

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

EX PARTE 664

***METHODOLOGY TO BE EMPLOYED IN DETERMINING THE RAILROAD
INDUSTRY'S COST OF CAPITAL***

**WRITTEN TESTIMONY OF
NORFOLK SOUTHERN CORPORATION**

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Dated: November 27, 2007

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Norfolk Southern Corporation ("Norfolk Southern") provides these comments for the Board's hearing in Ex Parte 664, which is a rulemaking to address the methodology to be employed in determining the railroad industry's cost of capital.

Railroads must be attractive to investors. It has been a long time since it last occurred, but one does not have to stretch the imagination very far to see a time when railroads may have to approach equity markets to be able to make the size investment in infrastructure that the recent Cambridge Systematics, Inc., study predicted will be required. If the projections of growth in freight demand come true, railroads will quite probably need to go to the equity market to raise funds to grow their infrastructure to handle the projected increases. But railroads will not get the necessary funding from the equity market if investors view railroads as being unattractive, capped at an artificially low rate, unwilling or unable to return investors a fair return on their investment, or some combination thereof.

The core question is whether an investor would invest in an industry with what could be seen as a regulatory-prescribed seven or eight percent return (which is not guaranteed) that (1) has high fixed costs and long-lived assets; (2) has most of its business subject to intense competition and the remainder subject to potential rate caps imposed by the government; (3) faces risks that legislation or regulatory changes could undermine the industry; (4) is forced to assume risks related to the transportation of commodities that it is required by the government to transport; and (5) faces ordinary business risks associated with the health of its customers and their industries. Certainly, railroads work to address and minimize these risks and take steps to make themselves more attractive to investors – just as any company does. But, setting the industry’s regulatory cost of capital too low will undercut those efforts and adversely affect the railroads’ ability to raise money from the equity markets, if and when they need to do so.

In these comments, Norfolk Southern will discuss the need for railroads to have access to capital to fund capacity expansion to meet the nation’s transportation needs. Next, it will examine why setting the industry’s regulatory cost of capital too low will adversely affect a railroad’s ability to raise the money that will likely be needed to fund expansion. Actions that deter private money from being available to railroads at reasonable terms will leave a greater burden for government to shoulder and may not be the best public policy. Norfolk Southern will then address the relative risks of understating and overstating the railroad industry’s cost of capital. Finally, Norfolk Southern will address the Board’s proposal to jettison its long-standing use of the discounted cash flow (“DCF”) method in favor of the more subjective capital asset pricing model (“CAPM”). In particular, Norfolk Southern contends that the Board

should reconsider its decision not to use its long-tenured DCF model; but at a minimum, the Board should not rely solely on CAPM because it involves substantially more subjectivity than DCF.

Because the Board's notice for this hearing focused exclusively on the cost of capital, Norfolk Southern will not discuss at length the issue which is of at least equal importance -- the use of replacement costs when determining a railroad's asset base. When we are considering whether to make new investments or to replace or abandon a line, Norfolk Southern reviews replacement cost data because historic costs often reflect only a fraction of the current cost of replacing those assets. Replacement costs are critically important to our business at all times, but are particularly important in these times when public policy must promote expansion of railroad capacity to meet the nation's transportation needs. As Norfolk Southern noted in its earlier comments in this proceeding, the Board should use replacement costs in its annual revenue adequacy determination.

I. THE BOARD SHOULD BE CONCERNED ABOUT THE RAILROAD INDUSTRY'S ABILITY TO ATTRACT AND RETAIN CAPITAL.

There is an important backdrop to these proceedings. Recent growth in demand for freight transportation, projections of tremendous further growth in demand for freight transportation over the coming decades, the desire for railroads to invest in the capacity to meet that need, and the ability of railroads to generate returns and access and retain capital sufficient to invest in that capacity comprise that backdrop. Discounted cash flows, betas, market risk premiums, risk free rates, and the like are important; having railroads attractive enough financially to access capital, potentially through the equity

markets, to invest in the capacity to meet the future demands for freight transportation is critical.

All parties agree that railroads will need increased capacity to maintain and improve service. The demand for freight transportation has grown and is projected to continue to grow. The United States Department of Transportation (“U.S. DOT”) has estimated that the demand for freight transportation will increase by 55 percent between 1998 and 2020.¹ More recently, DOT projected that total freight transportation demand will rise 92 percent from 2002 to 2035, including an 88 percent increase for railroads.² Similarly, the American Association of State Highway and Transportation Officials projected that freight tonnage will grow by almost 57 percent between 2000 and 2020. Whether 88 percent, 55 percent, 57 percent, or some other percent is the exact right estimate is not what is important. What is important is that demand has been growing and is expected to continue to grow substantially. And if this substantial growth in demand occurs, it is very likely that railroads will need to go into the equity market to obtain the large sums necessary to finance the capacity needed to meet the increased demand.³

¹ U.S. DOT, Federal Highway Administration, *Freight Analysis Framework*, October 2002.

² Federal Highway Administration, *Freight Facts and Figures 2006*, Table 2.1.

³ Railroads will be critical to meet this growing demand for freight transportation because highways will be unable to absorb that kind of growth in demand for freight transportation. Highways are already choked; and highway capacity is not likely to expand to any significant degree. AASHTO, *Freight Rail Bottom-Line Report*, at 2; see also Testimony of Jeffrey N. Shane, Under Secretary of Transportation For Policy, at April 11, 2007, hearing in Ex Parte No. 671, *Rail Capacity and Infrastructure Requirements* (noting that there will not be a second “Eisenhower highway plan”); Statement of Jeffrey N. Shane Before the Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit, U.S. House of Representatives, Jan. 24, 2007 (available at <http://testimony.ost.dot.gov/test/shane1.htm>) (“How will our transportation system handle these demands? We certainly do not plan to more than

There is no disputing the fact that increasing railroad capacity is expensive. U.S. freight railroads have been devoting enormous resources to maintain their existing infrastructure, to improve their operations and infrastructure, and to alleviate the capacity constraints that arise from increasing freight demand. Indeed, from 1996 to 2005, while the average U.S. manufacturer spent 3.4 percent of revenue on capital spending, freight railroads spent 17.2 percent, or more than five times more. Every dollar railroads invest in additional capacity is 100 percent at risk. Unlike utilities, there is no guaranteed return on existing assets, much less on assets under construction.⁴ Because there is no guaranteed return, at Norfolk Southern the bar to determine whether to invest in additional capacity or infrastructure is higher than our internal cost of capital calculation.

Although more investment and expansion will be needed,⁵ it is quite possible that railroads will not be able to fund the expansion necessary to maintain rail's market share without recourse to external capital. Cambridge Systematics, Inc., recently completed a study to determine the amount of investment that would be required over the next 28

double the number of lanes-miles of highways. Lane-miles of highways have increased by only 5.3 percent over the past 24 years, and an extrapolation to 2050 suggests that highway capacity will only increase by 10 percent by that year").

⁴ For example, Wisconsin Power and Light recently sought authority to construct, own, and operate a wind farm. In approving the project, the Public Service Commission of Wisconsin authorized a return on equity of 10.5 percent for the 20-year life span of the project. Application of Wisconsin Power and Light Company for a Certificate of Authority to Construct and Operate a Wind Electric Generation Facility Known as Cedar Ridge Wind Farm in Fond du Lac County, and an Application for Approval of Fixed Financial Parameters and Capital Cost Rate-Making Principles for the Cedar Ridge Wind Farm Project, filed May 10, 2007, in Public Service Commission of Wisconsin, Docket No. 6680-CE-171, at 5. When railroads invest in new infrastructure they are not guaranteed any return on their investment. The railroads' investments are 100 percent at risk.

⁵ See Ex Parte 664, Methodology to Be Employed in Determining the Railroad Industry's Cost of Capital, Reply Comments of the U.S. Department of Transportation, at 7 ("Reply Comments of U.S. DOT").

years for railroads to meet the U.S. Department of Transportation's ("U.S. DOT") forecast of growth in freight demand.⁶ It assumes that rail's market share will remain unchanged over that time period. Of the \$148 billion that the study estimates will be required over the next 28 years to keep pace with the economic growth and meet the U.S. DOT's forecasted demand, Class I freight railroads' share is projected to be \$135 billion.⁷

The report concludes that the Class I railroads will not be able to generate all of the \$135 billion through increased earnings from revenue growth, higher volumes, and productivity improvements, while continuing to renew existing infrastructure and equipment. A balance of \$39 billion, or about \$1.4 billion per year, would be left for the Class I freight railroads to fund "from railroad investment tax incentives, public-private partnerships, or other sources."⁸ Those other sources would include borrowing and equity issuances, both of which would be adversely affected by a regulatory cost of capital that is too low.

With the projected large increases in freight demand and the nation already on the brink of a transportation crisis, one or more railroads may need to seek an infusion of cash by issuing additional equity to invest in needed capacity. If and when railroads seek that additional capital, it is critical that the market view railroads as a favorably investment.

⁶ National Rail Freight Infrastructure Capacity and Investment Study, by Cambridge Systematics, at ES-1 (September 2007) ("National Rail Freight Study").

⁷ National Rail Freight Study, at ES-1. The study's estimate is conservative because it excludes costs associated with expansion other than capital costs.

⁸ National Rail Freight Study, at 7-6.

II. A LOW COST OF CAPITAL HURTS THE RAILROAD INDUSTRY'S ABILITY TO ATTRACT AND RETAIN CAPITAL.

The only sources of money for railroads to fund the expansion that will likely be required in the future are (1) revenues from customers; (2) debt; (3) equity; and (4) public money. But, a lower cost of capital adversely affects each of the first three. Accordingly, if railroads are to expand their infrastructure, a low cost of capital will place a greater burden on the already cash-strapped federal government to make it happen. The better public policy is to continue to encourage private sector investment by setting a reasonable cost of capital.

A lower cost of capital adversely affects three of the four potential sources of money that are available to railroads. First, a lower cost of capital could result in additional restraints on railroad ratemaking. These constraints would reduce the revenues available to the railroad from certain customers. Thus, the amount of money available within a railroad to invest would also be constrained.

Second, a lower cost of capital will result in a higher cost of borrowing because of the perceived increased risk associated with a railroad. Money would likely still be available to railroads but at less favorable terms. Those less favorable terms will mean that railroads can borrow less than they could at more favorable terms.

Third, a lower cost of capital will result in railroads raising less money in the equity markets. Railroads have not been in the equity market in a long time, but if the large traffic increases materialize, selling equity is a likely source of capacity funding. An artificially low cost of capital would undercut the efforts that railroads, like other companies, take to make their companies attractive enough to attract and retain investor

interest. If regulators say that railroads should earn only eight percent, then railroads will not generate as much money for each share of new stock they issue.

With a lower cost of equity, public funding would have to assume a larger role or much expansion of rail capacity will not occur. Of course, where the government would find that substantial a sum of money is questionable, especially in light of the limited number of dollars in the Federal discretionary budget.

In some ways, railroads are similarly positioned to some of Western Coal Traffic League's ("WCTL") members. Rocky Mountain Power, whose parent PacifiCorp is a member of WCTL, understands the need to have earnings sufficient to attract equity from investors. Donald N. Furman, its Senior Vice President, Regulation and External Affairs, recently testified that his company "now needs additional revenue to maintain and expand critical infrastructure, continue reliable service to customers, and ensure access to needed equity on reasonable terms. It is clear that PacifiCorp is in a growth cycle and needs to be in a position to attract equity from investors."⁹

It appears from WCTL's positions in this proceeding that what is good for the utility goose is not good for the railroad gander. But Mr. Furman's rationale accurately describes the current state of the railroad industry and why the Board must remain focused on how its actions will affect the railroad industry's ability to attract and retain capital. The Board's cost of capital should be on the high side to maximize the likelihood of private sector solutions to the growing transportation and infrastructure crisis.

⁹ Application of Utah Power & Light Company, filed in the Public Service Commission of Utah Docket No. 0403542, Direct Testimony of Donald N. Furman, at 3. Mr. Furman made this point in arguing for rate increases to bring returns up to its cost of equity, and his company's expert submitted multiple methodologies for calculating the cost of equity, including a DCF model and a CAPM model.

III. THE RISKS OF UNDERSTATING THE COST OF CAPITAL FAR OUTWEIGHT THE RISKS OF OVERSTATING IT.

Several facts are undisputed in this proceeding:

- First, the cost of equity is not directly observable in the marketplace and any regulatory calculation is an approximation;
- Second, the railroad industry must make massive investments in additional network infrastructure to meet expected growth in demand in the next three decades;
- Third, Congress required the Board to permit railroads to earn revenues that are adequate to attract and retain needed investment capital;¹⁰
- Fourth, railroads – or any regulated business for that matter – cannot attract and retain sufficient capital when their regulator establishes an artificially low cost of capital, which signals to markets that returns on investments may be restricted in various ways; and
- Fifth, the potential harms to rail customers, consumers, and the United States economy are great if the railroads are prevented by regulation from recovering their actual cost of capital.

When the Board adopts the industry's cost of capital, the public policy question is whether it is riskier for the Board to err on the side of overstating or on the side of understating a regulatory estimate of the cost of capital.

The risk of overstating the railroads' regulatory cost of capital is that the railroads may be somewhat healthier and railroad investors will have excess returns and attract more capital to the industry. As a result, healthier more attractive railroads may be able to justify additional investment in infrastructure projects sooner.

The risk of understating the railroads' cost of capital is that the railroads will not be able to attract and retain the capital they will need to meet the growing demand for freight transportation and that rail customers, consumers, and the United States economy

¹⁰ 49 U.S.C. 10101(3)-(4).

will suffer. Moreover, an artificially low cost of capital could result in shrinkage of rail infrastructure and deterioration of capacity should the market perceive that the regulatory cost of capital is the maximum return a railroad can earn over some long period of time.¹¹

Accordingly, the market would likely make demands on the railroads. First, the market would discourage railroads from investing in their systems when below market returns (at best) would be expected. As a utility's witness recently testified, "[e]quity investors expect a return on their capital commensurate with the risks they take and consistent with returns that might be available from other similar investments."¹² Second, if the market cannot have a reasonable expectation that capital reinvested in the railroad will earn at least a market return, then the market acting through shareholders will insist that capital be returned to them so that they can invest it elsewhere and earn market returns that are not artificially capped. Third, the market could demand that railroads take both of these actions

Norfolk Southern respectfully submits that in these times of constrained transportation capacity, it would be irresponsible public policy to err on the side of understating the railroads' regulatory cost of capital. The risks are simply too great.

¹¹ See Comments of The Children's Investment Fund, at 4 ("As an investor we are deeply concerned that the Board may be pressured to change the rate case methodology away from stand-alone costs (after finding railroads to be revenue adequate) to in effect cap revenues at levels required to be revenue adequate.").

¹² In the Matter of the Application of Rocky Mountain Power for Approval of Changes to Its Electric Service Schedules, filed June 8, 2007, in Idaho Public Utilities Commission Case No. PAC-E-07-05, Direct Testimony of Samuel C. Hadaway, at 5 ("Direct Testimony of Samuel C. Hadaway").

IV. THE BOARD SHOULD NOT JETTISON ITS LONG-TENURED DCF MODEL AND SHOULD AVOID UNREALISTIC INPUTS FOR THE MULTIPLE SUBJECTIVE ELEMENTS OF CAPM.

A. DCF Remains Widely Used and a Reasonable Methodology.

Although this hearing is about the Board's proposal to move to CAPM for regulatory purposes and about the Board's proposed method for implementing CAPM, NS believes DCF should not be written off by the Board. NS uses the DCF model, along with a CAPM model, internally, and DCF is used in many regulatory forums. Retaining the DCF would be a reasonable choice, and the Board should reconsider its decision to abandon it.

Any thought that DCF generally is dead is incorrect. Pennsylvania has a stated preference for DCF.¹³ And the Federal Energy Regulatory Commission uses a DCF model.¹⁴

Some of the pleadings in this matter are ironic because the railroads' utility customers seem to argue that DCF is no longer an appropriate tool for calculating the railroads' cost of equity despite their own use of DCF in their own regulatory proceedings. For example, just this year, Rocky Mountain Power sought approval from

¹³ Office of Small Business Advocate, Office of Consumer Advocate, Mary Kay Gummo, Michael Blake v. PPL Gas Utilities Corporation, in Pennsylvania Public Utility Commission, Office, Docket No. R-00061398; R-00061398C0001; R-00061398C0002; R-00061398C0003; R-00061398C0004 2007 Pa. PUC LEXIS 2, at *167-171 (February 8, 2007). Only in a recent decision has the Pennsylvania Public Utility Commission even used other models as a check on its preferred DCF. Id.

¹⁴ Cost-of-Service Rates Manual, Federal Energy Regulatory Commission, at 16 (June 1999) (explaining FERC's use of a two-stage DCF). In July 2007, the Federal Energy Regulatory Commission reaffirmed its use of a DCF, although it considered whether to expand the appropriate proxy group. Commission Proposes to Modify Rate of Return Standards For Interstate Gas, Oil Pipeline Companies, Federal Energy Regulatory Commission press release (July 19, 2007), available at <http://www.ferc.gov/news/news-releases/2007/2007-3/07-19-07-G-1.pdf>.

the Idaho Public Utilities Commission to change its rate schedules for electric service. Its expert testified as follows: “the DCF model has a sound basis in theory, and many argue that it has the additional advantage of simplicity.”¹⁵ Similarly, Wisconsin Power and Light’s expert in a recent regulatory proceeding before the Public Service Commission of Wisconsin noted that the DCF model “is widely used in valuing entire companies.”¹⁶ It seems the DCF only lacks value for railroads – but not for WCTL’s members.

The Board in its Notice of Proposed Rulemaking had one rationale for rejecting its long-used DCF model. The Board noted that the DCF was easy to use because most of the inputs were readily available, but expressed concern about the only variable that had any element of subjectivity – the long term growth rate.¹⁷ Estimating the DCF input of long-term growth can be tricky at times. But as Rocky Mountain Power’s expert noted, “[w]hile the caveat about estimating long-term growth must be observed, the DCF model’s other inputs are readily obtainable, and the model’s results typically are consistent with capital market behavior.”¹⁸ That one variable was somewhat subjective was no reason to jettison DCF.

Because DCF is widely used, including by WCTL’s members in their own regulatory proceedings, the Board should reconsider its proposed abandonment of its long-tenured DCF model. The Board especially should reconsider its rationale for

¹⁵ Direct Testimony of Samuel C. Hadaway, at 12.

¹⁶ Application of Wisconsin Power and Light Company, filed September 13, 2006, in Public Service Commission of Wisconsin Docket No. 6680-CE-171, Pre-Filed Direct Testimony of James M. Coyne, at 7 (using both DCF and CAPM to determine cost of equity).

¹⁷ Ex Pate 664, Methodology to Be Employed in Determining the Railroad Industry’s Cost of Capital, Notice, at 4 (served August 14, 2007).

¹⁸ Direct Testimony of Samuel C. Hadaway, at 12.

abandoning DCF, because a methodology with only one subjective input is far better for regulatory purposes than exclusive reliance on the CAPM methodology, which has three subjective inputs – the market risk premium, the risk free rate, and the beta.

B. Use of Several Approaches To Estimate the Cost of Equity May Be Appropriate.

Even if the Board continues to pursue alternatives to DCF, it should not abandon DCF altogether. Many state regulatory agencies use other methodologies either as a reality check on a DCF model or in conjunction with a DCF model. Internally, NS uses both DCF and CAPM to evaluate its own cost of equity.

There are good reasons to use both methodologies. As an expert witness for North States Power Company, whose parent is Xcel Energy and a member of WCTL, recently testified before the Public Service Commission of Wisconsin:

The cost of equity is not directly observable in the marketplace. Therefore, to estimate the cost of equity, one must take cognizance of financial theory, the legal and regulatory framework for ratemaking and investor perceptions and judgments. There is no one approach that is now recognized, or should be recognized, as the best way to determine the cost of equity.¹⁹

The expert then submitted calculations from both DCF and CAPM.

Indeed, many state regulatory commissions use both DCF and CAPM (as well as other methodologies) in determining the cost of equity. Based on a quick look, it appears that a sample of states that use at least DCF and CAPM would include Georgia, Kentucky, Kansas, North Carolina, South Carolina, and Texas.

¹⁹ Application of Northern States Power Company, a Wisconsin Corporation and Wholly Owned Subsidiary of Xcel Energy, Inc., for Authority to Adjust Electric and Natural Gas Rates, filed June 1, 2007, in Public Service Commission of Wisconsin Docket No. 4220-UR-115, Direct Testimony of Zvi Benderly, at 2-3.

**C. CAPM May Also Be a Reasonable Approach, But Care Is Required
Because It Has Inputs That Require Subjective Determinations.**

CAPM, properly applied, may also be a reasonable choice. The Board should not ignore the fact that CAPM has many inputs that require substantial subjective determinations. Whereas the DCF has one input that is difficult to determine, CAPM has three inputs that are difficult to determine.

Indeed, because elements of CAPM are so subjective, some utilities have argued that CAPM is inappropriate for regulatory purposes. South Carolina Electric and Gas Company's ("SCE&G") expert witness, in a 2002 regulatory proceeding, relied exclusively on DCF. He "rejected the capital asset pricing model because it is not a reliable and useful analytical tool for estimating SCE&G's cost of equity capital." In particular, he concluded that in each analysis performed using CAPM, "the results are unreliable and grossly understate the required rate of return for SCE&G."²⁰ Relying on this and other testimony, the Public Service Commission of South Carolina rejected all CAPM models submitted to it because "reasonable expectations of returns in the markets are indeed greater than those indicated in the CAPM model."²¹ The concern SCG&E's

²⁰ Application of South Carolina Electric and Gas Company for Approval of an Increase in Its Electric Rates and Charges, filed November 12, 2002, in Public Service Commission of South Carolina Docket No. 2002-223-E, Rebuttal Testimony of Burton G. Malkiel, at 5.

²¹ Application of South Carolina Electric and Gas Company for Approval of an Increase in Its Electric Rates and Charges, filed November 12, 2002, in Public Service Commission of South Carolina Docket No. 2002-223-E, Order No. 2003-38, at 55 (Jan. 31, 2003) ("The Commission finds that the results of the CAPM model, when measured against present economic conditions and investor's expectations, does not produce credible results."). The Commission held that it was "convinced that the most prudent, just and reasonable response to the financial evidence, to present business conditions, and to the interrelated interests of the Company and its customers, is to set a rate of return for the utility at the high end of the return-on-equity range." *Id.* at 70.

expert expressed is the same concern that Norfolk Southern, the AAR, and other railroads have made in this proceeding. CAPM, as the Board proposes to implement it, understates the cost of equity.

Norfolk Southern is concerned that the Board has chosen inputs for its CAPM that are unrealistic – the market risk premium, risk free rate, and beta are all low. NS incorporates here by reference the criticisms of the Board’s proposed implementation of CAPM that have been submitted in this proceeding by the Association of American Railroad. Indeed, many of the criticisms leveled against the Board’s implementation of CAPM have been made in state regulatory proceedings – by members of WCTL.²²

The bottom line is that the results of the various available methodologies – CAPM, DCF, the Ohlson-Juettner model, and other models, properly applied -- should produce results that fall within a relatively narrow range.²³ In light of the round criticisms of CAPM’s use for regulatory purposes by some utilities in their own proceedings and the criticisms of CAPM as proposed by the Board, the Board at a minimum must reconsider its proposed CAPM methodology.

V. CONCLUSION

Whichever methodology or methodologies the Board decides to use, it must generate a realistic estimate of the cost of capital. In the current environment in which freight capacity is already constrained and forecasts are for further growth in freight demand for years to come, the Board should be extremely cautious not to underestimate

²² See Ex Parte 664, Methodology to Be Employed in Determining the Railroad Industry’s Cost of Capital, Reply Comments of the Association of American Railroads, at 6-8 (filed October 29, 2007).

²³ See Reply Comments of the U.S. DOT, at 2.

the industry's cost of capital. The risks of such an understatement are that railroads will not have access to the capital that will be required to increase capacity. And a rail system with inadequate capacity is not in the interest of anyone – not the railroads, not rail customers, and not taxpayers.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "John M. Scheib". The signature is written in a cursive, flowing style. It is positioned above a horizontal line that separates it from the printed text below.

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