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August 8, 2008

Via HAND DELIVERY

PUBLIC VERSION

The Honorable Anne K. Quinlan
Acting Secretary
Surface Transportation Board
395 E. Street, SW
Washington, DC 20423

Re **STB Docket No. 41191 (Sub-No. 1), *AEP Texas North Company v. BNSF Railway Company***

Dear Secretary Quinlan

Enclosed for filing in the above-captioned matter are the original and ten copies of the Public Version of the Fourth Supplemental Evidence of BNSF Railway Company. A Highly Confidential Version of the Fourth Supplemental Evidence is being filed under separate cover.

Please date stamp the extra copy of this cover letter and return it to the messenger who delivered this filing.

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Sincerely,

Samuel M Sipe, for FJH
Samuel M. Sipe, Jr.

Enclosures

cc Counsel for Complainant

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Docket No. 41191 (Sub-No. 1)

AEP TEXAS NORTH COMPANY

v.

BNSF RAILWAY COMPANY

**Fourth Supplemental Evidence of
BNSF Railway Company**

NARRATIVE & EXHIBITS

Volume I of I

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**ATTORNEYS FOR
BNSF RAILWAY COMPANY**

August 8, 2008

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ABBREVIATIONS

TERMS:

AAR	Association of American Railroads
ATC	Average Total Cost
Basin or Basin Electric	Basic Electric Power Cooperative
BNSF	BNSF Railway Company
CAPM	Capital Asset Pricing Model
DCF	Discounted Cash Flow
DOT	Department of Transportation
EIA	Energy Information Administration
EPA	Environmental Protection Agency
FRA	Federal Railroad Association
ICC	Interstate Commerce Commission
MMM	Maximum Mark-Up Methodology
MP	Milepost
Nar	Narrative
PRB	Wyoming Powder River Basin
RCAF	Rail Cost Adjustment Factor
RCAF-A	Rail Cost Adjustment Factor-Adjusted for Changes in Productivity
RCAF-U	Rail Cost Adjustment Factor-Unadjusted for Changes in Productivity
RSAM	Revenue Shortfall Allocation Method
R/VC	Revenue-To-Variable Cost
SAC	Stand-Alone Cost
SARR	Stand-Alone Railroad
UMF	URCS Master File
UP	Union Pacific
URCS	Uniform Rail Costing System
USGS	United States Geological Survey
WFA	Western Fuels Association, Inc

CASE NAMES

<i>September 2007 Decision</i>	<i>AEP Texas North Co v BNSF Railway Co , STB Docket No 41191 (Sub-No 1) (STB served Sept 10, 2007)</i>
<i>AEP Texas North Petition</i>	<i>AEP Texas North Petition for Reconsideration, AEP Texas North Co v BNSF Railway Co , STB Docket No 41191 (Sub-No 1) (filed Oct 22, 2007).</i>
<i>May 2008 Decision</i>	<i>AEP Texas North Co v. BNSF Railway Co , STB Docket No 41191 (Sub-No. 1) (STB served May 29, 2008)</i>
<i>Ex Parte No 657 (Sub-No 1) or Major Issues in Rail Rate Cases</i>	<i>Major Issues in Rail Rate Cases, STB Ex Parte No 657 (Sub-No 1) (STB served Oct 30, 2006)</i>
<i>Ex Parte No 664 Notice</i>	<i>Methodology to be Employed in Determining the Railroad industry's Cost of Capital, STB Ex Parte No 664 (STB served Aug 20, 2007)</i>
<i>Ex Parte No 664</i>	<i>Methodology to be Employed in Determining the Railroad Industry's Cost of Capital, STB Ex Parte No 664 (STB served Jan 17, 2008).</i>
<i>ANPR Ex Parte No 664 (Sub-No 1)</i>	<i>Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Capital, STB Ex Parte No. 664 (Sub-No.1) (STB served Feb 11, 2008).</i>
<i>Third Supplemental Reply Evidence</i>	<i>BNSF's Third Supplemental Reply Evidence, Western Fuels Ass'n, Inc and Basin Elec Power Coop , Inc v BNSF Railway Co , STB Docket No 42088 (filed July 14, 2008).</i>
<i>WFA/Basin September 2007 Decision</i>	<i>Western Fuels Ass'n, Inc and Basin Elec Power Coop , Inc v BNSF Railway Co , STB Docket No 42088 (STB served Sept 10, 2007)</i>

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

STB Docket No. 41191 (Sub-No. 1)

AEP TEXAS NORTH COMPANY v. BNSF RAILWAY COMPANY

Fourth Supplemental Evidence of BNSF Railway Company

Pursuant to the Board's May 29, 2008 and June 18, 2008 decisions in this proceeding, BNSF Railway Company ("BNSF") hereby submits its fourth supplemental evidence

The scope of this fourth supplemental evidence is limited to two issues (1) whether the Board should modify its approach to calculating the SARR's cost of capital in light of the Board's recent change in the methodology for determining the railroad industry cost of equity capital; and (2) how the Board's new Maximum Markup Methodology ("MMM") would be applied if a change in the Board's approach to calculating the SARR's cost of capital produced SAC results that require a reduction in the SARR's revenues. Due to the limited scope of this supplemental evidence, BNSF's fourth supplemental evidence does not follow the standard format set out in *General Procedures for Presenting Evidence in Stand-Alone Cost Rate Cases*, STB Ex Parte No. 347 (Sub-No. 3) (STB served Mar. 12, 2001).

For the reasons explained below, the Board should not change its current approach to calculating the SARR's cost of capital and the Board should not change or restate the prior year railroad industry cost of capital determinations that are used to calculate the SARR's cost of capital. BNSF's position on this issue is set out in Section II of this fourth supplemental evidence and is supported by the verified statement of Robert S. Hamada and Rajiv B. Gokhale attached at Exhibit I ("Hamada/Gokhale V S"). BNSF's evidence relating to the SAC results

under alternative cost of capital scenarios is set out in Section III, and BNSF's evidence on the application of MMM under those alternative scenarios is set out in Section IV. The evidence in Sections III and IV is sponsored by Michael R. Baranowski, Benton V. Fisher, and John C. Klick, all of whom have presented evidence on behalf of BNSF in prior submissions in this case.

I. INTRODUCTION AND SUMMARY OF THE EVIDENCE

On September 10, 2007, the Board found that AEP Texas North Company ("AEP Texas") had "failed to establish that the challenged rates are unreasonably high." *AEP Texas North Co. v. BNSF Railway Co.*, STB Docket No. 41191 (Sub-No. 1), slip op. at title page (STB served Sept. 10, 2007) ("*September 2007 Decision*"). The *September 2007 Decision* was based on an extensive record compiled through several rounds of SAC evidence and supplemental SAC evidence. The results of the Board's SAC analysis were not surprising. As BNSF repeatedly pointed out in the course of its SAC filings, for the years at issue here BNSF had never charged AEP Texas a rate that exceeded the SAC maximum rates contained in the 1996 decision in *West Texas Utilities Co. v. Burlington Northern and Santa Fe Railway Co.*, 1 S.T.B. 638 (1996), as modified in May 2003. *West Texas Utilities Co. v. Burlington Northern and Santa Fe Railway Co.*, STB Docket No. 41191 (STB served May 29, 2003). AEP Texas had no reason to believe that maximum reasonable rates previously prescribed by the Board had become unreasonably high merely with the passage of time.

AEP Texas sought reconsideration of the Board's *September 2007 Decision* on grounds, among other things, that the Board erred in its calculation of the SARR's cost of capital. AEP Texas argued that the Board should not have based the SARR's cost of capital on the Board's actual determinations of the railroad industry cost of capital for prior years. Instead, AEP Texas argued that the Board should have based the SARR's cost of capital on a restatement of the Board's railroad industry cost of capital determinations for prior years using a CAPM.

methodology The Board was considering the adoption of a CAPM methodology when the Board issued its *September 2007 Decision* and the Board subsequently adopted such a methodology in *Methodology to be Employed in Determining the Railroad Industry's Cost of Capital*, STB Ex Parte No. 664 (STB served Jan 17, 2008) ("*Ex Parte No 664*"). According to AEP Texas, the retroactive application of a restated CAPM-based cost of capital would be consistent with the Board's decision in *Major Issues in Rail Rate Cases*, STB Ex Parte No 657 (Sub-No 1) (STB served Oct 30, 2006) ("*Major Issues in Rail Rate Cases*"), to apply new SAC methodologies to pending SAC cases

The Board denied AEP Texas' petition for reconsideration on all issues except the cost of capital issue. On the cost of capital issue, the Board declined to make a decision but instead asked the parties to submit supplemental evidence and argument on the approach that should be used to estimate the SARR's cost of capital The Board noted that

the longstanding practice in SAC cases has been to use an average of the annual cost-of-capital figures for the rail industry as published annually by the Board, starting with the year in which construction of the SARR would have begun through the most recently available year

AEP Texas North Co v BNSF Railway Co, STB Docket No 41191 (Sub-No 1), slip op at 7 (STB served May 29, 2008) ("*May 2008 Decision*"). The Board asked the parties to address the question whether this longstanding practice should be changed in this case given the Board's recent change in the methodology used to determine the railroad industry cost of capital In addition, the Board asked the parties to address the application of the Board's new MMM methodology if a change in the Board's approach to calculating the SARR's cost of capital produced SAC results that require a reduction in the SARR's revenues No other changes to the SAC assumptions or calculations were permitted.

A. The Board Should Calculate The SARR's Cost Of Capital Using Its Prior Railroad Industry Cost Of Capital Determinations.

For the reasons explained in Section II below, no change should be made to the Board's current methodology for estimating a SARR's historical and future years' cost of capital. The Board's current methodology is based on an assumption that a SARR has the same cost of capital as the railroad industry. This is an appropriate assumption. If the Board sought to determine a SARR-specific cost of capital in individual rate cases, it would be necessary to consider evidence on a variety of factors that would affect a SARR's cost of capital independent of real-world railroads' cost of capital. For example, the SARR in this case relies primarily on revenue from coal transportation, but a railroad dominated by coal transportation could have a significantly higher risk for investors than a railroad hauling diversified commodities, particularly in light of uncertainties over future legislation relating to green house gas emissions.

Since the Board properly assumes that the SARR has the same cost of capital as real-world railroads, the Board is required to use its actual determinations of the railroad industry cost of capital in estimating the SARR's cost of capital. The Board determines the railroad industry cost of capital each year in proceedings in Ex Parte No. 558. AEP Texas urged the Board to restate the prior year determinations using the newly adopted CAPM methodology. But the Board cannot ignore its prior determinations on an ad hoc basis or collaterally invalidate those determinations in the context of an individual rate case. The Board's determinations have the force of law, and the Board and affected parties are bound by them. Even if the Board had the authority to retroactively change a prior cost of capital determination – and BNSF does not believe the Board has such authority – the Board could not do so without following the Board's rules governing the reopening of final decisions.

Moreover, there would be no rational basis or evidentiary support for restating the Board's prior year determinations using the CAPM methodology. In adopting the CAPM methodology, the Board did not conclude that the DCF methodology had produced flawed, inaccurate or unreliable results in the past. The Board concluded only that the CAPM model "is a more current approach that commands great respect in the regulatory and academic community

[and therefore] provides a suitable alternative to the 1981 DCF model." *Ex Parte No 664*, slip op. at 7. There is no evidence in the record of the *Ex Parte No 664* proceedings or in prior cost of capital proceedings that the DCF model produced inaccurate or unreliable results for any of the historical years at issue here, or that a CAPM-based approach would have produced more accurate or reliable results for those historical years. Particularly in light of the unique economic circumstances in those years involving the technology "bubble," it would be arbitrary and irrational to restate the prior year cost of capital determinations using the CAPM model in the absence of any such evidence.

The restatement of settled cost of capital determinations going back to 1998 would also introduce a strong element of arbitrariness to the Board's regulatory process that would undermine investor expectations. As the Board has already acknowledged

Predictability is particularly important with regard to the cost of capital, as this calculation reflects the return the Board will permit carriers to earn on their capital investments and will therefore influence their investment decisions.

Id., slip op. at 12. To reverse 10 years of settled cost of capital determinations on which investment decisions were based would create uncertainty that could discourage investment in the rail industry at a time when infrastructure investment is urgently needed.

Therefore, the Board should not disturb or restate its prior year cost of capital determinations in calculating the SARR's cost of capital for the years 1998-2005. Nor should

the Board change its existing approach to forecasting the SARR's future years' cost of capital, which currently is based on the assumption that the SARR's future cost of capital will be the average of all relevant historical years' cost of capital (*i.e.*, starting with the year in which the SARR's construction is assumed to begin). The Board has repeatedly stated that cost of capital forecasts should be based on as many years' data as possible, particularly if the forecast is intended to reach out many years into the future as it would in this case. There is no reason to depart from that approach here. As noted above, there is no basis in the record to conclude that prior year cost of capital determinations were flawed or inaccurate and should therefore be excluded from the forecast. It would also make no sense to forecast the SARR's future years' cost of capital using only a CAPM-based 2006 determination (and 2007, if available) since the Board has a current proceeding addressing whether to change its current CAPM methodology to a hybrid CAPM/multi-stage DCF approach. *See Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Capital*, STB Ex Parte No. 664 (Sub-No. 1) (STB served Feb. 11, 2008). Under these circumstances, the most appropriate way to forecast the SARR's future years' cost of capital is to use all prior year determinations that are relevant to the case.

B. SAC Results On Reconsideration.

In the Board's *September 2007 Decision*, the Board calculated the SARR's cost of capital for the years 1998-2005 using the Board's prior railroad industry cost of capital determinations for those years, and forecasted the SARR's future years' cost of capital using an average of the 1998-2005 cost of capital. The SAC results showed that SAC costs exceeded revenues and therefore the challenged rates were reasonable. BNSF shows in Section III of this fourth supplemental evidence that when the Board's SAC calculations in the *September 2007 Decision* are modified by adding the Board's CAPM-based 2006 cost of capital and the AAR's proposed

CAPM-based 2007 cost of capital, the SAC results continue to show that SAC costs exceed revenues. The Board should adopt these calculations and dismiss the complaint.

However, the Board asked the parties to address in their supplemental evidence two additional SAC scenarios. In the first alternative SAC scenario, the Board instructed the parties to assume that the cost of capital for the years 1998-2005 was not restated, that the 2006 cost of capital was based on the Board-determined railroad industry cost of capital for 2006, and that the SARR's forecasted cost of capital was based on the 2006 CAPM-based cost of capital. BNSF has modified this scenario based on an assumption that the Board will issue a new CAPM-based 2007 cost of capital before a decision is issued in this case. Therefore, in this first alternative scenario, BNSF assumes that the SARR's future cost of capital is based on the average of CAPM-based 2006 and 2007 cost of capital determinations.

In the second alternative SAC scenario, the parties were instructed to present SAC results based on a restatement of the cost of capital using the Board's new CAPM model for all relevant years. For purposes of evaluating this second alternative scenario, BNSF's finance witnesses Professor Robert S. Hamada, the Edward Eagle Brown Distinguished Service Professor Emeritus of Finance and former Dean at The University of Chicago Graduate School of Business, and Rajiv B. Gokhale, Senior Vice President of Compass Lexecon, used the Board's CAPM methodology to restate the railroad industry cost of capital for the years 1998-2005.

BNSF witness Mr. Baranowski reran the SAC analysis used to produce the Board's *September 2007 Decision* under the two alternative cost of capital scenarios. As explained in Section III below, under both alternative scenarios, the present value of the SARR's revenues exceed the present value of SAC costs. The results of the three analyses are set out below in Tables 1, 2, and 3.

BNSF's SAC calculations include certain technical corrections to the Board's September 2007 SAC calculations. The parties agreed after the Board issued the *September 2007 Decision* that in light of the uncertainty over future proceedings in the case, it made sense to defer the consideration of technical corrections to the Board's SAC calculations until future SAC evidence, if any, was filed. Exhibit 2 identifies the technical corrections that have been included in BNSF's supplemental SAC calculations.

Since revenues exceed SAC costs under the two alternative cost of capital scenarios, it is necessary to apply MMM to determine how the SARR's revenues should be reduced so that they do not exceed SAC costs. While BNSF does not believe that either alternative scenario is valid, BNSF explains below and in Section IV how MMM should be applied under the two alternative cost of capital scenarios.

C. Application Of MMM Under Alternative Cost Of Capital Scenarios.

To apply MMM in this case, BNSF witnesses Messrs Klick and Fisher constructed an MMM model using the specifications set out by the Board in *Major Issues in Rail Rate Cases*. The model was run using Microsoft Excel 2007 to accommodate the very large number of non-coal movements handled for a short distance on the SARR as overhead traffic between Amarillo, Texas and the southern end of the SARR at AEP Texas' Oklaunion plant. The SARR traffic group also includes a movement handled by UP over the SARR, the Coletto Creek movement, for which the SARR receives a share of the trackage rights fees that are paid by UP in the real world to BNSF. The proper treatment of such a movement under MMM, including the proper assessment of the R/VC ratio for the movement, is unclear. However, given the limited scope of this round of evidence and the small amount of revenue at issue, BNSF made the conservative assumption that the SARR's trackage rights revenues on this traffic would not be subject to a reduction under MMM.

The most significant issue regarding the application of MMM under the alternative cost of capital scenarios involves a length-of-haul adjustment to MMM that BNSF advocated in its July 14, 2008 Third Supplemental Reply Evidence in *WFA/Basin*. See BNSF's Third Supplemental Reply Evidence, *Western Fuels Ass'n, Inc. and Basin Elec. Power Coop., Inc. v. BNSF Railway Co.*, STB Docket No. 42088 (filed July 14, 2008). As BNSF explained in the *WFA/Basin* case and reiterates in Section IV below, it is widely acknowledged that short-haul coal traffic tends to have rates that generate higher R/VC ratios than long-haul coal traffic. The reasons for these rate differentials include the higher demand for transportation service that short-haul coal shippers generally exhibit given their significant cost advantage over other competing utilities located farther from the source of coal. In addition, a railroad may price short-haul coal traffic at a higher R/VC ratio to increase the absolute dollar contribution by that traffic in excess of variable cost to levels that are closer to the contribution generated on longer-haul coal movements. These market factors are discussed in more detail in Section IV below.

MMM is not intended to eliminate a railroad's differential pricing that reflects market factors, such as those that produce higher R/VC ratios on short-haul traffic. See *Major Issues in Rail Rate Cases*, slip op. at 20 (noting that the Board intended for MMM to continue to "provide[] for differential pricing"). But MMM establishes a benchmark R/VC ratio that caps rates at the same level regardless of whether a shipper is a short-haul or a long-haul shipper. MMM therefore inadvertently eliminates an important element of differential pricing in railroad markets. Short-haul shippers are thereby given an inappropriately large rate reduction under MMM while long-haul shippers are less likely to receive rate reductions, even if their rates are high relative to those of other long-haul shippers. The objective of MMM should be to reduce

rates that are unreasonably high after accounting for legitimate dimensions of differential pricing that yield relatively higher R/VC ratios on short-haul movements

In *WFA/Basin*, BNSF performed a regression analysis that confirmed the relationship between the level of the R/VC ratios on coal traffic and the length of haul of coal movements. BNSF performed the same regression analysis here using data in the record in this case. The results showed a similar relationship between R/VC ratios and length of haul. BNSF's regression analysis focused only on coal traffic. While it is likely that the R/VC ratios for non-coal traffic are also affected by length of haul, the relationship between R/VC ratio and length of haul is likely to be significantly different for coal and non-coal traffic given the differences in demand characteristics among different traffic groups. However, the revenues generated by the non-coal traffic in this case are relatively small, so a length-of-haul adjustment for non-coal traffic is not likely to have a material impact on the reduction of rates on coal traffic. To avoid the complexity of developing adjustment factors for the small volume of non-coal traffic at issue in this case, BNSF developed a coal-only length-of-haul adjustment and applied that adjustment only to the coal traffic in the SARR traffic group.

BNSF used the regression equation to normalize the R/VC ratios of the coal shippers in the SARR traffic group to account for the impact of distance on R/VC ratios. BNSF explains in Section IV how the regression equation can be applied in the MMM procedure to ensure that rates are reduced most on the movements that have the highest rates relative to movements of comparable length of haul. Such an approach eliminates the bias in rate reductions that would be produced by applying MMM without a length of haul adjustment.

Tables 5 and 6 in Section IV below show the results of BNSF's application of MMM on the rates for the traffic at issue in this case in the two alternative cost of capital scenarios.

II. COST OF CAPITAL

In its petition for reconsideration, AEP Texas argued that the Board's proposal in *Ex Parte No 664* to replace the DCF model with a CAPM model to determine the railroad industry cost of equity capital required that the Board's *September 2007 Decision* be revised. The Board's *September 2007 Decision* calculated the SARR's historical years' cost of capital using the Board's prior railroad industry cost of capital determinations for the years 1998-2005 and forecasted the SARR's future years' cost of capital using the average of the 1998-2005 cost of capital determinations. AEP Texas argued that since those prior year determinations were based on a methodology that the Board had proposed to change, the Board should have (1) deferred ruling on AEP Texas' SAC evidence until a decision was reached in the cost of capital proceeding, and (2) then applied the new cost of capital methodology to determine the SARR's cost of capital. The Board subsequently adopted the proposed CAPM-based methodology, which it applied to determine the railroad industry cost of capital for 2006. *See Railroad Cost of Capital – 2006*, STB Ex Parte No 558 (Sub-No 10) (STB served Apr 15, 2008). The Board also opened a new proceeding to determine whether to make further modifications to its cost of capital methodology. *See Use of a Multi-Stage Discounted Cash Flow Model in Determining the Railroad Industry's Cost of Capital*, STB Ex Parte No 664 (Sub-No 1) (STB served Feb 11, 2008) ("*ANPR Ex Parte No 664 (Sub-No 1)*")

In its ruling on AEP Texas' petition for reconsideration, the Board declined to rule on AEP Texas' objections to the Board's use of the DCF-based cost of capital determinations for prior years in calculating the SARR's cost of capital and instead asked the parties to submit supplemental evidence and argument on two general issues concerning the determination of the SARR's cost of capital. First, the Board sought the parties' views concerning whether the Board should restate the railroad industry cost of capital for the years 1998-2005 using the CAPM

model for purposes of determining the SARR's cost of capital. Second, if the Board does not restate the railroad industry's prior year cost of capital, the Board sought the parties' views on whether the SARR's forecasted cost of capital should continue to be based on an average of the Board-determined cost of capital for historical years, which is the Board's existing practice, or instead whether the Board should use the 2006 CAPM-based cost of capital (and perhaps the 2007 CAPM-based cost of capital if that has been issued by the time of a decision in this case) as the sole basis for projecting the SARR's future cost of capital.

As explained below, the Board should continue to use its prior railroad industry cost of capital determinations for 1998-2005 to determine the SARR's cost of capital for those years, and it should also use those prior year determinations with the 2006 and, if available, 2007 CAPM-based cost of capital determinations to forecast the SARR's cost of capital for future years.¹

A. No Change Should Be Made To The Board's Historical Year Cost Of Capital Determinations.

1. The Board's Prior Year Cost Of Capital Determinations Had The Force Of Law And Cannot Be Attacked Collaterally In This Proceeding.

Agencies obtain their authority to act pursuant to a delegation of authority from Congress. *American Library Ass'n v FCC*, 406 F.3d 689, 691 (D.C. Cir. 2005) ("It is axiomatic that administrative agencies may issue regulations only pursuant to authority delegated to them by Congress"). When an agency makes a determination pursuant to Congress' delegated

¹ In the pending *WFA/Basin* case, the Board also asked the parties to address the question of how a SARR's cost of capital should be calculated in light of the Board's change in the methodology used to establish the railroad industry cost of capital. BNSF argued in that case that the Board should continue to base the SARR's historical and future years' cost of capital on the Board's actual railroad industry cost of capital determinations for the same reasons that BNSF sets out here.

authority, the agency is acting on behalf of Congress and the agency's determination has the force of law. Therefore, agency determinations made pursuant to their delegated, quasi-legislative authority bind parties, courts, and the agencies themselves.

Since an agency determination has the force of law, an agency cannot ignore or disregard its prior determinations in adjudicating individual disputes. When an agency makes a quasi-legislative determination, such as by adopting a rule or regulation, the agency is bound by that determination. The courts have repeatedly found that an agency is required to follow the rules and regulations it establishes and it cannot make ad hoc exceptions or departures. "An agency is bound by its regulations so long as they remain operative." *Romeiro de Silva v. Smith*, 773 F.2d 1021, 1025 (9th Cir. 1985). "It has become axiomatic that an agency is bound by its own regulations." *Panhandle Eastern Pipe Line Co. v. FERC*, 613 F.2d 1120, 1135 (D.C. Cir. 1979); *Reuters Ltd. v. FCC*, 781 F.2d 946, 950 (D.C. Cir. 1986) ("it is elementary that an agency must adhere to its own rules and regulations").

This principle has its roots in *Arizona Grocery Co. v. Atchison, Topeka & Santa Fe Railway Co.*, 284 U.S. 370 (1932). There, the Court addressed Congress' delegation of authority to the ICC to set maximum reasonable rates. As the Court explained, "[w]hen under this mandate the Commission declares a specific rate to be the reasonable and lawful rate for the future, it speaks as the Legislature, and its pronouncement has the force of a statute." *Id.* at 386. The Court found that as a result of the quasi-legislative nature of the ICC's rate determinations, the ICC was bound by those determinations and "it may not in a subsequent proceeding ignore its own pronouncement." *Id.* at 389. In making future determinations, the ICC was "bound to recognize the validity of the rule of conduct prescribed by it." *Id.*

Arizona Grocery dealt specifically with ICC rate prescriptions, but the principle that an agency speaks “as the Legislature” when it issues rules and regulations applies broadly to all of an agency’s quasi-legislative determinations. The principle established in *Arizona Grocery* is that when an agency acts pursuant to its delegated authority, it establishes binding law. As the courts have found, “[a]d hoc departures from [an agency’s] rules, even to achieve laudable aims, cannot be sanctioned, for therein lie the seeds of destruction of the orderliness and predictability which are the hallmarks of lawful administrative action.” *Reuters*, 781 F.2d at 950-51 (internal citation omitted)

Arizona Grocery also establishes limits on the ability of agencies retroactively to modify quasi-legislative determinations. The Court in *Arizona Grocery* stated that the agency is bound by its prior orders as long as those orders remain in existence, and that the agency may only “repeal the order as it affected future action. . . .” 284 U.S. at 389. Thus, in the context of a rate determination, *Arizona Grocery* established the well known rule that an agency cannot retroactively modify a lawful rate that was in effect historically, regardless of whether the agency later decides that the rate was incorrect. Similarly, an agency cannot award damages based on assumptions that are contrary or inconsistent with the agency’s prior determinations. In *Arizona Grocery*, the ICC had prescribed three different rates over a period of several years. When it later determined that a prior rate had been incorrectly set, the ICC awarded reparations based on what the ICC concluded should have been the proper rate. *Id.* at 381-82. The Court struck down the reparations award. It was irrelevant whether the prior rate was correct or incorrect. That prior rate established the legal rights for the period of time covered by that prior rate, and the ICC was bound by it.

Each year, the Board makes a determination of the railroad industry cost of capital to be used for regulatory purposes. As the Board explains,

This determination is one component used in evaluating the adequacy of individual railroads' revenues each year under the procedures and standards mandated by Congress. The cost-of-capital finding may also be used in other regulatory proceedings, including, but not necessarily limited to, those involving the prescription of maximum reasonable rate levels, the proposed abandonment of rail lines, and the setting of compensation for disputed trackage rights fees.

Railroad Cost of Capital – 2005, STB Ex Parte No. 558 (Sub-No.9), slip op. at 1 (STB served Sept. 20, 2006)

These annual determinations have the force of law and are binding on the Board and parties to proceedings before the Board. Once the Board makes a determination and it becomes final, parties in individual cases cannot contest it. Similarly, because the Board's determinations have the force of law, it would clearly be legal error for the Board to make decisions based on assumptions contrary to its cost of capital determination. A cost of capital determination for a particular year is subject to appeal, and the filing of a petition for review leaves open the possibility of a retroactive change. But once the determination becomes final, either because no appeal was sought or the appeal was terminated, then the determination must be followed by the Board in making regulatory findings and decisions where the railroad industry cost of capital is relevant. Ad hoc departures from these binding determinations are not lawful. The Board cannot ignore its prior determinations, which continue to have the force of law.

The principles of *Arizona Grocery* further suggest that once an agency makes a quasi-legislative determination, such as the Board's cost of capital determination, that determination cannot retroactively be modified. A determination that has the force of law creates rights and obligations that cannot be undone or undermined through subsequent modifications. *Arizona*

Grocery made it clear that no retroactive changes in rate-related determinations are permissible, whether or not the agency subsequently determines that a mistake was made or that the prior determinations were inappropriate. There is no reason to apply this principle only to rate-related determinations. Thus, to the extent this principle applies to all quasi-legislative determinations, including the Board's annual cost of capital determinations, *Arizona Grocery* would preclude any subsequent modification of the Board's prior cost of capital determinations, even through a formal reopening of the final determination. The *Arizona Grocery* principles would suggest that the Board can modify its future cost of capital determinations, as the Board did when it decided to discontinue the use of a single-stage DCF model, but the Board cannot change retroactively its prior determinations, which had the force of law while they were in effect.

Even if final cost of capital determinations could be retroactively changed, it would not be lawful to make those changes on an ad hoc basis in this proceeding without formally reopening prior year determinations. Such a collateral attack on the prior determinations, which had and continue to have the force of law, would be unlawful. The Board cannot simply ignore its prior determinations and assume something inconsistent with those prior determinations. As long as those determinations are in effect, the Board is bound by them.

Thus, if the Board had authority to give retroactive effect to a restatement of its prior determination of the railroad industry cost of capital for a particular year, which BNSF does not believe it has, the Board could not do so in the ad hoc fashion proposed here. The Board has rules governing the reopening of final agency decisions, and it cannot ignore those procedural rules and simply restate a prior year cost of capital based on a unilateral decision that the prior determination was incorrect. The Board's rules governing reopening ensure that changes in final decisions are made through a deliberate process that allows all interested parties to present their

views. Moreover, the Board's experience in *Ex Parte No. 664* demonstrates that a wide variety of issues must be considered in assessing the reasonableness of any change in the methodology used to determine the railroad industry cost of capital. It would be arbitrary and irrational to make decisions in the absence of a full consideration of those issues.

2. AEP Texas Is Wrong To Suggest That There Is Precedent Supporting The Retroactive Restatement Of Cost Of Capital Determinations For Prior Years.

AEP Texas argued in its petition for reconsideration that a restatement by the Board of its cost of capital determinations for prior years would be consistent with the Board's decision in *Ex Parte No. 657 (Sub-No. 1)* to apply new SAC methodologies to pending cases. AEP Texas North Petition for Reconsideration, *AEP Texas North Co. v. BNSF Railway Co.*, STB Docket No. 41191 (Sub-No. 1), at 9 (filed Oct. 22, 2007) ("*AEP Texas North Petition*"). But AEP Texas confuses the Board's authority to act in a quasi-judicial capacity and the Board's authority in the quasi-legislative context. There is a fundamental difference between an agency's actions in a quasi-legislative capacity, when the agency speaks "as the Legislature" and creates binding law, and agency actions resolving a dispute between parties in a quasi-judicial capacity. An agency has significant discretion to apply existing law to the facts in individual cases. Therefore, within certain limits, agencies may change methodologies used to adjudicate disputes and apply the new methodologies in pending cases. See, e.g., *AT&T Co. v. FCC*, 454 F.3d 329, 332 (D.C. Cir. 2006), *Clark-Cowlitz Joint Operating Agency v. FERC*, 826 F.2d 1074, 1081 (D.C. Cir. 1987) (en banc). For this reason, the D.C. Circuit upheld the Board's application of new SAC methodologies in the pending *WFA/Basin* and *AEP Texas* rate cases. *BNSF Railway Co. v. Surface Transportation Board*, 526 F.3d 770, 784 (D.C. Cir. 2008). But in the case of quasi-legislative determinations that have the force of law when they become final, an agency is bound to follow and apply those pronouncements as long as they are in effect.

The Board has consistently treated its cost of capital determinations as independent, quasi-legislative determinations that are used in rate reasonableness proceedings but not subject to relitigation in those proceedings. The Board has made it clear that its cost of capital determinations are not up for grabs in individual disputes on a case-by-case basis. In *FMC Wyoming Corp. and FMC Corp. v. Union Pacific Railroad Co.*, STB Docket No. 42022, slip op at 178-79 (STB served May 12, 2000), the Board soundly rejected the complainant's attempt to mount a collateral attack on the Board's cost of capital methodology in the context of a rate reasonableness case, noting that

[t]his proceeding is not the place to present such an argument. We conduct a rulemaking proceeding annually to measure the railroad industry's cost of capital and, if FMC believes the longstanding process that we use should be changed, that argument should be raised in the annual rulemaking proceeding.

See also *Wisconsin Power and Light Company v. Union Pacific Railroad Company*, STB Docket No. 42051, slip op at 31-33 (STB served May 14, 2002) (rejecting a proposed asymmetric risk adjustment that the Board concluded would have the effect of changing the SARR's cost of capital to be something other than the railroad industry cost of capital as determined in annual rulemaking proceedings).

The Board has taken the same position on challenges to URCS in the context of individual rate cases. See *Major Issues in Rail Rate Cases*, slip op at 59 (a change to URCS "should only be considered in a separate rulemaking proceeding, where the specific proposal(s) would be subjected to public comment and, if adopted, uniform application"), see also *E I DuPont de Nemours and Company v. CSX Transportation, Inc.*, STB Docket No. 42099, slip op at 14 (STB served June 30, 2008) (noting that a rate case is "not the proper forum for collateral attacks" on determinations made in separate rulemaking proceedings).

The Board expressly states in its annual cost of capital determinations that the determinations will be used in rate reasonableness cases. Those determinations are made in annual rulemaking proceedings where interested parties may present evidence and argument on the proper approach to be taken. Once a determination is made, however, the expectation clearly is that the determinations will be used without making changes in individual rate cases.

Indeed, if the Board were to view the cost of capital as a factor to be determined in individual rate reasonableness adjudications, it would not be appropriate to limit the inquiry to changes in the cost of capital determination resulting from the adoption of the CAPM model. If the Board sought to determine the SARR's cost of capital in each rate case, rather than using the industry cost of capital previously determined by the Board, it would be necessary to consider a variety of factors that would affect a SARR's cost of capital. For example, the SARR posited by AEP Texas relies primarily on coal. A railroad dominated by coal transportation could present a significantly higher investment risk compared to a railroad hauling diversified commodities. Among other things, the future risk of legislation prohibiting or limiting green house gas emissions from coal-fired power plants would result in a higher cost of capital for a coal-only SARR.

The Board does not assess the SARR's cost of capital in a quasi-judicial capacity on a case-by-case basis, and the Board has not proposed to adopt such an approach in this case. Rather, the Board applies the railroad industry cost of capital determined in the Board's quasi-legislative capacity, and it should continue to do so here without making ad hoc changes to its prior determinations.

3. There Would Be No Rational Basis Or Evidentiary Support For Restating The Board's Prior Year Cost Of Capital Determinations.

AEP Texas also argued in its petition for reconsideration that the Board should restate its prior years' cost of capital determinations because the DCF model used in the past was "defective," *AEP Texas North Petition* at 7, and resulted in "overstatements in the cost of capital." *Id.* at 12. AEP Texas grossly mischaracterizes the record. The Board did not abandon the DCF approach because the Board concluded that it had produced flawed or inaccurate results in the past. Instead, the Board decided that CAPM represented a superior approach *going forward*. "Our decision to conduct a broader rulemaking is not an admission that the existing approach is flawed, but instead a prudent exercise of our regulatory responsibility to explore whether there are superior alternatives available." *Cost of Capital – 2005*, STB Ex Parte No 558 (Sub-No. 9), slip op. at 3-4 n.2 (STB served Feb. 12, 2007).

The Board adopted the CAPM model because "modern finance practices have changed since the last time the agency reviewed its cost of capital methodology" and the Board sought to "modernize our approach" used to calculate the cost of equity capital. Notice, *Methodology to be Employed in Determining the Railroad Industry's Cost of Capital*, STB Ex Parte No. 664, slip op. at 4-5 (STB served Aug. 20, 2007) ("*Ex Parte No. 664 Notice*"). The Board was not responding to a fundamental flaw in its prior calculations, but instead was responding to developments in finance practices that justified a change to its existing approach. The Board concluded only that the CAPM model "is a more current approach that commands great respect in the regulatory and academic community [and therefore] provides a suitable alternative to the 1981 DCF model." *Ex Parte No. 664*, slip op. at 7.

The Board was prompted to investigate whether there were viable alternatives to the DCF model by a spike in the 2005 cost of capital, which increased more than 20% in the one year

between 2004 and 2005. But the Board never concluded that the resulting 2005 cost of capital estimate was flawed or unreliable. To the contrary, the Board concluded that “the record in the 2005 proceeding was too bare to support a departure from two decades of established agency precedent.” *Ex Parte No. 664*, slip op. at 4. Moreover, there is not a scrap of evidence in the record of the *Ex Parte No. 664* proceeding or in the record of the annual cost of capital proceedings for 1998-2004 that would support a conclusion that the DCF-based approach produced inaccurate or unreliable cost of capital estimates for those years. Indeed, the record supports the opposite conclusion. Table 1 from the Board’s August 20, 2007 Notice in *Ex Parte No. 664* shows that from 1998-2004, the DCF-based cost of equity estimates were very stable, fluctuating within a narrow band. By contrast, as discussed below, the CAPM-based cost of equity during this time period varied markedly.

Coal shippers had the opportunity in each annual cost of capital proceeding to challenge the validity of the Board’s DCF-based approach or the validity of the cost of capital estimate produced by the DCF model. But for the years 1998-2004, they acquiesced in the Board’s methodology and in its annual determinations. It is too late for the shippers to claim now that the results for those past years were flawed or unreliable.

Nor is there any evidence in the record that would support a conclusion that a CAPM-based approach would have produced valid or reliable results for those past years. The Board never investigated that question. The only question investigated by the Board in *Ex Parte No. 664* was whether the CAPM approach was appropriate for future cost of capital determinations. Indeed, if the Board had investigated the validity of CAPM results for prior years, the Board may well have concluded that CAPM produced anomalous results as a result of the technology bubble that occurred in the market in the late 1990s. BNSF’s finance experts Messrs. Hamada and

Gokhale show that the railroads' betas experienced a dramatic reduction beginning in 1996 and are only now returning to the pre-bubble levels. Hamada/Gokhale V S at Exhibit C. At a minimum, the unique circumstances of the late 1990s and early 2000s could well have led the Board – if it had investigated the question – to adopt a different approach to calculating railroad betas from that adopted in Ex Parte No. 664, which would have produced very different results. See Hamada/Gokhale V S at ¶¶ 24-27.

In any event, the Board did not undertake any such investigation, so there is no record that would support a conclusion that the retroactive application of CAPM would produce valid or reliable results. As Hamada/Gokhale explain:

Without further inquiry and research into how the inputs should be determined for the period 1997 to 2005, there is no basis to assume that implementing the CAPM model based on the Board's 2006 methodology would have adequately measured investors' expectations at the time.

Hamada/Gokhale V.S. at ¶ 29.

The DCF model may have produced a different estimate of the railroad industry cost of capital for the years 1998-2005 than the CAPM model, but there is no basis for concluding that the DCF model produced unreliable results for those years or that the CAPM model would have produced more accurate or superior results. The Board adopted a new cost of capital model going forward because the Board concluded that the CAPM model would be a better predictor of the railroad industry cost of capital *in the future*. Nothing in the record would support a restatement of *prior* year cost of capital determinations using the CAPM model.

4. Restating Historical Year Cost Of Capital Determinations Would Undermine The Important Policies Of Predictability And Certainty In Regulation Of Railroad Markets.

BNSF finance experts Messrs. Hamada and Gokhale also explain in Exhibit I that AEP Texas' proposal to make *ex post* adjustments to settled determinations of the railroad industry

cost of capital would undermine investor expectations and create uncertainty that could discourage investment in the rail industry. Messrs. Hamada and Gokhale point out that the Board has repeatedly, and correctly, recognized that predictability in the Board's calculations of the railroad industry cost of capital is important to railroad investors.

[P]redictability is particularly important with regard to the cost of capital, as this calculation reflects the return the Board will permit carriers to earn on their capital investments and will therefore influence their investment decisions

Ex Parte No. 664, slip op. at 11-12, cited in *Hamada/Gokhale V S* at ¶¶ 11, 14

Since investments are made in part based on the Board's regulatory determinations of the railroad industry cost of capital, *ex post* changes in those calculations undermine the assumptions on which investments were made. Investors understand that regulatory changes may be made going forward that could affect the attractiveness of future investments. But if investors become concerned that the regulatory agency will make *ex post* changes that affect sunk investments, they will become reluctant to make further investments. As Messrs. Hamada and Gokhale explain,

Ex post regulatory changes that affect the returns to investments already undertaken—investments which from the investors' perspective are "sunk" and cannot be easily undone—introduce an arbitrariness to the process and penalize (if the cost of capital is *ex post* reduced) investors on the investments they have already made, like a bait and switch

Hamada/Gokhale V S at ¶ 17

Moreover, as noted above, there is no reason to believe that the Board would have concluded prior to 2005 that the DCF-based approach to determining the cost of equity capital needed to be changed, and there is no basis for assuming that such a change would have improved the cost of capital estimate or even produced usable estimates. Even if the Board had

previously decided to adopt the CAPM model, Messrs Hamada and Gokhale explain that there is no reason to believe that the Board would have adopted the same approach to implementing the CAPM model that the Board adopted in Ex Parte No. 664. As discussed above, the technology bubble of the late 1990's and early 2000's raises questions regarding the proper calculation of railroad betas. As Messrs Hamada and Gokhale conclude:

There is no basis to assume *ex post* that the cost of equity capital using a model and inputs that the Board has determined are appropriate now—with no consideration for whether the same inputs would have been appropriate in earlier periods—would be applicable to earlier years, and whether the current models and inputs would yield a cost of capital that is consistent with investors' expectations at the earlier time.

Hamada/Gokhale V S at ¶ 28

Finally, Messrs Hamada and Gokhale urge the Board to consider the policy implications of allowing the complainant in a particular SAC case to make *ex post* changes in a settled cost of capital determination. They explain that a decision by the Board to allow different cost of capital assumptions to be used by different parties in different contexts would lead to asymmetric, unpredictable and unfair regulatory results. It would also encourage a variety of other interested parties to seek a reopening of prior determinations, potentially leading to an overwhelming number of requests for *ex post* adjustments. Hamada/Gokhale V S at ¶¶ 30-32

Allowing *ex post* changes to prior determinations could also discourage the Board from making appropriate changes in methodology going forward simply to avoid disputes about reopening prior decisions. The Board should avoid creating a precedent in this case that would encourage parties to seek a retroactive change in settled cost of capital determinations every time the Board changes its methodology going forward. Such a precedent could make the Board reluctant in the future to make changes that are otherwise justified. Indeed, if the Board were to accept a reopening of prior cost of capital determinations every time a prospective change in

methodology were adopted, it could lead to yet another round of changes in the SAC calculations in this case if the Board were to adopt a hybrid CAPM/Multi-stage DCF methodology in Ex Parte No 664 (Sub-No 1)

B. The Board Should Continue To Use Its Existing Methodology To Forecast The SARR's Future Cost Of Capital Based On The Average Of Its Actual Cost Of Capital Determinations Beginning In 1998.

The Board also asked the parties whether the Board should continue to apply its existing methodology for forecasting the SARR's future year cost of capital based on an average of several historical year cost of capital determinations or whether it should instead use only the 2006 CAPM-based cost of capital (and 2007, if available) as the basis for future cost of capital forecasts. BNSF believes the Board should continue to use its existing methodology

The Board has repeatedly stated that forecasts should be based on as many years' data as possible. Forecasts based on a single year, or a small number of years, tend to perpetuate the peculiar circumstances of those years and therefore are likely to distort the forecast. Forecasts based upon historical averages neutralize the extremes or peculiarities in particular years. Thus, in *West Texas Utilities v Burlington Northern Railroad Co*, 1 S T B 638 (1996), the Board stated that its approach is to rely on historical averaging where possible.

Because equity costs fluctuate from year-to-year, we estimate the cost of equity for future time periods using an average of a known historical period. Absent evidence projecting the cost of equity for the future, the cost of equity over several years provides a more reliable estimate of future equity costs. Using data for a single year increases the risk that the single period is aberrational. Thus, we see no reason to depart from past precedent of using the average for a known historical period.

Id. at 713

The Board has consistently held to this approach and recently reiterated the importance of using as many years as possible in forecasting future year cost of capital in its *September 2007*

Decision. The Board expressly rejected AEP Texas' use of a selected subset of prior year cost of capital determinations, noting that "as many years as possible should be examined to derive a more accurate average " *Id.* at 107-08

There is no reason to depart from that well established approach. As noted above, while the Board has decided to use the CAPM model for cost of capital determinations going forward, the Board never concluded that prior estimates of the railroad cost of capital were flawed, inaccurate or misleading. The Board was not responding to a flaw in its prior calculations, but instead was responding to developments in finance practices that justified a change in its existing approach. The Board adopted the CAPM model because "modern finance practices have changed since the last time the agency reviewed its cost of capital methodology" and the Board sought to "modernize our approach" to calculating the cost of equity. *Ex Parte No. 664 Notice*, slip op. at 4-5

Moreover, it would be particularly inappropriate for the Board to base its forecast of the SARR's cost of capital on the year 2006 calculations (or the years 2006 and 2007, if the 2007 cost of capital has been established by the time a decision is issued in this case) in light of the fact that the Board is continuing to investigate alternatives to the sole use of a CAPM model in estimating the railroad industry cost of equity capital. The Board announced in its February 11, 2008 Advance Notice of Proposed Rulemaking that it was exploring the possibility of supplementing its CAPM approach with a multi-stage DCF analysis. *ANPR Ex Parte No. 664 (Sub-No 1)*, slip op. at 2-4. Whether or not the Board adopts a hybrid approach in the pending rulemaking, the Board's willingness to consider alternatives to its existing CAPM model reflects an understanding that the CAPM model is just one of multiple approaches to estimating the railroad industry cost of capital. The actual cost of capital of the railroad industry falls within a

potentially wide range of values, as estimated by different models. Under these circumstances, the most appropriate way to forecast future year cost of capital is to use all of the prior year determinations that are relevant to the case. The Board should not artificially constrain itself to the most recent annual determinations simply because those are based on its current CAPM model.

III. RESULTS OF ALTERNATIVE SAC ANALYSES

In the *May 2008 Decision*, slip op. at 7, the Board directed the parties to present SAC results under two alternative cost of capital scenarios for the SARR's historical years. The first scenario would use the DCF-based cost of capital for 1998 through 2005 and the CAPM-based cost of capital for 2006, and the second would use the CAPM-based cost of capital for all years. The Board also directed the parties to comment on whether the future cost of capital under the first scenario should be forecast using an average of all years or using only the CAPM-based 2006 cost of capital. *Id.* at 8.

In accordance with the Board's directions, this fourth supplemental evidence presents SAC results under the following three sets of assumptions: (1) For the SARR's historical years' cost of capital, the Board continues to use the previously determined railroad industry cost of capital for the relevant years without any restatement and the Board continues to use the average of all relevant historical year cost of capital determinations to forecast the SARR's future cost of capital; (2) For the SARR's historical years' cost of capital, the Board continues to use the previously determined railroad industry cost of capital for the relevant years without any restatement but the Board changes the way it forecasts the SARR's future year cost of capital to be based exclusively on the 2006 (and if available, 2007) CAPM-based cost of capital determinations ("first alternative scenario"); and (3) The Board restates all relevant historical

year cost of capital determinations and bases the SARR's future years' cost of capital on the restated railroad industry determinations ("second alternative scenario")

In calculating SAC results under these three scenarios, BNSF has made certain technical corrections to the Board's SAC calculations underlying the *September 2007 Decision*. After the Board issued the *September 2007 Decision*, the parties agreed that, in light of the uncertainty over future proceedings in the case, it made sense to defer the consideration of technical corrections to the Board's SAC calculations until future SAC evidence, if any, was filed. Exhibit 2 identifies the technical corrections that should be made to the Board's September 2007 SAC calculations. These corrections have been included in BNSF's supplemental SAC calculations.

As BNSF has explained above, BNSF believes the Board should make its SAC calculations on reconsideration under the first scenario outlined above. The Board should not restate the railroad industry cost of capital for prior years. Instead, the Board should base the SARR's historical years' cost of capital on the industry cost of capital that has already been determined for 1998 through 2006 and it should also use the 2007 cost of capital to the extent that a 2007 cost of capital determination has been made prior to the issuance of a decision in this case. In addition, as explained above, the Board should continue to forecast the future cost of capital based on an average of all prior years' cost of capital determinations for the railroad industry. BNSF presents the SAC results for this approach in Table 1 below, using the AAR calculated cost of capital for 2007. The calculations supporting these results are contained in BNSF fourth supplemental workpaper "BNSF 6-15-06 Supplemental Reply Exhibit III H-1_STB 10 year Average.xls"

Table 1
SAC Results Under Existing STB Approach
(Millions of Dollars)

Year	SARR Revenue Requirement	SARR Revenues	Overpayments (Shortfalls)	Present Value
2000	\$372.7	\$384.1	\$11.4	\$11.3
2001	680.6	711.1	30.5	28.0
2002	680.0	721.0	41.0	34.0
2003	694.8	695.2	0.3	0.4
2004	738.4	724.3	(14.2)	(9.1)
2005	775.2	729.1	(46.1)	(25.3)
2006	808.7	755.5	(53.2)	(30.0)
2007	828.3	780.4	(47.9)	(23.1)
2008	839.6	788.5	(51.1)	(21.9)
2009	855.8	813.5	(42.4)	(16.4)
2010	866.6	825.5	(41.1)	(14.4)
2011	886.6	851.6	(34.9)	(11.0)
2012	906.0	896.0	(9.9)	(2.8)
2013	926.5	920.2	(6.4)	(1.6)
2014	946.3	940.1	(6.2)	(1.4)
2015	963.1	952.4	(10.7)	(2.2)
2016	985.2	978.0	(7.2)	(1.4)
2017	1,010.1	1,010.3	0.1	0.0
2018	1,035.3	1,043.0	7.7	1.2
2019	1,060.3	1,076.8	16.5	2.3
2020	1,094.0	1,126.8	32.8	4.1
Cumulative Net Present Value				(\$79.4)

As directed by the Board, BNSF has also calculated results under the two alternative scenarios as described above that have different cost of capital assumptions. The first alternative scenario uses the industry cost of capital determined by the Board for 1998 through 2006 and the AAR cost of capital calculations for 2007, and forecasts the future cost of capital using only the 2006 and 2007 costs of capital. SAC results for that scenario are reported in Table 2 below and in BNSF fourth supplemental workpaper "BNSF 6-15-06 Supplemental Reply Exhibit III H-1_STB 06-07 Average.xls"

Table 2
SAC Results for First Alternative Scenario
(Millions of Dollars)

Year	SARR Revenue Requirement	SARR Revenues	Overpayments (Shortfalls)	Present Value
2000	\$368.1	\$384.1	\$16.0	\$15.9
2001	671.7	711.1	39.4	36.1
2002	671.0	721.0	50.0	41.5
2003	685.6	695.2	9.5	7.3
2004	728.8	724.3	(4.6)	(2.9)
2005	765.2	729.1	(36.1)	(19.8)
2006	798.3	755.5	(42.8)	(24.1)
2007	817.6	780.4	(37.2)	(17.9)
2008	828.7	788.5	(40.3)	(18.2)
2009	844.8	813.5	(31.4)	(12.9)
2010	855.4	825.5	(29.9)	(11.1)
2011	875.2	851.6	(23.5)	(8.0)
2012	894.4	896.0	1.7	0.5
2013	914.6	920.2	5.6	1.6
2014	934.0	940.1	6.1	1.5
2015	950.5	952.4	1.9	0.4
2016	972.3	978.0	5.7	1.2
2017	996.9	1,010.3	13.4	2.6
2018	1,021.7	1,043.0	21.3	3.7
2019	1,046.3	1,076.8	30.4	4.8
2020	1,079.7	1,126.8	47.1	6.7
Cumulative Net Present Value				\$8.7

The second alternative scenario restates the industry cost of capital for 1998 through 2005 based on a CAPM cost of equity and uses the average of the 1998 through 2007 cost of capital for future years. For purposes of this second alternative scenario, BNSF has used the 1998 through 2005 CAPM-based cost of capital calculations sponsored by BNSF finance experts Messrs. Hamada and Gokhale reported in Exhibit C of the Hamada/Gokhale V S. The results of the second alternative scenario are reported in Table 3 below and in BNSF fourth supplemental workpaper "BNSF 6-15-06 Supplemental Reply Exhibit III H-1_STB CAPM.xls."

Table 3
SAC Results for Second Alternative Scenario
(Millions of Dollars)

Year	SARR Revenue Requirement	SARR Revenues	Overpayments (Shortfalls)	Present Value
2000	\$347.8	\$384.1	\$36.3	\$36.0
2001	633.2	711.1	77.9	72.1
2002	631.8	721.0	89.2	76.1
2003	645.5	695.2	49.7	39.0
2004	686.8	724.3	37.4	25.9
2005	721.8	729.1	7.3	4.6
2006	752.7	755.5	2.7	1.5
2007	771.1	780.4	9.3	4.5
2008	781.4	788.5	7.1	3.3
2009	796.7	813.5	16.7	7.2
2010	806.6	825.5	19.0	7.5
2011	825.6	851.6	26.1	9.4
2012	843.7	896.0	52.4	17.2
2013	862.6	920.2	57.6	17.3
2014	880.6	940.1	59.6	16.3
2015	895.6	952.4	56.8	14.2
2016	915.9	978.0	62.1	14.2
2017	939.0	1,010.3	71.3	14.9
2018	962.2	1,043.0	80.8	15.4
2019	985.3	1,076.8	91.5	15.9
2020	1,017.0	1,126.8	109.8	17.5
Cumulative Net Present Value				\$430.3

IV. APPLICATION OF MMM

The *May 2008 Decision*, slip op. at 7, directed the parties to apply MMM “should any of the revised SAC analyses show an over-recovery of revenue.” As shown above, if the Board adopts the cost of capital approach advocated by BNSF, there is no overcharge and thus no need to apply MMM. Under alternative scenarios one and two, however, there would be overcharges during at least some years of the prescription period. BNSF has therefore applied MMM to each of the two alternative cost of capital scenarios.

Below, BNSF discusses several implementation issues that arise in applying MMM in this case. In addition, BNSF describes why MMM should be modified so that its application will not eliminate legitimate, market-driven differences between the R/VC ratios for traffic with longer versus shorter hauls. BNSF then presents the results of MMM in the two alternative scenarios as applied to the rates at issue in this case, incorporating the length-of-haul modification to MMM.

A. MMM Implementation Issues

1. Base Year

As the Board describes in the *September 2007 Decision*, slip op. at 12-13, data constraints led the parties to use 2004 density and routing data as a surrogate for base-year (2000) coal traffic and 2002 density and routing data as a surrogate for base-year (2000) non-coal traffic. This created an issue concerning which year's URCS costs should be used for purposes of determining revenue divisions under ATC. The Board rejected AEP Texas' contention that 2000 URCS costs should be used, holding instead that "it is more appropriate that we err on the side of caution and, where possible, use the same year for the URCS data as for the routing and density data." *Id.* at 12. The Board therefore specified that 2004 URCS costs would be used for all traffic. *Id.* at 13. Consistent with this approach, BNSF has used the same URCS data for computation of MMM that was used for computation of ATC.

2. Non-Coal Traffic

AEP Texas' traffic group includes a relatively small amount of cross-over, non-coal traffic. In 2002 (the last year for which actual revenues are in the record), the non-coal traffic generated approximately \$ { } million in revenues for the SARR, or approximately { }% of total SARR revenues.² This non-coal traffic raises two issues with respect to the implementation of MMM.

First, in contrast to coal shippers who are limited in number and use a limited number of origin-destination pairs, there are very large numbers of non-coal shippers and non-coal-shipper origin-destination pairs. Because of their sheer numbers, the presence of non-coal shippers in the traffic group created implementation issues. To facilitate calculations involving the large number of records, an updated version of Microsoft Excel – Microsoft Excel 2007 – was used. In addition, as the non-coal traffic was reported at the individual carload (or intermodal container) level, the records were summarized for shipments of like routing, commodity, and car type.³ As noted below, it is problematic to apply MMM to a traffic group that is comprised of shipments with different market and demand characteristics. In light of the fact that the non-coal traffic represents a small fraction of the SARR traffic group in this case, and is of limited impact on the maximum rates determined under MMM, BNSF applies MMM to the summarized non-coal records.

Second, the presence of non-coal traffic in the SARR traffic group raises the question whether it is appropriate to apply MMM to a traffic group that consists of heterogeneous traffic. It goes without saying that different types of traffic exhibit different demand characteristics.

² See STB September 2007 decision workpaper "STB Tons and Revenue Summary.xls."

³ See BNSF fourth supplemental workpaper "gf02ATC_BNSF Rev Aug08.xlsx."

Chemicals transported in tank cars are likely subject to considerably different market conditions from, for example, agricultural commodities, and demand for transportation would also likely vary among different chemical movements. Similar disparities would likely exist in any grouping of traffic that includes a cross-section of the non-coal traffic carried by a Class I railroad. Under these circumstances, it would not be appropriate as a matter of economic theory to assume, as MMM does, that all traffic, regardless of type should be capped at a common R/VC level.⁴ However, the revenues generated by the non-coal traffic in this case are too insignificant to materially affect the outcome of the MMM application.⁵ Therefore, it is not necessary for the Board to address in this case the complications that arise in applying MMM to a heterogeneous SARR traffic group. BNSF notes, however, that the issue will likely be squarely presented in the first Simplified SAC case in which the Board is called upon to apply MMM.

3. Trackage Rights Traffic

AEP Texas' SARR also carries a relatively small amount of traffic that is transported by UP subject to a trackage rights agreement.⁶ The revenue generated by this traffic in 2002 was

⁴ BNSF cited evidence of the significant variation in R/VC ratios by commodity type in its comments in the Ex Parte No. 657 (Sub-No. 1) proceeding. *See* Supplemental Comments of BNSF Railway Company, at 7-8 (filed Oct. 4, 2006).

⁵ The average R/VC for the non-coal traffic was less than 1.00 in 2002. *See* BNSF fourth supplemental workpaper "gf02ATC_BNSF Rev Aug08.xlsx." Even if the average R/VC for each non-coal movement were doubled, the maximum R/VC permitted for the issue traffic under MMM would increase by only 1%. *See* BNSF fourth supplemental workpaper "non-coal impact.xls."

⁶ UP ships coal from Colorado mines to the Colto Creek plant and pays BNSF a trackage rights fee. *See September 2007 Decision*, slip op. at 34.

approximately \$ { } million, or less than { } % of the SARR's revenues ⁷ It is not clear, from a theoretical perspective, how MMM should be applied to payments the SARR receives from UP, nor is it clear how the variable costs associated with those movements should be calculated if MMM is to be applied. However, given the small amount of trackage rights revenue at issue and the limited scope of this round of evidence, BNSF has assumed that the trackage rights payments would not be subject to reduction by MMM ⁸

B. Adjustments To MMM To Reflect The Impact On R/VCs Of Length Of Haul

In its Third Supplemental Reply Evidence filed on July 14, 2008, in *Western Fuels Association, Inc v BNSF Railway Co* , STB Docket No 42088, BNSF noted that, as a result of market forces, R/VC ratios for short-haul coal moves tend to be higher than R/VC ratios for longer-haul coal moves BNSF argued that these differences in R/VC ratios represent legitimate differential pricing and that MMM should not be applied in a manner that eliminates legitimate price differences that stem from varying lengths of haul BNSF proposed a modification to the application of MMM to correct this problem Below, BNSF repeats its discussion from the WFA/Basin filing concerning the reasons for differences between R/VC ratios for long- and short-haul moves and presents modified calculations for application in this proceeding

It is well recognized by shippers, railroads, and industry observers that short-haul movements, particularly those to solely-served rail facilities, tend to have lower absolute rates than longer haul movements, but those lower rates exhibit higher R/VC ratios than rates on

⁷ See STB September 2007 decision workpaper "TNR Coal Revenue Forecast 2-16-2007_ATC_STB.xls "

⁸ This is a conservative approach that works to the benefit of any shipper that will receive a rate reduction Because the trackage rights payments are not reduced, any reduction that might have applied to them is instead made available as a reduction to other shippers However, such an approach might not be appropriate in a different case where trackage rights payments have a material impact on the results

longer haul movements. The Board itself alluded to some of the causes of these differences in the *WFA/Basin September 2007 Decision*.⁹ Commenting on the reasonableness of the rates that BNSF charged WFA/Basin, a shipper with a short haul due to its proximity to the PRB, the Board stated

Because WFA's plant is located so close to the PRB, its rate to the Laramie River plant is one of the lowest transportation rates any utility pays to acquire PRB coal. Many utilities that desire the low-sulfur PRB coal are located in distant states such as Texas or Georgia, and pay two or three times this rate. Even in comparison to other utilities located near (but not quite as close to) the PRB mines, the rate is low on a dollar-per-ton basis. The rate is also low in comparison to other PRB rates that have been challenged before the Board as unreasonable by other captive shippers.

WFA/Basin September 2007 Decision, slip op. at 2. In light of these factors, the Board concluded that WFA/Basin had not demonstrated that the rates were unreasonably high when compared to rates paid by other utilities.

The higher R/VC ratios exhibited by short-haul shippers are a function of shipper demand affected by product and geographic competition in the markets in which short-haul shippers compete with other rail shippers less favored by geography. The factors cited by the Board regarding the WFA/Basin short-haul movement are some of the various market forces that generally result in short-haul rates that exhibit higher R/VC ratios than long-haul rates when railroads set differential prices based on their customers' demand for service, as railroads are expected to do. Because short-haul shippers generally pay lower absolute rates per ton than their competitors, they exhibit higher demand inelasticity than long-haul shippers. A shipper located near the PRB has a significant cost advantage over other utilities against which it competes in selling electricity. The low cost of transportation per ton that it pays, due to its proximity to the

⁹ *Western Fuels Association, Inc. v. BNSF Railway Company*, STB Docket No. 42088 (STB served Sept. 10, 2007) ("WFA/Basin September 2007 Decision").

PRB, translates into a lower cost to produce a kilowatt hour of electricity than can be achieved by competing utilities that must pay higher per-ton transportation rates. From an economic perspective, this cost advantage means that a shipper located near the PRB can afford to pay rates reflecting a higher than average R/VC ratio and still maintain its competitive advantage in the market for electric power sales.

Another factor that tends to result in relatively high R/VC ratios on short-haul movements is the railroad's incentive to maximize its contribution in excess of variable costs on each movement, regardless of length of haul. For a railroad such as BNSF seeking to price its services efficiently in accordance with shipper demand, the absolute amount of contribution available on a given movement can be substantially greater on a long-haul movement than on a short-haul movement, even if the R/VC ratio on the short-haul movement is higher. For example, the contribution on a relatively long-haul movement that incurs variable costs of \$10 per ton and is priced at \$20 per ton is \$10 per ton, whereas the contribution on a relatively short-haul movement that incurs variable costs of \$3 per ton and is priced at \$9 per ton is only \$6 per ton. The short-haul movement exhibits a higher R/VC ratio (300 percent) than the long-haul movement, but results in \$4 per ton less in contribution.

The significance of this disparity in absolute contribution between long-haul and short-haul movements is compounded by the fact that access to mine loading slots in the PRB is a finite and limited resource that is not distance-dependent. Where higher margin movements compete with lower margin movements for limited loading capacity, as has been the case in the PRB for the last several years, BNSF incurs an opportunity cost every time it loads a relatively low margin ton.

In a fully competitive market environment, scarce PRB loading capacity would be allocated to the movements that generated the highest absolute dollars in contribution per ton, which would favor long-haul traffic with its higher contribution. In a regulated environment, where railroads have a common carrier obligation to serve all coal shippers on reasonable request, railroads have the incentive to minimize the cost of lost opportunities by raising rates to increase the contribution on low absolute margin short-haul traffic to the extent that a given shipper's demand will permit. Thus, to use the earlier example of the short-haul movement with a rate of \$9 per ton, variable costs of \$3 per ton and absolute contribution of \$6 per ton, if the shipper's demand permitted the railroad to increase the rate to \$11 per ton, the railroad would have a strong incentive to do so. This would result in a contribution margin of \$8 per ton and an R/VC ratio of 3.67. But the increased rate and higher R/VC ratio on the short-haul movement still would not put the short-haul movement on a par with the hypothetical long-haul movement that yields contribution of \$10 per ton.

It is entirely rational and consistent with the differential pricing regime promoted by the Board and its predecessor for a railroad to price short-haul coal traffic at a higher R/VC to increase the contribution from that traffic to levels closer to the contribution levels generated on longer-haul movements. In fact this is the kind of pricing behavior that is observed in the real world. Thus, it is not only the effects of market forces in the shipper's markets that tend to result in higher R/VC rates for short-haul coal traffic, the opportunity costs resulting from the limited loading capacity in the PRB also makes higher R/VC rates for short-haul traffic economically appropriate.

The phenomenon of relatively high R/VC ratios on short-haul coal movements has important implications for the application of MMM that the Board has not heretofore had

occasion to consider. Specifically, this phenomenon suggests that the application of a single average R/VC ratio cap to all coal movements in a SARR shipper group, regardless of length of haul, would tend to understate the R/VC averages one would expect to find on shorter haul coal traffic under a rational application of differential pricing and would tend to overstate the R/VC average that one would expect to find on longer haul coal traffic

To quantify the extent of the difference between short-haul and long-haul coal rates – and to provide a basis for incorporating a “length of haul” adjustment into MMM (see discussion below) – BNSF witness Klick performed a regression analysis on R/VC ratios for the end-to-end movement of all BNSF coal traffic included in the SARR traffic group, which effectively represents nearly all BNSF coal movements originating in the PRB ¹⁰ The regression equation developed by Mr. Klick includes a variable to quantify the impact of the length of haul on the R/VC ratio. In addition, because the ratio of revenue to unadjusted URCS variable costs is also potentially affected by a plant’s “competitive” status and its annual volume, the regression equation includes variables to control for these two factors as well. The form of the equation used was.

$$R/VC = Constant + x/Distance + y*Dummy\ 1 + z*Dummy\ 2$$

Where Dummy 1 = 1 if solely-served, and 0 if not, and

¹⁰ The regression was performed only on coal traffic and, under BNSF’s proposed MMM modification, the normalization factors developed from the regression equation would be applied only to R/VCs for coal movements. One might expect that R/VCs for non-coal movements could also be affected by the length of haul, but the relationship would likely be different from that for coal traffic and would also likely vary from commodity to commodity as well. Developing an appropriate regression model (or models) to apply to non-coal traffic would be complex and does not appear warranted in this case. As described above, the average R/VCs for the non-coal traffic are quite low and the revenues available to the SARR from that traffic are relatively small. It is therefore highly unlikely that a length-of-haul type adjustment applied to this traffic would have a material impact on the rate prescribed for the issue traffic. For similar reasons, the regression and proposed modifications to MMM need not be applied with respect to the Coletto Creek trackage rights movements.

Dummy 2 = 1 if “high volume” plant, i.e., more than 2 million tons annually, and 0 if not

The regression was run using data for 2002, the last full year for which actual coal revenue data are in the record ¹¹ The resulting regression equation with calculated coefficients was

$$RVC = (\quad)$$

Coefficients for the independent variable (1/Distance) and the two dummy variables were all significant at the 95% confidence level, and the R² for the regression was 0.47. In other words, the inverse of the length of haul, combined with the “solely served” and “high volume” dummy variables, explain approximately 47% of the variation in R/VC ratios observed in the data ¹²

As currently designed, MMM ignores – or, more accurately, works to eliminate – the market-based differences in revenue-to-variable-cost ratios that one observes in the real world data between rates paid by short- and long-haul coal shippers. This is because MMM establishes a single R/VC ratio that would cap rates for shippers at both the short-haul and long-haul ends of the spectrum. Capping rates for coal shippers at identical R/VC ratios, regardless of length of

¹¹ The regression calculations are contained in BNSF fourth supplemental workpaper “Regression analysis_TNR RVC v Length of Haul.xls.” The process for designating shippers “solely-served” is detailed in this workpaper. Two million tons was selected as the threshold for “high volume” to conform to the approach taken in the WFA/Basin case. In addition, to minimize the adverse effects of autocorrelation, all movements to a given plant destination were combined (on a weighted-average basis) into a single data point, resulting in a Durbin-Watson statistic for the regression that confirms that autocorrelation is at acceptable levels.

¹² The coefficients in this regression equation are similar to but differ from those in the equation submitted in *WFA/Basin*. The differences stem from use of a 2002 dataset that, not surprisingly, involves somewhat different shippers, revenues, and volumes than the 2005 dataset used in *WFA/Basin*. Nonetheless, the regression confirms the same relationship as in the *WFA/Basin* case: shorter-haul coal movements tend to have higher R/VC ratios than longer-haul coal movements.

haul, eliminates an important dimension of differential pricing that is observed in rail transportation markets and would create illogical disparities in the outcomes of rate cases involving relatively long-haul or short-haul movements

MMM can be modified to recognize and preserve the differential pricing characteristics established by the market forces discussed above. The regression equation set forth above can be used to “normalize” the R/VC ratios for individual coal shippers on the SARR so that when MMM is applied it will not reduce rates simply because a shipper has a short length of haul. Instead, MMM will reduce rates that are disproportionately high given the length of haul. When normalized R/VC ratios are used, short-haul coal shippers will receive MMM-based rate reductions consonant with their status as short-haul coal shippers, *i.e.*, reductions that reflect the extent to which the rate on an individual movement is “too high” relative to rates on other movements of comparable distance (and with identical “solely-served” and “high volume” characteristics). When applied using normalized R/VC ratios, MMM reduces rates most on movements exhibiting the *relatively highest* R/VC ratios, as the Board intended, while still taking into account those legitimate dimensions of differential pricing that yield relatively higher R/VC ratios on short-haul movements.¹³

Normalizing R/VC ratios using the regression equation set forth above involves three steps. First, “benchmark R/VC ratios” must be developed for each of the four possible

¹³ As noted above, BNSF is not proposing for purposes of this case that any normalization ratio should be applied to non-coal R/VCs. Developing an appropriate normalization factor for such traffic would be complex and is not justified based on the volume of non-coal traffic present in this case, particularly given the limited scope of evidence that can be submitted at this stage of the proceeding.

combinations of dummy variables ¹⁴ Mr. Klick determined the median distance of all movements in the sample – 1,068 miles – and used that to calculate these benchmark R/VC ratios. The regression equation set forth above was used to calculate the R/VC ratio one would expect to observe for an 1,068-mile move under each of the four scenarios. These benchmark R/VC ratios are set forth in the following table:

Table 4
R/VC Ratio Estimated by Regression Equation
To Develop R/VC Benchmark Ratios At 1,068 Miles¹⁵

Movement Type	Estimated R/VC
Solely-Served, High Volume	{ }
Solely-Served, Low Volume	{ }
Competitive, High Volume	{ }
Competitive, Low Volume	{ }

The second step is to derive a “normalization ratio” for each movement in the SARR traffic group. The regression equation is used to estimate the expected R/VC ratio for each individual coal movement in the SARR traffic group ¹⁶. The normalization ratio is calculated by dividing the expected R/VC for an individual coal movement by the benchmark R/VC ratio at 1,068 miles for the same movement type from the above table, i.e., if the movement in question is solely-served and high-volume, then the benchmark R/VC ratio used is { }. The normalization ratio identifies how much higher or lower than the corresponding benchmark an individual movement would be expected to be as a result of its length of haul. For example, the

¹⁴ As described in more detail below, the benchmark R/VC ratios are used in comparing how much the actual R/VC for a shipper differs from the R/VC for that shipper that is estimated through the regression equation.

¹⁵ See BNSF fourth supplemental workpaper “Regression analysis_TNR RVC v Length of Haul.xls.”

¹⁶ By expected R/VC ratio, we mean the ratio predicted by the regression equation for the movement’s length of haul and dummy variable characteristics.

normalization ratio for a 500-mile, solely-served, high-volume move is {

} The normalization ratio is greater than one because the 500-mile haul is expected to exhibit a higher R/VC than the 1,068-mile haul. A movement with a haul longer than 1,068 miles would have a normalization ratio less than one

The third step in the normalization procedure is to divide the actual R/VC ratio observed in the data for each individual coal movement in the SARR traffic group by the relevant normalization ratio calculated in step 2.¹⁷ These “normalized R/VC ratios” have the effect of putting the R/VC ratios for all coal movements in the SARR traffic group on a distance-comparable basis. As a result, movements that exhibit high R/VC ratios after being normalized are properly viewed as high-rated movements across the entire spectrum of traffic, the fact that they are relatively high is not attributable to length of haul.

To determine applicable rate reductions that cover the non-coal traffic and also incorporate the length-of-haul adjustment for coal traffic, the MMM calculations are performed in two steps. In the first step, the MMM rates are calculated for all shippers without the length-of-haul adjustment.¹⁸ This allows a determination of the final MMM rates for the non-coal traffic and determines how much of any overcharge will be eliminated through reduced revenues from non-coal traffic.

¹⁷ In this step, we are applying normalization ratios, based on end-to-end R/VC relationships (derived from the regression equation), to the R/VC ratios observed for only the on-SARR portion of the movement. This is appropriate because application of ATC seeks to attribute the end-to-end revenue to sub-segments of the BNSF system based on each segment's proportion of BNSF's total cost. As a result, if the end-to-end R/VCs are normalized, the ATC-allocated portion of these end-to-end R/VCs attributed to the SARR will also be normalized by the same end-to-end factor.

¹⁸ See BNSF fourth supplemental workpapers “TNR MMM Model DCF CAPM Hybrid No LH xlsx” and “TNR MMM Model CAPM No LH xlsx”

In the second step, MMM is applied using the normalized R/VC ratios for each coal movement in the traffic group described above. The second step in applying MMM determines how the remaining overcharge (excluding the overcharge that has been allocated to non-coal traffic) is eliminated through reductions in revenue from coal traffic.¹⁹ Because the R/VCs for individual coal moves used in this second step have been normalized, it is also appropriate to specify the average R/VC for the SARR as a whole (which is the R/VC at which revenues equal SAC and the starting point for applying MMM) in normalized terms.²⁰ This is accomplished by multiplying each movement's variable costs by the normalization ratio developed in step 2, summing total normalized variable costs across all movements, and dividing into SAC. This normalization of the overall target SAC/VC permits an unbiased comparison of each distance-adjusted R/VC to a target R/VC that has also been distance-adjusted.

By virtue of the normalization process, relatively shorter-haul coal movements will receive relatively smaller rate reductions than relatively longer-haul coal movements, all else being equal.²¹ When MMM is applied to the normalized R/VC ratios, a short-haul coal shipper

¹⁹ See BNSF fourth supplemental workpapers "TNR MMM Model DCF CAPM Hybrid LH xlsx" and "TNR MMM Model CAPM LH xlsx." The R/VC ratios for non-coal traffic are "locked" in the second step so that non-coal traffic revenues are not further reduced beyond what was calculated in the first step. In other words, MMM is applied so that revenues from non-coal traffic are reduced by the same amount regardless of whether the length-of-haul adjustment is made to the R/VCs for coal shippers.

²⁰ The normalized average R/VC for the SARR will be different from the unnormalized average R/VC unless the traffic group has an overall average length of haul of 1,068 miles.

²¹ For example, if two solely-served, high-volume moves exhibited identical R/VC ratios of 300%, but the first had a 500-mile haul, and the second had an 800-mile haul, the normalized R/VC for the first would be { }, while the normalized R/VC for the second would be { } – reflecting the fact that the distance adjustment for the shorter haul movement should be larger. Assume that when MMM is applied using the normalized R/VC ratios both movements would get a rate reduction. As the normalized R/VC for the shorter-haul movement is lower, it receives less of a rate reduction than the longer-haul movement would receive, consistent with the market factors outlined above.

does not receive a rate reduction simply because it has a high nominal R/VC ratio due to its short length-of-haul. Similarly, a long-haul coal shipper does not fail to receive a rate reduction simply because it has a low nominal R/VC ratio due to its long length-of-haul.

Once MMM has been applied to the normalized R/VC ratios for the coal traffic, the resulting rate reductions – if any – need to be “translated” back into the rate reductions applicable to the un-normalized R/VCs we observe in the real world. This is accomplished by *multiplying* each post-MMM normalized R/VC ratio by the normalization ratio calculated for that movement in step 2 above.²² When this process for “normalizing” for length of haul is applied across all coal movements in the SARR traffic group, total resulting revenue reductions are sufficient to precisely eliminate the “overage” of revenues over SAC, just as is the case under the basic formulation of MMM.²³

C. MMM Rates

As BNSF argued above, the Board should not restate the cost of capital for prior years and should adhere to its established practice for forecasting the cost of capital. If the Board follows such an approach, no application of MMM is called for. Nevertheless, the Board has requested that the parties apply MMM to the alternative cost of capital scenarios. BNSF summarizes its calculations with respect to coal originating at the Jacobs Ranch mine in the following tables.²⁴

²² This is the mathematical equivalent of multiplying the original (*i.e.*, non-normalized) R/VC ratio observed for each movement by the ratio of the pre-MMM normalized R/VC for that movement to the post-MMM normalized R/VC for that movement.

²³ *Compare, e.g.*, BNSF fourth supplemental workpaper “TNR MMM Model CAPM No LH xlsx” with BNSF fourth supplemental workpaper “TNR MMM Model CAPM LH xlsx”.

²⁴ Jacobs Ranch mine is used because that is the only issue traffic mine origin for which AEP Texas assumed shipments in every year. The results reported in Table 5 are calculated in BNSF fourth supplemental workpaper “TNR MMM Model DCF CAPM Hybrid LH xlsx”. The

Table 5
MMM Results Under First Alternative Scenario²⁵

Year	MMM Rate	Jurisdictional Threshold	Maximum Rate
2000	No Reduction	\$14.97	No Reduction
2001	\$15.57	\$16.14	\$16.14
2002	\$15.52	\$16.20	\$16.20
2003	No Reduction	\$17.11	No Reduction
2004	SARR Costs Exceed Revenues in Each Year -- No Rate Reductions		
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012	\$23.53	To Be Determined	Higher of MMM Rate or Jurisdictional Threshold
2013	\$23.85		
2014	\$24.39		
2015	\$25.24		
2016	\$25.61		
2017	\$25.73		
2018	\$25.90		
2019	\$26.08		
2020	\$26.37		

results reported in Table 6 are calculated in BNSF fourth supplemental workbook "TNR MMM Model CAPM LH xlsx." MMM results for other mine origins are shown in the cited workpapers.

²⁵ As shown in Table 2 above, under the first alternative scenario the traffic group would generate greater revenues than the SARR's revenue requirements in certain years, and revenues that are below the SARR's revenue requirements in other years. In order to ensure that over the entire 20-year SAC analysis period that this traffic group would generate only enough revenue to cover the SARR's revenue requirements, any revenue reductions in years with excess revenues must be limited to offset the underpayments that occur. Consistent with STB precedent, *see, e.g., Texas Municipal Power Agency v. The Burlington Northern & Santa Fe Railway Company*, STB Docket No. 42056, slip op. at 159-60 (STB served Mar. 24, 2003), the underpayments are re-distributed to offset the overpayments – a process referred to as netting – and the result provides the starting point for the annual maximum-rate determination under the MMM approach. *See* BNSF fourth supplemental workbook "BNSF 6-15-06 Supplemental Reply Exhibit III H-1_STB 06-07 Average xlsx," worksheet "Summary."

Table 6
MMM Results Under Second Alternative Scenario

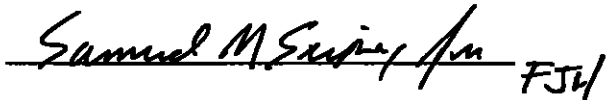
Year	MMM Rate	Jurisdictional Threshold	Maximum Rate
2000	\$11.16	\$14.97	\$14.97
2001	\$10.73	\$16.14	\$16.14
2002	\$10.26	\$16.20	\$16.20
2003	\$11.24	\$17.11	\$17.11
2004	\$12.47	\$17.44	\$17.44
2005	\$17.81	\$19.85	\$19.85
2006	\$19.54	\$21.13	\$21.13
2007	\$17.66	\$21.34	\$21.34
2008	\$18.43	To Be Determined	Higher of MMM Rate or Jurisdictional Threshold
2009	\$17.08		
2010	\$17.27		
2011	\$16.74		
2012	\$14.46		
2013	\$14.61		
2014	\$14.93		
2015	\$15.50		
2016	\$15.64		
2017	\$15.62		
2018	\$15.63		
2019	\$15.68		
2020	\$15.54		

In addition, any reduction in rates for the issue traffic indicated by MMM would be limited by the jurisdictional threshold. The calculation of the jurisdictional threshold is not an issue that was raised on reconsideration and it is not a proper issue to be addressed in this supplemental evidence. Therefore, the jurisdictional threshold set out in the above tables is taken directly from BNSF's Reply Third Supplemental Evidence, filed March 19, 2007. The parties have agreed on the basic methodology for computing the jurisdictional threshold, with the only outstanding issue being the proper indexing of the fuel component of URCS Phase III variable costs. *See* BNSF Reply Third Supplemental Evidence, at 5-8. If the Board concludes that AEP Texas is entitled to any rate reduction, the Board will need to rule on the proper indexing of URCS costs to be applied in determining the jurisdictional threshold.

V. CONCLUSION

The Board should continue to calculate the SARR's historical years' cost of capital using the Board's actual railroad industry cost of capital determinations and it should forecast the SARR's future years' cost of capital using the average of all available historical years' cost of capital determinations. Using these cost of capital assumptions, the Board should find that SAC costs exceed revenues and the complaint should be dismissed

Respectfully submitted,

 FJH

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ATTORNEYS FOR
BNSF RAILWAY COMPANY

August 8, 2008

EXHIBITS

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Verified Statement of Robert S. Hamada and Rajiv B. Gokhale

1. Introduction and Assignment

1. My name is Robert S. Hamada. I am the Edward Eagle Brown Distinguished Service Professor Emeritus of Finance and former Dean at The University of Chicago Graduate School of Business ("GSB"). I have served as an Instructor, Assistant Professor, Associate Professor, and Professor of Finance at the GSB since 1966. I also have served in other positions at the GSB, including Director of the Center for Research in Security Prices (1980 – 1985), Deputy Dean for the Faculty (1985 – 1990), and Dean (1993 – 2001). While at the GSB, I have taught extensively on the subjects of corporate finance and corporate strategy. I have served on 11 business Boards of Directors and numerous non-profit Boards. My *curriculum vitae*, which also contains a list of my publications, is attached hereto as Exhibit A.

2. My name is Rajiv B. Gokhale. I am a Senior Vice President of Compass Lexecon, a consulting firm that specializes in the application of economics to a variety of legal and regulatory issues. I have an MBA from the University of Chicago. I have specialized in the areas of financial economics and business valuation and my experience covers a wide array of industries. My *curriculum vitae* is attached as Exhibit B.

3. In a decision served in the current matter on May 27, 2008, the Surface Transportation Board ("Board") directed the concerned parties to submit evidence regarding the propriety of re-stating the railroad industry's cost of capital for 1997 through 2005. The Board stated that for purposes of estimating a stand-alone railroad's ("SARR") cost to raise capital, "the longstanding practice in SAC cases has been to use an average of the annual cost-of-capital figures for the rail industry as published annually by the Board, starting with the year in which construction of the SARR would have begun through the most recently available year."¹ The Board noted that it had recently changed its procedures for calculating the industry cost of equity capital—by using a CAPM model instead of a single-stage DCF model—and that this change had led the

1. *AEP Texas North Company v. BNSF Railway Company*, STB Docket No. 41191 (Sub-No. 1), Decided May 27, 2008, at 7.

complainants in this case to argue that the cost of capital figures the Board had previously published and used in its DCF model from 1997 through 2005 should be recalculated using the new CAPM methodology

4 Most investment decisions are made in the context of future expectations, therefore, companies and investors must evaluate risks and uncertainties they expect they will encounter in the future. In this context, we have not been asked to comment on such before the fact, i.e., *ex ante*, decisions regarding the cost of capital. Rather, we have been asked to review and opine on whether it is appropriate to adopt a retroactive, i.e., *ex post* calculation of the cost of capital using the Board's current CAPM methodology, for the past years 1997 through 2005, instead of applying the cost of capital that was actually calculated and published by the Board for those years using the single stage DCF methodology that was the Board's preferred approach for determining the cost of equity capital at that time.

5 We have identified at least three reasons not to make *ex post* adjustments to the cost of capital the Board had previously determined was appropriate for the years 1997 to 2005:

- *Ex post* adjustments to the cost of capital will decrease predictability regarding the regulatory return on railroad investments, and therefore could decrease railroads' and investors' willingness to undertake future investments.
- It is unclear whether the Board would have picked the numerous micro practical inputs to the CAPM methodology in the same manner it decided to in 2006, had it decided to use the CAPM at an earlier point in time. Therefore, without further inquiry and research into how the inputs should be determined for the period 1997 to 2005, there is no basis to assume that implementing the CAPM model based on the Board's 2006 methodology would have adequately measured investors' expectations at the time.
- Allowing a select group of claimants to reopen past decisions risks favoring a select category of litigants and introduces asymmetry into the system. Allowing fairness and symmetry to *all* concerned parties so that *each* can reopen past decisions will risk chaos in the regulatory system.

II. *Ex Post* Adjustments to the Cost of Capital Will Decrease Predictability Regarding the Regulatory Return on Railroad Investments, and Therefore Could Decrease Railroads' and Investors' Willingness to Undertake Future Investments

6. Companies and investors require an “adequate” return on their investments—that is, revenues that cover operating expenses and depreciation, and yield a rate of return to investors (equity and debt holders) that equals the rate that investors expect to undertake the risk of investing in those companies. A company’s cost of capital, i.e., the return investors expect for bearing the risk of investing in the company, is not “readily observable.” Different models attempt to best measure the “true” cost of capital.

7. The rate of return that investors expect to receive is a function of the nature of the company’s assets and investments. The cost of capital, i.e., the rate of return demanded by investors, is determined by how the capital is used—the riskier a company’s assets and investments, the higher the rate of return investors will expect to compensate them for bearing that risk. In regulated industries, the rate demanded by investors is still a function of the nature of the industry’s assets—but the regulatory process can be, and is, an important part of investors’ perception of investment risk.

8. Based on the determination of the cost of capital by the Board, which affects expectations of future revenues, railroads and investors determine whether or not they will undertake railroad investments. Investors understand that the actual return they receive may be different from what they expected when they undertook the investment for a host of reasons—such as changes in economic and business conditions. They may also take into account the fact that regulatory conditions may change in the future—thereby affecting future decisions of whether or not to undertake additional investments.

9. However, investors likely would take a dim view of *ex post* adjustments—especially in a case such as this where the regulatory body has repeatedly announced its belief in the importance of predictability regarding the models used to estimate the cost of capital. All else equal, investors will be better able to assess the risk of investing in a regulated industry if the regulatory process is transparent and less prone to arbitrary *ex post* or “after the fact” adjustments.

II.A The Board Has Repeatedly Recognized that Predictability in Calculating the Allowable Regulatory Return Is Important to Railroads and Investors

10 The Board has acknowledged that the true cost of capital is somewhat unobservable, and that irrespective of the model employed to estimate the cost of capital (e.g., DCF, CAPM, or anything else), the inputs remain somewhat uncertain at any given point in time because of the inherent difficulty of measuring these inputs. For example, in its DCF approach, the Board relied on IBES reports of analysts' expectations regarding expected growth rates over the short-term, while recognizing that analysts' shorter-term growth estimates may not necessarily be the same as investors' longer-term growth expectations over the short or long-term. Likewise, the breadth and volume of discussion in response to the Board's solicitation of comments on determining the inputs to a CAPM model—such as the β , the market risk premium and the risk-free rate—demonstrates that there are several possible ways to measure each one of the inputs in a CAPM model.

11 Despite the uncertainty regarding the inputs to either model, the Board has repeatedly concluded that the benefits of predictability regarding the process (i.e., the model to be employed) outweigh the risk that the uncertainty regarding some inputs causes the estimates to be imprecise. For example, the Board has concluded that “predictability is particularly important with regard to the cost of capital, as this calculation reflects the return the Board will permit carriers to earn on their capital investments and will therefore influence their investment decisions.”²

12. Similarly, when considering how to adjust SAC models for productivity gains of a hypothetical SARR, the Board decided that the “benefits of fixing a reasonable (if rough) methodology for forecasting future productivity of a SARR outweighs the substantial costs to the parties and unlikely benefits of quantifying a more precise estimate in an individual proceeding,” because “at some point, an elaborate and expensive search for a more precise estimate of future productivity must give way to the need for a uniform, manageable approach.” The Board further concluded that “predictability in regulation is an important goal” because “it serves the public good by

2 STB Ex Parte NO 664, *Methodology to be Employed in Determining the Railroad Industry's Cost of Capital*, January 17, 2008 (“Ex Parte No 664”) at 11-12

permitting carriers to conform their conduct to a set of rules and assisting captive shippers in judging whether a particular rate could be challenged as unreasonably high ”³

13. In connection with the determination of the appropriate cost of capital to be used for 2005, the Western Coal Traffic League (“WCTL”) “proposed that the Board discard the DCF model entirely and adopt a different technique (CAPM) ” In the same proceedings, AAR replied that “the CAPM method ha[d] been repeatedly rejected by the Agency ” The Board decided that it would continue to use a DCF model to measure the railroad industry’s cost of equity capital for 2005, and not shift to a CAPM model before conducting further inquiry on the relative merits of the DCF model and the CAPM model In justifying its decision, the Board stated that “there is a norm of regularity in government conduct that presumes an agency’s duties are best carried out by adhering to the settled rule. This presumption is particularly strong where a party seeks to replace an established methodology with one the agency has previously rejected ”⁴

14 The Board reaffirmed these insights in its decision to use the CAPM to calculate the industry’s cost of capital In this context, the Board rejected a suggestion by the railroads that the Board consider a range of estimates and adopt a point somewhere in the middle to upper end of that range The Board explained that “the better approach is to select a reasonable CAPM methodology to apply, which will provide a transparent and stable method to estimate this amorphous component of the cost of capital ” Building on its conclusion in Ex Parte No 657 that “predictability in regulation is an important goal,” the Board further explained in Ex Parte No 664 that “predictability is particularly important with regard to the cost of capital, as this calculation reflects the return the Board will permit carriers to earn on their capital investments and will therefore influence their investment decisions ”⁵

3 STB Ex Parte No 657 (Sub No 1), *Major Issues in Rail Rate*, October 30, 2006 at 46.

4 STB Ex Parte No 558 (Sub-No 9), *Railroad Cost of Capital—2005*, September 15, 2006 at 7.

5 Ex Parte No 664 at 11-12.

15 Changing the cost of capital that had been previously determined, published, and used—by the Board, by railroads and by investors—contradicts the Boards' desire to ensure predictability regarding the cost of capital

16 It is worth noting that the Board's determination of the cost of capital—whatever the model used—is an “integral component of many other decisions the Board must make and is also relied upon by other parties for use in pending matters”⁶

- The Board rejected WCTL's suggestion that it consider the “appropriate approach anew in each annual cost-of-capital determination.” The Board explained that it preferred a “fixed and transparent methodology upon which railroads and the public can rely”⁷
- Similarly, when faced with WCTL's request in 2005 that it replace the DCF model with a CAPM model to estimate the railroad industry's equity cost of capital, the Board could have “placed on hold all proceedings before it in which the cost-of-capital figure would normally be applied. But that course would have substantially impaired the Board from doing its business, as the cost of capital is a component in a host of regulatory proceedings before the Board.”⁸

17 *Ex post* regulatory changes that affect the returns to investments already undertaken—investments which from the investors' perspective are “sunk” and cannot be easily undone—introduce an arbitrariness to the process and penalize (if the cost of capital is *ex post* reduced) investors on the investments they have already made, like a bait and switch

III. It Is Unclear Whether the Board Would Have Picked the Numerous Micro Practical Inputs to the CAPM Methodology in the Same Manner It Decided to in 2006, Had It Decided to Use the CAPM at an Earlier Point in Time

18 AEP Texas is asking the Board to change the cost of capital that the Board calculated and published—and the Board, railroad companies and investors have relied upon—since 1997. In doing so, AEP Texas seems to be implicitly assuming that the

6 Joint Brief of Respondents Surface Transportation Board and United States of America, Final Brief, December 14, 2007 at 15

7 Joint Brief of Respondents Surface Transportation Board and United States of America, Final Brief, December 14, 2007 at 17

8 Joint Brief of Respondents Surface Transportation Board and United States of America, Final Brief, December 14, 2007 at 40

Board would have adopted the CAPM and implemented the calculation of inputs to the CAPM exactly as it decided to do in 2006. As we explained in our statement filed on BNSF's behalf in *Western Fuels Association, Inc. and Basin Electric Power Cooperative, Inc. v. BNSF Railroad Company*, it makes no sense to restate prior determinations of the cost of capital using current methodologies because: i) the Board repeatedly rejected using the CAPM prior to, and in 2005, and ii) it is not clear, even if the Board had picked the CAPM prior to 2007, how it would have chosen the individual inputs to the CAPM. AEP Texas is asking the Board to second guess itself even further back into time than is WFA; therefore its claim must be viewed with even more caution because it is even less certain what the Board would have done for periods further back in time.

19 AEP Texas contends that “fairness considerations” require the Board to “restate the cost of capital for each of the prior years in the TNR average (i.e., 1997-2005)” using the CAPM formula for determining the equity cost of capital because the DCF model is “simplistic” and the “record compels” a change to a “more modern technology which commands greater respect among analysts and other regulators.”⁹ AEP Texas explains that doing so would be akin to the Board’s decision to accept a BNSF-proposed correction in *West Texas Util. Co. v. The Burlington N. & S.F.* matter where it ruled that “reopening is appropriate to correct a material error in the prior decision,” and would be a legitimate change because “Congress did not intend to bar revisions to rates where the agency committed an error that was subsequently overturned.”¹⁰

20 In making its request, however, AEP Texas has not identified any “material errors” in the Board’s DCF methodology from 1997 to 2005. Instead, AEP Texas is simply assuming that because the Board has now determined that CAPM is a better methodology for measuring the forward-looking discount rate, that the same would have been true for earlier years.

21 The Board decided to use the CAPM model to estimate the cost of equity capital only on an *ex ante*, or forward looking, basis. It did not conclude, nor did it

9 AEP Texas North Company, Complainant v. BNSF Railway Company, Defendant, STB Docket No. 41191 (Sub-No. 1) (“AEP Texas Petition”) at 11-12.

10 AEP Texas Petition at 12-13.

consider, that the CAPM model should be applied retroactively. Consequently, the Board did not consider how inputs to the CAPM model should be determined retroactively. As a result, there is no guidance available in the Board's 2006 decision to use the CAPM regarding how the Board would have implemented the methodology for past years.

22 In its deliberations regarding the use of a CAPM model, the Board was presented with evidence showing a fair amount of uncertainty regarding the inputs to the CAPM. As the Board has previously heard, opinions vary on the appropriate way to estimate these inputs. Some of the examples of micro practical inputs where debates persist on how to measure them are

- The risk-free rate. While academics and valuation experts generally agree that the yield on U.S. Government borrowings is the best proxy for a risk free rate, they do not agree on what term to use—whether it should be the short-term, medium-term or long-term U.S. Treasury securities.
- The β s. β s can be calculated using daily, weekly or monthly returns, over different time frames (i.e., the number of years of data used in calculating the β). β s can be estimated for each railroad, or for the industry on average (based on the returns to a portfolio of railroad companies).
- The return to a portfolio of railroad companies. This can vary depending on the choice of companies. The return to a railroad portfolio can also vary depending on whether the returns of individual companies are equally weighted or weighted by the market equity capitalization of each company.
- The risk premium relative to a risk-free rate (i.e., the equity risk premium). This premium can be measured as an arithmetic or geometric average of historical returns. It can also vary depending on the market index and the number of years of observed historical returns used.

Theoretically, one could try every possible combination/permutation over the range of possible values for these variables.

23 An example of the debate over a micro practical input is the debate over how to measure the equity risk premium. This debate is still not fully resolved, and was especially heated around the late 1990s/early 2000s when many were proposing that the equity risk premium was lower relative to earlier times.

- Professor Bradford Cornell argued in his textbook that the equity risk premium had decreased by the late 1990s to 3.5-5.5% over treasury bonds from the historical 7.4% ¹¹
- Others argued that the equity risk premium was even lower. For example, in their book *Dow 36,000*, Glassman and Hassett surmised that the equity bull market of the late 1990s had become possible because investors had figured out that the equity premium was unnecessary ¹²
- Others such as Professors Richard Brealey, Stewart Myers and George Constantinides argued that the equity risk premium was higher than 6% ¹³
- Around this time, Ibbotson continued reporting the historical arithmetic risk premia of 7.4-8.5% over treasury bonds—well above the 3.5-5.5% proposed by Professor Cornell ¹⁴

In light of these divergent views on the best measure of the equity risk premium, it is unclear, based on the Board's adoption of the CAPM in 2006, how it would have chosen to calculate the equity risk premium had it considered the issue in the period 1997 to 2005

24 The period over which AEP Texas is asking the Board to retroactively adopt the CAPM, is also one over which the β and cost of capital for railroad companies, as measured by the Board's current methodology, changed significantly. As Exhibit C shows, the β and CAPM-based cost of capital for a portfolio of Class I railroad companies varied significantly in the last fifteen years or so. The β decreased from being well above 1.0 from 1990 to 1996, to a low of 0.63 by 2000. The CAPM-based cost of capital decreased from 13.77 percent in 1994 to just around 10 percent by the late 1990s, and fell to 7.8 percent by 2003—a drop of 43 percent from the 1994 level. Railroad industry β s and CAPM-based costs of capital have been increasing since 2003; by 2007 the β appears to be closer to the early 1990s levels.

11 Cornell, Bradford. 1999. *The Equity Risk Premium*, John Wiley & Sons, Inc., at 201

12. Glassman, James K., & Kevin A. Hassett. 1999. *Dow 36,000: The New Strategy for Profiting from the Coming Rise in the Stock Market*, Random House

13 Brealey, Richard A. and Myers, Stewart C. *Principles of Corporate Finance*. Seventh Edition at 160

Constantinides, George M. Rational Asset Prices. *The Journal of Finance*, Vol LVII, No. 4, August 2002, 1567-1591

14 *Stocks, Bonds, Bills and Inflation*. Ibbotson Associates/Morningstar. 2000 Yearbook through 2005 Yearbook

25 Our calculation of the CAPM-based cost of capital from 1990 to 2005, as measured by the Board's current methodology, also shows that the CAPM-based cost of capital would be higher in some years (1990 to 1996) than the DCF-based cost of capital calculated by the Board and lower in others (1997 to 2005) See Exhibit D

26 Another example of the possibility of alternative β calculations is a function of the way in which the return to a portfolio of railroad companies is determined. In Ex Parte No. 664, the Board determined that it would calculate the average return to an equity portfolio of railroads as equal to the average of returns on the equity of individual Class I railroads, weighted by the market equity capitalization of the individual railroads. An alternative method could be to calculate an unweighted average—that is, to give the returns of each firm the same weight, irrespective of the firm's size. As shown in Exhibit E, the choice of methodology for averaging individual firms' returns has a significant impact on the calculation of the railroad industry β , and on the CAPM-based cost of capital.

27 The Board's own calculations illustrate the sensitivity of the WACC to changes in the underlying assumptions. On August 14 and August 20, 2007, the Board published its illustrative calculations of a CAPM-based rate for the years 1997 through 2005. In these illustrative calculations the Board made different assumptions for the risk-free rate, market index, and used monthly rather than weekly rates of return. As shown in Exhibit E, the cost of capital per the Board's illustrative calculations varies over time, and is significantly different from one calculated using the Board's current methodology.

28. It is important to remember that the cost of capital is essentially a forward-looking concept—it is the rate of return investors expect to earn in the future for bearing the risk of the current investment. As the preceding discussion explains, a slight variation in the micro inputs can lead to significant differences in a CAPM-based estimate of the cost of equity capital. There is no basis to assume *ex post* that the cost of equity capital using a model and inputs that the Board has determined are appropriate now—with no consideration for whether the same inputs would have been appropriate in earlier periods—would be applicable to earlier years, and whether the current models and

inputs would yield a cost of capital that is consistent with investors' expectations at the earlier time

29 Accepting AEP Texas's request to retroactively use the CAPM model to estimate the cost of equity capital for the years 1997 to 2005 assumes that the Board would have

- adopted the CAPM model for years prior to the time the Board actually considered and adopted the CAPM model. This assumption contradicts the facts—in fact, the Board has repeatedly rejected using the CAPM prior to, and in, 2005
- decided on calculating inputs to the model exactly as it did in 2006. As discussed above, changing the way inputs are calculated has a significant effect on the estimated cost of capital

Therefore, it is difficult, if not impossible, to now determine how the Board would have implemented the model retroactively. Without further inquiry and research into how the inputs should be determined for the period 1997 to 2005, there is no basis to assume that implementing the CAPM model based on the Board's 2006 methodology would have adequately measured investors' expectations at the time

IV. Allowing a Select Group of Claimants to Reopen Past Decisions Risks Favoring a Select Category of Litigants and Introduces Asymmetry into the System. Allowing Fairness and Symmetry to *All* Concerned Parties so that *Each* Can Reopen Past Decisions Will Risk Chaos in the Regulatory System

30. The Board has asked whether it would be appropriate to modify past cost of capital decisions for the purpose of addressing the rate reasonableness claims raised in this case. The complainants appear to want to take advantage of the fact that the CAPM rate of return, determined using the current CAPM model and inputs, may be lower from 1997 through 2005 than that determined by the Board in the actual cost of capital decisions using the single-stage DCF model. Note, however, as shown in Exhibit D, the cost of capital calculated using the Board's current CAPM methodology would actually be higher from 1990 through 1996 than what the Board determined using its DCF methodology

31 A decision to change retroactively the cost of capital for certain past years in the context of individual rate cases would favor a select category of litigants and would introduce asymmetry and uncertainty into the regulatory process. The Board's cost of capital determinations are used in a variety of regulatory decisions and they also influence investment decisions in the real world. The Board should not allow different cost of capital assumptions to be used by different parties in different contexts.

32 A Board decision to allow certain shippers to benefit from different cost of capital assumptions in rate cases would likely lead to an asymmetric, unpredictable and unfair regulatory process. The Board's determination of the cost of capital is applied across all railroads, and across all shippers. Allowing only this set of shippers, and not all others, to reopen proceedings will favor only this set of shippers. On the other hand, allowing all concerned parties to reopen historical proceedings runs the risk of producing an overwhelming amount of *ex post* analyses and could severely and adversely affect investors' expectations of future predictability.

V. Conclusion

33 To repeat, we have identified at least three reasons not to make *ex post* adjustments to the 1997 to 2005 costs of capital the Board had previously determined, and published, were appropriate.

- i) *Ex post* adjustments to the cost of capital will decrease predictability regarding the regulatory return on railroad investments, and therefore could decrease railroads' and investors' willingness to undertake future investments.
- ii) It is unclear whether the Board would have picked the numerous micro practical inputs to the CAPM methodology in the same manner it decided to in 2006, had it decided to use the CAPM at an earlier point in time. Therefore, without further inquiry and research into how the inputs should be determined for the period 1997 to 2005, there is no basis to assume that implementing the CAPM model based on the Board's 2006 methodology would have adequately measured investors' expectations at the time.

- iii) Allowing a select group of claimants to reopen past decisions risks favoring a select category of litigants and introduces asymmetry into the system. Allowing fairness and symmetry to *all* concerned parties so that *each* can reopen past decisions will risk chaos in the regulatory system.

To assume that the Board would have adopted the CAPM to estimate the railroad industry's equity cost of capital, instead of the DCF approach the Board used at the time, is not correct and contradicts the facts. The Board repeatedly rejected using the CAPM prior to, and in, 2005.

VERIFICATION

I, Robert S Hamada, declare under penalty of perjury, that the foregoing statement is true and correct and that I am qualified and authorized to file this statement

Executed on August 5, 2008



Robert S Hamada

VERIFICATION

I, Rajiv B Gokhale, declare under penalty of perjury, that the foregoing statement is true and correct and that I am qualified and authorized to file this statement

Executed on August 5, 2008



Rajiv B Gokhale

A

Spring, 2008

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- 1963-1966 *Massachusetts Institute of Technology* Ph D in Finance (completed in 1969) at the Sloan School of Management Concentration in Business and Public Finance, Economics Thesis "Portfolio Analysis and Corporation Finance" Other major areas of investigation The Empirical Incidence of the Corporation Income Tax in a Neoclassical Growth Economy
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Employment

- 8/2003-present Edward Eagle Brown Distinguished Service Professor Emeritus of Finance, Graduate School of Business, University of Chicago
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1985-1990	Deputy Dean for the Faculty, Graduate School of Business, University of Chicago
1980-1985	Director, Center for Research in Security Prices, Graduate School of Business, University of Chicago
1966-1989	Instructor, Assistant Professor, Associate Professor, and Professor of Finance, Graduate School of Business, University of Chicago
1979-1980	Baring Brothers Visiting Professor of Finance (September through August), London Graduate School of Business Studies, London, England
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1961-1963	Economic and Financial Analyst, Sun Oil Company, Philadelphia, Pennsylvania Assignments included acquisition and disposition studies, capital budgeting, mathematical programming, and exponential smoothing models

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Teaching areas included Corporation Finance, Business Policy and Strategy, Portfolio and Security Analyses, Capital Markets, Applications of Financial Theory, Public Finance, Financing of Nonprofit Organizations, and Small Business Problems. Received the first "Outstanding Teacher Award" (1970) and the McKinsey Award for Excellence in Teaching (1981), Graduate School of Business, University of Chicago, *Fortune Magazine's* 8 Outstanding U.S. Business School Professors (January 1982).

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Administrative duties included Dean, Graduate School of Business, University of Chicago (1993-2001), Director, Center for International Business Education and Research (1993), Deputy Dean, Graduate School of Business, University of Chicago (1985-1990), Director of Center for Research in Security Prices (1980-1985), finance faculty coordinator for Graduate School of Business, University of Chicago (1975-1985). Committee work included Chair, University Committee on Retirement (1993-1999), Standing Committee on Retirement Issues (1993-1999), ARCH Development Corporation (1993-2000), Center for Health Administration Studies (CHAS) Oversight Committee (1993-1995), Chairman, Task Force on Faculty Retirement (1991-1992).

Consulting activities included associate editor, *Journal of Finance* (1974-1977, 1981-1983), associate editor, *Journal of Financial and Quantitative Analysis* (1970-1983), referee for 16 journals, consulting editor in finance, Scott Foresman & Co., advisory board, *Journal of Applied Corporate Finance*, State of Illinois (framing and implementing the Illinois state income tax), City of Chicago Economic Development Commission, Brown Brothers Harriman and Company, Harris Trust and Savings Bank, Continental Illinois Bank, First Chicago, Booz Allen, Touche Ross, FMC Corporation, Bradford National Corporation, UOP Inc., Timken, and other firms. Expert witness for Mayer, Brown and Platt, Kirkland and Ellis, Jenner & Block, White and Case, Arnold & Porter, Winston & Strawn, etc. speaker at innumerable conferences and universities

Member of the Board of Directors (or Trustees) Federal Signal Corporation (10/2003-present), Fleming (2001-2004), Merchants' Exchange LLC (7/2001-9/2002), National Bureau of Economic Research (NBER) (1983-present), A. M. Castle & Co. (1984-present), Northern Trust Corporation (1988-2005), Chicago Board of Trade (public director, 1989-1992, 1993-1996, 1997-2000), Flying Food Group, Inc. (1992-present), WTTW Channel 11 (1996-present), Mayor Daley's Northerly Island Park Planning Committee (1996-1998), Riverwood International Corporation (1992-1993), the reorganized Manville Corporation (1988-1993), INFORMS (TIMS) (1986-1999), Teachers Insurance and Annuity Association (TIAA) (1984-1988), Van Straaten Chemical Company (1982-acquired in 1987), elected member of the Board of Directors, The American Finance Association (1982-1985), University of Chicago Laboratory Schools (1984-1991), Hyde Park Neighborhood Club (1970-present)

Member of the Advisory Committee (Board) of founding member of the Advisory Board of the College of Management of National Taiwan University (1998-2000), the *Encyclopedia of American Business* advisory committee (1997-present), EVA® Institute

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Member of American Economic Association, American Finance Association, Econometric Society, The Bond Club of Chicago, Chicago Committee of The Chicago Council of Foreign Relations, Commercial Club of Chicago, The Economic Club of Chicago, The Executives' Club of Chicago, Risk Management Center of Chicago

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Publications and Working Papers

"Portfolio Analysis, Market Equilibrium and Corporation Finance," *Journal of Finance*, March, 1969, reprinted in Stephen Archer and Charles A. D'Ambrosio (editors), *The Theory of Business Finance: A Book of Readings*, Macmillan Publishing Co., 1976

"The Effects of Leverage and Corporate Taxes on the Shareholders of Regulated Utilities " In Trebing and Howard (editors), *Rate of Return under Regulation New Directions and Perspectives*, Michigan State University, 1969

"Investment Decision with a General Equilibrium Mean-Variance Approach," *Quarterly Journal of Economics*, November 1971

"The Effect of the Firm's Capital Structure on the Systematic Risk of Common Stocks," *Journal of Finance*, May 1972, reprinted in James L. Bicksler (editor), *Capital Market Equilibrium and Efficiency. Implications for Accounting, Financial and Portfolio Decision-Making*, D C Heath and Company, 1975, and reprinted in Stewart C. Myers (editor), *Modern Development in Financial Management*, the Dryden Press, 1976

"Calculation of Present Value The Multiperiod Case with Explicit Adjustment for Risk," *Proceedings of the Seminar on the Analysis of Security Prices*, November 1975

"Super Premium Security Prices and Optimal Corporate Financing Decision Discussion," *Journal of Finance*, May 1976

"Corporate Finance and the Capital Asset Pricing Model Discussion," *Journal of Finance*, May 1977

"Financial Theory and Taxation in an Inflationary World Some Public Policy Issues," *Journal of Finance*, May 1979

"Taxes and Corporate Financial Management," (with Myron Scholes), in Altman, E. and Subrahmanyam, M. (editors), *Recent Advances in Corporate Finance*, Irwin Press, 1985

"Differential Taxes and the Structure of Equilibrium Rates of Return Managerial Implications and Remaining Conundrums," in *Advances in Financial Planning and Forecasting*, Vol II, 1986

"Making Statistics More Effective in Schools of Business Interdisciplinary Cooperation," (with James M. Patell, Richard Staelin, and William E. Wecker), *Proceedings of the Business and Economics Statistics Section--American Statistical Association*, 1986

"Problems and Opportunities for Statistics in Accounting, Marketing, Finance, and Production," (with James M. Patell, Richard Staelin, and William E. Wecker), *Journal of Business and Economic Statistics*, 1987

B

EXHIBIT B

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Masters Degree in Mechanical Engineering, December 1985

University of Bombay, School of Engineering, Bombay, India

Bachelors Degree in Mechanical Engineering, June 1983

FIELDS OF SPECIALIZATION

Gokhale has developed an expertise in analyzing and identifying the determinants of corporate and business value. Gokhale's assignments cover a wide range of applications ranging from business valuations, damage calculations, analysis of expected efficiencies from mergers and analysis of the source and viability of entry into different industries.

Gokhale's valuation assignments include

- Startup internet incubator
- Cable television network
- Movie studio
- Department stores
- Other retail establishments (book stores, auto parts stores, etc.)
- Home healthcare provider
- Integrated steel manufacturer
- Financial institutions
- Venture capitalist focused on biotech investments
- Cigarette manufacturer

Gokhale's experience in damage calculations include

- Dialysis provider's buyout of minority shareholders
- Investor in partnership designed to invest in corporate debt
- Proposed transaction involving European cable assets
- Billing services to provider of wireless voice and data services
- Provider of tax consulting services
- Agreement to jointly market insurance products to bank and credit union customers

Key assignments in the last two years include

- Consulting expert to parent of dialysis provider
Consulting expert to provider of outpatient dialysis services in litigation regarding purchase price in going private transaction. Analyzed plaintiffs' experts' reports, identified flaws, prepared alternative analyses supporting repurchase price.
- Valued proposed changes in business practices by health insurer
Identified changes with high value to insurer and physicians. Developed metrics to measure and demonstrate commitment and progress. Estimate used in settlement talks in pending litigation.
- Consulting expert to cigarette manufacturer
Assisted outside counsel in analyzing and refuting plaintiffs' claims regarding profitability of US operations. Built models to value US operations and to value impact of contingent liabilities.
- Assisted in validating valuation of asbestos liabilities
Assisted outside counsel and testifying expert in analyzing and refuting plaintiffs' experts' analysis of expected value of future asbestos liabilities and discount rates used in valuation.

Gokhale also has extensive experience in consulting to companies on issues regarding development and implementation of business strategy, incentive plans, and identification of performance metrics at the corporate and business unit level. Sample assignments include

- Assisting an integrated steel manufacturer in developing targets for return on capital and developing an operating plan to achieve the desired return. Also assisted in developing performance measures at the corporate and business unit level
- Assisting a major consumer products company in adopting a strategic change from being a product focused company to a consumer focused company
- Assisting an internal temporary placement company in identifying strategic issues for six major regions that would increase corporate value. Also assisted in developing performance metrics

TESTIMONY

Deposition of Rajiv B. Gokhale in Re Coram Healthcare Corp. and Coram, Inc., Debtors, United States Bankruptcy Court for the District of Delaware, Case No. 00-3299 Through 00-3300, (MFW) (March 29, 2004)

Expert Report of Rajiv B. Gokhale and Daniel R. Fischel in Re Hideji Jumbo Tanaka v. Cerberus Far East Management, L.L.C., et al., AAA Case No. 50 T 116 00284 03, (October 17, 2005)

Expert Report of Rajiv B. Gokhale in Re Betty Lou Richards vs. United States of America, Case No. 05 CV 2044 GTV, (October 17, 2005)

Testimony of Rajiv B. Gokhale in Re Hideji Jumbo Tanaka v. Cerberus Far East Management, L.L.C., et al., AAA Case No. 50 T 116 00284 03, (December 14-15, 2005)

Expert Report of Rajiv B. Gokhale and David B. Gross Copying Medical Records: An Analysis of the Release of Information Industry (November 11, 2004 Updated to Include Data on 2005 and 2006 Expense, April 10, 2007)

Expert Report of Rajiv B. Gokhale in Re Robert A. Knarr, as Shareholder Representative on Behalf of the Shareholders of Cryogen, Inc., v. American Medical Systems, Inc., and Charlie Tribie, William Rutan, Jayne Little, Steve Kemper, Leon Hirsch, Robert Knarr & JHK Investments, LLC, Case No. 51 489Y 00421 06, (May 24, 2007)

Deposition of Rajiv B. Gokhale in Re Robert A. Knarr, as Shareholder Representative on Behalf of the Shareholders of Cryogen, Inc., v. American Medical Systems, Inc., and Charlie Tribie, William Rutan, Jayne Little, Steve Kemper, Leon Hirsch, Robert Knarr & JHK Investments, LLC, Case No. 51 489Y 00421 06, (June 19, 2007)

Expert Report of Rajiv B Gokhale in The Arbitration of Radian International LLC, The Lebanese Company For the Development and Reconstruction Of Beirut Central District, S A L ("Solidere") and URS Corporation, Case No 14208/EC (C-14236/EC), (July 13, 2007)

Testimony of Rajiv B Gokhale in Re Robert A Knarr, as Shareholder Representative on Behalf of the Shareholders of Cryogen, Inc , v American Medical Systems, Inc , and Charlie Tribie, William Rutan, Jayne Little, Steve Kemper, Leon Hirsch, Robert Knarr & JHK Investments, LLC, Case No 51 489Y 00421 06, (July 25, 2007)

Reply Expert Report of Rajiv B Gokhale in The Arbitration of Radian International LLC, The Lebanese Company For the Development and Reconstruction Of Beirut Central District, S A L ("Solidere") and URS Corporation, Case No 14208/EC (C-14236/EC), (October 8, 2007)

Expert Report of Rajiv B Gokhale, Robert Blattberg, Richard Cooper and Roman Weil The Analysis of the value of intangible property owned by [taxpayer] and associated buy in payments related to cost sharing agreements, (November 30, 2007) Retained by the Internal Revenue Service Not permitted to disclose identity of taxpayer

Expert Report of Rajiv B Gokhale and David Ross, Loral Space & Communications Inc Consolidated Litigation, Civil Action No 2808-VCS, (January 21, 2008)

Deposition of Rajiv B Gokhale, Loral Space & Communications Inc Consolidated Litigation, Civil Action No 2808-VCS, (February 12, 2008)

Declaration of Rajiv B Gokhale, September 11 Litigation, Civil Action No 21 MC 101 AKH, (June 20, 2008)

c

Exhibit C

**Estimation of Cost of Capital for the Railroad Industry
Per Board's CAPM Methodology for the Calculation of Cost of Equity
As described in Ex Parte 664, January 17, 2008 and Ex Parte 558 (Sub No. 10), April 14, 2008**

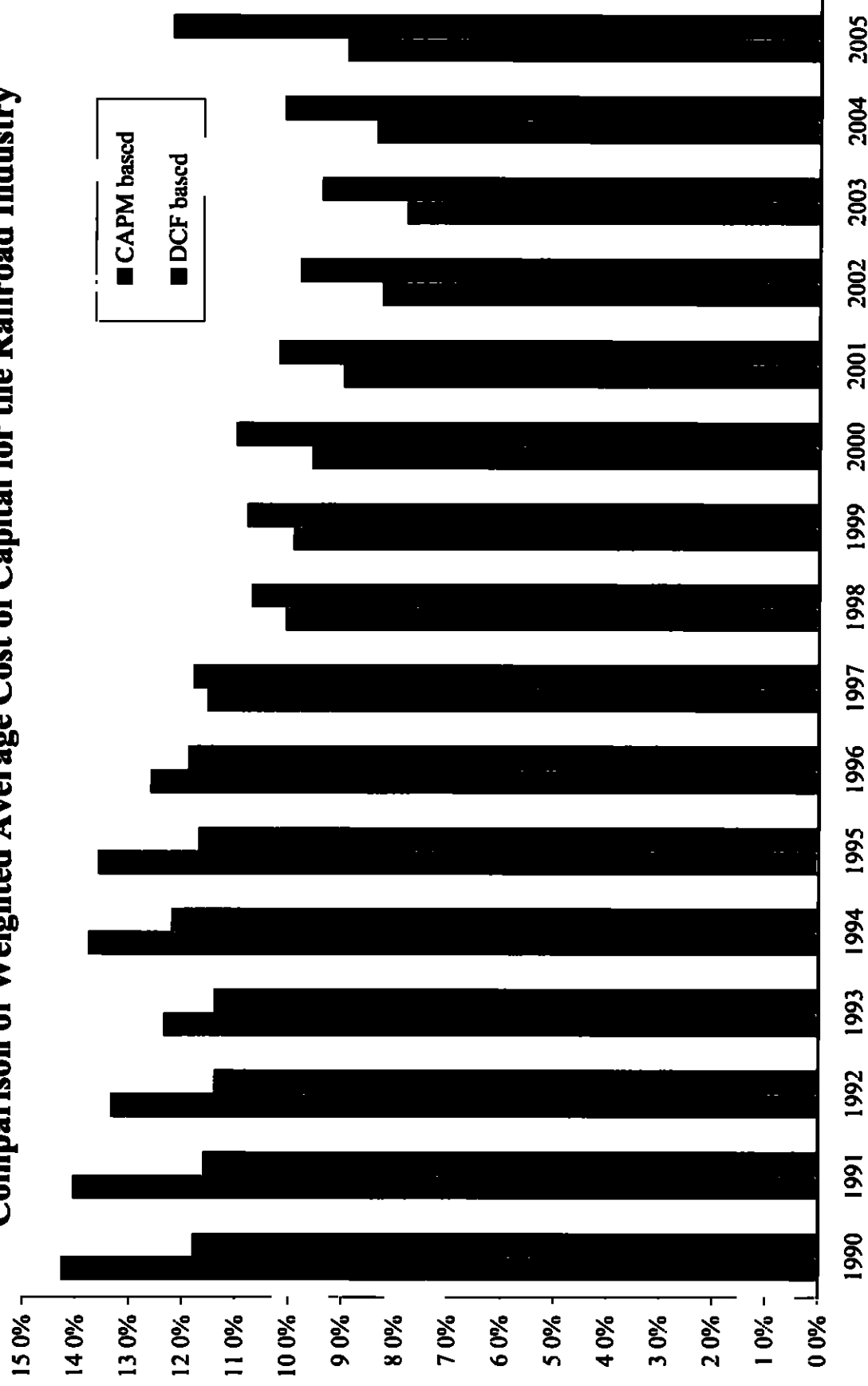
		As of December 31,																	
		1990	1991	1992	1993	1994	1994	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
R_f	Average yield to maturity for a 20-year U.S. Treasury Bond	[1]	8.61%	8.14%	7.67%	7.49%	6.93%	6.83%	6.69%	5.72%	6.20%	6.23%	5.61%	5.43%	4.96%	5.04%	4.64%	5.00%	4.91%
β	Using 5 years of value-weighted weekly returns for a portfolio of Class I Railroads	[2]	1.13	1.14	1.10	1.14	1.19	1.23	1.07	0.86	0.67	0.61	0.67	0.65	0.69	0.74	0.82	0.86 [5]	1.10
R_E	Long horizon expected equity risk premium	[3]	7.16%	7.40%	7.78%	7.22%	7.04%	7.46%	7.50%	7.76%	7.97%	7.76%	7.42%	6.97%	7.10%	7.17%	7.08%	7.13%	7.05%
Cost of Equity / Capital		[4]	16.73%	16.53%	15.71%	14.51%	15.58%	15.98%	14.86%	13.36%	12.12%	11.57%	10.64%	9.98%	9.89%	10.32%	10.48%	11.11%	12.67%
Cost of Debt		[6]	9.80%	8.80%	7.70%	6.90%	7.90%	7.40%	7.20%	6.64%	7.20%	8.00%	6.40%	6.00%	5.00%	5.25%	5.36%	5.97%	
Cost of Preferred		[6]	8.10%	5.10%	4.80%	3.90%	4.60%	3.20%	2.30%	6.19%	6.30%	6.30%	6.30%	6.30%					
Debt / Capital		[6]	34.70%	30.20%	27.80%	25.70%	23.90%	26.00%	28.00%	29.67%	36.01%	45.40%	41.80%	41.20%	42.80%	38.50%	30.41%	21.05%	
Equity / Capital		[6]	64.60%	68.50%	70.90%	72.30%	74.30%	72.80%	70.70%	70.28%	62.64%	52.10%	56.00%	56.70%	57.20%	61.50%	69.59%	76.95%	
Preferred / Capital		[6]	0.70%	1.30%	1.30%	2.00%	1.80%	1.20%	1.30%	0.05%	1.35%	2.50%	2.20%	2.10%					
WACC		[7]	14.27%	14.05%	13.34%	12.35%	13.77%	13.59%	12.61%	11.53%	10.87%	9.92%	9.57%	8.98%	7.80%	8.37%	8.92%	9.93% [9]	

Notes and sources

- [1] 1993-2007 Annual average rates reported at http://federalreserve.gov/releases/H15/data/Annual/H15_TCMNOM_Y20.txt, downloaded July 28, 2008
- [2] 1990-1992 Annual average rates reported at http://www.federalreserve.gov/releases/h15/data/Annual/H15_TCMNOM_Y10.txt, downloaded July 28, 2008
- [3] CAPM methodology per STB Ex Parte N 558 (Sub-No. 10), Railroad Cost of Capital - 2006, Decided April 14, 2008, and STB Ex Parte N 664 Methodology to be Employed in Determining the Railroad Industry's Cost of Capital Decided January 17, 2008
- Weekly returns for a portfolio of Class I Railroads: Portfolio of railroad companies in value weighted by the market capitalization of each firm at the beginning of the week
- Data from CRSP Center for Research in Security Prices: Graduate School of Business, The University of Chicago 2007. Used with permission. All rights reserved. www.crsd.uchicago.edu
- Class I railroad companies are identified by the STB in the annual cost of capital decisions 1990-2006. Over the period, the following companies have been part of the Class I railroad companies at one time or another: HNSF Corp., CSX Corp., Norfolk Southern Corp., Union Pacific Corp., Kansas City Southern Corp., Consolidated Rail Corp., Illinois Central Corp., and Florida East Coast Corporation
- The market index is the S&P 500 Price Return Index. Data from Bloomberg
- Risk-free rate used in estimating β is the 3-Month Treasury Constant Maturity Rate (series WGS3MO) from the Board of Governors of the Federal Reserve System reported ending Friday of each week. De-annualized as $[(1 + rate)^{1/52}] - 1$
- [4] Per Ibbotson SBBB 2008 Valuation Yearbook, at 98
- [5] Equals $[(1 + [2] \times [3])]$
- [6] Board's calculation per STB Ex Parte N 558 (Sub-No. 10), Railroad Cost of Capital - 2006, Decided April 14, 2008, was β of 0.8604 and weighted average cost of capital of 9.94%
- [7] The cost of debt, cost of preferred, the debt to capital, equity to capital, and preferred to capital ratios as listed on this table were determined by the Surface Transportation Board for those years
- See STB Ex Parte N 491, Railroad Cost of Capital - 1990, Decided June 12, 1991. STB Ex Parte N 506, Railroad Cost of Capital - 1991, Decided April 17, 1992. STB Ex Parte N 513, Railroad Cost of Capital - 1992, Decided April 28, 1993. STB Ex Parte N 518, Railroad Cost of Capital - 1993, Decided May 18, 1994. STB Ex Parte N 523, Railroad Cost of Capital - 1994, Decided June 5, 1995. STB Ex Parte N 523, Railroad Cost of Capital - 1995, Decided May 22, 1996. STB Ex Parte N 558, Railroad Cost of Capital - 1996, Decided May 22, 1996
- [8] Equals $[(\text{Cost of Debt} \times \text{Debt/Capital}) + (\text{Cost of Equity} \times \text{Equity/Capital}) + (\text{Cost of Preferred} \times \text{Preferred/Capital})]$

D

Exhibit D **Comparison of Weighted Average Cost of Capital for the Railroad Industry**



Notes

- 1 WACC is calculated using the CAPM methodology per STB Ex Parte No. 558 (Sub-No. 10), Railroad Cost of Capital - 2006, Decided April 14, 2008, and STB Ex Parte No. 664, Methodology to be Employed in Determining the Railroad Industry's Cost of Capital, Decided January 17, 2008
- 2 DCF based WACC per STB decisions in estimating the railroad cost of capital 1990 - 2005

E

Exhibit E **Estimation of β and Cost of Capital for the Railroad Industry Under Alternative Assumptions**

		As of December 31,																
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	Per Board's Current Methodology [1]																	
	β	1.13	1.14	1.10	1.14	1.19	1.23	1.07	0.86	0.80	0.67	0.63	0.67	0.65	0.69	0.74	0.82	0.86
	WACC	14.27%	14.05%	13.34%	12.35%	13.77%	13.59%	12.61%	11.53%	10.07%	9.92%	9.57%	8.98%	8.26%	7.80%	8.17%	8.92%	9.93%
2	Per Board's Methodology Railroad Portfolio Returns Calc as Equal Weighted Average of Individual Class I Company Returns																	
	β	1.06	1.09	1.08	1.17	1.23	1.23	1.04	0.87	0.97	0.85	0.63	0.69	0.68	0.72	0.77	0.87	0.89
	WACC	13.92%	13.81%	13.22%	12.52%	13.98%	13.61%	12.43%	11.60%	10.92%	10.86%	9.60%	9.06%	8.36%	7.92%	8.54%	9.15%	10.13%
3	STB's Calculation of CAPM Using monthly stock returns, NYSE returns for market index 10-year Treasury Bond rate for risk free rate								10.50%	8.80%	9.30%	9.20%	8.10%	7.20%	6.70%	7.10%	7.50%	

[1] Uses weekly returns, S&P 500 Price Return Index as the market index, and the 3-Month Treasury Constant Maturity Rate as risk-free rate, per STB Ex Parte No. 558 (Sub-No. 10), Railroad Cost of Capital - 2006, Decided April 14, 2008, and STB Ex Parte No. 664, Methodology to be Employed in Determining the Railroad Industry's Cost of Capital Decided January 17, 2008. Railroad portfolio returns calculated as average of individual Class I company returns weighted by market capitalization

[2] Per STB Ex Parte No. 664, Methodology to be Employed in Determining the Railroad Industry's Cost of Capital, Corrected Decision, August 20, 2007

* Value in bold indicates the highest value for that year

Technical and Computational Errors in Electronic Work papers Supporting September 2007 Decision in AEP Texas North v BNSF

<u>Decision Reference</u>	<u>Issue</u>	<u>Electronic Work Paper Reference</u>	<u>Change from STB</u>
Traffic and Revenues			
12-16	STB adopts BNSF use of 2004 URCS costs without interchange costs to determine ATC, spreadsheet references prior ATC calculations (with 2000 URCS and including interchange costs) for coal moves that are new to the SARR after 2002. Change lookup in column "R" in tab "New Move Rev Div" to reference ATC inputs from column "CO" of source file, not column "BI"	TNR Coal Revenue Forecast 2-16-2007_ATC_STB.xls	\$4,550,000
15-16	STB adopted modified ATC calculation, non-coal revenues based on original ATC approach from BNSF. Change ATC calculations in referenced files to match Board's new modified ATC formula	No STB workpaper submitted, BNSF work papers are "gf00ATC_BNSF Rev Aug08.xlsx," "gf01ATC_BNSF Rev Aug08.xlsx," and "gf02ATC_BNSF Rev Aug08.xlsx"	\$1,030,000
20-year impact (nominal dollars).			\$5,580,000

Maintenance of Way			
70	At K 3 d, STB adopts AEP's evidence on surfacing operating expense, costs not included in operating expense spreadsheet. Change reference in cell D35 in "Summary" tab to refer to C35	STB Restated MOW_6-15-06 Reply.xls	\$3,980,000
71	At K 3 f, STB adopts AEP's evidence on brush cutting/mowing expense, costs not included in operating expense spreadsheet. Change reference in cell D33 in "Summary" tab to refer to C33	STB Restated MOW_6-15-06 Reply.xls	\$100,000
annual impact (2000 dollars):			\$4,080,000

Road Property Investment			
88	At C 3, STB adopts BNSF's unit cost for ties, spreadsheet uses AEP's unit cost. Change cell J16 of "Material Unit Cost" tab to unit cost of \$34.70 (III F TNR Construction_6-15-06 Reply.xls, worksheet "Total Cost," cell "J19")	STB Restated TOTAL Construction1.xls	\$19,910,000
88	At C 3, STB adopts BNSF's use of transition ties for switches at turnouts, costs not included in spreadsheet. Add \$296,715 to cell F25 of "Totals" tab (BNSF 2006 supplemental reply work paper "III F TNR Construction_6-15-06 Reply.xls," worksheet "Total Cost," cell "K22")	STB Restated TOTAL Construction1.xls	\$360,000
103	At H 3 b, STB adopts BNSF's crossing cost evidence, spreadsheet uses AEP's costs. Change cell F126 in "Totals" tab to grade-separated investment of \$25,105,457 (BNSF 2006 supplemental reply work paper "III F TNR Construction_6-15-06 Reply.xls," worksheet "Total Cost," cell "K105")	STB Restated TOTAL Construction1.xls	\$9,910,000
total investment			\$30,180,000

WITNESS VERIFICATIONS

I Michael R Baranowski

Michael R Baranowski sponsored evidence that BNSF filed with its Reply Evidence on May 24, 2004, and his qualifications are described therein.

For the Fourth Supplemental Evidence, Mr Baranowski is sponsoring evidence relating to application of the Board's DCF model and SAC calculations contained in Section III of the Narrative and evidence relating to the technical corrections shown in Exhibit 2

Mr Baranowski has signed a verification of the truth of the statement contained therein and a copy of his verification is attached hereto.

I declare under penalty of perjury that the foregoing is true and correct I further certify that I am qualified and authorized to sponsor and file this testimony

Executed on August 7, 2008


Michael R Baranowski

2 Benton V Fisher

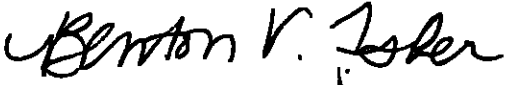
Benton V Fisher sponsored evidence that BNSF filed with its Reply Evidence on July May 24, 2004, and his qualifications are described therein

For the Fourth Supplemental Evidence, Mr Fisher is sponsoring evidence relating to application of MMM in Section IV

Mr Fisher has signed a verification of the truth of the statement contained therein and a copy of his verification is attached hereto

I declare under penalty of perjury that I have read the Fourth Supplemental Evidence that I have sponsored, as described in the foregoing Statement of Qualifications, and that the contents thereof are true and correct. Further, I certify that I am qualified and authorized to sponsor this testimony.

Executed on August 7, 2008


Benton V. Fisher

3. John C Klick

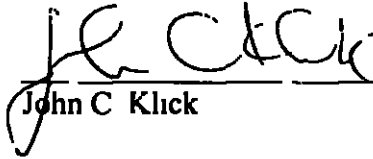
John C Klick sponsored evidence that BNSF filed with its Reply Evidence on May 24, 2004, and his qualifications are described therein

For the Fourth Supplemental Evidence, Mr Klick is sponsoring evidence relating to application of MMM in Section IV

Mr. Klick has signed a verification of the truth of the statement contained therein and a copy of his verification is attached hereto.

I declare under penalty of perjury that I have read the Fourth Supplemental Evidence that I have sponsored, as described in the foregoing Statement of Qualifications, and that the contents thereof are true and correct. Further, I certify that I am qualified and authorized to sponsor this testimony.

Executed on August 7, 2008

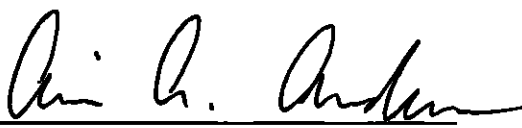


John C. Klick

CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of August, 2008, I have served six copies of the foregoing Reply Evidence and Argument of BNSF Railway Company (Highly Confidential) and three copies of the Public Version to the following by hand delivery

Kelvin J Dowd
Christopher A Mills
Daniel M Jaffe
Slover & Loftus
1224 Seventeenth Street, N W.
Washington, DC 20036


Eric A Anderson