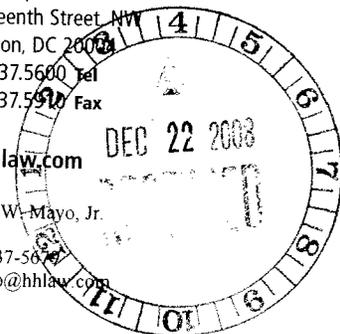


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December 22, 2008

BY HAND

The Honorable Anne K. Quinlan, Esq.
Acting Secretary
Surface Transportation Board
395 E Street, SW
Washington, D.C. 20423-0001

224242

Re: STB Ex Parte No. 680
Study of Competition in the Freight Railroad Industry

Dear Secretary Quinlan:

Enclosed for filing in the above-referenced proceeding are an original and ten copies of the Comments of Arkansas Electric Cooperative Corporation Regarding Study of Competition in the U.S. Freight Railroad Industry Conducted by Christensen Associates and three CD's containing the Comments.

If you have any questions or I can be of any assistance, please let me know.

Respectfully,

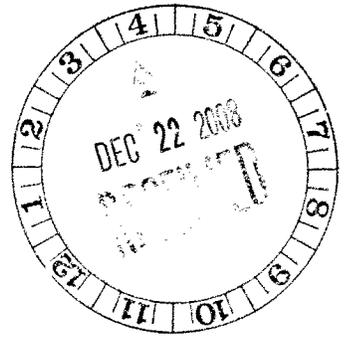
A handwritten signature in black ink, appearing to be "G. Mayo, Jr." with a stylized flourish.

George W. Mayo, Jr.

Enclosures

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BEFORE THE
SURFACE TRANSPORTATION BOARD



EX PARTE NO. 680

STUDY OF COMPETITION IN THE FREIGHT RAILROAD INDUSTRY

224242

COMMENTS OF ARKANSAS ELECTRIC COOPERATIVE CORPORATION
REGARDING STUDY OF COMPETITION IN THE U.S. FREIGHT RAILROAD
INDUSTRY CONDUCTED BY CHRISTENSEN ASSOCIATES

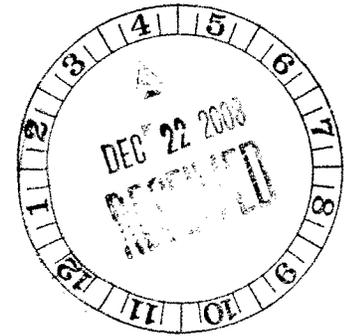
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Counsel for Arkansas Electric Cooperative
Corporation

Dated: December 22, 2008

BEFORE THE
SURFACE TRANSPORTATION BOARD



EX PARTE NO. 680

STUDY OF COMPETITION IN THE FREIGHT RAILROAD INDUSTRY

COMMENTS OF ARKANSAS ELECTRIC COOPERATIVE CORPORATION
REGARDING STUDY OF COMPETITION IN THE U.S. FREIGHT RAILROAD
INDUSTRY CONDUCTED BY CHRISTENSEN ASSOCIATES

By Notice dated November 6, 2008, the Board invited public comment on the independent study prepared by Christensen Associates, Inc., under contract to the Board, entitled, *A Study of Competition in the U.S. Freight Railroad Industry and Analysis of Proposals That Might Enhance Competition*. Pursuant to that Notice, Arkansas Electric Cooperative Corporation (AECC) 1/ submits the attached Statement of Michael A. Nelson, Transportation Consultant.

1/ AECC is a membership-based generation and transmission cooperative that provides wholesale electric power to electric cooperatives, which in turn serve approximately 460,000 customers located in each of the 75 counties in Arkansas. In order to serve its member distribution cooperatives, AECC has entered into arrangements with other utilities within the state to share generation and transmission facilities. For example, AECC holds ownership interests in the White Bluff plant at Redfield, AR and the Independence plant at Newark, AR, each of which typically burns in excess of 6 million tons of Powder River Basin (PRB) coal annually. In addition, AECC holds an ownership interest in the Flint Creek plant, at Gentry, AR, which normally burns in excess of 2 million tons of PRB coal annually. Because of the large volume of coal used by these plants, and the need for long-distance rail transportation to transport this coal, AECC has a direct interest in issues related to railroad competition, particularly as it relates to PRB rail capacity.

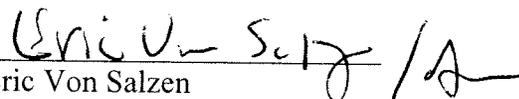
The text of the Christensen Study conveys the impression that the U.S. freight railroad industry is just beginning to enter the realm of financial health, that it has not engaged in the improper exercise of market power, and that any initiative by the Board or Congress to strengthen competition should be limited and carefully circumscribed.

However, Mr. Nelson's analysis shows that many of these assertions are not substantiated by, or are even inconsistent with, the technical content of the study. Furthermore, Mr. Nelson shows that the Report text often overlooks interpretations of the analytical results that are reasonable – if not obvious – in the context of other information presented in the Report or significant events that have occurred in the railroad industry.

Therefore, the Board should not allow the text of the Christensen Report to obscure the fact that there are serious competitive problems in the U.S. railroad industry today. Nor should the Board fear that adopting needed reforms to restore or enhance competition would have adverse impacts on the industry or its customers. The opposite is the case.

Respectfully submitted,

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Dated: December 22, 2008

ATTACHMENT

STATEMENT OF
MICHAEL A. NELSON REGARDING CHRISTENSEN STUDY OF COMPETITION
IN THE FREIGHT RAILROAD INDUSTRY

(Including Appendix A, "STB Bottleneck Decision")

**STATEMENT OF
MICHAEL A. NELSON REGARDING CHRISTENSEN STUDY OF
COMPETITION IN THE FREIGHT RAILROAD INDUSTRY**

1. Qualifications

My name is Michael A. Nelson. I am an independent transportation systems analyst with 28 years of experience in railroad competition and coal transportation. My office is in Dalton, Massachusetts. Prior to February 1984, I was a Senior Research Associate at Charles River Associates, an economic consulting firm in Boston, Massachusetts.

I have directed or participated in numerous consulting assignments and research projects in the general field of transportation. My work typically involves developing and applying methodologies based on operations research, microeconomics, statistics and/or econometrics to solve specialized analytical problems, including the analysis of competitive issues.

On behalf of DRGW, its parent Rio Grande Industries (RGI) and the merged SP/DRGW system, I performed analyses of rail competition issues in many of the western merger proceedings of the 1980's and early 1990's, including SP/ATSF, UP/MKT, SP/DRGW, UP/CNW and RGI's acquisition of the then-Soo line between Kansas City and Chicago (ICC Finance Docket No. 31505). I subsequently advised CP regarding competitive issues associated with the Conrail breakup transaction (STB Finance Docket No. 33888), and provided analytical support for CP in its settlement with NS and CSX. I provided testimony regarding competitive issues on behalf of the Committee to Improve American Coal Transportation (a coal shipper group) in the proceeding that defined the Board's current merger rules, and on behalf of Arkansas

Electric Cooperative Corporation (AECC) in DME's acquisition of IMRL/ICE and in CP's recent acquisition of DME/ICE.

Also before this Board, I provided testimony on behalf of the Mid-States Coalition for Progress regarding the proposal for a new rail line to serve the Powder River Basin (PRB) submitted by DME in Finance Docket No. 33407. In the final year of Board oversight of the UP/SP merger, I provided testimony on behalf of the Cowboy Railroad Development Company (CRDC), a group of utilities pursuing development of a new PRB outlet via Kansas City. On behalf of a group of coal shippers, I submitted testimony regarding competitive, buildout and public interest issues in the "Holrail" case (Finance Docket No. 34421). I also provided testimony on behalf of AECC as part of the Board's review of the first 25 years under the Staggers Act (Ex Parte No. 658).

For coal shippers and powerplant developers, I have conducted detailed studies of transportation options for over 40 existing or proposed coal-fired plants. I have developed analyses and forecasts of rail productivity changes and competitive rate levels, and have performed studies of fuel use on specific PRB coal movements (one of which was submitted to this Board in Ex Parte No. 661). I have also worked on the development of technically and economically feasible options for an ultra-efficient, "World Class" rail line in the corridor between the PRB and Kansas City. Portions of this work were presented in September 2006 at the conference and annual meeting of the National Coal Transportation Association.

I have also consulted to a number of shippers, railroads (U.S., Canadian and Mexican), governmental bodies and others on various additional railroad issues. Outside of my rail experience, I have analyzed the cost structure of the U.S. Postal Service in five

dockets before the Postal Rate Commission. In addition, I have assisted in the preparation of numerous other verified statements presented before various regulatory and legal bodies, and authored many technical reports and articles in transportation journals.

I received a bachelor's degree from the Massachusetts Institute of Technology in 1977. In 1978, I received two master's degrees from MIT, one in Civil Engineering (Transportation Systems) and one from the Alfred P. Sloan School of Management (Public Sector Management), with concentrations in economics, operations research and transportation systems analysis. My curriculum vitae is attached as Exhibit A.

2. Subjects Covered and Summary of Findings

I have been asked by AECC to review and comment on the study of railroad competition recently conducted for the STB by Christensen Associates. The past 15 years have seen many controversies regarding the performance of the rail industry (including several major service disruptions, carrier financial health issues and the apparent exercise of pricing power), and the merits of various regulatory decisions made by the Board (including the merger decisions that approved the creation of the eastern and western rail duopolies, and the establishment of the “bottleneck rule”). To develop the information needed to obtain perspective on these controversies and to obtain guidance for future regulatory policies, a major study of the general type conducted by Christensen Associates is timely, if not long overdue.

The Christensen study develops numerous tabulations and analyses of data that document the status of the rail industry, generally through 2006. The study report (hereafter, “Report”) presents numerical results along with descriptive and interpretive text. The text of the Report conveys the impression that the industry is just beginning to

enter the realm of financial health, that it has not engaged in the improper exercise of market power, and that any initiative by the Board or Congress to strengthen competition should be limited and carefully circumscribed. However, the data and analyses within the Report do not support these impressions, and in fact often show just the opposite.

This inconsistency arises in two different ways. First, in many instances the assertions and conclusions presented in the Report are not substantiated by the technical content of the study, and in fact are contradicted by the data in the Report. As a result, the text implicitly and improperly claims a foundation that the analysis does not provide.

Second, in several instances the text overlooks interpretations of the analytical results that are reasonable – if not obvious – in the context of other information presented in the Report or significant events that have occurred in the freight rail industry. If such interpretations had been included, they would undermine the benign impressions of the industry, and the adverse impacts of pro-competitive reforms, that the text otherwise conveys.

Based on the information it developed and presented, the Christensen study should have concluded that:

- the rail industry had achieved basic financial soundness as of the early 1990's;
- subsequent mergers, in combination with the Board's bottleneck decision, applied upward pressures on the cost structure of railroads that were detrimental to the financial health of the industry and to the public interest;
- the erosion of competitive pressures has undermined the pattern of investment and productivity improvement that drove the original restoration of the financial health of the industry (i.e., through the early 1990's); and,

- the industry now has clearly moved into the realm of supra-competitive earnings, but has done so largely on the basis of the increased exercise of market power. Its earnings are above the level needed to ensure an adequate return on capital, but the competition it now provides is weak.

This statement identifies and describes instances where the Report presents unfounded assertions, and where it unreasonably overlooks plausible interpretations of the analytical results. It then reviews conclusions that the Board can reasonably draw from Christensen's evidence regarding the financial condition of the rail industry, the state of competition and the potential merits of pro-competitive reforms.

3. Unsubstantiated Statements

In several places, the Report contains statements that are not supported by the analyses with which they are associated, or are contradicted by readily available information. These include the following:

- a. "The increase in railroad rates experienced in recent years is the result of declining productivity growth and increased costs rather than the increased exercise of market power." (Page ES-5, summarizing similar statement from page 10-12)

The "recent years" that should be considered in this analysis are the years from 2004 to date because this is when competitive rail rates appear to have reversed dramatically their long historical pattern of stability or decline. For example, Table 8-4 on page 8-16 shows how coal rates in 2004 (coinciding with the implementation of "public pricing") began a series of annual increases of 7-9 percent after a long period of generally steady or diminishing rates. However, because the Report generally only presents revenue data through 2006, it is fundamentally unable to address the full scope

of changes in rail rates that have occurred during the time period of interest.¹

Nevertheless, the Report contains information sufficient to nullify the claim that “the increased exercise of market power” was not a cause of the increased rail rates in recent years.

Market power is defined based on the ability to command prices that exceed marginal costs. Figure 18-4 on page 18-4 plainly shows that between 2004 and 2006, the growth in rail rates (RPTM) materially exceeded the growth in marginal costs. This is corroborated by Figure ES-10 on page ES-21, which shows a strengthening of revenues relative to total costs in 2004-2005 and a dramatic strengthening of revenues relative to total costs in 2005-2006, at which time this measure was at the highest level observed during the 20 years of data presented. The Christensen study shows clearly that the railroads’ revenues exceeded their marginal costs by an increasing amount between 2004-2006. Whatever factors may have affected rail productivity and cost levels, the increasing gap between rates and marginal costs forms a textbook example of the increased exercise of market power during this time.

Information from such sources as the railroads’ annual reports for 2007 and quarterly reports from early 2008 confirms that this pattern continued after 2006. While this information was available to Christensen well before the submission of the Report, Christensen omitted it from the Report. It also should be noted that this statement by Christensen completely disregards the possibility that the declining productivity growth it

¹ It should be noted that the analysis of costs presented in the Report extends through the second quarter of 2008, and encompasses the large increase in fuel prices that occurred during 2007 and early 2008. To the extent that this Christensen statement is relying on a comparison of rate trends through 2006 with cost trends through 2Q2008, it is invalid on its face.

references is itself a byproduct of diminished investment associated with decreased competitive pressure (see section 4.a, below).

- b. “Although the railroad industry’s earnings have increased in recent years, they do not appear to be excessive from a financial market perspective.” (Page ES-26)

This statement is based on a casual comparison by Christensen between results from the rail industry and two benchmarks it selected (utilities and the S&P 500). The Report provides no rationale for giving weight to this type of approach in preference to the methodology recently implemented by the Board to satisfy its statutory requirements associated with measuring the rail industry’s cost of capital and assessing the adequacy of rail earnings. Nevertheless, Figure ES-12 on page ES-27, which ostensibly is provided to corroborate the Christensen statement, in fact plainly shows rail earnings leapfrogging those of the selected benchmarks, even during the limited portion of the period of interest for which the Report provides data (2004-2006). Moreover, as shown in Figure 8-23 on page 8-35, even the lower earnings of previous years provided returns that (since 2001) have exceeded the industry’s cost of capital under the CAPM methodology adopted by the Board.² There is no foundation in the national transportation policy or in economic theory for the Board to promote earnings above the level that satisfies the CAPM standard – let alone the rapid ascent from that level observed in recent years.

² On page 8-35, the text of the Report concedes that “...there is recent evidence of that the industry has become revenue adequate and may have exceeded [the CAPM] standard.” However, the Report then waffles by trying to claim that “...it is difficult to draw conclusions from only a few observations, particularly when the earlier observations show the opposite result.” The data plainly show that earnings have exceeded the CAPM standard every year beginning in 2002, and that the excess earnings have increased substantially beginning in 2004. Indeed, there are “few observations” in part because the Report inexplicably excludes computations for 2006 (for which industry earnings elsewhere in the Report are described as having increased substantially). Even the reference to “earlier observations” is not valid, as the data for 1997 show a close correspondence between returns and CAPM results, and returns for the period during and after the mega-mergers likely were influenced by the considerations discussed in section 4.a (below).

- c. “Current market circumstances imply that providing significant rate relief to certain groups of shippers will likely result in rate increases for other shippers or threaten railroad financial viability.” (Page ES-5)

In fact, “current market circumstances” imply exactly the opposite. When carriers are covering their costs and earning a return above the cost of capital -- as the data discussed in the immediately preceding section show that they are -- rate relief can be provided without adverse impacts on other shippers or on railroad financial viability. The Staggers Act, and the theory of “constrained market pricing” that has guided ICC and Board determinations of rate reasonableness under the Act, both contemplate that differential pricing by railroads will be permitted only up to the point where the railroads are earning an adequate return on capital. In its discussion of rate regulation methods, the Report itself acknowledges (at page 3-4) the application of a “...restriction that prices are just high enough so that the regulated firm will not receive monopoly profits.” There simply is no foundation that would justify sustained, supra-competitive earnings above that level.

- d. “Since coal, in particular, accounts for a very large share of ton-miles, relatively low coal markups require other commodities collectively to pay relatively high markups to satisfy the railroads’ overall revenue-sufficiency constraints. Railroad-level calculations show that the low estimated coal markups are driven largely by the western railroads. This may imply that the joint BNSF-UP line serving Powder River Basin (PRB) mines is producing reasonably effective competition at origin for PRB coal shipments.” (Page 11-22)

The first part of this Christensen statement is a detailed variation of the statement addressed above in part (c), and is invalid for the same reasons. In the current realm of supra-competitive earnings, the postulated trade-off simply does not exist. This Christensen statement goes further, however, promoting the concept that the rates paid by PRB coal shippers are so low that they impose a burden on other shippers. For the period

up to 2004, many PRB coal shippers might accept the proposition that rates on contestable movements often reflected effective competition. However, without even considering the dramatic rate increases that have occurred since that time, there is no basis for asserting that low PRB rates imposed burdens on other traffic types.

The Report certainly does not – and cannot - make any assertion that PRB coal moves fail to generate a very large contribution above the variable costs they incur. Indeed, the evidence indicates that even the lowest-rated PRB coal traffic moving in the major flows out of the PRB has fully paid its own way. For example, in the Board’s assessment of the reasonableness of UP’s rates to the Alliant/Edgewater powerplant (located at Sheboygan, WI, not far from UP’s main line to the major Chicago gateway), it found the stand-alone railroad could cover its costs and provide a market return on capital even if the contested rate were below the 180 percent R/VC jurisdictional threshold. More recently, in the KCPL/Montrose rate case, UP voluntarily stipulated to the analogous point in its high-volume PRB-Kansas City corridor. Given that at least two new PRB line construction proposals have been developed based on the movement of competitive traffic (to the upper Midwest and to the Kansas City gateway), Christensen’s statements about low PRB coal mark-ups are invalidated by the well-established stand-alone costing principle that no traffic should pay more than the rate(s) that would support replication of the facilities it uses. In short, PRB traffic pays its own way, and there is no basis for Christensen to intimate that PRB rates could be increased without creating an impermissible cross-subsidy.

- e. “The ratio of revenue to URCS variable cost (R/VC) is weakly correlated with market structure factors that affect shipper “captivity,” and is not a reliable indicator of market dominance.” (Page ES-5)

Although this may be true of other commodities, the results presented in the Report show that with respect to coal, R/VC may well be a reliable indicator of market dominance. As stated on page ES-12, “...appropriate measures of captivity should focus on the effects of the transportation market structure on rail rates.” Table ES-4 on page ES-12 shows that the correlation between R/VC and the rate measure (RPTM) is a reasonably robust 0.61 for coal, which is far higher than that observed for other commodities.

While the Report then complains that R/VC doesn't correlate as well as Christensen expected it would with Christensen's measure of destination competition for coal, this low correlation reflects Christensen's misconceptions regarding the workings of destination competition for coal and/or the inadequacy of their measure. Christensen should not be surprised that the presence of a second railroad in the same county as a coal plant does not automatically produce a major impact on R/VC (or rates). Under the best of circumstances, the effectiveness of potential competition from a second rail carrier depends on the ability of the carrier to actually reach the plant. While buildouts (or even transloads) are sometimes feasible, their expense tends to increase dramatically with distance, eroding the opportunity to generate net savings even when a second railroad is in the same county. Within a large county, for example, a second railroad may simply be too far away to provide a realistic competitive option for a given powerplant. Even when the airline distance to a second carrier is comparatively small, in many instances the

presence of waterways, unfavorable terrain, urban development or other obstacles may make it very challenging to obtain competitive service from the second carrier.

If anything, the low correlation that Christensen observes demonstrates one or both of two things: (i) a potential competing carrier generally has no way to compel use of the “last mile” of track owned by an incumbent railroad that is needed to move coal to a given powerplant, even if the alternative carrier is ready, willing and able to compete over the other 99.9% of the movement; and (ii) as explicitly described to Christensen by stakeholders³, carriers may be refraining from head-to-head competition even when such competition is physically feasible. In either case, the model result Christensen cites provides a definitive indication of the current weaknesses of rail-to-rail competition. It does not undermine potential reliance on the overall correlation between R/VC and RPTM for coal that Christensen found in its analysis.

- f. “...it would not be unexpected to see a rise in rail rates to ration available capacity during the period in which shipments were disrupted, and subsequently to observe coal rail rates remaining high if not increasing to recover capital costs related to investments in lines serving PRB coal.” (Page 12-4)

Holding aside the issue of rates during the period of disruption, this statement, which pertains to the roadbed instability problems on the PRB Joint Line that became evident in 2005, displays a complete lack of comprehension of the circumstances that caused the problems, as well as a complete inconsistency with the entire history of PRB infrastructure investment. It is well-established that Joint Line infrastructure collapse was caused by the failure of the railroads to maintain ballast in an appropriately clean condition given the presence of substantial volumes of fugitive coal dust. Periodic cleaning of ballast is a routine part of track maintenance that is needed to ensure proper

³ As discussed on page 5-9 of the Report.

drainage and preserve the integrity of the track structure. While the railroads issued breathless claims about the collapse being triggered by extraordinary weather conditions, weather records indicate that precipitation preceding the collapse (both in the short term and in the annual cycle) was very close to historical averages. The problem was that in the drought conditions prevailing during the years preceding 2005, the railroads elected to simply defer routine maintenance (apparently on the theory that the coal dust wouldn't cause a problem if it never rained). When precipitation returned to near-normal levels in 2005, the myopia of that strategy was exposed.

The facts described above have been documented by AECC for the Board⁴ and were readily available to Christensen Associates. Christensen's failure to check the facts on this issue – especially given their willingness to use it as an excuse for higher rates – undermines the credibility of this portion of the text in the Report.

In any event, the “investments” referenced in the Christensen statement reflected deferred maintenance of existing assets, and had nothing to do with the provision of new capacity. The entire history of the PRB and the Joint Line (at least up to 2004) has demonstrated how the economies of density enjoyed by railroads – which Christensen confirms in Chapter 9 of the report – enable costs (and competitive rates) to go down even when bona fide infrastructure investments must be made to accommodate increasing volumes. There is absolutely no foundation for Christensen's statement to the contrary.

⁴ See for example, STB Ex Parte No. 671, Rail Capacity and Infrastructure Requirements, “Written Submission of Arkansas Electric Cooperative Corporation” (April 4, 2007) at the concluding two pages of Exhibit 2; and, STB Ex Parte No. 672, Rail Transportation of Resources Critical to the Nation's Energy Supply, , “Written Submission of Arkansas Electric Cooperative Corporation” (July 5, 2007) at pages 4-6.

4. Overlooked Findings

In several places the Report presents quantitative results but fails to present interpretations of those results that a reasonable and objective analyst likely would make.

These interpretations pertain to the following issues:

- the mega-mergers that created the eastern and western rail duopolies;
- the “bottleneck” rule; and
- capacity and demarketing.

Each of these is addressed below.

a. Mega-Mergers

The Report demonstrates how the UP/SP merger and Conrail breakup transactions, which created the western and eastern rail duopolies between 1996 and 1999, undermined the long-term downward trend in rail costs that was the hallmark of the first 15 years of rail competition under the Staggers Act. Christensen’s data indicate that the mega-mergers (in combination with the bottleneck rule – see section (b), below) had direct adverse impacts on marginal costs and fixed costs:

- Marginal costs - As shown in Figure 9-1 on page 9-26, the period from 1987 through 1995 saw a consistent and significant pattern of decline in rail marginal costs. During the mega-merger period of 1996-1999, marginal costs reversed direction, and increased to a level that basically erased 2-3 years of the pre-merger decline. A new period of decline began after 1999, but it was not as steep as the decline before the mergers. As a result, post-merger marginal costs never made it

back to pre-merger levels before the effects of significant fuel price increases began to affect this measure.

- Fixed costs – As described on page 10-4 of the Report, Christensen explicitly finds that the UP/SP merger (and the preceding BN/ATSF merger) had the effect of increasing fixed costs. Under section 11324(b)(3), the Board has a mandate to consider the fixed charges associated with major merger transactions. Fixed costs generally contribute to the need for a railroad to price above marginal costs in order to cover its total costs.

These impacts are completely contrary to the public interest and to the financial health of the industry, since they represent cost increases rather than cost decreases relative to pre-merger conditions.

In addition to these direct impacts, the Christensen data also indicate that, in the longer term, the mega-mergers undermined the willingness of the railroads to invest capital and improve productivity:

- Capital expenditures - As shown in Figure 8-28 on page 8-40, rail capital expenditures as a fraction of revenue reached a peak in 1998 (i.e., after consummation of the UP/SP merger but before consummation of the Conrail transaction). After consummation of the Conrail transaction, this measure dropped to a stable level approximately 25-30 percent below the 1998 level. Since 1999, it has never returned to pre-duopoly levels. Indeed, when capital spending is analyzed as a fraction of EBIT (as shown in Figure 8-25 on page 8-

37), the decline is even more pronounced (2006 level is less than half of 1998 level).

- Productivity - As shown in Figure 8-8 on page 8-19, the entire shape of the growth curve of rail productivity during the past 20 years changed from convex to concave with the consummation (in 1999) of the Conrail transaction, which completed the establishment of the eastern and western rail duopolies. As shown in Table 8-8 on page 8-27, this coincided with a drop in average annual productivity improvement from the range of 4-5 percent per year observed prior to 1995 to the range of 1-2 percent per year observed thereafter.

While the mega-mergers were approved on the basis of postulated improvements in efficiency (and service), their legacy in both the short- and long-term has been the opposite. If anything, the creation of firms with higher costs and lesser incentives to invest, as shown in Christensen's data, is a manifestation of diminished competition.

Regarding competition, the Report specifically documents (on pages 12-8 and 12-9) how the presence of a third railroad at origin and/or destination can improve price/service options for coal shippers. This finding undermines the theory used by the Board to justify the omission of relief for shippers who experienced a "3-to-2" reduction in the number of serving carriers in the mega-mergers. It indicates that coal shippers have likely experienced competitive harm that was not contemplated (or authorized) by the Board at the time of those mergers. In this context, the loss of SP as an independent originator of western bituminous coal, and the ineffectiveness of the Central Corridor conditions imposed by the Board in the UP-SP merger, may be particularly significant.

b. Bottleneck Rule

While the Report takes a dim view of potential changes to the Board's bottleneck rule, it does not take a million-dollar study to discern the public interest problems associated with that rule, particularly in the context of the mega-mergers. As discussed in greater detail in Appendix A, the bottleneck rule fosters conduct that is supportive of the perceived short-term economic self-interests of individual railroads, but is inconsistent with economic efficiency and the public interest. It has contributed to unnecessary operating costs, inefficient fuel use, costly system reliability problems, inefficient capital investments and blockage of potentially significant funding sources for future capacity and productivity improvements – as well as inflated prices paid by captive shippers. An initial lower-bound estimate indicates that the direct operating inefficiencies that result from routing practices fostered by the bottleneck rule cost over \$1.3 billion per year, and entail unnecessary consumption of over 103 million gallons of diesel fuel per year, including the associated carbon emissions, other environmental, national energy policy and security impacts.

Overall, the Report's stated endorsement of the bottleneck rule represents, at best, an uncritical repetition of the carriers' party line that ignores several important public interest considerations. In fact, the public interest would plainly be served by reform of the bottleneck rule. Such reform could produce operating cost savings comparable to (or greater than) the revenue transfer currently received by carriers, while producing an assortment of additional efficiency and reliability benefits.

c. Capacity Issues and Demarketing

In recent years the rail industry has put a lot of effort into creating a capacity “bogeyman” to try to explain away some of its rate increases and periods of poor service. To its credit, the Report rejects the proposition that there is any type of systematic capacity problem (see, for example, page ES-30), demonstrates that the railroad industry is not withholding cost-effective capacity investments and counsels against concerns associated with the need to meet projected long-term volume increases.

Of course, this leaves open the question of why the railroads have gone to such lengths to convince stakeholders that there are significant capacity issues, and why there has been demarketing. In light of Christensen’s findings regarding capacity constraints, its comments (on page 5-9) regarding demarketing acknowledge that this could represent anti-competitive conduct.

5. Conclusions

“What we’re saying today is that you’re either part of the solution or you’re part of the problem.” (Eldridge Cleaver; 1968)

None of the current members of the Board played any direct role in the Board’s actions of the mid-to late-1990’s approving the mega-mergers and the bottleneck rule. Nevertheless, by promulgating a report that essentially whitewashes the effects of those actions, this Board provides cover for those actions as if they were its own.

The Christensen study documents the adverse impacts that resulted from the – in hindsight - untimely and unwarranted restrictions on competition imposed by those prior Board actions. Whether viewed at the industry level, where earnings have rocketed into

the supra-competitive range, or at the micro-level, where another railroad in the neighborhood doesn't necessarily yield any meaningful competition, the Christensen study shows plainly the insufficiency of current competitive pressures.

The Board should accept the Christensen study's demonstration that the rail industry has long been capable of surviving and thriving in a more competitive environment than it currently faces. It should view competition as a legitimate tool for advancing the public interest, and not as a toxic agent that is acceptable only in limited doses.

If the Board really wishes "...to consider actions to address problems associated with the exercise of market power in the railroad industry" (page ES-4), the Christensen study results suggest - based on the foregoing discussion - that the following may steps may be warranted:

- reversal of the bottleneck rule;
- liberalization of competitive access;
- development of some form of R/VC cap on the highest coal rates; and,
- restoration of third carrier access at points that lost 3-carrier competition in the mega-mergers.

This list is not intended to be exhaustive - other parties may suggest other actions that would also be reasonable and consistent with the study findings.

In general, the Board can have confidence that greater application of market forces will spur needed investment, productivity improvement and cost reductions, while providing more effective protection for shippers and the public interest against the excessive exercise of rail market power. This is not an outcome that should be viewed

with fear. Rather, it would fulfill the Board's mandate to promote the health of the industry and the public interest through reliance on competition.

Appendix A

STB BOTTLENECK DECISION

Appendix A

STB BOTTLENECK DECISION

I. INTRODUCTION

In 1996 the Surface Transportation Board (STB) issued a decision encompassing three cases in which a captive rail shipper sought to establish a separate rate for a segment of a route over which no competitive alternative was available (i.e., the “bottleneck” segment). The “bottleneck decision” inhibits competition on the separate segments of any route for which a given rail carrier is capable of providing single-line service. For railroads, this inhibition has made it easier to implement the long-standing conventional wisdom that, for a railroad, it is beneficial to maximize participation in any given movement (i.e., the “long-haul preference”). For captive shippers, the inhibition has impeded or prevented the reliance on market forces for portions of their traffic movements, and diluted the effectiveness of rate reasonableness constraints.

Past efforts to quantify the impacts of the bottleneck decision have focused on the amount of revenue the railroads receive from shippers through its constraint of competitive options that they otherwise would not have received. For example, Professor Curtis Grimm of the University of Maryland has estimated that the total impact on rail rates caused by shipper captivity is \$1.3 billion, of which the bottleneck rule accounts for a proportion.¹ Estimates of this type have highlighted the magnitude of the transfer of wealth made by captive shippers to railroads through this mechanism, and have informed the important public policy debate surrounding that issue.

This appendix addresses the impacts of the bottleneck rule on economic efficiency, including the efficient use of fuel. To the extent that the bottleneck rule has substantial adverse effects on the efficiency with which resources are consumed, it is contrary to the public interest, and provides a wasteful method for conveying revenue to the railroads through differential pricing.

This appendix reviews the original rationale for the bottleneck rule, and identifies and analyzes the ways industry changes have affected the efficiency consequences that result from its continued application. The contents of this appendix are organized into the following sections:

- Section II provides a background discussion of the “long-haul preference” of railroads;
- Section III reviews the STB decision in the original bottleneck cases;

¹ Testimony of Curtis M. Grimm, Dean’s Professor of Supply Chain and Strategy, Robert H. Smith School of Business, University of Maryland to U.S. House of Representatives, Committee on Transportation and Infrastructure, Subcommittee on Railroads (March 31, 2004).

- Section IV provides an overview of relevant industry changes since the bottleneck decision; and,
- Section V analyzes the economic impacts of the bottleneck rule on operating efficiency, rail system reliability and rail capital investment requirements.

It should be noted that the numerical estimates developed in this appendix are intended to illustrate the approximate magnitudes of different efficiency considerations. Further study might produce more refined values for specific estimates, but is unlikely to materially alter the overall findings presented herein.

II. BACKGROUND

Railroads have long exhibited a predisposition to handle any given shipment for the largest proportion of the total movement they are able to serve. Above and beyond any effects such a practice might have on the rates paid by captive shippers, this “long-haul preference” has been a central tenet of railroad routing practices for decades, preceding the partial deregulation of the rail industry in 1980.

Economists, politicians and regulators are normally able to assume that firms behave in ways that are “rational”, and sometimes struggle to explain the rail routing patterns that often result from the long-haul preference. For example, it is undoubtedly true that some moves are not interlined because carriers have imperfect information about their costs, or the costs of interchange may exceed whatever savings might theoretically be achieved by using another carrier’s efficient line for a portion of the route. It is also true that the refusal to quote segment rates that would permit participation in a movement by a competing rail line may allow a railroad to achieve a higher profit from its single-line movement. However, these realities do not explain fully the longstanding industry practice of taking one’s longest haul whenever feasible, and interlining primarily as a means to obtain contribution from traffic one would otherwise not be able to handle.

This practice only begins to appear “rational” when viewed in the context of the economic characteristics and competitive environment of the railroads. With “economies of density”², the railroad enjoys decreasing average costs as the volume it handles increases. At the same time, for any given movement a railroad typically faces at most a very small number of competitors. If you are a railroad, keeping volume on your network pushes your unit costs down and your prospective competitors’ unit costs up. At the same time, it is generally “better” for you to earn a small contribution on traffic for which your costs are high rather than have your prospective competitors earn any contribution from that traffic at all.

Guided by these considerations, railroads historically have not hesitated to move traffic over their own inefficient routes, even if it might theoretically be possible to reduce overall operating costs for some movements by cooperating with another railroad. In this light, it can be seen that the long-haul preference reflects the exercise of market power in a highly concentrated market. It is based on the self-interest of the railroad, and at least

² As documented in detail beginning on page 9-10 of the Report.

for trainload movements has no discernible public interest rationale (i.e., because the traffic will contribute to economies of density for whatever railroad moves it, and interchange costs are negligible). Moreover, it tends to undermine, rather than ensure, the economic efficiency of the resulting traffic patterns.

III. STB BOTTLENECK DECISION

In a decision served December 31, 1996, the STB rejected attempts by three coal shippers with plants served by single railroads to compel the establishment of separate rates for the portion of the movement between the plant and a rail common point along the shipment's path of movement (i.e., the "bottleneck" segment). Such a rate would prospectively enable the shipper to constrain the rate on the bottleneck segment using the Board's rate reasonableness procedures, and obtain a competitive rate for the remainder of the movement, both of which could have the effect of reducing the cost of the movement for the shipper.

Under the rule established by the Board to address this situation, a railroad cannot be compelled to participate in a routing that runs contrary to its long-haul preference unless the shipper first obtains approval for the alternate route under the Board's "competitive access" procedures, which govern the prescription of through routes, reciprocal switching and terminal trackage rights. In establishing this rule, the Board explicitly relied on the Congressional intent that rail carriers be freed of the past need to keep open all possible routes (including those that would be inefficient). However, the citation presented by the Board to support the bottleneck rule explicitly highlighted the Congressional intent that carriers make "...maximum use of efficient routings..."³

The Board also interpreted 49 U.S.C. 10705 as providing the railroad with authority to control routing.⁴ However, the Board's interpretation makes no mention of the provisions of Sections 10705(a)(2)(B) and (C), which explicitly permit the Board to shorten a carrier's length of haul to promote efficiency. It also disregards the requirement in Section 10705(a)(1) that the Board prescribe through routes when it is in the public interest to do so.

In the name of closing inefficient through routes, the Board established a rule that, contrary to the public interest, allowed railroads to close the efficient ones as well. To address efficiency concerns, the Board relied entirely on the proposition that shippers would be able to make use of the Board's competitive access procedures when needed to implement efficient through routes. The Board specifically described how a rail transportation contract with an alternate carrier could generate and reflect the types of

³ Surface Transportation Board, Docket No. 41242, Central Power & Light Company v. Southern Pacific Transportation Company; Docket No. 41295, Pennsylvania Power & Light Company v. Consolidated Rail Corporation; Docket No. 41626, MidAmerican Energy Company v. Union Pacific Railroad Company and Chicago And North Western Railway Company, decision served December 31, 1996 (hereafter, "Bottleneck Decision") at page 6.

⁴ Bottleneck Decision at page 7.

efficiencies that could support the granting of competitive access relief. However, the Board dismissed shipper concerns that railroads would be unwilling to enter such contracts if the rate for the bottleneck segment had not previously been established. On the contrary, the Board asserted that "...at least some non-bottleneck carriers have indicated their readiness to enter into contracts for the non-bottleneck portion of their service that the shippers claim they seek."⁵

History has shown that successful shipper applications of the competitive access procedures to mitigate routing inefficiencies resulting from the bottleneck rule are virtually nonexistent. Indeed, according to the Congressional Research Service (CRS), only one shipper has successfully obtained alternative service over a bottleneck segment.⁶ While the Board asserted that its competitive access procedures "...were not designed to defeat legitimate competitive efforts by other rail carriers and shippers by permitting bottleneck carriers to foreclose more innovative, advantageous, and efficient service"⁷, the reliance on those procedures embedded in the bottleneck rule has had precisely that effect.

IV. INDUSTRY CHANGES

Industry changes related to the efficiency impacts of the bottleneck rule include:

- the increased length of haul resulting from rail mergers;
- the 3-to-2 reduction in the number of major competitors; and,
- volume increases.

Each of these is discussed below.

A. Length of Haul

Many rail mergers have been justified at least in part on the basis of benefits associated with the expansion of single-line rail service. While such benefits may accrue for some traffic, the broader geographical coverage for individual carriers typically produced by rail mergers has had the effect of increasing the proportion of the length of a haul that a given carrier is able to serve. Put another way, the mergers have tended to increase the length of haul over which the bottleneck rule allows a railroad to exert its long-haul preference.

⁵ Bottleneck Decision at page 12.

⁶ See CRS Report for Congress, Rail Transportation of Coal to Power Plants: Reliability Issues (September 26, 2007) Order Code RL34186 (hereafter, "CRS Report") at page 66.

⁷ Bottleneck Decision at page 12.

B. Reduction from 3 to 2 Carriers

The UP-SP merger in the west and the Conrail transaction in the east had the effect of reducing the number of major rail carriers in each region from 3 to 2. At the time of the bottleneck decision, the UP-SP merger had been approved but not implemented, and the Board filing for the Conrail transaction would occur in the near future. Because the bottleneck decision was reached during this period of transition, the Board had no opportunity to observe carrier and shipper conduct – including shipper use of the competitive access procedures to address efficiency issues - in a 3-carrier environment. At the same time, the Board had no basis of experience from which it could reliably project that such conduct would effectively ensure efficiency after a reduction from 3 to 2 carriers.

The duopolistic market for rail service that now prevails in most of the U.S. has proven to be incompatible with the role of contracts envisioned by the Board. If one carrier in a duopoly were to enter into a contract with a shipper that undermines the other carrier's position on a captive movement, this would invite a reciprocal, retaliatory action by the second carrier. Since the only net impact of this exchange would be a reduction in both carriers' net revenues, it is not surprising that opportunities for shippers to rely on contracts to address bottleneck issues are virtually nonexistent.

C. Volume Increases

Since the time of the bottleneck decision, rail volumes have increased almost every year.⁸ Measured on the basis of net ton-miles, rail volumes increased by over 28 percent between 1996 and 2006, and are expected to continue growing in the future.

Volume increases have affected the efficiency consequences of the bottleneck rule in two ways. First, for any given effect of the bottleneck rule on operating efficiency, an increase in the size of the universe of traffic generally increases the aggregate size of the effect. Second, volume increases have in some situations diminished excess capacity and created a need for additional capacity and infrastructure investment. The relationships between the bottleneck rule and infrastructure investment are analyzed in further detail below.

V. ECONOMIC IMPACTS

A. Operating Efficiency

Notwithstanding the theoretical ability of shippers to invoke the Board's competitive access procedures to address routing inefficiencies, the bottleneck rule effectively permits carriers to route traffic according to their long-haul preferences. The types of operating

⁸ See, for example, http://www.bts.gov/publications/transportation_statistics_annual_report/2006/html/chapter_02/table_b_03.html.

inefficiencies that arise from such practices can be illustrated in the movement of PRB coal.

PRB coal movements represent a significant fraction of the total amount of rail traffic,⁹ and for many issues can be analyzed effectively using information in the public domain. PRB coal moves to an assortment of captive and competitive locations, and has already experienced the types of volume growth and infrastructure investment requirements that are becoming relevant for other types of traffic. Moreover, the STB has already determined that “...(i) interline movements do not significantly detract from the efficiencies of run-through unit coal trains”,¹⁰ so the study of PRB coal movements provides a reasonable basis for examining railroad routing preferences and practices under the bottleneck rule.

For the purposes of the estimates developed herein, assume that approximately 50% of Wyoming PRB coal production moves to market through the rail corridor from the PRB to Kansas City, and that 50 percent of that tonnage is moved by BNSF while the other 50 percent is moved by UP.

Each ton moved to Kansas City by BNSF travels approximately 61 miles farther than it would if moved by UP¹¹. At the 2006 level of Wyoming PRB coal production (approximately 430 million tons), this equates to approximately 6.6 billion unnecessary net ton-miles of transportation. At a variable cost estimate of 7.0 mills per ton-mile¹², the annual waste of economic resources that results from the inability of BNSF coal shippers to make use of UP’s efficient route to Kansas City is on the order of \$46 million. This represents wasted crew time, fuel, locomotive time, track maintenance, etc.

Even this estimate does not fully reflect the magnitude of the operating inefficiency associated with the bottleneck rule in this trunk line corridor. Closer inspection suggests that in comparison with the UP route, the BNSF route is more efficient between the PRB mines and Northport, NE, while the UP route’s advantage over BNSF arises between

⁹ Assuming that the average length of rail movement for PRB coal is approximately 1095 miles and that 98 percent of PRB production moves by rail, at the reported 2006 Wyoming PRB production level of approximately 430 million tons Wyoming PRB coal represents on the order of 461 billion net ton-miles of rail traffic or 26 percent of the total net ton-miles of freight transported by U.S. Class I railroads in 2006.

¹⁰ Surface Transportation Board, Finance Docket No. 32760, Union Pacific Corporation, Union Pacific Railroad Company, And Missouri Pacific Railroad Company--Control And Merger—Southern Pacific Rail Corporation, Southern Pacific Transportation Company, St. Louis Southwestern Railway Company, SPCSL Corp., And The Denver And Rio Grande Western Railroad Company, Decision No. 44, Decided: August 6, 1996 at page 154.

¹¹ For example, using the Black Thunder Mine as a point of reference, the mileage to Kansas City via BNSF would be approximately 828 miles vs. 767 miles via UP. Data used to develop the mileage and fuel use estimates contained in this appendix are presented in Attachment 2.

¹² In the KCPL/Montrose rate case at the STB (Docket No. 42095), the Board estimated variable costs in 2006 for the movement from the PRB through Kansas City (to Ladue, MO) to be in the range of 9.3-9.7 mills per ton-mile (based on Black Thunder origins). These costs may be somewhat high due to limitations on the length of the trains used in this specific movement. Past rate cases found variable costs for analogous movements in the range of 5.7 to 6.0 mills per ton-mile. However, those results were based on data that predated substantial fuel price increases. Based on these considerations, the computations presented in this appendix utilize an estimated variable cost level of 7.0 mills per ton-mile.

Northport and Kansas City. South of the Basin, BNSF's route to Northport follows the gentle downgrade along the North Platte River, while UP's route via the Connector Line is somewhat longer and less efficient. The preference of the PRB carriers to use their own routes instead of cooperating via Northport produces 9.4 billion unnecessary net ton-miles, corresponding to an annual waste of over \$65 million, or approximately \$0.30/ton (\$0.00038 per net ton-mile) for every ton of PRB coal moving in this corridor. It also equates to the unnecessary use of approximately 10.5 million gallons of diesel fuel, with associated carbon emissions, other environmental, national energy policy and security impacts.

This situation is not unique to Kansas City. For example, UP's routes are over 100 miles shorter than BNSF's routes for PRB coal movements to the rail gateways of Minneapolis and St. Louis.

It is also not limited to high-density trunk line movements. For example, beyond Kansas City, UP uses its single-line route via Sallisaw, OK and Little Rock, AR to move PRB coal to the Independence powerplant at Newark, AR. However, this route is 130 miles longer than a route via the BNSF line between Kansas City and the BNSF/UP interchange point at Hoxie, AR.¹³ This portion of this single movement produces 806 million unnecessary net ton-miles. This corresponds to an annual waste of over \$5.6 million, or approximately \$0.00159 per net ton-mile for the UP movement between Kansas City and the Independence powerplant.

The inefficiencies observed in the PRB-Kansas City corridor and in the movement between Kansas City and the Independence powerplant provide information that, in the absence of a more detailed traffic study, permits reasonable extrapolation to other types of rail traffic. For the purposes of this extrapolation, the following considerations are noted:

- the PRB-Kansas City corridor carries a very high volume of traffic, producing a cost incentive for efficiency that may not exist for other commodities moving in smaller volumes in other corridors. As a result, inefficiencies observed in this corridor may understate the inefficiencies that occur elsewhere;
- the movement from Kansas City to the Independence plant is a particularly blatant example of inefficiency resulting from the long-haul preference, and may overstate the inefficiencies that occur on more representative movements; and,
- unit train movements of PRB coal entail extraordinarily high productivity and low unit cost when measured on a ton-mile basis. All else equal, cost values for PRB coal measured on a ton-mile basis likely understate the values that would be applicable to other movements (which generally have lower productivity and higher unit costs per ton-mile).

¹³ It is noted that this line forms a portion of BNSF's main line between Kansas City and Memphis. It is used by BNSF to move substantial volumes of PRB coal through Memphis to plants in the southeastern U.S.

Based on these considerations, it is assumed that (a) the operating inefficiency stemming from UP's long-haul preference observed on the entire movement between the PRB and the Independence plant is representative of the inefficient routing patterns that burden the movement of other traffic; and, (b) measurements of inefficiency on this movement developed on a ton-mile basis will generally understate the value applicable to other types of traffic.

Combining the small inefficiency associated with UP's use of the Connector Line to reach Northport with the larger inefficiency associated with UP's route south of Kansas City yields a total of approximately 887 million unnecessary net ton-miles for this movement. This corresponds to an annual waste of approximately \$6.2 million, which equates to \$0.00075 per net ton-mile. Using this value as a lower-bound estimate of the inefficiency that burdens the movement of other traffic, an initial lower-bound estimate of the total dollar cost of such inefficiency, based on the 1.772 trillion net ton-miles moved by U.S. Class I railroads in 2006,¹⁴ is approximately \$1.32 billion.

The use of the longer route also generates an annual waste of approximately 485,000 gallons of diesel fuel on this movement, which equates to 0.000058 gallons per net ton-mile. Using this value as a lower-bound estimate of the routing-related fuel-use inefficiency of other traffic, an initial estimate of the total unnecessary fuel use, based on the 1.772 trillion net ton-miles moved by U.S. Class I railroads in 2006, is approximately 103.4 million gallons per year.

To the extent that future rail volumes exceed the levels observed in 2006, these estimates would increase accordingly.

B. Rail System Reliability

In combination with the longer hauls that have resulted from mergers, the bottleneck rule contributes to rail reliability problems and the detrimental impacts they cause. With fewer railroads moving shipments over longer distances, a problem that affects a railroad can ripple through the entire rail system. However, even when problems occur, a railroad's first objective is to handle whatever traffic it can for whatever distance it can. Under the bottleneck rule, shippers are left without any effective way to compel a carrier to forego its haul on the portion of its system that may not be functioning properly at any given time.

CRS has documented several episodes in which the reliability of rail service has been undermined.¹⁵ While the root causes of these episodes have varied widely,¹⁶ the episodes

¹⁴ Source: Association of American Railroads – Policy & Economics Department, Class I Railroad Statistics. See <http://www.aar.org/PubCommon/Documents/AboutTheIndustry/Statistics.pdf>.

¹⁵ See CRS Report at page 87, Appendix 1.

¹⁶ Causes cited by CRS include severe weather and flooding; merger integration problems; rail system congestion, demand fluctuations and insufficient locomotives and/or staff.

are similar in that railroads had no obligation to set aside their long-haul preference even when their network was not able to provide effective service.

In some of the more severe service reliability episodes, shippers experienced unprecedented disruptions of their normal logistics and production processes, leading to extensive economic impacts. For example, in episodes such as the service “meltdown” associated with implementation of the UP/SP merger, shippers who were captive to the merged system were left with little or no rail service for extended periods of time. Even though UP’s main lines in some cases were blocked by UP trains that were parked because they could not move anywhere else, the bottleneck rule impeded efforts by shippers to maintain rail service to their plants via local UP segments.

During service disruptions, the inability of a captive shipper to obtain service from other rail carriers imposes short-term costs in the form of unplanned outages or higher costs for substitute materials and/or transportation. In the longer run, such restrictions may lead to the maintenance of excessive material stockpiles and/or inefficient alternative sourcing or production options.

C. Infrastructure Investments

In addition to the adverse impacts on operating efficiency and reliability described above, there are at least three areas in which the bottleneck rule creates or materially contributes to economic inefficiency in infrastructure investments. These are described below.

1. Supplemental Plant Access Initiatives

The inability of captive shippers to compel reasonable rates for bottleneck segments has caused many such shippers to expend substantial resources in the development of supplemental plant access options. For example, during the time since the bottleneck decision, many shippers have developed rail construction (“buildout”) options for the explicit purpose of obtaining competitive service from a nearby railroad. Examples of the types of situations where buildouts have been considered or pursued can be seen in numerous STB proceedings since the bottleneck decision (see Attachment 3).

In addition, it is believed that numerous shippers have pursued engineering and planning for rail buildout options without yet seeking STB construction authority. Other shippers have installed or pursued non-rail methods of plant access, including everything from barge transloading facilities to overland conveyors. To the extent that shippers invest in the development and construction of such duplicative options as a substitute for bottleneck rates, such investments are properly viewed as an economic inefficiency that results from the bottleneck rule.

2. Inefficient Rail Capacity Investment

In exercising its long-haul preference under the bottleneck rule, a railroad that has exhausted its available capacity may find that it needs to make infrastructure investments

to increase capacity as volume increases. However, because of the operating characteristics of railroads, such investments will tend to be most needed in the portions of a given carrier's network that are least efficient and most costly to operate.

This is particularly true for heavy-loading commodities, and results from the way heavy trains generally have to slow down when they ascend comparatively steep grades. Basically, on a section of track that possesses a high "ruling grade against loads" it is more likely that construction of additional track and/or passing sidings will be needed to accommodate a given design volume.

An example of this phenomenon can be seen on Logan Hill in Wyoming, the location of the ruling grade for the PRB Joint Line. To permit the slow ascent by loaded trains of the grade at Logan Hill, it has historically been necessary for this location to be equipped with more main line trackage than the rest of the Joint Line in order to achieve comparable capacity. When the rest of the Joint Line had two main line tracks, Logan Hill had three.¹⁷ Now that the rest of the Joint Line has three main line tracks, Logan Hill has four. This 21-mile segment of the Joint Line "...is believed to be the longest stretch of four-track main line ever built exclusively for freight service."¹⁸

Away from the Joint Line, but looking again within the PRB-Kansas City corridor, another example can be seen in the ascent over comparatively difficult terrain that occurs on the BNSF line between Northport, NE and Alliance, NE. All else equal, this segment is likely to require disproportionate investments in infrastructure to accommodate continuing volume increases.

3. Undermining Outside Investment

While the rail industry has made repeated public claims regarding the difficulties it faces in raising funds needed for infrastructure investment, the bottleneck rule undermines opportunities that may exist for outside parties to own or underwrite infrastructure improvements that would otherwise be economically viable. This is because under the bottleneck rule, control over use of a new facility rests with the incumbent railroads.

One possible form of outside investment would follow examples that have occurred with highways, where investors have underwritten the construction of toll roads solely on the anticipation of the net revenues that such facilities would produce. An even more likely possibility is that affected stakeholders would in some circumstances find it worthwhile to take an active role in developing and financing new rail infrastructure.

An illustration of this can be seen in the Powder River Basin, where the rapid expansion and evolution of the market has created opportunities to consider productive new

¹⁷ "C&NW, BN, UP Play Catch-up: Capacity Problems in the Powder River Basin - Chicago and North Western, Burlington Northern and Union Pacific Railroads", *Railway Age* (October 1994). See http://findarticles.com/p/articles/mi_m1215/is_n10_v195/ai_15843343 .

¹⁸ "BNSF Goes for Coal", *International Railway Journal* (March 2008). See <http://www.railjournal.com/altfeature3.shtml> .

infrastructure investments. Specifically, the Joint Line was originally constructed with a north-south orientation. However, the largest single flow of traffic is to the southeast (in the direction of Kansas City). The past and expected future growth of this flow has created an opportunity for a new “bypass” route (see Attachment 4). Such a route would add capacity, and materially reduce mileage, operating costs, locomotive requirements, fuel use, emissions and cycle times. The improved competitive capabilities that would result for UP and BNSF have tangible benefits for competitive coal shippers, and reduced cycle times would have considerable value as well.

From the perspective of a railroad, it is rational to discount the value of diminished operating costs on movements to competitive points, since history has shown that such savings frequently are competed away in the form of lower rates to competitive points. However, the bottleneck rule essentially precludes the possibility that competitive shippers would undertake network improvements, like the Joint Line Bypass, that produce tangible efficiency (and other) benefits for large volumes of traffic.

Overall, the bottleneck rule leads shippers to put resources into duplicative plant access capabilities that are not needed for capacity reasons, and leads railroads to put a disproportionate share of infrastructure investment into its least productive segments. It also prevents the industry from tapping into the considerable willingness of competitive shippers to pay for investments that improve competitive capabilities and rate/service options.

D. Additional Considerations

1. Rate Cases

The complexity and expense of STB rate case stems in part from the need for the “stand-alone railroad” to replicate a movement that typically is over 1000 miles in length, rather than a comparatively short bottleneck segment. The use of STB rate reasonableness procedures to ensure that rates conform with applicable constraints would be much simpler and more transparent for shippers and railroads alike if they pertained primarily to bottleneck segments rather than entire routes.

2. Siting Decisions

The bottleneck rule distorts siting decisions for new rail-dependent facilities by leading shippers to select locations where rail competition is available. The disbenefit associated with locations away from rail common points that is caused by the bottleneck rule may cause such locations to be bypassed, even if their other attributes would be advantageous for a particular facility.

VI. CONCLUSIONS

The original bottleneck decision acknowledged the Congressional intent that in rationalizing interchange practices, carriers should retain efficient routes. Carriers have

used the bottleneck decision to insulate themselves from competition through intermediate participation by other carriers, even where such participation would improve efficiency. This has produced private benefits at the expense of economic efficiency and the public interest.

The bottleneck rule has contributed to unnecessary operating costs, inefficient fuel use, costly system reliability problems, inefficient capital investments and blockage of potentially significant funding sources for future capacity and productivity improvements – as well as inflated prices paid by captive shippers. While Staggers Act principles call for tighter constraints on differential pricing as industry financial health is achieved, the efficiency problems associated with the bottleneck rule only get worse as volumes increase. It is therefore appropriate to reconsider the public interest rationale for the bottleneck rule, and to ensure that efficiency issues in rail routing are adequately addressed.

Separate pricing of separate segments brings market forces to bear on the routing of rail traffic. It results in lower costs and more effective responses to operating problems than occur in the current rail environment. It provides proper incentives to focus capital investment on establishing or expanding the most productive, rather than the least productive facilities. Finally, it opens opportunities for outside participation in infrastructure development, particularly by competitive shippers. Under these circumstances, unleashing the market forces confined by the bottleneck rule, which already appears to be within the authority of the Board, would be consistent with the public interest.

Attachment 1

Text of 49 U.S.C. 10705

From the U.S. Code Online via GPO Access
[wais.access.gpo.gov]
[Laws in effect as of January 3, 2005]
[Document not affected by Public Laws enacted between
January 3, 2005 and February 7, 2007]
[CITE: 49USC10705]

TITLE 49--TRANSPORTATION

SUBTITLE IV--INTERSTATE TRANSPORTATION

PART A--RAIL

CHAPTER 107--RATES

SUBCHAPTER I--GENERAL AUTHORITY

Sec. 10705. Authority: through routes, joint classifications,
rates, and divisions prescribed by Board

(a) (1) The Board may, and shall when it considers it desirable in the public interest, prescribe through routes, joint classifications, joint rates, the division of joint rates, and the conditions under which those routes must be operated, for a rail carrier providing transportation subject to the jurisdiction of the Board under this part.

(2) The Board may require a rail carrier to include in a through route substantially less than the entire length of its railroad and any intermediate railroad operated with it under common management or control if that intermediate railroad lies between the terminals of the through route only when--

(A) required under section 10741, 10742, or 11102 of this title;

(B) inclusion of those lines would make the through route unreasonably long when compared with a practicable alternative through route that could be established; or

(C) the Board decides that the proposed through route is needed to provide adequate, and more efficient or economic, transportation.

The Board shall give reasonable preference, subject to this subsection, to the rail carrier originating the traffic when prescribing through routes.

(b) The Board shall prescribe the division of joint rates to be received by a rail carrier providing transportation subject to its jurisdiction under this part when it decides that a division of joint rates established by the participating carriers under section 10703 of this title, or under a decision of the Board under subsection (a) of this section, does or will violate section 10701 of this title.

(c) If a division of a joint rate prescribed under a decision of the Board is later found to violate section 10701 of this title, the Board may decide what division would have been reasonable and order adjustment to be made retroactive to the date the complaint was filed, the date the order for an investigation was made, or a later date that the Board decides is justified. The Board may make a decision under this subsection effective as part of its original decision.

(Added Pub. L. 104-88, title I, Sec. 102(a), Dec. 29, 1995, 109 Stat. 811.)

Source: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=browse_usc&docid=Cite:+49USC10705 .

Attachment 2

Data Used in Development of Mileage and Fuel Use Estimates

Segment	Miles	Fuel Use Rate (gallons/train-mile)	Total Fuel Use (gallons)
BNSF			
Black Thunder Mine - Shawnee Jct.	81	30.0	2,430
Shawnee Jct. - Northport	144	6.5	936
	225		3,366
Northport - Alliance	34	20.0	680
Alliance - Table Rock	429	10.0	4,290
Table Rock - Kansas City	140	6.5	910
	603		5,880
Kansas City - Thayer	345	15.0	5,175
Thayer-Hoxie	54	10.0	540
Hoxie-Newark, AR	43	10.0	430
	442		6,145
UP			
Black Thunder Mine - Shawnee Jct.	81	30.0	2,430
Shawnee Jct. - S. Morrill	111	10.0	1,110
S. Morrill - Northport	46	6.5	299
	238		3,839
Northport - Gibbon	239	6.5	1,554
Gibbon - Fairbury	104	10.0	1,040
Fairbury - Topeka	118	15.0	1,770
Topeka – Kansas City	68	6.5	442
	529		4,806
Kansas City – Wagoner, OK	238	15.0	3,570
Wagoner – Newark, AR	334	10.0	3340
	572		6,910

Source: From data and methodology presented in “Rail Fuel Use and Surcharges for White Bluff and Independence Plants,” prepared for Arkansas Electric Cooperative Corporation (May 15, 2006) at pages 5-8, 11; see [http://www.stb.dot.gov/filings/all.nsf/23b73f11ed146e838525740a00199410/516f975178588a6d8525716f00709a16/\\$FILE/216548.pdf](http://www.stb.dot.gov/filings/all.nsf/23b73f11ed146e838525740a00199410/516f975178588a6d8525716f00709a16/$FILE/216548.pdf).

Attachment 3

Competitive Rail Service Initiatives Observed in Sampled STB Proceedings

Coal Plants (Coal User/Facility)

Alabama Power/Miller
Ameren/Coffeen
Entergy/White Bluff
MidAmerican/Council Bluffs
Midwest Generation/Joliet
Sunflower/Holcomb
WFEC/Hugo
XCEL/Comanche

Other Facilities (Railroad/Location/Shipper)

BNSF/Merced, CA /Quebecor World
BNSF/Bayport Loop (TX)
BNSF/San Antonio, TX/Toyota
Cedar Rapids, IA/ADM
CN (IC)/East Baton Rouge, LA/ExxonMobil
Hastings, NE/AGP
KCS/Geismar, LA

Attachment 4

Potential "Joint Line Bypass" Project

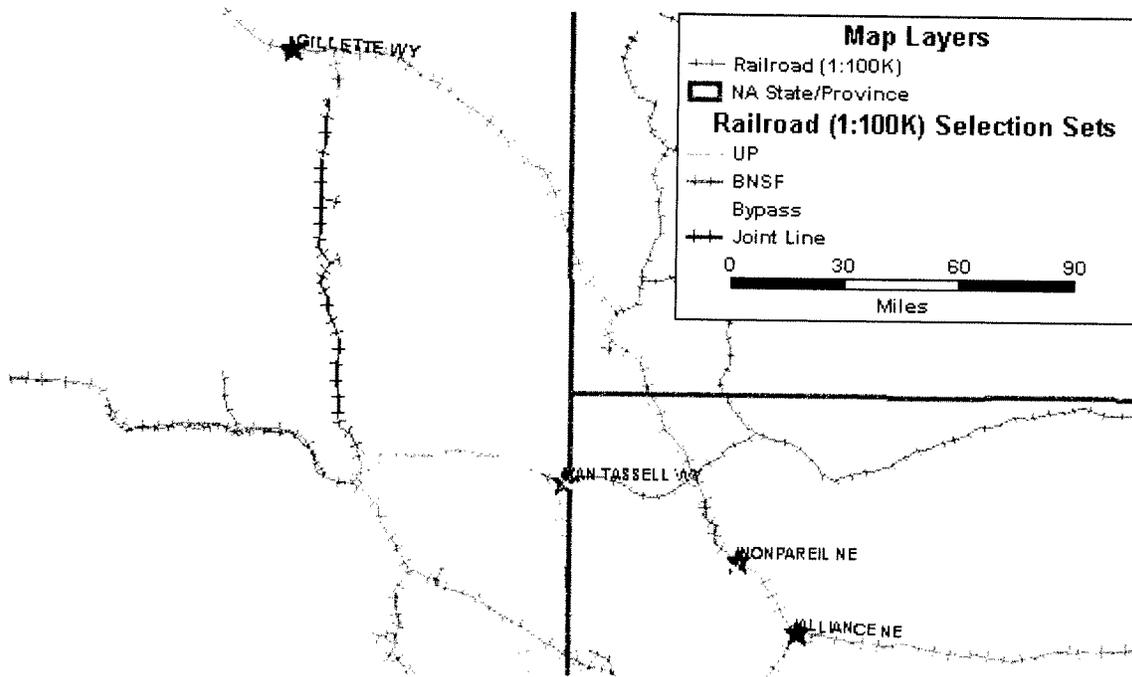


Exhibit A

CURRICULUM VITAE – MICHAEL A. NELSON

MICHAEL A. NELSON

131 North Street
Dalton, MA 01226

EDUCATION

M.S. Civil Engineering, Massachusetts Institute of Technology

M.S. Management, Alfred P. Sloan School of Management, Massachusetts Institute of Technology

B.S. Management, Massachusetts Institute of Technology

Concentrations in transportation systems, economics and operations research.

EXPERIENCE

Mr. Nelson is an independent transportation systems analyst. He provides management and economic consulting and litigation support. His work typically involves developing and applying methodologies based on operations research, microeconomics, statistics and/or econometrics to solve specialized analytical problems, as illustrated by the following examples of his experience:

A. Railroad

On behalf of Arkansas Electric Cooperative Corporation (AECC), Mr. Nelson submitted testimony to the Surface Transportation Board (STB) in Docket No. 42104/Finance Docket No. 32187. This testimony analyzed and commented on the efficiency of various rail routes for transporting coal from the PRB to the Independence Steam Electric Station (ISES) at Newark, AR, and on the effects of interchange commitments on different options.

Also on behalf of AECC, Mr. Nelson submitted testimony to the STB in Finance Docket No. 35081. This testimony addressed the effects of the proposed control by Canadian Pacific Railway (CP) of Dakota, Minnesota & Eastern Railroad (DME), with a particular focus on the planned DME

construction project and other potential initiatives to create a new rail outlet for coal from the Powder River Basin (PRB).

On behalf of a group of landowners, Mr. Nelson developed information and provided oral testimony regarding DME's PRB project in land condemnation proceedings initiated by DME in Wyoming.

Also on behalf of AECC, Mr. Nelson submitted testimony to the STB in Ex Parte No. 657 (Sub-No. 1) regarding specific proposals to improve the "stand alone" cost (SAC) methodology used to assess the reasonableness of contested rail rates.

Also for AECC, Mr. Nelson analyzed issues related to rail transportation service in the supply of coal to two potential sites for a new electric generation facility in Arkansas. This work included analysis of likely rate levels in light of movement- and site-specific competitive and operational considerations.

Also on behalf of AECC, Mr. Nelson submitted testimony to the STB in Ex Parte No. 658. This testimony provided comments on rail regulation under the Staggers Act, and identified potential changes in rail regulation that would be consistent with the public interest and expected future industry conditions.

On behalf of a group of coal users, including Ameren, Dominion and AECC, Mr. Nelson submitted a verified statement to the STB in Finance Docket No. 34421. This testimony addressed technical, operational and public interest considerations associated with a proposal to permit the construction of a competing rail line within the unused portion of an existing rail carrier's right-of-way.

Mr. Nelson has developed information to assist coal users in responding to the coal supply problems created by the May 2005 derailments and subsequent rail throughput constraints on the PRB Joint Line. He has identified potential actions by coal users to improve PRB coal throughput, transportation issues for substitute coals and fuels, and steps to facilitate rail cooperation.

In response to a public request by the STB for suggested improvements in the SAC methodology, Mr. Nelson provided

written and oral testimony in STB Ex Parte No. 657. This testimony identified potential methodological refinements in 10 specific areas, and was cited by Commissioner Mulvey for its high responsiveness to the Board's request.

Mr. Nelson is the founder of the Coalition to Foster Improved Rail Economy ("CoalFIRE"). This initiative is open on a subscription basis to current and prospective PRB coal users. It identifies and promotes awareness of specific potential group actions to improve the competitiveness of PRB rail transportation options within the current legal and regulatory framework. Over 20 specific potential group actions have been identified to date, including steps to add/restore competitors, increase the effectiveness of existing competitors, increase customer leverage and develop external pressure for reasonable competitive conduct by the current PRB rail duopoly.

For a powerplant developer, Mr. Nelson analyzed issues related to rail transportation service in the supply of coal to two potential sites for a new generation facility in Oklahoma. This work included analysis of likely rate levels in light of movement- and site-specific competitive and operational considerations.

Mr. Nelson prepared a 10-year forecast of expected changes in rail productivity and competitive rail rate levels for the movement of coal from the PRB. This forecast has been provided on a subscription basis to interested parties, and is believed to be the only such forecast that is based on analysis of specific anticipated productivity enhancements (as opposed to extrapolation of past trends). Subscribers have used this information to analyze the merits of converting to PRB coal, to support contract negotiations and for other strategic and planning purposes.

For a powerplant developer, Mr. Nelson analyzed issues related to the anticipated reliance on competitive rail transportation service in the supply of coal to a planned new generation facility in Missouri. This work included analysis of likely rate levels in light of unique limitations faced by one of the competing rail lines.

On behalf of a group of over two dozen major electric utilities, Mr. Nelson provided strategic guidance and analytical support, and participated in negotiations with a Class I railroad regarding prospective multi-billion dollar

investments by the utilities to improve their coal transportation options.

For a midwestern utility, Mr. Nelson assisted in the development of improved transportation options for a large coal-fired generating station. As part of this work, he reviewed an analysis performed by a major engineering contractor, and identified a series of cost-effective options that had been overlooked. He then provided strategic guidance and analytical support in the development process.

For a mining company, Mr. Nelson analyzed the transportation options that would be available for a prospective new facility in western Colorado. This included detailed consideration of the "new facilities" condition imposed by the STB in its approval of the merger of the Union Pacific (UP) and Southern Pacific (SP) railroads.

For AECC, Mr. Nelson submitted statements to the STB in Finance Docket Nos. 34177 and 34178. These statements addressed the actual and potential competitive roles of I&M Rail Link (IMRL) in domestic coal transportation, and the prospective impacts associated with control of IMRL by the Dakota, Minnesota and Eastern Railroad (DME).

On behalf of the Town of Easton (MA), representing a coalition of towns, Mr. Nelson identified and corrected a series of substantial errors and inconsistencies in the Final Environmental Impact Report for the proposal by the Massachusetts Bay Transportation Authority (MBTA) to provide new commuter rail service to New Bedford and Fall River. This extended Mr. Nelson's previous analyses, which had identified and documented a series of significant errors in the development of the MBTA's conclusions regarding the alleged infeasibility of a key alternative route. Mr. Nelson also identified and made preliminary assessments of other alignment and operational possibilities that had been inappropriately omitted from consideration.

As a subcontractor to The Brattle Group, an economic consulting firm, Mr. Nelson provided guidance to the Mexican railroad TFM regarding the identification of different types of competitive and efficiency issues raised by the proposed merger of the other two principal Mexican

railroads (Ferromex and Ferrosur). The merger was denied by both the national transportation and antitrust authorities.

For the Cowboy Railroad Development Company (CRDC), a group of major electric utilities, Mr. Nelson directed the identification and evaluation of alternative routes and strategies for creating a new railroad access across Nebraska to coal mines in the PRB.

As part of the work for CRDC, Mr. Nelson analyzed the degree to which the UP/SP merger foreclosed competitive routes that could be offered by a new PRB rail carrier. The results of this analysis were submitted to the STB in Finance Docket 32760 (Sub-No.21), which provided oversight of the UP/SP merger and its impacts.

For a major electric utility, Mr. Nelson performed a detailed analysis of rail transportation options for PRB coal movements to the Sunflower Electric generating station at Holcomb, KS. The results of this analysis were used by the utility in assessing the merits of investing in a planned expansion of that facility.

For an assortment of major electric utilities and power producers, Mr. Nelson has performed detailed analyses of rail transportation options, including build-outs, for a total of over 30 large coal-fired generating stations. The results of these analyses have served as the basis for management decisions that are projected to save many millions of dollars in fuel costs.

On behalf of AECC, Mr. Nelson submitted a statement to the STB in Finance Docket 32760 (Sub-No.21). This statement addressed competitive issues resulting from the UP/SP railroad merger, with a particular focus on the effect of trackage rights compensation levels.

On behalf of the Committee to Improve American Coal Transportation (IMPACT), Mr. Nelson submitted a statement to the STB in Ex Parte 582 (Sub-No. 1). This statement addressed a wide range of issues related to rail merger policy.

For a major Class 1 railroad, Mr. Nelson assisted senior management staff in the design and evaluation of a potential construction project.

For the Mid-States Coalition for Progress (a group of landowners), Mr. Nelson analyzed the proposal by DME to construct an extension of its line into the PRB. Mr. Nelson developed estimates of DME's volumes and unit revenue levels on the basis of a plant-by-plant analysis, taking into account likely future market conditions and the competitive capabilities of the UP and Burlington Northern Santa Fe (BNSF). Mr. Nelson's analysis was filed at the STB (Finance Docket No. 33407).

For the National Railroad Passenger Corporation (AMTRAK), Mr. Nelson investigated issues related to the definition of "express" traffic that AMTRAK is permitted to carry (STB Finance Docket No. 33469). Mr. Nelson analyzed relevant data from the STB Rail Waybill Sample and the Census of Transportation, and investigated the factors affecting use of Amtrak by the U.S. Postal Service. The definition of "express" eventually adopted by the STB was consistent with Mr. Nelson's findings.

For the Moffat Tunnel Commission (Colorado), Mr. Nelson analyzed the factors affecting future railroad use of that tunnel, which traverses the Continental Divide and serves the principal Colorado coal fields on the UP line that formerly was the Denver and Rio Grande Western Railroad (DRGW) main line west of Denver. The tunnel had historically been owned by the Commission (and leased to the railroad), but under sunset legislation was being offered for public sale. Mr. Nelson's analysis included study of the utilization of Colorado/Utah vs. PRB coals in the context of the central corridor conditions imposed by the STB in the UP/SP merger.

For CP, Mr. Nelson performed detailed studies of competitive and traffic issues associated with the acquisition and break-up of Conrail by Norfolk Southern and CSX (Finance Docket No. 33388). These studies included analyses of competitive issues in the area served by the former Delaware and Hudson (a CP subsidiary) and in the midwest, competitive issues involving coal traffic throughout the Conrail service area, and traffic impacts associated with potential remedial conditions. CP relied upon the results of Mr. Nelson's studies in reaching its settlements with Applicants in that case.

For SP, Mr. Nelson provided expert testimony before the Interstate Commerce Commission (ICC) in Finance Docket No.

32133 (the proposed control of C&NW by UP). This testimony was based primarily on Mr. Nelson's analyses of data from the Rail Waybill Sample, which identified substantial numbers of specific flows for which the proposed transaction created different types of potential competitive problems (including losses of point-to-point competition, source competition, competition in grain originations, and shipper leverage). In addition, Mr. Nelson's testimony utilized Rail Waybill Sample data to demonstrate the occurrence of merger-related foreclosure from previous UP acquisitions, and provided statistical support for SP's traffic study. Mr. Nelson also conducted a detailed investigation of the impact of the merger on source competition for western coal.

For Rio Grande Industries (RGI), Mr. Nelson provided expert testimony before the ICC in Finance Docket No.'s 31505 (the proposed acquisition by RGI of Soo's Kansas City - Chicago line) and 31522 (the proposed acquisition by RGI of the Chicago, Missouri and Western line between St. Louis and Chicago) based on his analysis of Rail Waybill Sample data. This testimony involved analysis of potential cumulative anti-competitive effects from the proposed transactions, development of time-series estimates of rail traffic volumes and carrier shares in different flows, and assessment of the statistical reliability of the portions of the testimony of other RGI witnesses that were based on Rail Waybill Sample data.

Also for RGI, Mr. Nelson provided expert testimony before the ICC in Finance Docket No. 32000, the consolidation of SP and DRGW. This testimony involved analysis of Rail Waybill Sample data to determine rail traffic volumes in different flows, the statistical reliability of studies conducted by other RGI witnesses, and potential competitive problem flows associated with a consolidation of SP and KCS.

For DRGW, Mr. Nelson provided expert testimony before the ICC in Finance Docket No. 30800 (the acquisition of MKT by UP) based on his analysis of Rail Waybill Sample data. This testimony involved examination of intramodal competition in the central corridor, development of traffic flow databases utilized by other witnesses, assessment of the statistical reliability of other witnesses' studies, and analysis of issues related to use of market share data from waybill

samples to evaluate the competitive impact of the proposed merger.

Also for DRGW, Mr. Nelson provided extensive expert testimony before the ICC regarding a number of issues raised by the proposed merger of SP with ATSF (Finance Docket No. 30400):

* Mr. Nelson provided a detailed comparison of the economic and operating characteristics of the intercity trucking and railroad industries, with a particular focus on long-haul markets. Mr. Nelson's analysis of the trucking industry utilized the National Motor Transport Data Base (NMTDB). For this study, Mr. Nelson developed and implemented analytical techniques that compensate for the non-random sampling procedures employed in the gathering of the NMTDB, making it possible to use this source to reliably conduct studies at the industry and corridor level. The Commission adopted the results of Mr. Nelson's study verbatim in its analysis of the anti-competitive consequences of the proposed merger.

* Using the NMTDB and the Rail Waybill Sample, Mr. Nelson analyzed the extent to which rail pricing and services on selected traffic are determined by competing intercity trucking alternatives available to shippers. This analysis was conducted at a highly detailed level, and included explicit accounting for the handling characteristics of each rail commodity and the operating economics of the corresponding truck equipment needed.

* Mr. Nelson analyzed the tests applied by various economists in the proceedings, including those of the U.S. Departments of Justice and Transportation, to identify rail traffic that would most likely be subject to anti-competitive effects in the wake of the proposed merger. Mr. Nelson identified circumstances under which these tests systematically yield invalid results, and provided guidelines for their proper application.

* Mr. Nelson identified improvements needed in the merger applicants' initial methodology for estimating the rail traffic diversions that likely would result from the proposed merger.

* In addition to this expert testimony, Mr. Nelson served as principal investigator for several studies

underlying testimony offered by other witnesses, addressing issues related to intramodal (rail) competition, product and source competition, shipper benefits and leverage and trackage rights compensation. Mr. Nelson also conducted a number of special studies on request for other witnesses and counsel.

For a private client, Mr. Nelson participated in a study of the purchase and utilization of jumbo covered hopper cars by shippers and railroads. This study involved extensive analysis of the Rail Waybill Sample and other data sources, and included a detailed examination of historical car shortages in light of economic and traffic conditions, and other related factors. The results of Mr. Nelson's work were incorporated in testimony before the ICC.

As a subcontractor to consulting firms, Mr. Nelson has participated in a number of other rail-related studies. These include (1) analysis of Rail Waybill Sample data to address issues stemming from traffic protective conditions at the Jacksonville (FL) gateway between FEC and CSX, and (2) analysis of CN's Port Huron-Sarnia tunnel project and the alternative of a tunnel at Detroit-Windsor.

B. Postal Service

For Magazine Publishers of America (MPA) acting on behalf of a coalition of periodicals mailers, Mr. Nelson analyzed several issues related to the purchased transportation costs incurred by the Postal Service. This included identification of feasible cost reductions and efficiency improvements, as well as development of needed refinements in the methods used by the Postal Service to analyze transportation costs. The results of this analysis were presented to the Postal Rate Commission (PRC) in the R2000-1 omnibus rate case. A portion of the identified costing refinements has been adopted by the Postal Service.

Mr. Nelson identified and developed opportunities for a major publisher to create more efficient and desirable price/service options by avoiding selected costs in its mailings of periodicals. This work included consideration of transportation, delivery and unfunded retirement liability costs.

For Foster Associates (under contract to the Postal Service), Mr. Nelson worked in the following areas:

* Delivery costing - Mr. Nelson developed a series of refinements in delivery cost analysis procedures. These refinements included analysis of driving time on motorized letter routes, collection costing and extensive revision of costing for special purpose routes and special delivery messengers. In support of the new methodologies, Mr. Nelson developed data collection plans and assisted in the development of survey instruments and innovative procedures to gather new field data from carrier and messenger operations. He conducted extensive analysis of the new data, including development of data cleaning and weighting procedures, analysis program logic, and specifications for new econometric models. He also identified an overlap in costing systems that produced a "double-count" of delivery activity performed by personnel other than special delivery messengers but charged to LDC 24 (Cost Segment 9). He developed spreadsheet modifications needed to incorporate the costing refinements and new data, and eliminate the "double-count" problem. The results of Mr. Nelson's delivery costing work were presented before the PRC in the R97-1 omnibus rate case. The PRC adopted 9 out of 10 of Mr. Nelson's recommended methodological changes, 2 with commendations.

* New products - Mr. Nelson identified the cost basis for a number of potential new product offerings involving Express Mail and Priority Mail, and developed the analytical framework and information needed to support their implementation. This included design and analysis of a new field study of relevant Express Mail piece characteristics, which was also presented by Mr. Nelson in the R97-1 rate case.

* Litigation support - In Docket No. R94-1, Mr. Nelson reviewed intervenor testimony regarding city delivery carrier and transportation issues, and developed discovery and cross-examination topics for Postal Service counsel.

* IOCS - Mr. Nelson developed refinements in IOCS data gathering procedures to improve the validity and precision of available information regarding Express Mail activities. Mr. Nelson then interpreted the initial results from the new data and provided suggestions for improvements in Express Mail costing procedures.

* Postal AMR - Mr. Nelson developed a plan for analyzing the street time costs associated with a proposal to have postal vehicles perform automated meter reading for utility companies.

* Eagle Network - Mr. Nelson developed a potential methodology for attributing the costs of dedicated air transportation services procured by the Postal Service.

For United Parcel Service (UPS), Mr. Nelson provided extensive expert testimony before the PRC in Docket No. R90-1. This testimony presented Mr. Nelson's studies of cost causality and/or elasticity within the city delivery carrier, special delivery messenger, vehicle service driver, purchased highway transportation and expedited air network operations of the Postal Service. These studies, which involved application of operations research techniques and development of econometric models and other statistical analyses based on postal data, were referenced and relied upon extensively by the PRC in its Opinion and Recommended Decision. To a considerable degree, these studies represented extensions and refinements of Mr. Nelson's previous studies, which were presented before the PRC in Mr. Nelson's testimony in Docket No. R87-1, and in Docket No. RM86-2B, a rulemaking proceeding established in part to explore issues raised in testimony before the PRC in Docket No. R84-1 for which Mr. Nelson served as principal investigator.

C. Other

Mr. Nelson participated in an airport master planning study for Sydney, Australia. For this study, he developed a comprehensive set of site selection criteria and evaluation measures.

Until February 1984, Mr. Nelson was a Senior Research Associate at Charles River Associates (CRA), an economic research and consulting firm, where his work experience included the following:

Freight Transportation

Mr. Nelson served as Manager of Consulting Services for the National Motor Transport Data Base (described above), which at the time was sponsored by CRA. In this position, he was responsible for handling client requests for information

from the database, including problem definition, sampling issues, conduct of analyses and reporting of results. He conducted specific analyses for a number of public and private clients.

Mr. Nelson served as principal investigator for a study of motor carrier safety and traffic characteristics. This study involved extensive analysis of a number of databases, including the FHWA "Loadometer" Study, the 1977 Census of Transportation, the ICC "Empty/Loaded" Survey, and the NMTDB. The results of his work were incorporated in testimony before the U.S. District Court on behalf of a private client engaged in litigation with a state over the use of twin trailers.

Mr. Nelson participated in several other projects providing support for motor carriers involved in litigation cases. For these clients he performed detailed financial analyses of motor carrier operations and traffic in different settings, and assisted in the preparation of testimony and briefs. Mr. Nelson also served as an internal consultant on a number of CRA's other motor carrier, railroad, and freight transportation studies.

For the U.S. Department of Transportation (DOT), Mr. Nelson was principal investigator of a study to develop a conceptual framework and data collection strategy for analyzing the impacts of the motor carrier regulatory reforms implemented under the Motor Carrier Act of 1980. For this project, Mr. Nelson was responsible for identifying and selecting specific research issues, data requirements, data sources and analytical techniques.

In a study for the Office of the Secretary of Transportation, Mr. Nelson made extensive use of probabilistic modeling techniques to develop quantitative estimates of potential fuel conservation resulting from selected aspects of proposed motor carrier regulatory reforms.

For DOT, Mr. Nelson was principal investigator for a study of the merits of alternative approaches that could be utilized by the ICC to implement the inflation-based index for allowable rate adjustments by railroads mandated by the by the Staggers Rail Act of 1980. For this study he analyzed the ICC's proposed approach and developed specific conclusions and recommendation in a number of issue areas,

including selection of the basic index, productivity adjustments, treatment of profit and non-recurring expenses, frequency of index adjustment, rate averaging, regional differences, collective ratemaking and fuel surcharges. The results of this study were used by DOT in formulating its response to the ICC's proposed approach.

For a private client, Mr. Nelson analyzed the logistical considerations involved in siting a plant to process imported high-value mineral ores. This study, which was part of a larger study to assess the overall economic feasibility of plant construction and operation, involved comparisons of costs and other attributes of a variety of modes and modal combinations, including rail, inland waterway, motor carrier and TOFC.

In a study of urban freight consolidation alternatives conducted for the U.S. Department of Energy (DOE), Mr. Nelson utilized principles of network analysis, simulation and queuing theory to evaluate and critique the merits of previous studies, and recommend research approaches for analysis of route and terminal consolidation strategies.

Also for DOE, Mr. Nelson was a major contributor to a study of potential fuel-use changes that could occur in response to dramatic fuel price increases. Mr. Nelson's work focused on the freight and intercity passenger transportation sectors and included analyses of opportunities for improvements in fuel efficiency by each mode under different fuel price increase scenarios, as well as modal shifts and net traffic reductions caused by resulting cost (and rate) increases.

Passenger Transportation

Mr. Nelson served as principal investigator for a series of Service and Management Demonstration Evaluations conducted for DOT. For three parallel assessments of the feasibility of user-side subsidies, and one demonstration of taxicab regulatory reforms and paratransit service innovations, he developed instruments for and implemented several surveys, conducted data analysis and prepared Final Evaluation Reports. For an assessment of alternative transit transfer policies, he developed research issues and data requirements, selected and supervised interviews of over 40 transit properties, and wrote or was responsible for all major deliverables. He assisted DOT in the development of

research issues to be addressed in demonstrations of innovative checkpoint paratransit services and in the review of a proposed paratransit policy.

Also for DOT, Mr. Nelson was principal investigator of a study of methods to improve transit productivity and cost-effectiveness. This study involved the identification and documentation of 146 distinct productivity-enhancement measures that have been implemented at U.S. transit properties, assessment of the transferability of each measure to different settings, and development of impact magnitude estimates. Prior to this project, Mr. Nelson developed over two dozen ideas for possible innovations to improve transit productivity and cost effectiveness.

Mr. Nelson participated in a financing study of the New York Metropolitan Transportation Authority's proposed multi-billion dollar capital improvement program. Mr. Nelson's responsibilities in this project involved econometric analysis of operating costs, with a particular emphasis on identifying the variability of different cost components with alternative future levels of rapid rail, bus, and commuter rail activity. The results of his work were incorporated in the MTA's Official Statement for the successful initial offering of \$250 million in transit revenue bonds.

For DOT, Mr. Nelson participated in a study to develop technical guidelines for use by local planners to satisfy alternatives analysis requirements. For this study he developed a matrix-based method for determining data requirements in different scenarios, and played a major role in the development of a method for generating locally responsive alternatives to high-capital transit investments using multicriteria decision techniques.

For the Massachusetts Port Authority, Mr. Nelson participated in a study to forecast future levels of passenger and air cargo activity at Logan International Airport. For this study, Mr. Nelson supervised data collection efforts, developed methods for synthesizing data from diverse sources (FAA, CAB, Port Authority records, etc.) to yield relevant market segment size estimates, and analyzed seasonality and short-term peaking phenomena.

Mr. Nelson also participated in a quantitative assessment of the market penetration potential and associated impacts

of electric vehicles for the Electric Power Research Institute (EPRI).

Thesis

In his graduate thesis at M.I.T., which fulfilled the thesis requirements for two Master's degrees, Mr. Nelson developed a comprehensive review of the theoretical and practical shortcomings encountered in the use of linear programming in a real time multiple vehicle routing and scheduling system (dial-a-ride). Based on network analysis techniques, he then developed a set of heuristic algorithms that avoided the shortcomings inherent in the linear programming (LP) approach. The performance of these algorithms was simulated by computer and found to meet or exceed the LP's performance in a variety of scenarios drawn from actual operating data.

TESTIMONY

Surface Transportation Board, Docket No. 42104/Finance Docket No. 32187

- Rebuttal Verified Statement, 9-2-08

U.S. District Court - District of Wyoming, Civil No. 07 CV-142-D

- Oral Testimony, 3-19-08

- Oral Testimony, 5-29-08

Surface Transportation Board, Finance Docket No. 35081

- Verified Statement, 3-4-08

- Reply Verified Statement, 5-19-08

Surface Transportation Board, Ex Parte No. 657 (Sub-No. 1)

- Written Testimony, 5-1-06

- Reply Testimony, 5-31-06

- Surface Transportation Board, Ex Parte No. 658
- Written Testimony, 10-12-05
 - Oral Testimony, 10-19-05
- Surface Transportation Board, Finance Docket No. 34421
- Verified Statement, 9-29-05
- Surface Transportation Board, Ex Parte No. 657
- Written Testimony, 4-20-05
 - Oral Testimony, 4-26-05
- Surface Transportation Board, Finance Docket No. 34178
- Verified Statement, 11-14-02
- Surface Transportation Board, Finance Docket No. 34177
- Verified Statement, 7-18-02
- Surface Transportation Board, Finance Docket No. 32760
(Sub-No. 21)
- Verified Statement, 8-17-01
 - Verified Statement, 8-18-00
- Postal Rate Commission, Docket No. R2000-1
- Direct Testimony, MPA-T-3, 5-22-00
- Surface Transportation Board, Ex Parte No. 582 (Sub-No. 1)
- Statement, 5-16-00
- Surface Transportation Board, Finance Docket No. 33407
- Verified Statement, 8-31-98
 - Supplemental Verified Statement, 10-28-98

- Surface Transportation Board, Finance Docket No. 33469
- Verified Statement, 11-10-97
 - Reply Verified Statement, 11-25-97
- Postal Rate Commission, Docket No. R97-1
- Direct Testimony, USPS-T-19, 7-10-97
- Interstate Commerce Commission, Finance Docket No. 32133
- Verified Statement, SP-20 (Volume 2), 11-29-93
 - Rebuttal Verified Statement, SP-41 (Volume 2), 7-28-94
- Postal Rate Commission, Docket No. R90-1
- Direct Testimony, UPS-T-1, 7-16-90
 - Rebuttal Testimony, UPS-RT-1, 10-1-90
- Interstate Commerce Commission, Finance Docket No. 31505
- Verified Statement, RGI-14/SOO-14 (Volume 2), 9-15-89
 - Rebuttal Verified Statement, RGI-55/SOO-55, 2-15-90
- Interstate Commerce Commission, Finance Docket No. 31522
- Verified Statement, RGI-7/CMW-7 (Volume 2), 8-25-89
- Interstate Commerce Commission, Finance Docket No. 32000
- Verified Statement, RGII-10, 2-22-88
 - Verified Opposition and Rebuttal Statement, RGII-59, 6-1-88
- Postal Rate Commission, Docket No. R87-1
- Direct Testimony Concerning Special Delivery Messenger and City Delivery Carrier Street Time Costs, UPS-T-1, 9-14-87
 - Rebuttal Testimony, UPS-RT-5, 11-23-87

- Statement Regarding SDWAFS Analyses, 12-1-87
- Interstate Commerce Commission, Finance Docket No. 30800
- Verified Statement, DRGW-13, 4-7-87
 - Verified Statement, DRGW-24, 7-13-87
- Postal Rate Commission, Docket No. RM86-2B
- Direct Testimony Concerning City Delivery Carrier Street Time Costs, UPS-T-1, 12-1-86
- Interstate Commerce Commission, Finance Docket No. 30400
- Verified Opposition Statement, DRGW-20, 11-21-84
 - Verified Opposition Statement, DRGW-23, 12-10-84 (with Paul H. Banner)
 - Verified Rebuttal Statement, DRGW-33, 5-29-85

PUBLICATIONS

Reports Prepared for Charles River Associates

User-Side Subsidy Demonstration Project: Lawrence, Massachusetts. Final Evaluation Report. Prepared for U.S. Department of Transportation. October, 1983.

Analysis of Labor Conditions and Union Status in the Intercity Trucking Industry. Final Report. Prepared for U.S. Department of Transportation. August, 1983.

Actions Being Taken by Transit Operators to Improve Performance. Final Report. Prepared for U.S. Department of Transportation. April, 1983.

User-Side Subsidy Demonstration Project: Montgomery, Alabama. Final Evaluation Report. Prepared for U.S. Department of Transportation. December, 1982.

Plan for Monitoring the Impacts of Regulatory Reforms Implemented Under the Motor Carrier Act of 1980. Final Report. Prepared for U.S. Department of Transportation. October, 1982.

New York City Transit Authority Revenue Feasibility Study: Economic Analyses and Projections. Final Report. Prepared for Metropolitan Transportation Authority, New York, NY. In part. October, 1982.

Taxi Regulatory Revisions in Dade County, Florida. Data Collection Plan. Prepared for U.S. Department of Transportation. April, 1981.

Analysis of Rail Cost-Plus Pricing Systems. Prepared for U.S. Department of Transportation. March, 1981.

Net Demand for Oil Imports: Preliminary Estimates of Short-Run Price Elasticities. Prepared for the U.S. Department of Energy. In part. December, 1980.

User-Side Subsidy Demonstration Project: Kinston, North Carolina. Final Evaluation Report. Prepared for U.S. Department of Transportation. October, 1980. Executive Summary reprinted in Taxicab Management November/December, 1981.

Potential Fuel Conservation from Regulatory Reform of the Trucking Industry. Prepared for Office of the Secretary of Transportation. July, 1980.

Operator Guidelines for Transfer Policy Design. Prepared for U.S. Department of Transportation. June, 1980.

State of the Art of Current Practices for Transit Transfers. Prepared for U.S. Department of Transportation. June, 1980.

"Generation of Transportation Alternatives." Technical Monograph prepared for U.S. Department of Transportation. January, 1979.

"Definition of Transportation Alternatives." Technical Monograph prepared for U.S. Department of Transportation. November, 1978.

Preliminary Analysis of Alternative Proposals to Encourage Efficient Service Concepts in Urban Freight Movement. Prepared for U.S. Department of Energy. In part. October, 1978.

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