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June 2, 2011

BY HAND

Cynthia T. Brown, Chief
Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, SW
Washington, D.C. 20423-0001

Re: Western Coal Traffic League Reply Statement in
Docket No. EP 558 (Sub-No. 14), Railroad Cost of Capital--2010

Dear Ms. Brown:

Enclosed for fling are an original and ten copies of the reply statement of the Western Coal Traffic League ("WCTL") in the above-captioned proceeding. Also enclosed is a CD containing a copy of the comments and workpapers of WCTL's witnesses.

Please contact the undersigned if there are any questions concerning this matter.

Respectfully submitted,

Robert D. Rosenberg
An Attorney for the Western
Coal Traffic League

RDR:jge
cc: Service List--w/encls.

BEFORE THE
SURFACE TRANSPORTATION BOARD

In the Matter of:	)	
RAILROAD COST OF CAPITAL – 2010	)	Ex Parte No. 558 (Sub-No. 14)

REPLY STATEMENT OF THE WESTERN COAL TRAFFIC LEAGUE

WESTERN COAL TRAFFIC LEAGUE

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Dated: June 2, 2011

BEFORE THE
SURFACE TRANSPORTATION BOARD

In the Matter of:	)	
RAILROAD COST OF CAPITAL – 2010	)	Ex Parte No. 558 (Sub-No. 14)

REPLY STATEMENT OF THE WESTERN COAL TRAFFIC LEAGUE

Pursuant to the notice that the Surface Transportation Board ("STB" or "Board") served in the above-captioned proceeding on February 22, 2011, the Western Coal Traffic League ("WCTL" or "League")[1] submits its reply statement in response to the opening statement filed by Association of American Railroads and its member railroads ("AAR" or "Railroads") on April 29, 2011.

I. INTRODUCTION, SUMMARY, AND SCOPE

WCTL presents its calculations relating to the determination of the railroad industry cost of capital for 2010 in the Verified Statement of Thomas D. Crowley and

[1]WCTL is a voluntary association, whose regular membership consists entirely of shippers of coal mined west of the Mississippi River that is transported by rail. WCTL members currently ship and receive in excess of 170 million tons of coal by rail each year. WCTL's members are: Ameren Energy Fuels and Services, Arizona Electric Power Cooperative, Inc., CLECO Corporation, Austin Energy (City of Austin, Texas), CPS Energy, Entergy Services, Inc., Kansas City Power & Light Company, Lower Colorado River Authority, MidAmerican Energy Company, Minnesota Power, Nebraska Public Power District, Omaha Public Power District, Texas Municipal Power Agency, Western Farmers Electric Cooperative, Western Fuels Association, Inc., Wisconsin Public Service Corporation, and Xcel Energy, Inc.

Daniel L. Fapp ("Crowley/Fapp VS" or "Crowley/Fapp") attached as Exhibit A and the associated workpapers. Crowley/Fapp review and respond to the calculations and testimony of John T. Gray ("Gray" or "Gray VS") on behalf of the AAR.

Specifically, Crowley/Fapp address the calculation of the cost of equity ("COE") under both the Capital Asset Pricing Model ("CAPM") and the Multi-Stage Discounted Cash Flow ("MSDCF") model, the cost of debt ("COD"), the equity/debt ratio, and the overall cost of capital ("COC"), as well as some related matters utilizing the Board's current methodology.

The following Table 1 compares the calculations of the AAR and WCTL with respect to the key COC components. WCTL is submitting two calculations. The first, like the AAR's calculation, excludes BNSF without any adjustment. WCTL's second calculation adjusts for BNSF's exclusion, as explained *infra*.

Table 1
Comparison of Gray and Crowley/Fapp COC Calculations

Item	AAR (w/o BNSF)	WCTL	
		w/o BNSF (per AAR)	w/ "pure play" and Blume-adjustment for BNSF
CAPM COE	11.84%	11.84%	11.46%
MSDCF COE	14.13%	13.02%	13.02%
Average COE	12.99%	12.43%	12.24%
Cost of Debt	4.61%		
Equity/Debt Ratio	76.63% / 23.27%		
Overall COC	11.03%	10.60%	10.45%

Source: AAR Filing; Crowley/Fapp VS at 19, 37.

II. USE OF STALE MSDCF GROWTH RATES

One area of disagreement between WCTL and AAR relates to the growth rates used to calculate the COE under the MSDCF method. Crowley/Fapp explain that of the 18 analyst growth rates used by Gray, only 9 (50%) are actually from 2010, and the other half are from earlier years. In fact, 3 are from 2009, 1 is from 2008, 3 are from 2007, and 2 are from 2002. Crowley/Fapp VS at 12.

The Board has previously recognized the need to use current data that matches the other data utilized in the MSDCF calculation, which in this case is the stock price and market capitalization as of December 31, 2010. "As a general rule, investors use the most accurate and current data available when making investment decisions," and "the Board's annual determinations should use the most accurate and current data available at that time." Ex Parte No. 558 (Sub-No. 13), *Railroad Cost of Capital -- 2009* (STB corrected decision served Oct. 29, 2010) at 9. In the 2008 COC determination, the Board rejected the AAR's proposed use of growth rates from March 31, 2009, because they post-dated the 2008 calendar year. Ex Parte No. 558 (Sub-No. 12), *Railroad Cost of Capital -- 2008* (STB served Sept. 24, 2009) at 9. Crowley/Fapp VS at 11-13.

If growth rate estimates prepared three months later are unacceptable, the same should be true of growth rate estimates prepared 1, 2, 3, or 8 years earlier (especially inasmuch as the Board's methodology purports to utilize growth estimates that may cover only a 3-year period). Otherwise, there will be a mismatch between the stock price and the growth rates that will create an inaccurate COE. The underlying logic of the MSDCF model is that the stock price represents the present value of projected

future cashflows and the implicit discount rate corresponds to the COE. Using growth rate estimates prepared in earlier years under different conditions in conjunction with a later stock price will result in a distorted COE calculation. *See* Crowley/Fapp VS at 13-14.

It may well be that the analyst reports included in the I/B/E/S sample reflect other updated information, such as a target stock price, but the growth rate estimate is the only item from the analyst reports that is utilized in the MSDCF calculation. Moreover, economic conditions within the railroad industry and the general economy have varied dramatically within the past few years, and a three-to-five-year projection made one or two years (or longer) ago seems unlikely to reflect current conditions. Crowley/Fapp VS at 13. It may also be that the analysts do not believe that regularly updating their growth rate estimates is needed or necessary, although that may be a reason for the Board to reconsider its reliance on its MSDCF methodology.

To adjust for the staleness of the growth estimates, Crowley/Fapp excluded all growth estimates prepared before 2010. The impact of the exclusion is to reduce the MSDCF COE figure by 1.11 percentage points, the MSDCF/CAPM average COE figure by 0.56 percentage points, and the overall COC by 0.43 percentage points. These calculations assume that BNSF is excluded from the composite sample without any corrective adjustment. Crowley/Fapp VS at 14-15, 17, 19.

III. ADJUSTMENT FOR EXCLUSION OF BNSF

The other area of disagreement relates to BNSF. BNSF was acquired by Berkshire Hathaway Inc. ("Berkshire") in 2010. BNSF no longer qualifies for inclusion

in the sample because BNSF represents less than 50 percent of the assets of Berkshire and Berkshire does not pay a dividend on its Class A or Class B common equity. Crowley/Fapp VS at 20-21. The AAR claims that the exclusion of BNSF is of no consequence, *i.e.*, "the three-firm composite should represent the railroad industry as well as the four-firm composite that was used in recent years." Gray VS at 7.

Crowley/Fapp demonstrate otherwise and address several significant errors and omissions in the AAR's analysis. In particular, Crowley/Fapp show that: BNSF was the largest railroad by market capitalization in January 2010, before being acquired by BNSF; BNSF's exclusion causes the sample to represent less than 50% of the railroad industry market cap, as BNSF is, by most meaningful measures, the largest or second largest carrier; the AAR's analysis of the impact of BNSF's exclusion relied on too short a sampling period; and the AAR ignored changes in the Board's COE methodology that occurred during its short sampling period. Crowley/Fapp VS at 22-26.

Crowley/Fapp further demonstrate that excluding BNSF has a significant impact on the COE when considered over a longer period of time. They further demonstrate that impact is magnified when (a) the after-tax COC is converted to a pre-tax COC for use in calculating variable costs under URCS, (b) the COC is used in calculating capital carrying costs in the SAC DCF model, and (c) the COC is used to calculate the applicable revenue to variable cost ("R/VC") ratio under MMM for applying SAC relief. *Id.* at 26-32. In particular, Crowley/Fapp show that a reduction in the after-tax COC attributable to the removal of BNSF based on historical data as applied to a hypothetical SAC DCF analysis similar to that employed in the *WFA/Basin* rate case results in (a) a

1.7% increase in the capital carrying charge, which would in turn translate into (b) a 20 percentage point increase in the MMM R/VC ratio, dramatically reducing the available rate relief for captive shippers. *Id.* at 27, 30, 32.

Crowley/Fapp further explain that there are several established methods by which the Board can and should calculate a surrogate COE for BNSF and present one such calculation. *Id.* at 33-37. The calculation (a) develops the beta on the "pure play" railroads in the industry (UP, CSX, and NS), (b) removes the implicit leverage associated with each of the "pure play" railroads, (c) applies the unlevered beta to BNSF using Berkshire's leverage, and (d) applies the Blume adjustment described below. BNSF's market capitalization was derived by multiplying Berkshire's market capitalization by the ratio of BNSF assets to Berkshire total assets. There is no corresponding MSDCF adjustment (since beta has no explicit role in a MSDCF calculation). The calculation yields a CAPM COE of 11.46%. *Id.* at 37.

The Blume adjustment is essentially a method to reflect that betas tend to revert towards the market beta of one. The adjustment was developed in Blume, Marshall E., "On the Assessment of Risk," *Journal of Finance*, Vol. 26, 1-10 (1971). That article found, and subsequent research has generally confirmed, that adjusting betas in that way yields more accurate long term estimates. "This adjustment is also used by a number of high-quality data service providers including Bloomberg, ValueLine and

Merrill Lynch."[1] The use of a Blume adjustment is especially consistent with Berkshire's November 3, 2009 depiction of its acquisition of BNSF:

> "Most important of all, however, it's an all-in wager on the economic future of the United States," said Mr. Buffett. "I love these bets."

http://www.berkshirehathaway.com/news/NOV0309.pdf. An "all-in-wager" on the American economy would logically reflect the cost of capital associated with the S&P 500. As the Blume adjustment results in a cost of capital that is more representative of the economy as a whole, it is entirely consistent with Berkshire's stated justification for the acquisition. Crowley/Fapp VS at 6, 36.

Inclusion of some adjustment for the exclusion of BNSF is appropriate on several related grounds. First, there is strong evidence, as developed by Crowley/Fapp, that removal of BNSF from the relevant sample will, all other things being equal, result in an increased cost of capital that will translate into a significant increase to regulated rates. Second, there is strong reason to conclude that the effect of Berkshire's acquisition of BNSF is to lower BNSF's cost of capital. Berkshire has a lower debt to equity ratio then did the stand-alone BNSF, which leads to less financial risk for Berkshire and its BNSF division. A company facing less financial risks will, holding all else constant, have a lower cost of equity. Berkshire also enjoys a higher credit rating than did BNSF, which translates into a lower cost of debt. The impact is that, absent some adjustment, the Berkshire acquisition will lower the COC for BNSF and thus the railroad industry as

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[1] Gray, Stephen, *et al.*, "The performance of alternative techniques for estimating equity betas of Australian firms," Report Prepared for the Energy Network Association (May 2005) at 10, found at http://www.ena.asn.au/udocs/ena_051705_165248.pdf.

a whole, but will result in a higher regulatory COC. The effect will be a windfall for the railroads for those shippers that pay regulated rates or seek to negotiate rates based on a regulatory outcome. The discrepancy will be especially pronounced for BNSF shippers. Accordingly, there are strong reasons for the Board to make a corrective adjustment for the removal of BNSF from the sample.

IV. CONCLUSION

For the reasons stated, the Board should exclude the stale analyst growth rate projections in calculating the MSDCF COE for the railroad industry, and the Board should make an appropriate adjustment for the exclusion of BNSF from the composite sample.

Respectfully submitted,

WESTERN COAL TRAFFIC LEAGUE

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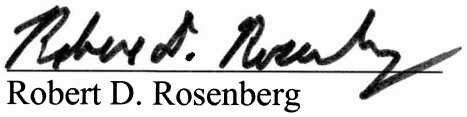
Dated: June 2, 2011

Exhibit A

Verified Statement of
Thomas D. Crowley and Daniel L. Fapp

CERTIFICATE OF SERVICE

I hereby certify that on this 2nd of June 2011, I have caused true and accurate copies of the foregoing Reply Statement of the Western Coal Traffic League to be served upon all parties on the service list in this proceeding by first class mail, postage prepaid.



Robert D. Rosenberg

BEFORE THE
SURFACE TRANSPORTATION BOARD

Railroad Cost of Capital - 2010	)	**Ex Parte No. 558 (Sub-No. 14)**

Reply Verified Statement

Of
Thomas D. Crowley
President

and

Daniel L. Fapp
Vice President

L.E. Peabody & Associates, Inc.
On Behalf Of
Western Coal Traffic League

June 2, 2011

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2	Statement Of Qualifications Of Daniel L. Fapp
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5	Impact Of Removing BNSF From Pre-Tax And After-Tax Costs Of Capital

I. INTRODUCTION

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

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

Our consulting assignments regularly involve working with and determining various facets of railroad financial issues, including cost of capital determinations. In these assignments, we have calculated railroad capital structures, market values, cost of railroad debt, cost of preferred railroad equity and common railroad equity. We are also well acquainted with and have used the commonly accepted models for determining a

firm's cost of equity, including Single-Stage Discounted Cash Flow Models ("SS-DCF"), Multi-Stage Discounted Cash Flow Models ("MS-DCF"), the Capital Asset Pricing Model ("CAPM"), and the Fama-French Three Factor Model.

We have developed railroad industry average cost of capital and company specific cost of capital for use in litigation and for use in general business management. For several clients, we have both individually and together determined the Going Concern Value ("GCV") of privately held railroads. Developing the GCV under the Income Based Methodology requires developing company specific costs of debt and equity for use in discounting future company cash flows, as well as creating forecasts of expected cash flows to the firm and to holders of common equity from company financial statements. We have also developed cost of capital in order to capture the costs associated with shipper investment in railroad equipment and road property. Our findings regarding railroad cost of capital have been presented to U.S. District and State courts, the Interstate Commerce Commission, the Surface Transportation Board ("STB") and the Federal Railroad Administration.

We have previously submitted, either individually or jointly, verified statements in prior STB annual cost of capital proceedings, including Ex Parte No. 558 (Sub-No. 9), *Railroad Cost of Capital – 2005,* Ex Parte No. 558 (Sub-No. 10), *Railroad Cost of Capital – 2006* ("*2006 Cost of Capital*"), Ex Parte No. 558 (Sub-No. 11), *Railroad Cost of Capital – 2007* ("*2007 Cost of Capital*"), Ex Parte No. 558 (Sub-No. 12), *Railroad Cost of Capital – 2008* ("*2008 Cost of Capital*"), and Ex Parte No. 558 (Sub-No. 13), *Railroad Cost of Capital – 2009* ("*2009 Cost of Capital*"). We have also submitted evidence in Ex Parte No. 664, *Methodology To Be Employed In Determining The Railroad Industry's Cost Of Capital* ("*Ex Parte 664*"), and Ex Parte No. 664 (Sub-No. 1),

Use Of A Multi-Stage Discounted Cashflow Model In Determining The Railroad Industry's Cost Of Capital ("*MS-DCF Cost of Equity*").

We have been requested by Counsel for the Western Coal Traffic League ("WCTL") to review the testimony submitted by Mr. John T. Gray ("Gray") included with the Association of American Railroads' ("AAR") Opening Evidence filed pursuant to the Surface Transportation Board's ("STB") Decision in Ex Parte No. 558 (Sub-No. 14), *Railroad Cost Of Capital – 2010*, served February 22, 2011 ("*2010 Cost of Capital*"). Counsel has specifically requested that we review and comment on Mr. Gray's calculation of the railroad industry's CAPM cost of equity, calculation of the railroad industry's MS-DCF cost of equity and overall railroad industry cost of capital. Counsel has also requested that we comment on the impact of the BNSF Railway Company's ("BNSF") absence from the cost of capital determination.

Our testimony is discussed further below under the following topical headings:

II. CAPM Cost Of Equity

III. MS-DCF Cost Of Equity

IV. Railroad Cost Of Debt

V. Railroad Cost Of Capital

VI. Exclusion Of The BNSF From The 2010 Cost Of Capital Calculation

II. CAPM COST OF EQUITY

In its decision in *Ex Parte 664*, the STB modified the procedure used to estimate the railroad cost of equity by switching from the SS-DCF cost of equity approach to the widely accepted CAPM approach. The STB's *Ex Parte 664* procedures directed parties to calculate the CAPM cost of equity using three specific inputs:

1. The average annual yield-to-maturity on 20-Year Treasury Bonds ("T-Bonds");

2. A beta estimate developed by regressing over five (5) years excess returns on a market weighted portfolio of railroad stocks against excess returns on the S&P 500 Price Return Index over 3-Month Treasury Bill ("T-Bill"); and

3. An estimate of the market risk premium based on the historical average equity market risk premium from 1926 to the subject year.

The STB made two further adjustments to its CAPM approach after its *Ex Parte 664* decision. First, the STB's *2008 Cost of Capital* decision clarified the identification of trading weeks and trading years to be used in the 5-year beta estimate regression.[1] Rather than assuming a trading year would consist of a static 52-trading week period, the STB clarified that the first trading week within a particular year would be the first week in a year that contains three (3) or more trading days. As such, a trading year within the beta estimation regression could consist of 53-trading weeks.

Second, in its *2009 Cost of Capital* decision, the STB modified the methodology used to convert annual Treasury Bill ("T-Bill") rates from annual rates to weekly rates. Prior to its *2009 Cost of Capital* decision, the STB converted annual to weekly rates using an arithmetic average approach of dividing the annual rate by 52. In its *2009 Cost of Capital* decision, the STB agreed with the parties to the proceeding that a geometric

[1] See *2008 Cost of Capital* at 7.

average approach that takes into consideration the impact of compounding was more appropriate.[2]

We have reviewed Mr. Gray's inputs to the CAPM cost of equity determination, and agree that the T-Bond yield-to-maturity of 4.03 percent and average market risk premium from 1926 to 2010 of 6.72 percent are consistent with the STB's CAPM cost of equity methodology. We also agree that his beta estimate of 1.1619 is consistent with a portfolio of CSX Corporation ("CSX"), Norfolk Southern Corporation ("NS"), and Union Pacific Corporation ("UP") common equity. We show the calculation of the 2010 CAPM cost of equity based upon these inputs in Table 1 below.

Table 1
2010 CAPM Cost of Equity

Item (1)	2010 CAPM Cost of Equity (2)
1. Risk Free Rate [1/]	4.03%
2. Beta [2/]	1.1619
3. Market Risk Premium [3/]	6.72%
4. Cost of Equity [4/]	11.84%

[1/] Gray VS at 31.
[2/] Gray VS at 33.
[3/] Gray VS at 37.
[4/] Line 1 + (Line 2 x Line 3).

As shown in Table 1 above, the 2010 CAPM cost of equity equals 11.84%.[3]

[2] See *2009 Cost of Capital* at 7.

[3] Mr. Gray also notes a minor flaw in the STB's process for assigning shares outstanding. See Gray VS at 35, note 32. As he notes, the STB's approach assigns the shares outstanding to the first full week after the effective date as shown in each company's SEC Form 10-K or 10-Q. We agree this lag can lead to a mismatch in weekly closing prices and the number of shares outstanding. A more consistent approach would use the number of shares outstanding on the day of the weekly closing price.

As a final note, Mr. Gray states that the 2010 railroad industry beta estimate of 1.1619 is higher than the 1.091 beta estimate developed in 2009, and that beta estimates above 1.0 in and of themselves are not surprising given historically estimated betas above 1.0 for individual railroad companies. Mr. Gray's inference from these statements is that there is nothing abnormal about an increasing beta. We disagree. The expected return on an asset is related to the asset's risk. For any particular risky investment, the CAPM indicates that the premium above the risk-free rate of return is proportionate, in a linear fashion, to the amount of systematic risk taken.[4] The increase in the railroad industry beta infers that the industry was more risky in 2010 than it was in 2009. This point is contradictory to the railroad industry's jump in revenues, traffic, and most importantly, earnings between 2009 and 2010. Simply stated, one would expect a decline in the beta estimate not an increase.

As we discuss in more detail in section VI below, the higher beta was more likely caused by the removal of the BNSF from the cost of capital cohort, and not a reflection of increasing industry risk. Furthermore, there is long-established academic research in corporate finance that indicates that deviations from a beta of the industry average of 1.0 tend not to be enduring and that betas tend to revert to unity (1.0) over time. In particular, Blume, Marshall E., "On the Assessment of Risk," *Journal of Finance*, Vol. 26, 1-10 (1971), found that the CAPM delivered more accurate results by using a weighting of 67% of the calculated or measure beta and 33% of a beta value of 1.0. "This adjustment is also used by a number of high-quality data service providers

[4] See "Ibbotson SBBI 2011 Valuation Yearbook: Market Results for Stocks, Bonds, Bills and Inflation 1926-2010," Morningstar, Inc., 2011 ("Ibbotson 2011 Valuation Yearbook"), page 43.

including Bloomberg, ValueLine and Merrill Lynch."[5]

[5] Gray, Stephen, *et al.*, "The performance of alternative techniques for estimating equity betas of Australian firms," Report Prepared for the Energy Network Association (May 2005) at 10, found at http://www.ena.asn.au/udocs/ena_051705_165248.pdf.

III. MS-DCF COST OF EQUITY

The STB ruled in its *MS-DCF Cost of Equity* decision that the railroad industry cost of equity after the 2007 determination would be calculated as the simple average of the railroad industry CAPM cost of equity and the railroad industry MS-DCF cost of equity as calculated using the Morningstar/Ibbotson MS-DCF model as modified to reflect only qualifying railroad holding companies.[6] A MS-DCF model calculates the cost of equity by determining the discount rate that equates a firm's market value to the present value of the stream of cash flows that could impact an investor. The Morningstar/Ibbotson model adopted by the STB defines cash flows, for the first two stages of the model, as income before extraordinary items, plus depreciation and deferred taxes, and minus capital expenditures.[7] Cash flows are then normalized over a five (5) year period to mitigate the impact of potentially anomalous years. Total cash flows over the five (5) year period are then divided by total sales over the same period to develop an average cash flow-to-sales ratio, which is then multiplied by the analysis year's revenues to obtain the average cashflow estimate for the year. For the third and final model stage, the Morningstar/Ibbotson model utilizes normalized earnings before extraordinary items as a surrogate for perpetual cashflows under the assumption that over the long-term capital expenditures will equal depreciation and deferred taxes are zero.

We have reviewed the MS-DCF cost of equity estimates developed by Mr. Gray, and accept, for present purposes, his estimate of the long-term nominal growth rate in the U.S. economy, the formulas he used in the iterative process to calculate each railroad's estimated cost of equity, his calculation of each railroad's equity market value, and the

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[6] See *MS-DCF Cost of Equity* at 15.
[7] See *MS-DCF Cost of Equity* at 5 to 6 for a summary of the Morningstar/Ibbotson MS-DCF model.

weighting methodology used to develop the industry average cost of equity. We also concur that Mr. Gray developed the individual railroad long-term growth rates used in the Stage 1 of the MS-DCF approach in a manner consistent with the STB's prior decisions. However, as we discuss below, we believe that the use of I/B/E/S consensus growth estimates has a flaw that leads to inaccurate results. We discuss each of these issues below.

A. NORMALIZED CASH FLOWS

The Morningstar/Ibbotson MS-DCF model defines cash flows, for the first two stages, as income before extraordinary items ("IBEI"), minus capital expenditures ("CAPEX"), plus depreciation and deferred taxes.[8] While the *MS-DCF Cost of Equity* decision was silent on the source of the cash flow calculation data inputs, the STB accepted in its *2008 Cost of Capital* decision the data inputs retrieved from the railroads' annual Form 10-K filings with the Securities and Exchange Commission ("SEC").[9]

The STB further clarified the use of SEC 10-K data in its *2009 Cost of Capital* decision by directing parties to use the most recent financial statements available for each year. As noted by the STB, investors use the most current and accurate data available when making investment decisions, and the stock prices used in the MS-DCF calculation incorporate the most current information.[10]

We have reviewed Mr. Gray's cash flow calculations and agree that he has followed the STB's methodology.

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[8] See *MS-DCF Cost of Equity* at 5. Cash flow in the third stage of the model is based on two assumptions. First, that CAPEX will equal depreciation in the long run, and second, that deferred taxes will be zero (0). That is cash flow in the third stage is based solely on IBEI.

[9] See *2008 Cost of Capital* at 9.

[10] See *2009 Cost of Capital* at 9.

B. CORRECT GROWTH RATES

As indicated by the STB in its *2008 Cost of Capital* decision, the Morningstar/Ibbotson model adjusts earnings in three stages.[11] In the first stage (years 1 to 5), a firm's annual earnings growth is assumed to be the median value of the qualifying railroad's 3 to 5 year growth estimates as determined by railroad industry analysts and published by I/B/E/S. In the second stage (years 6 to 10), the growth rate is the average of all growth rates in stage 1. In stage 3 (years 11 and onwards), the growth is the long-run nominal growth rate of the U.S. economy, and is estimated by using historical growth in real GDP and the long-run expected inflation rate. The STB specified in its *2008 Cost of Capital* decision that growth rates should be as of December 31 of the subject year.

Mr. Gray states that he obtained each railroad's long-term growth rates from Thomson Financial through its Thompson ONE Investment Management Service.[12] He also states that while Thomson ONE distributes medians of the I/B/E/S growth rates for the individual railroads, he did not use the Thomson ONE values because they do not always reflect the full set of growth rates.[13] Instead, Mr. Gray calculated his own median value for each railroad's growth rate. For the long-term median growth rate in the economy, Mr. Gray used an estimate of 5.8 percent as published by Morningstar.[14]

We agree that Mr. Gray calculated the individual railroad company growth rates and the long-term growth rate in the economy in a manner consistent with prior STB decisions. However, we believe that that using all of the of I/B/E/S growth estimates is

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[11] See 2008 *Cost of Capital* at 9.
[12] See Gray VS at 42.
[13] See Gray VS at 42.
[14] See Gray VS at 43 to 44.

contradictory to the STB's intent to use the most current and accurate information available, and can lead to decisions based on stale information. We discuss this issue below.

1. Unadjusted I/B/E/S Growth Rate Estimates Can Become Stale

The STB indicated in its *2009 Cost of Capital* decision that "As a general rule, investors use the most accurate and current data available when making investment decisions," and that "the Board's annual determinations should use the most accurate and current data available at that time."[15] In its *2008 Cost of Capital* decision, the STB noted the need to have the timing of the growth rates match the stock price and rejected the AAR's proposed use of growth rates that post-dated the end of 2008, stating that "It is clear that some form of new information influenced these estimates and thus lead to a change."[16] The intent of the STB's statements was to indicate that the railroad industry cost of capital should include the most timely information available. If the STB is going to hold true to the maxim of relying upon the most current data available, then it must consider altering its use of unadjusted I/B/E/S growth rates as many of the growth rates were developed well before 2010. Otherwise, the "vintage" of the growth rates will not match the "vintage" of the valuation (stock price), and the resulting mismatch will lead to distortion in the present value embodied in the cost of capital determination.

Mr. Gray included in his workpapers copies of the Thompson ONE Investment Management Service reports he relied upon to develop the median long-term growth rates for each railroad. Included in these reports are the dates the respective investment

[15] See *2009 Cost of Capital* at 9.
[16] See *2008 Cost of Capital* at 9.

analysts published his or her long-term growth estimate. As we show in Table 2 below, 50 percent, or 9 of the 18 railroad company growth estimates used in the 2009 MS-DCF calculation, were developed prior to the issue 2010 year.

Table 2
Dates of I/B/E/S Long-Term Growth Rates

Railroad	Broker	Date Forecast Developed
(1)	(2)	(3)
1. CSX	BofA Merrill Lynch	July 16, 2008
2. CSX	Morgan, Keegan & Company, Inc.	May 18, 2007
3. CSX	Wells Fargo Securities, LLC	December 17, 2009
4. NSC	BofA Merrill Lynch	September 13, 2002
5. NSC	Morgan, Keegan & Company, Inc.	May 18, 2007
6. NSC	Wells Fargo Securities, LLC	December 17, 2009
7. UNP	BofA Merrill Lynch	September 13, 2002
8. UNP	Morgan, Keegan & Company, Inc.	May 18, 2007
9. UNP	Wells Fargo Securities, LLC	December 17, 2009

Source: Gray VS Appendix L, Pages 2 to 4.

As shown in Table 2 above, nine (9) of the long-term growth estimates included in the I/B/E/S consensus estimates range back to years before the issue year. In two of the cases (over 10 percent), the estimates range all the way back to 2002.[17]

The STB has noted that forecasts can become stale as more current and accurate information becomes available. As stated by the STB in Docket No. 42069, *Duke Energy Corporation v. Norfolk Southern Railway Company* (*"Duke/NS"*) when discussing the age of coal traffic forecasts:

[17] The STB can easily confirm that these forecasts have not changed by comparing the EPS growth forecasts from the instant cost of capital proceeding to the EPS growth forecasts included in the public record from prior cost of capital proceedings. See Mr. Gray's Opening VS from the *2009 Cost of Capital* at Appendix L pages 3-5 and the workpapers of Dr. Bruce E. Stangle form the *2008 Cost of Capital* proceeding.

> The evidence on forecasts of likely (future) coal traffic can grow stale in the time it takes for these cases to progress from discovery through the evidentiary phase and then to a Board decision. Therefore, in these three cases, the Board decided to rely on what was (at the time) more recent (2003) coal forecasts of the Energy Information Agency (EIA), an arm of the Department of Energy charged with developing and publishing neutral energy data and forecasts. [18]

It has clearly become the common practice for the STB to use the most current forecast available when incorporating forecast data into its analyses.[19] The STB should follow the same practice in its annual railroad industry cost of equity determination. To the extent that the stock market is going to base its valuation (that is, the current stock price) on growth rates, it is logical and efficient for it to consider the current growth rates over estimates that were made one, two, three, and eight years earlier. The use of recent growth rates is especially appropriate when economic conditions in the reference period (2010 or, more specifically, December 31, 2010, the date of the stock prices) are substantially different from those in preceding years. For example, CSX's cashflow in 2010 ($1,159 million) was 85% greater than its cashflow in 2007.[20] A growth estimate that reflects a smaller "base" cashflow is apt to be inappropriate when applied to a much larger "base."

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[18] See *Duke/NS,* 7 STB 862, 864 (2004).

[19] For example, see Docket No. 42088, *Western Fuels Association, Inc. and Basin Electric Power Cooperative v. BNSF Railway Company*, served September 7, 2007 ("*WFA/Basin 2007*") updating to the Energy Information Administration's ("EIA's") 2006 coal production forecast, STB Docket No. 42057, Public Service Company of Colorado D/B/A Xcel Energy v. *The Burlington Northern and Santa Fe Railway Company* ("*Xcel*"), 7STB 589 (637) updating from the 2003 to 2004 EIA forecast,

[20] See Exhibit 3, page 1, line 7, columns 4 and 7.

2. Adjusted Growth Forecasts

In place of Mr. Gray's median long-term growth estimates developed for this proceeding which rely upon forecasts developed in some cases nearly nine years ago, we have adjusted the median long-term growth forecasts to reflect only those forecast developed in the issue year 2010. This adjustment is consistent with the STB's practice of using the most current and timely information in its analyses and not using growth rates from outside the subject year. Moreover, it better reflects the current state of the railroad's financial and operating positions that directly impact their common equity prices, and avoids the mismatch inherent in using growth rate estimates from 2002, 2007, 2008, and 2009, to conduct a present value valuation based on stock prices as of December 31, 2010. Table 3 below compares the median growth estimates developed by Mr. Gray and our adjusted median values.

Table 3
Comparison of I/B/E/S Long-Term Earnings Growth Rates

Railroad (1)	Gray VS Median Long-Term Growth Rates [1/] (2)	January 4, 2010 Median Growth Rates [2/] (3)
1. CSX	11.50%	7.90%
2. NS	12.00%	2.50%
3. UP	15.00%	18.50%
4. Average	12.83%	9.63%

[1/] Source: Gray VS at 43.
[2/] Source: Crowley/Fapp workpaper "AAR MSDCF with current forecasts.xls."

As shown in Table 3 above, including only the most current forecasts in the median growth rate calculations lowers the growth rate for two of the railroads, CSX and NS, while increasing the growth rate for the UP.[21]

C. MS-DCF COST OF EQUITY

Based on the adjustments to the growth rates discussed above, we have restated the MS-DCF cost of equity developed by Mr. Gray. We show the restated MS-DCF models in Exhibit No. 3 to this VS and summarize the results in Table 4 below.

Table 4
2010 MS-DCF Cost of Equity

Railroad	2010 Cost Of Equity [1/]	2010 Equity Weight [1/]	2010 Weighted Cost of Equity [2/]
(1)	(2)	(3)	(4)
1. CSX	12.39%	26.08%	3.23%
2. NS	11.77%	24.63%	2.90%
3. UP	13.98%	49.29%	6.89%
4. Total [3/]	---	100.0%	13.02%

[1/] Source: Exhibit No. 3.
[2/] Column (2) x Column (3).
[3/] Sums of Lines 1 to 3.

As shown in Table 4 above, the 2010 MS-DCF cost of equity is 13.02%.

[21] While the drop in the NS's growth forecast may appear to result in a low growth rate, the resulting growth rate is in fact consistent with the January 2011 consensus long-term growth forecast of 1.4 percent published by First Call in its Earnings Valuation Reports. Like Thomson, First Call is a division of Thomson Reuters, and is a well respected, independent producer of financial data, whose publications are relied upon by many in the financial services industry.

IV. RAILROAD COST OF DEBT

We have reviewed Mr. Gray's calculation of the railroad industry cost of debt, and concur that he calculated the cost in a manner consistent with prior railroad cost of capital proceedings.

V. RAILROAD COST OF CAPITAL

Based on the adjustments to the MS-DCF cost of equity, we have restated the 2010 cost of capital developed by Mr. Gray. We discuss our restatement below.

A. COST OF EQUITY

As we discussed above, we made adjustments to Mr. Gray's MS-DCF cost of equity. Table 5 below shows the development of the 2010 average cost of equity based on our modifications.

Table 5
2010 Average Cost of Equity

Item	2010 Average Cost of Equity
(1)	(2)
1. CAPM Cost of Equity [1/]	11.84%
2. MS-DCF Cost of Equity [2/]	13.02%
3. Average Cost of Equity [3/]	12.43%

[1/] Gray VS at 38.
[2/] Exhibit No. 3.
[3/] Simple Average of Lines 1 and 2.

As shown in Table 5 above, the 2010 average cost of railroad equity equals 12.43%.

B. COST OF DEBT

As discussed above, we have reviewed Mr. Gray's estimations of the market value of railroad debt and the value of railroad debt, and agree that it follows the methodologies used in prior years. We therefore use Mr. Gray's estimate of 4.61 percent for the railroad industry cost of debt.

C. COST OF PREFERRED EQUITY

As noted by Mr. Gray, the railroads included in the 2010 composite group had no preferred equity outstanding at the end of the year.[22] Therefore, we have included no cost for preferred equity in our restated cost of capital, and assigned preferred equity a market value of zero.

D. CAPITAL STRUCTURE

In developing his calculation of the 2010 market value of common equity, Mr. Gray used the stock price and common shares outstanding data for the 52-week period beginning the week of January 4, 2010 and ending the week of December 27, 2010.[23] We have reviewed Mr. Gray's calculations, and agree with his equity market value.

In addition, we reviewed Mr. Gray's calculation of the market value of railroad industry debt, and concur he followed prior precedent. We therefore accept his calculation of the market value of debt for this proceeding.

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[22] See Gray VS at 47.
[23] See Gray VS at Appendix H, Page 4 of 4.

E. COST OF CAPITAL

Based on the restated cost of equity, assumed cost of debt and capital structure discussed above, we have restated the 2010 railroad industry cost of capital as shown in Table 6 below.

Table 6
2010 Cost of Capital

Item (1)	2010 (2)
1. Weighted Cost of Equity	
a. Railroad Industry Cost of Equity [1]	12.43%
b. Common Equity Portion of Capital Structure [2]	76.63%
c. Weighted Cost of Railroad Industry Common Equity [3]	9.53%
2. Weighted Cost of Debt	
a. Railroad Industry Cost of Debt [4]	4.61%
b. Debt Portion of Capital Structure [2]	23.37%
c. Weighted Cost of Railroad Industry Debt [5]	1.08%
3. Weighted Cost of Preferred Equity [6]	
a. Railroad Industry Cost of Debt	0.0%
b. Debt Portion of Capital Structure	0.0%
c. Weighted Cost of Railroad Industry Debt	0.0%
4. Railroad Industry Weighted Cost of Capital [7]	10.60%

[1] Table 5.
[2] Gray VS at 48.
[3] Line 1a x Line 1b.
[4] Gray VS at 27.
[5] Line 2a x Line 2b.
[6] The railroads included in this analysis had no preferred equity issued in 2010.
[7] Line 1c + Line 2c + Line 3c.

As shown in Table 5 above, the 2010 railroad industry cost of capital equals 10.6%, assuming no adjustment is made for the exclusion of BNSF.

VI. EXCLUSION OF THE BNSF FROM THE COST OF CAPITAL CALCULATION

On November 3, 2009, Berkshire Hathaway Inc. ("Berkshire") and BNSF announced an agreement to merge BNSF with an indirect, wholly owned subsidiary of Berkshire, with the Berkshire subsidiary being the surviving company. The merger agreement called for Berkshire to acquire the outstanding BNSF shares it already did not own at a price of $100 per share, payable in cash or Berkshire Class A common stock.[24] Berkshire's offer price represented an approximate 30 percent premium over the previous trading day's BNSF closing price. Berkshire and BNSF closed the merger in 2010, at which time the New York Stock Exchange ("NYSE") delisted BNSF's common equity shares.

With its acquisition by Berkshire and its delisting from the NYSE, BNSF no longer met the criteria to be included in the STB's cost of capital calculation. As noted by the STB in its notice in this proceeding, a railroad must meet the following criteria to be included in the cost of capital calculation:

1. The company is a Class I line-haul railroad;
2. If the Class I railroad is controlled by another company, at least 50 percent of the assets of the controlling company must be devoted to railroad operations;
3. The company's bonds are rated BBB by Standard & Poor's and Baa by Moody's;
4. The company's common stock is listed on the NYSE or American Stock Exchange; and
5. The company paid dividends throughout 2010.[25]

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[24] See Berkshire Form S-4 Registration Statement as filed with the SEC on November 25, 2009.
[25] See *2010 Cost of Capital* at 2.

BNSF no longer meets two of these criteria. First, BNSF represents less than 50 percent of the assets of Berkshire, and second, Berkshire does not pay dividends on either its Class A or Class B common equity.

Mr. Gray states that the removal of BNSF from the STB's cost of capital cohort has no material impact on the railroad industry cost of capital.[26] We disagree. We believe that the evidence shows that removing BNSF from the cost of capital calculation leads to an upward bias in the railroad industry cost of capital. Moreover, even seemingly small biases in the cost of capital can result in very significant increases in variable and stand-alone costs. In addition, there are strong indications that the Berkshire acquisition of BNSF lowered BNSF's cost of capital.

Berkshire had, and continues to have, a higher credit rating, which logically lowers BNSF's cost of debt. Additionally, Berkshire's acquisition of the BNSF impacted the BNSF's implicit cost of equity by lowering the railroad's debt to capital ratio. A company's cost of equity can generally be thought of incorporating two types of risk. First, business risk undertaken by the firm and borne by the equity shareholders based on the industry and general economic factors, and second, financing risks from the company's issuance of debt.[27] While BNSF may or may not have changed its business risk by being acquired by Berkshire, it did change its financial risks. Prior to its acquisition by Berkshire, BNSF had a debt to capital ratio of 0.4 or 40 percent as measured by Compustat.[28] In contrast, Berkshire's debt to capital ratio is 0.3 or 30

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[26] See Gray VS at 7.
[27] See SBBI Ibbotson 2011 Valuation Yearbook at page 80, "Therefore, a levered beta incorporates the business and financing risks undertaken by the company and borne by the equity shareholders."
[28] See "Compustat Company Research: Burlington Northern Santa Fe Corp," January 2010. A copy of the Compustat report is included in our workpapers.

percent, after the acquisition of BNSF.[29] Berkshire's lower debt to capital ratio means it, and its divisions including BNSF, face less financial risks and lower implicit costs of equity.

The impact of BNSF's removal from the sample is to cause the cost of capital to increase when it should instead be decreasing. The disparity is particularly acute for BNSF shippers who bring, or might bring, rate cases against BNSF because BNSF is able to extract a windfall return relative to its actual cost of capital. Accordingly, to address the impact of losing BNSF, one of the largest components to prior cost of capital determinations, the STB should use one or more of the recognized methodologies for including BNSF in its cost of capital determinations.

A. IMPACT OF BNSF'S REMOVAL ON THE COMPOSITE GROUP

To support his position, Mr. Gray performed several analyses indicating that the removal of the BNSF does not have a material impact on the cost of capital. First, Mr. Gray compared the revenues and assets from the three railroads included in the 2010 composite group to the revenues and assets for all Class I railroads as reported by the railroads to the STB.[30] Mr. Gray concluded that the 2010 composite represented 62.7 percent of the Class I revenues and 54.2 percent of the Class I assets. Mr. Gray concedes that these percentages are well below the 90 percent levels seen in recent years, and still significantly below the 75 percent levels seen in the early 1990's.

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[29] See "Compustat Company Research: Burlington Northern Santa Fe Corp," May 2011. A copy of the Compustat report is included in our workpapers.

[30] See Gray VS at 5.

As Mr. Gray's own analysis indicates, the percentage of railroad assets and revenues included in the cost of capital composite group is well below historic levels. More importantly, the three railroads included in the composite likely represent less than 50 percent of the market cap for the industry. Table 7 below compares the equity market cap for the Class I railroads as of January 2010.

Table 7
Class I Railroad
Market Caps – January 2010

Railroad (1)	January 2010 Market Cap (Billion US Dollars) 1/ (2)
1. BNSF	$33.8
2. CN	$25.0
3. CP	$7.8
4. CSX	$17.6
5. KCS	$3.0
6. NS	$18.3
7. UP	$32.2
8. Total Market Cap	$137.7
9. Percentage of Railroads Included in 2010 Cost of Capital 2/	49.5%

1/ Source: Compustat
2/ (Line 4 + Line 6 + Line 7) ÷ Line 8.

As shown in Table 7 above, the railroads included in the 2010 cost of capital calculation represent less than 50 percent of the railroad industry market cap. [31] Market cap is a better indicator of the influence of the composite group on cost of capital issues because it is a direct component of the cost of capital determination. The removal of

[31] Because BNSF is no longer an independent, publicly traded company, we were required to use data from early in 2010 while BNSF was still traded. We assume that the reflective market caps were constant throughout the year.

BNSF from the composite group will mean that the railroad industry cost of capital will be determined based on less than one-half of the market equity of all Class I line-haul railroads.[32]

Moreover, BNSF is, by most meaningful measures, the largest or second largest railroad in the United States. A sample that excludes its largest or the second largest members is usually to be avoided.

B. IMPACT OF BNSF'S REMOVAL ON THE COST OF CAPITAL

In addition to the asset and revenue comparisons, Mr. Gray also developed an analysis where he compared (a) the 2006 to 2009 railroad industry costs of capital including BNSF to (b) the same years' cost of capital assuming BNSF had been excluded from the composite group.[33] Mr. Gray concluded from this short analysis that there was no real substantial difference between the costs of capital calculated using a three-railroad composite and a four-railroad composite.[34]

We disagree with Mr. Gray's conclusion for a number of reasons. First, Mr. Gray's analysis relied upon a very limited number of observations, which makes it difficult to draw any conclusions. Second, he compared the removal of the BNSF from

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[32] The above analysis does not indicate that we endorse the inclusion of the Kansas City Southern ("KCS"), Canadian Pacific Railway ("CP") or the Canadian National Railway ("CN") into the STB's cost of capital determination. As we demonstrated in our VS to the *2009 Cost of Capital*, the vast majority of CP and CN's revenues and assets come from outside the United States, and a near majority of KCS' revenues and assets stem from its Mexico operations. In each case, the railroad is impacted by factors outside the U.S., and not representative of the risks faced by the U.S. railroad industry. In addition, CN and CP publish their financial statements in Canadian instead of U.S. dollars, which could prove extremely problematic when attempting to develop debt and equity costs using the STB's current methodologies. For a full description of the issues faced with including the KCS, CP and CN in the STB's cost of capital determination, see our 2009 *Cost of Capital* VS at pages 30 to 34.

[33] Mr. Gray's analysis also assumed that the STB was using the MS-DCF cost of equity approach in its 2006 and 2007 determinations.

[34] See Gray VS at 7.

the composite group based on the current cost of capital methodology and not based on the removal on the cost of capital using the then-current methodologies. Third, and more importantly, Mr. Gray's analysis ignores the very important fact that even small changes in the cost of capital can have substantial impacts.

We discuss each of these issues below.

1. Mr. Gray Relied On A Limited Sample

Mr. Gray notes that he compared the railroad industry cost of capital including and excluding BNSF for the years 2006 through 2009 using the now-current cost of equity and cost of debt methodologies. He observed that in three of the four years, the cost of capital excluding BNSF increased, but declined in the fourth year. He concluded from this analysis that there is little difference between the cost of capital derived from a three-railroad composite and a four-railroad composite.[35]

We believe it is difficult to draw a conclusion from such a small sample. More importantly, Mr. Gray based his conclusion only on observing the impact on a limited view of the cost of capital determination.[36] There are other aspects and components of the cost of capital determination that impact STB analyses. Observing how these components are impacted by the BNSF is critical in drawing a conclusion of the impact of BNSF's removal from the composite sample

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[35] See Gray VS at 7.

[36] In normal financial analyses, the weighted average cost of capital ("WACC") is calculated by adding the weighted cost of equity against the after tax-weighted cost of debt. See for example, the Ibbotson 2011 Valuation Yearbook at page 14, and Brealey, R. A., Myers, S. C., and Allen, F., "Principles of Corporate Finance, Eighth Edition," McGraw-Hill Irwin, 2006, at page 461 ("Brealey, Myers and Allen"). What the STB terms the "after-tax" cost of capital would be termed the "pre-tax" cost of capital in customary financial practices. To determine the "pre-tax" cost of capital for its regulatory purposes, the STB adjusts the equity portion of the WACC by dividing the cost of equity by one (1) minus the statutory tax rate. For this VS, we use the "pre-tax" and "after-tax" terms as used by the STB.

One example of this is the use of the cost of equity in stand-alone cost ("SAC") cases. The STB's standard discounted cash flow ("DCF") model uses the railroad industry cost of debt, cost of common equity and capital structure for the first three years of the SAC analyses, but uses the average of all historic cost of equity calculations for the years beyond the first three years of the DCF analysis.[37] This makes the cost of equity a critical factor outside of its use in just the calculation of the cost of capital. Similarly, the STB uses a pre-tax cost of capital in its Uniform Railroad Costing System ("URCS") models. Because the STB's pre-tax cost of capital adjusts the railroad industry cost of equity upwards based on the statutory corporate income tax rate (and not the lower marginal tax rate that the railroads actually pay), the impact of any change that adversely impacts the cost of equity is magnified.

To illustrate the impact of removing BNSF from the composite group, we calculated the railroad industry costs of debt, common equity, preferred equity and the railroad industry capital structure for the years 1998 to 2009 including and excluding BNSF.[38] Additionally, unlike Mr. Gray, we relied upon the methodologies that were used at the time to calculate the costs of equity and debt. Contrary to Mr. Gray's conclusions, our analyses showed that the removal of the BNSF does have a relatively

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[37] For example, assume a shipper challenges a rate beginning in the first quarter of 2009. The shipper would construct a hypothetical stand-alone railroad ("SARR") to begin operations on January 1, 2009. Based on STB precedent, the SARR is assumed to be constructed in the three preceding years to the start of the SARR, or the years 2006, 2007 and 2008. The STB's DCF model would use the railroad industry cost of debt and capital structure for the years 2006 through 2008, but the cost of equity through at least 2009. It is common practice for the STB to update the cost of equity in the DCF model to the most current year available before ruling in the case. Given that SAC cases can take up to three-years to resolve, a DCF model can include six (6) years of STB costs of equity.

[38] For the years 2006 through 2009, we relied upon Mr. Gray's calculations of the after-tax cost of equity and cost of capital for our analyses. We also used Mr. Gray's after-tax calculations to develop the 2006 to 2009 pre-tax costs of equity and capital. We have included our adjustments to Mr. Gray's analyses in our workpapers.

significant impact on the cost of capital and its components. Table 8 below compares the impact of removing BNSF on the railroad industry pre-tax and after-tax cost of equity.

Table 8
Impact of Removing The BNSF From The Railroad Industry After-Tax and Pre-Tax Cost of Equity

Year	Railroad After-Tax Cost of Equity With BNSF	Railroad After-Tax Cost of Equity Without BNSF	Difference 1/	Railroad Pre-Tax Cost of Equity With BNSF	Railroad Pre-Tax Cost of Equity Without BNSF	Difference 2/
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. 1998	13.11%	13.25%	0.14%	20.17%	20.38%	0.22%
2. 1999	12.90%	13.30%	0.40%	19.85%	20.46%	0.62%
3. 2000	13.90%	15.00%	1.10%	21.38%	23.08%	1.69%
4. 2001	12.80%	13.50%	0.70%	19.69%	20.77%	1.08%
5. 2002	12.60%	13.18%	0.58%	19.38%	20.28%	0.89%
6. 2003	12.70%	13.24%	0.54%	19.54%	20.37%	0.83%
7. 2004	13.16%	13.30%	0.14%	20.25%	20.46%	0.22%
8. 2005	15.18%	15.41%	0.23%	23.35%	23.71%	0.35%
9. 2006	11.13%	11.13%	0.00%	17.12%	17.12%	0.00%
10. 2007	12.68%	12.72%	0.04%	19.51%	19.57%	0.06%
1. 2008	13.17%	13.52%	0.35%	20.26%	20.80%	0.54%
2. 2009	12.37%	12.71%	0.33%	19.03%	19.55%	0.52%
13. Median Difference	---	---	0.34%	---	---	0.53%

1/ Column (3) – Column (2)
2/ Column (6) – Column (5)

Source: Exhibit No. 4

As Table 8 above shows, the median impact of removing BNSF from the after-tax cost of equity calculation is 0.34 percentage points. More importantly, the median impact is even greater when looked at on a pre-tax basis as the impact increases to 0.53 percentage points, which is nearly 56% larger.[39]

[39] We use the median value for the determination of central tendency as it is less susceptible to extreme values. This is the same reason the STB employs the median I/B/E/S growth rates in its MS-DCF calculations, and is a common statistical approach when dealing with relatively small samples that can be influenced by extreme values.

When looked at from an overall cost of capital basis, the increases due to the removal of BNSF is not as extreme as the cost of equity, but still shows an upward bias as demonstrated in Table 9 below.

Table 9
Impact of Removing The BNSF From The Railroad Industry After-Tax and Pre-Tax Cost of Capital

Year	Railroad After-Tax Cost of Capital With BNSF	Railroad After-Tax Cost of Capital Without BNSF	Difference 1/	Railroad Pre-Tax Cost of Capital With BNSF	Railroad Pre-Tax Cost of Capital Without BNSF	Difference2/
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. 1998	10.70%	10.50%	-0.20%	15.10%	14.80%	-0.30%
2. 1999	10.80%	10.90%	0.10%	15.10%	15.30%	0.20%
3. 2000	11.00%	11.30%	0.30%	14.90%	15.30%	0.40%
4. 2001	10.20%	10.40%	0.20%	14.10%	14.30%	0.20%
5. 2002	9.80%	10.00%	0.20%	13.60%	13.90%	0.30%
6. 2003	9.40%	9.60%	0.20%	13.30%	13.70%	0.40%
7. 2004	10.10%	10.00%	-0.10%	14.50%	14.30%	-0.20%
8. 2005	12.20%	12.10%	-0.10%	17.90%	17.70%	-0.20%
9. 2006	9.94%	9.88%	-0.06%	14.55%	14.44%	-0.11%
9. 2007	11.33%	11.36%	0.03%	16.75%	16.78%	0.03%
11. 2008	11.75%	12.04%	0.29%	17.32%	17.75%	0.43%
12. 2009	10.43%	10.63%	0.20%	15.15%	15.42%	0.27%
13. Median Difference	---	---	0.15%	---	---	0.20%

1/ Column (3) – Column (2)
2/ Column (6) – Column (5)

Source: Exhibit No. 5

As demonstrated in Table 9 above, removing the BNSF has a similar upward impact on the railroad cost of equity.[40]

[40] The increases in the cost of capital are not as extreme as the increases in the cost of equity for several interrelated reasons. First, in some years the BNSF's cost of debt was higher than that of the other railroads, while its cost of equity was lower than the others. Therefore, removing the BNSF from the calculation led to an increase in the industry cost of equity and a decline in the cost of debt. Second, the BNSF had a lower than average debt to capital ratio, meaning its capital structure, based on market values, tended to over emphasize the higher cost of equity component of the WACC. Removing the BNSF shifted more of the industry market weight factors towards the lower cost of debt and led to a lower cost of capital.

2. Small Changes In The Cost of Capital Can Have Large Impacts on STB Regulatory Analyses

Mr. Gray concluded that the changes in the cost of capital brought about by the removal of the BNSF from the cost of capital cohort should not be substantially different than when the BNSF was included in the group. As we demonstrated above, our analyses prove otherwise. More importantly though, Mr. Gray does not take into consideration the impact that even apparently small changes in the cost of capital and its components have on STB regulatory analyses.

The STB uses the railroad cost of capital for a number of regulatory purposes that have a direct impact on railroads and shippers. In particular, the STB uses its cost of capital determination, and its components, in maximum reasonable rate determinations under the SAC constraint and under the Simplified SAC approach, the calculation of URCS variable costs and prescribed rates based on URCS variable costs and in the railroad abandonment cases. In each of those regulatory actions, the STB's determination of the cost of capital plays a key role.[41]

The practical importance of this issue is that even small, apparently insignificant changes in the railroad cost of equity and cost of capital can have large repercussions. To demonstrate the impact of even small changes on the STB's regulatory activities, we constructed two hypothetical SAC DCF analyses.[42] The DCF analyses were identical in every way, except for the costs of capital components used in the models. In the base case, we used the railroad industry costs of debt, common equity and capital structures

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[41] The STB also uses the cost of capital in its annual determination of railroad revenue adequacy. The STB has not yet applied the revenue adequacy constraint in an actual rate case, but South Mississippi Electric Power Association is seeking rate relief under the revenue adequacy constraint in its pending rate case against NS.

[42] The STB uses a DCF approach to calculate the capital carrying requirements for SARRs.

for the years 2006 through 2009 as determined by the STB. In the alternative case, we relied upon the STB's 2006 to 2009 costs of debt, common equity and capital structures with the BNSF removed.[43] We display the impact of changing the cost of capital components on the DCF model's capital carrying charge calculations in Table 10 below.

Table 10
Impact of Changing Cost of Capital
Components on SAC Capital Carrying Charges

Railroad (1)	Capital Carrying Charges Using Cost of Capital With BNSF (2)	Capital Carrying Charges Using Cost of Capital Without BNSF (3)	Percent Increase (4)
1. 2009	$92,420,492	$94,001,208	1.7%
2. 2010	94,926,756	96,550,338	1.7%
3. 2011	97,512,515	99,180,322	1.7%
4. 2012	100,180,477	101,893,916	1.7%
5. 2013	102,933,446	104,693,970	1.7%
6. 2014	105,774,325	107,583,438	1.7%
7. 2015	108,706,121	110,565,378	1.7%
8. 2016	111,731,945	113,642,954	1.7%
9. 2017	114,855,021	116,819,446	1.7%
10. 2018	118,078,686	120,098,247	1.7%

As shown in Table 10 above, removing the BNSF from the STB composite group led to a 1.7 percent increase in the capital carrying requirements included in a SAC DCF model.[44]

While a 1.7 percent increase in a the capital carrying charges may not seem material, it can have a large impact on the prescribed revenue to variable cost ("R/VC")

[43] Mr. Gray included in his workpapers the calculation of the 2006 through 2009 costs of common equity, costs of debt, costs of capital and industry capital structures excluding the BNSF. Within his 2006 and 2007 workpapers, he also calculated the cost of capital using only the CAPM cost of equity and using an average of the CAPM and MS-DCF costs of equity. We have relied upon Mr. Gray's replications based on the then-current STB methodologies, e.g., CAPM only in 2006 and 2007 and CAPM and MS-DCF in 2008 and 2009.

[44] While the investment values used in the DCF analyses were hypothetical, they approximated the investment values for the WFA/Basin SARR as shown in the STB's *WFA/Basin* decision.

ratios developed under the STB's Maximum Markup Methodology ("MMM"). The MMM approach allocates stand-alone revenues based upon each movement's markup over its variable costs, such that each movement pays no more than its current rate. This means that not all movements included in the SARR traffic group receive the same rate reduction under the MMM process. In fact, some shippers will receive rate reductions while others will not. This is a categorically different approach than the percent reduction approach previously used by the STB in past SAC cases. Under the percent reduction approach, a 1.7 percent increase in the stand-alone requirement would mean a 1.7 percent increase in the SAC rate. This is not the case under the MMM approach as rate reductions are based on relative markups. This leads to non-linear increases in the final MMM R/VC ratio compared to changes in SAC requirements, or, in other words, a 1.7 percent increase in the SAC requirement can lead to a larger or smaller change in the prescribed rate.

To demonstrate the impact small changes can have on MMM R/VC, we developed a hypothetical example based on the first year of the DCF analyses discussed above. Like the prior analysis, the MMM models were identical in every way, except for one. The base MMM model used the capital carrying requirements from the base DCF model, which used the actual STB cost of capital components. The alternative model relied upon the alternative DCF analysis that used the cost of capital excluding the BNSF.[45] As shown in Table 11 below, the 1.7 percent increase in SAC capital carrying charges brought about by the exclusion of the BNSF from the cost of capital determination had a significant impact on the MMM R/VC ratio.

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[45] As with the investment figures used in the DCF analyses, we developed hypothetical operating expenses and revenues that mirror the figures used in the STB's *WFA/Basin* decision. Because we do not utilize the specific inputs used by the STB in its *WFA/Basin* MMM model including the exact distribution of

Table 11
Impact of Changes in Cost
Of Capital On MMM R/VC Ratios

Item (1)	MMM R/VC Ratio (2)
1. MMM R/VC Ratio Developed Using Cost of Capital With BNSF	254%
2. MMM R/VC Ratio Developed Using Cost of Capital Without BNSF	274%

Sources: Workpapers "MMM Example.xlsx," and "MMM Example Without BNSF.xlsx."

As shown in Table 11 above, change in the cost of capital components lead to a 20 percentage point increase in MMM R/VC ratios. Assuming an URCS Phase III variable costs of $5.00 per ton, a shipper would see its prescribed rate increase from $12.70 per ton to $13.70 per ton, or a 7.9 percent rate increase.

The above example is just one demonstration that even small increases in the cost of capital may have a substantial impact on STB regulatory outcomes. While Mr. Gray infers that tenth of percentage point changes in the cost of capital calculations may not have material impacts on STB determinations, the above analysis indicates that they do have real world ramifications.

revenues and variable costs, we developed hypothetical revenues and variable costs that produced similar R/VC ratios to those developed by the STB.

C. THE STB SHOULD USE ONE OR MORE OF THE ESTABLISHED METHODS TO INCLUDE THE BNSF

The elimination of the BNSF from the cost of capital composite group will likely lead to higher costs of equity and capital in most years than if the BNSF remained in the cohort. Because the BNSF constitutes such a large part of the U.S. railroad industry in terms of revenues and traffic, and previously constituted a major portion of the railroad market cap, the STB should explore methodologies for including the BNSF in the industry cost of capital determination.[46]

The issue of how to determine the cost of capital for a division within a larger firm, as is currently the case with the BNSF and Berkshire, is not new, but is rather a classic example of the divisional cost of capital issue. A firm's cost of capital reflects the risks faced by the company in the industries in which it operates and by its financial characteristics. For companies that operate in basically only one industry, like the railroad companies included in the current railroad cost of capital composite group, a single cost of capital is appropriate. Conglomerate companies like Berkshire that have divisions that operate in a wide range of different industries can make financially inefficient decisions by using a single cost of capital as different divisions within the company may face substantially different risks than other divisions or the firm as a whole. As such, it has become customary to develop divisional costs of capital for use when evaluating divisions or projects different than the company as a whole.

To address this divisional cost of equity issue, financial researchers have developed different approaches for estimating the costs of equity for one division within

[46] In 2009, the BNSF's equity market cap reflected over 30 percent of the equity market cap included in the 2009 cost of capital determination. See *2009 Cost of Capital* at 19.

a firm.[47] The simplest approach to address this issue is through the calculation and use of levered and unlevered beta estimates. Levered betas are calculated for "pure-play" companies in the analysis group. The levered betas of these companies are then adjusted to remove the effects of financial leverage, or in other words, to remove the variation between these comparable companies that is caused by variations in financial leverage.[48] The average unlevered betas are then used to develop a beta for the division of the larger company, in this case the BNSF.

We have undertaken an analysis to calculate the unlevered beta for the three companies included in the composite group. We began by calculating individual company betas for the CSX, NS and UP using the same stock price, market price and T-Bill rate data used by Mr. Gray to develop his railroad portfolio beta.[49] We then used Mr. Gray's calculations of each railroad's debt and equity capital to determine each railroad's debt to equity ratio. Next, we divided each railroads levered beta by one (1) plus the debt to equity ratio to develop unlevered betas. These betas were then averaged to develop a railroad industry average unlevered beta.[50] Table 12 below compares the composite group railroads levered betas, unlevered betas and debt to equity ratios.

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[47] Because debt costs show much less variance than equity costs, most organizations use a single cost of debt in their divisional cost of capital calculations.

[48] Assuming all other factors that impact a firm's risk are held constant, higher amounts of debt, or financial leverage, increase a firm's risk profile. Thus, higher financial leverage increases the beta of the equity of the firm. The reason for this, all other things being equal, is higher leverage increases the variability of the firm's income. It can also be thought of as claims on the firm. Debt holders have first claim on the firm's assets versus equity holders. As the amount of debt increases, the risk that the equity holders will face of not receiving their claim is greater. An unlevered Beta reflects the risk of the firm's equity assuming that the company is financed with 100% equity. Since greater levels of debt or leverage brings greater variability to the firm's income, the risk to the shareholder increases as the amount of debt increases.

[49] See our workpaper "2010 CAPM with Adjusted Betas.xlsx."

[50] For a further discussion of unlevered betas and their calculations see the Ibbotson 2011 Valuation Yearbook at 80 to 81.

Table 12
2010 Levered and Unlevered Railroad Beta Estimates

Railroad (1)	Levered Beta [1/] (2)	Debt-to-Equity Ratios [1/] (3)	Unlevered Beta [2/] (4)
1. CSX	1.2565	38.02%	0.9104
2. NS	1.2075	34.56%	0.8974
3. UP	1.0784	24.23%	0.8681
4. Average [3/]	---	---	0.8920

[1/] Source: Crowley/Fapp workpaper "2010 CAPM With Adjusted Betas.xlsx."
[2/] Column (2) ÷ [1 + Column (3)].
[3/] Average of Lines 1 to 3.

As shown in Table 12 above, the average unlevered beta equals 0.8920. The fact that the unlevered betas are so similar compared to the levered betas shows the impact leverage has on the levered beta estimates.

We next used the average unlevered beta and applied Berkshire's 2010 debt to equity ratio to develop a BNSF levered beta. Producing a BNSF beta in this way takes into consideration the inherent risks in the railroad industry as measured by the average railroad industry unlevered beta and the financial risk inherent in Berkshire's, and by extension, BNSF's capital structure. We display the calculation of the BNSF levered beta in Table 13 below.

Table 13
Calculation of BNSF Levered Beta

Item (1)	Amount (2)
1. Unlevered Beta [1/]	0.8920
2. Berkshire Debt Capital (billions) [2/]	$58.57
3. Berkshire Equity Capital (billions) [2/]	$197.68
4. Berkshire Debt-to-Equity Ratio [3/]	29.63%
5. Berkshire Debt-to-Equity Ratio [4/]	1.1562

[1/] Table 12.
[2/] Morningstar Berkshire Hathaway A Report.
[3/] Line 2 ÷ Line 3.
[4/] Line 1 x (1 + Line 4).

As shown in Table 13 above, the estimated BNSF levered beta equals 1.1562.

Calculating the levered BNSF beta allowed us next to calculate a weighted-average beta for the railroad industry, including the impact of BNSF, which equaled 1.1576. However, because we are using an estimated beta for BNSF, we applied a Blume Adjustment to the beta estimate. The Blume Adjustment is a well recognized approach for adjusting betas to adjust from historical to prospective bases, and to account for the fact that returns tend to shift toward the market over time.[51] Most financial reporting services use the Blume Adjustment when calculating their beta estimates, including

[51] See the Ibbotson 2011 Valuation Yearbook at 75 to 76. The Blume Adjustment equation is customarily shown as follows: adjusted beta = 0.371 + (0.635 x unadjusted beta). Because the adjustment factors approximate weightings of 33 percent of the market beta of one (1) and 67 percent a company or industry beta, the adjustment is sometimes called the "One-Third/Two-Thirds Adjustment," and simplified to use weightings of 0.33 and 0.67. For our analyses, we used the actual adjustment factors and not the One-Third/Two-Thirds Adjustment.

Bloomberg and Value Line.[52] It is also apt to provide a more accurate long-term representation of the railroad industry beta in general.

Applying the industry-standard Blume Adjustment to the railroad industry beta including BNSF produces an adjusted, levered beta estimate of 1.1061. The resultant CAPM cost of capital, which reflects the influence of BNSF, is shown in Table 14 below.

Table 14
2010 CAPM Cost of Equity Including BNSF

Item (1)	2010 CAPM Cost of Equity (2)
1. Risk Free Rate 1/	4.03%
2. Adjusted Levered Beta 2/	1.1061
3. Market Risk Premium 3/	6.72%
4. Cost of Equity 4/	11.46%

1/ Gray VS at 31.
2/ Source: Crowley/Fapp workpaper "2010 CAPM With Adjusted Betas.xlsx."
3/ Gray VS at 37.
4/ Line 1 + (Line 2 x Line 3).

As shown in Table 14 above, accounting for the BNSF using standard beta estimation procedures produces a CAPM cost of equity of 11.46 percent.

A more sophisticated approach, and one used by Morningstar/Ibbotson, is the calculation of a full information beta. The full-information beta technique utilizes the industry-specific information contained in the betas of conglomerates. First, firm-specific betas are calculated for all firms within the target industry. In addition, the percentage of firm sales that is attributable to a particular industry is computed for each industry in the economy. A cross-sectional regression of beta against the industry

[52] See the Ibbotson 2011 Valuation Yearbook at 81.

percentages is then performed. The resultant coefficients are then market weighted to develop the estimates of pure play industry betas for which data from every participant in the industry has been considered.[53]

We believe including the BNSF in the STB's cost of capital calculation makes sense from both a financial and policy perspective. Depending upon which metrics are used, the BNSF is either the first or second largest railroad in the U.S., and is therefore a key component of the U.S. railroad industry. Additionally, its removal from the composite group disrupts the balance between eastern and western railroads that has prevailed for a large number of years. The railroad companies themselves have repeatedly noted the east is not the west, and removing the BNSF from the group places much greater weight on the performance and risks faced by the eastern railroads. We contend it is difficult to say that a Class I railroad industry cost of capital is being calculated when the one of the largest players, or the largest player, is removed from the calculation.

To estimate the spread including the BNSF would have on the railroad cost of equity, we developed a simple analysis that included the weighted cost of Berkshire CAPM and MS-DCF costs of equity with the three railroad companies included in the composite group. To estimate the BNSF's market weights, we developed the ratio of BNSF's assets to total Berkshire assets, and applied this ratio to Berkshire's equity market cap. These estimated BNSF market caps were used with publicly reported Berkshire share price data and with the market cap and share prices for the three composite railroad companies to develop an industry beta, from which a CAPM cost of equity was developed. To estimate a MS-DCF cost of equity for the industry, we used

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[53] See Ibbotson 2011 Valuation Yearbook at 79, and Kaplan, Paul D, and James D. Peterson, "Full-Information Industry Betas," *Financial Management*, Summer 1998, vol. 27, no. 2, p. 85-93.

the MS-DCF costs of equity for the three composite group railroads and the Berkshire MS-DCF cost of equity as calculated by Morningstar/Ibbotson, and weighted these on their actual or estimated year-end market caps. The result was to develop a CAPM cost of equity of 11.01 percent and MS-DCF cost of equity of 12.86 for an average cost of equity of 11.94 percent. Because this analysis uses the Berkshire cost of equity, it may be lower than if an estimated BNSF cost of equity were used given that the Berkshire cost of equity has been lower than historically attributed to the BNSF. At the very least, it provides an estimated lower bound for an industry cost of equity that included the BNSF.

VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

I, THOMAS D. CROWLEY, verify under penalty of perjury that I have read the foregoing Verified Statement of Thomas D. Crowley, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Thomas D. Crowley

Sworn to and subscribed
before me this 1st day of June, 2011

Diane R. Kavounis
Notary Public for the State of Virginia

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

VERIFICATION

COMMONWEALTH OF VIRGINIA)
)
CITY OF ALEXANDRIA)

I, DANIEL L. FAPP, verify under penalty of perjury that I have read the foregoing Verified Statement of Daniel L. Fapp, that I know the contents thereof, and that the same are true and correct. Further, I certify that I am qualified and authorized to file this statement.

Daniel L. Fapp

Sworn to and subscribed
before me this day 31st day of May, 2011.

Diane R. Kavounis
Notary Public for the State of Virginia

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

STATEMENT OF QUALIFICATIONS

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

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

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

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

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As an economic consultant, I have organized and directed economic studies and prepared reports for railroads, freight forwarders and other carriers, for shippers, for associations and for state governments and other public bodies dealing with transportation and related economic problems. Examples of studies I have participated in include organizing and directing traffic, operational and cost analyses in connection with multiple car movements, unit train operations for coal and other commodities, freight forwarder facilities, TOFC/COFC rail facilities, divisions of through rail rates, operating commuter passenger service, and other studies dealing with markets and the transportation by different modes of various commodities from both eastern and western origins to various destinations in the United States. The nature of these studies enabled me to become familiar with the operating practices and accounting procedures utilized by railroads in the normal course of business.

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

STATEMENT OF QUALIFICATIONS

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

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

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

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

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

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

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

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

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

STATEMENT OF QUALIFICATIONS

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

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

STATEMENT OF QUALIFICATIONS

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

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

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

While at BHP Copper Inc., I was responsible for all financial and administrative functions of the company's transportation group. I also directed the BHP Copper Inc. subsidiary railroads' cost and revenue accounting staff, and managed the San Manuel Arizona Railroad's and BHP Arizona Railroad's dispatchers and the railroad dispatching functions. I served on the company's Commercial and Transportation Management Team and the company's Railroad Acquisition Team where I was responsible for evaluating the acquisition of new railroads,

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

As part of my work for L. E. Peabody & Associates, Inc., I have performed and directed numerous projects and analyses undertaken on behalf of utility companies, short line railroads, bulk shippers, and industry and trade associations. Examples of studies which I have participated in organizing and directing include, traffic, operational and cost analyses in connection with the rail movement of coal, metallic ores, pulp and paper products, and other commodities. I have also analyzed multiple car movements, unit train operations, divisions of through rail rates and switching operations throughout the United States. The nature of these studies enabled me to become familiar with the operating procedures utilized by railroads in the normal course of business.

Since 1997, I have participated in the development of cost of service analyses for the movement of coal over the major eastern and western coal-hauling railroads. I have conducted on-site studies of switching, detention and line-haul activities relating to the handling of coal. I have also participated in and managed several projects assisting short-line railroads. In these engagements, I assisted short-line railroads in their negotiations with connecting Class I carriers, performed railroad property and business evaluations, and worked on rail line abandonment projects.

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

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

In my tenure with L. E. Peabody & Associates, Inc., I have presented stand-alone cost evidence, including discounted cash-flow models and cost of capital determinations, in numerous proceedings before the STB, and presented evidence on railroad fuel surcharges in STB in Ex Parte No. 661, *Rail Fuel Surcharges.* I have submitted evidence on cost of capital determinations and related issues in Ex Parte No. 558 (Sub-No. 10), *Railroad Cost of Capital – 2006,* Ex Parte No. 558 (Sub-No. 11), *Railroad Cost of Capital – 2007*, Ex Parte No. 558 (Sub-No. 12), *Railroad Cost of Capital – 2008,* Ex Parte No. 558 (Sub-No. 13), *Railroad Cost of Capital – 2009,* Ex Parte No. 664, *Methodology To Be Employed In Determining The Railroad Industry Cost Of Capital,* and Ex Parte No. 664 (Sub-No.1), *Use Of A Multi-Stage Discounted Cash Flow Model In Determining The Railroad Industry's Cost Of Capital.* In addition, my reports on railroad valuations have been used as evidence before the Nevada State Tax Commission.

2010 MS-DCF Cost of Equity - CSX

	Item (1)	Source (2)	2006 (3)	2007 (4)	2008 (5)	2009 (6)	2010 (7)
1.	Net Income	Annual Report 10-K 1/	$1,310	$1,336	$1,355	$1,143	$1,563
2.	Extraordinary Items						
	a. Cumulative Effect of Accounting Change, Net of Tax	Annual Report 10-K 1/	$0	$0		$0	$0
	b. Discontinued Operations, Net of Tax	Annual Report 10-K 1/	$0	$100	-$130	$15	$0
	c. Extraordinary gains or losses	Annual Report 10-K 1/	$0	$0		$0	$0
3.	Income Before Extraordinary Items	L1 - (L2a + L2b + L2c)	$1,310	$1,236	$1,485	$1,128	$1,563
4.	Capital Expenditures	Annual Report 10-K 1/	$1,639	$1,773	$1,719	$1,427	$1,825
5.	Depreciation	Annual Report 10-K 1/	$867	$890	$914	$903	$947
6.	Deferred Taxes	Annual Report 10-K 1/	$42	$272	$428	$430	$474
7.	Cashflow	L3 - L4 + L5 + L6	$580	$625	$1,108	$1,034	$1,159
8.	Revenues	Annual Report 10-K 1/	$9,566	$10,030	$11,255	$9,041	$10,636
9.	Average Cashflow as a Percentage of Revenues	Sum L7 ÷ Sum L8	8.92%				
10.	2010 Average Cashflow	L8,C7 x L9	$948.50				
11.	Average Income Before Extraordinary Items as Percentage of Sales	Sum L3 ÷ Sum L8	13.30%				
12.	2010 Average Income Before Extraordinary Items	L8,C7 x L11	$1,414.96				

1/ Column (3) based on 2008 Form 10-K. Column (4) based on 2009 Form 10-K. Columns (5) to (7) based on 2010 Form 10-K.

2010 MS-DCF Cost of Equity - NS

	Item (1)	Source (2)	2006 (3)	2007 (4)	2008 (5)	2009 (6)	2010 (7)
1.	Net Income	Annual Report 10-K 1/	$1,481	$1,464	1716	$1,034	$1,496
2.	Extraordinary Items						
	a. Cumulative Effect of Accounting Change, Net of Tax	Annual Report 10-K 1/	$0	$0	$0	$0	$0
	b. Discontinued Operations, Net of Tax	Annual Report 10-K 1/	$0	$0	$0	$0	$0
	c. Extraordinary gains or losses	Annual Report 10-K 1/	$0	$0	$0	$0	$0
3.	Income Before Extraordinary Items	L1 - (L2a + L2b + L2c)	$1,481	$1,464	$1,716	$1,034	$1,496
4.	Capital Expenditures	Annual Report 10-K 1/	$1,178	$1,341	$1,558	$1,299	$1,470
5.	Depreciation	Annual Report 10-K 1/	750	786	$815	845	$826
6.	Deferred Taxes	Annual Report 10-K 1/	-8	125	$290	338	312
7.	Cashflow	L3 - L4 + L5 + L6	$1,045	$1,034	$1,263	$918	$1,164
8.	Revenues	Annual Report 10-K 1/	$9,407	$9,432	$10,661	$7,969	$9,516
9.	Average Cashflow as a Percentage of Revenues	Sum L7 ÷ Sum L8	11.54%				
10.	2010 Average Cashflow	L8,C7 x L9	$1,098.54				
11.	Average Income Before Extraordinary Items as Percentage of Sales	Sum L3 ÷ Sum L8	15.30%				
12.	2010 Average Income Before Extraordinary Items	L8,C7 x L11	$1,456.41				

1/ Column (3) based on 2008 Form 10-K. Column (4) based on 2009 Form 10-K. Columns (5) to (7) based on 2010 Form 10-K.

2010 MS-DCF Cost of Equity - UP

Item (1)	Source (2)	2006 (3)	2007 (4)	2008 (5)	2009 (6)	2010 (7)
1. Net Income	Annual Report 10-K 1/	$1,606	$1,855	2335	$1,890	$2,780
2. Extraordinary Items						
a. Cumulative Effect of Accounting Change, Net of Tax	Annual Report 10-K 1/	$0	$0	$0	$0	$0
b. Discontinued Operations, Net of Tax	Annual Report 10-K 1/	$0	$0	$0	$0	$0
c. Extraordinary gains or losses	Annual Report 10-K 1/	$0	$0	$0	$0	$0
3. Income Before Extraordinary Items	L1 - (L2a + L2b + L2c)	$1,606	$1,855	$2,335	$1,890	$2,780
4. Capital Expenditures	Annual Report 10-K 1/	$2,242	$2,496	$2,754	$2,354	$2,482
5. Depreciation	Annual Report 10-K 1/	$1,237	$1,321	$1,366	$1,427	$1,487
6. Deferred Taxes	Annual Report 10-K 1/	$235	$332	$545	$718	672
7. Cashflow	L3 - L4 + L5 + L6	$836	$1,012	$1,492	$1,681	$2,457
8. Revenues	Annual Report 10-K 1/	$15,578	$16,283	17970	$14,143	$16,965
9. Average Cashflow as a Percentage of Revenues	Sum L7 ÷ Sum L8	9.24%				
10. 2010 Average Cashflow	L8,C7 x L9	$1,567.41				
11. Average Income Before Extraordinary Items as Percentage of Sales	Sum L3 ÷ Sum L8	12.93%				
12. 2010 Average Income Before Extraordinary Items	L8,C7 x L11	$2,193.70				

1/ Column (3) based on 2008 Form 10-K. Column (4) based on 2009 Form 10-K. Columns (5) to (7) based on 2010 Form 10-K.

2010 MS-DCF Railroad Cost of Equity

	Item (1)	CSX Nominal/ Year-End (2)	CSX Present Value (3)	NS Nominal/ Year-End (4)	NS Present Value (5)	UP Nominal/ Year-End (6)	UP Present Value (7)
1.	Normalized Cashflow 1/	$949		$1,099		$1,567	
2.	Normalized Earnings Before Extraordinary Items 2/	$1,415		$1,456		$2,194	
3.	Stage One Growth 3/	7.90%		2.50%		18.50%	
4.	Stage Two Growth 4/	9.63%		9.63%		9.63%	
5.	Stage Three Growth 5/	5.80%		5.80%		5.80%	
	Year	Year-End 6/	PV 7/	Year-End 6/	PV 7/	Year-End 6/	PV 7/
6.	1	$1,023	$911	$1,126	$1,007	$1,857	$1,630
7.	2	$1,104	$874	$1,154	$924	$2,201	$1,694
8.	3	$1,192	$839	$1,183	$847	$2,608	$1,761
9.	4	$1,286	$806	$1,213	$777	$3,091	$1,831
10.	5	$1,387	$774	$1,243	$712	$3,662	$1,904
11.	6	$1,521	$755	$1,363	$699	$4,015	$1,831
12.	7	$1,667	$736	$1,494	$685	$4,402	$1,762
13.	8	$1,828	$718	$1,638	$672	$4,826	$1,695
14.	9	$2,004	$701	$1,796	$660	$5,291	$1,630
15.	10	$2,197	$683	$1,969	$647	$5,801	$1,568
16.	Terminal	$52,652	$16,379	$46,241	$15,196	$105,037	$28,389
17.	Sum of Present Values 8/		$24,176		$22,827		$45,695
18.	Equity Market Cap 9/	$24,176		$22,827		$45,695	
19.	Difference in Equity Market Cap and Present Value of Cash flows 10/	$0		$0		$0	
20.	Implicit Cost of Equity 11/	12.39%		11.77%		13.98%	
21.	Equity Weights 12/	26.08%		24.63%		49.29%	
22.	Weighted Cost of Equity 13/	13.02%					

2010 MS-DCF Railroad Cost of Equity

1/ Individual railroad cash flow and earnings before extraordinary items calculations Line 10.
2/ Individual railroad cash flow and earnings before extraordinary items calculations Line 12.
3/ Adjusted median January 2011 I/B/E/S long-term earnings per share growth forecasts.
4/ Simple average of line 3.
5/ Difference between 20-Year T-Bond and Inflation Adjusted 20-Year T-Bond, plus historic change in real GDP from 2019 to 2010.
6/ Line 6 = Line 1 x (1 + Line 3).
Lines 7 to 10 = Prior Year-End Cashflow x (1 + Line 3).
Lines 11 to 15 = Prior Year-End Cashflow x (1 + Line 4).
Line 16 = {Line 2 x [(1 + Line 3)^5] x [(1 + Line 4)^5] x (1+ Line 5)} ÷ (Line 20 - Line 5).
7/ Lines 6 to 15 = Current Year Column (2) ÷ [(1 + Line 20)^Current Year Column (1)].
Line16 = Current Year Column (2) ÷ [(1 + Line 20)^Line 15, Column (1)].
8/ Sum of Lines 6 to 16.
9/ Grey VS at 44.
10/ Line 17 - Line 18.
11/ The implicit discount rate that sets Line 19 equal to zero (0).
12/ Line 18, Column (2), (4), (6) and (8) ÷ Sum of Line 18.
13/ Sum product of Line 10 and Line 21.

Impact Of Removing BNSF From Pre-Tax and After-Tax Costs of Equity

	Year (1)	Railroad After-Tax Cost of Equity With BNSF (2)	Railroad After-Tax Cost of Equity Without BNSF (3)	Difference 1/ (4)	Railroad Pre-Tax Cost of Equity With BNSF (5)	Railroad Pre-Tax Cost of Equity Without BNSF (6)	Difference 2/ (7)
1.	1998	13.11%	13.25%	0.14%	20.17%	20.38%	0.22%
2.	1999	12.90%	13.30%	0.40%	19.85%	20.46%	0.62%
3.	2000	13.90%	15.00%	1.10%	21.38%	23.08%	1.69%
4.	2001	12.80%	13.50%	0.70%	19.69%	20.77%	1.08%
5.	2002	12.60%	13.18%	0.58%	19.38%	20.28%	0.89%
6.	2003	12.70%	13.24%	0.54%	19.54%	20.37%	0.83%
7.	2004	13.16%	13.30%	0.14%	20.25%	20.46%	0.22%
8.	2005	15.18%	15.41%	0.23%	23.35%	23.71%	0.35%
9.	2006	11.13%	11.13%	0.00%	17.12%	17.12%	0.00%
10.	2007	12.68%	12.72%	0.04%	19.51%	19.57%	0.06%
11.	2008	13.17%	13.52%	0.35%	20.26%	20.80%	0.54%
12.	2009	12.37%	12.71%	0.33%	19.03%	19.55%	0.52%
13.	Average Difference	---	---	0.34%	---	---	0.53%

1/ Column (3) - Column (2).
2/ Column (6) - Column (5).

Impact Of Removing BNSF From Pre-Tax and After-Tax Costs of Capital

	Year (1)	Railroad After-Tax Cost of Capital With BNSF (2)	Railroad After-Tax Cost of Capital Without BNSF (3)	Difference 1/ (4)	Railroad Pre-Tax Cost of Capital With BNSF (5)	Railroad Pre-Tax Cost of Capital Without BNSF (6)	Difference 2/ (7)
1.	1998	10.70%	10.50%	-0.20%	15.10%	14.80%	-0.30%
2.	1999	10.80%	10.90%	0.10%	15.10%	15.30%	0.20%
3.	2000	11.00%	11.30%	0.30%	14.90%	15.30%	0.40%
4.	2001	10.20%	10.40%	0.20%	14.10%	14.30%	0.20%
5.	2002	9.80%	10.00%	0.20%	13.60%	13.90%	0.30%
6.	2003	9.40%	9.60%	0.20%	13.30%	13.70%	0.40%
7.	2004	10.10%	10.00%	-0.10%	14.50%	14.30%	-0.20%
8.	2005	12.20%	12.10%	-0.10%	17.90%	17.70%	-0.20%
9.	2006	9.94%	9.88%	-0.06%	14.55%	14.44%	-0.11%
10.	2007	11.33%	11.36%	0.03%	16.75%	16.78%	0.03%
11.	2008	11.75%	12.04%	0.29%	17.32%	17.75%	0.43%
12.	2009	10.43%	10.63%	0.20%	15.15%	15.42%	0.27%
13.	Median Difference	---	---	0.15%	---	---	0.20%

1/ Column (3) - Column (2).
2/ Column (6) - Column (5).