BEFORE THE

SURFACE TRANSPORTATION BOARD

Ex Parte No. 722 (Sub-No. 2)

RAILROAD REVENUE ADEQUACY

Ex Parte No. 664 (Sub-No. 2)

PETITION OF THE WESTERN COAL TRAFFIC LEAGUE TO INSTITUTE A RULEMAKING PROCEEDING TO ABOLISH THE USE OF THE MULTI-STAGE DISCOUNTED CASH FLOW MODEL IN DETERMINING THE RAILROAD INDUSTRY'S COST OF EQUITY CAPITAL

Comments

submitted by

CONCERNED SHIPPER ASSOCIATIONS

American Chemistry Council

The Fertilizer Institute

The Chlorine Institute

The National Industrial
Transportation League

Dated: September 5, 2014

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In a decision served on April 2, 2014, the Surface Transportation Board ("Board" or "STB") issued a Notice announcing that it would receive comments in Docket No. Ex Parte 722 to explore the Board's methodology for determining railroad revenue adequacy, as well as the revenue adequacy component used in judging the reasonableness of rail freight rates. The Board announced that it would also receive comments in Docket No. Ex Parte 664 (Sub-No. 2) on how it calculates the railroad industry cost of capital.

I. INTRODUCTION AND STATEMENT OF INTEREST

These Comments are submitted by a group of Concerned Shipper Associations in response to the Board's Notice. The Concerned Shipper Associations are the American

Chemistry Council, The Fertilizer Institute, The National Industrial Transportation League, and The Chlorine Institute. The members of these associations are primarily carload shippers for whom the Board's well-established Stand-Alone Cost ("SAC") constraint upon rail rates has not been an effective, practical, or economic process for challenging the reasonableness of exceedingly high, and rapidly increasing, rail rates. As rail carriers have become revenue adequate in recent years, even under the very high bar that the Board has established, it is time for the Board to develop procedures for implementing the revenue adequacy constraint adopted by the Interstate Commerce Commission in Ex Parte No. 347 (Sub-No. 1) Coal Rate Guidelines Nationwide, 1 I.C.C. 2d 520, 534 (1985), aff'd sub. nom. Conrail v. United States, 812 F.2d 1444 (3rd Cir. 1987) ("Coal Rate Guidelines"), to provide an alternative, and potentially more efficient and cost-effective method to determine the reasonableness of rail freight rates.

II. BACKGROUND

Pursuant to 49 U.S.C. § 10704(a), the Board is required to "maintain and revise as necessary standards and procedures for establishing revenue levels for rail carriers . . . that are adequate, under honest, economical and efficient management, to cover total operating expenses . . . plus a reasonable and economic profit or return (or both) on capital employed in the business." Under the statute, these revenue levels must provide a flow of net income "adequate to support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital[,] cover the effects of inflation . . . and attract and retain capital. . . ." The statute also requires the Board to annually determine, on the basis of these standards, "which carriers are earning adequate revenues." 49 U.S.C. § 10704(a). The agency has determined that the statutory revenue adequacy requirement is satisfied only by a standard that "uses a rate of return equal to the [carriers'] cost of capital." Standards for R.R. Revenue

Adequacy, 364 I.C.C. 803, 811 (1981), aff'd sub nom. Bessemer and Lake Erie R.R. v. ICC, 691 F.2d 1104 (3d Cir. 1982).

As the Board indicated in its Notice in this proceeding, "[t]he concept of revenue adequacy is also a component of the Board's standards for judging the reasonableness of rail freight rates, as set forth in Coal Rate Guidelines." Notice, p. 3. In this respect, the concept of revenue adequacy is a limit on the pricing power of rail carriers that are subject to the Board's jurisdiction. Specifically, Coal Rate Guidelines provides that the concept of revenue adequacy imposes a "constraint[] on the extent to which a railroad may charge differentially higher rates on captive traffic . . ." Coal Rate Guidelines at 534 [emphasis added]. In that decision, the agency explained that the revenue adequacy standard "represents a reasonable level of profitability for a healthy carrier. . . . Carriers do not need greater revenues than this standard permits, and we believe that, in a regulated setting, they are not entitled to any higher revenues." Id. at 535 [emphasis added].

Thus, the very first constraint under Coal Rate Guidelines is "that rates not be designed to earn greater revenues than needed to achieve and maintain this 'revenue adequacy' standard." Id. Indeed, the agency declared emphatically that "captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs." Id. at 536 [emphasis added]. In its decision, the agency announced a high standard for any carrier seeking to earn revenues that would provide it a return on investment above the cost of capital, namely, that it would have to demonstrate "with particularity" the need for higher revenues, the harm that it would suffer if it would not collect them, and why the captive shippers would provide them. Id. The agency concluded that its concept is "simply that a railroad [may] not use differential pricing to consistently earn, over time, a return on investment above the cost of capital." Id. [footnote omitted]

Even though the agency's pronouncements in Coal Rate Guidelines regarding its revenue adequacy constraint were broad and unequivocal, since that decision neither the Interstate Commerce Commission nor the Board has developed any procedures for implementing that constraint. There appears to be two reasons for this. First, as the Board noted in its Notice in this proceeding, the Board has "not yet had the opportunity to address how the revenue adequacy constraint would work in practice in large rail rate cases." Notice, p. 4. As the Board indicated, the only two revenue adequacy-based complaints filed with the Board since its pronouncements in Coal Rate Guidelines either settled or involved a non-rail transportation mode. Thus, the Board has had no opportunity in the context of an individual complaint to flesh out and define the longstanding concepts that it announced in 1985. More importantly, however, the ICC, in Coal Rate Guidelines, clearly indicated that "revenue adequacy is a long-term concept that calls for a company, *over time*, to average return on investment equal to its cost of capital." Id. Until the last decade, few carriers were determined to be revenue adequate even in a single year, much less over any time period.

But that is no longer true. As has been noted widely, since about 2004, the nation's rail carriers have experienced a "pricing renaissance" which has propelled many of them to achieve or exceed the Board's own exceedingly high measure of adequate revenues. Norfolk Southern, for example, has been determined to be "revenue adequate" by the Board in eight of the last ten years; UP has been adjudged by the Board to be revenue adequate for the last four years straight;

and BNSF has been determined to be revenue adequate for the last three years.[1] Indeed, in its most recent revenue adequacy decision issued just three days ago, the Board ruled that five of the seven Class I rail carriers met or exceeded the Board's high standard for revenue adequacy. Railroad Revenue Adequacy – 2013 Determination, served September 2, 2014. As noted in the Verified Statement of Gerald R. Faulhaber, attached as Exhibit A, the rail industry is highly profitable, especially in light of the financial judgments of the markets, and has been so for quite some time. As Professor Faulhaber notes, railroads have become "one of the most profitable industries in the US." Faulhaber V.S., p. 4. Thus, it is time for the Board to address how it will implement the revenue adequacy constraint as the nation's rail carriers have achieved returns equal to or exceeding their cost of capital.

Moreover, there is another significant reason why the Board should develop procedures for applying the revenue adequacy constraint. In addition to the fact that the major Class I rail carriers in the United States have earned revenues in recent years that consistently equal to or exceed their cost of capital, it is also clear that the Board's current primary standard for protecting captive shippers – the Stand-Alone Cost constraint – has become increasingly unworkable. Shippers *always* have been at a substantial disadvantage in applying the SAC constraint, because they do not have the railroads' experience and expertise in rail operations. But this relative lack of knowledge and experience has become an increasing disadvantage as SAC cases have moved beyond an examination of relatively easy hook-and-haul unit train operations, to complex carload stand-alone railroad configurations.[2] In addition, over the years,

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[1] Even CSXT, which has not been revenue adequate in the recent past, has had a rate of return below a revenue adequate return by just 1.32 percentage points in 2013, by 0.33 percentage points in 2012, by a mere 0.03 percentage points in 2011, and by 0.30 percentage points in 2010.
[2] See, Public Serv. Co. of Colo. v. The Burlington Northern and Santa Fe Ry. Co., Docket No. 42057, slip op. at 5 (served Jan. 19, 2005) ("In SAC cases, the railroad has the advantage of

even unit train SAC cases have become increasingly unwieldy, involving hundreds if not thousands of individual evidentiary calculations and determinations, an error in any one of which might undermine or even sink a shipper's case.[3]

As discussed in detail in the attached Verified Statement of Gerald Faulhaber, the economic models upon which the Board's Stand-Alone Cost constraint were developed bear no relationship to the STB-regulated freight industry, and the use of the SAC constraint has no economic validity. Faulhaber V.S., p. 11. Even more problematically, Professor Faulhaber notes that the use of stand-alone cost in actual rate cases has become "hugely expensive for all parties" and is "largely toothless, at least for carload shippers." Id.

Finally, a shipper's invocation of the SAC constraint requires the shipper to pay tariff rates, often at a substantial premium over the high contract rates that the shipper is already paying. The payment of this "tariff premium" – usually for years, as the Board takes evidence and issues a decision – vastly increases the shipper's risk in filing a SAC complaint and makes the SAC option even more difficult and painful.

Thus, although SAC is the only current standard for determining the reasonableness of rail rates, the increasing cost, complexity, and expense of bringing a SAC case *itself* should influence the Board to develop a clearer, shorter, and less expensive standard. Otherwise, the statute's promise that market dominant – and now revenue adequate – carriers' rates must be "reasonable" will lack any real meaning.

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having much greater knowledge and experience in how to construct and operate a railroad. Moreover, as a potential repeat participant in SAC cases, the defendant carrier may have an incentive to contest every detail of a SAC presentation.").

[3] E.g., SunBelt Chlor Alkali Partnership v. Norfolk Southern Ry. Co., Docket No. 42130, slip op. at 31 (served June 20, 2014) (Miller, concurring) ("in some instances the task of designing a 'winning' SARR can be so burdensome, and a single error by the shipper...can be fatal.").

III. CONCERNED SHIPPER ASSOCIATION COMMENTS REGARDING THE ISSUES IN EX PARTE NO. 722

This proceeding was initiated by the issuance of a simple Notice by the Board, indicating that the Board will "receive comments" in the named dockets, and that the Board will schedule a public hearing "to allow participants to appear and discuss the submissions that were made." Notice, p. 1. As this proceeding progresses and as the Board receives and evaluates additional comments by all parties, a more specific set of procedures for implementing the Revenue Adequacy Constraint will undoubtedly emerge.

Through these comments, the Concerned Shipper Associations have chosen to present a broad conceptual framework for the Board to consider as it contemplates the issue of applying the revenue adequacy constraint to judge the reasonableness of freight rates. This framework is intended to serve as an opening "conversation" with the Board and its staff on these important issues. At the outset, however, these Concerned Shipper Associations want to commend the Board for its initiative in beginning this proceeding. As discussed below, these parties believe that it is time for the Board to develop principles and rules that it will use in applying the revenue adequacy constraint to the nation's rail carriers, and to quickly progress beyond the preliminary stage of this proceeding to specific proposals that will implement the revenue adequacy rate constraint in a timely and cost-effective manner.

A. The Board Should Develop Rules and Standards for Applying the Revenue Adequacy Constraint

At the outset, these Concerned Shipper Associations recognize that the Board can proceed to implement its revenue adequacy constraint either by rulemaking or case-by-case adjudication. These parties strongly believe that the Board should use this proceeding to develop a broadly applicable process to apply this constraint, as it has done with respect to its SAC constraint in Coal Rate Guidelines, rather than leave the issue solely to case-by-case determination.

Under the national Rail Transportation Policy, the Board is required "to provide for the expeditious handling and resolution of all proceedings required or permitted to be brought under this part." 49 U.S.C. § 10101(15). The development of a general process for applying the revenue adequacy constraint would implement this policy. In contrast, leaving the matter to case-by-case adjudication would enmesh shippers, carriers, the Board and its staff in vague, directionless, expensive and lengthy litigation. Indeed, there is even more reason to develop a process of general applicability with respect to the revenue adequacy constraint than the SAC constraint, since the revenue adequacy constraint focuses on a few rail carriers, whose revenue adequacy status already has been determined by the Board, rather than on individual movement characteristics as developed by the SAC process. However, like it did in Coal Rate Guidelines, the Board can and should develop general principles, which it may apply and further define in the context of individual cases.

These Concerned Shipper Associations recognize, however, that the revenue adequacy constraint, as with all rate reasonableness determinations, is directed toward "captive shippers." Coal Rate Guidelines, id. at 535. Thus, these parties recognize that, if the revenue adequacy constraint is to be applied in a particular situation, a shipper complainant must show that the carrier is market dominant over the movements at issue. This will require an individualized determination as to the presence or absence of effective competition on such movements.

B. The Board Should Develop Standards and Procedures for Determining the Applicability of the Revenue Adequacy Constraint on Individual Class I Rail Carriers, Including the Length of Time Necessary to Apply the Constraint

One of the most important issues in developing standards and procedures for applying the revenue adequacy constraint is the measure of the time that the Board will use in determining the applicability of that constraint to any particular rail carrier. In Coal Rate Guidelines, the agency noted that "revenue adequacy is a long-term concept that calls for a company, *over time*, to average return on investment equal to its cost of capital." Id., at 536 [emphasis in original]. A couple of conclusions flow from this statement.

First, the agency appears to have determined that a single year of revenue adequacy would not be enough to apply a revenue adequacy constraint – the carrier must be revenue adequate "over time." However, the Board has *not* yet determined the length of time over which a carrier has earned an average return on investment equal to its cost of capital, in order to be "revenue adequate" for the purpose of applying a revenue adequacy constraint.

Second, the agency has clearly indicated that a single year – or even more than one year – of revenue inadequacy would not disqualify a carrier from application of the revenue adequacy constraint, as long as a complainant could show that the carrier has "average return on investment equal to its cost of capital." Id. Thus, for example, a carrier that has averaged returns above its cost of capital over several years would still be subject to the constraint even though it may have fallen short of revenue adequacy in any one or more individual years. These two principles together suggest that the Board should develop a time period over which it would examine the carrier's revenue adequacy status, to determine whether it is subject to the constraint or not. If, over this length of time, a particular carrier has earned a return that equals or exceeds its cost of capital, then the carrier would be subject to the revenue adequacy constraint developed by the Board.

Third, in developing its "long-term concept" that "average[s]" a carrier's returns "over time" in Coal Rate Guidelines, the agency noted the existence of "business cycles producing years during which earnings exceed projections and years when they fall short of the target." Id.

[emphasis added] These Concerned Shipper Associations believe that the time period over which the Board should measure the applicability of the revenue adequacy constraint should clearly *not* be longer than a business cycle. And, since business cycles vary and because it is impossible to tell how long the current business cycle will last, the Board should develop a practical rule and standard for determining the time period to be used for applying its revenue adequacy constraint. One possibility may be to determine the length of an average business cycle: if a carrier averages returns over that period that exceed its cost of capital, then it is subject to the revenue adequacy constraint.[4]

C. The Board Should Develop Rules and Standards for Rate Challenges by Captive Shippers to Fairly Reduce the Rates Of a Carrier Subject to the Revenue Adequacy Rate Constraint If That Carrier's Rates Consistently Produce Returns In Excess Of Its Cost of Capital

As noted above, in Coal Rate Guidelines, the agency indicated that "captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier . . ." The agency's concept was "simply that a railroad not use differential pricing to consistently earn, over time, a return on investment above the cost of capital." Coal Rate Guidelines, id. at 536 [emphasis added]

It flows from these principles that, if a carrier does earn, over time, a return on investment that exceeds its cost of capital, captive shippers should be able to achieve rate reductions that would reduce or eliminate their differentially higher rates. These Concerned Shipper Associations believe that the Board should develop principles and methods for reducing rates of captive shippers that transport goods on rail carriers subject to the revenue adequacy

[4] See, *e.g.*, http://www.nber.org/cycles/cyclesmain.html, from the National Bureau of Economic Research, which provides information on all business cycles over the past century. The NBER statistics indicate that, since 1945, business cycles have averaged about 5.8 years from trough to trough, and 5.7 years from peak to peak.

constraint, at least to the extent that the carrier's returns, over the relevant time period, exceed its cost of capital.

Once the Board has determined the period of time over which it will apply the revenue adequacy constraint, as discussed in the preceding section, a captive shipper should be able to demonstrate its eligibility to invoke the revenue adequacy constraint by demonstrating both that the rail carrier was revenue adequate over the relevant time period and that the railroad possesses market dominance over specific movements. Upon making those two showings, the relevant questions are how much reparations are warranted for the issue traffic, what rate should be prescribed, and how long should the rate prescription last.

As to the first question, not all of a carrier's excess return should be refunded solely to a shipper who brings a complaint. The Board would need to develop a means to fairly allocate an appropriate portion of the excess return in order to determine the reparations that the shipper complainant might receive. There may be many means of fairly calculating reparations in such a circumstance. The Board should take comments, in a future proceeding, on the various means of doing so.

As to the second question, future rates could be set no higher than the level used to determine reparations. Those rates then could be adjusted during the prescription period by changes in the level of the Rail Cost Adjustment Factor-Adjusted (RCAF-A) index.

The final question has many possible answers. The Board would be justified in extending the rate prescription at least as long as the carrier remains revenue adequate, perhaps even longer given that a single year of revenue inadequacy is not indicative of a longer term trend. Alternatively, the Board could prescribe a rate for a 5 or 10 year term, consistent with the prescription periods under the existing rate standards, perhaps with a provision for suspension or early termination if a carrier becomes revenue inadequate over several years during the prescription period.

D. The Board Should Also Develop Simplified and Expedited Procedures to Limit the Ability of Rail Carriers Subject To the Revenue Adequacy Constraint From Increasing Rates In Excess Of Increases In Their Cost of Operations

If a revenue adequacy constraint is to mean anything, it must at least mean that a rail carrier that is subject to the constraint –*i.e.*, a carrier whose return on investment over a relevant time period equals or exceeds its cost of capital – should not be able to increase existing rail rates on market dominant traffic in excess of increases in its cost of operations. These Concerned Shipper Associations believe that, at a minimum, the rates of a carrier subject to the revenue adequacy constraint may not be increased, for market dominant traffic, by more than changes in the RCAF-A.

If a carrier subject to the constraint should attempt to increase a rate or rates beyond this level, the shipper should be able to come before the Board, in an expedited complaint, to seek a rollback of those rates and reparations (based upon the rate prior to the challenged increase), by showing that the revenue adequate carrier (1) possesses market dominance; and (2) is imposing or has imposed a rate increase in excess of the RCAF-A. If the shipper makes this showing, the carrier's rate increase would be presumed to be unreasonable, subject to a showing by the carrier, discussed below, to rebut that presumption by demonstrating that it should be permitted to charge a rate increase above the RCAF-A level. This could be an expedited alternative process for those captive shippers who do not seek reparations for prior years when the railroad was revenue adequate, as discussed in the preceding section, but seek to prevent unwarranted rate increases.

E. The Board Should Develop Standards Consistent With Its Pronouncements in Coal Rate Guidelines For A Carrier To Show That It Still Requires Higher Revenues Despite the Applicability Of the Revenue Adequacy Constraint

As noted above, the agency in Coal Rate Guidelines developed principles that might be applicable to a railroad seeking to earn revenues that would provide it, over the long term, a return on investment above its cost of capital. Specifically, the agency noted that a carrier would have to demonstrate with particularity: (a) a need for the higher revenues; (b) the harm it would suffer if it could not collect them; and, (c) why the captive shippers should provide them. Id. at 536.

These Concerned Shipper Associations recognize that there may be extraordinary circumstances in which carriers might be permitted to retain returns above their cost of capital. These parties believe that the Board should develop standards and procedures, subject to public comment, for making that showing, and believe that the principles enunciated above provide a sound base for the development of those standards and procedures.

IV. CONCERNED SHIPPER ASSOCIATION COMMENTS REGARDING THE ISSUES IN EX PARTE NO. 664 (SUB-NO. 2)

These Comments focus on the principles that the Board should utilize in developing a standard for applying the revenue adequacy component used in judging the reasonableness of freight rates. The focus of these comments, however, should not be construed as indifference to the other issues posed by the Notice. The Concerned Shipper Associations believe that the Board's current methodology for determining revenue adequacy has set the bar exceedingly high for far too long. This was strongly demonstrated by the testimony of Dr. Harvey A. Levine, Professor Alfred E. Kahn, and Professor Jerome E. Hass, submitted in the "Comments of the Edison Electric Institute" in Ex Parte No. 658, The 25th Anniversary of the Staggers Rail Act of

1980: A Review and Look Ahead (filed Oct. 12, 2005).[5] Furthermore, the Concerned Shipper Associations support the Petition of the Western Coal Traffic League, in Ex Parte No. 664 (Sub-No. 2), as an appropriate means to more accurately determine the rail industry's cost of equity, and thus also to determine revenue adequacy.

V. CONCLUSION

The Board, consistent with its prior conclusions, should reaffirm that "captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs." Coal Rate Guidelines at 536. Because most Class I railroads are earning their cost of capital, it is time for the Board to adopt rules for implementing its revenue adequacy constraint. Moreover, the cost, complexity and expense of pursuing a SAC case has rendered the need for a clearer, shorter, and less expensive revenue adequacy standard even more urgent.

The Concerned Shipper Associations urge the Board to expeditiously develop and propose rules for implementing the revenue adequacy constraint based upon the following principles:

- The measure of time that a rail carrier must be revenue adequate before it may be subjected to the revenue adequacy constraint should not be any longer than the length of a typical business cycle.
- The excess revenue that a revenue adequate rail carrier earns over the specified time should be refunded to the shipper upon a successful complaint regarding market dominant traffic, through both reparations and rate prescriptions.
- At a minimum, a captive shipper should be able to bring an expedited complaint against a revenue adequate carrier to challenge a rate increase in excess of the RCAF-A.

[5] The Concerned Shipper Associations have attached a copy of those comments at Exhibit B.

- Standards for a revenue adequate rail carrier seeking to justify rates in excess of the level necessary to earn its cost of capital should be established based upon showing with particularity: (a) a need for the higher revenues, (b) the harm it would suffer if it could not collect them, and (c) why a particular captive shipper should provide them.

- The Board should revise its standards for revenue adequacy as requested by the Western Coal Traffic League in Ex Parte No. 664 (Sub-No. 2).

These Concerned Shipper Associations appreciate the opportunity to submit these Comments, and urge the Board to consult them in developing further proposals to implement its revenue adequacy constraint.

Respectfully submitted,

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Dated: September 5, 2014

EXHIBIT A

VERIFIED STATEMENT

of

Gerald R. Faulhaber[1]

RAILROAD RATES FOR CAPTIVE SHIPPERS: TIME FOR A RESET

The Interstate Commerce Act of 1887 created the Interstate Commerce Commission (ICC), for the purpose of controlling the railroad industry in the US. Regulation grew more stringent through the early part of the 20th century. During the middle third of the 20th century, the industry went into long-term decline, culminating in the spectacular bankruptcy of the Penn Central Railroad in 1970. Having already tried to help the declining industry with more regulation, Congress opted for a deregulatory strategy with the passage of the Staggers Act in 1980, which largely deregulated the industry. Extensive trucking and barge networks, competitive with railroads on many routes, suggested that deregulation with competition would be the better solution to the railroads' decline. Since that time, railroads have vastly improved their efficiency and become one of the most profitable industries in the US economy. The authority of the ICC gradually declined until its elimination in 1995. Remaining regulatory authority was vested in the Surface Transportation Board (STB), housed within the Department of Transportation, in 1996.

What comprises that "remaining regulatory authority"? There were two principal issues of concern to Congress in 1980 as deregulation became the law of the land: (1) would there be

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more railroad bankruptcies? The ICC (and later the STB) were charged with assessing annually the "revenue adequacy" of the major railroads, and report the results to Congress; and (2) control of the rates charged to "captive shippers" by the railroads. As it turns out there are quite a few shippers, such as coal, chemical, agricultural and oil shippers, who ship their bulk commodities from a mine, factory, grain elevator or well which is served only by a single railroad that runs a spur to the shipper's facility, and there are no feasible competitive options (such as barge service) for that shipper. "Captive shippers" constitute transport markets still monopolized by the railroads, with little prospect of ever seeing competition, either from other railroads or alternative transport services. The STB has used the "Stand Alone Cost" test to determine limits on railroad pricing for captive shippers.

In this paper, I first cover the topic of "revenue adequacy", followed by a second section on its current relevance; the third section deals with the Stand Alone Cost test as a limit on captive shipper rates; Finally, I conclude with policy recommendations, specifically focused on the use of stand-alone cost as a prescription for rate-setting for captive shippers in today's rail freight market.

REVENUE ADEQUACY: A POTTED HISTORY

In 1980, Congress was concerned that railroads were on the brink of bankruptcy, with the concomitant fear that economic failure could ruin the nation's transportation infrastructure. Railroads were losing money on many routes, competition from motor freight was increasing, and the roads were operating inefficiently. Quite naturally, the ICC and now the STB were and are vitally interested in the financial health of the rail industry and the sustainability of our nation's rail infrastructure. The Act anticipated that rail rates on competitive routes would fall, as competing railroads vied for customers' business, and that lower rates could further threaten rail firms' financial status, perhaps leading to further bankruptcies, or at the very least impairing the rail firms' abilities to raise private capital to finance maintenance and expansion of the rail infrastructure (see Interstate Commerce Commission (1981), p. 804).

To forestall this unhappy outcome, the ICC and later the STB turned to the captive shippers, over whom the railroads exercised monopoly power. The regulatory agency in charge could ensure the financial health of the railroads by permitting them to charge near-monopoly prices to captive shippers, guaranteeing that rail firms' fixed cost could therefore be covered and avert further bankruptcies, perhaps even financial health.

The Staggers Act required regulators to assess annually, and report to Congress, whether or not railroads are "revenue adequate", a quaint regulatory term which means whether or not the railroads are making sufficient profit to cover their cost of capital and thus able to raise funds in the capital markets to finance maintenance and expansion of their plant and equipment. According to ICC (1985), "revenue adequacy" consists of revenues less accounting costs being greater than the cost of capital. In regulatory practice, this involves comparing each railroad's revenues to its accounting costs, plus a STB-determined cost of capital, determined for the entire industry. This accounting exercise is a relic of regulatory calculations not seen since rate-base rate-of-return calculations virtually abandoned in this country (except at the STB) for well over twenty years, and include obvious major errors, such as (to name but one) using an industry-wide cost of capital when it is patently clear every rail firm will have its own cost of capital, which will depend upon its risk level, management, route structure and customer base. Is it necessary to undertake this antiquated and inaccurate computation? Is the STB providing any useful information to Congress? The answer to this was provided over fifteen years ago to the STB by Kahn (1997), the father of regulatory economics: "The STB's measure of return on investment for each Class I railroad is fraught with short-comings and severely short-sighted; and the cost of capital estimate it uses as a benchmark against which to judge adequacy is severely flawed as well." (quoted in Commerce (2013), p. 9, fn. 36.)

REVENUE ADEQUACY: ARE RAILROADS STILL ON THE BRINK OF BANKRUPTCY?

In fact, two recent staff reports from the Senate Committee on Commerce, Science and Transportation (2010, 2013) demonstrate a clearly superior method for determining revenue adequacy, and imply that the current practice of regulatory determination of "revenue adequacy" is, well, quite inadequate. These reports rely on information regarding financial health of the rail industry generated by the financial services industry, which employs thousands of experts whose sole function is to convey accurate financial information to investors, who are risking their own wealth on the basis of this information. It should be no surprise that such information, tested in the crucible of market competition to meet the needs of people investing their own millions, is far superior to whatever regulatory analysts can compile.

And the information and analysis contained in these reports speaks volumes regarding the financial health of the rail industry. Are bankruptcies still imminent? In the past 34 years, the railroads, facing competition, have slimmed down their staff and their capital investment and become one of the most profitable industries in the US. The concerns that bankruptcy lay right around the corner, relevant in 1980, are a distant memory. Today, the industry is highly profitable and very attractive for many investors. While the railroad industry itself is primarily responsible for this happy state of affairs, the STB should also accept credit for this renaissance for abjuring from imposing unnecessary regulations.

Annually, the STB is required to submit to Congress its findings regarding "revenue adequacy',. However, the Committee Report suggests a much different, much simpler and much more compelling determination of "revenue adequacy", and that is to use financial market data to determine if the firm is earning its cost of capital. Participants in capital markets are betting their own money on how profitable various investments, including railroads, are, and thus determining by their actions if firms such as railroads can raise capital in financial markets. Such participants, who have "skin in the game", are far more likely to assess accurately the finances of railroads than regulators. The STB has merely to duplicate the analyses of the Committee Report to fulfill its annual reporting obligation to Congress.

Recently, the STB issued its Revenue Adequacy Report (2014) and found that five of the seven Class I Freight railroads to be "revenue adequate." In fact, Class 1 railroads have been "revenue adequate" for quite some time, according to the Commerce reports (2010, 2013). Why, it might be asked, is the STB continuing to support high prices to captive shippers? To ensure that there are no further bankruptcies? What possible sense can that make in a world in which the freight railroads are some of the most profitable firms in the US economy? Why does the STB support high rates to monopoly customers?

STAND ALONE COSTS: STILL A SENSIBLE RATE-SETTING MECHANISM?

But the regulators were not persuaded to allow the railroads completely unfettered pricing power over the captive shippers. They believed that competitive entry into these monopoly rail markets was not feasible, so they could not assume that competition would provide the necessary pricing constraints. Instead, they turned to earlier work of Faulhaber (1975) and Baumol, Panzar and Willig (1982) (BPW) to borrow the phrase "stand-alone cost", defined in Faulhaber to be the cost of a service (or subset of services) of a multi-service public enterprise if that service (or subset of services) were offered on a stand-alone basis and not part of the public enterprise. In this context, stand-alone cost was the upper limit on the revenue the enterprise could charge the service(s) in question without incurring cross-subsidy in its rate structure. The same concept was used in BPW to be the upper limit of revenues the enterprise could charge without incurring entry by a competitive firm offering this service(s) in a "contestable market," defined as a market with zero entry and exit costs.

In their Constrained Market Pricing (CMP) rule, the Interstate Commerce Commission (1985) proposed the use, *inter alia*, of stand-alone cost as an upper limit on rates that a railroad could charge a captive shipper, presumably imposing a limit suggested by BPW of a rate just short of inducing competition in a contestable market. The regulator recognized that the rail market for captive shippers was far from contestable, in that entry was highly unlikely, but this theoretical construct of stand-alone cost would constrain railroads from unbridled monopoly pricing, while ensuring, it was hoped, a very substantial contribution to the financial health of the railroads. Unfortunately the regulator did not spell out the details (beyond that contained in Faulhaber and BPW) of how to actually calculate stand-alone costs, which became a source of unending difficulties in subsequent years.

Is the use of stand-alone cost by the STB for rate-setting for captive shippers justified by either the Faulhaber article or the later BPW book? When the author introduced the term "stand alone cost" in the economics literature in 1975, the context was part of a definition of cross-subsidy within the rate structure of a firm (regulated or public) constrained to earn zero economic profit and for which all services provided by the firm are subject to tariffs. What the author demonstrated was (i) services paying less than their long-run incremental cost were receiving a subsidy from other customers; and (ii) service paying more than their stand-alone costs were paying a subsidy for other customers. The relationship between incremental cost and stand alone cost was simply a matter of arithmetic, fully dependent upon the firm being profit-constrained. As I pointed out in Faulhaber (2005), if the firm is not profit-constrained, the stand alone cost has no meaning in the context of cross-subsidy (although incremental cost still does). As a consequence, the use of the stand alone cost test by the STB has nothing to do with cross-subsidy, as railroads are not subject to a profit constraint and by any measure are highly profitable today. Further, the services provided by railroads are not all regulated; services deemed not subject to market dominance are fully deregulated. And the focus of the cross-subsidy work was on well-defined (by tariff) *services* (not individual customers, such as captive shippers). The model of the industry assumed in Faulhaber (1975) bears no relation to the STB-regulated freight shipping industry, and never has. Conclusion: there can be no economic justification for the use of the stand alone cost test as a measure of cross-subsidy for railroads. None.

But perhaps the ICC and the STB justify their use of stand-alone cost on the BPW (1982) contestability book. In this work, if a firm were to price a service above its stand-alone cost in a contestable market, then another firm would enter the market (assuming costless entry and exit) and compete the price downward. The STB thus claims that constraining the rail price to captive shippers to be no more than stand alone costs is simulating competition (where none can exist), and presumably limiting the ability of railroads to monopoly price. Thus, stand-alone costs are a limit, it is claimed, on monopoly pricing by the railroads to captive shippers, yet providing high margins from captive shippers to ward off threatened bankruptcy.

Unfortunately, the failure of STB-regulated rail firms to fit the model of Faulhaber (1975) also applies here. BPW, the firm is also assumed to be a profit-constrained enterprise for which regulators control all the prices of the enterprise, which also apply to services (not individuals). Again, the BPW model simply doesn't fit the STB-regulated rail firms; it is not even close. This provides no economic justification for imposing stand-alone cost regulation. None. In fact, this failure to meet the conditions of the original work has been noted before in Pittman (2010), who stated "...a close examination of the original textual foundations for the [stand-alone cost] test suggests that its application in this setting has much less justification than is usually believed and cited." (p. 314), which is mirrored in the argument herein.

Examining the context of the original Faulhaber (1975) cross-subsidy paper reveals another interpretation that bears on its use in the captive shipper case. The model of Faulhaber (and later BPW) of a profit-constrained enterprise *assumed* that the monopoly firm possessed economies of scale and of scope, thus justifying its monopoly status. Should the individual services (or group of services) be offered on their own ("stand-alone"), the total cost to the economy would be greater than if the services were offered by a single monopolist; this is the meaning of economies of scale and scope. The benefits of realizing these economies via monopoly could well be shared among the individual services. In fact, the subsidy-free condition that all services (and subsets thereof) be priced no higher than their stand-alone cost ensures that all services share in the benefits of economies of scale and scope. Different services may receive a greater or lesser share of these benefits than others, but all services might be expected to share to some extent. However, if a particular service is priced exactly at stand-alone cost, then by definition, it is sharing *none* of the benefits of scale and scope. In the context of cross-subsidy and contestable markets, then, stand-alone costs are an absolute upper limit on pricing, which in themselves do not permit the sharing of the benefits of the scale and scope of the firm, and by no means a prescription for rate-setting.

But to be fair, perhaps the ICC and STB reasoned that having *some* constraint on captive shipper pricing was better than none at all, and stand-alone cost has some standing in the economics literature. In other words, the ICC/STB *intentions* were good, even if their economics was not. But perhaps we can forgive sloppy economics if the *execution* of stand-alone cost tests was efficacious. Was it?

Hardly. Having established a theoretical standard of the stand-alone cost test, the ICC and STB faced the problem of how to actually implement it in real live rate cases. If a captive shipper actually complained about a rate, how was this standard to be applied, as a practical matter? The STB has required that a complaining shipper must produce a model of a stand-alone railroad (SARR) network to prove its claim of an excessive rate. Of course, all such models get picked apart in the resulting adjudicatory proceeding; in this context of rent-seeking behavior, no model is ever "good enough" for the opposition and the more complex the hypothesized SARR, the more vulnerable is the model to endless criticism by the railroads defending their rates.

Despite the huge costs of constructing such models, coal shippers, who generally use unit trains run on simple networks, have been able to contest rates using stand-alone costs, albeit at great expense. Carload shippers, however, such as chemicals and agricultural products, typically must model much more complex multi-point to multi-point networks with switch yards and interconnection, have had far more difficulty developing SARR models. For example, in the largest (carload shipper) SAC model thus far, E.I. du Pont de Nemours and Company v. Norfolk Southern Ry. Co (2014) developed a 7500 mile SARR, documented in over 4000 pages, and was recently turned down by the STB for all 138 origin-destination pairs for which relief had been requested. Other carload shipper SAC cases that were turned down by the STB were McCarty Farms, Inc. v. Burlington Northern, Inc. (1997) and SunBelt Chlor Alkali Partnership v. Norfolk Southern Ry. Co. (2000). In FMC Wyoming Corp. v. Union Pac. R.R. Co. the plaintiff nominally won, but the rate award was trivial, making the case not worth bringing (there are several other carload shipper cases either settled or still pending).

The STB has realized that the cost of these SARR models is excessive, and introduced the simplified SAC test (as well as the Three Element test, which does not involve SAC). Since no shipper has availed themselves of the simplified SAC test, its benefits appear to be ephemeral, and shippers are still faced with expending millions of dollars attempting, like Sisyphus, to roll this computational boulder up the mountain.

The definitive analysis of this hugely expensive and useless computational boulder is in Pittman (2010). His arguments are not repeated here, but suffice it to say that arguing about stand-alone cost models in the adjudicatory setting of regulatory proceedings is very costly to all parties (including the STB) and rife with excessive rent-seeking.

Of course, the STB could resolve this problem by developing its own model which each party could use. The Federal Communications Commission, when it adopted a long-run increment cost standard for rate-setting, did exactly this, creating the TELRIC (total element long run incremental cost) model which was very effective in resolving rate cases. Surprisingly, the STB has developed a model for determining variable costs, the Uniform Railroad Costing System (URCS), for use as an industry standard, apparently successfully. For whatever reason, STB has chosen not to introduce a stand-alone cost model in spite of the success of URCS. leading to a huge waste of time and money for the parties involved.

Since many attempts to actually compute stand alone costs by carload shippers end in failure, this is a weak constraint indeed. But perhaps that is the whole point. In the early days of the Staggers Act, the fear was that competitively determined prices in real markets may not cover the common costs of the railroads, and maintaining very high prices to captive shippers was thought to be necessary to ensure that the railroads would not go bankrupt. In today's world of highly profitable railroads, it becomes clear that charging close-to-monopoly prices for rail service to captive shippers is not necessary to forestall bankruptcy, and this model of price-setting loses whatever value it ever had. Bottom line: whatever minimal use the stand alone cost test may have had, it now has none.

CONCLUSIONS

The case against the use of stand-alone cost for rate-setting for captive shippers by rail freight firms is absolutely compelling. To recap:

- The original purpose of the Staggers Act to use captive shipper pricing to protect against threatened rail bankruptcies is a problem long since consigned to the dustbin of history. Permitting rail freight firms to charge near-monopoly prices to captive shippers to enrich their shareowners is unconscionable, and should stop instantly.
- The economic models upon which the stand-alone cost test were developed and used bear no relation to the STB-regulated freight industry; the use of the stand-alone cost test for STB rate-making in the freight industry has no economic validity and is unsupported by the economic literature.
- The use of stand-alone cost in actual rate cases has become hugely expensive for all parties and is largely toothless, at least for carload shippers. As a practical matter (largely due to the STB's refusal to develop and adopt a standard stand-alone cost

model), the stand-alone cost test is both ineffective and wildly costly, and its use should stop instantly.

If stand-alone costs are not to be used in determining freight rates to captive shippers, what, the STB may ask, should the regulator use to determine such rates? It is highly unlikely that competitive entry by new players will occur in these markets, noting its total absence in the past. It is also unlikely for the STB to permit untrammeled monopoly pricing in these markets, especially for firms that are currently profitable with well-rewarded shareowners. Unfortunately, there is no economic model in the literature that points to a theoretical solution to this particular problem. This paper does not presume to suggest a solution to this problem. Pittman (2010) suggests some positive directions in which the STB might look to develop practical (if not theoretically based) solutions to the pricing problem, to which we commend the reader.

Dated: September 5, 2014

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VERIFICATION

I, Gerald R. Faulhaber, verify under penalty of perjury that I have read this Verified Statement, that I know the contents thereof, and that the same are true and correct based on my knowledge, information and belief. Further, I certify that I am qualified and authorized to file this Statement.

Gerald R. Faulhaber

Executed on September 4, 2014

EXHIBIT B

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COMMENTS OF EDISON ELECTRIC INSTITUTE

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Due Date: October 12, 2005
Dated: October 12, 2005

Edison Electric Institute ("EEI") applauds the Board for commencing this proceeding. It hereby submits its written Comments. EEI will also appear at the October 19 hearing.

I.

Identification of Interest of EEI.

EEI is the association of United States shareholder-owned electric companies, international affiliates, and industry associates worldwide. EEI's U.S. members serve 97 percent of the ultimate customers in the shareholder-owned segment of the industry, and 71 percent of all electric utility ultimate customers in the nation. They generate almost 60 percent of the electricity produced by U.S. electric generators. Coal is responsible for over 50 percent of the fuel input for the nation's electricity production, and EEI's members consume hundreds of millions of tons of coal annually to generate electricity. As such, EEI's members require safe, adequate, and cost-effective transportation of coal and other commodities to their electric generating stations.

II.

Factual Background and Summary of Comments.

The Board's timing for conducting this hearing is propitious. The Board should now find that most or all Class I railroads are earning adequate revenues, or soon are likely to do so.[1] When railroads are earning adequate revenues, as EEI

[1] EEI was heartened by reports of Chairman Nober's comments at the recent National Coal Transportation Association's fall conference. It is reported that Chairman Nober stated that "I think all of them [*i.e.*, the railroads] will get there [*i.e.*, achieve revenue adequacy] in the next few years." Rail Business, Vol. 11, No. 38 (Sept. 2005) at 4. When asked what the effects of that will be, Chairman Nober is reported to have stated "I can tell you that nobody knows because we have never had revenue[-] adequate railroads." Also, BNSF's Chairman Rose is reported to have stated that BNSF would achieve revenue-adequacy under the Board's standards this year. *Id.* EEI believes that most railroads have been revenue-adequate under prevailing standards (such as those used by Wall Street, or that railroads apply to themselves, for some time. *See, e.g.,* Exhibit A, Statement of Dr. Harvey A. Levine, former Vice President-Economics at the Association of American Railroads ("Levine Statement"). According to Dr. Levine, Class I railroads tell Wall Street analysts that the railroads do not rely on the Board's revenue-adequacy

believes most or all of the Class I railroads now are, captive shippers need more protection than ever from unreasonable rates and charges.

Rail-to-rail competition is the best approach to the problem of ensuring adequate and cost-effective railroad transportation. The promotion of competition, not regulation, was a central premise of the Staggers Act, but there is less competition, for the most part. At the time the Staggers Act was enacted, there were 42 Class I railroads; today, there are seven, and only four carry much coal, two in the East and two in the West. In most markets, there is much less competition today than at the time of the Staggers Act, in contrast to other consumer sectors in the economy where there has been a proliferation of consumer choices. Even in markets where there appear to be two railroad competitors, the railroads act as duopolists, as in the Powder River Basin ("PRB"), which is discussed below.

It is true that, for the first 20 or so years after enactment of the Staggers Act, that Act did serve to promote railroad productivity, reduce inefficiencies, and drive rates down in *some* markets, especially in the PRB coal market. Rates declined in the PRB coal market due to rail-to-rail competition. Yet, railroad earnings improved, because railroads retained much of the benefits of their efficiency improvements. The most important action of the Board's predecessor since the passage of the Staggers Act was to allow the entry of a predecessor of Union Pacific Railroad Company ("UP")) to the PRB along with a predecessor of BNSF Railway. The presence of two strong competitors in the PRB brought immeasurable benefits to both railroads *and* to their customers. Lower rates and more competition made both railroads more prosperous, not less. Since 1980, the finances of CSX and Norfolk Southern Railway Company ("NS"), the two major Eastern coal-carrying railroads, also improved substantially, in large part due to coal traffic. Unfortunately, there is now little competition in the East, for the most part, because of capacity constraints and mergers or acquisitions.

In the last few years, as capacity constraints took hold on the Joint Line in the PRB and at the coal mines that it serves, the limited competition shippers enjoyed, and which this Board's predecessor did so much to foster, essentially disappeared. BNSF and UP now do not compete for PRB coal transportation, but offer "take it or leave it," non-negotiable, "public" prices. (The prices are not in fact public, but are known only to the shippers.) There is little or no competition today even at destinations that are served by two railroads, or could be, given the same capacity constraints. The premise of Staggers (more competition) has therefore disappeared even for PRB shippers, and regulatory relief is the only option for captive shippers, even for shippers who once had competition. As a practical matter,

findings, but instead rely on the measures used by Wall Street – return on equity and earnings growth – as their measure of their own financial health, and Wall Street analysts similarly do not rely on this Board's revenue adequacy findings.

nearly all rail customers are captive today, whether or not they meet this Board's test for market dominance.

In fact, as further evidence of the reduction in competition, EEI members and other PRB coal shippers cannot any longer get the railroads to commit to a level of service beyond common carriage, *i.e.*, what they would get without a contract.[2] Moreover, most railroads even over-recovered for their increased fuel costs in 2004, demonstrating the degree to which most rail shippers are captive.[3]

So the premise of Staggers – that competition, not regulation, was best – has not been fulfilled, and the situation is in fact getting worse. The railroads will claim that Staggers has worked, because their finances have improved, but achieving railroad revenue adequacy was only one aspect of the Staggers Act. Competition and shipper protection were also part of the Staggers Act.

Accordingly, the Board could and should now do much to implement the pro-competitive provisions of the Staggers Act, such as by (a) requiring railroads to quote "bottleneck rates[4]," (b) overruling *MidTec Paper Corp. v. Chicago & N.W. Transp. Co.*, 3 I.C.C.2d 17 1(1986), *aff'd sub nom. Midtec Paper Corp. v. United States*, 857 F.2d 1487 (D.C. Cir. 1988), and (c) eliminating "paper barriers."

Despite (or perhaps because of) their increasing market power, UP and BNSF have not been able to deliver all of the PRB coal EEI's members and others have

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[2] The policy of the Staggers Act authorizing and encouraging contracts and the Board's stated preference for "private-sector solutions" are at odds with UP's and BNSF's new PRB contract policies of refusing to negotiate contract terms, especially with respect to assured service levels.

[3] NS over-recovered for its increased cost of fuel by 20-30% in 2004, and most other railroads over-recovered by 2-6%. Exhibit B, Citigroup Smith Barney, "Fuel Hedge & Surcharge Impacts: Not All Rails Are Created Equally" (January 5, 2005). The ability to over-recover substantially for fuel costs demonstrates that much more rail traffic is captive than has been claimed, because in a competitive market a supplier could not recover substantially more than its costs.

[4] The Board interpreted the Interstate Commerce Act not to require the railroads to quote "bottleneck rates" in *Central Power & Light Co. v. Southern Pac. Transp. Co.*, No. 41242 (served Dec. 31, 1996), *aff'd sub nom. MidAmerican Energy Co. v. STB*, 169 F.3d 1099 (8th Cir. 1999), but the Eighth Circuit indicated that it might have affirmed a holding that the Act required railroads to quote such rates. *Id.* at 1107.

scheduled for at least a couple of years.[5] The PRB situation of late is somewhat better with respect to the railroad transportation than it was earlier this year, but is still inadequate because of maintenance that is still needed to repair Joint Line track bed that was allowed to degrade due to the build-up of coal dust over many years. The situation is also inadequate at certain PRB mines that do not have adequate tracks for storage of empty trains at their mines or are engaged in expansion projects (thus adversely impacting on current production capability).[6] In the East, some mines may be disregarding contractual obligations to sell coal in the export market. The totality of the circumstances leaves the railroads and mines together unable to serve all of the nation's needs for coal.[7] Indeed, Morgan Stanley recently reported that utility coal stockpiles are at or near record low levels. (EEI does not maintain detailed information about coal stockpiles, because most companies regard it as proprietary. However, EEI members tell it that, given the necessary maintenance in the PRB that will extend into 2006, coal stockpiles will not recover to necessary levels until the end of 2006 at the earliest.) Imported coal has not filled the gap, and the result is that some electricity generators have had to use gas, at substantially greater cost than coal, instead of coal, to generate electricity.[8] These results are contrary to the public interest.

As a consequence of the reduction in competition and capacity constraints, rail rates and charges[9] for nearly all shippers, including coal shippers, have been

[5] EEI supports active oversight by the Board of the circumstances in the PRB, and will continue to work cooperatively wherever possible with the Board, BNSF, and UP whenever that is useful.

[6] UP's presentation at the Kansas City AAR Customer Forum attributed the inability to deliver enough PRB coal to rail operations, maintenance of the Joint Line, and mine issues. It is vital that BNSF and UP complete the needed maintenance of the PRB Joint Line as soon as humanly possible, and the mines add necessary track for train storage, so that EEI's members and others can get the coal they need to provide adequate, reliable, and economical electricity to the nation.

[7] "Railroads' Slow Coal Burn," Traffic World, Aug. 8, 2005.

[8] National policymakers have called on EEI's members and others to substitute generation using coal and other fuels for gas-fired generation, so as to reduce the demand for natural gas. But they cannot do so if they cannot get all of the coal they need to generate electricity.

[9] Most of the debate before the Board has centered on the rates that shippers pay, with claims made that such rates have gone down, on average, since 1980. However, many captive-shipper rates have gone up substantially over that time. Coal rates especially have increased substantially in recent years, including for movements of PRB coal where formerly there was competition. Moreover, other charges, such as

rising significantly in recent years, including for PRB coal shipments. While EEI did not object to, and indeed endorsed, differential pricing in the Staggers Act and in its implementation while railroads had excess capacity and were earning inadequate returns, EEI now believes that it is time to prevent captive-shipper rates from increasing, in real terms, any further. Captive shippers have disproportionately borne the load of the railroads' revenues since 1980. Now that the railroads are capacity-constrained (and not coincidentally, have adequate, or more than adequate, returns), it is time to protect captive shippers from further rate increases, as the ICC itself held. *Coal Rate Guidelines,* 1 I.C.C.2d 520, 537 (1985), *aff'd sub nom. Consolidated Rail Corp. v. United States,* 812 F.2d 1444 (3rd Cir. 1987). Rather, railroads should raise rates on traffic that has not been very profitable previously (if they have not already done so), so that railroad capital and capacity is devoted to traffic generating the highest returns.

If traffic previously charged rates generating relatively low profits were not carried by the railroads as a result of rate increases, that would be good, making scarce capacity available for traffic of greater profitability. In that manner, the most important traffic, such as coal to power plants, could move, using the freed-up capacity, along with other essential inputs to U.S. manufacturing. But railroads are still not devoting enough capacity to carrying coal.

For all of these reasons, EEI also strongly supports the construction of the Dakota, Minnesota & Eastern Railroad project into the PRB, to increase coal transportation supply and to create competition for PRB coal transportation.

EEI members would prefer to resolve problems with the current railroad regulatory system through negotiation with the railroads. However, the railroads have generally not been willing to negotiate with EEI and its members about such matters. EEI is always willing to sit down with the railroads (with whom it has a very cooperative relationship on other matters of great interest to both industries), if the railroads are willing to find common ground on railroad transportation issues.

Argument

III.

The Staggers Act Worked; Railroads Now Have Adequate Revenues.

The Staggers Act authorized differential pricing on captive traffic. Captive shippers, especially EEI members, understood the rationale for that, and supported that notion in the Staggers Act in 1980. Indeed, the ICC adopted *Coal Rate*

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for demurrage, have increased astronomically for many shippers, especially in the last few years.

Guidelines in 1985 on the theory that railroads would be allowed to charge the theoretical maximum that economists could justify – SAC – because of (1) then-excess capacity and (2) the need at that time for revenue adequacy. At that time, the railroads could not charge their competitive traffic rates at the level they could charge their captive traffic.

Today, railroads have little or no competitive traffic. The proof of that is that rates have been increasing substantially, service has gotten worse or stayed the same, and yet rail volumes have increased. That is the definition of captivity. As the Board well knows, there are also capacity constraints in the motor carrier and inland waterway modes, so that the railroads face no real threat that they will lose most traffic (unless railroad rates or service drive U.S. manufacturing abroad).

The regulatory system has functioned as the ICC and STB designed it, for 25 years, on the theory that the railroads had excess capacity and were revenue-inadequate. *See generally, Coal Rate Guidelines.* Now, at least one railroad is revenue-adequate, according to the Board's methodology (NS, in 2004). NS and most of the rest are considered revenue-adequate by Wall Street (certainly BNSF, CN, and CP are so considered, and UP and CSX are so considered by some, or would be, if it were not for their operational problems, some of which are self-induced).[10] Earnings and stock prices are up at all of the railroads, and all of them are able to attract capital. In fact, most are also increasingly investing in themselves, increasing dividends, or both.[11] Therefore, Wall Street is right – most or all Class I railroads are revenue-adequate. Levine Statement, *supra* note 1.

The statutory standard" in 49 U.S.C. § 10704 for determining whether a railroad is "revenue-adequate" is whether a railroad can pay its debt, cover its

[10] Indeed, railroads paint a rosier picture for Wall Street than the picture they paint to shippers, the STB or Congress. See the various railroad and Wall Street statements catalogued in Wilner, "A Tale of Two (Railroad) Stories," Journal of Transportation Law, Logistics and Policy, Vol. 72, No. 2 at 235-47 (2005).

[11] Despite these highly favorable circumstances, railroads will say they need more capital to maintain and expand their systems, equipment, and labor forces. But they will get the capital they need from the increased business they are getting and will continue to get, if they price it correctly. They need not raise rates on captive traffic to get the additional capital they need, but rather they just need to devote current or new capacity to captive traffic already paying high rates. What they should not do is devote scarce capacity to traffic with low rates (as may be the case with intermodal traffic, on at least some railroads), then claim that they need to raise the capital necessary to carry the lower-rated traffic from the higher-rated captive traffic. The Board exists to protect captive traffic from such actions.

operating costs, and attract capital, with "honest, economical and efficient" management. Under that standard, self-induced service problems (as opposed to circumstances of force majeure, such as acts of God) are not (or at least, should not be) the responsibility of customers. So, too, rates in historic contracts that may be low compared to levels charged now are not other shippers' responsibility. If self-induced service problems or low contract rates are the reasons a railroad is not earning the cost of capital or an adequate return on equity, or cannot raise investment capital for a particular project, the failure to achieve revenue adequacy should be disregarded in setting rates for captive shippers, or else the "honest, economical and efficient" standard in the statute would be meaningless.

In any event, the time has come to abandon the Board's "return-on-investment" standard for determining revenue adequacy, because it is fraught with problems, and cannot be fixed.[12] Rather, the simple solution is to use Wall Street's approach, relying on return on equity. Stock prices are a reflection of the belief of the investment community as to whether investments are meritorious. That is the statutory standard, and thus the problem of determining "revenue adequacy" is the same as that resolved every day by Wall Street.

IV.

Most EEI Members Do Not Enjoy Rail-to-Rail Competition; Therefore, They Need a Workable Rate Regulatory Methodology.

If EEI members cannot obtain commercially satisfactory solutions to their rail problems (despite their preferences for such solutions), they may, as a last resort, seek a regulatory solution. As the Board knows, several EEI members over the years have filed complaints challenging the rail rates for delivery of coal to their power plants. Of late, the experience with those complaints has been less favorable to EEI's members than in the past. While some EEI members, especially in the West, have obtained partial relief, others feel that the SAC process has become steadily more expensive, complicated, and generally unworkable. Many people do not believe that the SAC methodology will work in the East, especially given recent

[12] Exhibit C, National Economic Research Associates, "Statement of Professor Alfred E. Kahn and Report of Professor Jerome E. Hass on Railroad Revenue Adequacy Standards," (Feb. 1997) at 1 ("The attached analysis by Professor Jerome E. Hass of the methods by which the ... STB determines whether individual railroads are or are not 'revenue adequate' and of the results it produces demonstrate, incontestably in my view, that [a] the method itself is totally discredited; [b] its flaws are irremediable; and [c] any attempt at this stage to devise an alternative method would not only be costly but would serve no useful purpose.").

experience.[13] In the West, while some shippers have obtained some relief, most EEI members feel that the SAC process is too expensive, time-consuming, and unpredictable to justify the filing of a complaint invoking the SAC standard.

There is a solution, which would lead to a far simpler ratemaking methodology than SAC. The Board should adopt a methodology for all commodities, based on a railroad's actual costs plus an adequate return on equity. The ICC promised shippers that, when the railroads achieved revenue adequacy, it would adopt a rate-reasonableness methodology other than SAC (*Coal Rate Guidelines,* 1 I.C.C.2d at 534-37). Plainly, such a method must be based on railroad costs, and using return on equity as the measure of the railroads' financial health would simply apply the same standard to them that they apply to themselves. Levine Statement, *supra* note 1. Railroad ratemaking in a capacity-constrained, revenue-adequate environment ought to work the way oil pipelines' rates are regulated. Rates for customers of oil pipelines are set on a constant- markup-to-(actual) cost (including return as a cost), thus charging all shippers rates based on the same methodology.[14]

In *Coal Rate Guidelines,* the ICC agreed with this position. It stated:

> Our revenue adequacy standard represents a reasonable level of profitability for a healthy carrier. It fairly rewards the rail company's investors and assures shippers that the carrier will be able to meet their service needs for the long term. Carriers do not need greater revenues than this standard permits, and we believe that, in a regulated setting, they are not entitled to any higher revenues. Therefore, the logical first constraint on a carrier's pricing is that its rates not be designed to earn greater revenues than needed to achieve and maintain this "revenue adequacy" level. *In other words, captive shippers should not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs* [footnote omitted].

[13] *See Duke Energy Corp. v. Norfolk Southern Ry.,* No. 42069 (served Nov. 6, 2003, Feb. 3, 2004, and Oct. 20, 2004); *Duke Energy Corp. v. CSX Transportation, Inc.,* No. 42070 (served Feb. 4, 2004 and Oct. 20, 2004); *Carolina Power & Light Co. v. Norfolk Southern Ry., No. 42072* (served Dec. 23, 2003 and Oct. 20, 2004).

[14] When FERC regulates rates on oil pipelines, it uses a methodology based on actual costs. *See BP West Coast Products v. FERC,* 374 F.3d 1263 (D.C. Cir. 2004) and cases therein cited.

1 I.C.C.2d at 537 (emphasis added). In this environment of railroad revenue adequacy, captive customers are entitled to the cost-based rate standard promised by the ICC in *Coal Rate Guidelines* (based on actual costs of the incumbent railroad(s), not hypothetical costs of the "stand-alone railroad"). Differential pricing is no longer appropriate, as the ICC held. [15]

V.

Railroads Are Moving Away from Their Old Business Models.

Based on published reports, several railroads are moving away from their old business model.[16] Apparently, they are now raising rates on traffic with the least profitability, which is the proper response to the current circumstances. However, the alleged lack of sufficient revenue on certain lines[17] should not be the responsibility of captive traffic elsewhere on their systems, because that other traffic had no responsibility for the lack of revenue. The lack of revenue on some lines is the responsibility of the shippers on those lines, or the railroad and its stockholders if those shippers have contract rates that cannot be raised.[18]

VI.

The Future of Railroads.

By 2020, DOT has estimated that railroads will need to carry twice the traffic they carried in 2000. The railroads admit that will be a substantial challenge. Railroads have been slowly shrinking their systems for 50 years or more, so a drastic change in approach is needed, soon, for them to have the needed infrastructure. If railroads give the best possible service to their captive traffic, they will both serve the nation's interests and best promote their long-term profitability.

[15] Railroads will still be able to charge differential prices on captive traffic, because the level of markup over cost necessary to make railroads revenue-adequate ranges between 140-160 percent of variable cost, but the statutory threshold for Board jurisdiction to prescribe a rate is 180 percent of variable costs (49 U.S.C. § 10707(d)(1)(A)).

[16] *E.g.,* Ruff, "Union Pacific Plans to Charge More, Turn Away Less Profitable Cargo," January 27, 2005 (Associated Press).

[17] *See, e.g.,* that portion of the July 15, 2005 Letter from Union Pacific to Chairman Nober concerning UP's "Sunset Line" (posted on the Board's website home page).

[18] For the same reason, the Board has consistently recognized, in the SAC analyses it has done, that captive traffic should be responsible only for those portions of the railroad system that it uses.

Intermodal traffic from abroad represents, in one sense, a failure (*i.e.,* a failure to keep manufacturing businesses in the United States). Railroads should do all that they can to promote U.S. manufacturing by setting rates for traffic to U.S. manufacturing sites that encourage manufacturing to remain in this country. While railroads claim that intermodal traffic is now highly profitable, indeed more so than coal, EEI is unaware of any data that the railroads have provided to this Board that proves that. Certainly, UP's July 15, 2005 letter to the Board about its Sunset Line proves the opposite, by stating the demand exceeds capacity on that Line, but that UP cannot justify sufficient investment in the Line. Because the Line carries largely deregulated (*i.e.,* intermodal) traffic, the only way demand can exceed capacity, yet UP be unable to justify a greater level of investment in it, is if the unregulated rates being charged there are not high enough to cause demand to equal capacity.

In any event, railroads can improve their businesses by establishing a better relationship with their captive customers. Instead, for most shippers (except for intermodal shippers, who generally get the best service at the lowest prices), today the three rules of railroad service for most customers seem to be "higher rates, poorer service, take it or leave it." That business model does not work in any other industry, and it will not work in the long run for railroads.

VII.

Real Rates on Captive Traffic Should Not Be Increased.

Railroads are doing well; they have no difficulty raising capital. Railroad stock prices are up substantially in recent years. Traffic volumes are increasing, and according to DOT and others are likely to increase dramatically between now and 2020 and beyond, due to capacity constraints. The recent energy legislation encourages use of U.S. coal, which will be good for the railroads. Even before that legislation was enacted, UP's Marketing and Sales Executive Vice President, Jack Koraleski, said it all: "we are where we always wanted to be."[19] Railroads need no further help from the Board to remain profitable.

Accordingly, the Board should immediately require that railroads not raise rates (measured on a real, not nominal, basis) for regulated (*i.e.*, non-exempt) traffic, unless the railroad involved can demonstrate that it needs to raise the rates at issue or else it will not be able to maintain revenue adequacy.

[19] Note 15 *supra.*

VIII.

Conclusion

The changed circumstances since the passage of the Staggers Rail Act of 1980 created by railroad capacity constraints, and the railroads' revenue adequacy, require fundamental changes in railroad regulation. EEI supports passage of legislation such S. 919 and H.R. 2047 to resolve many of these problems. EEI is hopeful that the changed circumstances now prevailing in the railroad industry will cause the Board to make appropriate changes to its policies so as to promote competition and regulate rail rates in an appropriate manner, given the railroads' revenue adequacy and capacity constraints.

EEI stands ready to discuss all of the issues addressed herein with the railroads, in an attempt to promote good rail service at rates that are reasonable and produce an adequate return, the same standards applicable to EEI member-companies' regulated rates.

Respectfully submitted,

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EXHIBIT A

Testimony of

DR. HARVEY A. LEVINE

Before the United States Senate,

Committee on Commerce, Science and Transportation,

Subcommittee on Surface

Transportation & Merchant Marine

On Issues Relating to

the Freight Railroad Industry

May 9, 2001

Mr. Chairman and members of the Subcommittee, I appreciate this opportunity to present my perspective on issues concerning the freight railroad industry relative to the industry's financial performance, current posture, and future needs. My experience spans over 35 years in the field of transportation in general and railroad economics in particular, including employment with: railroad customers (shippers), the New York Central Railroad, the U.S. Department of Transportation (DOT), several transportation consulting companies, the Interstate Commerce Commission (ICC), and the railroad industry's major trade association, where for 18 years, I was the Vice President of the Economics & Finance Department. I also have taught transportation economics and other business subjects at several universities, written a book on national transportation policy, and co-authored a book on local and regional railroads. Over the past four years, I have provided consultation to a multitude of railroad, shipper, and other organizations involved in, or affected by, freight railroads. As an independent transportation economist and consultant, the views that I present in this testimony are strictly my own, based on what I believe to be the public interest.

No matter what my past professional position, I have always believed that a financially viable, freight-railroad industry is in the public interest. After all, railroads are conduits that serve the function of providing time and place (location) utility to our nation's consumers. Adequately staffed and capitalized railroads are needed for such an important role, but at the same time, it is through the satisfaction of customer needs that railroads have the opportunity to become financially viable. Thus, the achievement of railroad financial adequacy and the satisfaction of rail customer needs are two sides of the same coin. And it is with this concept in mind, that I offer this testimony.

The current state of affairs in freight railroading is controversial, highly contentious, and somewhat beyond the comprehension of many people, but it retains the one constant that has characterized freight railroads since before World War II—a perceived financial need, commonly referenced as a capital shortfall. Railroads, in their presentations to the ICC, Surface Transportation Board (STB), and public policy makers, describe themselves as being burdened with "woefully inadequate earnings," even if individual carriers were financially stable, and no matter what the railroads earned. The industry gained support for this view from the ICC beginning in 1978, when the first annual revenue-adequacy determination was made. This determination has been continued by the STB since 1996. During more recent years, the railroads' mantra of "woefully inadequate earnings" has been replaced by "revenue inadequacy." In fact, of the four dominant railroads that currently control the overwhelming portion of railroad traffic, only the Norfolk Southern (NS) has been declared by the regulatory agency to be revenue adequate in more than a single year. The Burlington Northern (BN) was deemed to be revenue adequate in 1989 and the Union Pacific (UP) in 1995. CSX Transportation has never been found to be revenue adequate. However, what CSX's president, as well as other railroad executives, has stated in his company's annual report to shareholders is another matter.

Incredibly, the alleged state of railroad revenue inadequacy prevailed during the early and mid-1990s, even when railroads enjoyed record earnings and the president of the industry's major trade association -- the Association of American Railroads (AAR) – touted the "Second Golden Age of Railroading." Magazine articles abounded with such positive headlines as "Back on the Right Track," and "Back at Full Throttle." Consider the financial strength at the time of the current four dominant railroads. In 1994, the BN earned an impressive 16.9% rate of return on equity (ROE) -- that is, net profit after fixed charges and incomes taxes are paid as a percent of the value of the owners' investment. Furthermore, the BN had the financial capacity to outbid the UP and acquire the Atchison Topeka & Santa Railroad (ATSF) in 1995 for $4.1 billion. Similarly, in 1995, the UP earned a 16.7% ROE and completed its purchase of the Southern Pacific Railroad (SP) in the following year for about $4.0 billion. In 1997, the CSX and NS railroads realized ROEs of 12.4% and 12.6% respectively, and consummated their joint purchase of Conrail for over $10 billion in 1999. And yet, with the exception of the NS in 1997, these railroads were declared by the STB to be revenue inadequate during those years. At the same time, the four railroads expended billions of dollars in employee buyouts, distributed expected dividends to their shareholders, and paid sizeable bonuses to their executives.

What is especially troublesome about the current state of alleged railroad revenue inadequacy is that it comes when the industry has been merged into four dominant carriers based largely on the theory that such consolidation was necessary to achieve revenue adequacy. As shown below, the number of Class I railroads has shrunk from 109 in 1960, to 36 in 1980 and to seven in 1999 -- with two of these carriers being owned by the Canadian National and Canadian Pacific railroads. Furthermore, the concentration of power has greatly increased among the four largest railroads, rising from 25%

of Class I railroad traffic in 1960, to 43% in 1980, and an astonishingly 95%

Year	Number of Class I Railroads	Percent of Traffic Carried By Four Largest Railroads
1960	109	25%
1980	36	43
1999	7	95

in 1999.[1] These four dominant railroads -- two each in the East and West -- control more than the traffic they handle. They also have significant control over traffic on both local (short line) and regional railroads and either control or heavily influence: industry-wide procedures in regard to operating – including, interline -- rules; accounting practices; car-repair billing; technological research and development; and, policy development and strategy.

What is additionally astonishing about the four "mega-railroads" is that they were created based on projections of huge financial benefits. For example, the BN's purchase of the ATSF came when the former was already making record profits, and when the BN projected that the purchase would save the railroad $450 million annually in operating expenses and add another $110 million in operating income. Similarly, the UP was earning record profits in 1996 when it purchased the SP based on an operating income benefit of $820 million by the year 2001. And the CSX and NS purchase of Conrail in 1999 came at a time when those railroads were earning moderate profits, and when they projected significant benefits mainly in the form of cost reduction and traffic diversion from motor carriage.

No matter what it is called -- that is, "woefully inadequate earnings," "revenue inadequacy," or even "sub-par financial performance," where railroads can demonstrate a capital need, they have support, if not an outright propensity, for acceptance of their industry-wide, policy positions. The answer to the question of "How can we help the poor railroads?" may come in the form of: tax relief; low-interest loans; outright grants; approval of mergers and acquisitions; rate increases to rail-dependent customers; changes in demurrage provisions; and, the warding off of otherwise desirable market competition. Consequently, with railroads still being cast as revenue inadequate by the STB, the environment exists for more of the same – that is, for more railroad behavior based on alleged capital need; more explanations for inadequate service and increased freight rates; and an even greater concentration of power. This is not to say that in some years, railroads don't have a capital need, and it is not to say that the two railroads in the East are not currently earning sub-par profits. However, the permanent state of alleged railroad financial depravity is a frightening prospect for rail-dependent shippers and should be to the public at large.

The latest rationale of the railroads' alleged revenue inadequacy is that competition forced them to pass on their massive productivity gains to their customers, proving that railroad competition is more than adequate. The productivity gains have been attributed to deregulation as enacted by the Staggers Rail Act of 1980, as is seemingly all good things that have happened to railroads since that time. In turn, the combination of continued capital need and competitive markets means that the railroads cannot afford any more competition. After all, proffer the railroads, new competitors would "skim the cream" off the top and leave the incumbents with little more than the lower-margin, more competitive traffic. This is a picture which on the surface appears to be plausible, for to refute it requires an unusually deep understanding of railroad financial data, statistical methodologies, cause-and-effect relationships, rail-customer service levels, and railroad behavior in general. In essence, railroad issues relating to national transportation policy are often embodied in a mass of statistical information and economic theory.

My perspective of the state of the freight railroad industry is different from that being portrayed by the industry itself. As a reflection of my views, I present three observations below, including summary statements of support and recommendations, followed by a more detailed discussion leading to each of the three observations.

1. Railroad data presented in annual reports to shareholders, and supplemental data to the Securities & Exchange Commission (SEC), is often in conflict with industry-wide data distributed to and by the STB and especially that agency's annual determination of railroad revenue adequacy.

    - Railroad revenue need is synonymous with capital attractiveness.

- Railroads compete for capital in open capital markets against companies who provide annual financial reports to their shareholders and supplemental financial information to the SEC.

- Potential investors rely upon the financial documents prepared and provided by the owners of businesses in consideration of where and when to invest their funds.

- Consequently, where railroad capital attractiveness is at issue, annual reports to shareholders and supplemental data to the SEC should be used as the basis for analysis.

- At the same time, the link between the STB's annual determination of railroad revenue adequacy and capital attractiveness is at best elusive and in all probability, non-existent.

- The annual STB revenue-adequacy determination should be terminated and railroad financial data submitted to the Board should be consistent with the information presented to shareholders and the SEC.

- Finally, railroad revenue need should be thought of in terms of: (1) individual railroads as opposed to an industry-wide average, (2) as a fluid, and thus temporal state of being, and (3) as a prospective concept.

Railroads are no different than other for-profit companies in that they must pay their operating expenses, meet the interest obligation on their funded debt, and have the ability to attract needed equity capital if they are to provide adequate service to their customers. By earning any level of net profit, operating expenses and interest charges are paid because such profit is calculated after those payments and income taxes are subtracted from revenue. Thus, stripped of its trappings, the issue in regard to railroad financial viability is that of capital attractiveness to providers of equity. This attractiveness is enhanced by a variety of factors including the most recent returns to the providers of equity capital – measured by the ROE – a strong balance sheet, significant cash flow relative to capital expenditures, and sound management policies and procedures. Many of these considerations are discussed in the railroad's annual reports to their shareholders and other information provided to the SEC. In fact, the "President's Message" sets the tone for the annual report to shareholders. But the overall message, analysis of financial performance, and even thoughts about the future, are not revealed in the annual reports to the STB. They are also not reflected in the STB's annual revenue-adequacy determination. This disparity can lead to contradictory views by the railroad itself, and between the railroad and the STB. Consider an especially egregious case involving the UP in 1996.

By any reasonable standard, 1996 was a great year for the UP and its parent company, Union Pacific Corporation (UPC). As stated by the Chairman and Chief Executive Officer of UPC:

> *The Union Pacific merger, the spin-off of the Resources company and the full integration of the Chicago and North Western acquisition, made 1996 a banner year that created significant value for shareholders and positioned this company for the future as a highly competitive, premier transportation provider. Through all of these strategic achievements, we kept our eye on the numbers, reporting record financial results. Our income from continuing operations was $733 million compared to $619 million in 1995, a gain of 18 percent.*[2]

UPC earned an ROE of 12.4% in 1996, largely sparked by the railroad's ROE of 16.6%. To UPC and the UP, these profits were more than adequate. They not only exceeded the corporate ROE threshold that triggered executive bonuses and the long-term compensation package (stock grants and options), they also exceeded the maximum-payout level to those executives. Consequently, aside from significant amounts of stock distributions, the average bonus given to 138 UPC executives in 1996 amounted to a record $112,000.[3] Furthermore, when in 1997 UPC earnings were below the executive-bonus threshold, the corporation still awarded $7.1 million to 154 executives because "a balance was available in the reserve fund from prior years."[4] In essence, surplus profits from 1996 were used to further reward executives in 1997. At the same time, the STB found the railroad to be revenue inadequate in 1996. Rhetorically speaking, who would potential equity investors be most likely to believe? – the company itself or the STB, which based its conclusion on a single, statistical and highly controversial calculation? The unfortunate result of the STB's declaration of revenue inadequacy is not only that it could be applied in regulatory proceedings involving maximum rates, but that the UP could adopt it as support for its positions of public policy.

In general, the financial health of individual railroads is far better than that projected by the revenue-adequacy determination. Consider the case of the four dominant railroads in 1999. While they were all declared to be revenue inadequate, the BNSF earned a healthy 13.9% ROE and the UP a moderate 9.5% ROE. While these figures may have been below the STB's cost-of-capital calculation, did they really deter either railroad from attracting needed capital? Where is the evidence of such capital shortfalls? With interest rates around seven percent, the equity investors in these two railroads were rewarded for their risk taking, and both railroads spoke of even more promising returns in the future -- that is, in their annual reports to shareholders and in their presentations to Wall Street security analysts. Furthermore, in his oral presentation to the STB regarding the BNSF's proposed merger with the Canadian National system, the president of the BNSF boasted of his railroad being into its strongest financial position in history. The reality is, that the record abounds with examples of railroad executives calling attention to their strong financial results in the annual reports to shareholders, while citing their STB-determined revenue inadequacy in matters of public policy.

In essence, the STB's annual determination of railroad revenue adequacy serves no useful purpose and can be highly misleading. A railroad cost of capital can be estimated without an annual revenue-adequacy determination. At the same time, potential equity investors can employ the more credible railroad annual reports to shareholders, and if desired, supplemental financial reports to the SEC, to help them in their determinations as to where they funds should be invested. Annual reports to shareholders represent the "real world;" the same cannot be said for the STB determination.

2. Railroad deregulation as enacted by the Staggers Rail Act of 1980 has been given far too much credit for both the significant gains in railroad productivity and the ensuing constraints on freight rates, thereby inappropriately inferring that railroad market competition is ubiquitous.

   - With the exception of liberalized procedures for eliminating light-density branch lines, there is no direct link between the Staggers Rail Act and increases in railroad productivity.

- Aside from a host of other factors, railroad productivity gains have emanated largely from favorable union contracts (supported by Presidential Emergency Boards) resulting in the elimination of many employees.

- The measure of freight-revenue-per-ton-mile is a limited surrogate for actual freight rates, and its use by the railroad industry and the STB results in improper conclusions regarding both freight rates and the impact of deregulation.

- Railroad productivity gains have been shared directly by shippers in competitive markets and the railroads themselves, but no matter how the benefits have been distributed, rail-dependent customers exist and are still faced with the lack of carrier choice.

- The existence of rail-dependent customers is a reality that should not be ignored by the STB – whose purpose is, in fact, to address the needs of such shippers -- or by national transportation policy.

- In addition to providing adequate carrier choices for rail-dependent customers, an appropriate remedy for their complaints appears to be the "Final Offer Arbitration" (FOA) process available to railroad customers in Canada.

- Professional arbitrators can replace the lengthy and costly STB maximum -rate procedures and as in Canada, complete the process within 60 days.

There is no disputing that since the Staggers Act was passed in 1980, the railroad industry has become more productive, and has passed on a portion of this productivity to some of its customers in the form of constrained pricing. But with the exception of the more liberal provisions to eliminate light-density branch lines, there is no evidence that links the Staggers Act with increased railroad productivity. The major contribution of deregulation was to free the railroads from the unnecessary cost of regulatory proceedings involving competitive traffic. Money was certainly saved in these instances, but this regulatory efficiency had nothing to do with reducing the bloated labor force, eliminating duplicate facilities, and implementing cost-saving procedures. Those achievements were due to a combination of factors including: a heightened sense of need on the part of management; the introduction of new technology, economies of scale and density associated with mergers and acquisitions, and especially, favorably-negotiated labor contracts (including billions of dollars worth of buyouts). In fact, as shown below, the number of employees working for Class I railroads has been in a long-term decline since its peak of 2.1 million in 1916.

Year	Number of Class I Employees[5] (Thousand)
1916	2,148
1929	1,661
1955	1,015
1970	566
1980	458
1999	178

Mis-casting the Staggers Act as the cause of increased railroad productivity and constrained pricing inappropriately supports a continuation of present market conditions; and yet, this is exactly what the railroad industry and the STB do. They use an industry-wide, unaudited, inflation-adjusted, and deficient surrogate for railroad freight rates -- more specifically, freight revenue-per-ton-mile – to proffer that railroad rates have declined since 1980, and then automatically tie those alleged decreases to the enactment of the Staggers Act in that year. What is not mentioned is that the rate surrogate had been declining before 1980, and its relationship to actual freight rates is at best, dubious. Furthermore, actual rate surveys undertaken by the AAR in 1980 provide evidence as to the inappropriateness of the surrogate measure.

The reliance on the average freight-revenue-per-ton-mile measure is an example of how the manipulation of large and varied databases can act to confuse issues. The issue before the STB should not be overall, average railroad freight rates. In the first place, freight rates should be related to individual railroads, individual commodities, individual markets, levels of cost, and levels of service. But even more importantly, in regard to railroad matters, the STB exists only because there are rail-dependent customers. These customers, as well as the STB, should not be concerned with averages, surrogates, and inappropriate cause-and-affect relationships.

The reality is that deregulation did little, if anything, to address the needs of rail-dependent customers. These shippers have become increasingly vocal in regard to their captivity and the railroads' insensitivity to their needs. Similarly, they find virtually no relief in the regulatory process. While the Staggers Rail Act requires *fair and expeditious regulatory decisions*, the "fairness" of current standards is at best, questionable, and there has been nothing expeditious about regulatory decisions. Some maximum rate proceedings have taken more than 10 years to resolve, while regulatory proceedings in general are extremely costly, time consuming, and intimidating to shippers. At the same time, because of fewer and similar operations, railroads have strengthened their common resolve and have the financial resources to employ a delay-and-wear-them-down strategy. This has added to the lengthy and costly regulatory proceedings favoring the staying power of railroads.

An alternative to the ineffective regulatory proceedings administered by the STB, would be the concept of Final Offer Arbitration (FOA), similar to the practice in Canada. In a nutshell, FOA is a process employing either a single arbitrator, or a panel of three arbitrators, to resolve rate and/or service disputes between railroads and their dependent customers. Unless otherwise agreed to by the parties, decisions are binding and last for a stated period of time. Benefits of FOA as applied in Canada, compared with current railroad regulatory practices are as follows:

- The arbitrator's decision is made within 60 days compared with proceedings taking years – in some historic cases, over 10 years.

- Railroad customers would identify their rail dependency by committing to file FOA submissions. They are unlikely to be frivolous submissions because of the accompanying costs. This eliminates the need for theoretical and controversial determinations of "captivity" and "market dominance."

- FOA offers by both parties are likely to be moderate in that the arbitrator must pick one or the other (i.e., baseball-style arbitration). An unreasonable offer is likely to be readily rejected. This brings the dispute into a more practical zone of analysis and encourages a negotiated railroad-customer agreement prior to an FOA decision.

- There are a host of available arbitrators, and thus the process has more credibility than alternative regulatory decisions. Unlike members of the regulatory authority, arbitrators are not political appointees. They are qualified experts whose records and reputations determine whether or not they will be selected for arbitration.

- The cost of arbitration is shared equally between the railroads and their customers. While the customers' initial experience in arbitration may be somewhat costly, it is far less than that of current regulatory proceedings. Furthermore, customer expenses decline as experience with FOAs is gained.

- The FOA process takes railroad-customer disputes out of the political process. Often, the disputes are resolved by the involved parties after an arbitration application is filed but before a decision is made. In essence, moving from an FOA-type decision-making process seems to be a win-win situation for railroads and their dependent customers.

3. While prudent railroad cost control is admirable, public policy can best be served if railroads increase their traffic volume, thereby helping to relieve highway congestion, having a positive impact on the environment, and providing relatively low-cost transportation service; adequate competition should help to stimulate traffic growth and improve overall profitability.

    - The major economic focus of railroads has been to maximize profits through cost reduction.

    - While intermodal traffic has grown significantly, massive railroad cost cutting has not helped railroads to increase their market share, especially vis-a-vie the motor carrier industry.

    - Traffic growth requires the satisfaction of shipper needs and in turn, this requires a sensitivity to those needs, a commitment to fulfill those needs, and innovative and flexible thinking.

    - The culture of the large freight railroads is one that is slow to change and has never been known to have keen market sensitivity.

- Adequate railroad competition could add to railroad efficiency, but more importantly, could provide the needed sensitivity to shipper needs.

- The encouragement of railroad competition is consistent with the goals of the Staggers Rail Act of 1980.

- Public policy should not automatically preclude the enactment of provisions that provide for increased access – and thus, competition – to the railroad infrastructure.

- The very same public that provided railroads with exclusive rights-of-way and limited competition has the right to adjust the level of competition when conditions demand it.

The railroads' emphasis on cost cutting over the past 20 years is well documented. In fact, projected efficiencies were the major factor supporting the many mergers and acquisitions during these years. For example, in 1980 the railroads' operating expense per ton-mile was 2.75 cents compared with 1.95 cents in 1999.[6] This decline was realized in the face of virtually a 100 percent rate of inflation during those 19 years. And as previously shown, the reduction in railroad costs was led by draconian cuts in the level of railroad employment. Rational cost cutting is admirable and in the interest of shareholders, but what is also important -- especially to the public at large -- is that railroads recapture some of their lost market share, and here, the story is not good.

The railroads' share of intercity tonnage has steadily declined – from 46.7 percent in 1950, to 28.7 percent in 1980 and 25.1 percent in 1998.[7] During the late 1980s and early 1990s there was a leveling off of this downward trend, but it again has started to recede. In 1996 the railroad percent of market share was 25.8 percent, falling to 25.1 percent in 1997 and remaining there in 1998. With the motor carrier industry currently carrying about double the tonnage hauled by railroads, there is a substantial traffic base available for railroad penetration -- or in reality, for market recapturing. This potential traffic base is expected to expand significantly in the future, as DOT has projected annual average increases in the U.S. domestic freight market of 3.4 percent annual between now and the year 2010.[8] Furthermore, DOT projections call for an annual 4.0 percent increase in U.S. international traffic over the next decade. Clearly, there is a sizeable market for potential railroad penetration. But such penetration requires more than continued railroad cost cutting. It requires the ability to meet customer service standards at reasonable prices. It requires competition. It requires compliance with the Staggers Rail Act, which recognized the need for competition among railroads.

The Staggers Rail Act supports and encourages the existence of rail competition in the marketplace. One of its policies is, *To ensure the development and continuation of a sound rail transportation system with effective competition among rail carriers and with other modes, to meet the needs of the public and the national defense.* This policy is supported by two other policy statements: (1) *to reduce regulatory barriers to entry into and exist from the industry*, and (2) . . . *to avoid undue concentrations of market power* . . . These policies are consistent with one of the findings of the Staggers Act, which is that: *Greater reliance on the marketplace is essential in order to achieve maximum utilization of railroads to save energy and combat inflation.*

There are many ways to induce adequate railroad competition in the marketplace. Railroads themselves can generate competition through commercial agreements and voluntary sharing of infrastructure. The selling of branch lines to local and regional railroads – without so-called "paper barriers" is a form of increased competition. So are expanded reciprocal-switching zones. The STB can induce added competition by disallowing bottlenecks in its decisions on maximum rates. And Congress can mandate adequate competition through a change in legislation that provides for increased access, somewhat on the order of the "running rights" provision available to shippers in Canada. In the case of running rights, a railroad would have to petition the STB for the use of another railroad's facilities, but with over 400 local and regional railroads in existence, such a provision may be useful. The success of such a policy is already well documented right here in the U.S. and by the railroads themselves. Both BN and UP have testified that the application of 4000 miles of trackage rights—which were imposed by the STB as a condition of the UP-SP merger—are working very well for both customers and railroads. And despite claims to the contrary, when railroads oppose policies that would increase access in this way, trackage rights have resulted in no safety or operational problems, at least none reported by the railroads at this time. The point is, that adequate competition is not evil. In fact, competition is the only route for ensuring long-term financial viability for the rail industry. Deregulation and competition are inseparable. With adequate competition, the partial deregulation that now prevails can be completed and full deregulation can be implemented. Partial deregulation with ineffective regulation is not a formula for traffic growth. Without meeting shipper needs, the future of a privately-owned-and-operated, financially viable, freight railroad structure in this country is dubious. Meeting customer needs is the number one priority of virtually all for-profit companies in competitive markets, and it must be at the core of national transportation policy affecting railroads. Adequate competition is what drives customer satisfaction, and this basic concept of the free-enterprise system is what drives the country's standard of living.

In conclusion, it is my belief that staying the present course -- that is, preventing adequate competition while relying on ineffective regulation -- will do little, if anything, to ease the burden on rail-dependent customers, to make railroads more customer-driven, and to grow the traffic. At worse, it will lead to further consolidation and possibly, to government subsidization of the freight-railroad infrastructure.

I thank you for the opportunity to prevent my views, and I would be pleased to answer any questions.

ENDNOTES

1. Association of American Railroads, Analysis of Class I Railroads (annual). Interstate Commerce Commission, Statistics of Railways in the United States For the Year 1960.

2. Union Pacific Corporation, 1996 Annual Report, "Letter to Our Shareholders," p. 1.

3. Union Pacific Corporation, Proxy Statement to the Securities & Exchange Commission, 1996, from DGAR database on SEC's Web Site.

4. Ibid, 1997., p. 21.

5. Association of American Railroads, Railroad Facts and Railroad Ten-Year Trends. Interstate Commerce Commission, Railroad Transportation, A Statistical Record, 1911-1951, and Statistics of Railways in the United States For The Year Ended 1929, 1955, 1970.

6. Analysis of Class I Railroads, Ibid.

7. Eno Transportation Foundation, Transportation in America 1999, p. 46.

8. Federal Highway Administration, U. S. Department of Transportation, Freight Forecast Growth Rates, 2001.

EXHIBIT B

See page 5 for Analyst Certification and Important Disclosures

Industry Note

United States

Airfreight & Surface Transportation

Fuel Hedge & Surcharge Impacts: Not all Rails Created Equally

January 5, 2005

[redacted]

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SUMMARY

- Historically rail EPS has been negatively correlated to oil price movements, but this relationship is changing given varying hedge and surcharge policies.
- Given greater relative fuel intensity for TL modal alternatives, some rails have tactically used fuel surcharges as a way of enhancing pricing above simple fuel cost recovery levels, especially the Eastern rails, thereby enhancing EPS in '04.
- We est. that 20-30% of NSC '04 EPS growth driven by fuel surcharge revenues above fuel expense increases; most other carriers benefited to the tune of 2-6% of '04 EPS growth. UNP had 18% EPS drag with unhedged fuel position.
- Using scenarios for '05, we see greatest EPS headwind (6-8% range) to BNI and NSC if oil prices stay in base case $40 range. A 9-12% EPS drag for these two & CSX (with its greater '05 hedge) if oil falls to ~$30. CSX & NSC gain most if oil were to rise further to $60 with +10-20% help to EPS. UNP EPS gains most if oil falls to $30 [+12%], hurt most if it rises more to $60 (-28%).

OPINION

Fuel and oil prices were a factor impacting the rail group during 2004. We note that given differing hedge positions as well as different approaches and aggressiveness related to fuel surcharge mechanisms, the impact of oil prices varied among the rail stocks rather widely. We note that at the extremes of the continuum in the group, Union Pacific (UNP; 2M - $65.80) clearly had a significant headwind to its 2004 earnings while perhaps counter-intuitively Norfolk Southern (NSC; 2M - $35.24) experienced a substantive boost or tailwind to last year's results through a combination of its extremely effective fuel hedge combined with a very robust approach to fuel surcharge usage. **Illustrating our point, we estimate that roughly 20-30% of 2004's earnings *growth* at Norfolk Southern has been driven by fuel surcharge revenues above fuel expense variances at the operations; we also note that this is in addition to the opportunity benefit impact of favorable fuel hedges on 2004 earnings for NSC.** We estimate that the relationship of fuel surcharge revenue to fuel price variances during 2004 for most of the other carriers in the group accounted for 2-6% of EPS growth last year; in the case of UNP, we note that the company's surcharges did not nearly come close to offsetting it fuel price variance, thus fuel was nearly a $0.50 drag to the company's EPS during last year, or approximately 18%. We again note that these estimates do not include the impact of fuel hedging which would be incremental to these estimates. Hedges were most beneficial during 2004 for Norfolk Southern, Burlington Northern Santa Fe (BNI; 1L - $45.13), and Canadian National (CNI; 1M - $59.19), in order of the relative impact on earnings, respectively. Finally, we also note that in many cases fuel surcharge adjustments may lag by one to two months, thus complicating an understanding of the longer-term impact of a move in fuel prices when looking at individual rail equities.

Using our understanding of the fuel hedge positions at each of the major North American railroads coupled with our estimates of the fuel surcharge revenue being generated by each of the rails, we have performed a scenario analysis to determine the potential earnings impact of changes in crude oil prices. We feel this analysis is particularly worthwhile at the present time for several reasons. First, as has been the case in recent months, crude oil prices have the potential for a great deal of volatility to both the upside and downside. Second, with varying hedge positions and aggressive fuel surcharge mechanisms, we feel that some railroads may be more than 100% insulated from recent high fuel prices. In other words, rising fuel surcharges have supplemented earnings in some instances. **Given that truckload (TL) trucking is more fuel intensive than rails, fuel's sharp increase through the first 10 months of 2004 provided the rails an opportunity to use rising fuel surcharges at TL carriers as a price umbrella for comparable rail fuel surcharge increases. And this is despite the lesser fuel intensity of rail as a transport mode. Furthermore, many intermodal moves actually saw limited fuel cost increases as such units were filling-in existing available capacity on existing train starts.** Thus, fuel surcharges had been used as a means to increase pricing for certain rail carriers, thereby becoming a way to enhance base rates in the name of "offsetting" rising fuel costs. **In particular, we have found that fuel surcharges are supplemental to profitability (i.e., more than offsetting fuel cost increases) primarily at the Eastern rail carriers, where such surcharges become incremental to base pricing increases. This impact is in addition to the benefits of fuel hedges in certain instances.**

Against this backdrop, we feel the conventional wisdom that declining fuel prices should lead to improving earnings performance at the rails may prove incorrect, in certain instances, this time around. Rather, given the hedge positions at the rails, fuel surcharge revenue may decline more rapidly than underlying fuel expense, thereby leading to headwind to earnings performance that may be counter-intuitive to the equity market expectations. While this analysis does not consider the more intangible impact that high fuel prices can have in restraining the economy and, hence, volumes we feel it is clearly an important consideration for rail equity investors seeking to ascertain the realistic earnings potential of the group in various fuel scenarios. In performing our analysis, we have attempted to be forward looking, generating various scenarios for crude oil and diesel prices in 2005 to better assess the impact of fuel prices on earnings.

BACKGROUND

Rising crude oil and diesel fuel prices were a consistent theme throughout 2004. Spot WTI crude oil prices peaked at over $56/bbl in late-October, while national average on-highway diesel prices peaked at over $2.21 per gallon at roughly the same time. More recently, WTI has been testing the low $40's with relatively mild winter temperatures. This represents an approximate 25% drop in oil prices in less than three months. Rising fuel prices have resulted in increased fuel surcharges across freight transportation modes. It has generally been understood that the trucking carriers have historically done a better job than the rails in offsetting the negative impacts of rising fuel expenses. Specifically, while truckload carriers recover roughly 70-80% of higher fuel costs, less-than-truckload carriers cover closer to, if not greater than, 100% of increased fuel expense.

Against this backdrop, we note that the railroads have historically been more deficient in recouping rising fuel prices through fuel surcharges. Rather, a reliance on the Rail Cost Adjustment Factor (RCAF) calculated by the Association of American Railroads (AAR) and, only recently greater use of fuel hedging mechanisms, have been more prevalent ways the rails have sought to over the years. That said, we view RCAF as being woefully inadequate in that it adjusts but once a quarter and is thus inherently lagged. Furthermore, RCAF takes seven separate cost line items into account. Hence, fuel is not isolated, thereby calling into question the degree to which rising fuel prices can be adequately recovered. Frankly, during the mid to late 1990s, in a period of relatively lower and more stable oil prices, the rails were content to rely on RCAF and base rate increases to cover cost inflation, including that related to oil or fuel expense.

Over the past two to three years, given greater volatility and increasing fuel costs, however, the rails have been making a more concerted effort to implement more effective and timely fuel surcharges across larger swaths of their book of business. The greatest success has been achieved in domestic intermodal traffic, we suspect due to these shippers' greater comfort level with fuel surcharges given their familiarity with and use of TL trucking carriers, where fuel surcharges have been the norm for some time. The key opportunity, in our view, is in broadening the use of fuel surcharges to the carload merchandise and bulk coal businesses. RCAF is predominantly used on coal and remains the standard cost adjustment mechanism for many rail transport contracts. Yet we note that some of the rail carriers have been working with their utility coal customers to allow the continued use of RCAF as an escalator. These carriers are, however, insisting that it be RCAF excluding the fuel component, which is then supplemented by a carrier derived specific fuel surcharge for such cost increases.

SCENARIO SUMMARY

Our proprietary analysis suggests that the degree to which crude oil prices increase or decline (presuming they do, as we have noted they already have over the past 10 weeks) will be a primary determinant of the earnings impact of fuel surcharges and hedges. Of course, given differing comparisons, hedge positions for 2005, and coverage and amounts of fuel surcharges, the impacts will be unique to each rail carrier earnings. While forecasting crude oil prices over the past year has proven to be a fool's game and we can conceivably dream up innumerable scenarios for the next few years, we have settled on three fairly simple scenarios giving a framework of the varying expected impacts that fuel prices can have on the different carriers given our estimates of hedges as well as fuel surcharge coverage and mechanisms. A summary of our analysis can be seen in the table below. Our stable price case scenario is based on oil prices roughly staying the same on average for 2005 as they were in 2004. The optimistic case assumes a more rapid fall off in oil, while the pessimistic scenario assumes further increases in the coming year. **The following represents changes in EPS from our existing baseline earnings estimates for 2005 given different WTI oil pricing assumptions:**

Figure 1. Earnings Impacts Under Varying Fuel Price Scenarios '05E

	Optimistic Case	Stable Price Case	Pessimistic Case
Average Crude Oil Price	$30.00	$40.00	$60.00
	2005E	2005E	2005E
CSX	($0.20)	$0.07	$0.60
NSC	($0.28)	($0.12)	$0.21
BNI	($0.26)	($0.25)	($0.27)
UNP	$0.46	$0.08	($0.94)
CNI	($0.08)	$0.09	($0.13)
CP	($0.08)	$0.10	$0.37

Source: Smith Barney analysis and estimates.

The following represents our key takeaways from our analyses:

Stable Oil Price Case Scenario: Under our stable case scenario, which assumes an average $40/bbl price for crude oil in 2005, both NSC and BNI would likely experience pressure on earnings. This impact is the result of a reduced hedge position at both railroads year-over-year comparing 2005 to 2004. Hence, there is less "cost avoidance" than was the case in 2004, and hence this will create an incremental drag on 2005 earnings. More importantly, however, we feel that fuel surcharge revenue will increase at a slower rate than fuel expense; the opposite has been the case through 2004. **This would represent a 6-8% drag on EPS growth for NSC and BNI, respectively, in 2005. The impact on the remaining carriers is negligible from a percentage standpoint,** but is a modest EPS positive as fuel costs on average are roughly comparable, and fuel surcharge levels and coverage will be higher for most of the remaining rails.

Optimistic Oil Price Case Scenario: Were fuel prices to decline more rapidly, averaging $30 in 2005, in line with our optimistic case, the disparity between declining fuel surcharge revenue and declining fuel expense would substantively impact a larger number of railroads, in our estimation, particularly the Eastern rails (CSX & NSC) and BNI. We also note that the lesser hedge positions comparatively for BNI and NSC would continue to provide some level of earnings drag even at these lower oil prices than our stable price case. For each of these three carriers, we estimate the drag to our current 2005 EPS to be in the range of 9-12%. While we view the negative impact of hedges at higher price levels to be of minimal consequence under this scenario, the falloff in fuel surcharge revenue would more than offset declining fuel expenses, thus would represent a drag on earnings growth vs. market expectations on a lagged basis. **Specifically, we expect each of the rails would be faced with an earnings headwind to overcome, with the exception of UNP, which is unhedged in 2005, and thus would have the most to gain of any of the rails from a notable decline in fuel prices.** This would represent a 12% tailwind to UNP earnings. The impact to CNI and CP would be relatively minor in scope.

Pessimistic Oil Price Case Scenario: Under our pessimistic case, we assume crude oil prices average $60 in 2005. While this would seem like a stretch given the sharp decline in crude oil prices toward $40 in recent weeks, we would have made the same argument a year ago if told crude oil prices would peak at over $56 in 2004. Hence, it has become quite clear that anything can happen in the volatile crude oil supply and demand situation. **Under this scenario, UNP stands to have earnings come under the greatest pressure, given its unhedged position with an EPS drag of over $0.90 per share, or roughly 28% of our current EPS outlook.** BNI and CNI on the other hand would experience earnings headwinds of $0.27 and $0.13, respectively, as we expect fuel expense would rise more rapidly than surcharge revenue. By our estimation, the fuel surcharge programs in place at the eastern rails and CP would more than adequately cover the increased expense. **Given its substantially increased hedge position, CSX would benefit notably, with NSC still a significant beneficiary with its aggressive approach to surcharge revenues and its strong but lesser year-over-year hedge position. These carriers would see EPS benefits in the 10-20% range.**

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ANALYST CERTIFICATION

APPENDIX A-1

I, Scott Flower, hereby certify that all of the views expressed in this research report accurately reflect my personal views about any and all of the subject issuer(s) or securities. I also certify that no part of my compensation was, is, or will be directly or indirectly related to the specific recommendation(s) or view(s) in this report.

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STATEMENT OF PROFESSOR ALFRED E. KAHN

AND

REPORT OF PROFESSOR JEROME E. HASS

ON

RAILROAD REVENUE ADEQUACY STANDARDS

FEBRUARY 1997

STATEMENT OF PROFESSOR ALFRED E. KAHN [1]
ON RAILROAD REVENUE ADEQUACY STANDARDS

The attached analysis by Professor Jerome E. Hass of the methods by which the Surface Transportation Board ("STB") determines whether individual railroads are or are not "revenue adequate" and of the results it produces demonstrate, incontestably in my view, that

- the method itself is totally discredited;
- its flaws are irremediable, and
- any attempt at this stage to devise an alternative method would not only be costly but would serve no useful purpose.

In these circumstances, it is my considered opinion that STB's entire exercise to determine the adequacy of railroad revenues should be abandoned.[2]

I. The method is discredited, quite simply, by the nonsensical results it produces. The core of the economic concept of revenue adequacy is as a test of the ability of a company to raise capital to undertake any and all economically justifiable investments. To this strictly economic criterion might arguably be attached the additional traditional regulatory condition that the company be able to raise that capital without diluting the equity of its existing shareholders.[3]

This criterion translates into the requirement that present holders as well as future purchasers of the company's stock must see a reasonable prospect that it will earn a return at least equivalent to the cost of capital on the totality of the net book value of its investments or assets.

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[1] Robert Julius Thorne Professor of Political Economy, Emeritus, Cornell University; Special Consultant, National Economic Research Associates, Inc.

[2] Insofar as the STB undertakes annual revenue adequacy reviews in order to meet the requirements of Section 205 of the Railroad Revitalization and Regulatory Reform Act of 1976, adoption of my recommendation would require legislative action.

[3] See the demonstration in my *The Economics of Regulation* that a company may be able to raise capital for all efficient future investments, but only at the expense of such dilution, when it is either able or permitted by its regulators to earn (more precisely, because future investors expect it to be able to earn) something less than the cost of capital on the totality of its investments (Vol. 1, pp. 46-47).

There is a simple market measure of whether that requirement is or is not being met—namely, the relationship between the market value of the company's stock—the price that new purchasers are willing pay for it and at which existing shareholders willingly continue to hold it—and its net book value. If that ratio is equal to or greater than unity—that is, if the market value equals or exceeds net book value—that means that investors collectively expect earnings on invested capital to exceed the cost of capital.

In its revenue adequacy determination for 1995, the STB found that 8 of the 11 Class I railroads were "revenue inadequate." Here are the market to book ratios at the end of 1995 and 1996 for the six Class I railroads in the revenue inadequate group that are publicly traded:

RAILROAD	1995 MARKET-TO-BOOK RATIO	1996 MARKET-TO-BOOK RATIO
AT & SF	2.32 (a)	2.30 (a)
Burlington Northern	2.32 (a)	2.30 (a)
Conrail	2.13	2.81
CSX Transportation	2.26	1.88
Kansas City Southern	2.60	2.23
Southern Pacific	3.53	2.13(b)

(a) BN and AT&SF were merged during 1995; ratios are for BNSF.
(b) SP was merged in 1996 with UP; ratio for 1996 is UP ratio.

Observe that in every case the market/book ratio is well in excess of unity: the lowest ratio is 1.88, the average is 2.41 and the median 2.30

I find this comparison definitive. Clearly investors collectively expect the prices these companies can be expected to be able to charge and the volume of business they can be expected to attract will be far more than sufficient to produce a return in excess of the costs of capital—and are therefore willing to make capital available to them on terms that involve no dilution of existing shareholders' equity.[4] While it could be argued that the observed deviations

[4] The willingness of these railroads to plow back earnings rather than pay them out as dividends further cooberates this conclusion. Since they are not subject to an obligation to serve, it would be irrational for them to reinvest (continued...)

between market prices and book values are to at least some extent attributable to non-railroad assets and operations. It is highly unlikely that these very high ratios can be entirely explained by those operations, as Professor Hass explains.

II. The force of this evidence is magnified by the consideration, also adduced by Professor Hass, that the net book value of the assets of these companies has been inflated as a result of acquisitions and/or mergers. Whenever and wherever the net book value of a company's stock or assets has served as the basis for determining its permissible return for regulatory purposes—as it is in the STB's revenue adequacy calculations—its is axiomatic that those book values must be based on the original cost of the assets. As the U.S. Supreme Court has recognized, to incorporate market-value-based write-ups in the rate base to which the allowable rate of return is applied in determining a regulated company's revenue requirements or entitlements—which in turn determine its allowable prices—is to introduce a fatal circularity into the process: allowable prices are set on the basis of the market value of assets which must be based in turn on the expected prices.

It would similarly eviscerate the regulatory process if the net book value that serves as the investment base in these revenue adequacy calculations were not the original cost of the assets when they were first constructed or acquired but the prices at which they were subsequently valued in or as the result of asset transfers, mergers or acquisitions. To permit rates (or calculations of revenue adequacy) to be based on the prices of those subsequent transfers would be to permit easy evasion of regulation: the assets could be transferred at prices inflated above net original cost and those inflated valuations would then automatically be translated into correspondingly inflated revenue or return targets for subsequent revenue adequacy calculations.

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retained earnings in this way if they did not expect the investments to earn an adequate return. For 1995 and 1996, the average retention rates [for these "non-revenue-adequate" carriers?] were 80 and 76 percent, respectively, with the lowest being 65 percent (Conrail in 1996).

Yet, as Professor Hass points out, this is exactly what has happened in the present instance: the asset valuations entailed by the numerous mergers, acquisitions, consolidations and reorganizations of railroads since 1980 have found their way into the book values on the basis of which the revenue adequacy assessments have continued to be made—in a self-justifying cycle of upward valuations of assets and correspondingly increased net revenues required for revenue adequacy.

I emphasize that this flaw is in addition to the—already decisive—record of prevailing market to book ratios far in excess of unity: the ratios would presumably be even higher if the denominators reflected the true (depreciated) original acquisition costs of the companies' assets rather than the prices at which they have been transferred to other railroads or new surviving entities.

III. Not only would an archeological endeavor by the STB to redetermine the true original costs for the railroads (let alone remedy all the other deficiencies in the STB's methods that Professor Hass identifies) be somewhere between extremely difficult and impossible. The final decisive consideration is that it would serve no useful purpose. The continuing effort to assess revenue adequacy is a vestigial carryover from the era of thoroughgoing regulation of the railroads, public-utility-style. But the railroads have been deregulated for more than 16 years. With most rail traffic moving under contract or exempt from regulation, the only remaining regulation is of the rates they charge captive shippers. The ceiling applied by the agency in every major rate case during the past dozen years in fulfillment of that responsibility—stand-alone cost—makes no use of revenue adequacy determinations; and I am informed that there are no recommendations, by either shippers or carriers, that the stand-alone cost ceilings be modified either upward or downward on the basis of those determinations.

* * * * *

In sum, the present method of determining revenue adequacy produces results totally discredited by the ultimate test—the behavior of investors and financial markets; it incorporates a fatal circularity; and it serves no purpose such as might justify the forbidding effort to correct those defects. It is time to give the exercise the burial—decent or otherwise—that it has richly earned.

AN EVALUATION OF THE MEASUREMENT AND USE OF THE STB'S ANNUAL RAILROAD REVENUE ADEQUACY DETERMINATION

Jerome E. Hass[1]

I. INTRODUCTION

Price regulation of commerce is called for in situations where workable competition (existing or potential) is deemed ineffective. Traditional regulation relied on the principle that regulation should emulate that which would occur in a competitive market—where prices are cost-based. Traditional regulation thus allows the regulated entity to charge prices that are no greater than the prudent costs incurred in providing the good or service in question.

An important element of the cost of service is the return allowed on invested capital. As articulated in the famous Supreme Court Hope and Bluefield cases, the return on invested capital must be sufficient to allow the regulated entity to attract and retain the capital necessary to provide adequate service. This gives rise to the measure called the cost of capital and the court mandate that a regulated entity must have revenues sufficient to cover not only operating costs but also allow the enterprise the fair opportunity to earn its cost of invested capital.

Under the Railroad Revitalization and Regulatory Reform Act of 1976, the Interstate Commerce Commission ("ICC") was charged with the responsibility to develop and promulgate railroad revenue adequacy standards. With the passage of the Staggers Rail Act of 1980, full regulation of railroad prices and service became history. But there are still selected situations which call for railroad regulation and it appears that findings regarding railroad revenue adequacy play an important role in some aspects of that regulation.[2] While Congress abolished the ICC at the end of 1995, its successor, the Surface Transportation Board ("STB" or "Board"), was given the responsibility of continuing to determine whether railroads are revenue adequate.

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[2] It is apparently common for the railroads to refer to the fact that the majority of Class I railroads fail the STB's revenue adequacy test in cases where the Board has jurisdiction, both those involving possible rate reductions and other contexts (such as mergers and line crossings).

The purpose of this report is to examine the reasonableness of the measure used by the STB to determine railroad revenue adequacy. As demonstrated below, the measure used by the STB is fatally flawed and is clearly giving erroneous signals. Given that the flaws are not easily remedied, that the railroads are financially very healthy, and that there is no meaningful regulatory role for revenue adequacy determinations to play, it is time to abolish the requirement for this arcane and meaningless exercise.

II. MEASURING REVENUE ADEQUACY

The application of the principle of allowing a regulated entity the opportunity to earn the cost of capital on its invested capital appears to be straight-forward and gives rise to the notion of revenue adequacy. As practiced by the STB, revenue adequacy is the simple determination as to whether a railroad's most recent year's revenues produced operating income (revenues less operating costs) that resulted in earning a return on invested capital at least a great as its cost of capital. In making this comparison, the STB first determines the railroad industry's cost of capital (which it estimated to be 11.7 percent for 1995) and then compares the rates of return earned on invested capital by each of the Class I railroads to that cost of capital in order to judge whether these railroads are "revenue adequate," where a railroad's revenue is deemed adequate if its rate of return on average invested capital equals or exceeds the estimated cost of capital for the industry.

RETURN ON INVESTMENT. The STB's measure of the rate of return on invested capital is the ratio of after-tax income from railroad operations to capital invested in railroad assets (the average of railroad assets , including working capital, less accumulated deferred income taxes). The STB's measure of rate of return on invested capital, which it calls "Return on Investment" or "ROI," is seriously flawed for a number of reasons.

First, the numerator includes one-time "special charges" that can materially alter the reported ROI. The Association of American Railroads ("AAR") reported that during 1995 seven Class I railroads recorded special charges totaling $1.742 billion on a pre-tax basis. *Analysis of Class I Railroads, 1995*, p. 4. On an after-tax basis ($1.132 billion using a 35% tax rate), the overall return on capital for the industry would increase from 7.7 to 10.3 percent if these special charges were not considered![3]

Second, there are problems with the denominator of the STB's ROI measure because of the book accounting treatment of mergers in the industry. While major mergers, such as ATSF/BN and SP/UP get lots of attention, smaller scale acquisitions take place all the time (such as BN's acquisition of Washington Central, IC's purchase of CCP Holdings and KCS's acquisition of MidSouth Corporation and its purchase of 49 percent of the shares of Mexrail, which owns Tex-Mex). These acquisitions or mergers are usually made at premium prices over the book values of the underlying assets. To the extent that the intangible value paid is reflected in the subsequent value of railroad assets, the denominator of the STB's measure of return on investment no longer reflects depreciated original cost and the notion of earning a reasonable return on cost is lost.[4]

The flaw actually creates a problem with the numerator as well—because the intangible assets created by the acquisition are subsequently amortized, reducing the operating income (similar to depreciation expenses). Hence the overall effect of the accounting for acquisitions at prices in excess of book values is to increase the denominator and reduce the numerator of the ROI measure in subsequent years.[5]

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[3] In a recent STB filing regarding "bottleneck" issues, James N. Heller noted in his Verified Statement that the removal of these one-time charges in order to reflect more fundamental profitability resulted in the ROIs of individual railroads increasing from 0.4 percent to 61.1 percent. For example, the combined BNSF ROI would increase from 5.8 percent to 9.7 percent if the expenses of $735 million associated with "merger, severance and asset charges" were removed from the numerator of the ROI calculation (on an after-tax basis).

[4] The extent to which book values increase through this process is unknown. In 1994, UP and CNW reported Net Road and Equipment values of $9.141 and $1.413 billion, respectively, and $10.55 billion in total. In 1995, after the acquisition was complete, the combined UP/CNW reported Net Road and Equipment of $13.52 billion, for a composite increase of nearly $3 billion in Net Road and Equipment. UP's acquisition of the 70 percent of CNW that it did not already own was for about $1.2 billion, which was about $1 billion more than its book value. The extent to which the $1 billion is reflected in the $3 billion increase is unclear. Heller (see fn. 3) reports that the acquisition of SF by BN resulted in a "write-up" of $2.8 billion in SF's investment base and that UP's acquisition of SP will result in a write-up in 1996 of $2.9 billion in SP's investment base.

[5] There also appears to be another flaw in the STB's ROI measure. The STB bases the numerator of its return calculation on Net Railroad Operating Income, taken from Schedule 210 of Form R-1. Net Railroad Operating Income excludes both the income from the leasing of railroad assets and lease payments for leased railroad assets. Insofar as the leased railroad assets are included in the denominator of the ROI measure, the income

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Third, ROI, like many short-term measures, also suffers from extreme swings as railroad operating margins change over time.[6]

COST OF CAPITAL. The cost of capital for the Class I railroads is determined by the STB as the weighted average of the costs of debt (in various forms), preferred equity, and common equity, where the weights are the market values of the various forms of capital. The STB's cost of capital measure also has several serious flaws.

First, the Board's analysis inappropriately mixes before-tax and after-tax costs of debt and equity, respectively; given the return on railroad investment is expressed on an after-tax basis, then the interest expense component of the weighted cost of capital should be adjusted to reflect the tax deductibility of interest as a matter of economic consistency.

Second, the weights used in the cost of capital estimation should be based on book values of debt , preferred and common equity, not market values; given that market values for the stocks of the railroads are substantially in excess of their book values, this mis-weighting results in a substantial overstatement of the cost of capital for the railroads[7].

Third, the STB's estimate of the cost of equity is based on a constant dividend growth rate stock price model (sometimes called the "discounted cash flow" model); the growth component is set at 10.69 percent, a rate that is impossible to sustain in perpetuity; in an economy with an expected inflation rate of about 3 percent, a real growth rate of 7.7 percent would eventually result in the railroads overtaking the world.[8]

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therefrom (and the lease expenses associated with those assets that helped product operating income) should not be excluded.

[6] For example, Southern Pacific's Net Revenues from Operations fell from $224 million to a negative $21 million from 1994 to 1995.

[7] It is easy to get confused on this issue. Most finance textbooks advocate the calculation of the weighted cost of capital using market value weights, a prescription that is perfectly correct for a non-regulated entity seeking an estimate of its cost of capital as a hurdle rate for forward-looking investment decision-making. But in a regulated rate-setting context, the return is allowed on the historic cost of the net assets (rate base) and is set to earn the costs of debt and equity capital on the book values of the debt and equity.

[8] The growth component was based on five-year earnings per share growth projections made by security analysts. While several studies have tested the reasonableness of such projections as indicators of investor expectations and found them to have explanatory power, regulatory agencies that face cost of capital problems on a repeated
(continued...)

Fourth, although insignificant in 1995 (only 1.2 percent of total capital), the cost of preferred stock was severely understated because the cost of Conrail's Series A ESOP convertible junior preferred (the dominant issue of preferred stock outstanding among the Class I railroads) was set at its market dividend yield of 3.03 percent; the stock is clearly selling on the basis of its conversion value and should be treated as common stock with common stock cost.

If these four changes are made to the cost of capital estimate, the result is a reduction in the weighted cost of capital from 11.7 percent (as reported in the STB's "Railroad Cost of Capital—1995," Ex Parte 523, June 5, 1996) to 10.3 percent. The latter is based on a cost of debt of 7.4 percent before tax (as per the STB), an income tax rate of 35 percent, a 12.5 percent cost of equity (STB's estimate was 13.4 percent) and a 29/71 debt-to-equity capital structure (based on book values as reported in *Analysis of Class I Railroads, 1995*, Association of American Railroads, lines 76, 78, 79, 80, 81, 82 and 97).[9]

Note that simply adjusting the ROI to exclude one-time ("special") charges and adjusting the cost of capital estimates, as discussed above, results in the industry ROI equaling the estimated industry cost of capital—implying that, without further adjustment for acquisition write-ups, the industry is revenue adequate.[10]

(...continued)
basis have expressed concerns about sole reliance on such short-term forecasts. See, e.g., Ozark Gas Transmission System, 68 FERC, ¶ 61,082, 61,107 (1994), wherein the Federal Energy Regulatory Commission found that "five year projections are not of themselves incorrect, but merely limited to too brief a time period to meet the requirement of the DCF model." Similarly, in Wyoming Interstate Company, Ltd., 69 FERC ¶ 61,259, 61,922 (1994), the Commission found that the "securities' analysts' projected growth rate for the next five years ... implicitly ignored any potential changes in the growth rate over the remaining life of the firm ... (and) is inherently inconsistent with the theory of the constant growth rate DCF model."

[9] For the set of seven Class I railroads used by the STB to calculate the industry cost of capital, the debt-to-equity ratio based on market values was estimated to be 26/74; using a conservative 2:1 composite market-to-book ratio for these railroads, the book value debt-to-equity ratio would be 41/59 and the resultant after-tax weighted cost of capital would be 9.3 percent.

[10] It should also be noted that the Board's methodology is flawed because it uses a company-specific after-tax return on investment measure that reflects the tax deductibility of interest on the specific company's debt with an industry average cost of capital. If all railroads had similar capital structures, such a comparison would be acceptable. But the utilization of debt varies substantially across Class I railroads: for example, at the end of 1995 Soo Line had a debt-to-equity ratio of 67/33 compared to CSX's 13/87; Grand Trunk Western's equity was
(continued...)

III. INTERPRETING REVENUE ADEQUACY

There is no meaningful relationship between the STB's measure of revenue adequacy and the financial well-being of the Class I railroads.

First, if investors expect that the prices of the regulated entity are or will be set so that the entity will not have the fair opportunity to earn its cost of capital, then the book value of its equity (as the residual capital suppliers) will exceed its market value.[11] In the case of the Class I railroads, at the end of 1995 market-to-book ratios for the 8 publicly-traded railroads ranged from 2.13 to 3.53 times and averaged 2.53 times.[12] This strongly suggests that investors expect the railroads to earn more than the cost of capital in the future.[13]

It should be noted that some of the divergence between market values and book values may be attributable to non-railroad assets which are carried on the books at cost but may be worth substantial sums if and when sold (such as real estate). For example, in testimony associated with its acquisition by Union Pacific, Southern Pacific Transportation Company indicated that it had a real estate portfolio worth about $1 billion.[14] This translates into about $6.40 per share, so that the remaining market value of the railroad assets for SP at the end of 1995 was about $17.60 per share, which was 2.59 times book value. Similarly, the market prices of these railroad companies also reflect non-rail activities. For example, railroad

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negative. Given substantial variations in debt utilization, the after-tax weighted average costs of capital for the Class I railroads is likely to differ substantially between railroads and using a composite average, even if calculated correctly, would be inappropriate.

[11] For example, if the book value of the regulated firm's stock is $20 per share and the market expects the firm to earn 10 percent on its book value, then the market value of the shares will be $16 if the market requires a return on 12.5 percent to adequately compensate for time value and risk.

[12] See the attached exhibit. The highest ratio was that of Southern Pacific, which was in the midst of a merger. The next-highest ratio was Illinois Central at 3.34 times. The ratios at the end of 1996 (when the high SP ratio is replaced by a high Conrail ratio) were, on average, somewhat less, but still well above 2 times. Weighted averages (using equity market values as weights) were only slightly less than simple averages.

[13] This expectation could be achieved by decreases in operating costs as well as price increases. *Value Line* (September 20, 1996) reports that operating margins (the complement of operating costs) for the railroad industry (at the company level, which include non-rail activities) have increased from 22.6 percent in 1992 to 26.1 percent in 1995 and are predicted to get to 30.1 percent in the 1999-2001 time frame.

[14] Deposition of Lawrence Yarberry, Chief Financial Officer for Southern Pacific, STB Finance Docket No. 32760.

operating revenues were only 46 percent of the total revenues of CSX for 1995. However, railroad activities accounted for 75 percent of CSX's assets and 79 percent of its total operating profits. Kansas City Southern Industries received a large fraction of its operating income from non-rail activities. But all the other Class I railroads were owned by companies that had virtually all (85 percent or more) of their assets and operating revenues associated with railroading activities. Thus, it appears that while non-railroading activities and assets could account for a portion of the observed differences between book and market values for companies that own Class I railroads, the very large differences between the observed ratios and unity cannot be explained on the basis of these non-rail activities.[15]

Second, there is the objective evidence from the railroad companies themselves. If investments in railroad activities are not expected to earn at least the cost of capital, then these firms should not be retaining the earnings they generate for their shareholders but rather pay those earnings out as dividends so that shareholders can reinvest them elsewhere to make an adequate return. In 1995, all of the Class I railroads, with the exception of Union Pacific, retained (plowed back) more than 60 percent of their earnings; Union Pacific retained only 43 percent. Overall, the industry average was 73 percent for 1995 and 67 percent for 1996. This evidence supports the contention that the managements and boards of directors of these companies believed that the investment opportunities within the industry were financially attractive.

Third, the very title of the measure suggests than if an inadequacy is found, it is associated with revenues. This may not be the case. While there are clearly large year-to-year changes in the operating ratio (ratio of operating expenses to revenues) in the industry, there are strong pressures to decrease the ratio over time. Some railroads have ratios near or below 70 percent (Illinois Central and Norfolk Southern), while others struggle to get below 100 percent (Soo Line and GTW). When coupled with increases in capital turnover (more efficient use of

[15] Non-rail activities and assets might pull the market-to-book ratios down. This would be the case if the non-rail activities were not very profitable. Such is likely the case at CSX: in 1995, the ratios of operating income to assets for rail and non-rail activities (barge, container shipping, and intermodal) were 8.7 and 6.9 percent, respectively.

capital), the result is an expectation of increasing returns to invested capital even without price increases:

Return on Invested Capital = Income/Revenues x Revenues/Capital
= Profit Margin x Capital Turnover

During 1995, the Class I railroads operated at an after-tax profit margin of about 8.9 percent (13.7 percent before-tax at a 35 percent tax rate) and a capital turnover rate of 0.73.[16] If the after-tax margins can be increased to, say, 11 percent and capital turnover improved to, say, 0.85, then the after-tax return on invested capital would increase from the 6.5 percent realized in 1995 to 9.35 percent. While these numbers are only illustrative, they do indicate how relatively small changes can produce dramatic effects, effects that could result in the industry being deemed more than revenue adequate without any increases in prices.[17] The most recent *Value Line* (December 20, 1996) states that "[t]he railroads have done a good job of lowering their fixed costs over the past five years, and we think this trend will continue."

Fourth, there is a clear divergence between the notion that eight of the eleven Class I railroads were revenue inadequate in 1995 and the ability of these firms to raise cash and the willingness of others to pay substantially more than book value for acquisitions. It is generally believed that if the regulated entity does not have a fair opportunity to earn its cost of capital, then it will not be able to attract new capital or will be able to do so only at the expense of existing capital suppliers. But the railroads are active issuers of debt to finance equipment purchases, system improvements and acquisitions. Those which have debt rated by Moody's carry investment grades (with the exception of SPRR's senior note, rated Ba1) and their transportation trust certificates are often highly rated. Several railroads have either sold stock outright or used stock as currency in acquisitions over the past several years.[18] Value Line rates

[16] The AAR 1995 report indicates a before-tax profit margin of 13.58 percent for all Class I railroads.

[17] The degree to which investors expect improvements can, perhaps, best be seen in the "synergies" predicted in recent acquisitions. For example, UP's acquisition price for the stock of SP was based on synergies in excess of $750 million per year pre-tax. See *The Wall Street Journal*, December 1, 1995, page B10. The joint railroad revenues of Southern Pacific and Union Pacific in 1995 were $9.54 billion, so that the synergies would increase the after-tax (at 35 percent) margin of the combined companies by 5.1 percent.

[18] Even Southern Pacific, thought to be among the most financially weak of the Class I railroads, was able to sell stock substantially in excess of its book value in 1993 and 1994.

the financial strength of the seven Class I railroads it follows from moderate (B for KCS) to strong (A+ for NS). Standard & Poor's November 30, 1995 *Industry Survey* stated that "[a]lthough the industry if failing to earn its cost of capital as defined by the ICC, it is in fact a picture of health."

UP paid $35 per share for CNW, which had a book value the year before the acquisition of $7; BN paid $20 per share for ATSF, which had a book value of $6.67 per share the year before its acquisition; UP paid $25 per share for SP, which had a book value of $6.80 per share the year before its acquisition; and the bidding war for Conrail has pushed its price to $110 per share, which had a book value of about $32.83 share at the end of 1995.

Fifth, even if all the defects discussed above were corrected, the method of measuring revenue adequacy chosen by the Board is flawed. That is, the Board's measure could signal inadequacy in a given year while, at that time, the current revenues are entirely adequate in terms of providing a reasonable return on invested capital when judged in the proper context.

The best way to illustrate this point is to compare two alternative cost-of-service methodologies, both fully compensatory (i.e., although their price patterns are different over time, both sets of prices allow investors full recovery of their investment and a reasonable return thereon): depreciated original cost and trended original cost. Under the Depreciated Original Cost ("DOC") methodology, the rate base is the depreciated original cost of the net assets (assets at cost less accumulated depreciation) less accumulated deferred income taxes (consistent with Schedule 250) and the return on the equity-financed portion of the rate base is set in nominal terms (such as the 13.4 percent used by the STB). As accumulated depreciation increases over time and the rate base declines, the cost-based price of the service declines, other cost-of-service components held constant. Under the Trended Original Cost ("TOC") methodology, only the real portion of the return on equity is reflected in current rates; the inflation component of the return on equity is deferred until a later date. Hence the TOC rate base is greater than the DOC rate base by the accumulated deferred return balance.[19] The TOC

[19] See "Inflation and Rate of Return Regulation," Stewart C. Myers, A. Lawrence Kolbe, and William B. Tye, *Research in Transportation Economics*, Vol.2, pp. 83-119, 1985. The Federal Energy Regulatory Commission uses the Trended Original Cost methodology in its regulation of oil pipelines.

methodology produces pricing that start at a lower level than those under the DOC methodology, and these cost-based prices drift upward over time rather than downward, as they would under the DOC methodology. Hence, if a regulated entity were pricing its service using a TOC-based pricing scheme, in the early years of the life of the rate base (or, more generally, during the time when the firm is adding to its asset base), its revenues will appear "inadequate" when measured against those necessary under a DOC methodology.

The STB's methodology is effectively a DOC-based approach to cost of service. Yet, it is logical that the railroads should be using a TOC-based approach to pricing their services over time (so that prices tend to rise with inflation). Hence, it is entirely plausible that the test applied by the Board is yielding false-negative results: railroad revenues appear to be inadequate, but are factually adequate when judged according to the inter-temporal scheme under which they are being played out.

IV. CONCLUSIONS

The requirement that the STB shall annually determine the railroad revenue adequacy should be put to rest. The Board's measure of return on investment for each Class I railroad is fraught with short-comings and severely short-sighted; and the cost of capital estimate it uses as a benchmark against which to judge adequacy is severely flawed as well. Simple measures, such as market-to-book ratios, retention rates and debt ratings indicate that the railroads have a high degree of financial integrity and are expected to earn returns on the book value of equity well in excess of their cost of capital. They clearly have no difficulty in raising capital without causing any dilution for existing shareholders. Yet all but three of the eleven Class I railroads reviewed by the STB indicate revenue inadequacy. Given the fatal flaws in the STB's methodology and the potential misunderstandings that result from its publication, now is the time to remove the substantial burden on both the railroads and STB staff of making the filings and calculations necessary to produce this useless and potentially misleading statistical analysis.

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Professor Kahn received his Bachelor's and Master's degrees from New York University and a Doctorate in Economics from Yale University. Following service in the Army, he served as Chairman of the Department of Economics at Ripon College, Wisconsin. He moved to the Department of Economics at Cornell University, where he remained until he took leave to assume the Chairmanship of the New York Public Service Commission. During his tenure at Cornell, Professor Kahn served as Chairman of the Department of Economics, member of the Board of Trustees of the University and Dean of the College of Arts and Sciences.

Throughout his career, Professor Kahn has served on a variety of public and private boards and commissions including: the Attorney General's National Committee to Study the Antitrust Laws; the senior staff of the President's Council of Economic Advisors; the Economic Advisory Council of American Telephone & Telegraph Company; the National Academy of Sciences Advisory Review Committee on Sulfur Dioxide Emissions; the Environmental Advisory Committee of the Federal Energy Administration; the Public Advisory Board of the Electric Power Research Institute; the Board of Directors of the New York State Energy Research and Development Authority; the Executive Committee of the National Association of Regulatory Utility Commissioners; the National Commission for Review of Antitrust Laws and Procedures; the New York State Council on Fiscal and Economic Priorities; the Governor of New York's Fact-Finding Panel on Long Island Lighting Company's Nuclear Power Plant at Shoreham, L.I.; the Governor of New York's Advisory Committee on Public Power for Long Island; the National Governing Board of Common Cause; and, in 1990, as Chairman of the International Institute for Applied Systems Analysis Advisory Committee on Price Reform and Competition in the USSR.

He has also served as a court-appointed expert in State of New York v. Kraft General Foods, Inc., et al., U.S. Disctrict Court, S.D.N.Y.; Advisor to New York Governor Carey on Telecommunications Policy; and as a consultant to the Attorneys General of New York, Pennsylvania and Illinois, the Ford Foundation, the National Commission on Food Marketing, Federal Trade Commission, Antitrust Division of the Department of Justice, the U.S. Department of Agriculture and the City of Denver on charging and financing of Stapleton Airport.

He has received L.L.D. honorary degrees from Colby College, Ripon College, Northwestern University, the University of Massachusetts and Colgate University, and an honorary D.H.L. from the State University of New York, Albany; he also received the Distinguished Transportation Research Award of the Transportation Board Forum, The Alumni Achievement Award of New York University, the award of the American Economic Association's Transportation and Public Utilities Group for Outstanding Contributions to Scholarship, The Henry Edward Salzberg Honorary Award from Syracuse University for Outstanding Achievement in the Field of Transportation, and the Burton Gordon Feldman Award for Distinguished Public Service from Brandeis University; and was elected to membership in the American Academy of Arts and Sciences and Vice President of the American Economic Association. He is a regular commentator on PBS's "The Nightly Business Report."

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1978-1980	Chairman, Council on Wage and Price Stability
1977-1978	Chairman, Civil Aeronautics Board
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1994-	American Airlines on code-sharing
1994-	Antitrust Division, U.S. Department of Justice, on the application of Ameritech for waivers of the interexchange restrictions in the AT&T Modified Final Judgment
1993-1994	Court-appointed expert in State of New York v. Kraft General Foods, Inc., et al., U.S. District Court, S.D.N.Y.
1992	New Zealand Telecom on the progress of competition in New Zealand telecommunications
1992	Rochester Telephone Company on corporate restructuring and deregulation
1992	Russian Government on economic reform
1991	British Mercury on terms of competition with British Telecom
1989	City of Denver on charging and financing of Stapleton Airport
1988-1990	Attorneys General, New York and Pennsylvania, on airline mergers
1985	Attorney General, State of Illinois, on Illinois Bell rates
1981-1984	City of Long Beach, California, the Coca-Cola Company and American Airlines on antitrust litigation
1981-	Economic commentary, Nightly Business Report (PBS)
1980-1982	Advisor to Governor Carey on Telecommunications Policy
1968	Ford Foundation
1966	National Commission on Food Marketing
1965,1974	Federal Trade Commission
1963-1964	Antitrust Division, Department of Justice
1960-1961	U.S. Department of Agriculture
1957-1961	Boni Watkins, Jason & Co.

See also the list of testimony below.

MEMBERSHIPS:

1992-	Member, New York State Telecommunications Exchange
1992-93	Member, Ohio Blue Ribbon Panel on Telecommunications Regulation
1991-	Board of Editors, *Review of Industrial Organization*
1990-92	Chairman, International Institute for Applied Systems Analysis Advisory Committee on Price Reform and Competition in the USSR
1986	Governor Cuomo's Advisory Panel on public power for Long Island

1983-89	Governor Cuomo's Fact-finding Panel on Long Island Lighting Company's Nuclear Power Plant at Shoreham, L.I.
1983-90	New York State Council on Fiscal and Economic Priorities
1982-	*The American Heritage Dictionary* Usage Panel
1982-1985	Governing Board, Common Cause
1980-1986	Director, New York Airlines
1978-1979	National Commission for the Review of Antitrust Laws and Procedures
1975-1977	Project Committee, Electric Utility Rate Design Study, Electric Power Research Institute
1974-1975	National Academy of Science Review Commission on Sulfer Oxide Emissions
1974-1977	Public Advisory Board, Electric Power Research Institute
1974-1977	Environmental Advisory Committee, Federal Energy Administration
1974-1977	Executive Committee, National Association of Regulatory Utility Commissioners, and Chairman, Committee on Electric Energy
1968-1974	Economic Advisory Board, American Telephone & Telegraph Corporation
1965-1967	Economic Advisory Committee, U.S. Chamber of Commerce
1967-1969	Chairman, Tompkins County Economic Opportunity Corporation
1964-1969	Board of Trustees, Cornell University
1961-1964	Board of Editors, *American Economic Review*
1953-1955	Attorney General's National Committee to Study the Antitrust Laws

HONORS AND AWARDS:

May 1995	Wilbur Cross Medal for outstanding achievement, Yale University
Mar 1989	Burton Gordon Feldman Award for Distinguished Public Service, Gordon Public Policy Center, Brandeis University
Feb 1989	Distinguished Service Award, Public Utility Research Center, University of Florida
Nov 1988	International Film and TV Festival of New York, Bronze Medal presented to The Nightly Business Report/WPBT2 for Editorial/Opinion Series written by Alfred E. Kahn
Apr 1986	Harry E. Salzberg 1986 Honorary Medallion for outstanding achievement in the field of transportation
Oct 1984	Distinguished Transporation Research Award of the Transportation Research Forum
1981-1982	Vice President, American Economic Association
1978	Richard T. Ely lecturer, American Economic Association, 1978
1978	Rejection Scroll, International Association of Professional Bureaucrats
May 1985	State University of New York (Albany), DHL (Hon.)
May 1983	Colgate University, LL.D. (Hon.)
June 1982	Northwestern University, LL.D. (Hon.)
May 1980	Ripon College, LL.D. (Hon.)
May 1979	University of Massachusetts, LL.D. (Hon.)
May 1978	Colby College, LL.D. (Hon.)
1977-	Fellow of the American Academy of Arts and Sciences
1976	Distinguished Alumni Award, New York University

1976	American Economic Association, Section on Public Utilities and Transportation, citation for distinguished contributions
1954-1955	Fulbright Fellowship, Italy
1935-	Phi Beta Kappa
1939-1940	Yale-Brookings Fellow

BOOKS:

The Economics of Regulation, 2 volumes, John Wiley, 1970 and 1971. Reprinted by The MIT Press, 1988, with a new "Introduction: A Postscript, Seventeen Years After," pp. xv-xxxvii.

Integration and Competition in the Petroleum Industry, (with Melvin G. DeChazeau), Petroleum Monograph Series, Volume 3 (Yale University Press, 1959). Reprinted in 1971.

Fair Competition: The Law and Economics of Antitrust Policy (with Joel B. Dirlam) (Cornell University Press, 1954). Reprinted by Greenwood Press, 1970.

Great Britain in the World Economy (Columbia University Press, 1946). Reprinted in 1968.

MAJOR ARTICLES:

"How to Treat the Costs of Shared Voice and Video Networks in a Post-regulatory Age," *Policy Analysis*, #264, November 27, 1996, Cato Institute.

"Competition and Stranded Cost Re-revisited," 36 *Natural Resources Journal* (1996) forthcoming.

"Deregulation of the Public Utilities—Transitional Problems and Solutions," *Economic Papers*, Economic Society of Australia, September 1995, pp. 1-17. (Published in *Réseaux* nos. 72-73 Juillet/Octobre 1995 by CNET as "Déréglementation des Services Publics: Problèmes transitoires et solutions.")

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"Competition in the Electric Industry Is Inevitable and Desirable," *The Electric Industry in Transition*, Public Utility Reports, Inc. and New York State Energy Research and Development Authority, December 1994, Chapter 3, pp. 21-31.

"Can Regulation and Competition Coexist? Solutions to the Stranded Cost Problem and Other Conundra," *The Electricity Journal*, Volume 7, Number 8, October 1994, pp. 23-35.

"The Pricing of Inputs Sold to Competitors: A Comment," in *Yale Journal on Regulation*, Vol. 11, No. 1, Winter 1994, pp. 225-240.

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"Change, Challenge and Competition The Report of the National Commission to Ensure a Strong Competitive Airline Industry, August 1993," *Regulation*, No. 3, 1993.

"The Competitive Consequences of Hub Dominance: A Case Study," in *Review of Industrial Organization*, Vol. 8, 1993, pp. 381-405.

"Pricing of Telecommunications Services: A Comment," in *Review of Industrial Organization*, Vol. 8, 1993, pp. 39-41.

"The Purposes and Limitations of Economic Regulation; The Achievements and Problems of Deregulation" and "Reflections and Conclusions on British and U.S. Experience: The Future of Regulation," in *Incentive Regulation: Reviewing RPI-X & Promoting Competition, Proceedings 2*, Based on papers presented at two CRI seminars in London on 4 June and 15 July 1992, CRI (Centre for the Study of Regulated Industries), October 1992, pp. 1-17 and 93-104.

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"Thinking About Predation--A Personal Diary," in *Review of Industrial Organization*, Vol. 6, The Netherlands: Kluwer Academic Publishers, 1991, pp. 137-146.

"An Economically Rational Approach to Least-Cost Planning For Electric Power," *The Electricity Journal*, Vol. 4, Number 5, June 1991, pp. 11-20.

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"Thinking About The Record of Deregulation," in The Donald S. MacNaughton Symposium Proceedings 1987, *Economic Deregulation: Promise and Performance*, Syracuse, NY: Syracuse University, 1988, pp. 21-35.

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"Ethical Values in a Market System," *Across the Board*, The Conference Board, April 1981, pp. 57-63.

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"Health Care Economics: Paths to Structural Reform," in Mancur Olson (ed.), *A New Approach to the Economics of Health Care*, Washington, American Enterprise Institute, 1981.

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"New Rate Structures in Communications" (with Charles A. Zielinski), *Public Utilities Fortnightly*, March 25, 1976, pp. 19-24 and April 8, 1976, pp. 20-23.

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"Economic Theory as a Guideline for Government Intervention and Control: Comment," *Journal of Economic Issues*, Vol. VIII, No. 2, June 1974.

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"Mergers in the Petroleum Industry and Problems of the Independent Refiner," U.S. Senate Judiciary Committee, *Economic Concentration*, Part II, Washington, 1965, pp. 562-609.

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U.S. CONGRESSIONAL TESTIMONY:

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Subcommittee on Aviation of the Senate Committee on Commerce, Science and Transportation on airline concentration at hub airports, September 22, 1988.

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Subcommittee on Telecommunications and Finance, House Committee on Energy and Commerce, on competition and deregulation of the telecommunications industry, July 15, 1987.

Subcommittee on Antitrust and Monopoly of the Senate Committee on the Judiciary, on competitive issues in the airline industry, March 25, 1987.

Subcommittee on Monopolies and Commercial Law, Committee on the Judiciary, U.S. House of Representatives, on the Administration's proposed amendments to Section 7 of the Clayton Act, February 26, 1986.

Subcommittee on Aviation of the Senate Committee on Commerce, Science and Transportation on Computerized Reservation Systems, March 19, 1985.

Joint Economic Committee, United States Senate, Hearing on the Economic Issues of a Changing Telecommunications Industry, October 3, 1983.

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House Committee on the Judiciary, on H.R. 1878, "The Shipping Act of 1983," May 19, 1983.

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Senate Committee on the Judiciary, on S. 1215, the Malt Beverage Competition Act, June 21, 1982.

Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, "Development, Operation and Implementation of the United States International Aviation Policy," December 9, 1981.

Joint Economic Committee, U.S. Congress on "Trucking Regulation," November 17, 1981.
Subcommittee on Monopolies and Commercial Law, House Committee on the Judiciary, "Mergers," August 26, 1981.

Senate Committee on Commerce, Science and Transportation, on S. 898, "The Telecommunications Act of 1981," June 11, 1981.

Subcommittee on Telecommunications, Consumer Protection, and Finance, House Committee on Energy and Commerce, "Telecommunications Regulation," May 20, 1981.

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a) House Subcommittee on Domestic Marketing, Consumer Relations and Nutrition; and Subcommittee on Department Investigations, Oversight and Research, Committee on Agriculture, April 4, 1979.

b) Subcommittee on Antitrust and Monopoly, Senate Committee on the Judiciary, April 6, 1979.

Testimony on hospital cost containment legislation, before:

a) Subcommittee on Health and the Environment, House Interstate and Foreign Commerce Committee; and Subcommittee on Health, House Ways and Means Committee, March 12, 1979.

b) Health Subcommittee, Senate Finance Committee, March 13, 1979.

Subcommittee on Environmental Pollution, Senate Committee on Environment and Public Works, on "Environmental Regulation and Inflation," February 27, 1979.

Testimony on authorization and appropriations for the Council on Wage and Price Stability, before:

a) Subcommittee on Economic Stabilization, House Committee on Banking, Finance and Urban Affairs, February 6, 1979.

b) Senate Subcommittee on Commerce, Consumer and Monetary Affairs, February 7, 1979.

c) Senate Committee on Banking, Housing and Urban Affairs, February 9, 1979.

d) Subcommittee on Treasury, Postal Service, and General Government, House Committee on Appropriations, May 24, 1979.

e) House Appropriations Committee, February 6, 1980.

f) Senate Committee on Banking, Housing, and Urban Affairs, March 17, 1980.

g) Subcommittee on Treasury, Postal Service, and General Government, House Committee on Appropriations, March 31, 1980.

h) Senate Committee on Banking, Housing and Urban Affairs, April 21, 1980.

i) Subcommittee on Treasury, Postal Service, and General Government, Senate Committee on Appropriations, April 23, 1980.

j) Subcommittee on Economic Stabilization, House Banking Committee, May 6, 1980.

House Committee on Ways and Means, on "Real Wage Insurance," January 30, 1979.

Testimony on the President's anti-inflation program, before:

a) Subcommittee on Economic Stabilization, House Committee on Banking, Currency, and Housing. November 22, 1978.

b) Subcommittee on Economic Growth and Stabilization, Joint Economic Committee, December 6, 1978.

c) House Committee on the Budget, January 30, 1979.

d) Subcommittee on Treasury, Postal Services, and General Government, House Committee on Appropriations, February 14, 1979.

e) Senate Budget Committee, March 7, 1979.

f) Subcommittee on Commerce, Consumer and Monetary Affairs, House Committee on Government Operations, June 28, 1979.

g) Economic Stabilization Subcommittee, House Committee on Banking, Finance and Urban Affairs, October 10, 1979.

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EDUCATION:

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1983-	Special Consultant
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1979-1982	Director, Public Program
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1969-1972	Assistant Professor
1967-1969	Lecturer
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1978-1980	Advisor to Secretary and Deputy Secretary, Department of Energy, on Alaska Natural Gas Transportation System (ANGTS)
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ACADEMIC ACTIVITIES AND INTERESTS:

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OTHER ACTIVITIES:

1996	Visiting Professor, Vienna Institute, Vienna Austria
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1990-1995	Visiting Professor, International Management Institute-Kiev (Ukraine)
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1979-1980	Chairman, LNG Import Advisory Committee, U.S. Congress Office of Technology Assessment
1970-1992	Lecturer and Coordinator, Management Development Program, Corning Glass Works, Corning, New York
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CONTRIBUTIONS TO BOOKS:

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TESTIMONY BEFORE REGULATORY AGENCIES:

September, 1996	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the Company's cost of equity capital (supplemental).
August, 1996	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the Company's cost of equity capital.
April, 1996	State of Alaska, Department of Revenue, "Report of Professor Jerome E. Hass," regarding certain income tax issues (confidential).
February, 1996	State of Alaska, Department of Revenue, "Report of Professor Jerome E. Hass," regarding certain income tax issues (confidential).
January, 1996	Federal Energy Regulatory Commission on behalf of Refinery Holding Company, Chevron USA Products Company and the Estate of El Paso Refinery, L.P. regarding various tariff issues for Santa Fe Pipeline Partners (sur-surrebuttal).
December, 1995	Federal Energy Regulatory Commission on behalf of Liquid Energy Corporation and Enserch Processing Company regarding various tariff issues for Chevron Pipe Line Company (LPGS) (surrebuttal).
August, 1995	Federal Energy Regulatory Commission on behalf of Refinery Holding Company, Chevron USA Products Company and the Estate of El Paso Refinery, L.P. regarding various tariff issues for Santa Fe Pipeline Partners (rebuttal).
June, 1995	Federal Energy Regulatory Commission on behalf of Liquid Energy Corporation and Enserch Processing Company regarding various tariff issues for Chevron Pipe Line Company (LPGS).
June, 1995	Federal Energy Regulatory Commission on behalf of Refinery Holding Company regarding various tariff issues for Chevron Pipe Line Company (APS) (surrebuttal).

May, 1995	Federal Energy Regulatory Commission on behalf of Refinery Holding Company regarding various tariff issues for Chevron Pipe Line Company (APS) (supplemental).
March, 1995	Federal Energy Regulatory Commission on behalf of Refinery Holding Company regarding various tariff issues for Chevron Pipe Line Company (APS).
December, 1994	New Jersey Board of Public Utilities on behalf of Comcast (multiple) regarding the cost of capital.
November, 1994	Connecticut Department of Public Utility Control on behalf of Comcast Cablevision regarding the cost of capital (Affidavit).
November, 1994	New Jersey Board of Public Utilities on behalf of Garden State Cablevision regarding the cost of capital.
June, 1994	Federal Energy Regulatory Commission on behalf of Refinery Holding Company, Chevron USA Products Company and the Estate of El Paso Refinery, L.P. regarding various tariff issues for Santa Fe Pipeline Partners.
December, 1993	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the cost of common equity.
December, 1992	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the cost of common equity.
December, 1991	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the cost of common equity.
January, 1991	New York State Public Service Commission on behalf of Multiple Intervenors regarding the cost of common equity and target cash interest coverage ratio for Rochester Gas & Electric.
February, 1990	Illinois Commerce Commission on behalf of Illinois Power Company regarding the cost of common equity and the proper capital structure to use in ratemaking.
February, 1990	New York State Public Service Commission on behalf of Multiple Intervenors regarding the cost of common equity and target cash interest coverage ratio for Rochester Gas & Electric.
November, 1989	New York State Public Service Commission on behalf of Multiple Intervenors regarding the cost of common equity and target cash interest coverage ratio for Central Hudson Gas & Electric Corporation.

October, 1989	Federal Energy Regulatory Commission on behalf of the State of Alaska regarding the proper capital structure and rates of return on debt and equity for the Endicott Pipeline Company.
April, 1989	Federal Energy Regulatory Commission on behalf of Air Transport Association of America regarding the profitability of Buckeye Pipe Line Company, L.P., and the ability of the Commission to rely upon market forces in place of active regulation.
October, 1988	New York State Public Service Commission on behalf of Multiple Intervenors regarding the cost of common equity and target cash interest coverage ratio for Central Hudson Gas & Electric Corporation.
March, 1988	Illinois Commerce Commission on behalf of Illinois Power Company regarding the cost of common equity.
June, 1987	South Dakota Public Utilities Commission on behalf of Otter Tail Power Company regarding the cost of common equity.
March, 1987	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the cost of common equity to the company under different Shoreham and Nine Mile Point II status scenarios.
November, 1986	Minnesota Public Utilities Commission on behalf of Otter Tail Power Company regarding the cost of common equity.
November, 1986	Federal Energy Regulatory Commission on behalf of the State of Alaska regarding the proper capital structure and rates of return on debt and equity for the Kuparuk Transportation Company.
August, 1985	California Public Utilities Commission on behalf of Pacific Gas & Electric Company regarding the costs and benefits to customers from different interim tariffs for the Diablo Canyon plant.
February, 1985	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the cost of common equity to the company under different Shoreham status scenarios.
January, 1985	Illinois Commerce Commission on behalf of Illinois Power Company regarding the cost of common equity and the effects on the costs of capital of phasing construction work-in-progress in rate base.
November, 1984	Maine Public Utilities Commission on behalf of Central Maine Power Company regarding the cost of common equity.
October, 1984	Arizona Corporation Commission on behalf of Arizona Public Service regarding an operating incentive system for the Company's base load units.

February, 1984	Arizona Corporation Commission on behalf of Arizona Public Service regarding the use of incentive systems for electric utilities.
January, 1984	New York State Public Service Commission on behalf of Long Island Lighting Company regarding the cost of common equity.
January, 1984	Federal Energy Regulatory Commission on behalf of the State of Alaska and the Department of Justice on the methodology of setting tariffs for the Trans-Alaska Oil Pipeline.
December, 1983	Department of Public Utility Control on behalf of United Cable Television of Connecticut regarding proper ratemaking and cost of equity.
May, 1983	Illinois Commerce Commission on behalf of Illinois Power Company regarding customers' costs and benefits from permitting construction work in progress in rate base.
1981-1983	Public Service Commissions in Minnesota, North Dakota and South Dakota and the Federal Energy Regulatory Commission on behalf of Otter Tail Power Company regarding the cost of common equity.
March, 1979	Testimony before the Philadelphia Gas Commission relating to proper practices for service termination, billing, and other customer-related activities of the Philadelphia Gas Works.
September, 1976	Before the Federal Power Commission on behalf of the Commission Staff regarding the determination of the fair market value and net salvage value of a pipeline proposed to be abandoned from gas transmission service.

TESTIMONY BEFORE COURTS:

June, 1994	Long Island Lighting Company v. The Assessor and the Board of Assessment for the Town of Brookhaven, et al, Supreme Court of the State of New York, County of Suffolk. Testified regarding the maximum economic values and percent conditions of the Shoreham Nuclear Power Station for the years 1984 through 1991.
June, 1992	Niagara Mohawk Power Corporation et al, v. Stone & Webster Engineering Corporation, et al, United States District Court for the Northern District of New York. Testified regarding the reasonableness of financing costs incurred by plaintiffs associated with repairs to the Nine Mile Point 2 nuclear power plant.
August, 1990	Long Island Lighting Company v. The Assessor and the Board of Assessment for the Town of Brookhaven, et al, Supreme Court of the State

of New York, County of Suffolk. Testified regarding the maximum economic values and percent conditions of the Shoreham Nuclear Power Station for the years 1976 through 1983.

November, 1989 — Continental Airlines, et al, v. American Airlines, et al, U.S. District Court (Central District of California). Testified regarding the reasonableness of the rate of return earned by American Airlines on its computerized reservation system investment.

February, 1989 — ETSI Pipeline Project, et al, v. Burlington Northern, et al, U.S. District Court (Eastern District of Texas). Gave oral expert testimony regarding the determination of damages to Houston Light & Power customers arising from the actions of railroads which forced cancellation of the ETSI project, a coal slurry pipeline.

October, 1987 — Shamrock Associates v. Horizon Corporation et al, U.S. District Court (Southern District of New York). Gave oral expert testimony regarding fairness of two security transactions between Horizon Corporation and MCO Holdings and provided estimates of damages to Horizon therefrom.

July, 1984 — Exxon Corporation v. The United States, U.S. Claims Court. Filed expert report and testified on behalf of Exxon regarding valuation of refining and marketing assets seized in Cuba.

April, 1984 — State of Alaska v. Phillips Petroleum Company, Alaska District Court. Filed expert report on behalf of State in royalty litigation regarding the value of natural gas produced in Cook Inlet for liquification and sale to Japan.

February, 1982 — Carl F. Matzen, et al v. Cities Service Oil Company, et al. Testified on behalf of producers in royalty litigation regarding value of natural gas sold in interstate commerce.

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