Attachment Q3

Information Request No. 3

SURFACE TRANSPORTATION BOARD
Washington, DC 20423

Office of Economics, Environmental Analysis and Administration

March 25, 2008

Normand Pellerin
Assistant Vice-President, Environment
935, Rue de La Gauchetiere West
Floor 12
Montreal, Quebec H3B 2M9

Re: STB Finance Docket No. 35087, Canadian National Railway Company and Grand Trunk Corporation – Control – EJ&E West Company; Verification of Information Needed for Environmental Impact Statement

Dear Mr. Pellerin:

I am writing to ask your assistance in providing the Section of Environmental Analysis (SEA) the information detailed in the enclosed attachment. This information will assist SEA in conducting the environmental review of the proposed acquisition (captioned above) required by the National Environmental Policy Act.

Thank you for your assistance in this matter. I would appreciate two copies of your response as soon as possible, one sent to Phillis Johnson-Ball of my staff and one sent to our independent third-party consultant, John Morton, at HDR, 8404 Indian Hills Drive, Omaha, Nebraska, 68114-4098.

Sincerely,

Victoria Rutson
Chief
Section of Environmental Analysis

Enclosure

Information Request #3

Additional Information on CN's Projected Train Counts

Background

NEPA law requires Federal agencies to analyze the direct, indirect, and cumulative effects of proposed actions to the extent they are reasonably foreseeable. Under the regulations of the President's Council on Environmental Quality implementing NEPA, the analysis of environmental effects resulting from a proposed action requires the separation of actions and effects that are reasonably foreseeable from those that are remote and speculative. Typically, the Board analyzes potential rail operations for a period of three to five years into the future depending on an applicant's projections. Projections for rail operations beyond these timeframes may not be reasonably foreseeable because fluctuations in the economy and demand for infrastructure projects beyond three to five years can be unpredictable and speculative.

There have been proceedings filed before the Board (and its predecessor agency, the Interstate Commerce Commission), in which railroad applicants have been able to reasonably foresee future rail operations beyond three to five years. In one case, a railroad seeking to construct and operate a rail line serving coal mines in West Virginia projected rail movements over the proposed new line for ten years into the future. See Finance Docket No. 31989, The Elk River Railroad, Inc. – Construction Exemption – Clay and Kanawha Counties, West Virginia. In another case, a railroad submitted an operating plan as part of its application before the Board projecting movements of coal six years from project implementation. See Finance Docket 33407, Dakota, Minnesota & Eastern Railroad Corporation, Construction into the Powder River Basin.

This Proceeding

In its application, CN predicted train traffic increases on the EJ&E arc and train traffic decreases on the five CN rail lines operating within the arc in and near the City of Chicago based on a three year forecasting horizon (beginning with the year of Board approval of the acquisition of the EJ&E (assuming that the proposed acquisition is granted). According to CN, forecasting train traffic levels beyond this three year horizon would be speculative and, therefore, inaccurate.

Comments Received During EIS Process

SEA has received over 3200 comments thus far as we finalize the scope of the Environmental Impact Statement (EIS) and move forward with preparing the EIS itself. Several comments question CN's train traffic predictions. Here are some excerpts of from these comments:

> *The proposed acquisition projects 20 trains per day in the short term, but I would ask you to give great consideration to the Village of Barrington's and other community groups' request to extend the scope of study from the current three*

years to ten. These groups have compelling evidence - including public information from CN itself - that the traffic on the EJ&E will increase dramatically beyond the 20 trains they project in their application during the next 3 years, and that the decrease in traffic on the Chicago based lines will only be temporary as well. I believe that limiting the scope of the survey to three years will dramatically underestimate the true environmental impact on our communities in the next several years, and would urge the STB to extend the survey to a full 10 year impact study.

[W]e are also concerned that the proposed acquisition plan only projects freight traffic for the next three years. We understand that CN is in the process of purchasing a container terminal at the Port of Prince Rupert, which will lead to international freight traffic growth on its tracks for many years beyond the three year projection. Much of this increased traffic will be routed through the Chicago area, which will mean either an increase beyond the projections for the EJ&E line, or a return of freight traffic on the CN lines which EJ&E is meant to detour. We would like to reiterate the requests of several municipalities that CN be required to make freight traffic projections beyond three years on all tracks (current CN control and EJ&E) to 2035.

CN has provided three-year projections for the number of freight trains per day, gross tons of freight and hazardous materials carloads on the EJ&E and CN lines if the EJ&E acquisition is approved by the STB. This is not an adequate time frame for conducting a detailed analysis and assessment on the future impacts of this acquisition. The EIS shall utilize, at a minimum, a 20-year horizon, as required by the NEPA process. In addition, the 20-year timeframe would be more consistent with the official 2030 Regional Transportation Plan (RTP) for the Northeastern Illinois Region. In the event that CN is unable to provide such projections, STB shall look into other sources. One such source would be CREATE (the Chicago Regional Environmental And Transportation Efficiency program) which projects that by 2020, freight rail service demand in the Chicago area is expected to increase by 80%.

Questions

In light of these and similar comments, I ask that you respond to the best of your ability to the following questions:

1. How far into the future can CN forecast train levels resulting from the acquisition of the EJ&E to a reasonably foreseeable certainty? Can CN accurately forecast train levels five years into the future? What about ten years into the future? If not, please explain in detail why.

2. Several commenters have expressed skepticism in the train increases projected by CN and have stated that the train numbers are likely to be much higher,

particularly given that CN is investing $300 million to acquire the EJ&E and $100 million in infrastructure improvements. Please respond.

3. Industry data indicates that rail traffic will continue to increase in response to increasing demand. Several commenters assert that given this trend, SEA should assume for the EIS that additional train traffic decreases on the CN lines inside the EJ&E arc would likely increase to former levels. Do you believe that it is reasonable to assume that the decreases in train traffic forecast on the CN lines inside the arc are likely to be temporary? Please explain.

4. Do the increases in rail traffic projected to occur on the EJ&E line as a result of the acquisition include rail traffic from Prince Rupert? Please explain.

5. Do the increases in rail traffic projected to occur on the EJ&E as a result of the acquisition include trackage rights granted by CN to other railroads? Please explain.

6. Do you believe that it would be reasonable to perform an environmental analysis based on the maximum number of trains that could be operated on the EJ&E? Some commenters have indicated that this is the only way to accurately examine potential increases in rail traffic should CN acquire the EJ&E.

Conclusion

SEA is currently conducting a number of technical analyses of CN's proposed acquisition of the EJ&E. All of these analyses are dependent on accurate train count information. Therefore, I would appreciate your response to my questions at your earliest convenience. I thank you in advance for your careful consideration of each of these questions and appreciate your assistance.

HARKINS CUNNINGHAM LLP
Attorneys at Law

pac@harkinscunningham.com
Direct Dial: (202) 973-7601

1700 K Street, N.W.
Suite 400
Washington, D.C. 20006-3804

Telephone 202.973.7600
Facsimile 202.973.7610

April 21, 2008

Ms. Victoria J. Rutson, Chief
Section of Environmental Analysis
Surface Transportation Board
395 E Street, S.W.
Washington, D.C. 20423-0001

Re: ***Canadian National Railway Company and Grand Trunk Corporation – Control – EJ&E West Company*** **(STB Finance Docket No. 35087)**

Dear Ms. Rutson:

CN appreciates the opportunity to respond to SEA's Information Request #3 dated March 25, 2008. After the Introduction and Summary immediately below, CN responds through (a) comments on the observations contained in the data request, by which CN seeks to help put both SEA's questions and CN's answers in the context of what the National Environmental Policy Act ("NEPA") requires and what is practicable in the context of those requirements; and (b) direct responses to each of SEA's questions. CN's responses are organized in the order of headings contained in SEA's request.

Introduction and Summary

As your information request recognizes, the question of how to gauge traffic flows for purposes of NEPA review in this control case warrants careful examination. This is especially the case because public comments reflect a great deal of confusion surrounding these matters, particularly as to what NEPA requires to be measured, and what it is that CN presented in its Operating Plan for STB review.

Accordingly, CN has made a substantial effort to assess whether there is a better indicator of the reasonably foreseeable incremental traffic flows (and the environmental impacts related to those flows) attributable to the Transaction than those that formed the basis of the Operating Plan submitted for the purposes of STB review of the Transaction.

At the outset, it was important to define the issue to be resolved. As the STB has consistently held, railroads can "increase[] the number of trains on their existing lines to any level they deem[] appropriate to meet demand and/or achieve efficiency without the Board's

review or regulation." *CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc.*, STB Finance Docket No. 33388, Final Environmental Impact Statement at 1-15 (STB served May 29, 1998). For that reason, except for the extended hauls reflected in the Operating Plan that are due to the efficiencies created by the Transaction, any growth in CN's traffic to, from, and through Chicago is not dependent upon Board approval of the Transaction and therefore that growth, by itself, is not the proper subject of SEA's inquiry.

Instead, the only growth-related issues here are (a) how much of any future growth in CN's traffic CN's is likely to move over EJ&EW, as opposed to some other route, as a result of the Transaction, and (b) over which segments of EJ&EW that traffic is likely to move.

CN was unable to ascertain any reasonable way to forecast an answer to those questions that would be predictive for more than the short term. Instead, attempting to forecast growth with the particularity required here would almost certainly be a futile exercise. As the STB has recognized, reasonably accurate long-term traffic forecasting is inherently difficult, even in a context of very high volumes of relatively predictable traffic between limited origins and destinations.[1] It is even more difficult when the traffic in question is of many different types moving to and from many different points and the forecast is required for multiple intermediate routes. This difficulty is illustrated by the fact that, as shown in Attachment# 1, it now appears that at least two of the trains that CN projected just six months ago would move over EJ&EW following the Transaction are unlikely to do so. Finally, the need to speculate about whether to attribute any forecasted traffic growth to the Transaction, as opposed to other factors, such as the further clogging of routes through Chicago, or a decision by EJ&E, in lieu of the Transaction, to solicit additional traffic, would compound the difficulty.

Unable to determine any means to make a reasonably reliable forecast of the post-Transaction growth in traffic over EJ&EW attributable to the Transaction, CN revisited why it would be reasonable to rely on the traffic data in the Operating Plan as the basis for the environmental review required here.

In the STB's past environmental analyses of proposed control transactions, it has assessed impacts on the basis of the traffic volumes presented in the applicants' operating plan, which in turn was developed using traffic that actually moved during a base year, plus potential added traffic that the applicants expected to gain due to the efficiencies of the transaction during the period within which the transaction would be implemented (generally for a period of no more than 3 years). In keeping with this precedent and the STB's regulations, CN's Operating Plan

---

[1] *See, e.g., Major Issues in Rail Rate Cases,* STB Ex Parte No. 657 (Sub-No. 1), slip. op at 64-66 (STB served Oct. 30, 2006) (noting that the logistics industry is dynamic, with changes in market conditions rendering assumptions obsolete after 10 years).

was designed (a) principally to reflect CN's anticipated post-transaction operations, and (b) secondarily, to assure that the information it contained was in a form that would facilitate any environmental review of the Transaction. Having relied on STB/SEA precedent as the basis for preparing the Operating Plan, CN did not at that time fully explore all of the issues later raised in Information Request #3. In order to properly respond to this new request, CN re-examined STB/SEA rules and precedent and railroad practices in control and other proceedings; reviewed other NEPA law and practices, the extent to which CN uses forecasting in its business practices, and the literature on business forecasting; and obtained the advice of a preeminent economic forecasting consultancy.

On the basis of that review, CN has concluded that (a) there appear to be no demonstrably better indicators of the reasonably foreseeable traffic flows that are pertinent here for NEPA purposes than those reflected in the Operating Plan, which are comparable to those which have been used by the STB in the past; and (b) that any projection of greater flows would be both unreliably speculative and unnecessary for SEA's purposes.

We explain this conclusion at length below. What follows is a summary of why CN believes the STB has been correct in its past approach to environmental reviews and why, in keeping with that precedent and particularly in the circumstances of this proceeding, the traffic used as the basis of the Operating Plan is the best indicator of the reasonably foreseeable incremental flows to be reviewed under NEPA.

The approach used by CN in this proceeding is consistent with well-established and time-tested STB/SEA precedent, which has never been successfully challenged in court. For reasons we explore at more length below, the STB in these prior proceedings deliberately and properly eschewed making or requiring long-term traffic projections in control cases.

The particular circumstances of this Transaction make use of the long-established STB/SEA approach particularly appropriate because the post-Transaction traffic flows that were the basis of the Operating Plan significantly exceed the traffic that could not move over EJ&EW but for the Transaction, and therefore provide a cushion to accommodate an amount of potential future growth in that traffic and related impacts. The Operating Plan traffic therefore provides a reasonable basis for environmental review of the Transaction.

NEPA requires an inquiry by the agency into the environmental impacts that could not occur "but for" the agency action at issue. In prior railroad control cases, additions of new traffic to existing lines of railroad were typically related to the efficiencies to be realized through the acquisition of control, such as the diversion of new traffic from other railroad and non-railroad competitors, and the re-routing of traffic that merging competitors would be unlikely to undertake but for coming under common control. For the purposes of environmental analysis,

both the applicants and the STB/SEA in those prior cases reasonably assumed that the new traffic would not move over the lines at issue unless the transaction at issue was approved, and this premise was never seriously challenged. Thus, the volume in the operating plan in those transactions approximated the volume of "but for" traffic. Similarly, in construction cases, the applicants and the STB/SEA assumed that the traffic at issue was that which would not move over the railroad unless the line was constructed.

Here, circumstances are somewhat different in two basic respects. First, CN's Operating Plan is based almost entirely on the flows of traffic that are now (or are expected to be) moving over CN and EJ&E and would continue to do so whether or not the STB approves the Transaction. Only a small amount of new traffic, in the form of extended hauls on movements presently handled by CN or EJ&E, would be gained by CN/EJ&EW as a result of the Transaction.

Second, the principal environmental impacts that have been identified in the public mind with the Transaction – those related to the re-routing of CN traffic from routes through Chicago areas inside the EJ&E arc to routes through the further-removed "collar counties" traversed by the EJ&E now – are only partially dependent on approval of the Transaction. Without such approval, there would be no legal bar to preclude EJ&E from permitting CN to re-route as many trains as practicable over EJ&E in order to bypass Chicago and relieve the congestion on CN's current Chicago routes. This means that, while the total volume of traffic to be re-routed to EJ&EW under the Operating Plan includes some trains that could not move over EJ&E "but for" the Transactions, it also includes trains that could readily be moved over EJ&E whether or not there were a Transaction. In addition, it now appears that two of the trains reflected in the Operating Plan will not be run over EJ&EW.

The difference between the trains that are likely to run under the Operating Plan and the "but for" trains provides extra "head room" to accommodate a significant amount of speculation about any long term traffic growth attributable to the Transaction. For the majority of EJ&EW segments, the maximum number of "but for" trains would have to grow for more than 10 years at an annual rate in excess of the average annual rate of growth for U.S. rail traffic over the past 20 years to exceed the number of trains in the Operating Plan. *See* Attachment # 4 ("Train Growth Required to Reach Operating Plan Levels").

Based on precedent, forecasting logic, and sound business practices, CN knows of no reasonable basis for either projecting such a long-term growth rate for the traffic flows in question over the next 10 years, much less over a longer period, or for attributing any such growth solely to the Transaction.

For these reasons, use of the train volumes presented in the Operating Plan as the basis of the STB's environmental analysis would appear to be highly conservative from the perspective of assuring that the STB fully considers all reasonably foreseeable incremental impacts attributable to the Transaction.

SEA Heading – "Background"

SEA Observation. NEPA law requires Federal agencies to analyze the direct, indirect, and cumulative effects of proposed actions to the extent they are reasonably foreseeable. Under the regulations of the President's Council on Environmental Quality implementing NEPA, the analysis of environmental effects resulting from a proposed action requires the separation of actions and effects that are reasonably foreseeable from those that are remote and speculative. Typically, the STB analyzes potential rail operations for a period of three to five years into the future, depending on an applicant's projections. Projections for rail operations beyond these timeframes may not be reasonably foreseeable because fluctuations in the economy and demand for infrastructure projects beyond three to five years can be unpredictable and speculative.

CN Comment.

CN generally concurs with SEA's perspective. However, public discussion of these issues suggests that a brief review of the law and circumstances of this case might facilitate consideration by all involved of the important issues raised by your data request.

The substantive issue in this proceeding is whether Applicants are entitled to receive a license to conduct a "minor" transaction. The law governing that issue is the ICC Termination Act ("ICCTA"). In essence, ICCTA requires an expeditious, time-limited determination of whether the Transaction poses competitive issues and requires the STB to approve CN's Application unless (1) the transaction would have certain anticompetitive effects, and (2) those effects are likely to outweigh the public interest in meeting significant transportation needs. 49 U.S.C. § 11324(d). For a minor transaction, the STB's regulations require the STB to conclude the evidentiary proceeding within 105 days after accepting the application, and the STB must issue a final decision within 45 days of the close of the record. 49 C.F.R. § 1180.4(e)(2). Thus, under the STB's rules, it must issue a final decision within 180 days of the date the Application

was filed.

In this context, the application of NEPA may have somewhat different implications than it would in a "major" proceeding.[2] Assuming, however, that NEPA applies here it requires no more than an examination of the reasonably foreseeable environmental impacts that are caused by the agency action. "[W]here an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant 'cause' of the effect." *Dept. of Transp. v. Public Citizen*, 541 U.S. 752, 770 (2004). Accordingly, under NEPA, the agency's environmental review need not consider effects the agency approval would not cause. *Id.*

Here the agency actions at issue are the licensing of two related "control" Transactions – the disaggregation of EJ&E into two parts (which was sought by a Notice of Exemption that has become effective) and the acquisition of control of one of those parts (EJ&EW) by CN (which is still pending). NEPA requires an assessment of the significant direct,[3] indirect,[4] and cumulative[5] environmental impacts of the STB's authorization of control. The direct impact of any affirmative STB action here would be to grant CN a license to acquire control over EJ&EW, which at the time of the Transaction would hold the principal lines of EJ&E. The principal

---

[2] While CN does not currently expect these issues to be joined in this case, all parties should be aware of the possibilities. For example, it is an open question whether NEPA should be applied differently in a "minor" proceeding than in a proceeding not subject to a statutory deadline or one to review a "major" transaction where the STB is required to make an affirmative decision on the merits – a finding that "the transaction is consistent with the public interest." 49 U.S.C. § 11324(c). In "major" proceedings, there is no statutory limitation on the factors the STB may examine in making its determination regarding the public interest, though it is required to examine at least the five factors listed in § 11324(b). Congress has made it clear that, absent certain anticompetitive effects, which the STB has preliminarily determined are not present in this Transaction, CN's application to acquire control of EJ&EW must be granted. As a result, it is also not clear whether there is a legal basis in ICCTA or NEPA for qualifying that grant on the basis of environmental factors unrelated to protection of competition, or frustrating Congress' deadlines for review of a "minor" transaction. Thus, SEA's environmental review, even if required, might not be dispositive of the merits of the Transaction, and it is possible that it cannot provide the basis for the exercise of the STB's conditioning power.

[3] Defined as effects that are "caused by the action and occur at the same time and place." 40 C.F.R. § 1508.8(a).

[4] Defined as effects that are "caused by the action and are later in time or farther removed in distance, but [which] are still reasonably foreseeable." *Id.* at § 1508.8(b).

[5] Defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." *Id. at* § 1508.7.

indirect impacts that would arise from granting that license would be the result of changes in traffic flows over CN and EJ&EW that would not be reasonably foreseeable but for the granting of the license. Cumulative impacts are those that are not caused by the proposed action, but are close enough geographically and temporally to potentially affect the same resources as the proposed action.[6]

As part of the process of seeking approval for a license to acquire EJ&EW, CN presented an Operating Plan, designed to handle the traffic that CN and EJ&E handled in 2006,[7] plus the traffic that CN expects to be added to its system as a result of the full implementation of Phase I of the Prince Rupert Container Terminal ("P.R. Development")[8] and the small number of extended hauls – the roughly 9,000 carloads per year of existing traffic that CN expects to be carried further over the combined CN/EJ&EW system as a result of the efficiencies to be generated by CN control. CN expects that the changes in operations described in this Operating

---

[6] *See, S.W. Gulf R.R. Co. – Construction & Operation Exemption – Medina County, TX*, STB Finance Docket No. 34284, Draft Environmental Impact Statement at 1-13 (STB served Nov. 5, 2004).

[7] CN's use of a single year of recent traffic data for the basis for an Operating Plan was similar to that of CN and other applicants in control proceedings since at least 1993. *See, e.g.,* 1 Railroad Control Application 102, *Union Pac. Corp. – Control – Chicago & N.W. Transp. Co.,* Finance Docket No. 32133 (filed Jan. 29, 1993) (UP/CNW operating plan based on 1991 traffic levels); II Railroad Control Application 8-9, *Burlington N. Inc. – Control & Merger – Santa Fe Pac. Corp.,* Finance Docket No. 32549 (filed Oct. 1994) (BN/Santa Fe operating plan based on 1993 traffic); 3 Railroad Merger Application 111, *Union Pac. Corp. – Control & Merger – S. Pac. Rail Corp.,* Finance Docket No. 32760 (filed Nov. 30, 1995) (UP/SP operating plan based on 1994 traffic levels); 3A Railroad Control Application, Exhibit 13-CSX at 2, *CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc.*, STB Finance Docket No. 33388 (filed June 23, 1997) (CSX operating plan constructed using 1995 traffic); 3B Railroad Control Application, NS Exhibit 13 at 22, *CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc.*, STB Finance Docket No. 33388 (filed June 23, 1997) (NS Operating Plan constructed using 1995 traffic); 2 Railroad Control Application 127, *Canadian Nat'l Ry. – Control – Ill. Cent. Corp.,* STB Finance Docket No. 33556 (filed July 1998) (CN/IC operating plan based on 1996 traffic); 1 Railroad Control Application 286-87, 373, *Canadian Nat'l. Ry. – Control – Wisc. Cent. Transp. Corp.,* STB Finance Docket No. 34000 (filed Apr. 9, 2001) (CN/WC traffic studies and operating plan based on 1999 traffic levels); Railroad Control Application 119, 221-27, *Kansas City S. – Control – Kansas City S. Ry.,* STB Finance Docket No. 34342 (filed May 13, 2003) (KCS/TM traffic studies and operating plan based on 2001 traffic); Railroad Control Application 162, *Canadian Nat'l Ry. – Control – Bessemer & Lake Erie R.R.,* STB Finance Docket No. 34424 (filed Nov. 5, 2003) (CN/GLT operating plan based on assumption of no increase from existing traffic levels); Environmental Appendix 3-4, *Canadian Nat'l Ry. – Control – Bessemer & Lake Erie R.R.* , STB Finance Docket No. 34424 (filed Nov. 5, 2003) (same); 1 Application by Canadian Pacific Railway Company, *et al* for Approval of control of Dakota, Minnesota and Eastern Railroad Corporation, *et al,* Exhibit 13 at 2-3, *Canadian Pac. Ry. – Control – Dakota, M. & E R.R.,* STB Finance Docket No. 35081 (filed Oct. 5, 2007) (CP/DM&E operating plan based on 2006 traffic).

[8] CN's relevant P.R. Development traffic ranged between two and four trains per week in 2007. The Operating Plan is designed to accommodate all expected growth in that traffic from the full utilization of Phase I of the P.R. Development in two trains per day. *See* Response to SEA Question No. 4.

Plan would be realized within three years.

The purpose of the Operating Plan was not to accommodate long-term projections of future traffic. Its purpose was instead to show, as required by the STB's rules, *see* 49 C.F.R. § 1180.8(c), how CN expected to conduct the change in operations that it anticipates would follow the EJ&EW Transaction.

While the Operating Plan is a starting point for understanding the total volume of traffic that would likely move over EJ&EW after full implementation of the Transaction,[9] it does not necessarily determine what volume must be reviewed by SEA to fulfill its duties under NEPA.

Instead, the basis for any study required under NEPA (as construed by the Supreme Court in *Public Citizen*) is those changes in traffic that would not happen "but for" the license sought here by the Applicants. Here, those changes are a subset of the changes that are anticipated in the Operating Plan.

For this reason, the impacts are unlikely to be as far reaching as many parties to this proceeding seem to be assuming. CN and other railroads (and their respective customers) are presently free to re-route, and EJ&E is free to accept traffic from the urban Chicago routes of CN and other railroads. Indeed, EJ&E is free to accept as much traffic as it finds in its interest to accept and can handle without additions to capacity that require STB approval. And if CN and EJ&E were to make such alternative arrangements for re-routing CN's traffic, in lieu of the proposed Transaction, there would be, absent the need for improvements requiring SEA review, no environmental review and no related voluntary or imposed mitigation.[10]

Thus, a critical issue is what proportion of the Operating Plan traffic would not likely move over the EJ&E absent the Transaction. The only traffic that almost certainly would not be re-routed without the Transaction is that which is likely to move as a result of the efficiencies that CN would achieve through total control of EJ&EW – the roughly 9,000 carloads per year that will receive extended hauls, as identified in Applicants' Traffic Study.[11]

---

[9] CN views such a volume as a reasonable basis for assessing the potential requirements of communities seeking mitigation of environmental impacts.

[10] *See, e.g., CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc.*, STB Finance Docket No. 33388, Final Environmental Impact Statement at 1-5 (STB served May 29, 1998) (noting that "a railroad may upgrade a portion of its system or add service to shippers without seeking the Board's approval. Thus, if [applicants] had not proposed this Acquisition, they could have increased the number of trains on their existing lines to any level they deemed appropriate to meet demand and/or to achieve efficiency without the Board's review or regulation.").

[11] See CN-2 at 191-97 (Verified Statement of David A. Stuebner).

The rest of the traffic that CN anticipates that it would transfer to EJ&EW, as explained in its Operating Plan, includes some that could clearly move over EJ&E without further actions by the STB and some that might or might not require STB action before it was transferred to EJ&E.

The trains that could move over some portion of EJ&E absent STB approval of the Transaction are listed in the segment-by-segment analysis contained in Attachment #1.[12] The remainder of the traffic that formed the basis of the Operating Plan would not require STB action before it could be routed over EJ&E today, but EJ&E could need improvements to its lines that could require STB approval before that traffic could be moved more efficiently over EJ&E than over existing routes. For the purposes of this response, CN has conservatively assumed that some or all of the improvements to connections anticipated by the Operating Plan would be required for such efficient movements and that they would require the STB's sanction (by approval or exemption).[13]

Of course, the Operating Plan did not include the universe of traffic that might flow over EJ&E if the Transaction were not approved. In addition to the trains that CN might move if the Transaction were not approved, there may be a number of additional trains that EJ&E could receive in interchange or via haulage from its other connections should CN not be able to acquire EJ&EW and to utilize or reserve most of the existing capacity of EJ&E for its own trains.

SEA Observation. There have been proceedings filed before the Board (and its predecessor agency, the Interstate Commerce Commission), in which railroad applicants have been able to reasonably foresee future rail operations beyond three to five years. In one case, a railroad seeking to construct and operate a rail line serving coal mines in West Virginia projected rail movements over the

---

[12] These charts show the likely number of trains CN currently expects to operate once the EJ&E transaction has been fully implemented. While the charts show downward adjustments in the number of trains reflected in the Operating Plan as filed, CN is not proposing that SEA should change the number of trains it is currently studying. But, SEA should be aware that the number of trains currently reflected in the Operating Plan likely overstates the number of trains that would operate over EJ&EW as a result of this Transaction.

[13] CN is not proposing here that SEA exclude Operating Plan trains that are not "but for" trains from environmental review. See *infra*, page 28. Moreover, while CN continues to maintain its position in response to Decision No. 7 (STB served Feb. 20, 2008), it is anticipating here that any additional trains that might be excluded from the set of "but for" trains if the jurisdictional issue posed by the STB in Decision No. 7 were resolved in CN's favor would not be excluded from environmental review. CN is using the "but for" analysis here solely to illustrate that the reasonableness of SEA's approach to forecasting in prior control cases is even more reasonable here.

> proposed new line for ten years into the future. See Finance Docket No. 31989, The Elk River Railroad, Inc. -- Construction Exemption -- Clay and Kanawha Counties, West Virginia. In another case, a railroad submitted an operating plan as part of its application before the Board projecting movements of coal six years from project implementation. See Finance Docket 33407, Dakota, Minnesota & Eastern Railroad Corporation, Construction into the Powder River Basin.

CN Comment.

To CN's knowledge, since at least the early 1990s no applicant party to a control transaction proceeding involving a Class I railroad has made traffic growth forecasts for the existing traffic subject to the transaction at issue. Thus, applicants in UP/CNW, BN/Santa Fe, UP/SP, CSX/NS/Conrail, CN/IC, CN/WC, KCS/TexMex, DM&E/IC&E and CN/GLT did not project exogenous traffic growth in connection with their traffic studies or operating plans, though they did project what traffic they might divert from other railroads and other modes, and in some cases what new traffic they might be able to generate as a result of transaction-related efficiencies that did not previously move by any mode.[14] The ICC, relying on the applicants' operating plan, conducted no environmental review of the UP/CNW transaction, and SEA conducted only a limited environmental review of the CN/WC and CN/GLT transactions based on the applicants' operating plans, which were based in turn on existing levels of traffic, adjusted to reflect changes attributable to the transaction at issue, and thus did not take into account impacts from exogenous traffic growth.

There has been good reason for this approach. Control cases generally present circumstances that are not analogous to those involved in *Elk River*,[15] *DM&E*,[16] or other "new" line construction cases. In this and similar control cases, one railroad acquires another, both have well-defined traffic flows and only incremental traffic volumes are expected to change as a result of the transaction. By contrast, in construction cases such as Elk River and DM&E, the sole purpose of the proposed construction and/or rehabilitation of lines is to serve specific new volumes of traffic for the applicant or the railroad upon which the construction or rehabilitation of the line depends. If the applicants in those cases had been unable to forecast volumes of the

---

[14] The Operating Plan in CP/DM&E took into account a limited amount of exogenous traffic growth, but only from a limited number of shippers, and only during the three-year implementation period of the proposed transaction.

[15] *Elk River R.R. – Construction Exemption – Clay & Kanawha Counties, W. Va.*, Finance Docket No. 31989 ("*Elk River*").

[16] *Dakota, M. & E.R.R. Construction into the Powder River Basin,* STB Finance Docket No. 33407 ("*DM&E*").

traffic for which the construction was proposed, involving very specific commodities to and from a few very specific customers and/or origins, they likely would have been unable to secure financing for the projects and there would have been no need for the license at issue.[17] In other words, whether or not the license was granted would determine whether or not the traffic at issue would move, and the amount of traffic to move had to be assessed before it would have made business sense to undertake the project for which the applicants were seeking the license.[18]

CN is here seeking to acquire control of the principal rail lines of EJ&E. But unlike applicants in many previous control proceedings, it is doing so not in order to acquire traffic that it would not serve but for the acquisition, but primarily to serve its existing traffic more efficiently. Thus, CN's pre-Transaction valuation of the Transaction assumed, without any special study, a pro forma two percent annual growth rate for EJ&E's existing traffic and made no forecast of growth in CN's existing traffic. The valuation of the Transaction was driven primarily by the expected cost savings to be realized in the handling of existing traffic. No growth in CN's traffic was required to warrant the cost of the Transaction.

Finally, as discussed further below in response to Question No. 1, part 1, CN does not believe that changes in the volumes of traffic that CN anticipates moving to EJ&EW can be predicted to a "reasonably foreseeable certainty." Nonetheless, as also discussed below in response to Question No. 6, there is a reasonable basis for estimating the environmental impacts from any long term traffic growth over EJ&EW that could be prevented by an STB decision to deny approval of the Transaction. As that discussion shows, there is no basis for expecting the

---

[17] Another possibility is that the traffic projections were made on the basis of a firm contract.

[18] Moreover, in *Elk River*, no projections of future growth were made for non-coal traffic. Rather, the applicant reported that the only non-coal commodity it expected to carry over the new line was timber-related products, that "there could be 20-50 carloads of timber-related products per month: from three timber-related companies located on the applicant's existing line, based on its discussions with those companies, and that another lumber company was a potential customer that "could ship 10 carloads of wood-related products per month." Final Environmental Impact Statement at III-8, *Elk River R.R. – Construction Exemption – Clay & Kanawha Counties, W. Va.,* Finance Docket No. 31989 (STB served Aug. 9, 1996). The applicant also indicated that two other shippers had "expressed an interest" in making or receiving shipments over the new line, without attempting to quantify the volume of that traffic. *Id.*

In *DM&E,* the applicant did not project any growth in its existing (non-coal) traffic beyond three years after completion of its proposed construction project, and even then it only projected growth directly attributable to service improvements caused by the project itself (*i.e.,* it made no projections of growth in its existing traffic that would have occurred in the absence of the project). Application for Construction and Operation Authority at 20 (filed Feb. 20, 2007), *Dakota, M. & E.R.R. Construction Into the Powder River Basin,* STB. Finance Docket No. 33407.

environmental impacts would significantly exceed those likely to result from the total volume of traffic CN anticipated in its Operating Plan.

SEA Heading – "This Proceeding"

> **SEA Observation.** In its application, CN predicted train traffic increases on the EJ&E arc and train traffic decreases on the five CN rail lines operating within the arc in and near the City of Chicago based on a three year forecasting horizon (beginning with the year of Board approval of the acquisition of the EJ&E (assuming that the proposed acquisition is granted). According to CN, forecasting train traffic levels beyond this three year horizon would be speculative and, therefore, inaccurate.

CN Comment.

Again, CN's Operating Plan was based on 2006 EJ&E and CN traffic, plus extended hauls for roughly 9,000 carloads per year, plus CN's expected movement of the full capacity of Phase I of the P.R. Development. Otherwise, for the reasons discussed below in response to SEA's questions, except for the purpose of developing answers to this data request, and, as part of its annual target budgeting process, [19] CN has not projected growth of traffic now moving over CN and expected in the Operating Plan to move over EJ&EW for any period.

SEA Heading – "Comments Received During EIS Process"

> **SEA Observation.** SEA has received over 3200 comments thus far as we finalize the scope of the Environmental Impact Statement (EIS) and move forward with preparing the EIS itself. Several comments question CN's train traffic predictions. Here are some excerpts of from these comments:
>
> *1) The proposed acquisition projects 20 trains per day in the*

[19] In that budget process, CN sets targets for growth of its business, and thus necessarily makes certain assessments of what growth might realistically be expected for the upcoming year. CN does not, however, intend its targeting process to be an objective assessment of actual future performance; instead, it hopes, by setting targets and providing incentives for its personnel, to affect that performance.

short term, but I would ask you to give great consideration to the Village of Barrington's and other community groups' request to extend the scope of study from the current three years to ten. These groups have compelling evidence -- including public information from CN itself -- that the traffic on the EJ&E will increase dramatically beyond the 20 trains they project in their application during the next 3 years, and that the decrease in traffic on the Chicago based lines will only be temporary as well. I believe that limiting the scope of the survey to three years will dramatically underestimate the true environmental impact on our communities in the next several years, and would urge the STB to extend the survey to a full 10 year impact study.

2) *[W]e are also concerned that the proposed acquisition plan only projects freight traffic for the next three years. We understand that CN is in the process of purchasing a container terminal at the Port of Prince Rupert, which will lead to international freight traffic growth on its tracks for many years beyond the three year projection. Much of this increased traffic will be routed through the Chicago area, which will mean either an increase beyond the projections for the EJ&E line, or a return of freight traffic on the CN lines which EJ&E is meant to detour. We would like to reiterate the requests of several municipalities that CN be required to make freight traffic projections beyond three years on all tracks (current CN control and EJ&E) to 2035.*

3) *CN has provided three-year projections for the number of freight trains per day, gross tons of freight and hazardous materials carloads on the EJ&E and CN lines if the EJ&E acquisition is approved by the STB. This is not an adequate time frame for conducting a detailed analysis and assessment on the future impacts of this acquisition. The EIS shall utilize, at a minimum, a 20-year horizon, as required by the NEPA process. In addition, the 20-year timeframe would be more consistent with the official 2030 Regional Transportation Plan (RTP) for the Northeastern Illinois Region. In the event that*

> *CN is unable to provide such projections, STB shall look into other sources. One such source would be CREATE (the Chicago Regional Environmental And Transportation Efficiency program) which projects that by 2020, freight rail service demand in the Chicago area is expected to increase by 80%.*

CN Comment.

CN comments briefly here on each of the cited quotes as follows:

1) CN is unaware of the "compelling evidence" referred to in the first quote above and has seen no such evidence provided on the record in this proceeding or in comments to SEA.

2) As further explained below, CN has built its Operating Plan to handle all the trains it expects to carry to, from, or through the Chicago area as a result of the full utilization by shipping companies of the full capacity of Phase I of the P.R. Development. No other phase of that development has received necessary environmental approval or funding. Accordingly, there is no basis for CN or any other party to project additional traffic from that development as reasonably foreseeable or "certain,"[20] much less any basis for projecting where that traffic would move if it were to move, and certainly no basis for projecting such traffic as "certain" or "reasonably foreseeable." As we also explain below, growth for specific traffic that originated other than from a new, major source is extremely difficult, if not impossible to predict accurately, and, as noted above, CN does not make such predictions in the ordinary course of business except in the course of developing annual performance targets as part of its business plan. Therefore, CN did not and does not believe it has a reasonable basis to make a long term traffic growth forecast of even five years for this proceeding.

3) CN is aware of no NEPA requirement for 20-year or any other traffic projections. Indeed, if there were such a requirement, each of SEA's prior assessments of control transactions involving Class I railroads since the enactment of NEPA in 1970 would have been in violation of NEPA, a contention that no one has seriously made, and which no reader of NEPA and the regulations promulgated there under could take seriously. To the best of CN's knowledge, no study has been made or commissioned by Chicago area regional planning authorities or by any

---

[20] Construction of Phase II of the P.R. Development would require extensive fill in Prince Rupert Harbour and thus would raise more extensive environmental issues than did Phase I, requiring an environmental assessment under Canadian law. The process for issuing such an assessment is expected to be especially contentious, as First Nations will be seeking compensation in that process for loss of their traditional lands.

of the railroads involved in the CREATE planning process that would systematically forecast the growth of the specific traffic involved in this proceeding.

CN's understanding of the CREATE study is as follows. When the CREATE Feasibility Plan stated that "[c]urrently 37,500 rail cars per day travel through the Chicago hub each year, with this number expected to increase to 67,000 per day by 2020,"[21] that was a projection of demand, not actual growth, and did not purport to be based on a rigorous approach. It grew out of an inquiry from the City of Chicago as to what the railroads' "20-year plan" was for Chicago. CN understand that the railroads' initial response to that inquiry was that railroads typically did not plan that far into the future. When pressed by the City, however, the railroads developed rough pro forma projections, based on recent past performance. CN's pro forma projection was for one percent growth for all but intermodal and four percent growth in intermodal traffic. Data was gathered on actual train traffic within the Chicago terminal during a four-day period in November 1999. The growth rate projections were then applied to the traffic in the various commodity groups of the Class I railroads that had been counted for the four-day base period, compounded annually over 20 years, and the results were added together to yield the 67,000 number reported in the Final Feasibility Plan. No attempt was made to validate the projections or to account for changes in economic activity, including possible geographic shifts in population, production, or consumption, between 1999 and 2020. Nor was this figure adjusted based on the level of rail investment that might be required to accommodate this increased demand for rail services through the already congested City of Chicago.

Any attempt to forecast the demand for rail services, or the growth of specific traffic volumes, 20 years into the future by extrapolating from past short-term growth rates is necessarily an exercise in guesswork.[22] As investment literature correctly states with regard to

---

[21] Chicago Region Environmental and Transportation Efficiency Program, Final Feasibility Plan at 37 (Aug. 2005), *available at* http://www.createprogram.org/pdf/final_feasibility_plan.pdf.

[22] The STB has recognized that, even in a context of very high volumes of relatively predictable traffic between limited origins and destinations, it is unwise to make forecasts beyond 10 years, and it has recently determined to refrain from making such forecasts. In *Major Issues in Rail Rate Cases,* STB Ex Parte No. 657 (Sub-No. 1) slip op at 61-64 (STB served Oct. 30, 2006), the STB shortened the stand-alone cost ("SAC") analysis period from 20 years to 10 years. While the STB had never prescribed the length of the period for analysis, parties had historically settled some years ago on 20 years. However, the STB found "the benefits of a 20-year analysis" to be "illusory," *id.* at 62, and limited the analysis to 10 years for the following reasons:

- "the logistics industry is dynamic, with changes in market conditions rendering obsolete the underlying assumptions in older SAC analysis well before the 20-year analysis period has ended" such that "the added value (to the shipper or railroad) of a rate prescription scheduled to include from Year 10 to Year 20 is questionable;"
- "a shorter SAC analysis period would reduce both the expense and complexity of the SAC analysis by limiting disputes over forecasted trends for traffic volumes, revenues, and operating expenses;"

growth and yield of securities, "past performance is no guarantee of future results." One thing that historical performance of the rail industry does demonstrate, however, is the past performance can vary greatly, depending on which period is chosen.

Between 1980 and 2000, for example, rail traffic for Class I railroads in the United States rose at a rate of 0.77% per year, from 1.492 billion tons of freight originated to 1.738 billion tons originated.[23] Between 1986 and 2006, on the other hand, rail traffic rose at a rate of 2.04% per year, from 1.306 billion to 1.957 billion tons originated.[24] And during the 20 years between 1965 and 1985, rail traffic actually fell, from 1.387 billion tons to 1.320 billion tons originated, an average decline of 0.25% per year.[25] Looking at an even longer time horizon, rail traffic grew by an annual rate of only 0.49% between 1929 and 2006 (from 1.339 billion tons to 1.957 billion tons originated).[26] It is thus evident that extrapolating past performance into the future is almost certain to yield predictions widely at variance from reality, because such calculations inevitably fail to account accurately for such unpredictable factors as technological development, changes in government policy and regulation, and extraordinary events (which become more likely over a longer period of time) such as wars, economic shocks, and political events with global economic repercussions. And, the results can be materially affected by what years are chosen as end points.

Parties other than CREATE have also attempted to project rail traffic demand and resulting potential growth into the distant future. While some of those projections are slightly more sophisticated than CREATE's, ultimately they all suffer from the necessarily speculative

---

- "by shortening the analysis period, the maximum lawful rate would depend less on predictions of distant events and more on known market conditions;" and
- A shorter analysis term would "conform [the] regulatory process to the trend in the rail industry towards shorter contract terms." *Id.* at 62-63.

[23] 2007 Policy & Economics Department, Association of American Railroads, Railroad Facts 28 ("2006 Railroad Facts"). Tons originated is a better indicator of train growth than carloads originated because, depending on the year, carloads originated data may not include intermodal traffic. Additionally, depending on the way intermodal units are counted, use of carloads originated data could lead to a significant overstatement of train growth.

[24] *Id.*; 1996 Policy, Legislation and Economics Department, Association of American Railroads, Railroad Facts 28 ("1996 Railroad Facts").

[25] 2007 Railroad Facts 28.

[26] *Id.* If rail traffic is measured by freight car-miles, it grew at a rate of only 0.34% per year between 1929 and 2006 (from 29.142 million to 38.955 million), and if measured by train-miles, it actually declined 0.11% a year (from 613.444 million to 562.607 million train-miles). *Id.* at 33, 34.

nature of any long-term predictions of rail traffic. We are aware, for example, of a study produced by Cambridge Systematics, Inc., for the Association of American Railroads ("AAR"), reporting traffic volumes that it projected would be carried on "primary rail corridors" in 2035.[27] This study was based on the U.S. Department of Transportation's Freight Analysis Framework, Version 2.2, which forecasts demand for freight transportation by examining production, consumption, and trade by major industry sector and economic region, and to that extent involved a more sophisticated analysis than the one made by CREATE. On the other hand, the Cambridge Systematics study makes no attempt to assess particular, as opposed to aggregate, traffic characteristics, and did not account for possible shifts in transportation mode resulting from capacity constraints or other causes, but rather assumed that the same percentage of relevant traffic flows moving by rail in 2005 would move by rail in 2035. Nor did it account for possible changes in markets and demand in response to changes in technology, regulation, and politics. As Cambridge Systematics itself noted, its forecasts were only "a starting point for consideration of the effect of future demand on infrastructure capacity and investment requirements," *Cambridge Systematics* at 1-1, and were "not comprehensive in their estimation of future freight demand." *Id.* at 5-1.

Similarly, the American Association of State Highway and Transportation Officials ("AASHTO") conducted a study of the capacity of the nation's freight rail system to accommodate growth in demand for freight rail transportation over the next 20 years, and to that end provided forecasts for rail traffic growth through 2020.[28] This study, like *Cambridge Systematics*, relied on growth projected by the Freight Analysis Framework, and it thus shares with that study all the weaknesses of projections that fail to account for changes in technology, regulation, and politics. The AASHTO study provided forecasts based on four scenarios regarding investment in freight rail infrastructure: (1) a "base case scenario" that assumed investments sufficient for the freight rail industry in 2020 to maintain its current share of traffic in specified rail-served corridors; (2) a scenario assuming the minimum investment necessary to maintain current traffic volumes; (3) a scenario assuming investments that would allow some growth, but not enough to accommodate the 2020 base-case volume; and (4) an "aggressive investment" scenario assuming the freight rail industry would make sufficient investments to meet and exceed the base-case forecast.[29] The study provided no reason to assume that one of

---

[27] Cambridge Systematics, Inc., National Rail Freight Infrastructure Capacity and Investment Study (Sept. 2007), *available at* http://www.aar.org/PubCommon/Documents/natl_freight_capacity_study.pdf ("*Cambridge Systematics*").

[28] American Association of State Highway and Transportation Officials, Transportation: Invest in America, Freight-Rail Bottom Line Report 57-71, Jan. 16, 2003, *available at* http://freight.transportation.org/doc/FreightRailReport.pdf.

[29] *Id.* at 57.

the growth scenarios was any more likely to be accurate than the other three growth scenarios.[30]

Most important, even if studies such as these may have some value in projecting rail traffic volumes expected on a national level, their predictive ability is considerably reduced when used to anticipate future volumes for a particular region, and almost nonexistent when used to estimate future volume on a particular rail line. The inability to predict traffic growth accurately on specific rail line segments based on long-term overall trends, even in the short run, has been acknowledged by the STB in past proceedings.

For example, in *Conrail Acquisition*, the STB observed that "while railroads do their best to predict the amount of post-transaction traffic likely to move over a given line, . . . the amount of traffic that actually moves over a particular line depends upon shipper demand," *CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc.*, 3 S.T.B. 764, 785 (1998) ("*Conrail Acquisition*"), and it agreed with the statement of one applicant there that "statements by applicants in control applications on such matters as the amount and mix of traffic they expect to move . . . are necessarily imprecise projections based on economic conditions and traffic flows known at the time the statements are made." *CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc.*, STB Finance Docket No. 33388, Decision No. 186, slip op. at 7, (STB served May 21, 2001). The imprecision of those short-term projections grows dramatically as the time horizon is pushed farther into the future.[31]

---

[30] Nor did it consider the possibility that a freight rail industry, faced with an inability to earn its cost of capital (whether because of market forces, re-regulatory legislation, or other causes), might rationally disinvest in its rail infrastructure, deliberately foregoing the opportunity to carry traffic it now carries, and thus "shrink to profitability." Such a scenario, which the applicants in the *UP/SP* control proceeding indicated would be a rational response by SP's management to a Board decision denying the application in that case, would be one in which railroads (instead of making capital investments that would permit them to handle additional traffic), would actually seek to reduce volume and concentrate only on the traffic and the rail lines likely to yield positive returns on that investment. Applicants' Rebuttal (UP/SP-231), Rebuttal Verified Statement of John T. Gray at 25-36, *Union Pac. Corp. – Control & Merger – S. Pac. Rail Corp.*, Finance Docket No. 32760 (filed Apr. 29, 1996).

[31] Later in the same proceeding, NS reported to the Board that "the additional traffic [it had] anticipated [would move over [the Northeast Corridor] ha[d] not yet materialized." *CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc. [Gen. Oversight]*, STB Finance Docket No. 33388 (Sub-No. 91), Decision No. 6, slip op. at 4 (STB served Dec. 13, 2001). This was only four and a half years after NS had filed the operating plan projecting that traffic growth.

On the other hand, shortly after approval it was alleged that applicants' traffic projections on other lines affected by the *Conrail* transaction were lower than the actual traffic that materialized, which only underscores the limited foreseeability of any traffic projections for individual lines, even in the short run, and thus the extremely speculative nature of extrapolating short-term projections regarding those lines into the future. *See CSX Corp. – Control & Operating Leases/Agreements – Conrail Inc. [Gen. Oversight]*, STB Finance Docket No. 33388 (Sub-No. 91), Decision No. 5, slip op. at 28 (STB served Feb. 2, 2001).

Accordingly, for the many reasons elaborated upon here, and below in our response to Question No. 1, CN is not aware of any general studies that can reasonably be applied here to determine reasonably foreseeable movements over EJ&E.

SEA Heading – "Questions" – In light of these and similar comments, I ask that you respond to the best of your ability to the following questions:

SEA Question No 1, Part 1. How far into the future can CN forecast train levels resulting from the acquisition of the EJ&E to a reasonably foreseeable certainty?

CN Response to Question No. 1, Part 1.

CN does not believe that it can forecast the specific formation or the route of future trains designed to accommodate any yet-to-be-secured traffic to a reasonably foreseeable certainty for any period beyond the near term.[32]

Except as provided in CN's traffic study, which outlines traffic gains expected to stem from the efficiencies to be produced by the Transaction, CN does not expect its traffic levels to change as a result of the Transaction. What CN does expect is to re-route certain traffic from current CN routes into Chicago to EJ&EW. CN has detailed those expectations in its Operating Plan and in response to the questions posed by SEA.

CN seeks to forecast possible events for the purposes of business planning, and does not, as part of its business, generally seek to make traffic projections with the particularity required here. The reasons for CN's lack of reliance on longer-term forecasts of specific traffic volumes include the following, in addition to the points noted above:

- Professional economic forecasting relies to a large extent on the "law of large numbers" (that is, the smoothing of particular variances that results from aggregations of large

---

Similarly, in the pending *CP/DM&E* control proceeding, the STB has noted that between 1996 and 2001, while the *DM&E* construction case was pending, ethanol plants were built along DM&E's South Dakota and Minnesota line which had not been accounted for in DM&E's operating plan in the construction proceeding. *Canadian Pac. Ry. – Control – Dakota, M. & E.R.R.*, STB Finance Docket No. 35081, Decision No. 9, slip op. at 6 n.12 (STB served Apr. 4, 2008) ("*CP/DM&E*").

[32] CN is here using the term "reasonably foreseeable certainty" in the vernacular, and not as a term of art. CN has been unable to identify prior uses of the term "reasonably foreseeable certainty" in the context of NEPA-required environmental review.

numbers of similar events) to establish some reasonable degree of accuracy. But even forecasts for such large aggregations as all U.S. economic activity are seldom accurate except within a wide range, and are often radically wrong.[33]

- The expected degree of business forecasting error is compounded as samples become smaller, often to the point that the marginal utility or value of the forecast is lower than the cost of making it. CN is not in the business of forecasting but runs an ongoing business over a relatively fixed set of facilities that provides an enormous variety of services that vary by a large variety of factors such as those listed below. For such a company, long term forecasting at the micro levels that would be required here is highly unlikely to produce reliable results.[34]

Some of the factors that must be taken account in (a) estimating changes in traffic volumes, including exogenous growth and (b) determining the routing for that traffic over particular routes include those in the following list. As an illustration of the complexity of any such undertaking, the numbers for these factors at play for CN's traffic to, from, and through Chicago, from which the CN trains that are reflected in the Operating Plan were constructed are

---

[33] *See, e.g.*, Robert Gavin, *Economic predictions for 2008 are all over the map*, Boston Globe, Dec. 27, 2007, *available at* http://www.iht.com/articles/2007/12/25/business/usecon.php. *See also*, Flyvbjerg, Holm, and Buhl, *Inaccuracy in Traffic Forecasts*, 26 Transport Reviews 1 (January 2006), *available at* http://flyvbjerg.plan.aau.dk/Publications2006/TRAFFIC111PRINTTRANSPREV.pdf.

[34] Of necessity, CN does look into the future, but any such vision is highly qualified, and would pose a legal risk under the securities laws if it were not so qualified. A typical CN disclaimer regarding "forward looking statements" reads as follows:

> This [document] contains forward-looking statements. CN cautions that, by their nature, forward-looking statements involve risk, uncertainties and assumptions. The Company cautions that assumptions may not materialize. The Company's results could differ materially from those expressed or implied in such forward-looking statements. Important factors that could cause such differences include, but are not limited to, industry competition, legislative and/or regulatory developments, compliance with environmental laws and regulations, various events which could disrupt operations, including natural events such as severe weather, droughts, floods and earthquakes, the effects of adverse general economic and business conditions, inflation, currency fluctuations, changes in fuel prices, labor disruptions, environmental claims, investigations or proceedings, other types of claims and litigation, and other risks detailed from time to time in reports filed by CN with securities regulators in Canada and the United States.

See, e.g., Press Release, CN, in Partnership with Suncor, OPTI Canada and Nexen, Steps in to Save Critical Rail Link to Alberta Oil Sands Region (Dec. 24, 2007), *available at* http://www.cn.ca/about/media/news_releases/2007/4th_quarter/en_News20071224.shtml.

shown in parentheses:[35]

- CN Origins (2,459/323)
- CN Destinations (3,462/526)
- Connecting carriers receiving (171/5)
- Connecting carriers delivering (124/8)
- Commodity Types (CN Classification = 173/44; STCC 7 = 2,239/90)
- Car types (105/17)
- Rates
- The existence of contracts, their terms, and the contract period
- Alternative routes
- Divisions of interline revenues
- Overall economic growth
- Growth in industries in question
- Competition (including competition from non-rail modes) facing CN and its connecting carriers
- Competition facing customers
- Product Source Competition
- Transloading
- Customer Consolidation.

The cars actually handled by CN within the EJ&E arc in 2006 were the starting point for the CN/EJ&EW Operating Plan. An examination of CN's waybills shows that CN traffic to, from, and through Chicago in 2006 amounted to less than 15% of the total traffic handled by CN that year, yet even this relatively small proportion of CN's traffic amounted to 677,000 carloads, moving between roughly 21,000 origin-destination ("O-D") pairs.[36] Making accurate predictions concerning such highly disaggregated traffic, of which less than 25% both originates and terminates on CN, is very difficult even for CN's one year budget horizon. This is especially the case because of the extraordinary volatility within each category of traffic, as shown in Attachment #2 ("Traffic Through Chicago (2005 Q1 vs. 2006 Q1 vs. 2007 Q1 vs. 2008 Q1)") and as discussed further below in response to SEA Question No.1, Part 2. The likelihood that such a projection beyond one year would be "accurate" or reliable for the railroad's purposes is almost nil.

---

[35] The figures shown are for all carloads in the sample and for 80% of those carloads. For example, the origins of all carloads originating on CN number 2,459, the origins of 80% of that traffic number 323.

[36] In 2006, CN handled a total of 4,824,000 carloads, of which 677,000 moved through Chicago. While there was a total of 21,000 O-D pairs, 80% of the carloads (about 541,000) moved between about 2,500 O-D pairs.

For this reason, in making business plans, CN generally does not rely on route-specific traffic targets more than one year in advance. And, while CN's annual budgeting process, which carries an implicit assessment of possible growth of particular traffic, tends to be sufficiently accurate to permit the operation of the entire CN system, those targets frequently prove to vary widely from actual performance for any particular set of services.

SEA Question No 1, Part 2. Can CN accurately forecast train levels five years into the future? What about ten years into the future? If not, please explain in detail why.

CN Response to Question No. 1, Part 2.

While CN regularly attempts to set targets for traffic growth one year in advance as part of its budgeting process, those targets tend to be only modestly accurate predictions of overall performance and not to be very accurate at all on a movement-by-movement basis. Conducting such a forecast for five or ten years into the future would require a very extensive special study, and, in the end, would almost certainly not have sufficient accuracy to warrant the expense or be taken into account in CN's budgeting process, much less provide a sound basis for identifying the reasonably foreseeable traffic flows on a segment-by-segment basis on EJ&EW.

The problems that arise when attempting to make broad, long-term traffic forecasts are compounded for lines of railroad that will principally serve as "intermediate" routes for a very large network arise because each particular set of traffic movements is itself unpredictable and can be large enough to influence the results for the whole line. This is illustrated in Attachment #2, which shows the results of a review CN made for the purpose of this response of the traffic moved to, from, and through the Chicago area in the 1st quarters of the years 2005, 2006, 2007 and 2008. The attachment shows tremendous variability and volatility among the various categories of traffic presented.

For example, between 2007 and 2008 the Q1 volume of Group A, Commodity 1 went up 1.7%, after having been -3.1% between 2005 and 2006 Q1, and -6.7% between 2006 and 2007 Q1. Other commodities listed show similar results. Even when commodities are aggregated into business groups, there is still significant volatility. For example, the total of all commodities in Group B increased 20.2% from 2005 Q1 to 2006 Q1, declined -9.4% between 2006 Q1 and 2007 Q1, and then increased 13.1% between 2007 Q1 and 2008 Q1. *See* Attachment #2. Further, CN knows of no basis for using such a statistically small sample as a basis for a projection of traffic growth (or decline) over a long period of time.

The unreasonableness of such an effort can be shown by a review of the decline in all of CN's carloads to, from, and through Chicago between Q1 2007 and Q2 2008 of -2.1%. If CN were to attempt a projection based on the four years of Q1 data readily available,[37] it would have to "project" a negative average annual rate of Chicago traffic. By contrast, if it were to make such a projection from the annual change in all traffic from 2006 to 2007, it would have to use an annual rate of growth of 3.6%, *see* Attachment #3 (CN Traffic To, From, And Through Chicago (2005-2007): All Carloads), which would absurdly overstate the results for Q1 2008, and the expected annual rate for 2008 (which now appears to be no greater than 0.5% and, based on the Q1 results, could well be significantly negative).

From these examples, it should be obvious why CN does not, for business purposes, make the types of long-term projections of traffic at the micro levels (for system segments or traffic types) as would be required to project "reasonably foreseeable" long-term changes in traffic over EJ&EW and why it has no confidence that use of such an approach here would be any more useful.

SEA Question No. 2. Several commenters have expressed skepticism in the train increases projected by CN and have stated that the train numbers are likely to be much higher, particularly given that CN is investing $300 million to acquire the EJ&E and $100 million in infrastructure improvements. Please respond.

CN Response to Question No. 2.

As noted in the introduction (*supra*, p. 11), CN's decision to acquire EJ&EW and to make investments in that property was based principally on the prospect of more efficiently routing existing CN traffic.

SEA Question No. 3. Industry data indicates that rail traffic will continue to increase in response to increasing demand. Several commenters assert that given this trend, SEA should assume for the EIS that additional train traffic decreases on the CN lines inside the EJ&E arc would likely increase to former levels. Do you believe that it is reasonable to assume that the decreases in train traffic forecast on

---

[37] CN does not have data readily available to make such a calculation from before 2005, the year after it had fully implemented its prior acquisitions of British Columbia Railway and Great Lakes Transportation railroads (DMIR, B&LE, and P&C Dock).

the CN lines inside the arc are likely to be temporary? Please explain.

CN Response to Question No. 3.

For the reasons outlined above in response to Question No. 1, Part 1, it is very difficult to anticipate the implications of any generalized growth in rail traffic for the lines that CN's traffic currently traverse inside the EJ&E arc. What the ultimate capacity of EJ&EW will be, whether any of the CREATE project will ever be completed, the ultimate disposition of the St. Charles Air Line, the level of demand for increased commuter and inter-city rail passenger service, changes to the regulatory structure, and many other factors will all influence the ultimate results. One thing, however, is certain and, as far as CN can determine, is the only relevant fact with respect to this issue in the context of SEA's inquiry: whatever traffic is moved to EJ&EW from CN's interior lines will no longer move over those lines.

SEA Question No. 4. Do the increases in rail traffic projected to occur on the EJ&E line as a result of the acquisition include rail traffic from Prince Rupert? Please explain.

CN Response to Question No. 4.

The traffic that was the basis for CN's Operating Plan included all of CN's expected traffic from the full utilization of Phase I of the P.R. Development, even though this traffic is expected to move via CN through Chicago with or without approval of the proposed Transaction. This is the only Prince Rupert traffic that CN can reasonably foresee would be added to EJ&EW.

Before it commenced, the P.R. Development was a longstanding developmental aspiration of the Port for over 10 years. Once approved, Phase I of the P.R. Development was made operational after only two years. But this phase was built on existing Port land and did not require any environmental review. While planning and engineering for Phase II are complete, this phase faces environmental and political hurdles. This phase will require extensive fill in the bay to create new land, and has been challenged by certain Canadian First Nation (*i.e.,* the indigenous peoples of what is now Canada, other than those who are Inuit or Métis) groups. While other aspects of the development project have also been identified, none has been reviewed for environmental impacts, approved or funded. CN, which would expect to be a beneficiary of further P.R. development, and which is constantly seeking ways to take advantage of the opportunities that might be presented by such further development, has no firm idea whether such development will occur, much less when, or to what extent.

There are a number of factors that will likely bear on whether these later phases will ever

be developed. Most are beyond CN's control, and many are beyond the control of the Port of Prince Rupert, the Government of British Columbia, and the Government of Canada. SEA should note that all these factors also bear on whether, even if additional phases of the P.R. Development were completed, the expected levels of traffic from Phase I will fully materialize and continue over the long term. These factors include:

- The rate of growth of international container trade between the North America and the rest of the world, especially Asia, which is difficult to predict because of the volatility and number of the governing economic and political factors, such as the weakening economy and apparently growing support for protectionism in the United States.

- Competition from other major West Coast Ports, ranging from the Port of Vancouver, though the U.S. ports such as Seattle-Tacoma, San Francisco-Oakland, Los Angeles and San Diego, to the Mexican Ports, both those now in operation and those for which major expansion is being contemplated in the same manner as the next phases of the P.R. Development.

- Competition from other East Coast and Gulf ports in Canada, the U.S. and Mexico.

- Opposition of First Nations to further development.

- The fact that, under the Canada Marine Act, the Prince Rupert Port Authority cannot borrow any more money for further expansion until the first $25 million previously borrowed is paid back.

- The nature and state of the business cycle.

- Expected changes in growth rates.

- Expected trade policies of each nation in which traffic moves.

- Competitiveness of the national economics of each nation to, from, or through which traffic moves.

- Other expected developments in the logistics universe, such as the expected expansion of the Panama Canal.

SEA Question No. 5. Do the increases in rail traffic projected to occur on the EJ&E as a result of the acquisition include trackage rights

granted by CN to other railroads? Please explain.

CN Response to Question No. 5.

CN has granted no trackage rights to other railroads over EJ&EW in anticipation of the Transaction and, accordingly, there is no such traffic reflected in the Operating Plan.

SEA Question No. 6. Do you believe that it would be reasonable to perform an environmental analysis based on the maximum number of trains that could be operated on the EJ&E? Some commenters have indicated that this is the only way to accurately examine potential increases in rail traffic should CN acquire the EJ&E.

CN Response to Question No. 6.

It would not be reasonable to "perform an environmental analysis based on the maximum number of trains that could be operated on the EJ&E" for the simple reason that such an analysis is not required by NEPA and, because any such analysis would be highly speculative, it would not, in any event, advance the STB's understanding of the reasonably foreseeable impacts of the Transaction.

As reviewed at greater length elsewhere in this response, the STB/SEA NEPA review should be exploring only the environmental impacts that would be caused by the STB's granting the license(s) at issue in this proceeding. As also shown elsewhere in this response, this can most reasonably be determined by a review of the impact of the train additions shown in the Operating Plan. Even if that were not the case, however, SEA could not readily, if at all, derive the incremental trains likely to result from the STB's approval of the Transaction because that would require a determination of both the total ultimate capacity of the EJ&E absent any action requiring review by the STB and the amount of that capacity that could not be utilized by EJ&E, CN or other railroads absent further STB review.

CN is not aware of a practicable way to assess the ultimate capacity of EJ&E absent further SEA review because of the many variables that would bear on that capacity, including the nature of the expected operations, the room available for double tracking and other actions generally not requiring STB review to add to that capacity, and the constraints that other carriers might face that might not limit their use of the line in the same way (because of different routing requirements) as they might limit CN's use of EJ&E, the timing and control of traffic moving over and intersecting the line, the opportunity to add and/or improve mainline track and sidings, to add and/or improve signaling, connections, and dispatching controls, and where the traffic is

going). Intersecting these issues is the scope of STB jurisdiction to review the development of traffic and capacity by EJ&E and its connecting carriers. Thus, the ultimate capacity of EJ&E that can be realized without projects requiring STB approval is likely unknowable except as someone seeks to develop and use such capacity.

As important, CN is not aware of any realistic way to assess what traffic, other than the traffic that might be moved by CN, might use whatever the capacity of EJ&E might be. Any assessment of the capacity utilization attributable to the Transaction would have to exclude any capacity that EJ&E, in the absence of STB approval, could still utilize to add trains that might move over existing trackage rights, through existing and future interchange arrangements, and through existing and future haulage rights by any of the carriers that connect with EJ&E, including BNSF, CN, CP, IHB, and UP. Any assessment of that utilization would require the same kind of long-term projections of route-specific traffic growth (over the various railroads that connect with EJ&E) that the STB has long recognized are not reliable. These projections would require an assessment of all of the relevant factors that will bear on the decisions of the many shippers and carriers that might generate a set of actual and potential traffic for movement over EJ&E. CN knows of no practicable way to make such an assessment.

Thus, while it may conceivable in theory to analyze the traffic that might result from the Transaction by assessing the ultimate capacity of EJ&E in the absence of the Transaction and subtracting the trains likely to use that capacity from all sources in the absence of the Transaction, CN knows of no way practicably to conduct that inquiry, and certainly no way to assure that the results would be reliable.[38]

CN Recommendation.

The suggested alternatives to the use of the traffic flows set forth in the Operating Plan – long-term projections, application of projections from various studies, application of various long-term historical growth rates, an assessment of the maximum capacity of EJ&EW – are each fatally flawed and not as likely to reasonably indicate the environmental impacts of the

---

[38] In any event, to study the maximum number of trains that could run over EJ&E would be essentially to study the "worst case" scenario. Such a study is not required by NEPA. While CEQ regulations once required agencies to prepare a "worst case analysis," those regulations have been amended and that is no longer the case. *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 354-56 (1989). Indeed, CEQ found that "[e]xperts in the field of risk analysis and perception [believe] that the 'worst case analysis' lacks defensible rationale or procedures" such that it is "not surprising that no one knows how to do a worst case analysis." *Id.* at 356 n.17. Additionally, CEQ found that the "worst case" rule was "counterproductive, because it . . . led to agencies being required to devote substantial time and resources to preparation of analyses which are not considered useful to decision-makers and divert the EIS process from its intended purpose." *Id*

Transaction as a study of the impacts of the traffic presented in the Operating Plan.

Fortunately, there is no need for SEA to adopt any of these flawed approaches to make any assessment required by NEPA. Instead, in the context of this case, there is a fairly straightforward means to reasonably determine that the impacts of the traffic that CN would not move over the EJ&E "but for" approval of the proposed Transaction within the time frame that is reasonably foreseeable will not likely exceed the impacts expected from the traffic that CN used as the basis of its Operating Plan.

The number of "but for" trains are shown in Attachment #4 ("Train Growth Required to Reach Operating Plan Levels").[39] These are the trains contained in the Operating Plan that likely could not be efficiently moved over EJ&EW without one or more of the improvements to the connections identified in the Operating Plan. CN is assuming, solely for the purposes of this analysis and facilitating SEA's review, that some or all of those improvements would require STB review. If those improvements prove eventually not to require STB review, SEA will have examined more and larger, not fewer and smaller, impacts than NEPA requires.

As shown in Attachment #4, under even the most optimistic scenarios, there is no rate of traffic growth that would cause the number of "but for" trains to exceed the trains anticipated in the Operating Plan in the next ten years (which is the beyond the "foreseeable" future that CN believes is even remotely plausible under the conditions governing this traffic).

For these reasons, and those given above in response to SEA's observations and questions, CN believes that the maximum volumes of traffic for determining the reasonably foreseeable impacts of the operating change likely to follow the Transaction are the trains count contained in the Operating Plan.

SEA Heading – "Conclusion" SEA is currently conducting a number of technical analyses of CN's proposed acquisition of the EJ&E. All of these analyses are dependent on accurate train count information. Therefore, I would appreciate your response to my questions at your earliest convenience. I thank you in advance for your careful consideration of each of these questions and appreciate your assistance.

---

[39] A pro forma projection in growth in number of "but for" trains over a ten year period is provided in Attachment #5 solely for the purpose of providing perspective.

CN Comment.

In this response, CN has sought to answer your specific questions directly. It has also sought to outline why the Operating Plan, in contrast to alternatives suggested by commenters, appears to provide the best available basis on which SEA can determine the reasonably foreseeable environmental impacts that could occur only if the Transaction were approved. Please let me know if we can provide any further information relating to these matters.

Very truly yours,

Paul A. Cunningham
Counsel for Canadian National Railway Company
and Grand Trunk Corporation

Enclosures

cc: Phillis Johnson-Ball
John Morton
Normand Pellerin

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 14
Leithton - Spaulding

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0

Trains reflected in the Operating Plan	15.0
Trains likely to operate over EJ&EW post-implementation[2]	13.0
Trains that could move today with no additional STB authority	3.0
"But For" trains (difference between likely trains and trains that could move today)	10.0

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 13
Spaulding - Munger

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0

Trains reflected in the Operating Plan	17.0
Trains likely to operate over EJ&EW post-implementation[2]	15.0
Trains that could move today with no additional STB authority	3.0
"But For" trains (difference between likely trains and trains that could move today)	12.0

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 12
Munger - West Chicago

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0

Trains reflected in the Operating Plan	19.0
Trains likely to operate over EJ&EW post-implementation[2]	17.0
Trains that could move today with no additional STB authority	3.0
"But For" trains (difference between likely trains and trains that could move today)	14.0

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 11
West Chicago - East Siding (Eola)

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
250	UP	Michigan	West Chicago	Griffith	0.1
260	UP	Michigan	West Chicago	Griffith	0.1
280	UP	Michigan	W Chicago	Griffith	0.2
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0
UP Ety Coal	Michigan	UP	Griffith	W Chicago	0.4

Trains reflected in the Operating Plan	20.9
Trains likely to operate over EJ&EW post-implementation[2]	18.9
Trains that could move today with no additional STB authority	3.8
"But For" trains (difference between likely trains and trains that could move today)	15.1

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 10
East Siding (Eola) - Walker

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
250	UP	Michigan	West Chicago	Griffith	0.1
260	UP	Michigan	West Chicago	Griffith	0.1
276	BNSF	Michigan	Eola	Griffith	0.0
278	BNSF	Michigan	Eola	Griffith	0.3
280	UP	Michigan	W Chicago	Griffith	0.2
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0
BNSF Coal to MI	BNSF	Michigan	Eola	Griffith	0.4
BNSF Ety Coal	Michigan	BNSF	Griffith	Eola	0.4
UP Ety Coal	Michigan	UP	Griffith	W Chicago	0.4

Trains reflected in the Operating Plan	23.8
Trains likely to operate over EJ&EW post-implementation[2]	21.8
Trains that could move today with no additional STB authority	5.1
"But For" trains (difference between likely trains and trains that could move today)	16.7

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 9
Walker - Bridge Junction

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
250	UP	Michigan	West Chicago	Griffith	0.1
260	UP	Michigan	West Chicago	Griffith	0.1
276	BNSF	Michigan	Eola	Griffith	0.0
278	BNSF	Michigan	Eola	Griffith	0.3
280	UP	Michigan	W Chicago	Griffith	0.2
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0
BNSF Coal to MI	BNSF	Michigan	Eola	Griffith	0.4
BNSF Ety Coal	Michigan	BNSF	Griffith	Eola	0.4
UP Ety Coal	Michigan	UP	Griffith	W Chicago	0.4

Trains reflected in the Operating Plan	23.8
Trains likely to operate over EJ&EW post-implementation[2]	21.8
Trains that could move today with no additional STB authority	5.1
"But For" trains (difference between likely trains and trains that could move today)	16.7

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 8
Bridge Junction - Rock Island Junction

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
250	UP	Michigan	West Chicago	Griffith	0.1
260	UP	Michigan	West Chicago	Griffith	0.1
276	BNSF	Michigan	Eola	Griffith	0.0
278	BNSF	Michigan	Eola	Griffith	0.3
280	UP	Michigan	W Chicago	Griffith	0.2
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0
BNSF Coal to MI	BNSF	Michigan	Eola	Griffith	0.4
BNSF Ety Coal	Michigan	BNSF	Griffith	Eola	0.4
UP Ety Coal	Michigan	UP	Griffith	W Chicago	0.4

Trains reflected in the Operating Plan	23.8
Trains likely to operate over EJ&EW post-implementation[2]	21.8
Trains that could move today with no additional STB authority	5.1
"But For" trains (difference between likely trains and trains that could move today)	16.7

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 7
Rock Island Junction - Matteson

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
250	UP	Michigan	West Chicago	Griffith	0.1
260	UP	Michigan	West Chicago	Griffith	0.1
276	BNSF	Michigan	Eola	Griffith	0.0
278	BNSF	Michigan	Eola	Griffith	0.3
280	UP	Michigan	W Chicago	Griffith	0.2
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0
BNSF Coal to MI	BNSF	Michigan	Eola	Griffith	0.4
BNSF Ety Coal	Michigan	BNSF	Griffith	Eola	0.4
UP Ety Coal	Michigan	UP	Griffith	W Chicago	0.4

Trains reflected in the Operating Plan	21.9
Trains likely to operate over EJ&EW post-implementation[2]	19.9
Trains that could move today with no additional STB authority	5.1
"But For" trains (difference between likely trains and trains that could move today)	14.8

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 6
Matteson - Chicago Heights

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
250	UP	Michigan	West Chicago	Griffith	0.1
260	UP	Michigan	West Chicago	Griffith	0.1
276	BNSF	Michigan	Eola	Griffith	0.0
278	BNSF	Michigan	Eola	Griffith	0.3
280	UP	Michigan	W Chicago	Griffith	0.2
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0
BNSF Coal to MI	BNSF	Michigan	Eola	Griffith	0.4
BNSF Ety Coal	Michigan	BNSF	Griffith	Eola	0.4
UP Ety Coal	Michigan	UP	Griffith	W Chicago	0.4

Trains reflected in the Operating Plan	22.9
Trains likely to operate over EJ&EW post-implementation[2]	20.9
Trains that could move today with no additional STB authority	5.1
"But For" trains (difference between likely trains and trains that could move today)	15.8

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 5
Chicago Heights - Griffith

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
250	UP	Michigan	West Chicago	Griffith	0.1
260	UP	Michigan	West Chicago	Griffith	0.1
276	BNSF	Michigan	Eola	Griffith	0.0
278	BNSF	Michigan	Eola	Griffith	0.3
280	UP	Michigan	W Chicago	Griffith	0.2
301	Toronto	Edmonton	Griffith	Leithton	1.0
356	Fon du lac	Sarnia	Leithton	Griffith	1.0
357	Sarnia	Edmonton	Griffith	Leithton	1.0
BNSF Coal to MI	BNSF	Michigan	Eola	Griffith	0.4
BNSF Ety Coal	Michigan	BNSF	Griffith	Eola	0.4
UP Ety Coal	Michigan	UP	Griffith	W Chicago	0.4

Trains reflected in the Operating Plan	23.9
Trains likely to operate over EJ&EW post-implementation[2]	21.9
Trains that could move today with no additional STB authority	5.1
"But For" trains (difference between likely trains and trains that could move today)	16.8

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 4
Griffith - Van Loon

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
				Trains reflected in the Operating Plan	21.0
				Trains likely to operate over EJ&EW post-implementation[2]	19.0
				Trains that could move today with no additional STB authority	0.0
				"But For" trains (difference between likely trains and trains that could move today)	19.0

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 3
Van Loon - Ivanhoe

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
				Trains reflected in the Operating Plan	20.0
				Trains likely to operate over EJ&EW post-implementation[2]	18.0
				Trains that could move today with no additional STB authority	0.0
				"But For" trains (difference between likely trains and trains that could move today)	18.0

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 2
Ivanhoe - Cavanaugh

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count

Trains reflected in the Operating Plan	20.0
Trains likely to operate over EJ&EW post-implementation[2]	18.0
Trains that could move today with no additional STB authority	0.0
"But For" trains (difference between likely trains and trains that could move today)	18.0

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment #1

Minimum Number Of CN Trains That Could Be Re-routed Over EJ&E If Transaction Were Not Approved

Segment 1
Cavanaugh - Gary

Current CN Train #[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	Daily count
				Trains reflected in the Operating Plan	20.0
				Trains likely to operate over EJ&EW post-implementation[2]	18.0
				Trains that could move today with no additional STB authority	0.0
				"But For" trains (difference between likely trains and trains that could move today)	18.0

1. These figures reflect current CN trains. Traffic from these trains was reflected in the Operating Plan. However, because of the efficiencies of the Transaction, the Operating Plan reflects a major reconfiguration of CN's operations and pre-Transaction trains may not have the same train #s as under the Operating Plan.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

Attachment # 2

CN TRAFFIC TO, FROM, AND THROUGH CHICAGO (2005 Q1 vs. 2006 Q1 vs. 2007 Q1 vs. 2008 Q1)
ALL CARLOADS

Business Unit	2005 Q1 / 2006 Q1	2006 Q1 / 2007 Q1	2007 Q1 / 2008 Q1
Commodity 1	-3.1%	-6.7%	1.7%
Commodity 2	11.9%	-3.9%	-31.3%
Commodity 3	-4.9%	0.3%	3.5%
Commodity 4	-9.6%	-15.5%	-28.3%
Commodity 5	-8.5%	13.4%	-11.7%
Commodity 6	-7.6%	3.2%	1.0%
Group A Total	**-2.4%**	**-0.1%**	**-13.9%**
Commodity 7	23.3%	-15.5%	3.0%
Commodity 8	8.1%	46.3%	4.6%
Commodity 9	11.8%	-6.2%	27.9%
Commodity 10	88.9%	-33.9%	76.5%
Commodity 11	2.3%	-5.7%	1.2%
Commodity 12	62.9%	-16.8%	14.6%
Commodity 13	9.8%	-14.2%	-3.3%
Group B Total	**20.2%**	**-9.4%**	**13.1%**
Commodity 14	-6.3%	5.8%	-2.5%
Commodity 15	18.2%	2923.1%	30.7%
Commodity 16	-8.7%	10.5%	-8.8%
Commodity 17	-4.3%	9.7%	2.2%
Commodity 18	-6.6%	20.0%	72.1%
Commodity 19	-20.1%	-25.8%	16.1%
Commodity 20	3.5%	-4.9%	2.5%
Commodity 21	14.7%	-0.4%	5.9%
Commodity 22	-2.3%	-15.5%	59.7%
Commodity 23	-15.6%	-23.0%	-3.7%
Group C Total	**-4.0%**	**3.1%**	**9.1%**
Commodity 24	16.5%	-29.3%	-11.4%
Commodity 25	2.2%	-8.0%	-11.3%
Group D Total	**15.2%**	**-27.6%**	**-11.4%**
Commodity 26	52.0%	38.5%	4.7%
Commodity 27	-19.2%	42.1%	-12.9%
Commodity 28	-43.9%	28.4%	14.8%
Commodity 29	27.5%	-3.4%	15.2%
Commodity 30	18.7%	19.5%	17.0%
Group E Total	**13.0%**	**19.2%**	**9.7%**
Commodity 31	-41.4%	24.4%	18.3%
Commodity 32	-8.1%	19.1%	748.1%
Commodity 33	10.3%	-14.6%	-19.2%
Commodity 34	32.7%	-30.8%	-59.9%
Commodity 35	-31.6%	3.8%	61.4%
Group F Total	**-9.0%**	**-6.9%**	**0.6%**
Commodity 36	2.2%	-6.0%	-19.0%
Commodity 37	-100.0%	#DIV/0!	21.2%
Commodity 38	7.5%	0.8%	-2.0%
Group G Total	**2.5%**	**-4.4%**	**-17.2%**
Grand Total	**2.7%**	**-1.3%**	**-2.1%**

Attachment # 3

CN TRAFFIC TO, FROM, AND THROUGH CHICAGO (2005-2007)
ALL CARLOADS

Groups	2005/06	2006/07
Commodity 1	-2.7%	-3.5%
Commodity 2	-1.9%	-6.2%
Commodity 3	-2.2%	-3.9%
Commodity 4	-4.5%	-15.6%
Commodity 5	-4.4%	0.9%
Commodity 6	8.1%	0.9%
Group A Total	**-2.1%**	**-4.0%**
Commodity 7	3.7%	0.4%
Commodity 8	26.8%	38.1%
Commodity 9	-70.5%	11.0%
Commodity 10	-3.1%	19.2%
Commodity 11	25.1%	0.7%
Commodity 12	11.5%	-4.9%
Commodity 13	39.7%	-22.8%
Commodity 14	7.7%	-13.4%
Group B Total	**6.9%**	**3.7%**
Commodity 15	-9.3%	7.0%
Commodity 16	640.2%	297.2%
Commodity 17	-4.1%	12.8%
Commodity 18	2.8%	21.1%
Commodity 19	-9.6%	57.7%
Commodity 20	-15.3%	-35.2%
Commodity 21	4.8%	2.6%
Commodity 22	28.6%	-13.2%
Commodity 23	-10.4%	13.2%
Commodity 24	-26.2%	-6.3%
Group C Total	**-2.3%**	**9.5%**
Commodity 25	2.4%	-8.5%
Commodity 26	-3.4%	-13.3%
Group D Total	**1.8%**	**-8.9%**
Commodity 27	37.8%	34.2%
Commodity 28	-9.5%	48.1%
Commodity 29	-20.3%	57.3%
Commodity 30	15.7%	0.2%
Commodity 31	20.2%	16.6%
Group E Total	**14.8%**	**21.9%**
Commodity 32	-17.6%	31.7%
Commodity 33	10.9%	-20.5%
Group F Total	**1.1%**	**-5.9%**
Commodity 34	-5.6%	1.6%
Commodity 35	7.7%	478.6%
Commodity 36	-5.3%	6.0%
Group G Total	**-5.6%**	**2.3%**
Grand Total	**0.8%**	**3.6%**

Attachment #4

Train Growth Required to Absorb Difference Between Operating Plan and "But For" Trains

Segment No.	Segment Endpoints	Trains reflected in the Operating Plan	Trains likely to operate over EJ&EW post-Transaction[1]	Trains that could operate today over EJ&E without further STB review	"But For" trains (difference between likely EJ&EW trains and trains that could operate today)	Length of time (in years) at specified growth rate it would take "but for" trains to reach the levels reflected in the Operating Plan				
						Years @ **0.50%**	Years @ **1.00%**	Years @ **1.50%**	Years @ **2.00%**	Years @ **2.04%**[2]
14	Leithton - Spaulding	15.0	13.0	3.0	10.0	81.3	40.7	27.2	20.5	20.1
13	Spaulding - Munger	17.0	15.0	3.0	12.0	69.8	35.0	23.4	17.6	17.2
12	Munger - West Chicago	19.0	17.0	3.0	14.0	61.2	30.7	20.5	15.4	15.1
11	West Chicago - East Siding	20.9	18.9	3.8	15.1	65.6	32.9	22.0	16.5	16.2
10	East Siding - Wa ker	23.8	21.8	5.1	16.7	70.8	35.5	23.7	17.8	17.5
9	Wa ker - Bridge Jct.	23.8	21.8	5.1	16.7	70.8	35.5	23.7	17.8	17.5
8	Bridge Jct. - Rock Island Jct.	23.8	21.8	5.1	16.7	70.8	35.5	23.7	17.8	17.5
7	Rock Island Jct. - Matteson	21.9	19.9	5.1	14.8	78.3	39.3	26.2	19.7	19.3
6	Matteson - Chicago Heights	22.9	20.9	5.1	15.8	74.2	37.2	24.9	18.7	18.3
5	Chicago Heights - Griffith	23.9	21.9	5.1	16.8	70.5	35.3	23.6	17.8	17.4
4	Griffith - Van Loon	21.0	19.0	0.0	19.0	20.1	10.1	6.7	5.1	5.0
3	Van Loon - Ivanhoe	20.0	18.0	0.0	18.0	21.1	10.6	7.1	5.3	5.2
2	Ivanhoe - Cavanaugh	20.0	18.0	0.0	18.0	21.1	10.6	7.1	5.3	5.2
1	Cavanaugh - Gary	20.0	18.0	0.0	18.0	21.1	10.6	7.1	5.3	5.2

1. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

2. Average annual rate of growth in U.S. railroad tonnage originated for the twenty year period from 1986-2006. See, 1996 & 2007 Policy & Economics Department, Association of American Railroads, Railroad Facts 28. Tons originated is a better indicator of train growth than carloads originated because, depending on the year, carloads originated data may not include intermodal traffic. Additionally, depending on the way intermodal units are counted, use of carloads originated data could lead to a significant overstatement of train growth.

Attachment #5

Pro Forma Train Growth Over 10 Years Calculated Using Hypothetical Growth Rates[1]
(For Illustration Only)

Segment No.	Segment Endpoints	Trains reflected in the Operating Plan	Trains likely to operate over EJ&EW post-Transaction[2]	Trains that could operate today over EJ&E without further STB review	"But For" trains (difference between likely EJ&EW trains and trains that could operate today)	Additional "but for" trains after 10 years at the stated level of growth				
						0.50%	1.00%	1.50%	2.00%	2.04%[3]
14	Leithton - Spaulding	15.0	13.0	3.0	10.0	0.5	1.0	1.6	2.2	2.2
13	Spaulding - Munger	17.0	15.0	3.0	12.0	0.6	1.3	1.9	2.6	2.7
12	Munger - West Chicago	19.0	17.0	3.0	14.0	0.7	1.5	2.2	3.1	3.1
11	West Chicago - East Siding	20.9	18.9	3.8	15.1	0.8	1.6	2.4	3.3	3.4
10	East Siding - Walker	23.8	21.8	5.1	16.7	0.9	1.7	2.7	3.7	3.7
9	Walker - Bridge Jct.	23.8	21.8	5.1	16.7	0.9	1.7	2.7	3.7	3.7
8	Bridge Jct. - Rock Island Jct.	23.8	21.8	5.1	16.7	0.9	1.7	2.7	3.7	3.7
7	Rock Island Jct. - Matteson	21.9	19.9	5.1	14.8	0.8	1.6	2.4	3.2	3.3
6	Matteson - Chicago Heights	22.9	20.9	5.1	15.8	0.8	1.7	2.5	3.5	3.5
5	Chicago Heights - Griffith	23.9	21.9	5.1	16.8	0.9	1.8	2.7	3.7	3.8
4	Griffith - Van Loon	21.0	19.0	0.0	19.0	1.0	2.0	3.1	4.2	4.3
3	Van Loon - Ivanhoe	20.0	18.0	0.0	18.0	0.9	1.9	2.9	3.9	4.0
2	Ivanhoe - Cavanaugh	20.0	18.0	0.0	18.0	0.9	1.9	2.9	3.9	4.0
1	Cavanaugh - Gary	20.0	18.0	0.0	18.0	0.9	1.9	2.9	3.9	4.0

1. CN is aware of no basis for the use of the hypothetical growth rates or for any other reliable basis for forecasting growth in the "but for" trains attributable to the Transaction.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Average annual rate of growth in U.S. railroad tonnage originated for the twenty year period from 1986-2006. See, 1996 & 2007 Policy & Economics Department, Association of American Railroads, Railroad Facts 28. Tons originated is a better indicator of train growth than carloads originated because, depending on the year, carloads originated data may not include intermodal traffic. Additionally, depending on the way intermodal units are counted, use of carloads originated data could lead to a significant overstatement of train growth.

HARKINS CUNNINGHAM LLP

Attorneys at Law

1700 K Street, N.W.
Suite 400
Washington, D.C. 20006-3804

Telephone 202.973.7600
Facsimile 202.973.7610

Paul A. Cunningham
202.973.7601
pac@harkinscunningham.com

May 15, 2008

Ms. Victoria J. Rutson, Chief
Section of Environmental Analysis
Surface Transportation Board
395 E Street, S.W.
Washington, D.C. 20423-0001

Re: ***Canadian National Railway Company and Grand Trunk Corporation – Control – EJ&E West Company*** **(STB Finance Docket No. 35087)**

Dear Ms. Rutson:

I am writing to supplement CN's response, made in my letter to you of April 21, 2008, to SEA Information Request #3 ("CN's initial response"). The Board's Decision No. 9 (served April 23, 2008) ruled that construction of the six proposed connections between CN's and EJ&E's existing lines, as described in the Application and Operating Plan, does not require STB approval. Thus, CN, without any further STB approval, and assuming satisfactory commercial arrangements with EJ&E, would be able to re-route more of its current cross-Chicago trains to the EJ&E line than were identified in CN's initial response to Information Request #3. Therefore, the number of "but for" trains described in CN's initial response has been revised downward, as shown in the attachments to this letter and as discussed below.

As explained in CN's initial response, under governing law and precedents, the STB's NEPA review of a proposed transaction should extend to those impacts that are caused by the STB's action.[1] In this case, the relevant STB action is the granting of a license for CN to acquire control of EJ&EW, which will have acquired most of the lines of EJ&E. And the impacts that are properly part of the Board's NEPA analysis of this Transaction are those that would be caused by the trains that could not move over the EJ&E lines "but for" the STB's grant of the requested licenses, as those trains are the only ones that the Board, by denying approval of the Transaction, could prevent from moving over those lines.

[1] As noted in CN's initial response, the Supreme Court has held that "where an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant 'cause' of the effect." *Dep't of Transp. v. Public Citizen*, 541 U.S. 752, 770 (2004), *quoted in* CN's initial response at 6.

At the time of CN's initial response, the Board was still considering whether construction of the connections described in the Operating Plan was subject to its regulatory jurisdiction under 49 U.S.C. § 10901. CN therefore made the conservative assumption that regulatory approval for those connections was required, and that the "but for" trains would include the trains that could not practicably be re-routed to the EJ&E line unless the connections were built pursuant to that approval. Now that the STB has determined that those connections do not in fact require prior regulatory approval, the number of trains that could currently shift to EJ&E has increased, and the number of "but for" trains has correspondingly decreased. With fewer "but for" trains, the impacts that could be caused by the STB approving the Transaction would be substantially reduced.

As shown in the attachments to this letter, the number of "but for" trains on each of the segments from Leithton, IL to Matteson, IL is under 8 trains per day – the Board's threshold for analysis for almost all of its environmental impacts. Further, Revised Attachment #4 shows that even if the traffic over those segments could be expected to grow at the rate of U.S. railroad traffic over the latest 20-year period available, it would take at least 64 years for the "but for" trains on any of those segments to grow to the level reflected in the operating plan. While the segments from Matteson, IL to Gary, IN have higher numbers of "but for" trains, Revised Attachment #4 shows that it would take a minimum of 25 years at that rate of growth for the number of "but for" trains to reach the levels reflected in the Operating Plan. CN therefore continues to believe that the train counts reflected in the Operating Plan provide the best basis for assessing the reasonably foreseeable impacts of the changes resulting from the Transaction.

In any event, as explained in CN's initial repsonse, any attempt to predict rail traffic several years into the future, especially over individual rail line segments, would be inaccurate and arbitrary. Thus, the figures provided in the Operating Plan, which substantially overstate the number of trains that would not move to EJ&EW "but for" the Board's approval of this Transaction, are as likely to be an accurate indication of future traffic over any affected line segment as would train counts computed by applying any arbitrary growth rate to the "but for" trains for which re-routing to the EJ&E line would be made possible by STB approval of the Transaction. Thus, CN maintains, it is appropriate for SEA to use the train counts reported in the Operating Plan for its analysis of the Transaction under NEPA.[2]

---

[2] CN understands that it has been suggested that SEA should study the environmental impacts from traffic on the EJ&E line as if the line were double-tracked for its entire length and the line were then operated at its full capacity. Leaving aside the fact that this would amount to a "worst-case" scenario of the kind that the Supreme Court has indicated is not required under NEPA, such an assumption does not reflect the realities of how CN adds rail capacity. First of all, CN does not simply increase the capacity of its lines on an assumption that capacity will attract demand for CN rail service; rather, CN increases its capacity to accommodate actual or

CN's perspective here is supported by the enclosed memorandum of Jeffrey A. Dubin, Ph.D, who is an expert in the field of forecasting.[3] Professor Dubin explains why projections of the type that have been suggested by commenters provide no better indication of future traffic than does recent actual activity. He identifies five fundamental sources of uncertainty that sharply limit the utility of making long-term forecasts of rail traffic over the EJ&EW line. These include horizon uncertainty, model uncertainty, parameter uncertainty, disaggregation uncertainty, and exogenous factor uncertainty.

As Professor Dubin explains, all of these sources of uncertainty would apply to forecasting rail traffic growth over the EJ&EW line segment. Of particular note, he points out that forecast accuracy in general decreases rapidly as the forecast horizon grows. Moreover, he

---

anticipated demand for that service. Second, double-tracking an entire line is the ultimate step CN would take to increase the capacity of that line, and would only come after it had taken a series of lesser steps and derived the maximum benefit from them.

Measures such as increasing the length of existing trains, placing signals closer together, and increasing train speed or the power pulling the trains would be more cost-effective means of increasing the capacity of rail lines than would improvements to track infrastructure. (And if track infrastructure improvements were necessary, double-tracking the entire EJ&E line would probably be unnecessary, because physical constraints such as diamonds at crossings with other railroads and the bridge over the Des Plaines River would act as choke points preventing CN from realizing the full benefit of double-tracking, unless CN undertook the great additional expense of grade-separating the railroad crossings or replacing or widening the bridge (which would also require obtaining approval from the Coast Guard).)

An example of why double tracking is often not the answer to capacity issues is the fact that, CN's main route south of Chicago does not carry enough traffic to justify double-tracking for most of its length. In fact, during the 1980s, IC found that it was more cost-effective to dismantle the existing double-tracking on much of its north-south line and provide capacity by improved signaling. While CN would likely restore the second main track to that line if traffic grew to the point where that became necessary, CN has no reason to believe such traffic growth is reasonably foreseeable, and it would be highly unrealistic to assume that growth making such infrastructure improvements necessary would occur on the EJ&E line before it did on CN's main line south of Chicago.

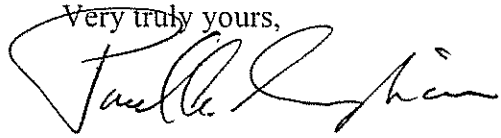
[3] Professor Dubin, who was formerly a Professor of Economics at California Institute of Technology, has recently accepted a position at UCLA's Anderson School of Management where, among other things, he will be heading the School's economic forecasting group. A copy of his Curriculum Vitae, including a complete list of his publications is attached to his memorandum as Appendix 1.

discusses the particularly difficult challenge of forecasting rail traffic volumes down to the specific level of a segment of a line such as EJ&EW, including the need not only to estimate volumes of likely future traffic but also to deal with micro issues such as routing, modal shifts, and intramodal and other competitive shifts in volumes.

Another challenge in forecasting rail traffic that Professor Dubin discusses is the fact that many of the underlying drivers of rail activity are themselves subject to tremendous and seemingly increasing volatility, making them hard to predict. For example, U.S. Department of Energy forecasts concerning energy prices, a major driver of the economy and rail traffic, have been very inaccurate, and especially inaccurate over the long term. Not surprisingly, as Professor Dubin observes, historic growth rates for rail traffic have varied greatly, leading him to conclude that the use of such growth rates as a means of forecasting, whether those growth rates are based on CN or overall U.S. rail traffic, would not be the best or even an appropriate approach for projecting future rail traffic over the EJ&EW line. He concludes that SEA should instead rely on the rail traffic volumes in CN's Operating Plan, noting that the number of "but for" trains that are appropriately the subject of that review is sufficiently small in comparison to the number of trains in the operating plan that even if historic growth rates could properly be applied to those "but for" trains for an extended period of time, they would still not exceed the volumes in the operating plan.

For these reasons, CN believes the use of the train traffic levels reflected in the Operating Plan provide the most sound basis for analyzing the environmental impacts of the Transaction. The use of any projections of future traffic growth is unwarranted and unnecessary. SEA should adhere to its well-established precedent, and calculate impacts on the basis of the train levels reflected in the Operating Plan and the vehicle counts that are currently observed.

Very truly yours,



Paul A. Cunningham

Counsel for Canadian National Railway Company
and Grand Trunk Corporation

Enclosures

cc: John H. Morton
Normand Pellerin

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 14
Leithton - Spaulding

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0

Trains reflected in the Operating Plan	15.0
Trains likely to operate over EJ&EW post-implementation[2]	13.0
Operating plan trains that could operate today over EJ&E without further STB review	11.0
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	2.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 13
Spaulding - Munger

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
COAI	Galatia	Spaulding ICE	Matteson	Spaulding	Matteson	0.0
COAJ	Spaulding ICE	Galatia	Spaulding	Matteson	Matteson	0.0

Trains reflected in the Operating Plan	17.0
Trains likely to operate over EJ&EW post-implementation[2]	15.0
Operating plan trains that could operate today over EJ&E without further STB review	11.0
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	4.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 12
Munger - West Chicago

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
337	Markham	Waterloo	Matteson	Munger	Munger/Matteson	1.0
338	Waterloo	Markham	Munger	Matteson	Munger/Matteson	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
COAI	Galatia	Spaulding ICE	Matteson	Spaulding	Matteson	0.0
COAJ	Spaulding ICE	Galatia	Spaulding	Matteson	Matteson	0.0

Trains reflected in the Operating Plan	19.0
Trains likely to operate over EJ&EW post-implementation[2]	17.0
Operating plan trains that could operate today over EJ&E without further STB review	13.0
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	4.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 11
West Chicago - East Siding (Eola)

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
250	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.3
260	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.1
280	West Chicago UP	Michigan	W Chicago	Griffith	Existing connections	0.1
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
337	Markham	Waterloo	Matteson	Munger	Munger/Matteson	1.0
338	Waterloo	Markham	Munger	Matteson	Munger/Matteson	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
707	Lansing	W. Chicago UP	Griffith	W Chicago	Existing connections	0.4
708	W. Chicago UP	Lansing	W Chicago	Griffith	Existing connections	0.0
COAI	Galatia	Spaulding ICE	Matteson	Spaulding	Matteson	0.0
COAJ	Spaulding ICE	Galatia	Spaulding	Matteson	Matteson	0.0

Trains reflected in the Operating Plan	20.9
Trains likely to operate over EJ&EW post-implementation[2]	18.9
Operating plan trains that could operate today over EJ&E without further STB review	13.9
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	5.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 10
East Siding (Eola) - Walker

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
250	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.3
260	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.1
280	West Chicago UP	Michigan	W Chicago	Griffith	Existing connections	0.1
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
337	Markham	Waterloo	Matteson	Munger	Munger/Matteson	1.0
338	Waterloo	Markham	Munger	Matteson	Munger/Matteson	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
707	Lansing	W. Chicago UP	Griffith	W Chicago	Existing connections	0.4
708	W. Chicago UP	Lansing	W Chicago	Griffith	Existing connections	0.0
760	Eola BNSF	Monroe	Eola	Griffith	Existing connections	0.0
761	Monroe	Eola BNSF	Griffith	Eola	Existing connections	0.1
762	Eola BNSF	Ecorse	Eola	Griffith	Existing connections	0.1
7649	Eola BNSF	Durand	Eola	Griffith	Existing connections	0.1
765	Durand	Eola BNSF	Griffith	Eola	Existing connections	0.1
766	Eola BNSF	Whiting	Eola	Griffith	Existing connections	0.2
767	Whiting	Eola BNSF	Griffith	Eola	Existing connections	0.2
769	Ecorse	Eola BNSF	Griffith	Eola	Existing connections	0.1
COAI	Galatia	Spaulding ICE	Matteson	Spaulding	Matteson	0.0
COAJ	Spaulding ICE	Galatia	Spaulding	Matteson	Matteson	0.0

Trains reflected in the Operating Plan	23.8
Trains likely to operate over EJ&EW post-implementation[2]	21.8
Operating plan trains that could operate today over EJ&E without further STB review	14.8
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	6.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 9
Walker - Bridge Junction

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
250	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.3
260	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.1
280	West Chicago UP	Michigan	W Chicago	Griffith	Existing connections	0.1
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
337	Markham	Waterloo	Matteson	Munger	Munger/Matteson	1.0
338	Waterloo	Markham	Munger	Matteson	Munger/Matteson	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
707	Lansing	W. Chicago UP	Griffith	W Chicago	Existing connections	0.4
708	W. Chicago UP	Lansing	W Chicago	Griffith	Existing connections	0.0
760	Eola BNSF	Monroe	Eola	Griffith	Existing connections	0.0
761	Monroe	Eola BNSF	Griffith	Eola	Existing connections	0.1
762	Eola BNSF	Ecorse	Eola	Griffith	Existing connections	0.1
7649	Eola BNSF	Durand	Eola	Griffith	Existing connections	0.1
765	Durand	Eola BNSF	Griffith	Eola	Existing connections	0.1
766	Eola BNSF	Whiting	Eola	Griffith	Existing connections	0.2
767	Whiting	Eola BNSF	Griffith	Eola	Existing connections	0.2
769	Ecorse	Eola BNSF	Griffith	Eola	Existing connections	0.1
COAI	Galatia	Spaulding ICE	Matteson	Spaulding	Matteson	0.0
COAJ	Spaulding ICE	Galatia	Spaulding	Matteson	Matteson	0.0

Trains reflected in the Operating Plan	23.8
Trains likely to operate over EJ&EW post-implementation[2]	21.8
Operating plan trains that could operate today over EJ&E without further STB review	14.8
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	6.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 8
Bridge Junction - Rock Island Junction

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
250	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.3
260	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.1
280	West Chicago UP	Michigan	W Chicago	Griffith	Existing connections	0.1
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
337	Markham	Waterloo	Matteson	Munger	Munger/Matteson	1.0
338	Waterloo	Markham	Munger	Matteson	Munger/Matteson	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
707	Lansing	W. Chicago UP	Griffith	W Chicago	Existing connections	0.4
708	W. Chicago UP	Lansing	W Chicago	Griffith	Existing connections	0.0
760	Eola BNSF	Monroe	Eola	Griffith	Existing connections	0.0
761	Monroe	Eola BNSF	Griffith	Eola	Existing connections	0.1
762	Eola BNSF	Ecorse	Eola	Griffith	Existing connections	0.1
7649	Eola BNSF	Durand	Eola	Griffith	Existing connections	0.1
765	Durand	Eola BNSF	Griffith	Eola	Existing connections	0.1
766	Eola BNSF	Whiting	Eola	Griffith	Existing connections	0.2
767	Whiting	Eola BNSF	Griffith	Eola	Existing connections	0.2
769	Ecorse	Eola BNSF	Griffith	Eola	Existing connections	0.1
COAI	Galatia	Spaulding ICE	Matteson	Spaulding	Matteson	0.0
COAJ	Spaulding ICE	Galatia	Spaulding	Matteson	Matteson	0.0

Trains reflected in the Operating Plan	23.8
Trains likely to operate over EJ&EW post-implementation[2]	21.8
Operating plan trains that could operate today over EJ&E without further STB review	14.8
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	6.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 7
Rock Island Junction - Matteson

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
118	Winnipeg	Chicago	Leithton	Matteson	Matteson	1.0
119	Chicago	Winnipeg	Matteson	Leithton	Matteson	1.0
198	Prince Rupert	Chicago	Leithton	Matteson	Matteson	1.0
199	Chicago	Prince Rupert	Matteson	Leithton	Matteson	1.0
250	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.3
260	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.1
276	Joliet BNSF	Michigan	Joliet	Griffith	Existing connections	0.0
278	Joliet BNSF	Michigan	Joliet	Griffith	Existing connections	0.1
280	West Chicago UP	Michigan	W Chicago	Griffith	Existing connections	0.2
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
337	Markham	Waterloo	Matteson	Munger	Munger/Matteson	1.0
338	Waterloo	Markham	Munger	Matteson	Munger/Matteson	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
342	Prince George	Memphis	Leithton	Matteson	Matteson	1.0
343	Jackson	Winnipeg	Matteson	Leithton	Matteson	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
707	Lansing	W. Chicago UP	Griffith	W Chicago	Existing connections	0.4
708	W. Chicago UP	Lansing	W Chicago	Griffith	Existing connections	0.0
760	Eola BNSF	Monroe	Eola	Griffith	Existing connections	0.0
761	Monroe	Eola BNSF	Griffith	Eola	Existing connections	0.1
762	Eola BNSF	Ecorse	Eola	Griffith	Existing connections	0.1
7649	Eola BNSF	Durand	Eola	Griffith	Existing connections	0.1
765	Durand	Eola BNSF	Griffith	Eola	Existing connections	0.1
766	Eola BNSF	Whiting	Eola	Griffith	Existing connections	0.2
767	Whiting	Eola BNSF	Griffith	Eola	Existing connections	0.2
769	Ecorse	Eola BNSF	Griffith	Eola	Existing connections	0.1
COAI	Galatia	Spaulding ICE	Matteson	Spaulding	Matteson	0.0
COAJ	Spaulding ICE	Galatia	Spaulding	Matteson	Matteson	0.0

Trains reflected in the Operating Plan	21.9
Trains likely to operate over EJ&EW post-implementation[2]	19.9
Operating plan trains that could operate today over EJ&E without further STB review	14.9
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	6.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 6
Matteson - Chicago Heights

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
148	Chicago	Montreal	Matteson	Griffith	Matteson	1.0
149	Montreal	Chicago	Griffith	Matteson	Matteson	1.0
250	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.3
260	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.1
276	Joliet BNSF	Michigan	Joliet	Griffith	Existing connections	0.0
278	Joliet BNSF	Michigan	Joliet	Griffith	Existing connections	0.1
280	West Chicago UP	Michigan	W Chicago	Griffith	Existing connections	0.2
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
393	Toronto	Proviso UP	Griffith	Matteson	Matteson	1.0
395	Toronto	Glenn Yard BNSF	Griffith	Matteson	Matteson	1.0
399	Toronto	Salem UP	Griffith	Matteson	Existing connections	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
707	Lansing	W. Chicago UP	Griffith	W Chicago	Existing connections	0.4
708	W. Chicago UP	Lansing	W Chicago	Griffith	Existing connections	0.0
760	Eola BNSF	Monroe	Eola	Griffith	Existing connections	0.0
761	Monroe	Eola BNSF	Griffith	Eola	Existing connections	0.1
762	Eola BNSF	Ecorse	Eola	Griffith	Existing connections	0.1
763	Convent	Dearborn	Matteson	Griffith	Existing connections	0.0
764	Dearborn	Convent	Griffith	Matteson	Existing connections	0.0
7649	Eola BNSF	Durand	Eola	Griffith	Existing connections	0.1
765	Durand	Eola BNSF	Griffith	Eola	Existing connections	0.1
766	Eola BNSF	Whiting	Eola	Griffith	Existing connections	0.2
767	Whiting	Eola BNSF	Griffith	Eola	Existing connections	0.2
769	Ecorse	Eola BNSF	Griffith	Eola	Existing connections	0.1

Trains reflected in the Operating Plan	22.9
Trains likely to operate over EJ&EW post-implementation[2]	20.9
Operating plan trains that could operate today over EJ&E without further STB review	11.9
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	10.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 5
Chicago Heights - Griffith

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
148	Chicago	Montreal	Matteson	Griffith	Matteson	1.0
149	Montreal	Chicago	Griffith	Matteson	Matteson	1.0
250	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.3
260	West Chicago UP	Michigan	West Chicago	Griffith	Existing connections	0.1
276	Joliet BNSF	Michigan	Joliet	Griffith	Existing connections	0.0
278	Joliet BNSF	Michigan	Joliet	Griffith	Existing connections	0.1
280	West Chicago UP	Michigan	W Chicago	Griffith	Existing connections	0.2
301	Toronto	Edmonton	Griffith	Leithton	Existing connections	1.0
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
393	Toronto	Proviso UP	Griffith	Matteson	Matteson	1.0
395	Toronto	Glenn Yard BNSF	Griffith	Matteson	Matteson	1.0
399	Toronto	Salem UP	Griffith	Matteson	Existing connections	1.0
407	Pontiac	Wausau	Griffith	Leithton	Existing connections	1.0
408	Wausau	Pontiac	Leithton	Griffith	Existing connections	1.0
707	Lansing	W. Chicago UP	Griffith	W Chicago	Existing connections	0.4
708	W. Chicago UP	Lansing	W Chicago	Griffith	Existing connections	0.0
760	Eola BNSF	Monroe	Eola	Griffith	Existing connections	0.0
761	Monroe	Eola BNSF	Griffith	Eola	Existing connections	0.1
762	Eola BNSF	Ecorse	Eola	Griffith	Existing connections	0.1
763	Convent	Dearborn	Matteson	Griffith	Existing connections	0.0
764	Dearborn	Convent	Griffith	Matteson	Existing connections	0.0
7649	Eola BNSF	Durand	Eola	Griffith	Existing connections	0.1
765	Durand	Eola BNSF	Griffith	Eola	Existing connections	0.1
766	Eola BNSF	Whiting	Eola	Griffith	Existing connections	0.2
767	Whiting	Eola BNSF	Griffith	Eola	Existing connections	0.2
769	Ecorse	Eola BNSF	Griffith	Eola	Existing connections	0.1
TUP1	Chicago Heights UP	Flint	Chicago Heights	Griffith	Existing connections	1.0

Trains reflected in the Operating Plan	23.9
Trains likely to operate over EJ&EW post-implementation[2]	21.9
Operating plan trains that could operate today over EJ&E without further STB review	12.9
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	10.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 4
Griffith - Van Loon

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
251	Detroit	Gibson IHB	Griffith	Cavanaugh (to Shearson)	Graselli	1.0
275	Oshawa	Gibson IHB	Griffith	Cavanaugh (to Shearson)	Graselli	0.9

Trains reflected in the Operating Plan	21.0
Trains likely to operate over EJ&EW post-implementation[2]	19.0
Operating plan trains that could operate today over EJ&E without further STB review	3.9
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	12.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 3
Van Loon - Ivanhoe

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
251	Detroit	Gibson IHB	Griffith	Cavanaugh (to Shearson)	Graselli	1.0
275	Oshawa	Gibson IHB	Griffith	Cavanaugh (to Shearson)	Graselli	0.9

Trains reflected in the Operating Plan	20.0
Trains likely to operate over EJ&EW post-implementation[2]	18.0
Operating plan trains that could operate today over EJ&E without further STB review	3.9
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	12.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 2
Ivanhoe - Cavanaugh

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0
251	Detroit	Gibson IHB	Griffith	Cavanaugh (to Shearson)	Graselli	1.0
275	Oshawa	Gibson IHB	Griffith	Cavanaugh (to Shearson)	Graselli	0.9

Trains reflected in the Operating Plan	20.0
Trains likely to operate over EJ&EW post-implementation[2]	18.0
Operating plan trains that could operate today over EJ&E without further STB review	3.9
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	12.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #1

Minimum Number Of Operating Plan Trains That Could Be Re-routed Over EJ&E Without Further STB Review

Segment 1
Cavanaugh - Gary

CN Train ID[1]	From	To	Could Enter EJ&E	Could Exit EJ&E	With Connection at	Daily count
340	Winnipeg	Kirk NS	Leithton	Kirk to NS	Kirk	1.0
341	Kirk NS	Winnipeg	Kirk from NS	Leithton	Kirk	1.0

Trains reflected in the Operating Plan	20.0
Trains likely to operate over EJ&EW post-implementation[2]	18.0
Operating plan trains that could operate today over EJ&E without further STB review	2.0
Operating plan trains that likely would not shift to EJ&E but for the transaction[3]	12.0

1. These train IDs represent the trains CN anticipated operating when it built the Operating Plan, so some trains may not currently operate with these IDs.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

3. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

Revised Attachment #4

Train Growth Required to Absorb Difference Between Operating Plan and "But For" Trains

Segment No.	Segment Endpoints	Trains reflected in the Operating Plan	Trains likely to operate over EJ&EW post-Transaction[1]	Operating Plan trains that could operate today over EJ&E without further STB review	Operating Plan trains that likely would not shift to EJ&E but for the Transaction[2]	Length of time (in years) at specified growth rate it would take "but for" trains to reach the levels reflected in the Operating Plan				
						Years @ **0.50%**	Years @ **1.00%**	Years @ **1.50%**	Years @ **2.00%**	Years @ **2.04%**[3]
14	Leithton - Spaulding	15.0	13.0	11.0	2.0	404.0	202.5	135.3	101.7	99.8
13	Spaulding - Munger	17.0	15.0	11.0	4.0	290.1	145.4	97.2	73.1	71.6
12	Munger - West Chicago	19.0	17.0	13.0	4.0	312.4	156.6	104.7	78.7	77.2
11	West Chicago - East Siding	20.9	18.9	13.9	5.0	286.8	143.7	96.1	72.2	70.8
10	East Siding - Walker	23.8	21.8	14.8	6.0	276.3	138.5	92.5	69.6	68.2
9	Walker - Bridge Jct.	23.8	21.8	14.8	6.0	276.3	138.5	92.5	69.6	68.2
8	Bridge Jct. - Rock Island Jct.	23.8	21.8	14.8	6.0	276.3	138.5	92.5	69.6	68.2
7	Rock Island Jct. - Matteson	21.9	19.9	14.9	6.0	259.6	130.1	87.0	65.4	64.1
6	Matteson - Chicago Heights	22.9	20.9	11.9	10.0	166.1	83.3	55.7	41.8	41.0
5	Chicago Heights - Griffith	23.9	21.9	12.9	10.0	174.7	87.6	58.5	44.0	43.1
4	Griffith - Van Loon	21.0	19.0	3.9	12.0	112.2	56.2	37.6	28.3	27.7
3	Van Loon - Ivanhoe	20.0	18.0	3.9	12.0	102.4	51.3	34.3	25.8	25.3
2	Ivanhoe - Cavanaugh	20.0	18.0	3.9	12.0	102.4	51.3	34.3	25.8	25.3
1	Cavanaugh - Gary	20.0	18.0	2.0	12.0	102.4	51.3	34.3	25.8	25.3

1. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

2. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments, the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

3. Average annual rate of growth in U.S. railroad tonnage originated for the twenty year period from 1986-2006. See, Policy and Economics Department, Assocation of American Railroads, Railroad Facts, 1996 ed. at 28, and Policy and Economics Department, Assocation of American Railroads, Railroad Facts, 2007 ed. at 28. Tons originated is a better indicator of train growth than carloads originated because, depending on the year, carloads originated data may not include intermodal traffic. Additionally, depending on the way intermodal units are counted, use of carloads originated data could lead to a significant overstatement of train growth.

Revised Attachment #5

Pro Forma Train Growth Over 10 Years Calculated Using Hypothetical Growth Rates[1]
(For Illustration Only)

						Additional "but for" trains after 10 years at the stated level of growth				
Segment No.	**Segment Endpoints**	**Trains reflected in the Operating Plan**	**Trains likely to operate over EJ&EW post-Transaction[2]**	**Operating Plan trains that could operate today over EJ&E without further STB review**	**Operating Plan trains that likely would not shift to EJ&E but for the Transaction[3]**	**0.50%**	**1.00%**	**1.50%**	**2.00%**	**2.04%[4]**
14	Leithton - Spaulding	15.0	13.0	11.0	2.0	0.1	0.2	0.3	0.4	0.4
13	Spaulding - Munger	17.0	15.0	11.0	4.0	0.2	0.4	0.6	0.9	0.9
12	Munger - West Chicago	19.0	17.0	13.0	4.0	0.2	0.4	0.6	0.9	0.9
11	West Chicago - East Siding	20.9	18.9	13.9	5.0	0.3	0.5	0.8	1.1	1.1
10	East Siding - Walker	23.8	21.8	14.8	6.0	0.3	0.6	1.0	1.3	1.3
9	Walker - Bridge Jct.	23.8	21.8	14.8	6.0	0.3	0.6	1.0	1.3	1.3
8	Bridge Jct. - Rock Island Jct.	23.8	21.8	14.8	6.0	0.3	0.6	1.0	1.3	1.3
7	Rock Island Jct. - Matteson	21.9	19.9	14.9	6.0	0.3	0.6	1.0	1.3	1.3
6	Matteson - Chicago Heights	22.9	20.9	11.9	10.0	0.5	1.0	1.6	2.2	2.2
5	Chicago Heights - Griffith	23.9	21.9	12.9	10.0	0.5	1.0	1.6	2.2	2.2
4	Griffith - Van Loon	21.0	19.0	3.9	12.0	0.6	1.3	1.9	2.6	2.7
3	Van Loon - Ivanhoe	20.0	18.0	3.9	12.0	0.6	1.3	1.9	2.6	2.7
2	Ivanhoe - Cavanaugh	20.0	18.0	3.9	12.0	0.6	1.3	1.9	2.6	2.7
1	Cavanaugh - Gary	20.0	18.0	2.0	12.0	0.6	1.3	1.9	2.6	2.7

1. CN is aware of no basis for the use of the hypothetical growth rates or for any other reliable basis for forecasting growth in the "but for" trains attributable to the Transaction.

2. The figures reflected in the Operating Plan include two trains that CN interchanges with CSX that CN expected to route over EJ&EW from Leithton to Kirk Yard. However, as a result of conversations with CSX, CN no longer expects those trains to be operated over EJ&EW.

2. Because there is not a one-to-one correlation between operating plan trains and trains currently operated by CN that could be re-reouted over EJ&E ("shift" trains), on some segments, the "but for" trains may not equal the difference between the operating plan trains and the shift trains. For all segments, the number of "but for" trains has been independently calculated by CN's operating department.

4. Average annual rate of growth in U.S. railroad tonnage originated for the twenty year period from 1986-2006. See, Policy and Economics Department, Assocation of American Railroads, Railroad Facts, 1996 ed. at 28, and Policy and Economics Department, Assocation of American Railroads, Railroad Facts, 2007 ed. at 28. Tons originated is a better indicator of train growth than carloads originated because, depending on the year, carloads originated data may not include intermodal traffic. Additionally, depending on the way intermodal units are counted, use of carloads originated data could lead to a significant overstatement of train growth.

M E M O R A N D U M

To: Harkins Cunningham LLP

From: Professor Jeffrey Alan Dubin

Date: May 12, 2008

Re: Long-Term Forecasting Issues

BACKGROUND

You have asked me to comment on issues related to forecasts of possible future rail traffic being considered by the Section of Environmental Analysis of the Surface Transportation Board ("SEA"), in connection with SEA's environmental review of the proposed acquisition by Canadian National Railway Company and Grand Trunk Corporation (together, "CN") of the EJ&E West Company, a wholly owned subsidiary of Elgin Joliet & Eastern Railway Company ("EJ&E"). My understanding is that the EJ&EW would form an arc around the outskirts of Chicago and be used primarily as an intermediate route segment for the large volumes of CN's traffic routed to, from, or through Chicago. You have asked me to comment in particular on SEA's interest in the feasibility and utility of forecasts for rail traffic on the EJ&EW through 2015. In addition, you have asked me whether the general principles of statistics and economics related to the uncertainty of such forecasts would similarly apply to long-term forecasts for vehicular traffic.

SUMMARY OF CONCLUSIONS

For the reasons I discuss below, I conclude that long-term forecasts of rail traffic are unlikely to be reliable or helpful for use in determining the future environmental impacts due to the acquisition. Instead, SEA should utilize the rail traffic volumes in the CN Operating Plan, which are based on existing EJ&E and CN traffic plus extended haul traffic identified in CN's traffic study and additional traffic anticipated from the Port of Prince Rupert. It is my understanding that the difference between trains that are likely to run under the operating plan and trains that could move today with no additional STB authority is small. I also understand that it is these so-called "but for" trains that are appropriately within the purview of the environmental review. These "but for" trains are sufficiently small in number that the operating plan may already overstate the great majority of whatever rail traffic could reasonably be expected in the future to be subject to SEA's environmental analysis.

Of equal importance is the uncertainty and lack of confidence that a long-term forecast would yield in this instance for other traffic, rail and vehicular alike. Nothing will be gained by relying on speculative long-term forecasts for such traffic.

DISCUSSION

I. GENERAL ISSUES PERTINENT TO LONG-TERM FORECASTING

A prediction or forecast is a statement concerning unknown or future events. It is impossible to remove all uncertainty about the future. A forecast is useful when it reduces the uncertainty that prevailed before the forecast. A forecast that does not help reduce uncertainty is not helpful. It is not always the case that forecasts help reduce

uncertainty. For instance, when the future to be forecast is inherently uncertain or when analysts attempt to forecast for long time horizons, forecasts may become useless.

Most, but not all, forecasts have associated levels of certainty. For instance, statistical forecasts have so-called confidence bands. A statistician can make a statement that a given confidence band will contain the likely outcome being forecasted with a given degree of certainty. A 95 percent confidence interval is an interval that contains the true but unknown outcome with 95 percent certainty. In some cases the confidence band is simply too wide to be useful for decision making (*e.g.*, it includes a very large range of outcomes for a given degree of certainty). In these situations, the forecast is not helpful. The mere existence of a forecast does not help determine whether it is helpful or not. The issue turns on the precision of the forecast.

All forecasts are subject to uncertainty. The components of this uncertainty include: (i) horizon uncertainty; (ii) model and parameter uncertainty; (iii) disaggregation uncertainty; and (iv) exogenous factor uncertainty. I discuss each of these forms of forecast uncertainty in turn. It is important to understand that the SEA request for long-term rail forecasts is specifically subject to <u>all</u> of these types of uncertainty and, in this instance, the magnitude of the uncertainties make the forecasting exercise of little or no value.

(i) Horizon Uncertainty

There are well known statistical properties of so-called optimum or optimal forecasts. An optimum forecast uses all available information and has the greatest precision among all unbiased forecasts. In theory, optimum forecasts use all available information known at the time of the forecast (the information set). Mathematicians have

the ivory-tower luxury of studying the properties of this best-case situation. In the real world, matters only get worse. More precisely, sub-optimum predictions are less accurate than optimum predictions. While the mathematical development is not trivial the intuition is clear enough. The further ahead one forecasts, the less precise the forecast.

Mathematically, any time-series can be represented according to the Wold representation theorem by a moving-average process:

$$X_t = \sum_{j=0}^{m} C_j \varepsilon_{t-j} \qquad C_0 = 1 \tag{1}$$

where m may be infinite. In particular, any standard auto-regressive moving-average may be represented by (1). The future value X_{n+h} (the value of *X* projected *h* periods in the future from time period *n*) is given by:

$$X_{n+h} = \sum_{j=0}^{h-1} C_j \varepsilon_{n+h-j} + \sum_{j=h}^{m} C_j \varepsilon_{n+h-j}$$

The first term consists of random variables that are unknown at time period *n*. This term has zero expected value and is non-forecastable. The components in the second term are potentially knowable at time period *n* because they consist of realizations of past random shocks (*i.e.* historical influences). The second component is consequently the optimum forecast $f_{n,h}$. The forecast error is:

$$e_{n,h} = x_{n+h} - f_{n,h} = \sum_{j=0}^{h-1} C_j \varepsilon_{n+h-j}$$

The forecast error has variance:

$$\mathrm{var}(e_{n,h}) = \left(\sum_{j=0}^{h-1} C_j^2 \right) \sigma_\varepsilon^2$$

Moreover,

$$\text{var}(e_{n,h}) - \text{var}(e_{n,h-1}) = C_{h-1}^2 \sigma_\varepsilon^2$$

that cannot be negative. Hence, forecasts become less accurate as the forecast period *h* increases. The variance of $e_{n,h}$ when plotted against *h* will generally be increasing, and as *h* gets large enough, the forecast error will have as much variance as the process being forecast. An alternative way of saying this is that as one tries to forecast very far ahead, the less well one does; the "information set" ceases to contain anything of relevance in performing the forecast. As *h* gets large, the forecast $f_{n,h}$ tends to the average value of X_t so that $e_{n,h}$ and x_{n+k} have equal variance. In this case, the forecast is not helpful.

As an example, consider the forecast of the auto-regressive model $y_t = a_0 + a_1 y_{t-1} + \varepsilon_t$. Updating one period we obtain $y_{t+1} = a_0 + a_1 y_t + \varepsilon_{t+1}$. The forecast is $E_t y_{t+1} = a_0 + a_1 y_t$ where $E_t y_{t+j}$ is the conditional expectation of y_{t+j} given information available at time *t*. In the same way,

$$y_{t+2} = a_0 + a_1 y_{t+1} + \varepsilon_{t+2}$$

$$E_t y_{t+2} = a_0 + a_1 E_t y_{t+1} = a_0 + a_0 a_1 + a_1^2 y_t$$

and more generally:

$$E_t y_{t+j} = a_0 \left(1 + a_1 + a_1^2 + \ldots + a_1^{j-1}\right) + a_1^j y_t .$$

The forecast error

$$e_{t,j} = y_{t+j} - E_t y_{t+j} = \varepsilon_{t+j} + a_1 \varepsilon_{t+j-1} + \ldots + a_1^{j-1} \varepsilon_{t+1}$$

has the variance

$$\text{var}\left(\varepsilon_{t,j}\right) = \sigma^2 \left(1 + a_1^2 + a_1^4 + \ldots + a_1^{2(j-1)}\right).$$

Since the one-step forecast error variance is σ^2, the two-step forecast variance is $\sigma^2\left(1+a_1^2\right)$ and so forth.

The essential point is that the forecast variance increases dramatically with forecast length. A time-series with significant auto-correlation $\left(a_1 = 0.9\right)$ will have nearly double the variance in a two-period forecast than in a one-period forecast and the confidence band will be correspondingly larger and hence the forecast less precise. In other words, the ninety-five percent confidence interval (the interval in which we expect that with 95 percent certainty the future value will fall) increases with forecast length. This, in turn, means that as the forecast horizon increases the forecast itself must encompass a broader and broader range of values to maintain the same degree of confidence. Therefore, it does not surprise me that CN does not find it worthwhile for business purposes to make route specific forecasts of its rail traffic beyond one year in the future. Forecasts for longer horizons are simply less accurate than for short horizons.

(ii) Model and Parameter Uncertainty

There are two other sources of uncertainty that make the task of forecasting even more difficult and hence less precise. The discussion above assumed that the model for the process that determines the variable of interest is known, but in the real world it is not reasonable to presume that the model is known with certainty. "Model uncertainty" is uncertainty due to not knowing the correct theoretical or empirical model. It pertains to not being sure what the right model is in advance of a study or forecast. For instance, we may not be sure whether a deterministic inventory based model of traffic demand is correct or whether historical or regulatory or other constraints best fit the facts. An econometric or engineering model may or may not capture relevant aspects of the

decision process as compared to the practice of a railroad planner or expert. Getting the model wrong or having an incomplete model leads to error due to model uncertainty. Very little is known about model uncertainty except that researchers often proceed as if it does not exist.

A related issue is parameter uncertainty. Even when it may be assumed that the model is certain (Newtonian gravitation might be an example), the parameters of that model may still be unknown and require estimation. In equation (1) above, we assumed that the parameters "C" were known. In reality they must be estimated and estimation may be difficult or impossible when there is little data.

That would certainly be the case for a rail volume forecast for a network as complex as CN's. Much of the discussion of model uncertainty in the Transportation Research Board special report on Metropolitan Travel Forecasting, 2007, would be applicable to such an effort. As noted in that report, characteristics of goods movement can vary considerably due to a lack of understanding of real-world logistics. Importantly, these authors note that most existing forecasting models produce a single answer even though they are estimated, calibrated, and validated using data and models that are subject to many sources and ranges of error. As I discuss further below, many transportation forecasts rely on exogenous forecasts of underlying factors that are themselves subject to considerable uncertainty. The state of affairs in transportation forecasting has not greatly improved in the last fifty years. Unfortunately, transportation forecasting remains highly inaccurate (Flyvbjerg (2005, 2006)).

(iii) Disaggregation Uncertainty

Aggregate rail traffic models fall into two broad categories. One type of model concerns itself primarily with the level of activity or commodity shipped in aggregate or by rail segment or corridor. The focus of these models is on projecting traffic growth. I will have more to say on the difficulties of such growth projections in Part II, below.

Other models are used to estimate or forecast the choice of mode of transportation among truck or rail or the market share of traffic that might move along a particular corridor or segment. Models of this kind are summarized by Winston (2007) and Abdelwahab and Sargious (1992). The perspective of these models is based on either the demand side (demand by firms to transport commodities) or the supply side (*e.g.*, the inventory theoretic model of Baumol and Vinod (1970)). Models of this kind would also include the opinions of experts regarding likely rail diversion between competitors. Given imperfect available information and the difficulties of predicting competitive behavior in markets, these models are inherently subject to significant error.

For purposes of forecasting traffic down to the specific level of a segment of a line such as EJ&E's, one would not only have to determine future volumes of likely future traffic moving between areas, but also deal with such issues as routing, modal shifts, and intramodal and other competitive shifts in volumes.

The difficulty of accomplishing all of these tasks in order to project rail traffic growth over a line segment are well illustrated by the three examples of rail forecasts discussed in the SEA's Information Request # 3 (attached to the letter from Victoria J. Rutson (Chief, SEA), to Normand Pellerin (Assistant Vice President, Environment, CN)

(March 25, 2008)) and CN's April 21, 2008 response[1] – the CREATE study, the AASHTO study, and the Association of American Railroads ("AAR") study produced by Cambridge Systematics, Inc. These studies either ignore or at best fail to fully account for such fundamental factors as changes in markets, technology or regulation, rail competition, intermodal competition, or future investment issues and capacity constraints. My review of these forecasts suggests that none does a good job (to the extent they even purport to do so) of forecasting traffic down to small segments or corridors. I fundamentally agree with the critique of each of these forecasts in CN's April 21, 2008 letter. To the extent these models are able to forecast changes in rail volumes at all, they do best at summarizing overall traffic relationships and are simply not designed to forecast individual segments with great specificity.

The problem faced by these studies is inherent in any attempt to use a model designed for macro (aggregate) analysis at the micro level. Macro forecasting relies on the aggregation of many individual economic decisions. The law of large numbers comes into play to reduce the variability of the aggregate prediction and makes averages more precise as sample sizes are increased. The confidence band around the estimated average shrinks so that the range of uncertainty around the estimate is reduced. Conversely, smaller samples lead to less accurate forecasts. Generally speaking, it is simply much more difficult to do useful and accurate individual level forecasting as compared to forecasting aggregates. Thus, it may be possible to forecast the demand for McDonald's hamburgers in a given month, but much more difficult to predict whether any individual

[1] Letter from Paul A. Cunningham (counsel to CN) to Victoria J. Rutson (Chief, SEA), dated April 21, 2008.

consumer will eat at McDonald's in that same month. The idiosyncratic variation from micro observation to micro observation makes the prediction effort difficult at best, and often unreliable.

(iv) Exogenous Factor Uncertainty

Even if a rail travel model were correctly specified and even if we could accurately determine the parameters of the model, there remains the issue of the degree of certainty with which we can forecast the underlying factors in the model. Many statistical and econometric models (as well as deterministic models, that is, models in which outcomes are precisely determined through known mathematical relationships among states and events) rely on underlying factors or drivers that are assumed to determine or somehow influence the variable of interest. These factors are called the model's exogenous factors. There are two polar assumptions that can be made about the exogenous factors: (1) one is that they are known with certainty and (2) the other is that the exogenous factors are as endogenous to the process being modeled as is the variable of interest. The reality lies somewhere between these two extremes, but exogenous factor uncertainty is as important as any other uncertainty in forecasting. Statisticians and econometricians attempt to use a model to substitute the uncertainty in the variable of interest with the uncertainties of the underlying factors that determine the particular variable of interest.

When econometric (or deterministic) models are assessed for accuracy, it is often presumed that the exogenous factors are known with certainty for a test period, and that the predictions of the model are compared to what actually happened. This process is called *ex-post* forecasting and asks how well the model does if the exogenous factors are

known or could have been known with certainty for the test period. For a time-series model used to forecast the future this is equivalent to saying that we know the future perfectly for the underlying factors. This is simply unreasonable when *ex-ante* (real-world) forecasts are required because no one has a crystal ball with which to predict the future for the exogenous drivers. A mathematical result from probability theory states that the unconditional variance of a random variable is equal to the expectation of the variance of the random variable conditioned on another factor plus the variance of the conditional mean of the variable of interest given the other factor (Lindgren, 1976, p.130). This theorem implies that variance of a forecast equals the expected variance conditional on the exogenous factors (*i.e.* assuming they are known) plus the variance of the conditional mean. The first component is the forecast variance assuming certainty in the exogenous factors, while the second reflects the uncertainty in the exogenous factors themselves. The important point is that exogenous factor uncertainty adds to the other uncertainties that I have discussed and these exogenous factors cannot be assumed away.

Additionally, optimal forecasting theory demonstrates that the degree to which the exogenous factors are expected to differ from historical experience influences the overall predicative power of the model. For instance, engineers had little experience launching the space shuttle on very cold days. It was later learned that very cold temperatures caused the "o-rings" to shrink in the solid fuel boosters, leading to the tragic explosion of the Challenger space shuttle. Although engineers relied on a statistical model that related o-ring shrinkage and cold temperatures, they unfortunately had too little experience with extremely cold days to adequately understand and model that relationship. The forecast

interval for performance of the Challenger o-rings was apparently too wide and the shuttle tragically exploded.

The factors that determine rail traffic growth and movements are complex. Certainly, we should expect that the production of and demand for commodities carried by rail (*e.g.*, coal, grain, containers, chemicals, forest products), which are themselves heavily influenced by factors such as the gross domestic product and the price and availability of crude oil or crude derivatives such as diesel, are important drivers of changes in rail traffic. The reality, however, is that such factors are getting harder rather than easier to forecast. One measure of this is the volatility of the exogenous factor measured by the coefficient of variation in the factor. The coefficient of variation is the ratio of the factor's standard deviation to its mean. A large coefficient of variation means that the factor has occurred with large swings or volatility in its realized levels relative to its historical average. Factors, for which the volatility is increasing, reveal increasing levels of uncertainty, which then makes the *ex-ante* forecast even less precise.

Consider, for example, the present situation for crude oil. It is not too much of a stretch to believe that crude oil and crude oil derivatives are commodities in which price volatility has been increasing. The energy market has become increasingly volatile. For instance, the coefficient of variation (standard deviation divided by average) for West Texas Intermediate crude real oil prices increased from 0.15 in the period 1986-1989 to 0.25 in the period 1990-1999, and to 0.36 in the period 2000-2006. Clearly, the past two to three years have been particularly troublesome for worldwide petroleum consumers. The next decade is more likely to face increased price volatility. No one can predict future global/regional crises, their frequency, their duration, or how much supply would

be lost relative to the system's then available spare capacity, but it seems certain that crises will occur. Meanwhile, volatility has increased while the ability to do long-term forecasting of key factors has diminished. Consider just two commodities that are clearly relevant to rail traffic: iron ore and crude oil (including petroleum distillates). The coefficient of variation for iron ore prices has increased from roughly 0.18 to 0.24 during the last 30 years. The coefficient of variation for real oil prices has increased from 0.1 to 0.4 in the last 30 years alone. The backdrop of changing volatility does not portend well for stable forecasting especially using overly simplistic simulations based on constant growth for long time frames.

Neither have the sophisticated models of federal agencies shown any realized ability to forecast the future even for relatively short horizons. Consider the forecasts by the Energy Information Administration ("EIA") just over a decade ago in 1996. Figure 1 shows the EIA forecast made in 1996 of U.S. Crude Oil production, while Figure 2 shows the EIA forecast made in 1996 of Crude Oil prices.

FIGURE 1: ACTUAL VS FORECASTED U.S. CRUDE OIL PRODUCTION

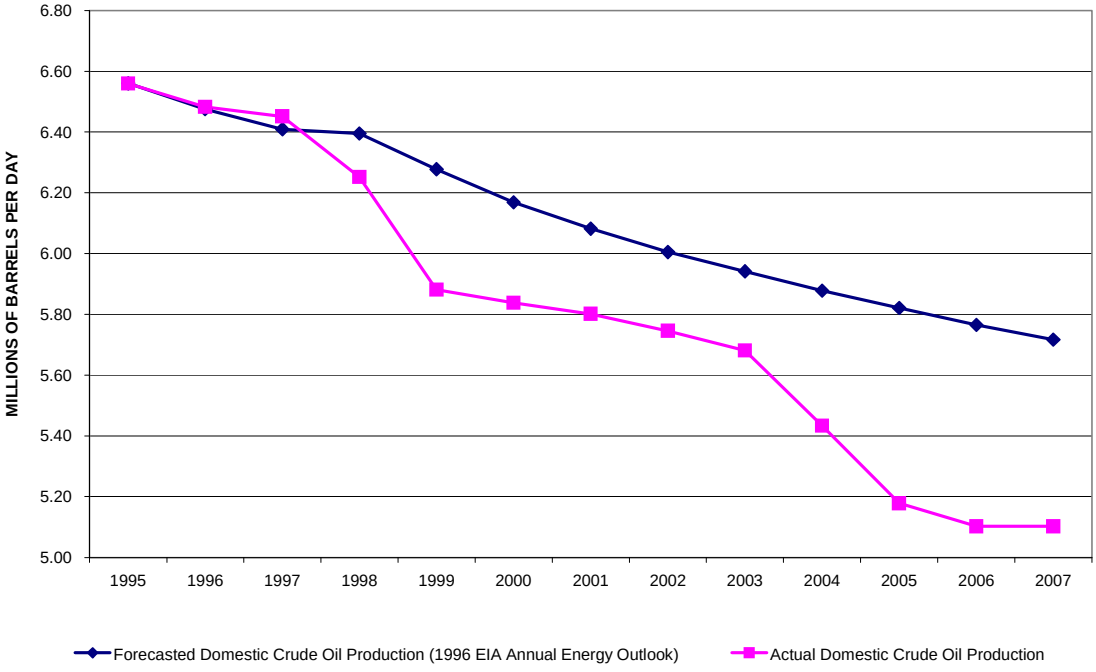
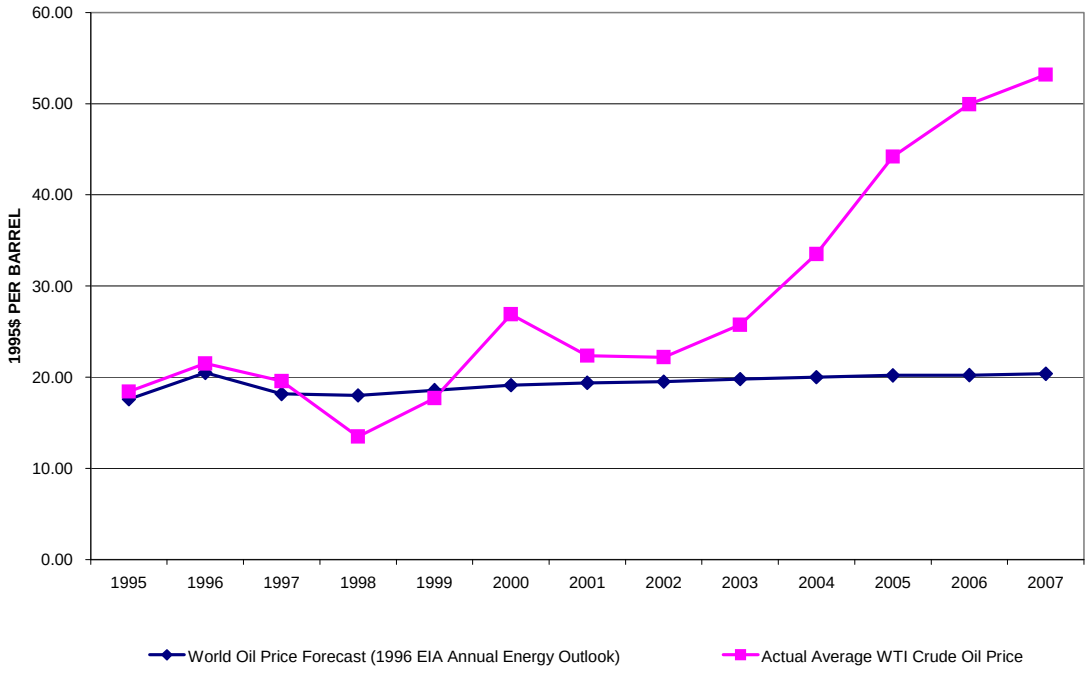


FIGURE 2: ACTUAL VS FORECASTED CRUDE OIL PRICES



These figures illustrate that even sophisticated government models have difficulties the making reliable long-term forecasts regarding the major driver of economic activity. There is no reason to suggest that a forecast of rail traffic which itself is driven by factors that are difficult to forecast will demonstrate any accuracy beyond even a few years into the future. Of course this situation becomes even worse when a forecast is required for an individual rail line or corridor or a street crossing.

II. ADDITIONAL ISSUES REGARDING THE USE OF GROWTH RATES

The application of constant growth rates to current baseline data is likely to produce an inaccurate forecast, particularly over a multi-year period. While the application of a constant growth rate is simple enough to understand, the situations in which this would be an optimal forecast are nearly nonexistent. In other words, a growth

rate extrapolation is very unlikely to be correct unless the underlying process is extremely simplistic. In the case of rail traffic, it clearly is not.

Rail traffic growth models concern themselves with the level of activity or commodity shipped in aggregate or by rail segment or corridor. Very little literature surrounds such models. Nonetheless, an approach was developed by Jordon and Thompson (1984) that relies on aggregate final demand in the U.S. economy and a 20-sector input-output table. The idea is to use the input-output Leontieff tables to split final demand into the levels of commodities that are required to produce the total final demand. The change in the levels of commodities required over some time period produces an expected growth rate that is then applied to segment estimates of rail traffic based on the Board's one-percent waybill sample. This approach is similar in many respects to the traffic forecasting methodologies discussed by SEA in its Information Request #3, each of which relied upon assumed growth rates either for traffic or by commodity and region. Unfortunately for such models, growth rates by commodity on the CN system reveal considerable variation that depends on the time-period upon which they were based or the commodity.

The fact that growth rates in rail traffic are all over the map is discussed by CN in its April 21, 2008 letter. A constant growth rate projection cannot factor the myriad influences that affect overall demand let alone the specifics that would be germane to traffic in a single corridor. This is true whether a single growth rate is applied to all rail traffic or separate growth rates are applied by type of traffic or commodity group. Rail traffic shows unusually high volatility that can only be magnified when considering the traffic movements on a particular segment. The uncertainty in the forecast of future rail

traffic that would result from application of a growth rate suggests that use of such a forecast for determining environmental impact is extremely suspect or, at best, subject to so much uncertainty that it should not be relied on.

III. CONCLUSIONS

After reviewing the CN letter of April 21, 2008, and the supplement to that letter, I concur with the analysis represented to the SEA. I see no value in extrapolating the rail traffic in the operating plan using an arbitrary growth rate. The uncertainty in the rate of growth in rail traffic is clear. Moreover, even if a growth rate could be applied, there is no reason to believe that a system-wide CN growth rate or a general U.S. railroad growth rate would have any applicability to EJ&EW. There is no procedure available to the SEA that could give it any confidence in such a methodology. These problems are exacerbated as one moves from the macro to the micro (*e.g.,* in the examination of segments of the EJ&E line).

Similarly, I have explained that forecasts are subject to various sources of uncertainty. These include model uncertainty, parameter uncertainty, horizon uncertainty, disaggregation uncertainty, and exogenous factor uncertainty. I have explained that each source of uncertainty in this instance makes efforts to forecast rail traffic an exercise with very limited utility. These same concerns apply to the highly complex and difficult task of attempting to make long-term forecasts for vehicular traffic. Whether in the context of a statistical model or some other type of model, horizon uncertainty alone makes the reliability of forecasts problematic. Additionally, we have seen that exogenous factor uncertainty has been increasing for many factors that plausibly affect rail and vehicular traffic.

Finally, my understanding of the number of "but for" trains gives me comfort that the operating plan contemplates a level of rail activity that is generally much larger than the "but-for" traffic that is the apparent purview of SEA. Indeed, as shown in Attachment No. 4 to CN's supplement to its response to SEA Data Request No. 3, that differential appears to be sufficiently great that even if SEA were to apply a range of assumed growth rates to the "but for" traffic over extended time frames it would not result in volumes exceeding those in the operating plan. It appears, therefore, that, although there is no sound basis for extrapolating from historic growth rates, the rail traffic included in the operating plan may appropriately be reviewed by SEA as representing at least as much traffic as one might reasonably forecast for "but for" traffic in 2015 using historic growth rates.

References

Abdelwahab, Walid and Michel Sargious, "Modeling the Demand for Freight Transport," Journal of Transport Economics and Policy, January 1992, pp. 49-70.

Baumol, W. J. and H. D. Vinod, "An Inventory Theoretic Model of Freight Transport Demand," Management Science, Vol. 18, No. 7, March 1970, pp. 413-421.

Box, George E. P. and Gwilym M. Jenkins. Time Series Analysis Forecasting and Control. Oakland, CA: Holden-day, Inc., 1976.

Enders, Walter. Applied Econometric Time Series. John Wiley & Sons, Inc., 1995.

Fair, Ray C. Specification, Estimation, and Analysis of Macroeconometric Models. Cambridge: Harvard University Press, 1984.

Granger, C. W. J. Forecasting in Business and Economics. New York: Academic Press, 1980.

Granger, C. W. J. and Paul Newbold. Forecasting Economic Time Series. New York: Academic Press, 1977.

Jordon, Jeffrey and Stanley Thompson, "Forecasting Rail Traffic From a Statewide Economic Model," Southern Journal of Agricultural Economics, December, 1984, pp. 83-90.

Lindgren, Bernard W. Statistical Theory, 3rd Edition. New York: Macmillan Publishing, 1976.

Theil, Henri. Applied Economic Forecasting. Amsterdam: North Holland Publishing Company, 1966.

Transportation Research Board, Metropolitan Travel Forecasting: Current Practice and Future Direction - Special Report 288, Committee for Determination of the State and Practice in Metropolitan Area Travel Forecasting, National Academy of Sciences Washington D. C. 2007, http://www.nap.edu/catalog/11981.html.

Winston, Clifford, "The Demand for Freight Transportation: Models and Applications," Transportation Record, A, Volume 17A, No. 6, 1983, pp. 419-427.

APPENDIX 1

Curriculum Vitae of Professor Jeffrey A. Dubin, Ph.D.

May 12, 2008

JEFFREY A. DUBIN, Ph.D.
Co-Founder and Participant
Pacific Economics Group
301 North Lake Avenue, Suite 330
Pasadena, CA 91101
Tel: 626-683-9395
Fax: 626-683-9517

Jeffrey A. Dubin is Co-Founder and Partner in Pacific Economics Group. His research focuses on microeconomic modeling with particular emphasis on discrete-choice econometrics. Current research topics include: discrete-choice econometrics, energy economics, tax compliance, sampling and survey methods, valuation of intangible assets, and studies of ballot proposition voting. Some examples of his work include:

INTELLECTUAL PROPERTY

- For a defendant law firm, Dr. Dubin developed a damage estimate for patent infringement litigation involving a computer upgrade chip patent.

- For a photographic equipment manufacturing company involved in patent infringement litigation, Dr. Dubin developed an econometric model to measure the relevant market, the product demand in that market and the damages resulting from the infringement.

- For a major computer company involved in patent litigation, Dr. Dubin reanalyzed a survey of computer purchase decisions offered by plaintiffs as evidence of historical damages. Dr. Dubin also designed and implemented a survey of computer users to measure potential damages.

- For a large U.S. food and beverage company, Dr. Dubin has developed econometric theory and models to assign values to several intangible assets. His approach is based on the comparison of the demand for branded and private label products.

- For a Japanese manufacturer of fractional horsepower micro-motors used in automobile power door locks and power mirrors allegedly infringed by a Hong Kong manufacturer, Dr. Dubin developed an econometric model of the world demand for micro-motors. This model was used in conjunction with an international pricing model to calculate lost profits from foregone sales and

price erosion.

- For a large manufacturer of a top-50 chemical, Dr. Dubin developed a model of the world supply and demand for this chemical in order to calculate the damage resulting from a process patent infringement.

- In federal court litigation brought in New Orleans, Dr. Dubin assisted in developing a celebrity goodwill value assessment for appropriating a nationally known chef's likeness.

- For a developer of software, which provides credit card scoring, Dr. Dubin assisted counsel in developing alternative damage theories.

- For a manufacturer of a branded car wax, Dr. Dubin assisted counsel in damage calculations under alleged tradedress and trademark issues.

- For a manufacturer of artificial joint implants, Dr. Dubin developed an econometric model of product selection by orthopedic surgeons in order to quantify potential lost profits.

ANTITRUST

- For generic manufacturers of several leading pharmaceuticals, Dr. Dubin analyzed higher prices paid by consumers that resulted from delaying the time when manufacturers branded patented drugs go off patent.

- For the generic manufacturers of a leading anti-cancer chemotherapy drug, Dr. Dubin considered the anti-competitive effects of patent extensions by these patent holders. He also analyzed the demand for chemotherapy agents and the extent of the market.

- For the Oakland Raiders, Dr. Dubin analyzed the demand for NFL football. He designed an econometric model to test audience effects on individual demand, as well as how aspects of team performance affect demand. This model established that opening season box office performance could have lingering effects for a football team in terms of demand for

tickets.

- For the Department of Justice, Dr. Dubin was the lead economist and expert in a multinational merger analysis of major cardio ultrasound equipment manufacturers. Dr. Dubin utilized nested logit techniques to determine the patterns of substitution for purchasing ultrasound equipment. He then used these models to determine the price consequences for cardio ultrasound equipment that would likely occur as a result of the merger.

- For a manufacturer of agricultural silage bags, Dr. Dubin assessed geographic market definition and considered the joint market power of distribution of agricultural silage bags as evidenced by their boycott of specific manufacturers.

- For a group of corn-syrup manufacturers accused of price-fixing, Dr. Dubin provided econometric rebuttal testimony to demonstrate that the opposing expert did not demonstrate price-fixing.

- For a group of merging railroads, Dr. Dubin developed rebuttal testimony to demonstrate that the opposing expert had overstated the likely diversion from rail to truck.

- For architectural hinge manufacturers accused of price collusion, Dr. Dubin developed a model of hinge pricing based on hundreds of thousands of individual transactions.

- For the U.S. Department of Justice, using scanner data, Dr. Dubin developed econometric models of the demand for white bread. These models were used to demonstrate a proposed merger's likely price consequence.

- For a telecommunications company, Dr. Dubin developed an econometric model of the choice by individuals of market versus self-insurance and showed that the damages resulting from alleged unfair marketing were substantially mitigated.

- In an antitrust action filed in New York, Dr. Dubin assisted in preparing a report assessing the divisional capital asset pricing model (CAPM) betas for

an international copier and printer company.

STRATEGIC AND MANAGEMENT CONSULTING

- For a large refining company, Dr. Dubin developed an econometric model of gasoline demand.

- For Canada Post, Dr. Dubin developed an econometric model of the demand for various mail products and evaluated the simulation of a previously estimated econometric model.

- For a company doing credit card scoring analysis, Dr, Dubin evaluated the financial consequences that losing a sole-supply contract would have on market capitalization.

- For a major bank, Dr. Dubin analyzed the effects of automatic teller machines on the market for travelers checks.

- For the State of California, Dr. Dubin examined the effects of state income tax enforcement.

- For a gas pipeline restructuring under FERC Order 636a, Dr. Dubin developed a model analyzing the competitiveness of various market segments.

- For a gas pipeline, Dr. Dubin analyzed the competitive nature of the market for gas storage.

- For a top-five mail order company, Dr. Dubin analyzed historical purchase and promotion data at the individual level to model retail mail order demand, promotion effectiveness, and purchase behavior over time.

- For a large-scale manufacturer of architectural windows, Dr. Dubin has analyzed a new manufacturing process using structural econometric techniques and has designed an optimal production process.

- For the American Gaming Association, Dr. Dubin assisted in the development of economywide multiplier benefits from the gaming industry.

- For the Canadian Postal Service and Canadian Direct Marketing Association, Dr. Dubin prepared an econometric model of the demand for addressed admail and related complimentary products. This model was used to access the consequences of a proposed price increase in addressed admail.

- For a major oil-producer in Alaska, Dr. Dubin assisted in developing a model of crude oil pricing and determined the effects of natural gas liquids on crude prices.

- For a major energy company operating in Bolivia, Dr. Dubin analyzed the appropriate capital asset pricing model beta and quantified country risk and project risk.

- For a gas pipeline seeking market-based rates, Dr. Dubin conducted a discounting and elasticity of demand study to demonstrate the workable competitive nature of the market.

NATURAL RESOURCE DAMAGE ASSESSMENT

- For a major mining corporation operating in the State of Montana, Dr. Dubin developed a discrete-choice model of river choice for recreational fishing and calculated the level of damages sustained from the diminished quality of a specific river.

- For the owner of a mining operation in Colorado, Dr. Dubin analyzed a residential pricing model offered as evidence by the plaintiffs in a class-action suit alleging loss of property values due to pollution of a river.

- For several potentially responsible parties in California, Dr. Dubin developed an econometric model of commercial fishing and determined the magnitude of potential damages from the effects of alleged ocean pollution.

- For a major oil company operating in the State of Texas, Dr. Dubin analyzed the level of damages sustained to property holders due to proximity

to a toxic waste site.

- For several chemical companies operating in the state of Massachusetts, Dr. Dubin reanalyzed a property value-pricing model offered as evidence by the U.S. government in a superfund suit alleging damages from the pollution of a harbor near Boston.

- In litigation involving a superfund site in Los Angeles, Dr. Dubin assisted defense counsel in deposing plaintiff's expert economic witnesses regarding the design and findings of a CVM survey utilized to compute non-use damages. Dr. Dubin assisted in critiquing the CVM survey design methodology and in proposing and redesigning the survey.

- For a major electronic manufacturer operating in Phoenix, Arizona, Dr. Dubin assisted in the development of hedonic pricing regression models to measure the affect of ground water contamination on residential housing prices.

SURVEY RESEARCH

- For the City of Los Angeles, Dr. Dubin analyzed the LAPD's use of force reports. He accomplished this using stratified sampling methods across the various reporting districts in Los Angeles.

- Dr. Dubin assisted lawyers for merging railroads in determining whether a proposed merger would affect hazardous materials shipments. Dr. Dubin used sampling methods to determine the traffic volume that would have to be sampled in order to produce reliable hazardous material shipment estimates.

- For a major psychiatric hospital in the U.S., Dr. Dubin designed a survey of hospitals in the U.S. to measure patient overcharges.

- For a major food products manufacturer, Dr. Dubin designed a sample for the valuation of inventory and fixed assets.

- Dr. Dubin has analyzed survey results from several national surveys of

individuals (NIECS, SIPP, BPA).

- For a major computer hardware company involved in litigation, Dr. Dubin designed a survey of computer software users regarding their purchase decisions.

- For counsel representing two merging railroads, Dr. Dubin critiqued a well known engineering model of railroad traffic.

- For counsel representing an intervening railroad, Dr. Dubin assisted in preparing discovery and deposition questions of an opposing statistical expert.

- For counsel representing two merging railroads, Dr. Dubin has performed a statistical sampling of traffic movements in order to measure potential divertible traffic.

- For the Los Angeles Police Department, Dr. Dubin developed statistical random samples of specific police activity in connection with the consent degree between LAPD and the Department of Justice.

UTILITY MERGERS

- In several proposed mergers of electric and gas utilities, Dr. Dubin explored and analyzed the projected synergies associated with the merger of two utilities. Dr. Dubin projected energy requirements for both stand-alone utilities and the combined utility over a period of ten years. Future capital requirements and savings resulting from the merger were calculated and projected over a ten-year period for both the merged and stand-alone scenarios.

- Dr. Dubin developed the BEARS and BULLS Merger model to analyze potential synergy savings and pro-forma balance sheets for proposed utility mergers. Dr. Dubin has applied this model in several utility merger cases.

CIVIL LITIGATION

- For the Internal Revenue Service, Dr. Dubin implemented measures of shareholder common control from voluminous monthly shareholder data covering a five-year period.

- Dr. Dubin assisted in determining the appropriate refund level due to the California Independent System Operator (CAISO) from their electricity purchases in the California wholesale energy market. Dr. Dubin developed models to calculate the natural gas spot price from published ranges and average prices.

- For several tobacco companies, Dr. Dubin addressed the issue of whether cigarette smoking and asbestos exposure were synergistic in causing lung cancer. Dr. Dubin has analyzed several aspects of the tobacco-asbestos synergy issue to determine whether a combined exposure to smoking and asbestos raise the likelihood, above the individual risks, that an individual will contract lung cancer. Dr. Dubin reanalyzed the American Cancer Society database, and also conducted meta-analyses of early studies.

- For the City of San Francisco, Dr. Dubin developed a model that measured damages resulting from a major bank's failure to escheat municipal bond interest.

- For a major energy supplier in the Northwest, Dr. Dubin developed a model that measured damages resulting from a major bank's failure to escheat bond interest.

- For the City of San Francisco and the State of California, Dr. Dubin developed a model of fee overcharge and hidden interest collected by a large California title company.

- For the state of Alaska, Dr. Dubin developed a model that measured damages resulting from a major bank's failure to escheat bond interest.

- For a defendant bus company, Dr. Dubin calculated the present

discounted value of future medical costs under various life scenarios.

- For the IRS, Dr. Dubin helped develop a shareholder value model that demonstrated that a packaging company's reorganization was a tax sham.

- For a grocery store chain, Dr. Dubin developed models of the demand for hamburgers to demonstrate the stigmatic effect on sales from bad publicity.

- For a gas company operating in the west, Dr. Dubin helped develop an econometric pricing model for carbon dioxide gas.

TESTIMONY

Before the United States Court of Appeals, Ninth Circuit, Writ of Certiorari. Docket Nos. 06-1457, 06-1462, November, 2007. pdf (2.02mb)

Before the Public Utility Commission of Oregon, Affidavit on behalf of Pacificorp. Docket No. UM 1002, November 19, 2007. pdf (449kb)

Before the United States District Court, District of Maryland Southern Division, Deposition Testimony on behalf of Marriott International, Inc., a Delaware corporation, et al., Case No. 8:05-CV-00787-PJM, October 23, 2007. pdf (1140kb)

Before the Public Utility Commission of Oregon, Trial Testimony on behalf of Pacificorp. Docket No. UM 1002, August 8, 2007.

Before the Public Utility Commission of Oregon, Supplemental Reply Testimony on behalf of Pacificorp. Docket No. UM 1002, July 30, 2007. pdf (620kb)

Before the Eighth Judicial District Court, Clark County, Nevada, Trial Testimony on behalf of Advanced Medical Products, Inc. Case No. A449091, January 17, 2006.

Before the Eighth Judicial District Court, Clark County, Nevada, Deposition Testimony on behalf of Advanced Medical Products, Inc. Case No. A449091, January 15, 2006. pdf (254kb)

Before the United States District Court, Central District of California, Deposition Testimony on behalf of Castaic Lake Water Agency; Newhall County Water District, et al., Case No.CV00-12613 AHM RZx, December 12, 2006. pdf (4

mb)

Before the Eighth Judicial District Court, Clark County, Nevada, Deposition testimony on behalf of Advanced Medical Products, Inc. NRCP Rule 16.1(a)(2)(B) in Case No. A449091 Consolidated with Case Nos. A452332, A482194 & A49259, November 15, 2006. pdf (362 kb)

Before the Washington Utilities and Transportation Commission, Trial Testimony on behalf of Puget Sound Energy Inc., Docket No. UE-060266, Docket No. UG-060267, September 20, 2006. pdf (51.8kb)

Before the Washington Utilities and Transportation Commission, Prefiled Rebuttal Testimony on behalf of Puget Sound Energy Inc., Docket No. UE-060266, Docket No. UG-060267, August 26, 2006. pdf (95.1kb)

Before the United States District Court, District of Maryland Southern Division, Deposition Testimony on behalf of Marriott International, Inc., a Delaware corporation, et al., Case No. 8:05-CV-00787-PJM, February 24, 2006. pdf (1.11 mb)

Before the Superior Court of the State of California, County of Orange County - Central Justice Center, Deposition Testimony on behalf of Marilyn Miglin, an Individual, and Duke Miglin, an Individual, January 9, 2006. pdf (816kb)

Before the Washington Utilities and Transportation Commission, Trial Testimony on behalf of Puget Sound Energy, Inc., Docket No. UG-040640, Docket No. UE-040641, December 15, 2004. pdf (373kb)

Before the Washington Utilities and Transportation Commission, Trial Testimony on behalf of Puget Sound Energy, Inc., Docket No. UG-040640, Docket No. UE-040641, December 14, 2004. pdf (164kb)

Before the Washington Utilities and Transportation Commission, Prefiled Rebuttal Testimony on behalf of Puget Sound Energy, Inc., Docket No. UG-040640, Docket No. UE-040641, November 3, 2004. pdf (243kb)

Before the United States Bankruptcy Court, Southern District of New York, Trial Testimony on behalf of At Home General Unsecured Creditors Trust, Case No. 04-10156 (BRL), July 19, 2004. pdf (606 kb)

Before the United States Bankruptcy Court, Southern District of New York, Deposition Testimony on behalf of At Home General Unsecured Creditors Trust Case No. 04-10156 (BRL), June 15, 2004. pdf (1.14mb)

Before the Washington Utilities and Transportation Commission, Prefiled Direct Testimony on behalf of Puget Sound Energy, Inc., Docket No. UG-040640, Docket No. UE-040641, April 5, 2004. pdf (232 kb)

Before the Superior Court of the State of California, Sacramento County, Trial Testimony on behalf of the Oakland Raiders in City of Oakland, et al. v. Oakland Raiders, May 21–22, 2003. pdf (547kb)

Before the Superior Court of the State of California, Sacramento County, Deposition Testimony on behalf of the Oakland Raiders in City of Oakland, et al. v. Oakland Raiders, February 25, 2003. pdf (1.14mb)

Before the Superior Court of Alaska, Third Judicial District, Trial Testimony on behalf of the State of Alaska of Alaska Inter-Tribal Council v. State of Alaska, April 11, 2002.

Before the United States District Court, Northern District of California, San Francisco Division, Deposition Testimony on behalf of the City and County of San Francisco, Case No. C-99-0020 WHA and C-99-0193 WHA, March 13, 2002.

Before the United States District Court, District of Puerto Rico, Deposition Testimony on behalf of Puerto Rico Telephone Company, Inc., Civil Action No. 01-1832, February 6, 2002. pdf (706kb)

Before the Superior Court for the State of Alaska, Third Judicial District at Dillingham, Deposition Testimony on behalf of the State of Alaska, Case No. 3DI-99-113 Civil, February 9, 2001. pdf (578 kb)

Before the Alameda County Superior Court, Trial Testimony on behalf of Oliver, Case No. 784492-6, May 8, 9, 10, 11, and 18, 2000.

Before the United States District Court, District of New Jersey, Deposition Testimony on behalf of Baker Norton Pharmaceuticals, Inc., Civil Action No. 98 CV 1412 (WHW), February 11, 2000. pdf (2.4mb)

Before the Alameda County Superior Court Case, Deposition Testimony on behalf of Oliver, No. 784492-6, September 7, 1999. pdf (1.68mb)

Before the Alameda County Superior Court, Deposition Testimony on behalf of Oliver, Case No. 784492-6, August 5, 1999. pdf (898kb)

Before the United States District Court, Southern District of New York, Deposition Testimony on behalf of Mabuchi Motor America Corp., CIV. 73(JES), June 8, 1999. pdf (1.37mb)

Before the United States District Court, Central District of Illinois, Peoria Division, Deposition Testimony on behalf of Archer Daniels Midland et al., March 11,1999. pdf (1.20mb)

Before the Surface Transportation Board, Applicants' Rebuttal (Volume 1B of 2) on behalf of Canadian National Railway Company, et. al., Finance Document No. 33556. December 16, 1998. pdf (394 kb)

Before the United States District Court, Southern District of New York, Deposition Testimony on behalf of Mabuchi Motor America Corp., CIV. 7377(JES), September 11, 1998. pdf (1.30mb)

Before the Surface Transportation Board, Verified Statement on behalf of Conrail, January 1997. pdf (219 kb)

Before the Federal Energy Regulatory Commission, Trial Testimony on behalf of Koch Gateway Pipeline Company, Docket No. RP95-362-000, October 6 and 7, 1996. pdf (7.01mb)

Before the Federal Energy Regulatory Commission, Prepared Rebuttal Testimony on behalf of Koch Gateway Pipeline Company, Docket No. RP95-362-000, June 10, 1996. pdf (545kb)

Before the Federal Energy Regulatory Commission, Prepared Direct Testimony on behalf of Koch Gateway Pipeline Company, Docket No. RP95-362-000, June 26, 1995. pdf (703 kb)

Before the U.S. Tax Court, Trial Testimony on behalf of Nestlé Holding, Inc., Tax Court Docket No. 21562-90, April 25, 1994. pdf (355kb)

Comments before the Department of Interior, July 22, 1993, Advance Notice of Proposed Rulemaking (43 CFR Part II) Natural Resource Damage Assessment Regulations Type B Rule, with C. Cicchetti, September 22, 1993. pdf (115kb)

Before the United States District Court, Southern District of New York, Deposition Testimony on behalf of Mabuchi Motor America Corp., CIV. 73(JES), February 25, 1993. pdf (684kb)

Before the Federal Energy Regulatory Commission, Affidavit on behalf of United Gas Pipeline Company, Docket No. RS92-26-000, October 29, 1992. pdf (639kb)

EXPERT REPORTS

Before the Public Utility Commission of Oregon, Declaration on behalf of Pacificorp. Docket No. UM 1002, November 19, 2007. pdf (449kb)

Before the Superior Court of the State of California, Los Angeles County,

Declaration on behalf of Dr. Michael Howard Roth, v. California State University, Los Angeles, California, August 18, 2006. pdf (59.4kb)

Expert Report for Advanced Medical Products, Inc. NRCP Rule 16.1(a)(2)(B) in Case No. A449091 Consolidated with Case Nos. A452332, A482194 & A49259, July 19, 2006. pdf (65.6kb)

Before the United States District Court, District of Maryland, Southern District, Expert Report on behalf of Marriott International, Inc., Civil Action No. 8:05-cv-00787-PJM, October 6, 2005. pdf (1.38mb)

Before the United States District Court, Central District of California, Expert Report on behalf of Agron, Inc., Case No. CV 03-05872-MMM(KWKx), November 2004. pdf (998kb)

Before the United States Bankruptcy Court, Southern District of New York, Expert Report on behalf of At Home General Unsecured Creditors Trust Case No. 04-10156 (BRL), June 15, 2004. pdf (606kb)

Before the United States Bankruptcy Court, Northern District of California, San Francisco Division, Preliminary Expert Witness Report on behalf of At Home Corporation, Case No. 01-32495-TC, July 29, 2004. pdf (1.1mb)

Before the Superior Court of the State of California for the County of Napa, Affidavit on Behalf of Kay-Bee Toy, Inc., et al., Case No. 26-15615, July 23, 2002. pdf (256kb)

Affidavit on behalf of the Department of Justice regarding the acquisition of Agilent HSG by Philips, June 10, 2002. pdf (744kb)

Before the United States District Court, Northern District of California, San Francisco Division, Rebuttal Report on behalf of the City and County of San Francisco, with R. Douglas Rivers, Case No. C-99-0020 WHA and C-99-0193 WHA, March 13, 2002. pdf (162kb)

Before the United States District Court, District of Puerto Rico, Expert Report on behalf of Puerto Rico Telephone Company, Inc., Civil Action No. 01-1832, February 6, 2002. pdf (3.04mb)

In The Superior Court for the State of Alaska Third Judicial District at Dillingham, Surrebuttal Testimony on behalf of the State of Alaska, Case No. 113 CI, July 3, 2001. pdf (201kb)

Before the Superior Court for the State of Alaska, Third Judicial District at Dillingham, Expert Report on behalf of the State of Alaska, Case No. 3DI-99-113 Civil, February 9, 2001. pdf (2.86mb)

Before the Superior Court of the State of California, County of Sacramento, Expert Report and Exhibits on behalf of the Oakland Raiders, June 2000. pdf (1.26mb)

Before the United States District Court, District of New Jersey, Expert Report on behalf of Baker Norton Pharmaceuticals, Inc., Civil Action No. 98 CV 1412 (WHW), February 11, 2000. pdf (5.53mb)

Before the United States District Court, District of Minnesota, Fourth Division, Expert Report on behalf of Up North Plastics, Inc., Poly-America, Inc., and Ag-Bag International Limited, June 1999. pdf (1.62mb)

Before the United States District Court, Central District of Illinois, Peoria Division, Expert Report, "A Review of Professor Williams Ed. Whitelaw's 'A Study of Prices of High Fructose Corn Syrup-42 and Glucose Corn Syrup'" on behalf of Archer Daniels Midland et al., February 3, 1999. pdf (2.2mb)

Before the United States District Court, Southern District of New York, Expert Report on behalf of Mabuchi Motor America Corp., 88 Civ. 737 (JES), November 25, 1997. pdf (7.96mb)

Before the U. S. Tax Court, Expert Report on behalf of Nestle Holdings, Inc., Tax Court Docket No. 21562-90, January 24, 1994. pdf (977kb)

OTHER REPORTS

"Servicio de Asesoría en el Análisis de la Demanda Residencial de Electricidad e Hidrocarburos," with Dr. Carlos Walter Rebledo, prepared for the Expertos en Regulación de Servicious Públicos, February 8, 2006. pdf (831kb)

"Criminal Investigation Enforcement Activities and Taxpayer Noncompliance," submitted to Internal Revenue Service Criminal Investigation, February 10, 2004. pdf (1.13mb)

"Stratified Random Sample for Non-Categorical Use of Force Reports," with C. Cicchetti and E. Cotton, prepared for the Los Angeles Police Department, September 10, 2001. pdf (633kb)

Statistical Analysis of Errors and Lost Charges for TENET Home Care Facilities, January 12, 1996. pdf (337kb)

"Financial Analysis of Addressed Admail," May 1996. pdf (2.08mb)

"Bears and Bulls Synergy Model Source Code," Dubin/Rivers Research, March 7, 1996. pdf (954kb)

"The Economic Consequence of Independent Film Making," with Cicchetti, Peale, Boedeker, Truitt, prepared for the American Film Marketing Association, January 1995. pdf (622kb)

"Statistical Analysis of Errors and Lost Charges for TENET Home Care Facilities," June 7, 1995. pdf (481kb)

"Competition and Regulation in the Natural Gas Transportation Industry," with C. Cicchetti and C. Long, circa 1995. pdf (885kb)

"National Medical Enterprises, Inc., Psychiatric Division Review," September 14, 1994. pdf (370kb)

"An Introduction to Discrete Choice Modeling and its Applications to Load Forecasting," prepared for Canadian Electrical Association Conference, Nova Scotia, Canada, May 18, 1993. pdf (4.7mb)

"Preliminary Analysis of the Potential Natural Resource Damage to Commercial Fishing," prepared for the Los Angeles Harbor Counsel, July 12, 1991. pdf (1.15mb)

"Analysis of Market Expansion and Business Diversion in Instant Photography Attributable to the Entry of Eastman Kodak from 1976-1985," with T. Bresnahan, April 20, 1989. pdf (885kb)

"Detecting Cartel Behavior from Price Data," Architectural Hinges, with R. Preston McAfee, circa 1988. pdf (642kb)

"A Report on Freshmen Admissions at Caltech: Who's Admitted, Who Comes, and Why," with R. Noll, circa 1983. pdf (450kb)

PROFESSIONAL ACTIVITIES

1996–present	Co-Founding Partner, Pacific Economics Group
1993–1996	Director of Statistics and Econometric Analysis, Arthur Andersen Economic Consulting
1992–1993	Senior Economist, Arthur Andersen Economic Consulting
1989–1992	Senior Advisor, Putnam, Hayes & Bartlett, Inc.

ACADEMIC APPOINTMENTS

2005–present	Visiting Professor of Economics, University of California, Santa Barbara

2005–2007	Professor of Economics, California Institute of Technology
2005	Visiting Professor of Economics, Occidental College
1988–2005	Associate Professor of Economics, California Institute of Technology
1982–1988	Assistant Professor of Economics, California Institute of Technology

EDITORIAL BOARDS

1986–1991	*The Energy Journal*

ADVISORY POSITIONS

2004	Technical Advisor under Rule 706 of the Federal Rule of Civil Procedure to advise a Los Angeles Federal District Court in matters of statistics.
2001	Member, California State Auditors, Bureau of State Audits
1991	Advisory Panel on Biotechnology Opportunities, National Science Foundation, Member
1990	Lawrence Berkeley Laboratory Manufacturer Input Model for Department of Energy
1988–1995	University of California, University-Wide Energy Research Group
1987	California Energy Commission
1985	National Research Council, Committee on Behavior and Social Aspects of Energy Consumption and Production
1985	Lawrence Berkeley Laboratory, Energy Analysis Program
1984	Oakridge National Laboratory, Energy Policy Division
1984	Southern California Air Quality Management Board

PUBLICATIONS

Books

The California Electricity Crisis: What, Why, and What's Next , with Charles J. Cicchetti and Colin M. Long, Massachusetts: Springer Publishing Company, 2004. pdf (1,453 kb)
Chapter 1: Introduction
Chapter 2: Power Production Economics
Chapter 3: Principles of Traditional Regulation

Chapter 4: Reconciling Marginal Cost and Revenue Requirements
Chapter 5: Competitive Wholesale Markets for Electricity
Chapter 6: California's Market Design: an Initial Success Followed by a "Perfect Storm"
Chapter 7: Design Flaws and a Worsening Crisis
Chapter 8: Testable Hypothesis
Chapter 9: Survey of Electricity Models for California
Chapter 10:An Economic Analysis of Natural Gas Price Movements During the Crisis
Chapter 11:An Economic Analysis of Electricity Prices in California
Chapter 12:Market Manipulation
Chapter 13:Gaming and Cheating
Chapter 14:Market Monitoring and Initial Regulatory Response
Chapter 15:Refunds and Mitigation
Chapter 16:California Responds
Chapter 17:Handicapping Winners
Chapter 18:Conclusion: Wrapping Up and Lessons Learned

Empirical Studies in Applied Economics, Boston, Massachusetts: Springer Publishing Company, 2001. pdf (1,040 kb)
Chapter 1: The Revealed Market Power of a Natural Gas Pipeline
Chapter 2: The Demand For NFL Football
Chapter 3: Detecting and Measuring Shifts in the Demand for Direct Mail
Chapter 4: Valuation of a Technology Patent–Scope, Duration, and Royalty
Chapter 5: Statistical Analysis of the Additive and Multiplicative Hypotheses of Multiple Exposure Synergy for Cohort and Case-Control Studies
Chapter 6: Tests of the Additive and Multiplicative Hypotheses of Multiple Exposure
Chapter 7: Concentration and Competition in the Chemotherapy Drug Market
Chapter 8: The Allocation of Police Services in Rural Alaska
Chapter 9: Financial Market Reaction to the Fast Food Hamburger Health Scare of 1993

Studies in Consumer Demand—Econometric Methods Applied to Market Data. Boston, Massachusetts: Springer Publishing Company, 1998. pdf (2,792 kb)
Chapter 1: The Demand for Addressed Admail and Complementary Products in Canada
Chapter 2: The World Demand for Fractional Horsepower Direct-Current Motors
Chapter 3: Estimation and Identification of the Worldwide Demand for Acetic Acid
Chapter 4: The Demand for Branded and Unbranded Products—An Econometric Method for Valuing Intangible Assets
Chapter 5: The Demand for Recreational Fishing in Montana
Chapter 6: The Demand for Commercial Fishing in California
Chapter 7: The Demand for Cameras by Consumers—A Model of Purchase Type Choice, and Brand Choice
Chapter 8: The Demand for Transportation Services in Natural Gas Markets—The Market Power of a Natural Gas Pipeline

Consumer Durable Choice and the Demand for Electricity. New York-Amsterdam: North-Holland Publishing Company, 1985.pdf (6,043 kb). Reviewed in: *Journal of Political Economy* 94 (1986) pdf (281 kb); *Journal of Economic Literature* 25 (1987) pdf (131 kb); and *Journal of the American Statistical Association* 82 (1987). pdf (66 kb)
Chapter 1: Consumer Durable Choice and Utilization
Chapter 2: A Heating and Cooling Load Model for Single-Family Detached Dwellings
Chapter 3: Estimation of Nested Logit Model for Appliance Holdings
Chapter 4: Rate Structure and Price Specification in the Demand for Electricity
Chapter 5: Two-Stage Estimation Methods for the Switching Regime Model with Known

May 12, 2008

Regimes
Chapter 6:Estimation of the Demand for Electricity and Natural Gas from Billing Data
Appendix A
Appendix B

Articles

"Mid-range, Average, and Hourly Estimates of Heating Degree Days: Implications for Weather Normalization of Energy Demand," with Villamor Gamponia, April 2007 pdf (185kb)

"An Integrated Engineering-Econometric Analysis of Residential Balance Point Temperatures," forthcoming *Energy Economics*, 2007. pdf (419 kb)

"Valuing Intangible Assets with a Nested Logit Market Share Model," *Journal of Econometrics*, Vol. 139, No. 2, August 2007: 285-302. pdf (323 kb)

"Criminal Investigation Enforcement Activities and Taxpayer Noncompliance," *Public Finance Review*, Vol. 35, No. 4, July 2007: 500-529 pdf (417 kb)

"A Quasi-Comparable Approach to Reasonable Royalty Determination," in *Economic Damages in Intellectual Property*, Daniel Slottje, editor, John Wiley & Sons, New York: New York, 2006. pdf (235 kb)

"An Econometric Method for Determining the Goldscheider Fraction and its Applicable Base," in *Economic Damages in Intellectual Property Matters*, Daniel Slottje, editor, John Wiley & Sons, New York: New York, 2006. pdf (264 kb)

"Criminal Investigation Enforcement Activities and Taxpayer Noncompliance," Internal Revenue Service *Statistics of Income*, June 2004. pdf (144 kb)

"Initial Virological and Immunologic Response to Highly Active Antiretroviral Therapy Predicts Long-Term Clinical Outcome," with Christina Kitchen, Scott Kitchen, and Michael Gottlieb, *European Journal of Clinical Microbiology and Infectious Diseases*, Vol. 33, (2001): 466–472. pdf (156 kb)

"Energy Deregulation: The Benefits of Competition were Undermined by Structural Flaws in the Market, Unsuccessful Oversight, and Uncontrollable Competitive Forces," with Charles J. Cicchetti, Jon Hockenyos, Colin M. Long, and J.A. Wright. California State Auditor, Bureau of State Audits, Sacramento, California, March 2001. pdf (504 kb)

"Comparing Absentee and Precinct Voters: Voting on Direct Legislation," with Gretchen A. Kalsow, *Political Behavior*, Vol. 18, No. 2, June 1996: 393–411. pdf (1,762 kb)

"Comparing Absentee and Precinct Voters: A View Over Time," with Gretchen A. Kalsow, *Political Behavior,* Vol. 18, No. 2, June 1996: 369–392. pdf (2,148 kb)

"Testing Minority Preferences in Broadcasting," with Matthew Spitzer, *California Law Journal,* Vol. 68, No. 4, May 1995: 841–884 pdf (1,402 kb)

"A Microeconometric Analysis of Risk Aversion and the Decision to Self-Insure," with Charles J. Cicchetti, *Journal of Political Economy*, 102 (1994): 169–186. pdf (526 kb)

"Experimental Estimates of the Impact of Wage Subsidies," with R. Douglas Rivers, *Journal of Econometrics* 56 (1993): 219–242. pdf (752 kb)

"Voting on Growth Control Measures: Preferences and Strategies," with D. Roderick Kiewiet and Charles Noussair, *Economics and Politics* 4 (1992): 191–213. pdf (509 kb)

"State Income Tax Amnesties: Causes," with Michael J. Graetz and Louis L. Wilde, *Quarterly Journal of Economics* 107 (August 1992): 1057–1070. pdf (474 kb)

"The Demand for Tax Return Preparation Services," with Michael J. Graetz, Michael A. Udell, and Louis L. Wilde, *The Review of Economics and Statistics* 74 (1992): 75–82. pdf (356 kb)

"The Changing Face of Tax Enforcement, 1978–1988," with Michael J. Graetz and Louis L. Wilde, *The Tax Lawyer* 43 (1990): 893–914. Reprinted in R. Westin, R. Hishon, and B. Green, eds. *Criminal Tax Prosecutions*. Anderson Publishing Company (1991). pdf (678 kb)

"The Effect of Audit Rates on the Federal Individual Income Tax, 1977–1986," with Michael J. Graetz and Louis L. Wilde, *National Tax Journal* 43 (1990): 395-409. pdf (3,284 kb)

"Selection Bias in Linear Regression, Logit and Probit Models," with R. Douglas Rivers, *Sociological Methods and Research* 18 (1989/1990). Reprinted in J. Fox and S. Long, eds. *Modern Methods of Data Analysis*. Newbury Park, California: Sage Publications (1990): 359–91. pdf (388 kb)

"Risk and Reactor Safety Systems Adoption," with Geoffrey S. Rothwell, *Journal of Econometrics* 42 (1989): 202–17. pdf (249 kb)

"The Report of the United States to the International Fiscal Association 43 Congress: Administrative and Compliance Costs of Taxation," with Michael J. Graetz and Louis L. Wilde, *Cahiers de Droit Fiscal International (Studies on*

International Fiscal Law) Kluwer, The Netherlands 74b (1989): 310-47. pdf (1,240 kb)

"The Distributional Effects of the Federal Energy Tax Act," with Steven E. Henson, *Resources and Energy* 10 (1988): 192–211. pdf (661 kb)

"How Markets for Impure Public Goods Organize: The Case of Household Refuse Collection," with Peter Navarro, *Journal of Law, Economics and Organization* 4 (1988): 217–41. pdf (832 kb)

"An Empirical Analysis of Federal Income Tax Auditing and Compliance," with Louis L. Wilde, *National Tax Journal* 16 (1988): 61–74. pdf (584 kb)

"An Engineering/Econometric Analysis of Seasonal Energy Demand and Conservation in the Pacific Northwest," with Steven E. Henson, *Journal of Business and Economic Statistics* 6 (1988): 121–34. pdf (745 kb)

"Are We a Nation of Tax Cheaters? New Econometric Evidence on Tax Compliance," with Michael J. Graetz and Louis L. Wilde, *American Economic Review, Papers and Proceedings* 77 (1987): 240–45. pdf (89 kb)

"Block Switching in Demand Subject to Declining Block Rates—A New Approach," *International Association of Energy Economists, Papers and Proceedings of the Eighth Annual North American Conference* (May 1987): 243–47. pdf (215 kb)

"A Nested Logit Model of Space and Water Heat System Choice," *Marketing Science* 5 (1986): 112–24. pdf (589 kb)

"Price Effects of Energy Efficient Technologies: A Study of Residential Demand for Heating and Cooling," with Allen K. Miedema and Ram V. Chandran, *Rand Journal of Economics* 17 (1986): 310–25. pdf (655 kb)

"Will Mandatory Conservation Promote Energy Efficiency in the Selection of Household Appliance Stocks?" *The Energy Journal* 7 (1986): 99–118. pdf (504 kb)

"An Econometric Analysis of Residential Electric Appliance Holdings and Consumption," with Daniel L. McFadden, *Econometrica* 52 (1984): 345–62. Reprinted in Stigum, B. ed. *Econometrics and the Philosophy of Economics: Theory—Data Confrontation in Economics*, Princeton University Press, 2002. pdf (433 kb)

"Regulatory Climate and the Cost of Capital," with Peter Navarro, in *Regulatory Reform and Public Utilities*. M. Crew, ed. Lexington, Massachusetts: Lexington Books (1982): 141–66. pdf (551 kb)

May 12, 2008

COMPUTER SOFTWARE

SST—Statistical Software Tools Version 3.0, ©1985–2007 with R. Douglas Rivers, "Statistical Software Tools Reference Manual and User's Guide," with R. Douglas Rivers, (1990). pdf(7,051kb). Online at http://www.hss.caltech.edu/~jad/sst/html/main.help.sst.html.

May 12, 2008

WORKING PAPERS

"Statistical Analysis of the Additive and Multiplicative Hypotheses for Cohort and Case-Control Studies," California Institute of Technology, Social Science Working Paper, July 1999. pdf (870 kb)

"Tax Return Preparers and Tax Evasion," with Gretchen A. Kalsow and Michael A. Udell, California Institute of Technology, Social Science Working Paper No. 1031, April 1998. pdf (231 kb)

"Participation in Direct Legislation: Evidence from the Voting Booth," with Gretchen A. Kalsow, California Institute of Technology, Social Science Working Paper No. 997, January 1997. pdf (917 kb)

"An Aggregate Nested Logit Model of Political Participation," with Gretchen A. Kalsow. California Institute of Technology, Social Science Working Paper No. 998, January 1997. pdf (1,334 kb)

"Patterns of Voting on Ballot Propositions: A Mixture Model of Voter Types," with Elisabeth R. Gerber, California Institute of Technology, Social Science Working Paper No. 795, May 1992. pdf (1,130 kb)

"The Use and Misuse of Surveys in Economic Analysis: Natural Resource Damage Assessment Under CERCLA," with Charles J. Cicchetti and Louis L. Wilde, California Institute of Technology, Social Science Working Paper No. 768, July 1991. pdf (1,811)

"The Heterogeneous Logit Model," with Langche Zeng, California Institute of Technology, Social Science Working Paper No. 759, February 1991. pdf (571 kb)

"Welfare Economics for Tobit Models," with Louis L. Wilde, California Institute of Technology, Social Science Working Paper No. 800, January 1991. pdf (553 kb)

REVIEWS, COMMENTS, NOTES, ABSTRACTS

"Salvage in Triple Class Resistant Patients with Raltegravir and Etravirine in a Community Based Practice," with L. S. Newmarch, C. M. Marion , and M. S. Gottlieb, May, 2007. pdf (17 kb)

"The Weather in the Details," with Villamor Gamponia, *Public Utilities Fortnightly*, November 2006: 22-24. pdf (328 kb)

"Internal Revenue Service Tax Compliance Enforcement: 'Six-Feet Under' or

just 'Lost,'" *Speaking of Economics*, Department of Economics Newsletter, Occidental College, October 28, 2005. pdf (51 kb)

"Market Barriers to Conservation: Are Implicit Discount Rates Too High?" *Proceedings of a POWER Conference: The Economics of Energy Conservation, University of California Energy Institute* (1993): 21–33. pdf (593 kb)

Commentary on "Can Brute Deterrence Backfire? Perceptions and Attitudes in Taxpayer Compliance," by S. Sheffrin and R. Triest, *Why People Pay Taxes: Tax Compliance and Enforcement*, J. Slemrod, ed., Ann Arbor, Michigan: University of Michigan Press (1992). pdf (193 kb)

"The *Real* California Lottery: Your Income Tax," *Engineering & Science* 54 (1990): 3–11. pdf (479 kb)

"Subsidy to Nuclear Power Through Price-Anderson Liability Limit," with Geoffrey S. Rothwell, *Contemporary Policy Issues* 8 (1990): 73–79. pdf (210 kb)

"Safety at Nuclear Power Plants: Economic Incentives under the Price-Anderson Act and State Regulatory Commissions," with Geoffrey S. Rothwell, *The Social Science Journal* 26 (1989): 303–11. pdf (340 kb)

Review of *Qualitative Choice Analysis: Theory, Econometrics, and an Application to Automobile Demand*, by K. Train, *Transportation Research-A* 22A (1988): 233–35. pdf (168 kb)

"Penny-Wise and Pound-Foolish: New Estimates of the Impact of Audits on Revenue," with Michael J. Graetz and Louis L. Wilde, *Tax Notes* 35 (1987): 787–91. pdf (316 kb)

Review of *Markets for Power: Analysis of Electric Utility Deregulation*, by P. Joskow and R. Schmalensee, *Journal of Economic Literature* 22 (1984): 1667–68. pdf (88 kb)

"The Effect of Rate Suppression on Utilities' Cost of Capital," with Peter Navarro, *Public Utilities Fortnightly* 111 (1983): 18–22. pdf (247 kb)

GRANTS

Racial Profiling Within Los Angeles County - Phase II, Haynes Foundation Faculty Fellowship, 2006.

IRS Criminal Investigation Research—Empirical Analysis of the Impact of CI Activities on Taxpayer Compliance, IRS Grant TIRNO-00-D-0039, 2003.

An Economic Analysis of Racial Profiling in Southern California, Haynes Foundation Faculty Fellowship, 2002.

An Economic Analysis of the San Fernando Valley Secession, Haynes Foundation Faculty Fellowship, 2000.

Comparing and Contrasting Absentee and Precinct Voters, Haynes Foundation Faculty Fellowship, 1995.

An Economic Analysis of Welfare Administration, with Louis L. Wilde, National Science Foundation #SES-9113209, 1991–92.

An Economic Analysis of the Rise (and Fall?) of State Lotteries, Haynes Foundation Faculty Fellowship, 1991.

An Empirical Analysis of Income Tax Auditing and Compliance, with Louis L. Wilde, National Science Foundation Grant #SES-8701027, 1987–89.

The Seasonal Demand for Electricity in the Pacific Northwest, with Steven E. Henson, Bonneville Power Administration, DE-AI79-83BP13579, 1985.

The Role of Capital in Public Utility Industries: An Integration of Economic and Financial Effects, with Daniel L. McFadden (P.I.) and Tom C. Cowing, National Science Foundation Grant #SES-8205713, 1983.

EDUCATION

1982	Ph.D., Economics, Massachusetts Institute of Technology
1978	A.B., Economics, University of California, Berkeley, with Highest Honors and Great Distinction in General Scholarship

HONORS AND AWARDS

Econometric Society Frisch Medal, 1986.

Departmental Citation, U.C. Berkeley, Department of Economics, awarded to the author of the best undergraduate honors thesis in Economics, 1978.

CURRENT RESEARCH

Discrete-choice econometrics, energy economics, ballot proposition voting, tax compliance.