sources of potential productivity improvement and to determine whether they would or would not affect a SARR – there is no other valid approach to addressing the issue. It is true, as *Caves* suggests, that these sources of productivity may well be interconnected, but the sources can often be identified and their likelihood and timing evaluated. It is incumbent on those who argue that the SARR would achieve productivity growth in the future to identify the specific sources of productivity improvement, *especially in the early years of a SARR's existence*. In this regard, there is a considerable body of research that bears on these issues (which *Caves* ignores) that demonstrates how unlikely it is that the SARR would achieve significant productivity gains in the early years of its life.

As noted above, *Caves* emphasizes the productivity that would be brought about by advances in information technology (“IT”), citing Board cases that it characterizes as concluding that “there should be no difference between the SARR and incumbent railroads.” *Caves* at 106. But this emphasis on the impact of IT on future SARR productivity is overstated. As many companies have found in recent years, merely investing in IT does not guarantee productivity improvements. For example, the U.S. banking industry found that its practice, in the 1990s, of installing high-powered terminals on the desks of bank tellers did nothing to improve the productivity of those tellers.<sup>5</sup> A seminal study on the subject demonstrates that productivity improvements are engendered from IT investments *only* when companies specifically identify process improvements that are *enabled* by these investments.<sup>6</sup>

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<sup>5</sup> McKinsey Global Institute, *US Productivity Growth*, McKinsey & Company, Washington DC, 2001.

<sup>6</sup> McKinsey Global Institute, *How It Enables Productivity Growth*, McKinsey & Company, San Francisco, 2002.

In the railroad industry, such process (*i.e.*, best practice) improvements are most likely in complex networks – in which large volumes of heterogeneous transactions must be managed. But it is my understanding that recent SARRs have been relatively simple networks with a defined customer base. The traffic is largely homogeneous – large volume movements of coal to utility plant customers that are handled in continuously cycling unit trains – and much of the complexity of switching, staging and other “hub” operations is left to the incumbent railroad through the use of “cross-over” traffic.<sup>7</sup> In a relatively simple network such as this, the effect of IT investments on productivity improvement is likely to be negligible, even over the longer run. In contrast, if properly implemented, the effect of IT investments on the much more complex networks represented by real-world railroads can be significant, even in the relatively short run where the mix of assets may not be optimal given the mix of traffic.<sup>8</sup>

Of course, technological developments will undoubtedly occur in the future, and the productivity-enhancing benefits of some of those developments will be available to the SARR. But here, too, the evidence strongly suggests that it will take years for new technological developments to have an effect on a SARR that is hypothesized as entering the market *de novo* today.<sup>9</sup> In an example directly on point, the Federal Railroad Administration (“FRA”) has noted

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<sup>7</sup> See, for example, *Opening Evidence of Complainants Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc.* Narrative Volume 1 of 2 (Public Version) at III-D-49 and III-D-50 (“The LRR’s IT staff is smaller than the IT staffs of most railroads because the LRR is unique. It handles only trainload movements, which reduces the complexity of computer and communications systems required to support its operations. The computer system requirements of a Class I railroad are very complex due to the large number of customers served, large number of different commodities handled, large number of different origin and destination pairs, different types of railcars required extensive yard operations, and service commitments to most customers on an individual car basis. The LRR has only one local customer, five interchange points, service measurements entirely by train rather than by individual railcars, and trainload billing with the RMI Revenue system used to allocate revenues.”). I also understand that where shippers have hypothesized SARRs that handle multiple commodities, the SARR is assured to receive high-speed trains from the incumbent, moves the train directly across the SARR network and hands the train back to the incumbent for subsequent loading. See, for example, *Complainant Arizona Electric Power Cooperative, Inc.’s Rebuttal Evidence*, STB Docket No. 42058, Narrative (Public Version) at III-A-20 through III-A-23.

<sup>8</sup> See Opening V.S. of Thomas C. Haley, attached to Union Pacific’s Opening Comments.

<sup>9</sup> I understand that SARR’s do not normally spend money on research and development, nor do they pay the dues required to belong to industry trade associations that are engaged in research and development efforts on behalf of

that only a portion of the technological improvements under consideration will ever be implemented, and that it will take even longer for improvements that are implemented to show up as efficiency gains in the rail industry's operations.<sup>10</sup> The FRA estimates that, overall, it will take 10 years for technology innovations under active consideration today to begin to generate operational efficiencies.<sup>11</sup>

Research has demonstrated that the most significant source of productivity is from existing firms' efforts to implement the best practices of leading firms in their industries. In the automobile industry, for example, the most important source of productivity improvement over the 15-year period from 1987 to 2002 was the adoption of "lean manufacturing" techniques by the "Big Three" U.S. auto makers – a production process developed over many years by Toyota and introduced into the US industry in the early 1980s.<sup>12</sup> Academic research, using U.S. Census data, confirms this for a study of productivity in retailing, which found that *virtually all* of the productivity growth in that industry arose from opening best-practices establishments and closing older ones, rather than from any improvement in best practices themselves.<sup>13</sup>

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their members. As a result, the SARR's postulated by shippers are likely to be late adopters of improved technology. See Reply V.S. of Mike Baranowski.

<sup>10</sup> In addressing its on-going R.D&D projects (including efforts with Distributed Power and Positive Train Control) FRA states:

At best, implementation of the results of only a small portion of the projects described herein will have begun five years from now. Effects of the projects...will begin to show up in railroad safety and efficiency statistics in earnest *ten years from now*. (emphasis added).

<sup>11</sup> Many service companies introduced customer relations software believing it would payoff in productivity and profitability. Only now are they seeing positive results, approximately ten years after early introduction.

<sup>12</sup> James P. Womack, Daniel T. Jones and Daniel Roos, *The Machine that Changed the World: The Story of Lean Production*, New York, Rawson Associates, 1990. McKinsey Global Institute, *Increasing Global Competition and Labor Productivity: Lessons from the US Automotive Industry*, McKinsey & Company, San Francisco, November 2005. General Motors and Toyota formed a joint venture called NUMMI to produce small cars in a former GM plant in Fremont CA. The planning for this venture started in 1982. Ford formed a partnership with Mazda in 1979, when it started to learn about lean manufacturing.

<sup>13</sup> Lucia Foster, John C. Haltiwanger and C.J. Krizan, "The Link Between Aggregate and Micro Productivity Growth: Evidence from Retail Trade," *Working Paper, No. 9120*, National Bureau of Economic Research, Cambridge, MA, August 2002.

The implications of this research for the question at hand are obvious. By definition, the SARR embodies – at its inception – a new state-of-the-art physical plant, current technologies, and a best practice operating plan that are collectively tailored to the traffic that is hypothesized to move over the hypothetical railroad. As a result, productivity improvements that can be expected in the rest of the industry – as it seeks to achieve this level of efficiency today – will not be available to the SARR; and efficiency improvements from changes in technology and/or best practices will take years to emerge before they will “move the dial” on the level of SARR productivity.

*Caves* makes a passing reference to “learning by doing,” and this seems to be the central point of *Brennan*. But a detailed study by the staff of the Bureau of Labor Statistics of railroad productivity growth did not mention learning by doing as a source of growth in the industry in the years between 1958 and 1989.<sup>14</sup> This accords with my own experience studying a variety of industries in different countries, where learning by doing has not been found to be an important source of sustained productivity improvement. Furthermore, to the extent learning by doing might be considered relevant in a SAC analysis, it would seem to cut in a direction inconsistent with that advocated by the shippers. As I understand it, the SARR is hypothesized by shippers to operate efficiently from day one, using the current technology. In practice, of course, any start-up railroad – even if it were employing entirely experienced railroad personnel – would experience a significant “ramp up” period before it would be operating optimally. Thus, if one wants to hypothesize a workforce that is capable of achieving productivity improvements from “learning by doing,” one must also accept that such a workforce would have *less* efficient operations in the short term while the SARR personnel “learn the ropes.” But the SAC test

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<sup>14</sup> John Duke, Diane Litz and Lisa Usher “Multifactor Productivity in Railroad Transportation, *Monthly Labor Review*, August 1992.

allows the complainant to assume the most efficient workforce from the first day of SARR operations. The SARR has already “learned by doing,” and the benefits are already reflected in the efficient operations of the SARR from the start. It would double count the productivity that would be available from any “learning by doing” to give additional productivity benefits to a SARR through a productivity adjustment to operating cost inflation.

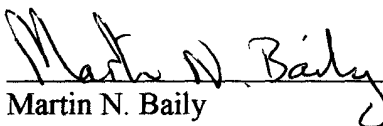
Finally, the discussion in *Caves* to the effect that the level of railroad productivity improvement seems to be converging on the level of productivity improvement in the U.S. economy as a whole – and the conclusion that, therefore, it would be appropriate to assume this level of productivity improvement for the SARR from day one – seems entirely irrelevant to the question of SARR productivity improvement. Even if the level of productivity in the U.S. rail industry seems recently to have converged on the level of productivity improvement economy wide, there is no reason to expect that these two measures would continue to track in the future. But more fundamentally, given the special circumstances that are embodied in the SARR concept – state-of-the-art assets and a best-practices operating plan tailored to a relatively simple network operation – there is simply no reason to expect that the SARR would experience productivity improvements similar to other, real-world railroads or to the economy as a whole in the first 10 years of its life.

Instead, given that the SARR is assumed to already have the most appropriate technologies operated and managed by best-practice personnel, it is reasonable to assume that there would be no additional productivity improvement in the first 10 years of its life. Those who disagree with this view should bear the burden of identifying the operating changes the SARR would make in its early years, changes that would be considered economically rational.

The quantitative impact on productivity of any such process improvements should also be demonstrated.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 26, 2006

  
\_\_\_\_\_  
Martin N. Bailly



Martin Neil Baily

Résumé, May 2006

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Principal, McKinsey & Company, Inc., September 1996-August 1999.

External Senior Fellow at the Brookings Institution, 1996-1999.

Member, President's Council of Economic Advisers, October 1994-August 1996.

Professor of Economics at the University of Maryland, 1989 to 1996.

Senior Fellow at the Brookings Institution in Washington, D.C. 1979-89.

Research Associate or Affiliate of the National Bureau of Economic Research, 1978-1998.

Co-Editor of the *Brookings Papers on Economic Activity, Microeconomics*, 1989 to 1999.

Lecturer, University of Nairobi, 1972; Assistant Professor MIT, 1972-73; Assistant and Associate Professor, Yale University, 1973-79; Visiting Professor, Universidad de los Andes, Colombia, 1975.

*Other Positions:*

Vice-Chairman, panel of the National Research Council/National Academy of Sciences convened to assess the contribution of information technology to performance in service activities, 1991-1993.

Member of a panel convened by the Office of Technology Assessment to evaluate pharmaceutical prices, 1991.

Member of the Brookings Panel on Macroeconomics and Senior Adviser to this panel since 1976.

*Research Support:*

Research has been funded by The National Science Foundation, The Sloan Foundation and The Ford Foundation, as well as numerous corporate supporters.

*Consulting Activities:*

Prepared economic analysis for numerous companies, including studies of the tax treatment of R&D for the Council on Research and Technology, a consortium of corporations and universities. Testified as an expert witness in D.C. Superior Court and in arbitration hearings. Worked with McKinsey client teams to provide economic counseling to CEOs and senior management.

*Summary of Research Interests:*

Developed a theory of implicit labor contracts, an analysis of why wage inflation responds so sluggishly to excess supply in the labor market. Evaluated the impact of unemployment insurance, policies to reduce structural unemployment and the role of monetary and fiscal policy in the stability of the U.S. economy. Since 1979 worked on productivity and innovation in the US and other countries. The impact of labor quality, energy and capital, measurement problems, innovation, the electronics revolution and management quality on U.S. economic performance have been assessed. Completed several studies of individual manufacturing plants. Participated as co-author and member of the leadership team of McKinsey Global Institute studies of service

sector and manufacturing productivity and the employment performance and in a series of country studies. Participated in studies of the globalization of the capital market and of health care. Current work assesses the revival of US productivity growth, and the impact of the strong dollar on the US economy. Completed a book on European reform in September 2004.

*Listing of Publications and Papers:*

"An Econometric Model of the World Copper Industry," *Bell Journal of Economics*, Fall 1972 (junior author).

"Research and Development Costs and Returns," *Journal of Political Economy*, Jan/Feb 1972.

"Wages and Employment Under Uncertain Demand," *Review of Economic Studies*, January 1974.

"Dynamic Monopsony and Structural Change," *American Economic Review*, June 1975.

"Unemployment and Unemployment Insurance," *Discussion Paper No. 29*, Yale University, December 1974.

"On the Theory of Layoffs and Unemployment," *Econometrica*, July 1977.

"Contract Theory and the Moderation of Inflation by Recession and Controls," *Brookings Papers on Economic Activity*, 3:1976.

"Unemployment Insurance as Insurance for Workers," *Industrial and Labor Relations Review*, July 1977.

"Inflation-Unemployment Consequences of Job Creation Policies," in J. Palmer, ed., *Creating Jobs: Public Employment Programs and Wage Subsidies*, The Brookings Institution, 1978 (with James Tobin).

"The Macroeconomic Impact of Selective Public Employment and Wage Subsidies," *Brookings Papers on Economic Activity*, 2:1977 (with James Tobin).

"Stabilization Policy and Private Economic Behavior," *Brookings Papers on Economic Activity*, 1:1978.

"Public Service Employment as Macroeconomic Policy" in *Job Creation Through Public Service Employment*, National Commission for Manpower Policy, March 1978 (with Robert M. Solow).

"Some Issues in Wage and Price Adjustment and Macroeconomic Fluctuations," presented to the NBER Conference on Macroeconomic Fluctuation, Stanford, January 1978.

"Some Aspects of Optimal Unemployment Insurance," *Journal of Public Economics*, December 1978.

"Output and Labor Input in the Short-Run," paper presented to the NBER Economic Fluctuations meeting, July 1979.

*Inflation and Social Security Financing*, study prepared for the National Commission on Social Security, June 1980.

"The Productivity Growth Slowdown and Capital Accumulation," *American Economic Review*, May 1981.

"Productivity and the Services of Capital and Labor," *Brookings Papers on Economic Activity*, 1:1981.

"Productivity in a Changing World," *Brookings Bulletin*, Summer 1981.

*Workers, Jobs and Inflation*, Brookings, 1982 (edited with an introduction).

"Labor Market Performance, Competition and Inflation," in *Workers, Jobs and Inflation*, Brookings 1982.

*The Battle Against Unemployment and Inflation*, Norton, 1982 (edited with Arthur M. Okun).

"Economic Models Under Challenge," *Science*, May 1982. Revised and reprinted as "Are the New Economic Models the Answer?" *The Brookings Review*, Fall 1982.

"The Productivity Growth Slowdown by Industry," *Brookings Papers on Economic Activity*, 2:1982.

"The Labor Market in the 1930's" in James Tobin, ed. *Macroeconomics, Prices and Quantities*, 1983.

"The Problem of Unemployment in the United States," in *Jobs for the Future*, Center for National Policy, Washington DC, May 1984.

"Will Productivity Growth Recover?" *American Economic Review*, May 1984.

"Innovation and Productivity in U.S. Industry," *Brookings Papers on Economic Activity*, 2:1985.

"Innovation and U.S. Competitiveness," *Brookings Review*, Fall 1985.

"Productivity Growth and Materials Use in U.S. Manufacturing," *Quarterly Journal of Economics*, February 1986.

"Productivity and the Electronics Revolution," *Bell Atlantic Quarterly*, Summer 1986.

"What Has Happened to Productivity Growth?" *Science*, November 1986.

"Aging and Ability to Work," in Gary Burtless, ed., *Work, Health, and Income Among the Elderly*, Brookings, 1987.

*Science and Technology and the Competitiveness Problem*, Study prepared for the National Science Board, August 1987.

*Innovation and the Productivity Crisis*, The Brookings Institution, 1988 (with A.K. Chakrabarti).

"The Productivity Slowdown, Measurement Errors, and the Explosion of Computer Power," *Brookings Papers on Economic Activity*, 2:1988 (with Robert J. Gordon).

"Productivity and American Management," in *American Living Standards: Threats and Challenges*, Brookings Institution, 1988 (with Margaret Blair).

"The Slowdown and Recovery of Productivity Growth in U.S. Manufacturing," paper presented at the Meetings of the American Economics Association, December, 1990 (with Charles Hulten).

"The Productivity of Capital in a Period of Slower Growth," *Brookings Papers on Economic Activity, Micro*, 1990, pp.369-406 (with Charles L. Schultze).

"Great Expectations: PCs and Productivity," in Charles Dunlop and Rob Kling *Computerization and Controversy*, Academic Press, San Diego CA, 1991; second edition 1995.

"Measurement Issues and the Productivity Slowdown in Five Major Industrial Countries," in *Technology and Productivity* ed. G. Bell, Organisation for Economic Cooperation and Development, Paris 1991 (with Robert J. Gordon).

*Macroeconomics, Financial Markets and the International Sector*, Richard D. Irwin, 1991 (with Philip Friedman).

"Productivity Dynamics in Manufacturing Plants," *Brookings Papers on Economic Activity, Micro: 1992* (with Charles Hulten and David Campbell); reprinted in *Innovation, Evolution of Industry and Economic Growth*, edited by D. Audretsch and S. Klepper; for the *Critical Writings in Economics* series.

*Service Sector Productivity*, McKinsey Global Institute, Washington, D.C. 1992, Co-author.

"Made in the USA: Productivity and Competitiveness in U.S. Manufacturing," *The Brookings Review*, Winter 1993.

*Growth with Equity*, The Brookings Institution, 1993, (with Gary Burtless and Robert Litan).

*Manufacturing Productivity*, McKinsey Global Institute, Washington D.C., 1993 Co-author.

"Competition, Regulation, and Efficiency in Service Industries," *Brookings Papers on Economic Activity: Micro* 2:1993

*Employment Performance*, McKinsey Global Institute, Washington D.C. 1994, Co-author.

*Macroeconomics, Financial Markets and the International Sector*, second edition, Richard D. Irwin, 1994, (with Philip Friedman).

"Information Technology: Increasing Productivity in Services," *Academy of Management Executive*, August 1994; (with James Brian Quinn). Selected as the best publication of 1994 on information systems in the journals of the Academy of Management.

"Downsizing and Productivity Growth: Myth or Reality," in David G. Mayes ed. *Sources of Productivity Growth in the 1980s*, Cambridge University Press, 1995, (with Eric Bartelsman and John Haltiwanger); reprinted in *Small Business Economics*.

"Efficiency in Manufacturing and the Nature of Competition," *Brookings Papers on Economic Activity, Microeconomics*, 1995, (with Hans Gersbach).

*Economic Report of the President*, February 1995, and February 1996, Co-author.

"Trends in Productivity Growth," in *Technology and Growth, Conference Series No. 40*, Federal Reserve Bank of Boston, June 1996.

*Removing Barriers to Growth and Employment in France and Germany*, McKinsey Global Institute, (Co-author) March 1997.

"Health Care Productivity" *Brookings Papers on Economic Activity, Micro*; with Alan Garber, 1997.

*Boosting Dutch Economic Performance*, McKinsey Global Institute, Washington, DC, September 1997, Co-author.

*Productivity: The Key to an Accelerated Development Path for Brazil*, McKinsey Global Institute, Washington, DC, March 1998, Co-author.

*Productivity-Led Growth for Korea*, McKinsey Global Institute, Washington, DC, March 1998, Co-author.

"Extending the East Asian Miracle: Microeconomic Evidence From Korea," *Brookings Papers on Economic Activity, Micro* 1998; with Eric Zitzewitz.

*Driving Productivity Growth in the UK Economy*, McKinsey Global Institute, Washington, DC, October 1999, Co-author.

"The Color of Hot Money," *Foreign Affairs*, March/April 2000, 79 (2) pp. 99-109.  
With Diana Farrell and Susan Lund.

"Labor Productivity: Structural Change and Cyclical Dynamics," *The Review of Economics and Statistics*, August 2001, 83 (3), pp. 420-33, with Eric Bartelsman and John Haltiwanger.

*Economic Report of the President*, February 2000 and January 2001, Co-author.

"Service Sector Productivity Comparisons: Lessons for Measurement," in *New Developments in Productivity Analysis*, edited by Charles Hulten, and Michael Harper, NBER Conference volume, University of Chicago Press, 2001, with Eric Zitzewitz.

"US Economic Performance and the Challenge for Europe," Keynote Address, The Brussels Economic Forum, *Proceedings*, The European Commission, Brussels, 2001.

"Do We Have a New E-conomy?" *American Economic Review*, Papers and Proceedings, May 2001, with Robert Z. Lawrence.

"International Productivity Comparisons Built from the Firm Level," *Journal of Economic Perspectives*, 15 (3), Summer 2001, with Robert M. Solow.

"Economic Policy Following the Terrorist Attacks," *International Economics Policy Brief*, Number PB01-10, Institute for International Economics, October 2001.

"Stirred but not Shaken: The Economic Implications of September 11," in *How Did this Happen? Terrorism and the New War*, edited by James F. Hoge Jr. and Gideon Rose, Public Affairs, New York, 2001.

"The New Economy: Post Mortem or Second Wind?" *Journal of Economic Perspectives*, Spring 2002.

"Macroeconomic Implications of the New Economy," presented at the 2001 symposium Jackson Hole. In *Economic Policy for the Information Economy*, Federal Reserve Bank of Kansas City, 2002.

"The New Economy in Europe and the United States" paper presented at the conference Transatlantic Perspectives on the US and European Economies, J. F. Kennedy School, Harvard University, April 2002.

"La Sostenibilidad de la Nueva Economia," *Monedas y Credito*, No 214, 2002.

"The Year in Review: A Turning Point?" in Peter K. Cornelius, *The Global Competitiveness Report 2002-2003*, World Economic Forum and Oxford University Press, New York and Oxford, 2003.

“Persistent Dollar Swings and the US Economy,” in C. Fred Bergsten and John Williamson, *Dollar Overvaluation and the World Economy*, Institute for International Economics, 2003.

“Information Technology and Productivity: Recent Findings,” presentation at the American Economics Association, January 2003.

“The Sources of Economic Growth in OECD Countries: A Review Article,” *International Productivity Monitor*, Number 7, Fall 2003, 1-5.

“Promoting European Growth,” The Robert Schuman Lecture, The Lisbon Council, Brussels, October 2003.

“The Year in Review” in *The Global Competitiveness Report 2003-2004*, World Economic Forum and Oxford University Press, New York and Oxford.

“Recent Productivity Growth: The Role of IT and Other Sources of Innovation,” Keynote address at the San Francisco Federal Reserve Bank conference on productivity and innovation, November 2003. *Bulletin of the San Francisco Federal Reserve Bank*, 2004.

*Transforming the European Economy*, with Jacob F. Kierkegaard, Institute for International Economics, September, 2004.

“The Impact of Trade on US Job Loss, 2000-03,” in *Dollar Adjustment: How Far? Against What?* C. Fred Bergsten and John Williamson eds, Institute for International Economics, November 2004; with Robert Z. Lawrence.

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“What Happened to the Great US Job Machine? The Role of Trade and Electronic Offshoring,” *Brookings Papers on Economic Activity 2004:4*, The Brookings Institution; with Robert Z. Lawrence.

“Don’t Blame Trade for US Job Losses,” *The McKinsey Quarterly*, 2005, with Robert Z. Lawrence.

*Increasing Global Competition and Labor Productivity: Lessons from the US Automotive Industry*, McKinsey Global Institute, McKinsey & Company, November 2005, jointly with the McKinsey team.

“On Europe’s Economic Woes,” *The Milken Institute Review*, First Quarter 2006, with Diana Farrell.

“Policy Implications of the Boskin Commission Report,” *International Productivity Monitor*, Spring 2006.

“Breaking Down Barriers to Growth,” *Finance and Development*, March 2006, with Diana Farrell.

“Framing the Competitiveness Debate,” forthcoming, Institute for International Economics, Fall 2006, with Robert Z. Lawrence.

Presentations on the Outlook for the US Economy each Spring and Fall at the Institute for International Economics; see [www.iie.com](http://www.iie.com)