STB DOCKET NO. 42057

PUBLIC SERVICE COMPANY OF COLORADO D/B/A XCEL ENERGY v. THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY

Decided June 7, 2004

The Board finds that the defendant railroad has market dominance over the transportation at issue and that the complainant has established that the challenged rates are unreasonably high.

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ACRONYMS

AAR	Association of American Railroads
AREMA	American Railway Engineering and Maintenance-of-Way Association
ATF	across-the-fence
BNSF	The Burlington Northern and Santa Fe Railway Company
Br.	Brief
BTM	billion ton-miles
CMP	constrained market pricing
CTC	centralized traffic control
CWR	continuous welded rail
CY	cubic yards
DARA	Density Adjusted Revenue Allocation
DCF	discounted cash flow
DP	distributed power
e-WP.	electronic workpaper

EIA	Energy Information Administration, U.S. Department of Energy
EOTD	end-of-train device
Exh.	exhibit
FEC	Florida East Coast Railway Company
FED	failed equipment detector
FRA	Federal Railroad Administration
G&A	general and administrative
GAAP	generally accepted accounting principles
GTM	gross ton-miles
ICC	Interstate Commerce Commission
IT	information technology
JEC	Jeffrey Energy Center
LCRA	Lower Colorado River Authority
L&D	loss and damage
LF	linear feet
LUM	locomotive unit-mile
MGT	million gross tons
MMBP	modified mileage block prorate
MOW	maintenance-of-way
MP	milepost
MPU	Minnesota Public Utilities Commission
MRL	Montana Rail Link
MSP	Modified Straight-Mileage Prorate
Narr.	Narrative
O/D	origin/destination
OJT	on-the-job training
Open.	opening evidence
PRB	Powder River Basin
R-1	Annual Report Form R-1
RCAF-A	rail cost adjustment factor, adjusted for changes in productivity
RCAF-U	rail cost adjustment factor, unadjusted for changes in productivity
RCB	reinforced concrete box culvert
Reb.	rebuttal evidence
ROI	return on investment
ROW	right-of-way
R/VC	revenue-to-variable cost
SAC	stand-alone cost
SARR	stand-alone railroad
SEM	switch engine minutes
SFGT	speed factored gross ton
TAR	BNSF's "Train Activity Reports"
T&E	train and engine crew
UP	Union Pacific Railroad Company
URCS	Uniform Railroad Costing System

USGS	United States Geological Survey
V.S.	verified statement
WCC	The Wyoming Colorado Coal Railroad
WP.	workpaper
WRPI	Western Rail Properties, Inc.
Xcel	Public Service Company of Colorado d/b/a Xcel Energy

BY THE BOARD:

By complaint filed on December 20, 2000, the Public Service Company of Colorado d/b/a Xcel Energy (Xcel) challenges the reasonableness of the rates charged by The Burlington Northern and Santa Fe Railway Company (BNSF) for movements of coal from origins in the Powder River Basin (PRB) of Wyoming to Xcel's Pawnee steam electric generating plant near Brush, CO. Xcel asks the Board to prescribe the maximum reasonable rates for this transportation and to award reparations (with interest) for any unreasonable portion of the charges collected by BNSF since January 1, 2001. Upon considering the record that has been presented in this case, the Board finds that Xcel has demonstrated that the challenged rates are unreasonably high. Maximum reasonable rates are prescribed and reparations are awarded.

BACKGROUND

Prior to December 31, 2000, the rail transportation to the Pawnee plant was provided by BNSF under a transportation contract. When that contract was not renewed, BNSF established interim common carriage rates (in Common Carrier Pricing Authority 90043) that went into effect on January 1, 2001. BNSF revised those rates, effective February 2002. BNSF again revised the rates, with minor changes to the service terms, effective June 15, 2002. BNSF further adjusted the common carriage rate (in Common Carrier Pricing Authority 90043-A), effective January 1, 2003. Xcel's complaint embraces all of those rates.

PROCEDURAL MATTER

There is an outstanding procedural matter regarding what should properly be part of the record in this case. Xcel has moved to strike statements contained in BNSF's brief regarding traffic moving to the Jeffrey Energy Center (JEC), as well as a witness statement, and BNSF has responded. The parties debate the accuracy of this information and the propriety of addressing it at the briefing stage of the proceeding. As both parties have been heard on the matter, neither party will be prejudiced by having the materials in the record. Accordingly, the motion to strike will be denied.

MARKET DOMINANCE

The reasonableness of a challenged rail rate can be considered only if the carrier has market dominance over the traffic involved. 49 U.S.C. 10701(d)(1), 10707(b), (c). Market dominance is "an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies." 49 U.S.C. 10707(a). In addition, the Board is precluded from finding market dominance where the carrier shows that the revenues produced by the movement at issue are less than 180% of the variable costs to the carrier of providing the service. 49 U.S.C. 10707(d)(1)(A). (Variable costs are those railroad costs that vary with the level of output.)

In this case, BNSF does not dispute Xcel's claim that there are no effective competitive alternatives for transporting coal between PRB mines and Pawnee.[1] Moreover, BNSF acknowledges that, for traffic to Xcel's Pawnee plant, the revenue-to-variable cost (R/VC) percentages exceed 180%.[2] Thus, there is no dispute that BNSF has market dominance over Xcel's coal moving to Pawnee.

RATE REASONABLENESS STANDARDS

A. Constrained Market Pricing

The Board's general standards for judging the reasonableness of rail freight rates are set forth in *Coal Rate Guidelines, Nationwide*, 1 I.C.C.2d 520 (1985) (*Guidelines*), *aff'd sub nom. Consolidated Rail Corp. v. United States*, 812 F.2d 1444 (3d Cir. 1987). These guidelines adopt a set of pricing principles known as "constrained market pricing" (CMP). The objectives of CMP can be simply stated. A captive shipper should not be required to pay more than is necessary for the carrier involved to earn adequate revenues. Nor should it pay more than is necessary for efficient service. And a captive shipper should not bear the cost of any facilities or services from which it derives no benefit. *Guidelines*, 1 I.C.C.2d at 523-24.

CMP contains three main constraints on the extent to which a railroad may charge differentially higher rates on captive traffic. The revenue adequacy constraint ensures that a captive shipper will "not be required to continue to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs." *Guidelines*, 1 I.C.C.2d at 535-36. The management efficiency constraint protects captive shippers from paying for avoidable inefficiencies (whether short-run or long-run) that are shown to increase a railroad's revenue need to a point where the shipper's rate is affected. *Id.* at 537-42. The "stand-alone cost" (SAC) constraint protects a captive shipper from bearing costs of inefficiencies or

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[1] *See* BNSF Reply Narr. II-B-45.
[2] *See* BNSF Reply Narr. II-B-45-6.

from cross-subsidizing other traffic by paying more than the revenue needed to replicate rail service to a select subset of a carrier's traffic base. *Id.* at 542-46. A fourth constraint—phasing—can be used to limit the introduction of otherwise-permissible rate increases when necessary for the greater public good. *Id.* at 546-47. Xcel has chosen to proceed here using the SAC test.

B. SAC Test

A SAC analysis seeks to determine the lowest cost at which a hypothetical, optimally efficient carrier could provide the service at issue free from any costs associated with inefficiencies or cross-subsidization of other traffic. A "stand-alone railroad" (SARR) is hypothesized that could serve the traffic if the rail industry were free of barriers to entry and exit. (It is such barriers that can make it possible for railroads to engage in monopoly pricing absent regulatory constraint.) Under the SAC constraint, the rate at issue cannot be higher than what the SARR would need to charge to serve the complaining shipper while fully covering all of its costs, including a reasonable return on investment.

To make a SAC presentation, a shipper designs a SARR specifically tailored to serve an identified traffic group, using the optimum physical plant or rail system needed for that traffic. Using information on the types and amounts of traffic moving over the defendant's rail system, the complainant selects a subset of that traffic (including its own traffic) for the SARR that would optimize revenues while minimizing costs.

Based on the traffic group to be served, the level of services to be provided, and the terrain to be traversed, a detailed operating plan must be developed. The operating plan is a crucial factor in determining both the total investment that would be needed and the annual operating costs that would be incurred by the SARR.

The operating plan affects the physical plant that the SARR would need. For example, roadway facilities must be sufficient to permit the attainment of the speeds and traffic density that are assumed. The length and frequency of passing sidings must be able to accommodate the specific train lengths and frequency of train meets that are assumed. And traffic control devices must be designed to allow trains traveling in opposite directions on the same track to be handled safely and efficiently based on the traffic density assumed in the operating plan. Yards must be included to permit interchange of traffic to connecting carriers, changing of crews, and servicing of equipment. Yards may also be necessary for classification of traffic and consolidation of shipments into line-haul trains.

Among other things, the operating plan must identify the number of trains that would be required to move the traffic group—a figure determined by the number of cars in each train, any shipper requirements or limitations, and the number of carloads required to move the shippers' traffic. The operating plan must also identify the number of operating personnel required. Finally, the plan must be capable of providing, at a minimum, the level of service to which the shippers in the traffic group are accustomed.

Once an operating plan is developed that would accommodate the traffic group selected by the complainant, the system-wide investment requirements and operating expense requirements (including such expenses as locomotive and car leasing, personnel, material and supplies, and administrative and overhead costs) must be estimated. The parties must provide appropriate documentation to support their estimates.

It is assumed that investments normally would be made prior to the start of service and that recovery of the investment costs would occur over the economic life of the assets. The Board's SAC analyses are limited to finite periods of time—here, 20 years—but they assume that the SARR would continue to operate into the indefinite future. However, the revenue requirements for the SARR are based on the operating expenses that would be incurred over that 20-year period plus the portion of capital costs that would need to be recovered during that period. A computerized discounted cash flow (DCF) model simulates how the SARR would likely recover its capital investments, taking into account inflation, Federal and state tax liabilities, and a reasonable rate of return. The annual revenues required to recover the SARR's capital costs (and taxes) are combined with the annual operating costs to calculate the SARR's total annual revenue requirements.

The revenue requirements of the SARR are then compared to the revenues that the traffic group is expected to generate. The revenue contributions from non-issue traffic—here, traffic other than that moving to Pawnee—are based on the revenues produced by the current rates (and, where the traffic would be interlined with another carrier, the extent of the SARR's participation in the movement). *Guidelines*, 1 I.C.C.2d at 544. Traffic and rate level trends for that traffic group are forecast into the future to determine the future revenue contributions from that traffic.

The Board then compares the revenue requirements of the SARR against the total revenues to be generated by the traffic group over the full (here, 20-year) SAC analysis period. Because the analysis period is lengthy, a present value analysis is used that takes into account the time value of money, netting annual over-recovery and under-recovery as of a common point in time. If the present value of the revenues that would be generated by the traffic group exceed the present value of the SARR's revenue requirements, then the existing rate levels are considered to be unreasonable under the SAC constraint.

STAND-ALONE COST ANALYSIS

In this case, Xcel designed a hypothetical SARR called the Wyoming Colorado Coal Railroad (WCC) to serve a traffic group consisting entirely of coal traffic moving in unit-train service from PRB coal fields in Wyoming. In addition to the Pawnee traffic, the WCC would serve other PRB coal traffic that would be interchanged with the residual BNSF (i.e., the portion of the BNSF system that would not be replicated by the WCC) or with the Union Pacific Railroad Company (UP).

A. WCC Configuration

The WCC would replicate existing BNSF lines from the Wyoming PRB mines to Pawnee Junction, CO, and would have interchange points with the "residual" (off-SARR) part of the BNSF system at three locations (Wendover, WY, Northport, NE, and Pawnee Junction, CO) and with the UP at Northport. The WCC route would extend from mines located on the Eagle Butte Branch south to Campbell, WY; then east to Donkey Creek, WY; then south to Wendover, WY. From there, the line would turn east to Northport, NE (via Guernsey, WY); and then south (via Sidney, NE, Sterling, CO, and Union, CO) to the spur that serves the Pawnee power plant.

A map of the WCC system and the Board's resolution of evidentiary disputes regarding the amount of track that would be needed for the WCC to operate this system are contained in Appendix A—WCC Configuration.

B. WCC Traffic Group

Xcel has selected a traffic group consisting of 37 power plants that procure coal from the PRB coal fields in Wyoming. As discussed below, the parties disagree on the scope of the traffic group, how to allocate revenues from cross-over traffic, and how to forecast the amount of tonnage and revenues that the traffic group would generate over the 20-year period of analysis.

1. Cross-Over Traffic

As in many recent cases, the complainant here relies extensively on "cross-over" traffic to simplify its SAC presentation. Cross-over traffic refers to movements for which the WCC would not replicate all of BNSF's current movement, but would instead interchange the traffic with the residual portion of the BNSF system. Here, Xcel designed the WCC to provide cross-over service to 35 of the 37 shippers in its traffic group. Xcel's own traffic would be local to the SARR—that means the SARR would carry the traffic from origin to destination—and the traffic destined for JEC's Jeffrey, KS power plant would be interchanged with UP at Northport (where BNSF currently interchanges that movement). The rest of the traffic (over 90%) would originate on the WCC and be interchanged with the residual BNSF for delivery to the utility plants.

BNSF argues that the Board should not permit Xcel to rely on cross-over traffic as the predominant source of revenue for the WCC.[3] While BNSF recognizes that the Board has accepted extensive use of cross-over traffic in previous cases, BNSF challenges the propriety of that practice. It claims that, unless the procedure for allocating the revenues between the SARR and the residual defendant carrier is sound, the purpose of the SAC test will be

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[3] BNSF Reply Narr. III-A-2.

defeated by severing the connection between the revenues and costs associated with serving that traffic.[4]

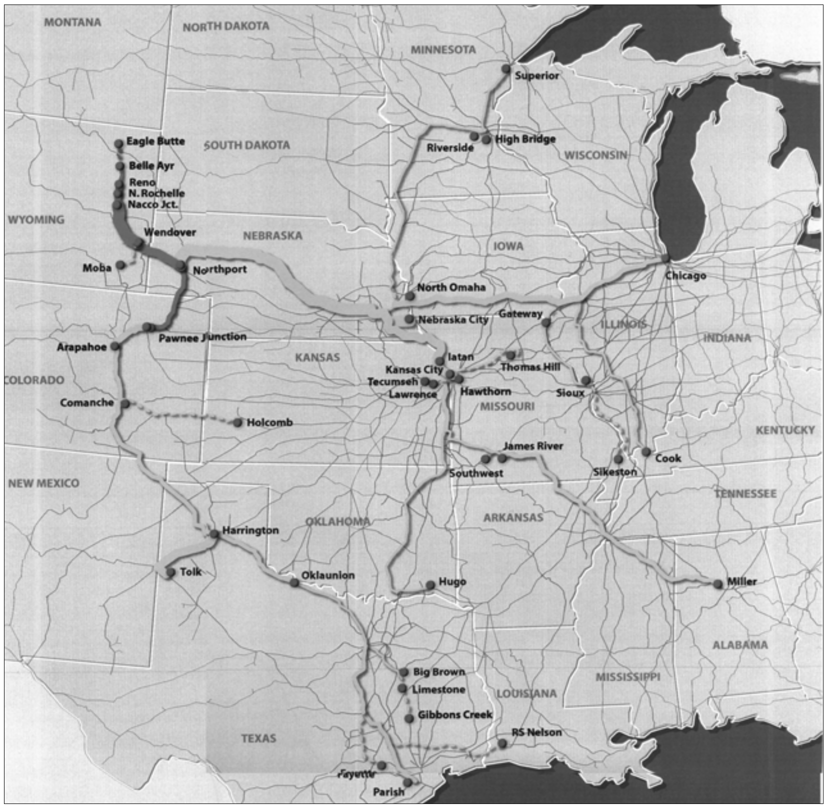
The use of cross-over traffic to simplify the SAC presentation is a well established practice. *See*, *e.g.*, *Duke Energy Corp. v. CSX Transp., Inc.*, 7 S.T.B. 422-424 (2004) (*Duke/CSXT*); *Texas Municipal Power Agency v. The Burlington N&S.F. Ry.*, 6 S.T.B. 573, 605 (2003) (*TMPA*); *Bituminous Coal – Hiawatha, UT To Moapa, NV*, 10 I.C.C.2d 259, 265-68 (1994) (*Nevada Power*). It enables the SAC analysis to take into account the economies of scale, scope and density that the defendant carrier enjoys over the routes replicated. *TMPA*, 6 S.T.B. at 590, *citing Nevada Power*, 10 I.C.C.2d at 265 n.12.

A principal goal of the SAC test is to determine whether the complaining shipper is bearing the costs of facilities and services that it does not use. Thus, it is appropriate for the SAC analysis to focus on the particular facilities and services needed to serve that shipper. The costs of those facilities are properly shared with other traffic using those same facilities. *See Guidelines*, 1 I.C.C.2d at 544 ("Without grouping, SAC would not be a very useful test, since the captive shipper would be deprived of the benefits of any inherent production economies."). Permitting Xcel to use cross-over traffic in its SAC presentation thus keeps the SAC analysis properly focused on the core inquiry—whether the defendant railroad is earning adequate revenues on the portion of its rail system that serves the complaining shipper.

Creating a SARR to serve the same traffic group without using the cross-over traffic device would dramatically enlarge the geographic scope of a SARR. In this case, for example, if one were to design a SARR to serve the same 37 shippers without any cross-over traffic, the SARR would need to be at least 10 times larger than the WCC to reach the destinations shown on the following map.

[4] *See, e.g.*, BNSF Reply Narr. I-14.

Rail System Serving WCC Traffic Group



And the geographic scope of the expanded SARR might not end there. If one were to extend the SARR south of Pawnee Junction down to the Gulf Coast region, for example, more traffic would need to be included in the traffic group (e.g., intermodal, general manifest, or chemical traffic from the Gulf Coast region) to generate the same economies of density that BNSF enjoys along that corridor. But to add such traffic, the geographic scope of the SARR would need to be extended even further to include other portions of BNSF's system that would be needed to serve that added traffic. The cascading analysis could result eventually in a complainant having to replicate almost all of BNSF's system. The scope and complexity of the proceeding would expand exponentially.

While the WCC is a relatively small and straight-forward SARR, the parties had to produce, and the Board analyze, dozens of volumes of evidence on the costs associated with acquiring the land, designing, building, and operating this short SARR (approximately 400 route-miles). It is difficult to imagine the amount of materials that would have to be produced and analyzed to put together the evidence needed to design a railroad 10 times larger. The number of disputed issues would also escalate, and the operating plans and computer simulation models would become so complicated as to risk being intractable.

The use of cross-over traffic thus provides a reasonable measure of simplification that allows SAC presentations to be more manageable. Curtailing the geographic scope of the SARR greatly simplifies the operating plans that must be developed, thus limiting the complexity of what is nevertheless still a dauntingly large and detailed task. Without cross-over traffic, captive shippers might be deprived of a practicable means by which to present their rate complaints to the agency. This would be contrary to the policy directives set by Congress in 49 U.S.C. 10101(2) (to require fair and expeditious regulatory decisions when regulation is required), 10101(6) (to maintain reasonable rates where there is an absence of effective competition), and 10101(15) (to provide for the expeditious handling and resolution of all rail proceedings required or permitted to be brought before the Board). *See Ass'n of Am. Railroads v. STB*, 306 F.3d 1108 (D.C. Cir. 2002) (upholding the Board's determination not to consider evidence of product or geographic competition in the market dominance analysis in order to avoid inordinate delay in the discovery and evidentiary phases of rail rate cases and to allow shippers that lack competitive alternatives practical access to the rate complaint process).

The Board recognizes that, in permitting captive shippers to simplify their presentations by using cross-over traffic, it must carefully analyze the revenue allocation methodology used in these cases. (Indeed, BNSF's challenge to the use of cross-over traffic appears directed not so much at whether to permit cross-over traffic but rather at how to allocate the revenues from cross-over traffic.) For that reason, the Board has long advised parties that it has no single accepted revenue allocation methodology in SAC cases—*see, e.g., PPL Montana, LLC v. Burlington N. & S. F. Ry.*, 6 S.T.B. 286, 293-94 n.14 (2002) (*PPL*) — and in recent cases has sought to improve on the method used, *see Duke Energy Corp. v. Norfolk S. Ry*., 7 S.T.B. 103-112 (2003) (*Duke/NS*); *Carolina Power & Light Co. v. Norfolk S. Ry.*, 7 S.T.B. 252-253 (2003) (*CP&L*); *Duke/CSXT*, 7 S.T.B. at 422-424.

As with any simplifying assumption, the inclusion of cross-over traffic necessarily introduces some degree of imprecision into the SAC analysis. But the value of this modeling device—both in keeping the analysis focused on the facilities and services used by the complainant shipper, and in streamlining and simplifying already complicated undertakings— outweighs the concerns raised by BNSF. Although BNSF is free to propose new ways to allocate the revenues from the cross-over traffic (and does so in this case), the Board is not persuaded that it should prohibit the use of cross-over traffic, now a standard feature of SAC cases.

2. Revenue Allocation

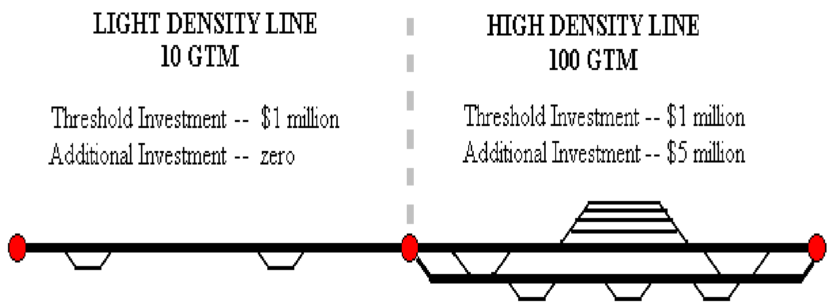
To compute what portion of the revenues from cross-over traffic should be attributed to the WCC network and what portion to the residual BNSF network, Xcel relied upon the "modified mileage block prorate" approach (the "Block Methodology") that, until recently, had been used in SAC cases. (Under the Block Methodology, each carrier is assigned one "block" for every 100 miles or part thereof that it carries the traffic, plus an additional block for originating or terminating the traffic; the total revenues are then allocated based on each carrier's share of the total number of blocks.) The Board has since re-examined the revenue allocation issue in *Duke/NS*, 7 S.T.B. at 103-112. There, the Board confirmed that the revenue allocation should reflect, to the extent practicable, the defendant carrier's relative costs of providing service over each of the two segments. *Duke/NS*, 7 S.T.B. at 104-106. The Board concluded that a "Modified Straight-Mileage Prorate" (MSP) approach would better approximate those relative costs than the Block Methodology. *Id.* at 108-112. Under the MSP approach, revenue from cross-over traffic is allocated based on the total mileage hauled by the SARR and the residual carrier, while retaining a 100-mile additive for originating or terminating the traffic to reflect the additional costs associated with providing those services. The MSP approach was also applied in two other recent cases—*Duke/CSXT*, 7 S.T.B. at 422-424, and *CP&L*, 7 S.T.B. at 252-253. (The *Duke/NS*, *Duke/CSXT*, and *CP&L* cases are collectively referred to herein as the Eastern SAC cases.)

Xcel stated at oral argument that it has no objection to the use of the MSP approach in this case. BNSF, however, advocates a different approach that was also considered but rejected in *Duke/NS*, 7 S.T.B. at 106-108—what it calls the "Density Adjusted Revenue Allocation" method (DARA). Under DARA, the defendant railroad's variable cost for each segment of the movement would be calculated. Revenues would then be allocated between the two segments of the movement in proportion to each segment's relative variable cost, distance, and density. The DARA formula that BNSF submits here to allocate cross-over revenues is identical to the formula advocated by the defendant railroads in the Eastern SAC cases, set forth in *Duke/NS*, 7 S.T.B. at 107 n.31. The premise of the formula is that proportionately more revenues per ton-mile should be allocated to movements on lighter density lines because (all other factors being equal) these movements would have higher average total costs per ton-mile (given that there would be less traffic over which to spread the costs). Thus, where the density of the residual BNSF tracks would be less than the density of the WCC, more revenue would be attributed to the residual BNSF as compared to the MSP approach.

The Board rejected this formula in the Eastern SAC cases because the formula rested on an unsupported assumption that light-density lines have the same fixed or threshold costs per mile as heavy-density lines. If the fixed costs per mile are not roughly the same, then DARA could allocate too much revenue to the light-density lines. If the amount of fixed costs required is roughly proportional to the amount of traffic that would move over that line, then DARA's complicated formula would collapse to a simple mileage division. But there is no basis to assume that the fixed investment costs are the same for light- and heavy-density lines. *Duke/NS*, 7 S.T.B. at 107-108.

BNSF suggests that the Board did not fully understand the DARA approach as presented in the recent Eastern SAC cases, and should therefore reconsider its decision to reject this allocation methodology. In particular, BNSF argues that, because the first step of DARA requires the hypothetical division to cover each carrier's variable cost as calculated by the Board's regulatory costing model, the Uniform Rail Costing System (URCS), the remaining fixed costs (costs that do not vary with output, such as investments in land, tunnels, track, and bridges) are in fact the same for light-density lines as for heavy-density lines.

The DARA method, however, appears to overstate the revenues that would be attributed to light-density segments, by calculating the variable costs using BNSF's system-average numbers (from URCS). Conceptually, the road property investment in a light- or heavy-density line can be broken into two parts: the threshold investment required to establish a rail line capable of moving a minimum volume of traffic, and the additional investment needed to move more than minimal traffic volumes. The following diagram contrasts the minimal investment needed to provide any rail service at all (the threshold costs) with the greater investment needed to handle a significant volume of traffic. BNSF correctly notes that URCS seeks to capture the additional road property investment—which may include double tracking, cross-overs, more sidings, and yard infrastructure. What BNSF ignores, however, is that URCS develops the average investment for the carrier's entire rail system (system-average costs) and therefore does not attribute the additional investment of the high-density line to just that line but rather distributes the investment over all traffic on the entire network, including traffic that travels just over the light-density line. By relying on URCS to calculate the variable costs of the two segments of a movement, DARA overestimates the road property component of the variable cost that should be attributed to light-density lines, therefore allocating too much revenue to those lines. Conversely, it underestimates the road property component of variable costs for high-density lines and therefore allocates too little revenue to those lines.

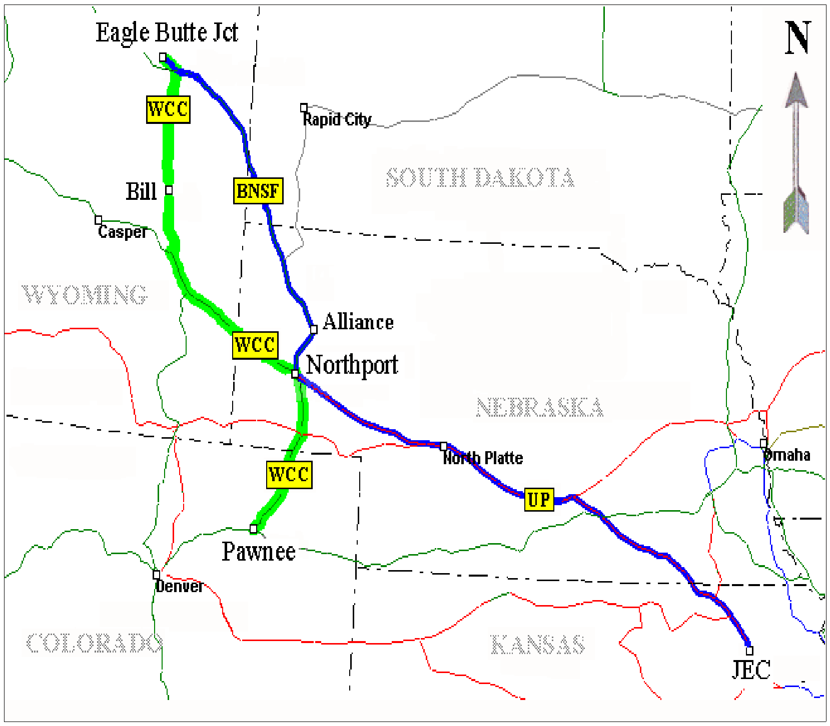


There may be merit to allocating revenues based on the relative variable cost and average fixed cost incurred to haul the traffic over each segment of the move, if those costs can be fairly approximated. However, absent evidence on the accuracy of such an alternative procedure, the Board will not depart here from its precedent.

3. The Jeffrey Energy Center Movement

BNSF also objects to the inclusion of the JEC coal movement in the traffic group selected by Xcel. This movement is the largest single movement in Xcel's proposed traffic group, both in terms of tonnages and net revenues. As depicted below, the JEC traffic currently moves on BNSF from the northern PRB Eagle Butte mine, through Edgemont, SD, and Alliance, NE, and then to Northport, NE, where it is interchanged with UP and delivered to JEC. The WCC, however, would route the traffic south out of the PRB through Wendover, WY, rather than follow the current Edgemont/Alliance route to Northport. The WCC route would be slightly longer (6.1 miles), but the interchange point with UP would remain the same.

Routing of Coal To JEC



BNSF argues that this routing would violate the traffic rerouting principles articulated by the Board in *TMPA*. There the Board stated that a SAC proponent may reroute traffic so long as all the ramifications of the rerouting (both cost and operational) are taken into account. The Board sanctioned rerouting of traffic that would be local to the SARR (i.e., that the SARR would handle from origin to destination) so long as the new route would meet the shipper's transportation needs. *TMPA*, 6 S.T.B. at 595. Because the change in routing was confined to the SARR, the Board recognized that all costs associated with the rerouting would be factored into the SAC analysis. However, where a rerouting involved cross-over traffic and would have ramifications beyond the SARR, requiring the residual defendant railroad or other connecting carriers to alter their operations, the Board was concerned that such reroutings would render the SAC analysis incomplete. Accordingly, the Board cautioned proponents of such reroutings that the "SAC analysis must either take responsibility for the entire movement from origin to destination or fully account for the ramifications of requiring the residual carrier to alter its handling of the traffic." *Id*. Here, the rerouting of the JEC traffic does not involve cross-over traffic and would not have any cost or operational impact on carriers other than the WCC. (The residual BNSF would not participate in the move and the UP would receive the traffic at the same interchange point at which it currently receives the traffic from BNSF.) Thus, the JEC reroute is akin to the local reroute sanctioned in *TMPA*, as all costs associated with providing service over the different route are reflected in the SAC analysis.

Nonetheless, BNSF argues that the WCC route would not meet the shipper's needs, as that route is longer and more complex in nature than the Edgemont/Alliance route and thus operationally less efficient for traffic moving from the Eagle Butte mine.[5] To substantiate its claim, BNSF compared the WCC's cycle times developed by Xcel for the JEC traffic with BNSF's actual cycle times in 2000 through 2002. BNSF contends that the longer WCC cycle times are evidence that the WCC would not provide service that is equal to or better than the service currently provided by BNSF over the Edgemont/Alliance route.[6]

BNSF's analysis is flawed, however, as it improperly compared the WCC's longest cycle time, which would occur only during peak traffic periods, to BNSF's average cycle time.[7] More importantly, the cycle time from Eagle Butte to Northport under BNSF's own operating plan for the WCC is shorter than BNSF's actual average cycle time for the movement. Thus, BNSF's own operating plan demonstrates that the shipper would not be disadvantaged by the proposed routing.

Alternatively, BNSF argues that the rerouting should not be accepted because the JEC rail transportation contract specifies the route that is currently used.[8] However, there is no evidence that the current route is necessary to meet the shipper's needs. *See TMPA*, 6 S.T.B. at 591. To the contrary, the contract specifies that changes in the agreed-upon movement would be possible.[9]

Finally, BNSF argues that inclusion of the JEC traffic in the WCC traffic group would be contrary to the purposes and objectives of the SAC test because the JEC traffic does not share facilities with the Xcel traffic.[10] That is not the case, however, as the JEC traffic currently shares the facilities from the Eagle Butte mine to Donkey Creek. *Compare Duke/CSXT*, 7 S.T.B. at 421-422 (excluding movements that, under their customary routing, generally did not come within 250 miles of the lines replicated by the SARR).

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[5] *See* BNSF Reply Narr. III-A-23-24.

[6] *See* BNSF Reply Narr. III-A-23-24.

[7] *See* Xcel Reb. Narr. III-A-23.

[8] *See* BNSF Reply Narr. III-A-24.

[9] *See* BNSF Reply Narr. III-A-24 n.16 (the contract states that "[i]f Railroads change the Planned Route of M ovement from that designated in this Section, they must first obtain written approval from the Shipper, which approval will not be unreasonably withheld"). *See also* BNSF Reply WP. III-A-00011.

[10] *See* BNSF Reply Narr. III-A-23.

Complainants making a SAC presentation are encouraged to group traffic because, "[w]ithout grouping, SAC would not be a very useful test, since the captive shipper would be deprived of the benefits of any inherent production economies." *Guidelines*, 1 I.C.C.2d at 544. And the *Guidelines* permit a complainant "considerable flexibility in designing and locating the SARR and grouping traffic to take advantage of traffic densities." *TMPA*, 6 S.T.B. at 589, *citing Guidelines*, 1 I.C.C.2d at 543-44 (declining to impose restrictions in advance on the design of a SARR or on the traffic that could potentially be included in a stand-alone traffic group). Indeed, Xcel could have designed a SARR that would not follow either of the current BNSF routes out of the PRB. Yet, under BNSF's test, because none of its traffic currently moves over such a route, the shipper could include no other traffic beyond its own in the traffic group to share costs—a result at odds with the *Guidelines*. Under the *Guidelines*, 1 I.C.C.2d at 544, the complainant need only be prepared to defend the reasonableness of the traffic group that it has selected and the assumptions it has made. Here, the WCC would carry the traffic from origin to destination and could offer service comparable or superior to that provided by BNSF. In these circumstances the Board finds nothing unreasonable about including the JEC traffic in the SAC analysis, and it would thus be inconsistent with the *Guidelines* to deny the SARR the increased economies of density that inclusion of the JEC traffic would create.

Even with that finding, BNSF argues that the Board must nevertheless exclude the JEC movement if the Board relies on BNSF's proposed operating plan for the WCC, as BNSF's operating plan does not provide for that movement. (In particular, its evidence on road property investment and operating statistics for the WCC were both derived without the JEC traffic.) BNSF would create a difficult conundrum—if the Board were to reject Xcel's operating plan (which, as discussed *infra*, is flawed) in favor of BNSF's proposed operating plan for the WCC, the Board would also need to exclude JEC from the traffic group. Were the Board to adopt this line of reasoning, then the defending railroad would have *de facto* control over the traffic group by its choice—a result contrary to the *Guidelines*, which vest that decision initially with the shipper and ultimately with the Board.

While it is true that the Board cannot and should not require BNSF to make the complainant's case, it is also true that the Board must not permit a defendant railroad's litigation strategy to make meaningful regulatory review impossible. As the Board has explained in, *Arizona Electric Power Cooperative, Inc. v. The BNSF Ry. Co., et al.*, 7 S.T.B. at 225, rail rate cases are not ordinary commercial litigation, given the regulated nature of rail rates charged to captive shippers. Operating in an industry subject to regulatory oversight, railroads have a responsibility to provide the information needed by the Board. *See* 49 U.S.C. 721(b)(3). When a rail rate is challenged, the Board must determine whether the carrier has abused its market power by charging an unreasonable rate to a shipper who has no effective transportation alternative for that traffic. In this regard, the Board's role differs from that of a court. The Board is not simply an adjudicator; rather, it is charged with carrying out the rail transportation policy set forth in 49 U.S.C. 10101, and more specifically with investigating the reasonableness of a challenged rate, making findings as to its reasonableness, and then taking appropriate action to compel compliance with the statute. *See* 49 U.S.C. 11701(a). The Board strives to achieve an appropriate balance so that the adversarial process works in a manner that provides an adequate record upon which the Board may make a fair and informed assessment of the reasonableness of a challenged rate.

BNSF was free to argue that the JEC movement should be excluded and to offer evidence showing the consequences of excluding that traffic. However, when the Board finds that traffic such as the JEC movement is properly included in a SAC analysis, the Board, consistent with its regulatory responsibilities outlined above, must devise another method to account for that traffic. Indeed, the Board has noted that BNSF could have submitted its own evidence on this movement but chose not to do so. Furthermore, BNSF was on notice that the Board would likely include the JEC traffic, as the Board had accepted a similar reroute that had no cost or operational ramifications beyond the SARR (the Big Brown traffic) in *TMPA* prior to BNSF's submission of its SAC evidence in this case.

Because the Board's analysis here includes the JEC movement, and because Xcel's proposed operating plan for the WCC cannot be used (for reasons discussed *infra*), the Board uses BNSF's proposed operating plan for the WCC with adjustment (also discussed *infra*) to the annual operating expenses and road property investment to accommodate the additional traffic volumes resulting from the JEC movement.

4. Tonnage and Revenues

The annual tonnage and revenues for the WCC traffic group are addressed in Appendix B. As discussed there, for projecting future tonnage and revenues for the traffic group, the Board's analysis relies on existing contracts (where applicable), actual data for 2001 and the first half of 2002, Xcel's projections for its own traffic (where available), BNSF's internal business forecasts for the second half of 2002 through 2004, and the coal tonnage and revenue projections for the PRB region obtained from the U.S. Department of Energy's Energy Information Administration (EIA) for 2005-2020.

C. Operating Plan

How a SARR would operate is a prime determinant of the configuration (physical plant) and annual operating expenses of the SARR. The operating plan must be able to meet the transportation needs of the traffic the SARR proposes to serve. Thus, as a general matter, the proponent of a SARR may not assume changed levels of service from those currently offered merely to minimize the costs of the SARR's physical plant and operations, unless it presents evidence showing that the affected shippers, connecting carriers, and receivers would not object. *See, e.g., West Texas Util. Co. v. Burlington N. R.R.*, 1 S.T.B. 638, 667 (1996) (*WTU*) (rejecting an operating plan that would have increased average train length, because "train sizes must reflect the operational constraints and restrictions faced by connecting railroads, coal mines, and utilities").

The WCC was designed to be an efficient, modern, coal-only freight railroad. The parties agree that all trains would operate between terminals as unit trains, with run-through service for interchanged trains. There would be no freight classification yards and only limited intermediate switching at Guernsey, where 1,000-mile car inspections and switching of bad-order cars (cars needing immediate maintenance) would occur. The WCC would serve 13 PRB mines—the Eagle Butte, Buckskin, Rawhide, Dry Fork, Caballo, Belle Ayr, Caballo Rojo, Cordero, Jacobs Ranch, Black Thunder, North Rochelle, Rochelle/North Antelope, and Antelope mines. The WCC would deliver coal from these mines to the Xcel plant and to interchange points with either the residual BNSF or UP. All trains would operate with two-person crews and would be the same size as BNSF currently uses for each customer in the traffic group. The trains would use distributed power (DP), which involves positioning a locomotive at the rear of the train, thereby reducing the drawbar tension between cars and enabling the same number of locomotives to haul heavier, longer trains.

Xcel used its consultant's proprietary string diagram model computer program to develop its operating plan and system design. The string program simulates train movements on the proposed WCC system in a "peak week" to determine whether there would be sufficient physical plant to allow trains to move safely across the system. Inputs into the string program include routing data, track characteristics, and information regarding junction points. The string program also uses numerous "rules" on how the trains would operate, such as speed limits, acceleration and deceleration algorithms, priorities for loaded and empty trains, and time for various activities (e.g., crew changes). The string program generates operating statistics for the WCC trains, including the amount of time the trains would be on the WCC. These operating statistics are used to develop operating costs (e.g., time-on-line becomes the basis for the number of locomotives that the WCC would need).

The operating statistics developed by the string program have changed throughout the course of this proceeding. On opening, Xcel's proposed train speeds were too fast, given the placement and use of sidings, and hundreds of train wrecks would have occurred.[11] Due to these and other flaws, BNSF sought to have Xcel's complaint dismissed. Xcel responded to the motion to dismiss by revising its opening evidence and asserting that it could correct any remaining errors on rebuttal. On rebuttal, Xcel added additional siding capacity to address problems noted by BNSF in its reply evidence, but introduced a new set of errors by ignoring the grades and curvature that would be present on portions of the WCC. Table 1 illustrates how Xcel's presentation has changed over time as Xcel attempted to rehabilitate its use of its string program.

[11] *See* BNSF Reply Narr. III-B-16-17.

Table 1
String Program Output

Basic Operating Statistics	Xcel's Evidence		
	Opening[12] (January 10, 2003)	Reply to Motion to Dismiss[13] (February 26, 2003)	Rebuttal[14] (May 19, 2003)
SD70 Locomotives	133	137	90
Average LUM per month	7582	7193	10914
Rail Cars	114	470	274
Train Crews	146	260	228

Based on the record in this case, the Board finds that Xcel's operating plan is infeasible. Xcel's operating plan would minimize the operating expenses—and the need to build infrastructure that could stage trains into the PRB—by inappropriately shifting to the mine operators the cost of providing facilities to stage multiple trains awaiting loading. Under Xcel's plan, trains would arrive empty at mines and remain there until the departure time. These waiting periods (dwell times) would often be much longer than the historic dwell times for BNSF trains, but Xcel's evidence ignores the extra time the trains would spend at the mines. There is no evidence, however, that the mines could accommodate these altered operations without additional tracks on which to stage trains. And Xcel's SAC analysis ignores the costs for such additional facilities, implicitly assuming that the mines would pay for such investment.

There are various other fundamental deficiencies in Xcel's operating plan. Under that operating plan, arriving trains would sit at individual mines for between 22.2 hours to 118.8 hours,[15] with up to eight trains in some mines at the same time.[16] But under such a scenario, mining in the PRB could grind to a halt due to the massive congestion and gridlock that would result at the mines. Moreover, under Xcel's operating plan, the trains would not arrive in the proper order for loading, so that trains would somehow have to be shifted around each other to match the outbound departures assumed by Xcel's operating plan—a logistical nightmare, if not an impossibility.

In addition, Xcel's final operations proposal generally assumed that the majority of the WCC would be a straight and level railroad, with 67% of

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[12] Xcel Open. e-WP. "Pawnee_Opr_Exp."
[13] Xcel Reply to Motion e-WP. "Pawnee_Opr_ExpR."
[14] Xcel Reb. e-WP. "Pawnee_Opr_ExpReb."
[15] *See* STB worksheet 42057 DBF String Dwell Open vs Rebut.xls.
[16] *See* STB worksheet, 42057 DBF Trains At Mine.

trains encountering zero grade and curvature throughout their journey.[17] Xcel introduced this flaw into its evidence in the rebuttal round, when it was trying to rehabilitate the string program to correct several problems BNSF had identified on reply. Xcel then sought to correct this flaw by filing an *errata* to its rebuttal evidence. It characterized its failure to model the grade and curves of the WCC as a minor mistake that the Board could correct by making changes to the string program. Xcel purported to describe the code changes needed to make its string program work.

However, the improper application of grade and curve data, which impacts a majority of trains on the WCC, is more than a "minor" error. Grades and curves are major physical restraints on train speed and locomotive requirements. An operating plan that ignores these features incorrectly assumes that trains could travel more rapidly than possible with their proposed power. Such unrealistic speeds result in incorrect siding locations and contribute to the staging problems previously described. And the output of the string program is the foundation for Xcel's operating expenses.[18]

Nor would it be practical or appropriate for the Board to manipulate the string program or attempt to rewrite the underlying computer program. First, use of Xcel's operating plan requires a good deal of judgment in addition to the inputting of data. When Xcel demonstrated the string model for the Board's staff and BNSF, it was quite apparent that there is a significant element of subjective judgment that is required in using the model. The same model has been presented in several recent SAC cases. Each time, the defendant railroad has demonstrated that the results produced by the string program were flawed. But despite the existence of at least three proven and commercially available products—the Rail Traffic Controller (RTC) model, the Rail Dispatch & Capacity Analysis model, and the Railway Analysis and Interactive Line Simulator model—complainants bringing SAC cases to the Board have continued to use the string program. Given its proven unreliability, as shown in both this case and prior SAC cases, the Board has no reason to believe that it could successfully rewrite and then manipulate the program to obtain reliable results when its proponents have repeatedly failed to do so.

Having rejected Xcel's operating plan, the only other evidence of record is that submitted by BNSF. BNSF's operating plan corrects many of the perceived deficiencies in Xcel's plan. BNSF proposes additional sidings and tracks to stage trains enroute to the mines. Other problems with Xcel's plan, such as excessive train speeds, too few crew starts and trains, and train collisions, are addressed. BNSF used the commercially available RTC model to determine the appropriate main line and yard configuration for the WCC. The model provided to the Board and Xcel accounts for track characteristics that affect speed and transit time, such as grades, curvature, signal systems,

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[17] *See* BNSF Sur-reb. V.S. Leopold and Monks, Table 1, at 18.

[18] Xcel Reb. Narr. III-B-31 n.83 ("the output of the string diagram model is utilized to calculate the number of locomotives, number of railroad-owned railcars, and the number of crew personnel * * * required by the WCC").

maximum allowable main line speed limits, location and length of sidings, and allowable turnout and siding speeds.

While Xcel has raised a number of issues regarding the use of the RTC model in this case, there is no question that the operating plan produced using the RTC model is far superior to the one produced by using the string program. Furthermore, as the party with the burden of proof on this issue, Xcel cannot expect the Board to use the flawed string program by merely pointing to limited problems with BNSF's proposed use of the RTC model. BNSF's operating plan, based on the RTC model, is clearly the better evidence of record. It does not inappropriately attempt to lower operating expenses by stacking empty trains at the coal mines, or by assuming a flat and straight railroad. The record establishes that the RTC model has been thoroughly tested and has gained widespread acceptance among railroads, transit authorities, and government agencies.[19]

There is, however, one problem with the use of BNSF's proposed operating plan: it is not designed to handle the entire traffic group selected by Xcel. All of BNSF's operating statistics and its network configuration were derived without accounting for the JEC traffic. Accordingly, the Board has adjusted the resulting operating and construction cost estimates to account for the inclusion of the JEC traffic in the traffic group. *See* discussion of Calibration for Additional Tonnage, *infra*.

D. Operating Expenses

Having accepted BNSF's proposed operating plan, as adjusted, the SAC analysis here uses BNSF's operating assumptions for the WCC to determine such matters as the number of locomotives, freight cars, and train crew personnel. But the costs of each of those resources are determined based on the quality of the evidence presented in this case, as discussed in Appendix C. For some costs, Xcel's evidence is used, while for other costs BNSF's evidence is used. The resulting total operating expense figure used by the Board here is $161.7 million in the base year (2001).

E. Road Property Investment

There is a substantial difference between the parties' estimates on the level of investment that would be required to construct the WCC. Xcel claims that the WCC could be built for slightly more than $900 million, while BNSF claims that it would cost $1.8 billion. Table D-1 in Appendix D provides a summary of the parties' investment figures by category and the Board's restatement. As shown there, the Board's restatement results in total construction costs for the WCC of approximately $1.3 billion.

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[19] *See* BNSF Reply Narr. III-B-22.

F. Calibration for Additional Tonnage

The traffic group used by the Board is significantly larger than that for which BNSF designed its proposed operating plan and configuration for the WCC. As shown in Appendix B, the Board's analysis here incorporates the JEC traffic and assumes that the WCC would handle approximately 132 million gross tons (MGT) in the peak year (2020). In contrast, BNSF's proposed operating plan and configuration for the WCC were designed to handle a peak load of approximately 111 MGT in 2003 and 2019.

Discrepancies of this nature are occurring with greater frequency in SAC cases. The volume forecasts used by the Board routinely differ somewhat from those proposed by either side. And in the recent Eastern SAC cases, further discrepancies resulted from the Board's decision to reject some of the complainants' proposed rerouting of cross-over traffic. The Board has therefore increasingly been faced with evidence regarding operating plans, expenses, and configurations that is based on traffic volumes that differ somewhat from those used by the Board.

In the Eastern SAC cases, the Board dealt with similar discrepancies by reopening the records for supplemental evidence. But given the pattern that has emerged, the Board has explored how to address this matter without reopening the record in what are already protracted cases. Following oral argument, the Board asked the parties to brief the issue of what adjustments the Board should make to the SARR's operating expenses and road property investment, should the Board use an operating plan (here BNSF's) that is predicated on a traffic group that is different in size from the traffic group (here Xcel's) used by the Board. BNSF offered no suggestions; it simply objected to the notion that the Board might make such an adjustment. BNSF argued that the Board's only option is to reopen the proceeding for a round of supplemental evidence.

In this case, reopening the record for supplemental evidence would be neither simple nor desirable. It would require BNSF and Xcel to submit new operating plans. BNSF would need to change its initial presentation to add the JEC traffic, and Xcel would have to change its presentation to use the RTC model, rather than its discredited string program. This would entail a massive and ultimately unnecessary evidentiary undertaking. To assure the accuracy and reliability of that evidence, the Board would need to provide for multiple rounds of supplemental evidence, post-evidence briefing, and, depending on any new issues that might be presented, perhaps another oral argument.

Xcel has suggested several different options to the Board. The first was that the Board use Xcel's string program to address the discrepancy, but, as discussed above, this suggestion is infeasible as the Board finds that program to be unreliable. Another suggestion was that, for operating expenses, the Board use the WCC operating statistics contained in BNSF's evidence (such as the running times per line segment) to determine the cost of adding the JEC traffic. That suggestion would be inappropriate, as adding the JEC traffic could add congestion to those lines, which in turn would change those operating statistics.

Finally, Xcel suggested that the Board use the RTC model submitted by BNSF to test the configuration and develop new operating statistics caused by adding the JEC traffic. Such a procedure would address how much the added traffic would cause both road property investment and annual operating expenses to increase. However, the Board does not have sufficient technical expertise with the RTC model to perform such an undertaking. That program has been made available to the Board, and the Board could use the program to test the evidence submitted by BNSF, which is based on the traffic group selected by BNSF. But adding more trains to the WCC system would be a far more complicated procedure.

Because none of the suggestions offered by the parties is acceptable, the Board itself has developed an approach for addressing this issue. As discussed in more detail below, the Board will calibrate the road property investment and operating expenses based on public information and the existing record.

1. Road Property Investment Calibration

Using the traffic group and tonnage forecasts adopted in this decision the WCC's peak-year tonnage increases by approximately 18.3% above the figure upon which BNSF's evidence was based. The issue is then how much this increase in traffic would affect the level of road property investment needed by the WCC. On the one hand, a simply proportional increase would likely overstate investment by assuming the WCC had exhausted the economies of density inherent in the railroad industry. On the other hand, despite Xcel's assertion to the contrary, adding the JEC traffic while holding road property investment constant would likely understate the SAC costs. Xcel submitted several formulaic computations of the maximum theoretical capacity of the WCC, and it alleges that adding JEC would not exceed the maximum theoretical capacity of the configuration proposed by BNSF. BNSF objects to Xcel's calculations. But even if Xcel were correct, adding JEC would clearly add congestion and slow all the trains on the WCC, increasing cycle times and operating expense. Thus, it is not appropriate to hold road property investment constant while using BNSF's proposed operating statistics to calibrate the operating expenses. Therefore, the Board attempted to estimate the incremental investment needed to avoid congestion on the SARR so that BNSF's proposed operating plan and statistics can fairly be used to calibrate the operating expenses.

The Board has examined its findings in prior SAC cases to assess the relationship between tonnages and road property investment. The cost of land was excluded from this analysis, as such costs would be unaffected by tonnage, but all other components of road property investment were examined, as they would be affected by increased tonnages. The resulting data, set forth in Table 2, were then indexed to current dollars using the Heavy Construction Database Index contained in the R.S. Means Manual (*Means*)—a set of nationwide standardized unit costs that is often relied upon in SAC cases to estimate construction costs.

Table 2
Prior SAC Road Property Investment Findings

SAC Cases	Road Property Investment (current $)	Route Miles	Tons
Duke/NS	$3,080,541,659	1,108	87,774,905
Duke/CSXT	$3,237,458,940	1,197	117,039,976
CP&L	$2,363,260,878	818	81,101,095
TMPA	$4,018,404,964	1,629	192,947,115
WP&L	$3,082,178,821	1,242	186,629,179
Arizona	$182,205,452	115	6,235,384
WTU	$2,296,678,304	1,416	55,650,000

Using a simple standard regression analysis (the ordinary least squares regression analysis), the Board obtained the following relationship between road property investment, route miles, and tons:

Road Property Investment = ($1.68 million × Route Miles) + ($7.39 × Tons).[20]

Applying that formula here, increasing the tonnage on the WCC by approximately 20 MGT (or 18.3%) should increase the total road property investment by approximately $150 million (or 13.6%). While this calculation is derived from a simple regression model using an extremely limited number of observations, the result conforms with the Board's expectation that there would remain significant economies of density on the SARR, so that adding JEC to the traffic group would not require a proportional increase in road property investment. And applying the experience gained through a body of prior SAC cases provides an alternative here to reopening the record for supplemental evidence.

2. Operating Expenses Calibration

Because BNSF's proposed operating plan provided the service units used here to develop the 2001 operating expenses, the Board calibrates those expenses as well to reflect the addition of the JEC traffic. Again, a straight proportional increase would not be appropriate, as many of the expense categories should not increase in direct proportion to the increase in traffic. It

[20] The t-statistics for the mileage and tonnage parameters are 4.02 and 1.84, respectively. Therefore, despite the very small number of observations, the estimated parameters are statistically significant at the 5% and 12.5% levels.

The R^2 statistic for the estimated regression line is 0.88. This statistic measures how well the regression line fits the underlying data and will always range between 0 and 1. The closer the statistic is to 1, the better the results capture the relationship between the independent variables (here, tons and route miles) and the dependant variable (here, road property investment). However, there is no established criteria for deciding how high an R^2 should be before concluding that the model fits the data well. *See generally* William H. Green, Econometric Analysis 2d. (1993) at 154.

was not necessary to perform a regression analysis of prior cases for operating expenses, however, as the discounted cash flow model used already calibrates certain future operating expense to reflect higher traffic levels. As tons increase (or decrease) in future years, the DCF model automatically increases (or decreases) specific operating expenses—such as the expenses associated with train crews, locomotives, and railcars—in proportion to the percentage change in tonnage. The traffic group used by the Board is 6.1% larger in 2001 on a ton-mile basis than the traffic group upon which BNSF's evidence is predicated. Those expenses that vary in proportion to tonnage and distance are increased accordingly.

The maintenance-of-way (MOW) expense must be treated differently. While MOW expenses would increase with the addition of the JEC traffic, the amount of the increase would be more dependent on the increase in road property investment than on the difference in ton-miles. Adding track facilities to the system would necessarily increase the amount of MOW needed to maintain that network. The Board, therefore, increases the MOW expense by 13.6% to reflect the additional road property investment that would be necessitated by the JEC traffic.

Finally, there are some categories of expenses that would not increase as a result of adding the JEC traffic to the WCC's operations. Thus, the Board makes no adjustment to the remaining expense categories, such as general and administrative (G&A) employees and operating managers.

Factoring in the adjustments discussed above, the Board increases the WCC base year operating expense figure by $9.6 million (or 6.3%).

G. DCF Analysis

A discounted cash flow analysis is used to distribute the total capital costs of the WCC over the 20-year analysis period and to determine the total revenues that would be needed by the WCC to cover its operating expenses, meet its tax obligations, recover its investment, and obtain an adequate return on that investment. The WCC's revenue requirements are then compared against the stream of revenues estimated for the traffic group, discounted to the starting year (2001). Xcel and BNSF used similar DCF analyses, but they differed as to the indices used to adjust the WCC's operating expenses and road property assets (to account for projected changes in costs over the 20-year analysis period). Those differences are addressed below.

1. Indexing

a. Operating Expenses

An important issue in SAC cases is how to adjust the base year operating expenses for inflation over the 20-year analysis period. Here, both parties used projections of the rail cost adjustment factor (RCAF), an index of railroad costs the Board publishes on a quarterly basis. The Board publishes a version of the RCAF that does not take into account changes in the rail industry's productivity (referred to as the unadjusted RCAF, or the RCAF-U) as well as one that does (referred to as the adjusted RCAF or RCAF-A). *See* 49 U.S.C. 10708 (requiring quarterly publication by the Board of both the RCAF-U and RCAF-A).

Xcel advocates the use of RCAF-A projections. It argues that the WCC would experience productivity improvements which, holding inflation constant, would reduce the operating expenses in future years. Xcel claims that these productivity improvements would flow from the increased traffic volumes the WCC would experience (roughly 20% over 20 years) and from upgrades in computers and software, acquisition of new, more efficient locomotives, and improvements in MOW practices and track materials, paralleling those reflected for the rail industry in the RCAF-A.

BNSF advocates the use of RCAF-U projections. It argues that the WCC could not expect to achieve the same productivity improvements as existing railroads and that applying the RCAF-A would therefore be inappropriate. BNSF reasons that, because the WCC would be a new railroad with the latest technology and the efficiencies already reflected in its state-of-the-art assets and operations, there would not be the same room for productivity improvements as is available to existing railroads with a mix of older, less efficient assets. BNSF notes that the productivity reflected in the RCAF-A is a result of railroads making changes incrementally as their older-technology assets wear out.

It is difficult to imagine that the WCC would not realize some productivity improvements over the course of the SAC analysis period. But the potential impact of such improvements would be far less than for existing railroads, which make changes incrementally as older-technology assets wear out or become obsolete. For example, the railroads may enjoy productivity improvements, captured in RCAF-A, as they replace aging locomotive fleets with modern power. But the WCC would start off with that modern equipment, in effect gaining all the productivity improvements in the initial year rather than spread out over time. The Board would double-count those productivity improvements were it to use the RCAF-A to adjust the WCC's locomotive operating expense over the DCF period. Although RCAF-U may somewhat overstate the WCC's costs over the 20-year period, RCAF-A would understate them more. Faced with a choice between the two, the Board has consistently used RCAF-U. *See Duke/CSXT*, 7 S.T.B. at 432; *CP&L*, 7 S.T.B. at 260-261; *Duke/NS*, 7 S.T.B. at 122-123; *TMPA*, 6 S.T.B. at 750.

Because it is reasonable to assume that the WCC eventually would incur some productivity gains over the 20-year analysis period, *see*, *Wisconsin Power and Light Co. v. Union Pacific R.R. Co.*, 5 S.T.B. 955, 1039-40 (2001) (*WPL*) at the oral argument and in a subsequent briefing order, the Board asked both parties to address whether there might be a suitable alternative to the use of only one or the other of the RCAF indexes. In the post-argument briefs, Xcel suggested two alternative methodologies for incorporating productivity gains into the DCF. BNSF, on the other hand, continued to argue for use of the RCAF-U and assailed Xcel's proffer of alternative methodologies as improper new evidence.

There is nothing improper about Xcel's presentation of alternative methodologies for application to the existing record, as it was responsive to an express request by the Board. The Board has broad discretion to apply any appropriate analytical tool to the evidence, on its own motion or otherwise. BNSF was not prejudiced by the introduction of alternatives, as it had the opportunity in its reply brief to respond to Xcel's proposals. (BNSF's opposition to Xcel's petition for leave to file attachments to its post-argument brief is rejected; those attachments are essentially illustrative of Xcel's proposed methodologies and, as such, are acceptable.)

One alternative suggested by Xcel is to adjust the RCAF-A by an index based on the productivity component of the forecasts of future coal transportation rates used by EIA. The other alternative it suggested is to use a WCC-specific productivity adjustment factor that Xcel developed using the procedures employed by the Board in developing the RCAF-A. Xcel further contends that both the EIA RCAF-A and the WCC-specific RCAF-A are not only valid predictors of productivity, but support use of the RCAF-A.

While the Board appreciates Xcel's efforts to explore alternatives, it is not persuaded that either of the alternatives suggested by Xcel would be appropriate. The productivity component in the EIA's rate forecasts suffers the same flaws as RCAF-A: both predict the productivity improvements the railroad industry as a whole is expected to experience in the future. But as already discussed above, those productivity improvements are driven in part by railroads shifting from older assets to newer technologies—technologies that, for the most part, the WCC would start out with—or by railroads abandoning unneeded or antiquated facilities—actions that would be unnecessary for the WCC as its system would be optimally designed from the outset for its needs for the SAC analysis period.

Xcel's calculation of a WCC-specific RCAF-A index is also flawed. Xcel calculated the productivity that the WCC would enjoy due to increasing traffic densities and then used that productivity factor to reduce individual operating expenses, such as locomotive and labor costs. Even using RCAF-U, the DCF model would reflect some modest productivity improvements (lower costs per ton) over time because it holds constant several cost components, such as MOW, G&A, and road property investment, even as tonnages increase. But because the productivity factor Xcel calculates is derived from and already included in the DCF model, it would be redundant to apply the same productivity factor to forecast operating expenses.

In sum, RCAF-U remains the best index on record. Thus, the Board uses that index to adjust operating expenses for inflation over the 20-year SAC analysis period.

b. Road Property Assets

Xcel and BNSF agree on how to index the WCC's land values, but not Road Property Assets. To forecast Road Property Assets, Xcel relied on a December 2002 inflation forecast for capital assets produced by Global Insight (formerly, DRI-WEFA), a respected provider of economic and financial information. BNSF, on the other hand, relied on an Association of American Railroads (AAR) 5-year historical average of inflation in road property assets.

Both parties used inflation forecasts from the same source, Global Insight, to forecast the WCC's operating expenses. Relying on the same provider for forecasts of inflation in operating expenses and road property assets is reasonable, as it provides a consistent data source for inflation indexes. Also, as indicated in the Eastern SAC cases, the Board prefers impartial forecasts of future inflation over reliance on historical inflation rates. Forecasts use available data and observations to predict the most likely future outcome. By contrast, historical indices, which are simply a compilation of data from the recent past, are not forward-looking. Because Xcel's evidence is based on an independent forecast of future inflation in capital assets, that evidence is used here.

2. Cost of Capital

The DCF uses the parties' agreed-upon railroad cost-of-capital rate of 10.76%, which was developed from the Board's recent cost-of-capital determinations.

3. Results

The results of the Board's DCF calculations are shown in Table 3, below. As that table shows, based on the record presented here, over the 20-year SAC analysis period the present value of the expected revenues from the traffic in the stand-alone group would exceed the present value of the WCC's expected revenue requirement by approximately $662 million.

Table 3
Discounted Cash Flow Analysis
($ millions)

Year	WCC Revenue Requirements	BNSF Forecast Revenues	Difference	Present Value	Cumulative Difference
2001	$285	$341	$57	$56	$56
2002	$282	$359	$76	$68	$124
2003	$302	$366	$64	$51	$176
2004	$308	$370	$63	$44	$219
2005	$318	$386	$68	$43	$262
2006	$328	$402	$74	$42	$304
2007	$337	$408	$71	$37	$341
2008	$342	$411	$69	$32	$373
2009	$352	$427	$74	$31	$404
2010	$361	$440	$79	$30	$434
2011	$370	$452	$81	$28	$462
2012	$382	$466	$84	$26	$488
2013	$392	$482	$90	$25	$513
2014	$402	$496	$94	$24	$537
2015	$413	$515	$102	$23	$560
2016	$425	$540	$115	$24	$583
2017	$435	$550	$116	$21	$605
2018	$444	$564	$120	$20	$625
2019	$457	$580	$123	$19	$644
2020	$469	$598	$129	$18	$662

H. Maximum Rate Determination

1. Procedure Applied

Because the expected revenues from the traffic group exceed the revenues the WCC would require to provide that service, the rate at issue is determined to exceed a maximum reasonable level. The final issue is how to determine the maximum reasonable rate for the Xcel traffic at issue. The *Guidelines* do not set forth a specific method for determining rate prescriptions and reparations, leaving the inquiry to a case-by-case analysis. In prior SAC cases, the Board calculated the percent reduction that would reduce the total revenues from the entire traffic group down to the total revenue requirements of the SARR, and then required the defendant railroad to reduce the challenged rates by that percentage. The rationale for applying this percentage reduction method was to preserve the rate structure for the traffic group by maintaining existing rate relationships, albeit at reduced levels, thereby implicitly preserving the carrier's demand-based differential pricing that recognizes the traffic's varying demand elasticities. *See Coal Trading Corp. v. Baltimore & O.R.R.*, 6 I.C.C.2d 361, 380 (1990) (*Coal Trading*); *Arizona Pub. Serv. Co. v. The Atchison, T.&S.F. Ry.*, 2 S.T.B. 367, 392 (1997) (*Arizona*).

Xcel argues that the Board should abandon this approach because it could inappropriately permit a railroad to manipulate the outcome of the regulatory process. Xcel raises the same theoretical concerns that the Board addressed in *CP&L*, 7 S.T.B. at 263-265. There, the Board welcomed proposals for appropriate alternatives to the percent reduction approach in future cases, but stated that in the absence of a feasible alternative that satisfactorily addresses the concerns articulated there and conforms with the statute, the Board would not depart from its precedent. *CP&L*, 7 S.T.B. at 266 (citing *Atchison, T.&S.F. Ry. v. Wichita Board of Trade*, 412 U.S. 800, 808 (1973) for the presumption that regulatory policies are carried out best by adherence to the settled rule).

In its case-in-chief, Xcel offered the same alternatives to the percent reduction approach that the Board considered and rejected in *CP&L*. Xcel's first alternative—applying the percent reduction method to the last contract offer made by BNSF—would not be sound public policy, as such a policy would chill good-faith rate negotiations. *See CP&L*, 7 S.T.B. at 265. Xcel's second alternative— using a "ton-mile approach" that would distribute the SAC costs uniformly on a ton-mile basis —would not allow for demand-based differential pricing. *See id.* at 265-266.

In this case, the Board asked the parties to address the issue further in post-argument briefs and to propose any other alternatives to the percent reduction approach. Xcel presented one additional alternative: to calculate the maximum R/VC percentage for the traffic group as a whole such that the total revenues from the traffic group would equal the total revenue requirement of the SARR for that year without changing any rate associated with a movement that has an R/VC percentage that is below that level.

While there may be some appeal to Xcel's latest proposal, the Board is concerned that it would be inconsistent with a basic precept of the *Guidelines*. In *Guidelines*, the Board's predecessor, the Interstate Commerce Commission (ICC), after conducting an exhaustive rulemaking, adopted CMP as the most practical and economically sound method of applying competitive pricing principles to a regulatory framework. 1 I.C.C.2d at 523. One of the central economic underpinnings of CMP was "Ramsey pricing," a widely recognized method of differential pricing in accordance with varying elasticities of demand (i.e., differing degrees of demand sensitivity to changes in price). Although the ICC concluded that formal Ramsey pricing was too difficult for practical application, that economic theory was adopted to guide the agency's analysis, and CMP was intended to approximate Ramsey pricing. *Id.* at 534 ("in spite of the lack of mathematical precision in CMP, it should yield rates similar to those produced by Ramsey pricing."). And the *Guidelines* specifically state that the SAC costs should be allocated among the stand-alone group on the basis of Ramsey pricing principles. *Id.* at 546.

Xcel's third alternative proposal does not conform with Ramsey pricing principles. The core economic principle behind Ramsey pricing is that the SAC costs should be allocated amongst the traffic group according to their relative demand elasticities. This means that shippers with highly inelastic demand are expected to bear relatively more of the SAC costs than shippers with more elastic demand. Xcel's third proposal does not seek to achieve this outcome. Rather, under Xcel's new approach, all movements in the traffic group with R/VC percentages in excess of the R/VC cap would be expected to bear equal shares of the SAC costs on an R/VC basis, even where they have differing demand elasticities. Even if such an approach would otherwise be reasonable, it would not comport with the fundamental economic theory of Ramsey pricing espoused in the *Guidelines*.

It may be that there are good reasons to depart from Ramsey pricing principles in this regard. But to make such a momentous change within the context of a particular adjudication seems ill-advised. It is an established principle of administrative law that "the choice between rulemaking and adjudication lies in the first instance within the [agency's] discretion." *NLRB v. Bell Aerospace Co.*, 416 U.S. 267, 294 (1974), *citing NLRB v. Wyman-Gordon Co.*, 394 U.S. 759, 765-66 (1969); *SEC v. Chenery Corp.*, 332 U.S. 194, 201 (1947); *see also American Hosp. Ass'n v. NLRB*, 499 U.S. 606 (1991). But administrative agencies are cautioned that "there may be situations where the [agency's] reliance on adjudication would amount to an abuse of discretion * * *." *Bell Aerospace*, 416 U.S. at 294. Here, the approach proposed by Xcel would represent a significant departure from *Guidelines* and would impact many companies that are not a party to this adjudication but that might be parties to other pending or future SAC cases. Thus, while the *Guidelines* specifically recognizes the need to refine CMP and the SAC test in light of experience, as "CMP is based on rather sophisticated economic theories which require careful interpretation and application," *Guidelines*, 1 I.C.C.2d at 525, the Board concludes that it would not be appropriate to consider setting aside the underlying Ramsey pricing principle without notice and an opportunity for comments from all those that would be potentially affected. *See Pfaff v. HUD*, 88 F.3d 739, 748 (9th Cir. 1996); *see also Tahoe-Sierra Pres. Council v. Tahoe Regional Planning Agency*, 535 U.S. 302, 335 (2002) ("important change in the law should be the product of legislative rulemaking rather than adjudication"). The Board finds that the complainant's concerns may have merit but believes that such a change, which affects all litigants before the Board, must be made in the context of a notice-and-comment rulemaking. Therefore, the Board will entertain requests for a rulemaking proceeding to explore this issue further, should interested parties wish to pursue the matter. In the meantime, it is not unreasonable to proceed with this case, applying the established (percentage rate reduction) procedure for allocating SAC costs in a manner consistent with Ramsey pricing principles. There is no evidence here that BNSF sought to manipulate the Board's rate review process in setting the challenged rates. Although the challenged rate is higher than the expired contract rate,[21] it is not unusual for common carriage rates to be higher than contract rates, as the contract provides valuable commitments from the shipper that the railroad

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21 Xcel Open. II-B-12-15.

would not otherwise have.[22] Moreover, the expired contract rate for the Pawnee plant was part of a bundled contract that embraced Xcel's Comanche plant. The unrebutted evidence is that the combined transportation rates for those plants dropped significantly when the contract was "unbundled" and BNSF provided separate rates.[23] Xcel complains that the Pawnee rate is more than twice the average rate of other captive coal shippers[24]—but that was true under the old contract as well. Thus, there is no reason to believe that the challenged rate was not set to reflect the demand elasticities of the Pawnee plant. Adherence to the percent reduction methodology to set the maximum SAC rate is therefore reasonable here, as that method will allocate the SAC costs amongst the stand-alone traffic group on the basis of Ramsey pricing principles (i.e., on the basis of relative demand elasticities).

2. Rate Relief

Based on the analysis described in this decision and more fully in the appendices, the Board has calculated the SAC rate that the WCC would need to charge for the Xcel traffic at issue here from the PRB mines included in Xcel's complaint to its Pawnee steam electric generating plant near Brush, CO. However, the Board may not set a maximum reasonable rate that is below the 180% R/VC regulatory floor. Therefore, the maximum reasonable rate for the traffic at issue is the higher of the SAC rate or the regulatory floor (the 180% R/VC rate).

The Board has determined the rate level that would produce revenues at the 180% R/VC level for the time periods and movements for which variable cost data have been supplied by the parties. Those findings are set forth and explained in Appendix E. In later periods, for any movement subject to this rate prescription, the parties should calculate the rate floor, as the necessary information becomes available, in a manner consistent with the procedures and findings set forth in Appendix E.

The higher of the SAC rate or the 180% R/VC rate floor—to be determined by the parties in accordance with this decision—is prescribed here for future shipments moving from the mines included in Xcel's SAC analysis. (Table 4 sets forth the SAC rate.) Reparations are also awarded for the unreasonable portion of the rate that Xcel has paid for movements from those mines occurring prior to the rate prescription taking effect, together with interest to be calculated in accordance with 49 *CFR* 1141. The total amount of reparations and interest are to be calculated by the parties in accordance with this decision.

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[22] *See, e.g.*, Curtis Grimm and Clifford Winston, *Competition in the Deregulated Railroad Industry: Sources, Effects, and Policy Issues, in Deregulation of Network Industries: What's Next?* (Sam Peltzman and Clifford Winston, eds., 2000) 55 (expecting that shippers will pay lower freight rates if they negotiate contract rates).

[23] Xcel Open. Narr. II-B-13-14; BNSF Reply Narr. II-45-46.

[24] Xcel's Post-Argument Br. at 22.

Table 4
SAC Rate

Year	Steel Tariff Rate	Alum. Tariff Rate	SAC Rate Reduction	Steel SAC Rate	Alum. SAC Rate
2001 1Qtr	$9.24	$8.98	16.66%	$7.70	$7.48
2001 2Qtr	9.16	8.91	16.83%	7.62	7.41
2001 3Qtr	9.19	8.93	16.48%	7.68	7.46
2001 4Qtr	9.18	8.92	16.31%	7.68	7.47
2002 1Qtr	9.16	8.90	21.66%	7.18	6.97
2002 2Qtr	9.16	8.90	22.01%	7.14	6.94
2002 3Qtr	9.16	8.90	21.80%	7.16	6.96
2002 4Qtr	9.16	8.90	19.73%	7.35	7.14
2003	9.34	9.08	18.89%	7.58	7.36
2004	9.55	9.28	16.89%	7.93	7.71
2005	9.78	9.51	17.58%	8.06	7.84
2006	10.05	9.77	18.43%	8.20	7.97
2007	10.28	9.99	17.45%	8.49	8.25
2008	10.52	10.22	16.71%	8.76	8.51
2009	10.77	10.47	17.39%	8.90	8.65
2010	11.01	10.70	17.92%	9.03	8.78
2011	11.26	10.94	18.00%	9.23	8.97
2012	11.52	11.20	18.05%	9.44	9.18
2013	11.78	11.45	18.70%	9.58	9.31
2014	12.05	11.72	18.95%	9.77	9.50
2015	12.33	11.99	19.85%	9.88	9.61
2016	12.61	12.23	21.30%	9.93	9.65
2017	12.90	12.54	21.02%	10.19	9.91
2018	13.20	12.83	21.22%	10.40	10.11

2019	13.50	13.13	21.17%	10.65	10.35
2020	13.82	13.43	21.57%	10.84	10.53

Tariff rates below bold line based on applying RCAF-U forecast to previous tariff rate.

This decision will not significantly affect the quality of the human environment or the conservation of energy resources.

COMMISSIONERS BUTTREY and MULVEY, commenting:

In the short time we have been with the Board, we have not had the opportunity to review the entire record or benefit from participating in the oral argument in this case. Nevertheless, we have independently reviewed the decision and conclude that it appears to resolve the issues in a reasonable manner. However, in view of the unusually short time we have had to familiarize ourselves with this case, we will reexamine issues with an open mind on reconsideration if requested.

It is ordered:

1. Xcel's motion to strike filed September 25, 2003, is denied.

2. BNSF's opposition to Xcel's petition for leave to file attachments to its post-argument brief is rejected.

3. Defendant shall, within 60 days, establish and maintain rates for movements of the issue traffic that do not exceed the maximum reasonable rates prescribed by this decision.

4. Defendant shall pay reparations and interest, in accordance with this decision and Board regulations, for all Xcel shipments covered by this complaint that moved prior to the establishment of the maximum reasonable rate pursuant to ordering paragraph 3.

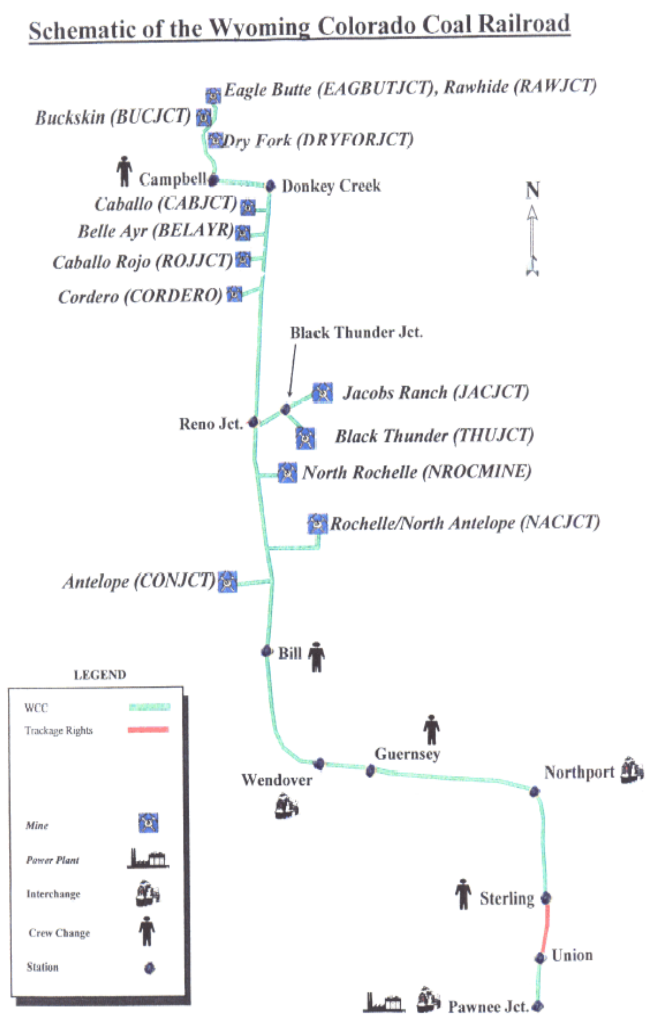
5. This decision is effective July 8, 2004.

By the Board, Chairman Nober, Commissioner Buttrey, and Commissioner Mulvey. Commissioners Buttrey and Mulvey commented with a separate expression.

APPENDIX A—WCC CONFIGURATION

As shown in the following schematic, the Wyoming Colorado Coal Railroad (WCC) would be almost 400 miles long and replicate the existing BNSF lines from the Wyoming PRB mines to Pawnee Junction, CO. The WCC would transport only coal traffic moving from PRB mines to one power plant and three interchange locations with the residual BNSF or with UP. (Traffic would be interchanged with both the residual BNSF and UP at Northport, NE, and with the residual BNSF at Wendover, WY and Pawnee Junction.)

The WCC would begin in northern Wyoming at Eagle Butte and proceed in a southerly direction through the PRB to Northport, NE. At Northport, the WCC would continue southward to the spur that serves Xcel's Pawnee generating station, the southern terminus of the WCC. For the segment from Sterling to Union, it would use trackage rights over a UP line, as does BNSF.


Schematic of the Wyoming Colorado Coal Railroad
Eagle Butte (EAGBUTJCT), Rawhide (RAWJCT)
Buckskin (BUCJCT)
Dry Fork (DRYFORJCT)
Campbell
Donkey Creek
N
Caballo (CABJCT)
Belle Ayr (BELAYR)
Caballo Rojo (ROJJCT)
Cordero (CORDERO)
Black Thunder Jct.
Jacobs Ranch (JACJCT)
Reno Jct.
Black Thunder (THUJCT)
North Rochelle (NROCMINE)
Rochelle/North Antelope (NACJCT)
Antelope (CONJCT)
Bill
LEGEND
WCC
Trackage Rights
Mine
Power Plant
Interchange
Crew Change
Station
Guernsey
Wendover
Northport
Sterling
Union
Pawnee Jct.

A. Route Miles

At the outset, the Board notes that route miles for the SARR are objectively determinable. Accordingly, the parties should be able to resolve disputes about route miles on their own. But Board-sponsored technical conferences are available as a means to resolve such disputes more efficiently than through adversarial litigation.

In this case, the parties' estimates of the WCC route mileage differ only slightly. As shown in Table A-1, Xcel estimated a total of 396.86 route miles, based on BNSF track charts and timetables provided in discovery.[25] BNSF accepts the basic WCC configuration, but BNSF computed a total of 397.39 route miles for the WCC,[26] also based on its track charts. The discrepancy between the parties' calculations is largely due to Xcel's use of track charts for certain segments showing milepost locations to the tenth of a mile and BNSF's uniform use of the milepost locations to the hundredth of a mile.[27] BNSF's figures are more precise. Therefore, where both parties used the same source for their calculations, BNSF's route miles are used here.

For the trackage rights segment of the WCC route from Sterling to Union over a UP line, Xcel used a figure of 23.71 miles based on BNSF's track charts (showing BNSF's mileposts at both ends of the trackage rights segment),[28] whereas BNSF developed a distance of 23.1 miles based on UP's mileposts.[29] Xcel also used 23.1 miles in its workpapers.[30] Because UP's mileposts on its own line should be the most accurate, the mileage between those mileposts is used as the best evidence of record.

Xcel states that the difference of 0.02 miles between the parties' proposals for the Reno Junction-to-Jacobs Junction branch line is due to BNSF's improper rounding of the mileage. Upon review of the track charts, BNSF's calculation was found to be accurate. Accordingly, BNSF's figure of 5.74 miles is used for this segment.

The difference between the parties' mine spur mileage figures for the Cordero, Antelope, and North Rochelle mines stems from differences regarding BNSF's ownership of portions of these mine spurs. Xcel argues that BNSF included 0.06 miles at each of three mine locations without any support. It notes that the mine schematics for Cordero and Antelope furnished in discovery do not show that BNSF owns any portion of those spurs,[31] and BNSF did not provide a schematic for the North Rochelle mine. BNSF now claims that it owns a portion of the three mine spurs. However,

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[25] Xcel Open. WP. 2448-2613 & e-WP. "miles.xls."

[26] BNSF Reply Narr. III-B-1 & Table III-B-1.

[27] Xcel Open. e-WP. "III B/miles;" BNSF Reply e-WP. "III-C/OPSTATS/Xcelsarr miles," sheet "segments/segmentation."

[28] Xcel Open. WP. 2611-12.

[29] *See* BNSF Reply e-WP. "III-B\XcelsARRMiles3\SheetSummary" and BNSF Open. e-WP. II-A\Mileages\PowderRiverDivision" at 13.

[30] Xcel Reb. e-WP. "II-A/T&O/Xcelmilesreply."

[31] Xcel Open. WP. 2483, 2498.

parties must be able to rely on information supplied in discovery. Therefore, Xcel's evidence is used here.

Finally, the parties disagree on the mileage at the Belle Ayr mine. As indicated in Table A-1 for this mine, BNSF included 2.11 miles of track reflecting 1.04 miles of parallel loop track on the existing mine spur. Xcel argues that parallel track would not be needed because the WCC would handle only a maximum of 3 million tons of traffic originating at Belle Ayr,[32] which would be less than one train per day. Because a single track could reasonably accommodate one train per day, the 1.04 miles of parallel loop track is not included in the Board's analysis.

Table A-1
WCC Route Miles

Track Category	From	To	Xcel	BNSF	STB
Main Line	Eagle Butte	Donkey Creek	10.02	9.99	9.99
	Donkey Creek	Reno	42.9	42.94	42.94
	Reno	Nacco Jct.	19.4	19.31	19.31
	Nacco Jct.	Wendover	94.9	94.9	94.9
	Wendover	Guernsey	11.6	11.6	11.6
	Guernsey	Northport	91.7	91.7	91.7
	Northport	Sterling	80.65	80.67	80.67
	Sterling	Union	23.71	23.1	23.1
	Union	Pawnee Jct.	14.64	14.62	14.62
Subtotal			389.52	388.83	388.8
Branch Line	Reno	Jacobs Ranch	5.76	5.74	5.74
Subtotal			5.76	5.74	5.74

[32] Xcel Open. Exh. III-A-1 at 2.

Mine Spurs	Eagle Butte		0.06	0.06	0.06
	Buckskin		0	0	0
	Rawhide		0.06	0.06	0.06
	Dry Fork		0.06	0.06	0.06
	Caballo		0.09	0.09	0.09
	Belle Ayr		1.11	2.15	1.11
	Caballo Rojo		0.14	0.14	0.14
	Cordero		0	0.06	0
	Jacobs Ranch		0	0	0
	Black		0	0	0
	North		0	0.06	0
	N.Antelope/Rochelle		0.06	0.06	0.06
	Antelope		0	0.06	0
Subtotal			1.58	2.82*	1.58
TOTAL ROUTE MILES			396.86	397.39	396.2

* BNSF's mine spur mileage does not sum to total because of rounding.

B. Track Miles

The parties' disagreement on the number of miles of track (track miles) the WCC would require results from differing assumptions on tonnage, number of trains needed, time allotted for processing trains through yards, and dwell time at mines. As discussed in the body of the decision, Xcel's case assumes that the WCC would transport over 10 million tons of coal destined for JEC, while BNSF's configuration evidence assumes this traffic would not be handled by the WCC.

Table A-2
Track Miles

	Xcel	BNSF	STB
Main Line Track	536.98	551.19	551.19
Mine Spurs	1.58	2.82	1.58
Set-Out Track	4.2	9.92	9.92
Yard Track	52.17	116.38	116.38
TOTAL	594.93	680.31	679.07

1. Main Line Track and Sidings

Based on its consultant's proprietary string model, Xcel initially estimated that the WCC would need a total of 506.9 miles of main line track.[33] On rebuttal, however, Xcel added approximately 30 miles of sidings in response to capacity concerns raised by BNSF. Xcel claims that its track-mile figures are consistent with the track mileage of the Western Rail Properties, Inc. (WRPI) line when constructed in 1994,[34] and that this track mileage could carry the projected WCC traffic in the future because of productivity gains in unit coal train operations since construction of the WRPI line.

BNSF argues that Xcel's configuration for the WCC would be inadequate to move forecasted traffic levels. Based on the RTC model, BNSF would have the WCC build 551.19 miles of main line, passing sidings, and branch line track.[35] BNSF claims that Xcel's comparison to the WRPI line is misplaced because the WCC would handle significantly more traffic than did the WRPI line in 1994 and that the WRPI track structure has since been enhanced to include more double track and other capacity enhancements.[36] Xcel in turn criticizes BNSF's use and implementation of the RTC model.

As discussed in the body of the decision, Xcel has not met its burden of showing that its proposed track-mile estimate would be feasible to handle the peak-period traffic projected for the WCC. Moreover, Xcel's reliance on WRPI line specifications is unwarranted, as the WCC traffic volumes would be greater than the traffic volumes that moved over the original WRPI line and that line has been upgraded to accommodate increased traffic volumes. Accordingly, BNSF's main-line track and sidings mileage estimates are used here, as shown in Table A-2 above. The amount of investment is also adjusted to account for the additional tonnages used in the Board's analysis.

2. Crossover Track

Xcel included crossover track for the double main-line track located between Caballo Junction and Cordero Junction, and between Reno Junction and Bill, to facilitate the traffic flow into and out of the mines. BNSF argues

[33] Xcel Open. Narr. III-B-3.
[34] Xcel Open. Narr. III-B-4; BNSF Reply Narr. III-B-7.
[35] BNSF Reply Narr. III-B-2.
[36] BNSF Reply Narr. III-B-7; Xcel Open. Narr. III-C-3 & Table III-C-1.

for more extensive use of crossover track on the double-track segments of the Orin, Canyon, and Valley Subdivisions,[37] claiming that such additional track is an operational necessity on long double-track segments. Because BNSF's operating plan is used, and because BNSF's main line and siding configuration is used, BNSF's proposed additional crossovers are included here.

3. Set-Out Track

Xcel would place 600-foot stub-end set-out tracks on either side of failed equipment detectors, one on each side for single track and two on each side for double track sections.[38] BNSF argues that this is inadequate and would result in blockages by or of MOW equipment. BNSF proposes additional set-out trackage to avoid these potential problems.[39] Because BNSF's MOW and operating plans are used here, BNSF's proposal for longer set-out tracks is used.

4. Yard Track

Xcel would locate the WCC's principal service/staging yard, along with equipment inspection and repair facilities, at Guernsey; the primary staging/relay yard at Bill; a secondary staging yard at Campbell; and interchange yards at Wendover, Northport, and Pawnee Junction.

BNSF accepts the general functions proposed for each yard and accepts Xcel's track configuration at Campbell, Bill, and Wendover yards.[40] However, BNSF would adjust the track configurations at Guernsey, Northport, Sterling, and Pawnee Junction yards. Given the use of BNSF's operating plan, it is not clear that Xcel's proposed yard configurations could accommodate the WCC's traffic. Thus, BNSF's yard track configurations are used here.

APPENDIX B—TRAFFIC VOLUMES AND REVENUES

This appendix examines the amount of coal traffic that the WCC would transport, and the revenues that traffic would generate, over the 20-year SAC analysis period (2001-2020).

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[37] BNSF Reply Narr. III-B-35.
[38] Xcel Open. Exh. III-B-1.
[39] BNSF Reply Narr. III-F-103-04, 125-26; BNSF Reply Exh. III-F-4.
[40] BNSF Reply Narr. III-B-57-58.

A. Tonnage

1. 2001 and 2002

For 2001 and the first half of 2002, the record contains actual data for the tonnage of the traffic included in the group. For the second half of 2002, the parties used Xcel's forecast of 2002 volumes for Xcel's own plants, and BNSF's 2002 forecast for all other plants. The parties agree on traffic volumes, with the exception of the tonnage moving to the JEC plant, which Xcel included and BNSF would exclude. As discussed in the body of the decision, the JEC plant is included in the Board's SAC analysis. Accordingly, Xcel's evidence of 2001 and 2002 volumes, which account for the JEC traffic, is used here.

2. 2003 and 2004

For the period 2003-2004, the parties agree to use Xcel's forecasts of its own tonnage requirements, and generally agree to use BNSF's internal 2003 and 2004 forecasts to develop the projected movements for non-Xcel plants. However, Xcel argues for adjustments to the BNSF forecasts for the Rockport, Seymour, and Ghent plants.

a. Rockport

BNSF's 2003 forecast for the American Electric Power (AEP) Rockport plant predicted that AEP would ship 7.8 million tons from the Rochelle/North Antelope mine and 1.4 million tons from the Caballo mine. However, Xcel's analysis assumed that AEP would obtain the 1.4 million tons of coal not from the Caballo mine but from the Black Thunder mine. BNSF objected, claiming Xcel had improperly ignored the agreed-upon forecast. On rebuttal, Xcel explained that AEP is in litigation with the owners of Caballo and asserted that the mine owner would likely cancel the coal supply contract, leaving AEP free to take its coal from Black Thunder (a mine AEP had used in the recent past). Xcel also argued that, even if the coal would move from Caballo, the WCC has the facilities, equipment, and employees necessary to handle that traffic.

The record provides no support for Xcel's assumption that AEP would take coal from Black Thunder in 2003. The trade article submitted by Xcel,[41] describing the litigation between the mine and AEP, does not support Xcel's assumption that the coal supply agreement would be canceled. Rather, according to that article, the lawsuit would require AEP to accept Caballo's last offer to supply coal at a base price for 5 years. Furthermore, notwithstanding Xcel's suggestion to the contrary, the WCC has not been designed to move AEP coal from Caballo. The WCC operations do not account for the movement of any coal north to Donkey Creek for interchange

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[41] Xcel Reb. WP. III-5545-46.

with the residual BNSF, the route over which the Caballo coal would move to the AEP plant. The WCC was designed only to move loaded trains south and return empty trains north. And the WCC would not have the necessary facilities at Donkey Creek to interchange traffic to the residual BNSF. Accordingly, the Board's analysis excludes the disputed 1.4 million tons of traffic. However, this decision only affects tonnage for the year 2003, as the parties agree on the Rockport tonnage the WCC would carry in 2004 and beyond.

b. Seymour

Xcel's tonnage includes movements of coal in 2004 to the Lower Colorado River Authority (LCRA) Seymour plant. BNSF argues that this movement should not have been included because the 2004 BNSF forecast, upon which both parties relied to develop their tonnages, predicted no such movement. To support its inclusion of the movement, Xcel provided a transportation agreement between LCRA and two railroads to transport PRB coal to the Seymour plant. Although the agreement expired in 2003, Xcel argues that "without a clear indication of change in a shipping environment, historical shipping patterns can be assumed to continue into the future."[42]

But BNSF's 2004 forecast, which the parties have generally agreed to use to forecast tonnage, indicates that BNSF will lose this business. In addition, there is no evidence of a new contract with BNSF or any indication that BNSF will continue to move this traffic after 2003. Therefore, BNSF's forecast for the Seymour plant is the best evidence of record.

c. Ghent

Xcel's forecast assumes that PRB coal traffic would continue to move to the LG&E Energy (LG&E) Ghent plant. BNSF asserts that assumption is incorrect, as its 2004 forecast shows no traffic destined to Ghent.

Both parties refer to LG&E's 2002-2006 contract with BNSF as support for their positions. Although the contract does specify annual minimum guarantees for 2002 and 2003, the parties agree that no shipments took place in 2002. For 2003 and beyond, the contract specifies only that BNSF will carry all of the coal LG&E ships from the PRB.

An internal BNSF forecast made in the ordinary course of business does not reflect any tonnages moving to the Ghent plant in 2004 and beyond. According to BNSF, this is due to the expectation that LG&E would install scrubbers, allowing the plant to burn high-sulfur, non-PRB coal.

As recently as 2002 (and despite the minimum volume guarantee), no traffic moved to this plant. The historical patterns here suggest that the shipper is not dependent upon PRB coal and Xcel has provided no evidence to suggest that BNSF's forecast is in error. Consequently, BNSF's 2004 forecast is accepted for the Ghent traffic.

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[42] *See* Xcel Reb. Narr. III-A-35.

3. 2005 Through 2020

The parties agree to use Xcel's internal forecast for its tonnages where those figures are available. They used different approaches to estimate non-Xcel traffic and the Xcel traffic after the internal forecasts expire. To forecast the non-Xcel traffic, Xcel used the EIA aggregate PRB forecast, while BNSF relied on its "Macro Coal Forecast" for 2005-2007, and EIA regional PRB forecasts thereafter. BNSF claims the Macro Coal Forecast was developed in the ordinary course of business and projects BNSF's aggregate 2003-2007 coal volumes for its entire coal business. According to this forecast, BNSF will experience no coal volume growth between 2005 and 2007.[43] BNSF's Macro Coal Forecast is not specific to PRB coal traffic and therefore is less specific to the traffic the WCC would carry. Accordingly, for all of the non-Xcel traffic, the Board uses Xcel's evidence based on the EIA aggregate forecasts for the PRB region. However, the most recent EIA forecast, published in its Energy Outlook for 2004, did not contain the aggregate forecast for the PRB. At the request of the Board, EIA provided its most recent transportation forecasts for the PRB, a service EIA also provides to the public. The Board also uses the aggregate PRB forecast to develop the Xcel traffic volumes once Xcel's internal forecasts are no longer available.

The Board makes one adjustment to the long-term forecasts. BNSF argues that, beginning in 2005, volumes to Xcel's Riverside and High Bridge plants should be modified to reflect the conversion of these plants to natural gas. BNSF has introduced into the record Xcel's reports to the Minnesota Public Utilities Commission (MPUC), announcing Xcel's desire to convert both plants to natural gas and explaining the economic and environmental benefits that would arise from such a conversion.[44]

Xcel argues that, because the proposed conversion is subject to regulatory approval and could be affected by unforeseen economic and operational developments, the reports do not reflect the best evidence of future tonnage volumes. Xcel further asserts that BNSF is mistaken in its assumption that the conversions are intended to occur in 2005 and 2006.

Xcel's representations to the MPUC leave little doubt as to its intent to convert these plants. Moreover, Xcel's submission to the MPUC stated that the conversions (if approved) would be completed at Highbridge by May 2008 and at Riverside by May 2009. Accordingly, the Board accepts Xcel's projected traffic volumes to Riverside/High Bridge through 2007, then forecasts the coal volumes to drop by 50% in 2008 (with the conversion of Highbridge), and to cease altogether in 2009 (with the conversion of Riverside).

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[43] *See* BNSF Reply Narr. III-A-41.
[44] *See* BNSF Reply WP. III-A-126-165.

Table B-1 sets forth the tonnage figures of the parties and the Board's findings here.

Table B-1
WCC Tonnage

	Xcel	BNSF	STB
2001	105,342,807	94,200,474	105,342,807
2002	111,632,796	101,193,551	111,632,796
2003	121,874,800	111,482,800	120,472,800
2004	122,098,490	107,583,598	118,333,589
2005	123,113,744	106,614,416	120,431,677
2006	123,674,365	107,201,225	122,594,121
2007	126,476,805	105,459,982	123,335,265
2008	127,636,538	106,366,560	121,221,213
2009	128,591,882	107,447,653	122,874,151
2010	129,239,283	108,330,799	123,449,938
2011	130,124,544	109,185,522	124,120,666
2012	130,576,238	108,778,208	125,941,142
2013	130,990,628	108,556,844	127,049,961
2014	131,032,144	107,361,838	127,402,910
2015	131,649,767	107,821,333	128,303,376
2016	132,310,714	108,994,942	129,836,352
2017	132,375,209	108,953,837	129,847,262
2018	132,874,513	110,063,456	129,477,938
2019	133,257,885	111,011,572	130,842,388
2020	133,584,097	110,322,371	131,850,506

B. Revenues

Xcel and BNSF disagree on how to forecast revenues for some of the traffic over the 20-year analysis period. The positions of the parties and the Board's findings are discussed below.

1. Xcel's Traffic

The parties agree on how to project revenues for Xcel's traffic. For 2001 through 2003, the parties calculated revenues using BNSF's traffic tapes and internal forecasts. The parties also agree to project annual revenues from 2004 through 2020 based upon 100% of the forecasted change in the RCAF-U index for the Pawnee movement.

2. Contract Traffic

For traffic moving under contract, the parties agree to calculate revenues from 2004 through the end of the applicable contract term by forecasting the change produced by the rate adjustment mechanism set forth in the applicable contract.

3. Post-Contract Traffic

The parties do not agree on how to forecast rates after an existing contract expires. Xcel developed a forecast of revenues using the average escalation factor contained in the remaining unexpired contracts, as was done in *WPL*, 5 S.T.B. at 976. In contrast, BNSF would apply the average percentage change in rates from its internal business forecasts through 2004 for any traffic whose contract would expire before the end of 2004. For contracts expiring in 2005 through 2007, BNSF would use its Macro Coal Forecast to adjust rates. For contracts expiring in 2008 through 2020, BNSF would use the 2002 EIA PRB rate forecast.

Xcel's approach closely follows the methodology used in *WPL*, which was the best evidence of record in that case. But as the Board explained in *TMPA*, 6 S.T.B. at 602-03, such forecasts (using a composite of historical escalation factors) are "more reflective of past rate changes [and] are not the best evidence of what changes in rates would reasonably be expected in the future." Moreover, as the Board explained in *TMPA*, 6 S.T.B. at 603 and *Duke/NS*, 7 S.T.B. at 148-149, forecasts developed by EIA are more reliable and less subject to manipulation by litigants than forecasts by private parties. Finally, as noted in prior cases, EIA's coal demand forecasts reflect EIA's rate forecasts, and tonnage and rate forecasts should be internally consistent where possible. Thus, where EIA tonnage forecasts are used, it is preferable to use the matching EIA rate forecasts as well. This provides a single, consistent, and independent source for the coal rate and tonnage projections.

Therefore, for post-contract periods in 2002-2004, the Board uses BNSF's internal rate forecasts for that period, as they are consistent with the procedure used by the parties and the Board to develop tonnage projections for the WCC's traffic. For subsequent time periods, the Board uses the most recent EIA aggregate PRB rate forecasts, as they are drawn from the same source as the tonnage forecasts used by the Board here.

Table B-2 presents the parties' positions on the total revenues that the traffic group is expected to generate over the 20-year analysis period and the Board's findings.

Table B-2
Revenues

	Xcel	BNSF	STB
2001	$345,707,779	$243,692,039	$341,477,705
2002	36,627,2118	262,772,935	358,775,710
2003	378,554,609	276,524,673	366,028,034
2004	386,939,231	266,859,081	370,345,809
2005	389,761,310	263,279,391	385,542,577
2006	401,919,396	270,364,906	402,400,312
2007	412,969,716	267,454,064	408,324,961
2008	417,991,798	270,057,974	410,930,356
2009	427,910,535	277,709,085	426,639,187
2010	429,744,666	280,867,929	440,318,908
2011	439,200,418	286,352,807	452,176,208
2012	448,136,669	289,525,929	465,952,905
2013	451,018,947	287,668,137	482,480,431
2014	457,765,457	288,055,690	495,964,611
2015	467,970,117	293,968,508	514,939,751
2016	478,386,704	301,883,682	539,503,383
2017	484,632,918	303,025,636	550,198,588
2018	494,861,492	312,232,319	564,040,055
2019	505,204,434	321,795,480	579,733,654
2020	515,493,469	327,195,477	598,369,674

APPENDIX C—OPERATING EXPENSES

This appendix addresses the annual operating expenses that would be incurred by the WCC. The manner in which a railroad operates and the amount of traffic it handles are the major determinants of the expenses a railroad incurs in its day-to-day operations. As discussed in the body of the decision, BNSF's proposed operating plan for the WCC is used here. Accordingly, unless specifically discussed, BNSF's operating assumptions are used here to determine the level of operational resources the WCC would need for a given level of traffic. For administrative convenience, BNSF's spreadsheets are used as the basis for developing the WCC's operating costs. Table C-1 summarizes the operating cost estimates reflected in the parties' evidence and the figures used by the Board here, incorporating the Board's calibration of its initial operating cost findings to take account of the addition of JEC traffic.

Table C-1
WCC 2001 Operating Costs
($ millions)

	Xcel	BNSF	STB	JEC Calibration	STB Total
Train & Engine Personnel	$16.8	$28.3	$21.9	6.1%	23.3
Locomotive Ownership	12.1	18.2	18.1	6.1%	19.2
Locomotive Maintenance	8.3	9.4	9.2	6.1%	9.7
Locomotive Operations	34.1	39.3	37.9	6.1%	40.2
Railcar	1.5	2.4	2.4	6.1%	2.5
Materials & Supply Operating	0.6	1.2	0.9	0.0%	0.9
Ad Valorem Tax	2.1	2.1	2.1	0.0%	2.1
Operating Managers	5.7	7.4	5.9	0.0%	5.9
General & Administrative	5.8	15.1	10.4	0.0%	10.4
Training & Recruitment					
T&E	3.1	11.8	8.2	6.1%	8.7
MOW	0	1.5	1.5	13.6%	1.7
Other Employees	0.8	4.2	1.9	0.0%	1.9
Loss & Damage	0.2	0.2	0.2	6.1%	0.2
Maintenance-of-Way	11	23.4	22.8	13.6%	25.8
UP Trackage Rights Fees	3.6	3.8	3.6	0.0%	3.6
SUBTOTAL	106	168.2	147.0		156.3
Insurance	3.7	16	5.1		5.4
TOTAL	109.3	184.2	152.2		161.7

* Columns may not add to total due to rounding.

A. Locomotives

1. Locomotive Requirements

As shown in Table C-2, there is a substantial difference in the number of locomotives each party assumes the WCC would need.

Table C-2
Locomotive Requirements

	Xcel	BNSF	STB
Road - SD70	88	131	131
Helper - SD70	2	3	2
Switch - SD40	2	3	3
Work - SD40	0	3	3
Total	92	140	139

Locomotive requirements are primarily determined by how the WCC would operate. Because BNSF's operating plan is used, the basic number of road, helper, and switch locomotives required by that plan are used here, with one exception. BNSF claims that a helper train and full-time crew would be required at Logan Hill to allow heavy trains (over 19,920 tons) to traverse the steep grade in inclement weather. However, BNSF's evidence shows that only 1% of the annual trains *migh*t need assistance in unfavorable weather conditions. Moreover, BNSF did not include any helper service at Logan Hill in its analysis using the RTC model. Accordingly, the Board concludes that BNSF has not supported the need for a full-time helper train and crew at Logan Hill.

Because individual locomotives would not be available 100% of the time, additional locomotives would need to be acquired to serve as spares. Xcel proposed a spare margin of 5% based on a locomotive maintenance agreement between BNSF and General Motors Electromotive Division (EMD). BNSF, in contrast, performed an analysis of the availability and utilization of locomotives that serve the PRB and concluded that between January and June 2002, locomotives were unavailable (undergoing repairs or periodic maintenance) 9.1% of the time.[45]

In *TMPA*, 6 S.T.B. at 661, the Board accepted a spare margin of 5% for helper trains based on the EMD maintenance agreement. In this case, however, BNSF has offered persuasive evidence that a 5% spare margin would be inadequate. As BNSF notes, there are a number of instances in which a locomotive would not be available for service, but would still be considered "available" under the EMD contract provision (e.g., time spent repositioning excess power, time spent in normal yard service or awaiting

[45] *See* BNSF Reply e-WP. "Loco Spare Margin_Reply.xls."

placement on a train, and unavailability due to collision or other accidents). In all of the foregoing circumstances, a locomotive would be considered available under the EMD contract, even though it was not, in fact, available for service. Moreover, the contract provision has now been cancelled. As BNSF's computation is consistent with the 10% spare margin used in several prior SAC cases, and is based on a study accepted here in the variable cost analysis, BNSF's spare margin of 9.1% is used here as the best evidence of record.

The parties agree on the unit cost for acquiring (by leasing) the SD70 locomotives the WCC would need ($132,795), but not on the cost to acquire the SD40 locomotives. Xcel used a cost per SD40 locomotive of $54,750, based on a selective review of the cost of only three of the 38 such units produced by BNSF in discovery, while BNSF proposed a cost of $72,472 per SD40, based on the average cost of all 38 units. The Board uses the BNSF cost figure as the more representative figure. That figure is also more in line with the cost used in prior SAC cases. *See CP&L*, 7 S.T.B. at 289 (the parties agreed that the cost of SD40 locomotives would be $76,281).

2. Locomotive Maintenance Expense

The parties agree on the maintenance expense per locomotive unit mile (LUM) for the SD40 locomotives. For SD70 locomotives, both parties based maintenance expenses on a maintenance agreement between BNSF and EMD. This contract contains a monthly minimum maintenance charge based on 9,000 LUM per locomotive. Under the operating plan used here the WCC locomotives would fall short of the minimum LUM requirement. Thus, the minimum charge would apply to the SD70 locomotives. The parties agree to add 1,000 hours of labor for each overhaul, a cost not included in the EMD contract.

3. Locomotive Operating Expense

a. Fuel Costs

Fuel costs are comprised of two components: the fuel consumption rate per LUM, and the fuel cost per gallon. The parties do not agree on either component here.

For fuel consumption, Xcel used BNSF's system-average fuel consumption rate of 3.22 gallons per LUM. In contrast, BNSF relied on a special study of actual fuel consumption for coal trains, showing a consumption rate of 3.78 gallons per LUM. Although Xcel criticizes BNSF's fuel study, the Board has determined that BNSF's study is valid (*see* Appendix E—Variable Cost for a discussion of BNSF's fuel study). The Board, therefore, uses BNSF's evidence. *Accord CP&L*, 7 S.T.B. at 290 (system-average fuel consumption is used unless there is a study of fuel consumption more specific to the locomotives that the SARR would use).

BNSF accepted the fuel cost Xcel proposed in its case-in-chief. On rebuttal, Xcel substituted a lower estimate. The Board uses Xcel's opening evidence, as it is inappropriate for Xcel to revise uncontested evidence on rebuttal. *See Duke/NS*, 7 S.T.B. at 101.

b. Servicing

Locomotive servicing includes the labor and material costs associated with servicing the locomotives, including the costs of adding lube oil and sand. The parties agree on a cost per LUM for servicing locomotives, which is used here in conjunction with the Board's finding on the number of LUMs for the WCC.

B. Railcars

There is a substantial difference in the parties' estimates for the number of railcars that would be required and the costs of acquiring those cars.

1. Railcar Requirements

Because BNSF's operating plan is used here, that plan is used to estimate the number of coal cars that would be required. However, because of maintenance considerations, cars would not be available at all times, and thus the WCC would need additional cars to serve as spares. Xcel assumed that the WCC would need a 5% spare margin, while BNSF assumed a 10% spare margin based on the Board's findings in prior SAC cases. Because Xcel offered no evidence to support its 5% figure, it failed to meet its burden of proof on this issue. Therefore, a 10% spare margin is used here.

2. Railcar Lease Expense, Maintenance Expense, Private Car Allowance

The parties agree on railcar lease and maintenance expenses. The parties also agree that the WCC would not pay private car allowances. The agreed-upon unit costs are used here.

C. Train Crew Personnel

There is a substantial difference in the parties' estimates of the number of train and engine (T&E) personnel that the WCC would need. The parties agree that train crews could work 270 shifts per year, but they do not agree on the total number of crew starts the WCC would require. The operating plan is the prime determinant of the number of T&E personnel. Therefore, because BNSF's operating plan is used here, the Board's SAC analysis is generally based on the number of crew personnel specified by BNSF.

BNSF provided two methods to calculate crew requirements. In one set of electronic spreadsheets, BNSF calculated the number of crews that would be needed during 3 days of the peak traffic week.[46] In another set of electronic spreadsheets, BNSF calculated the annual number of crew starts

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[46] *See* BNSF Reply e-WP."BNSF Crew Counts Final."

needed to serve the traffic group, and then divided by the number of shifts per year that train crews would work.[47] BNSF's peak-week analysis estimated the WCC would require 289 road train crews, whereas its annual analysis produced a figure of 221 crews.

Under BNSF's operating plan, the WCC would require 59,094 crew starts to serve the traffic group in the peak year. If the WCC hired 289 full-time crew, those employees would need to work only 204 shifts per year, far below the agreed-upon 270 crew starts. Moreover, even if the WCC would need 289 train crews to handle peak-week demand, it is unclear that all those employees would need to be paid full-time salaries. As Xcel notes,[48] BNSF's approach is the equivalent of a retail store staffing at the December holiday season levels throughout the entire year. BNSF has failed to justify its peak-week analysis. Therefore, an annual analysis is used here for the average number of crews the WCC would need. This approach is consistent with the SAC precedent in *Duke/CSXT*, *CP&L*, *Duke/NS*, and *TMPA*, where the Board accepted train crew requirements based on an annual analysis.

D. Non-Train Operating Personnel

There is a significant difference in the parties' estimates for the number of, and expenses for, non-train operating personnel. Table C-3 shows the parties' staffing requirements and the figures used by the Board. The areas of dispute are discussed below.

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[47] *See* BNSF Reply e-WP. "LUMS and CarMiles (PSC-BNSF)." (BNSF's electronic spreadsheet inappropriately used 250 shifts per year, rather than the agreed-upon 270 shifts per year.)

[48] *See* Xcel Reb. Narr. III-D-24.

Table C-3
Non-Train Operating Personnel

	Xcel	BNSF	STB
Dir/Mgrs Train & Loco. Op.	4	4	4
Asst. Train Managers	8	10	10
Yardmasters	0	10	10
Equip. Inspectors & Welders	18	28	18
Manager & Crew Callers	6	7	6
Crew Haulers	0	15	0
Dispatchers	9	10	10
Dir/Mgr - Operations Control	4	5	5
Dir/Mgr - Mech. Operations	2	2	2
Dir/Mgr - Safety & Training	4	4	4
TOTAL	55	95	69

1. Train Managers and Asst. Train Managers

The parties agree on the number of train managers. The parties disagree as to the number of assistant train managers needed. Because that number is primarily dependent on the operating plan, and BNSF's WCC operating plan is used here, BNSF's evidence regarding the number of assistant train managers is used here.

2. Yardmasters

Xcel did not provide for yardmasters, claiming that under its operating plan, the only yard activities would be locomotive fueling and servicing, movements to and from contractor maintenance facilities, and some bad-order car replacements. However, as BNSF has explained, yardmasters would be needed at the Guernsey and Northport yards for a variety of activities, including staging trains into the PRB. Xcel argues that there would be fewer trains at these yards because empty trains could be left at the mines for days—an unworkable assumption that led to the Board's rejection of Xcel's proposed operating plan. Because the Board uses BNSF's operating plan and yard configuration, BNSF's evidence on yardmasters is also used.

3. Car/Equipment Inspectors

Xcel would have the WCC hire 18 equipment inspectors. BNSF states that it agrees with the equipment inspectors proposed by Xcel, with the exception that it would add 5 carmen/welders to make minor in-train repairs. Notwithstanding its narrative statement, however, BNSF's electronic workpapers provide for 4 carmen/welders and 24 equipment inspectors.

BNSF claims that the inclusion of five carmen/welders would limit the need to remove defective cars from trains. However, BNSF's evidence also provided for two switch crews at the Guernsey yard, and those are included in the Board's analysis here, due in part to BNSF's evidence that a major function of the switch assignment would be to remove and replace bad-order cars. Because of the inconsistencies in BNSF's evidence, the Board uses Xcel's number of equipment inspectors and does not include the additional equipment personnel proposed by BNSF.

4. Crew Callers

Xcel proposed a manager and five crew callers to staff a single, around-the-clock automated crew calling system. BNSF would add another five crew callers to staff a second crew desk. However, with the use of an automated crew calling system, Xcel's proposal is feasible and BNSF has not shown that a second crew desk would be necessary. Nor did BNSF include the additional five crew callers in its operating expense worksheet. The Board therefore uses Xcel's evidence on this issue.

5. Crew Haulers

BNSF advocates including crew hauler positions at Bill, Guernsey, and Northport, staffed around-the-clock by a total of 15 personnel. A main duty of these personnel would be to transport train crews that exceed their hours of service. The parties, however, have already included an expense for taxi service to ferry relief crews to and from main-line trains. This staffing proposal is therefore duplicative and unnecessary.

6. Dispatchers

The parties agree that the WCC would require two dispatching desks on a full-time basis (2,190 annual shifts) and that a dispatcher would work 250 shifts per year. Xcel would staff these two dispatching desks with nine personnel, which would provide for a maximum of 2,250 shifts per year. However, this staffing level would not provide sufficient coverage for vacation, sick leave, training or unscheduled leave. BNSF's proposal for 10 dispatching employees is therefore used here.

7. Operations Managers

The parties agree on the number of managers for safety, training, and mechanical operations. For operations control, the parties agree on a director, but Xcel would include three managers, while BNSF would assign four. While the combination of a director and three managers could provide around-the-clock coverage, this would not provide sufficient flexibility to cover vacations, sickness, training, or other situations where personnel would be absent from work. Therefore, BNSF's evidence is used here.

E. General & Administrative Personnel

The parties' general and administrative (G&A) personnel estimates for the WCC differ substantially. Based on the experience of its rail operations witnesses and comparisons with other small regional railroads, Xcel proposed a G&A staff of 36 employees for the WCC. Xcel's plan would outsource various financial, marketing, legal, human resources, and information technology functions.

BNSF argues that Xcel's staffing levels would be insufficient. BNSF contrasted the number of employees Xcel proposed with the number employed by other Class I and smaller regional railroads, with particular emphasis on the number of employees per gross dollar of revenue generated by the traffic group. Based on that comparison, BNSF claims Xcel's proposal is far too limited. BNSF proposed a staff of 84. Table C-4 sets forth the numbers included by each party and the numbers used by the Board here.

Table C-4
G&A Staffing

	Xcel	BNSF	STB
President/Exec. Dept.	2	3	3
Operations	3*	5	5
Finance & Accounting	10	28	16
Law, Admin. & H.R., IT	14	30	14
Marketing/Customer Service	6	18	13
TOTAL	35	84	51

* Includes VP-Transportation and administrative assistant that Xcel included in operating managers, and VP-Engr. & Mechanical that Xcel included in MOW.

Except as discussed below, the Board accepts Xcel's evidence on G&A staffing levels as feasible, as it is supported by testimony from former senior-level railroad employees. In several instances, however, the Board agrees with BNSF that Xcel's proposal is either infeasible or unsupported. The areas where the Board departs from Xcel's evidence are noted and explained below.

1. Board of Directors

In addition to G&A employees of the WCC, Xcel proposed a 4-person board of directors, with only one outside board member. BNSF would provide for a 5-person board with three outside directors. As the Board has found in prior SAC cases (*Duke/CSXT*, 7 S.T.B. at 459, *CP&L*, 7 S.T.B. at 295, *Duke/NS*, 7 S.T.B. at 159, *TMPA*, 6 S.T.B. at 676), Xcel's proposal is unreasonable, as it would not provide sufficient independent oversight from outside the WCC management. Therefore, BNSF's proposal of a 5-person board with three outside directors is used here.

2. President's Office

BNSF proposed the addition of a corporate secretary that would ensure compliance with laws and regulations and also assume the responsibilities for corporate relations. The Board agrees with Xcel that the legal functions would come under the responsibility of the legal department. However, Xcel did not reply to the need for an employee to handle corporate relations. That position has been included in prior cases, *see TMPA*, 6 S.T.B. at 676-77, and accordingly the Board includes a corporate relations employee in the President's Office here.

3. Administrative Assistants

BNSF contends that it is common practice and a practical necessity for all persons at the vice president or higher level to have at least one administrative assistant. Xcel neither included those positions nor responded to BNSF's argument. Because BNSF's argument is reasonable, the Board's analysis here includes an administrative assistant for each senior executive position.

BNSF contends that the Transportation Department would require two administrative assistants: the first to provide support to the Vice President and the second to support the other department employees. For example, the Director of Safety Rules and Training must comply with all Federal Railroad Administration (FRA) reporting requirements for injuries, train accidents, crossing accidents, and hours of service violations. That person must also issue all Bulletins and General Orders for the operating personnel and safety notices, directives and training information. The administrative assistant would help that Director as well as the Director, Managers, and Assistant Managers of Operations. For example, the Train and Locomotive managers would prepare discipline letters and hearing transcripts, efficiency test reports, and general information to be issued to all employees in their organization. In light of the scope of duties of the Transportation Department, the Board agrees that two administrative assistants would be necessary. Those positions are included here.

4. Treasurer's Office

Xcel did not provide for a Treasurer's Office to handle cash management, banking relationships, credit approval and analysis, 401(k) investment monitoring, and investment relations. Xcel would have these functions performed by the VP-Finance. BNSF would provide for a treasurer, director, and one analyst for this office. Based on the evidence presented here, the Board is not persuaded that the VP-Finance could double as the treasurer and handle all of the duties suggested by Xcel. Accordingly, the Board uses BNSF's proposal for this office.

5. Purchasing Department

Xcel did not provide for a purchasing department for the WCC. It contends that the Engineering/Mechanical department would handle all purchasing needs for the entire company. BNSF, in contrast, would add three positions for this function. Xcel's plan is infeasible, as all departments in the WCC would need supplies and purchasing support, not just the Engineering/Mechanical Department. Accordingly, the Board includes the purchasing department proposed by BNSF.

6. Marketing Department

An important department for any railroad is marketing. Xcel would have the WCC outsource these responsibilities at an annual cost of only $80,000. However, even though the WCC would only handle one commodity (coal), it would have business in excess of $339 million in the base year. Most of the shippers in the WCC traffic group would ship coal under transportation contracts. Thus, contract administration would play a large role in the day-to-day marketing function of the railroad. The WCC's marketing representatives would need to be skilled at understanding highly technical and specialized contracts for the energy market. Customers could seek to renegotiate the terms of contracts before they expire, because of changes to their coal supply requirements or for other reasons. Renewal negotiations would occur for expiring contracts, and the WCC's marketing representatives would need to constantly monitor the coal and energy markets of these utility companies to analyze and respond to offers, make counter-proposals, and negotiate new terms and conditions. The loss of even a single customer would have severe consequences for the WCC. And, as BNSF points out, the few small railroads that have tried to cut costs by outsourcing marketing functions have been unsuccessful. Thus, Xcel's proposal does not appear to be reasonable.

BNSF proposes a marketing department for the WCC of seven employees, a scaled down version of its own 15-person coal marketing staff. BNSF has supported this proposal by reference to the marketing departments of several shortline railroads—the Chicago SouthShore & SouthBend Railroad, the Wisconsin Central Railroad, the Genesee & Wyoming Railroad, and Montana Rail Link (MRL). Because BNSF's proposed marketing department is realistic and supported, whereas Xcel's proposal is not, BNSF's proposal is used here.

F. Wages and Salaries

1. Crew Compensation

Both parties use BNSF's 2001 Wage Forms A and B as a basis for estimating crew compensation, and they agree that fringe benefits would add another 40% to base wages. However, they disagree on the basic wage and constructive allowance for crews, as well as the number of taxi trips and overnight stays that the WCC crews would require.

a. Basic Crew Wages

The parties agree that each train would be manned by an engineer and a conductor, with each crew member working 270 crew shifts per year. Based on BNSF's 2001 Wage Forms A and B for "Thru Engineers and Thru Conductors," Xcel developed a combined base crew wage of $51,080. BNSF disputes the appropriateness of that calculation, stating that those wages were based on crews that averaged only 222 shifts per year. BNSF argues that engineers and conductors working more shifts would require higher compensation. BNSF based its crew wage evidence on a group of engineers and conductors that worked between 255 and 284 shifts per year (with an average of 270 starts), resulting in an estimated combined base crew wage of $68,084.

The Board agrees with BNSF that employees working more hours would command more compensation. Because BNSF's calculations are reasonable, the Board uses BNSF's base crew wage estimate here.

b. Constructive Allowance

Xcel included a constructive allowance of 10.8% to account for vacation and meal expenses but excluded other allowances, asserting that they would not be available to the WCC's non-unionized workforce. BNSF objects to the exclusion of these allowances. Xcel responded to BNSF's inclusion of so-called "short crew allowances," additional payments for train crews when the assigned number of employees are not present for a given shift. Xcel contends that the WCC would always have two employees on each train (a conductor and engineer) and thus no short crew allowances would accrue.

The short-crew payments are an integral part of the total compensation BNSF pays its conductors and engineers. Whether that payment is labeled "salary" or "short crew allowance," the payment is part of the prevailing market wage that the WCC would have to pay to attract and retain its train crews. Therefore, the Board will not remove allowances for short crews.

Regarding the other contested crew allowances, Xcel has not supported its exclusion of other allowances with any evidence that non-unionized railroads do not pay these benefits. Accordingly, BNSF's constructive allowances, based on BNSF's own workforce, are used here. *Accord Duke/NS*, 7 S.T.B. at 158.

c. Taxi Expenses

The parties agree that the cost of a taxi would be $1 per mile, but they disagree on the number of trips that would be needed. Because the number of taxi trips is primarily dependent on the operating plan, BNSF's estimate is used here. BNSF, however, has presented two alternative calculations. In the first, BNSF determined the number of taxi trips that would be required during

3 days of the peak traffic week, and then annualized that calculation.[49] In the second, BNSF calculated the average taxi expense on an annual basis.[50]

Using an estimate based on the peak-week analysis, when the maximum number of crew would be deployed, would overstate the average annual operating expense. Therefore, the Board uses BNSF's alternative calculation, as it more accurately reflects the average annual taxi expense the WCC would incur.

d. Overnight Expenses

The parties agree on a $45 cost for overnight lodging and meals, but they differ on the number of overnight stays that would be required by train crews. Because the number of overnight stays is determined by the operating plan, and BNSF's operating plan is used, BNSF's number of overnight stays is used here. Again, however, for the reason discussed above, the Board does not use BNSF's peak-week analysis, but rather BNSF's figure derived from an annual calculation.

2. Executive Compensation

Xcel developed executive level compensation from a comparison to the salary paid at the Wisconsin Central North America Railroad (WCNA). Xcel would have the WCC pay its President $304,235 (plus fringe benefits), its VP-Finance, VP-Transportation and Mechanical Department $202,823, and its General Counsel $89,729.

BNSF has provided testimony from the President of WCNA that he was paid far more than Xcel asserts (over $800,000 in salary, bonus, and stock options), and a chart showing the compensation for various VP positions on Class I and shortline railroads. BNSF would have the WCC pay its President $419,335, based on a comparison to the salary that the Florida East Coast Railway (FEC) paid its President. BNSF would pay vice presidents $298,500, based on its witness testimony.

The record demonstrates that the WCNA paid its President far more than the amount claimed by Xcel. Therefore, for the President's salary, the Board uses BNSF's figure based on a comparison to the FEC.

For the vice president positions, BNSF has not provided convincing evidence that the compensation at WCNA is unreasonably low. The Board, however, increases the General Counsel's salary to match that of the other vice presidents, as the Board is not persuaded that the WCC could recruit a qualified candidate for a salary that would be below the salary paid to many first-year associates at major law firms.

Finally, Xcel did not provide for any executive bonuses, even though the railroad from which base executive salaries were derived includes bonuses in its executive compensation package. Because the bonuses of WCNA

[49] *See* BNSF Reply e-WP. "BNSF Crew Counts Final."
[50] *See* BNSF Reply e-WP. "LUMS and Carmiles (PSC-BNSF)."

executives average 18% of base salary,[51] this percentage is used here to calculate executive bonuses for the WCC. *Accord Duke/NS*, 7 S.T.B. at 158-159.

3. G&A and Non-Crew Operating Personnel Compensation

Both parties used BNSF's Wage Forms A & B to develop non-executive G&A and non-crew operating personnel salaries. Xcel claims, however, that BNSF incorrectly selected certain labor classes and misclassified several positions. In general, BNSF selected labor classes from the Wage Forms A & B that more accurately reflect the level of responsibility of the WCC employees. For example, Xcel used a salary for a general clerk or clerk technician to estimate the salary of an administrative assistant, while BNSF used the salary of a secretary. BNSF's comparison is more appropriate, as an administrative assistant works directly for the President or vice presidents and would require a higher level of technical competence than a clerk position. Accordingly, the Board uses BNSF's evidence for non-executive salaries with the exception of salaries of information technology (IT) specialists. BNSF provided no salary from its Wage Form A & B that would be appropriate for the IT specialists, and thus the Board uses Xcel's evidence here.

4. Outside Directors

Xcel assumed that an outside director would be a shipper or investor representative who would have a direct interest in the WCC's success and would thus be willing to serve on the WCC board with only minimal compensation (for the travel expenses associated with attending board meetings). In contrast, BNSF proposed a salary of $40,000 a year for each director, with no substantiation. Because Xcel's evidence on this issue is feasible and consistent with precedent in prior SAC cases (*see Duke/CSXT*, 7 S.T.B. at 462, *CP&L*, 7 S.T.B. at 297, *Duke/NS*, 7 S.T.B. at 159, *TMPA*, 6 S.T.B. at 676-77), it is used here.

5. Indexing

The parties agree that the 2001 wages should be indexed to the first quarter of 2001, and they agree on the source for the indexes, but they do not agree on the methodology that should be used. Each year, AAR releases quarterly and annual wage rates for western railroads. The annual indexes are derived from information that does not become available until year end, and as such the AAR cautions readers that "the final annual values may not equal the average of the four quarterly figures."[52]

Xcel ignored AAR's cautionary note and indexed wages to the first quarter 2001 level by taking the *unadjusted* 1Q2001 index divided by the *adjusted* annual 2001 index. But as BNSF points out, Xcel used a mismatch

[51] *See* BNSF Reply Narr. III-D-3-16.
[52] AAR Railroad Cost Indexes, Table A.

of adjusted and unadjusted wage indexes, which produced a systematic understatement of wages. BNSF would correct this problem by having the Board use the *unadjusted* 1Q2001 index divided by the average of the quarterly *unadjusted* indexes for 2001. The flaw in Xcel's evidence is best illustrated with an example. Assume that the average 2001 wage for a train conductor were $50,000. Table C-5 shows the result of indexing that average wage to each quarter in 2001 using the methodology proposed by Xcel and that proposed by BNSF.

Table C-5
Index Methodology Comparison

	Xcel Method		BNSF Method	
Quarter	Index	Wage	Index	Wage
1Q	0.983	$49,172	0.995	$49,758
2Q	0.987	$49,331	0.998	$49,919
3Q	0.991	$49,570	1.003	$50,161
4Q	0.991	$49,570	1.003	$50,161
Average	0.988	$49,411	1	$50,000

As the table illustrates, under Xcel's approach the indexed wage does not average to the hypothetical train conductor median wage of $50,000 for that year. Accordingly, BNSF's method, which is mathematically sound, is used here.

G. Materials, Supplies, and Equipment

Materials, supplies, and equipment would be needed to support WCC personnel, including such items as motor vehicles, office furniture, equipment, utilities, outside services, IT hardware and software, travel, and training. The parties agree on the unit costs for some of these items, but their aggregate expenses differ due to the difference in their proposed staffing levels. Where that is the case, the costs are restated to the staffing levels used here and are not further discussed. Likewise, decisions that are driven by the use of BNSF's operating plan are not addressed separately. The remaining disputes are discussed below.

1. Vehicles

The parties disagree over the quantity and type of motor vehicles that would be needed. Xcel would have the WCC purchase two-wheel-drive Ford pickup trucks for train inspectors and supervisory personnel, and Ford Explorers for the President, Vice Presidents of Finance and Transportation, the General Counsel, and crew management.

BNSF argues that two-wheel-drive vehicles are inappropriate for personnel that would travel through mountainous territory. BNSF would have the WCC purchase four-wheel-drive vehicles. It proposed three Chevrolet Suburbans for crew haulers, a Ford F350 for the carmen/welders, four F150 pickup trucks for the equipment inspectors, 10 Ford Explorers for executives, and 20 Ford Explorers for operating managers.

Xcel failed to reply to BNSF's claim that four-wheel-drive vehicles would be needed. Because the operating staff would travel in mountainous terrain, BNSF's claim is reasonable. Therefore, BNSF's evidence regarding the vehicle fleet is used here. It is adjusted, however, to reflect the number of positions to which vehicles would be assigned.

The parties agree that the vehicles would have an average life of 6 years, but they disagree on how to amortize the acquisition cost over that time period. On opening, Xcel used a straight-line allocation with no provision for financing costs. Xcel simply divided the total cost by the number of years. BNSF, on reply, amortized the expense over the 6 years using the 2001 railroad industry cost of capital as the financing rate. BNSF also assumed a salvage value of 13% of the initial acquisition cost. On rebuttal, Xcel objected to the use of the railroad industry cost of capital to amortize this expense, contending that lower interest rates are commonly available. However, Xcel's electronic workpapers continued to use the straight-line approach with no financing costs.

BNSF's evidence is used here. Xcel has provided no rationale for departing from the Board's assumption that a SARR would purchase its assets using the general funds that it would raise through the issuance of debt and equity. To assume that vehicles could be financed at a rate below the aggregate cost of capital would necessitate an examination of the costs of raising capital for each individual investment that the WCC would make. Such an examination would significantly complicate these cases but in the end would have no perceptible effect on the overall costs that the WCC would incur, as some investments would have financing costs above the aggregate cost of capital while others would have lower rates.

2. Desks

The parties agree on the cost per desk ($2,438) and the expected life of desks (5 years).[53] Xcel then developed the WCC's annual expense for desks by dividing the per-desk cost by the expected life and then multiplying by the total number of desks that would be needed.[54] BNSF, in contrast, would have the WCC fully account for the price of the initial set of desks at the outset, then begin to finance a replacement set at the same time.[55] The Board agrees with Xcel that BNSF's method would overstate the desk expenses. Therefore, the Board uses Xcel's evidence.

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[53] BNSF Reply Narr. III-D-54.
[54] Xcel Reb. e-WP. "Pawnee Opr Exp," cells D155 and D283.
[55] BNSF Reply e-WP. "Opr Exp, Sheet Desks_Chair."

3. Safety Equipment

The parties do not agree on the amount of safety equipment that each T&E employee would need. Xcel's evidence provided $27.50 per employee for items such as hard hats, reflecting vests and belts, and protective eyewear. BNSF's evidence, in contrast, allocated $240.62 per employee for items such as prescription glasses, safety shoes, and cold and warm weather gloves. However, Xcel points out that railroads do not typically supply employees with clothing items, and BNSF has not provided any evidence that railroads generally provide such safety equipment to its employees. Therefore, the Board uses Xcel's evidence on this cost item.

4. End-of-Train Devices

The parties agree on the use of distributed power locomotives, calling for two locomotives on the front of a train and one on the rear of the train. The use of rear locomotives eliminates the need for end-of-train devices (EOTDs). Accordingly, EOTDs are included here only for work trains that would not have rear locomotives.

5. Travel & Entertainment

Xcel included no travel allowance for operating or G&A personnel, on the grounds that a regional railroad such as the WCC would cover a limited geographic area and would maintain personnel levels so as to minimize travel. BNSF proposed travel expenses equivalent to 10% of compensation for marketing employees, and 5% for other G&A staff and operating employees. Xcel's omission of all travel expenses is not reasonable. *See, e.g.*, *Duke/NS*, 7 S.T.B. at 160-161. BNSF's evidence is used here, as it appears reasonable and is the only evidence of record on this expense.

H. Start-Up Costs

1. Training & Recruitment

The parties agree that the WCC would incur costs to recruit professional employees and to train other employees. However, the parties do not agree on the recruitment or training costs per employee or on whether to expense or capitalize those costs.

a. Training Cost per Employee

The parties agree that all train and engine crew employees would undergo training and they agree on travel, lodging, and meal expenses for personnel in training status. They do not agree, however, on the cost to train the T&E employees, the salary to pay those employees during training, and whether those employees should have any on-the-job training (OJT). Xcel would have the WCC pay 80% of their wages during the classroom training period, but Xcel did not include any wages for an OJT period.[56] In contrast, BNSF did not include any wages for the training period, but would include 80% of their wages during the OJT period.[57] Xcel would include a training cost of $3,441, but its underlying support for that estimate pertains only to the cost to train conductors, not engineers. BNSF provided an internal memorandum showing that BNSF incurs a total training cost of $10,000 per engineer for 5 weeks of classroom training plus 19 weeks of paid OJT, and $4,750 for 6 weeks classroom training for conductors with 15 weeks of paid OJT.[58]

The Board accepts Xcel's conductor training expense of $3,441 as feasible and supported, but applies 18 weeks of expense for OJT as outlined in Xcel's supporting documents. Xcel provided evidence from the National Academy of Railroad Sciences (an organization that provides conductor training) that supports a cost of $3,441 for 6 weeks of conductor training, but which states that those completing the 6-week program who secure employment with a railroad move on to 18 weeks of paid OJT.[59] The evidence shows, however, that it is more expensive to train engineers than conductors. Because Xcel did not provide any cost to train new employees as engineers, the Board uses BNSF's training cost for engineers. The Board also accepts as reasonable the 19 weeks of OJT for engineers, as these employees would need some apprenticeship prior to assuming unsupervised responsibilities.[60]

The parties do not agree on whether MOW employees would require any training. Xcel claims that no training would be necessary, as Xcel would have the WCC contract out most maintenance functions. BNSF, in contrast, would have the WCC hire and train a larger workforce to handle day-to-day maintenance. As discussed *infra*, the Board rejects Xcel's proposal as infeasible and unsupported, and uses BNSF's MOW staffing levels. Moreover, the Board rejects as infeasible the notion that MOW employees would require no training. Therefore, the Board uses BNSF training expenses for MOW employees as the only evidence of record as to those expenses.

b. Recruitment Cost per Employee

The parties agree that for employees who would not require any training (such as executives and managers), the WCC would incur recruitment costs. Xcel assumed that the WCC would incur a $1,000 cost for hiring each employee. BNSF, in contrast, estimated this cost at 25% of the first-year salary for executives, and $12,000 for other rank-and-file employees. The Board agrees with BNSF that it is unrealistic to expect to incur only $1,000 to recruit upper level management and executives. BNSF's figure of 25% of the first-year salary (paid to a management recruitment firm) is reasonable and is

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[56] *See* Xcel's Reb. e-WP. "Pawnee_Opr_ExpReb," line 322.
[57] *See* BNSF's Reply e-WP. "T&E Training."
[58] *See* BNSF's Reply WP. Vol. 7 of 8, at 318.
[59] *See* Xcel's Open. WP, Vol. 4 of 5, at 2992-93.
[60] *See* STB worksheet "T&E_Training, STB Version."

used here. On the other hand, Xcel's assumption that the WCC could advertise its vacancies and expect to receive a sufficient number of applicants by spending $1,000 times the number of rank-and-file employees needed seems reasonable. In contrast, BNSF's assertion that the WCC would need to pay a $12,000 recruitment fee for rank-and-file employees is unsupported and unrealistic. Therefore, the Board uses Xcel's hiring cost figure for rank-and-file employees.

c. Start-Up Recruitment & Training Expenses

Xcel would capitalize, rather than expense, the initial recruitment and training costs that the WCC would incur. Xcel argues that this large up-front expense should be treated like other start-up capital investments and annualized over the life of the WCC. However, generally accepted accounting principles (GAAP) treat training and recruiting of employees as an operating expense that is not capitalized. Therefore, consistent with precedent (*see, e.g., Duke/CSXT* 7 S.T.B. at 464-465) and GAAP, the Board includes recruitment and training costs here as an annual operating expense.

d. Subsequent Annual Recruitment & Training Expenses

The WCC, like all businesses, would need to replace employees lost to attrition. BNSF estimated that the WCC would have an attrition rate of 5% annually. It notes that its own attrition rate is somewhat higher. Xcel's narrative testimony does not discuss attrition rates, although its electronic workpapers seem to accept a 5% attrition rate. Consistent with prior practice (*see Duke/CSXT*, 7 S.T.B. at 464; *CP&L*, 7 S.T.B. at 299; *Duke/NS*, 7 S.T.B. at 161 and the record in this case, the Board uses an attrition rate of 5%. The Board's analysis also recognizes that, as the amount of traffic on the WCC increased, the WCC would have to train new employees not only to replace those lost to attrition but also to handle the additional traffic. Conversely, in years when traffic volumes are projected to decrease, the WCC would not need to train the same number of new employees as the number that would be lost to attrition. Accordingly, the Board's analysis includes the cost of recruiting and training replacement employees as they would be needed.

2. Real Estate Commissions

BNSF claims that the WCC would incur $2 million in start-up costs for negotiating real estate transactions. Xcel argues that this cost is already reflected in the real estate investment costs. Xcel's position is reasonable and BNSF has failed to support this expense or explain why such a cost would not be incorporated in the purchase price. Therefore, no separate real estate commission is included in the Board's analysis.

3. Equity Financing Fee

BNSF argues that the WCC would incur a 4% financing fee to raise the equity capital needed to construct the railroad. The Board has rejected such an expense in prior SAC cases as inadequately supported. *See TMPA*, 6 S.T.B. at 751; *WPL* 5 S.T.B. at 1040. Here, BNSF's evidence is largely the same as what the Board found inadequate in prior cases: a verified statement from the President and Chief Executive Officer of Anacostia & Pacific, a private consulting firm, estimating the size of this fee based on his experience and consultation with the Chief Financial Officer (CFO) of his company. The record is improved marginally here by a memorandum from the CFO purporting to reflect telephone conversations with three undisclosed financiers to support the 4% flotation fee. But absent evidence of the existence and size of equity flotation fees associated with equity issuances of a similar size, the Board will not depart from its precedent.

I. Ad Valorem Tax

The parties agree on ad valorem taxes.

J. Loss and Damage

The parties agree on a loss-and-damage cost estimate of $0.0019 per ton.

K. Maintenance-of-Way

A summary of the MOW costs used here is set forth below in Table C-6. Disputed components of those costs are then discussed.

Table C-6
MOW Costs
($000)

	Xcel	BNSF	STB
Staffing	$3,255	$10,424	$10,424
Equipment	804	4495	4495
Materials	1056	1796	1796
Maintenance Contract Work			
Weed Spray	267	356	307
Ultrasonic Rail Testing	339	876	876
Track Geometry Testing	163	377	163
Rail Grinding	1632	1807	1632
Bridge Contract Work	0	280	280
Yard Cleaning	0	33	33
Misc. Engineering	389	373	373
Building Maintenance	0	269	269
Derailment Allowance	311	515	515
Snow Removal	78	118	118
Casualties	0	500	500
Ditching	440	885	885
Environmental Mitigation	0	270	73
Communications & Signals	119	0	0
Contract Labor	2143	0	0
Bridges over Roads	0	14	14
Total Expense	$10,996	$23,388	$22,750

1. Staffing and Equipment

The WCC would need a MOW department to perform day-to-day preventive maintenance. (The parties included in their respective DCF calculations the necessary funds to replace all of the WCC's assets at the end of their asset lives, thereby obviating the need to provide MOW funds for so-called program maintenance to systematically replace worn-out assets.) Xcel estimated the expense for this preventative maintenance at $11 million, while BNSF estimated this expense at $25 million.

The majority of the difference in these estimates is due to the parties' conflicting views on how the MOW department would operate and the personnel it would require. Xcel contends that the WCC could perform the necessary maintenance with a streamlined MOW department of 8 managers and 55 field workers cross-trained to handle numerous tasks, with the remaining maintenance duties outsourced. BNSF argues such a MOW department is far smaller than any MOW department of any real railroad, and would be insufficient to handle the maintenance problems that a high-density railroad such as the WCC would face. BNSF proposed a more extensive MOW staff of 13 managers and 166 field workers.

Xcel has not established the feasibility of its proposal. It failed to explain how its staffing levels were derived and did not show that any existing railroad actually functions with such a limited workforce. It also failed to show that cross-trained MOW staff would be available and, even if available, how such a small MOW department could provide the unplanned day-to-day maintenance that would be needed by a railroad the size of the WCC. Moreover, the Board rejects the notion that the MOW function can be outsourced. *See Duke/CSXT*, 7 S.T.B. at 466-467; *CP&L*, 7 S.T.B. at 301-302; *Duke/NS*, 7 S.T.B. at 163-164.

BNSF provided detailed descriptions of the operating maintenance that the WCC would need to perform. Moreover, by comparing Xcel's proposed MOW staff level to that of the MRL and FEC railroads, BNSF provided compelling evidence that Xcel had understated operating maintenance costs. The WCC would be of comparable size to those two regional railroads, although it would carry far more traffic. Other factors being equal, this should mean that the WCC would require a larger MOW workforce than either the MRL or FEC. Yet, as shown in Table C-7, Xcel's proposed staffing levels for the WCC fall well below that of the MRL or FEC. BNSF's proposed staffing levels, in contrast, are consistent with those of FEC and MRL.

Table C-7
Comparison of MOW Staffs

	FEC	MRL	WCC	
			Xcel	BNSF
Characteristics				
Route Miles	360	600	397	397
Track Miles	500+	900	595	680
MGT	30	30	105	94
MOW Staff Levels				
Managers	13	29	6	13
Crews	182	132	58	166
Total	195	161	64	179

Because BNSF's MOW staffing evidence is realistic and supported, it is used here as the best evidence of record. BNSF's cost estimate for maintenance equipment is also used, as the amount of equipment that would be required is directly attributable to the railroad's staffing level, and BNSF's equipment requirements are reasonable and supported.

2. Materials

Xcel calculated that the materials for operating maintenance would be 5% of total annual maintenance costs. BNSF estimated the cost for materials as 24% of salaries. Xcel's materials estimate is far below what has been used in recent SAC cases, *see Duke/CSXT*, 7 S.T.B. at 467 (using 30% additive); *CP&L*, 7 S.T.B. at 302 (same); *Duke/NS*, 7 S.T.B. at 164 (same), and Xcel has not explained how it derived a 5% figure. Because Xcel has failed to meet its burden of proof, BNSF's figures are used here as the only other evidence of record.

3. Contract Maintenance Work

The parties agree that some maintenance work would be handled by contractors, rather than by the WCC MOW staff. Because BNSF's staffing of the MOW department is used, certain of the contracting work proposed by Xcel would be performed by WCC personnel. Accordingly, Xcel's contract costs for communications and labor are unnecessary. Furthermore, on certain other contract cost items, Xcel failed to respond to BNSF's evidence, and Xcel is thus deemed to have acquiesced to that evidence. Accordingly, BNSF's evidence is used for bridge contract work, yard cleaning, miscellaneous engineering, building maintenance, derailment allowance, snow removal, casualties, and bridges over roads. The remaining disputed issues are discussed below.

a. Weed Spraying

The parties agree that the WCC would have to perform regular weed spraying along the right-of-way (ROW), which Xcel estimated would cost $451 per track mile. BNSF claims that, along part of the ROW, the WCC would also have to spray for noxious weeds (weeds that have a harmful effect on agricultural productivity or human health), at an added expense of $238 per track mile.

Xcel's estimate of $451 is higher than BNSF's actual expenditure for spraying for normal and noxious weeds in the PRB.[61] It is therefore reasonable, and BNSF's additional proposed cost is rejected. The total weed spraying cost is determined here by multiplying Xcel's unit cost times the number of track miles used by the Board.

b. Ultrasonic Testing

The WCC would have to perform ultrasonic testing of the rail to locate internal rail defects. The parties agree that such testing would cost $308 per mile. However, Xcel argues that the WCC would only have to test the rail twice a year, while BNSF argues that individual line segments should be tested every 10-15 MGT of use. BNSF notes that its proposed testing frequency is consistent with BNSF's current testing program.

BNSF's testing frequency is derived from its own standards for such testing, while Xcel's evidence is based on the unsupported assertion of its witness. The Board therefore uses BNSF's testing frequency as the best evidence of record.

c. Track Geometry Testing

As with ultrasonic testing, the parties agree that the WCC would have to perform track geometry testing, at a unit cost of $297 per track mile, but again the parties do not agree on the frequency of such testing. Xcel would have the WCC test the track once per year regardless of density, while BNSF would have the WCC test line segments with densities greater than 100 MGT four times per year and segments with densities less than 100 MGT twice per year. Again, BNSF notes that its proposal is consistent with its current procedure.

Xcel has not supported its evidence by showing that the more limited testing it proposed is used by an existing railroad, nor has Xcel shown that BNSF's testing procedure would be unrealistic. Therefore, the Board uses BNSF's proposed rail geometry testing schedule here.

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[61] *See* Xcel Reb. e-WP. "weedspraying."

d. Rail Grinding

Again, the parties agree that the WCC would have to conduct rail grinding along the ROW, at an agreed cost of $1,850 per mile, but they do not agree on the frequency of such work. Xcel proposed that the WCC grind rail every 100 MGT, using two passes of the rail grinding equipment. It supports this position by comparison to the WRPI rail system, which used similar grinding frequencies. BNSF claims that a more comprehensive program is required. However, because Xcel's evidence is supported by actual rail operations, thereby demonstrating the feasibility of its proposal, Xcel's evidence is used here.

e. Ditching

The parties agree that the WCC would have to clean ditches along the ROW at an agreed cost of $2.24 per linear foot. Xcel would clean the ROW once every 5 years. BNSF notes that Xcel's calculation incorrectly assumes that the WCC would have ditches only on one side of the tracks. BNSF also contends that cleaning should take place once every 2 years. Xcel contends that BNSF's proposed increased cleaning frequency is unrealistically high, but Xcel has failed to respond to BNSF's claim that the tracks would have ditches on both sides of the line.

Xcel has provided no evidence that any existing railroad's cleaning interval is as infrequent as what it proposes for the WCC, and Xcel has not disputed that the WCC would have ditches on both sides of the line. Therefore, the Board uses BNSF's evidence on this expense.

f. Environmental Mitigation

Xcel did not provide for any environmental mitigation costs in its opening evidence. BNSF notes that railroads generally incur expenses for environmental mitigation. BNSF cites to its own experience with a coal spill in Lincoln, NE. Moreover, BNSF states that cleanup of coal dust from the ROW, an ongoing practice on the Orin Line, would be required.[62] BNSF would include $270,000 for environmental mitigation—a calculation drawn from BNSF's experience with the Orin Line. Xcel responds that the WCC would have much lighter tonnage than the Orin Line, making that coal dust cleanup unnecessary.

While the differences in tonnage would not mean that the WCC would incur no such expenses, the WCC should not incur the same level of expenses as BNSF incurred on the Orin Line. The tonnage of the WCC, as proposed by BNSF, would be 94 MGT, or only 27% of the traffic currently moving on the Orin Line (350 MGT). Accordingly, the Board's analysis here includes only 27% of the $270,000 environmental mitigation cost proposed by BNSF.

[62] BNSF Reply WP. III-D-4 at 89-110 (providing photos and charts).

L. Insurance

Xcel calculated the insurance expense—3.48% of total operating expenses—based on BNSF's 2001 Annual Report R-1. For this case, BNSF acquired a much higher insurance quote from a private-sector insurance company. Xcel's evidence is used here, as it is supported by BNSF's own experience as well as evidence showing that certain shortline railroads have insurance costs in the 3% to 4% range.

M. Trackage Rights Fee

The WCC would have trackage rights over certain lines of UP. The parties agree on the trackage right fee per GTM. That number is used here.

N. Tonnage Calibration

The figures selected by the Board and described above were based largely on BNSF's evidence and assumption that in 2001 the WCC would haul 94.2 tons of traffic, or 100 billion ton-miles (BTM). Inclusion of the JEC traffic adds 11.1 million tons, or 6.1 BTM. As discussed in the body of this decision, the Board accounts for the added ton-miles by increasing the following components of the total operating cost by 6.1% (6.1 BTM/100 BTM): (1) T&E Personnel, (2) Locomotive Ownership, (3) Locomotive Maintenance, (4) Locomotive Operations, (5) Railcar, (6) Annual Training & Recruitment (Operating & MOW), and (7) Loss and Damages. The Board uses a ton-mile adjustment, rather than looking at the increase in tons alone, as the effect on these operating expenses from adding the JEC traffic should reflect both the added tons and the distance hauled.

This tonnage calibration approach conforms with the way the Board (and the parties) forecast operating expenses in future years. The discounted cash flow model takes these same operating expense categories for the base year and increases them in proportion to the forecast tonnage growth. The DCF model therefore implicitly assumes that these same operating expenses would increase or decrease in proportion to the tonnage on the WCC. The Board applied that same core assumption to increase the base-year operating expenses to reflect the addition of the JEC traffic.

One further adjustment is called for, however, as the DCF model does not adjust the MOW expenses calculated by the Board as tonnages change. This reflects the implicit assumption that the MOW workforce is more closely tied to the size of the network rather than the amount of traffic upon it. But adding the JEC traffic would increase the size of the WCC. Therefore, the MOW expense is adjusted upwards to reflect the additional road property investment attributable to the JEC traffic. As discussed in the body of this decision, this adjustment increases the MOW expense by 13.6%.

The remaining expenses should not increase significantly by adding JEC to the traffic group, other than the insurance expense. Because the insurance expense is a fixed 3.48% of the other expense categories, it is recalculated accordingly.

APPENDIX D—WCC ROAD PROPERTY INVESTMENT

This appendix addresses the evidence and arguments of the parties concerning what it would cost to build the WCC. Table D-1 summarizes the parties' cost estimates associated with that construction, as well as the numbers used in the Board's analysis.

Table D-1
WCC Construction Costs
($ millions)

	Xcel	BNSF	STB
A. Land	$14.1	$24.5	$18.4
B. Roadbed Preparation	239.2	756.2	278.1
C. Track	305.3	425.7	356.5
D. Tunnels	23.9	29.9	23.9
E. Bridges	49.2	83.0	82.7
F. Signals & Communications	71.4	77.0	76.8
G. Buildings & Facilities	21.8	53.7	41.2
H. Public Improvements	16.9	34.3	23.2
I. Mobilization	17.2	38.9	21.1
J. Engineering	65.0	158.7	88.2
K. Contingencies	81.0	165.7	99.2
Subtotal	$905.0	$1,847.6	$1,109.3
L. Calibration for Additional Tonnage	—	—	$150.4
TOTAL*	$905.0	$1,847.6	$1,259.8

* Columns may not sum to totals because of rounding.

A. Land
Table D-2
Real Estate Acreage

	Xcel	BNSF	STB
ROW	3,691.4	4,726.5	3,691.4
Easements	809.7	810.7	809.7
Yards	169.0	383.1	383.1
Other Facilities	2.8	12.8	12.8
Microwave Tower Sites	52.5	52.5	52.5
TOTAL	4,725.4	5,985.6	4,949.5

The parties agree that the width of the WCC right-of-way would be 100 feet except in towns, where it would be 75 feet. The difference between the parties' estimates of the required ROW acreage is due to BNSF's inclusion of additional acreage to accommodate 25-foot track centers, fireguards (cleared land along the ROW used for firebreaks), and access roads. As discussed in Section B.2.a.iv. below, additional access roads have not been shown to be needed and are thus not included in the Board's analysis. Additional land for fireguards would be unnecessary because the WCC would have a sufficiently wide ROW to satisfy the safety regulations cited by BNSF.[63] In addition, while BNSF's 25-foot track centers are used here *see* discussion *infra*), this specification does not affect the ROW width. Therefore, Xcel's ROW acreage figure of 3,691.4 acres is used here. Moreover, because the parties propose virtually identical easement acreage and BNSF has not explained why an additional acre would be needed, Xcel's easement acreage figure of 809.7 is also used here.

Based on their respective operating plans, Xcel proposed six yards requiring a total of 169.04 acres for the WCC, while BNSF proposed seven yards requiring 383.09 acres. Because the Board's analysis uses BNSF's operating plan and its proposed yard operations, BNSF's yard acreage estimate is used to assure adequate yard capacity for the WCC traffic. Similarly, BNSF's proposal of 12.82 acres for MOW and crew facilities is used here because BNSF's operating and MOW plans are used.

[63] *See* BNSF Reply WP. III-F-00043-44.

Table D-3
Real Estate Costs
($ millions)

	Xcel	BNSF	STB
ROW (non-Orin Line)	$11.88	$12.05	$11.88
Orin Line	0.53	5.26	2.82
Easements	0.06	0.10	0.10
Yards and Other Facilities	1.58	7.03	3.55
Microwave Tower Sites	0.02	0.02	0.02
TOTAL	$14.07	$24.46	$18.36

The parties agree on the per acre land value except for the Orin Line, easements, and three of the seven WCC yards. The cost for acquiring the non-Orin Line ROW is based on the agreed upon cost per acre and the number of route miles used in the Board's analysis.

1. Orin Line

Xcel estimated the value of the land needed to replicate the Orin Line to be $533,839, based on its real estate appraisal using comparable values along the WCC ROW. Xcel applied a 1.25% assemblage factor (the additional premium associated with having to procure a continuous, uninterrupted ROW), based on appraisal literature,[64] because BNSF paid an assemblage factor for this relatively recently constructed rail line. BNSF claims that Xcel has understated the value of the Orin Line and applied an inadequate assemblage factor.

BNSF based its estimate of the Orin Line value on the Board's *WTU* decision, where the purchase price of the Orin Line was found to be $2,864,760 in 1978 dollars;[65] BNSF indexed this figure forward to arrive at a current value of $5,256,006.[66] Xcel counters that BNSF's valuation approach is not appropriate because current comparable land values are available, the indexing period is too long, and BNSF's valuation overstates the amount of acreage that would be needed for the WCC.

The Board generally prefers current data to indexed historical data, and accordingly uses Xcel's across-the-fence (ATF) valuation based on recent comparable transactions. In addition, the Board agrees with Xcel that the WCC would not need to acquire the same amount of acreage for its operations

[64] *See* Xcel Open. WP. 3780-92.
[65] *See WTU*, 1 S.T.B. at 703 n.144 (1996).
[66] BNSF Reply e-WP. "Land.xls," sheet "Appreciation" & "Historic_agland_values_by_state."

as BNSF acquired for the existing Orin Line, and thus concludes that only the land needed for WCC operations would need to be purchased. However, because the actual assemblage factor for the Orin Line was 6.65 times the ATF—many times larger than the assemblage factor used by Xcel[67]—the Board applies the actual assemblage factor to the ATF value developed by Xcel. The resulting valuation figure used by the Board here for replicating the Orin line is $2.8 million.

2. Easements

Xcel estimates that the easements needed by the WCC could be procured for $56,533, reflecting the amount that BNSF paid for the same easements. BNSF claims that the easements must be valued at current market value, and it indexes the original costs, resulting in an estimate of $99,542. Xcel counters that current land values of the easement acreage bear no relationship to historic land values.

Because all of a SARR's investments should be valued at current costs, BNSF's estimate is used here. Xcel's evidence does not reflect the current value of obtaining the necessary easements.[68]

3. Yards and Other Acreage

The parties disagree on the value of the Guernsey, Northport and Campbell yards and the cost of an additional 9.28 acres for eight MOW facilities along the WCC. Xcel valued the WCC yards at an average price of $9,538 per acre, based on an ATF appraisal, whereas BNSF uses an average cost per acre of $17,763, based in part on an appraisal prepared for the *TMPA* case but not submitted here.[69] Xcel criticizes BNSF's valuation of the Guernsey yard in particular because BNSF used land values from the south side of the main line, rather than from the north side, which is where the existing Guernsey yard is situated and where Xcel would have the WCC site this yard.[70]

Xcel's valuation approach is reasonable and consistent with prior SAC decisions. *See, e.g.*, *Duke/CSXT*, 7 S.T.B. at 473-474 (use of an ATF appraisal found to be the preferable method of valuing the ROW); *TMPA*, 6 S.T.B. at 698 (2003) (same). Moreover, BNSF has not clearly shown where it would site the WCC's Guernsey yard or why Xcel's siting might be unsuitable. Therefore, Xcel's valuation is used here.

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[67] *WTU*, 1 S.T.B. at 703 n.144 (1996).

[68] *See* Xcel Reb. e-WP. "WCC Land.xls," sheet "Average Fee per Acre," column "Acquisition Fee."

[69] *See* BNSF Reply e-WP. "Land.xls", sheet "Valued Yards."

[70] *See* Xcel Reb. WP. 6165-66.

B. Roadbed Preparation
Table D-4
Roadbed Preparation Costs
($ millions)

	Xcel	BNSF	STB
Clearing	$0.9	$1.1	$1.1
Grubbing	0.1	0.1	0.1
Stripping	0.0	2.2	0.0
Earthwork	211.7	714.4	245.8
Drainage	1.1	2.0	2.0
Culverts	11.4	13.5	13.2
Retaining Walls	0.1	0.3	0.3
Rip Rap	1.1	1.1	1.1
Utility Relocation	0.8	0.8	0.8
Seeding/Topsoil Placement	2.3	7.9	2.3
Water for Compaction	3.5	6.3	5.3
Road Surfacing	5.0	5.4	5.0
Environmental Compliance	1.1	1.1	1.1
Waste Excavation	0.2	0.3	0.2
TOTAL	$239.1	$756.2	$278.1

1. Clearing, Grubbing and Stripping

The parties agree on the unit costs for clearing and grubbing, but disagree on the acreage requiring such work due to a disagreement over the acres that would be needed for the ROW. The acres that would require clearing and grubbing are restated here based on the WCC's track configuration and other ROW characteristics (no additional access roads or fireguards) used in the Board's analysis.

Stripping removes all vegetation, sod, topsoil and unsuitable material including leaves, branches and wood chips left over from clearing and grubbing activities. BNSF claims that American Railway Engineering and

Maintenance-of-Way Association (AREMA) specifications call for stripping whenever surface organic material would weaken the final earth mass,[71] and that stripping is consistent with current construction practice. BNSF used stripping costs from *Means*. Xcel argues that there is no need to include a stripping cost.

Stripping costs have not been included in prior SAC cases. It is incumbent upon the proponent of a new cost to demonstrate that such a cost would need to be incurred by a SARR. BNSF has failed to do so here. Although stripping is an activity discussed in AREMA specifications, BNSF has not shown that it would be needed in the area that the WCC would traverse or that stripping costs were incurred during the Orin Line construction. Also, because the top 6 inches of soil would be removed during excavation and because topsoil removal is included in waste costs, there would appear to be no need for a separate charge for stripping. To the contrary, including such an additional cost would result in a double count.

2. Earthwork

a. Specifications

i. Roadbed Width

For single track segments of the WCC, Xcel would reduce BNSF's existing 28-foot roadbed width to 24 feet for the WCC's Eagle Butte-to-Reno Junction segment and for the lines south of Northport, based on modern design standards.[72] BNSF accepts Xcel's use of a 24-foot roadbed width for the WCC lines south of Northport, but objects to the reduced roadbed width elsewhere. BNSF states that the industry standard is 28-foot wide roadbeds. It also asserts that the nearby WRPI line was constructed with a 28-foot roadbed for the Donkey Creek-to-Reno Junction segment.[73] BNSF also notes that a 24-foot roadbed would widen over time because the line would be resurfaced at regular intervals, adding both height and width to the ballast section. Finally, BNSF states that a 28-foot roadbed is needed to allow train crews to safely walk along a level surface when inspecting trains.

Xcel argues that BNSF has drawn an artificial distinction between the Eagle Butte-to-Reno Junction segment and the segment south of Northport. Xcel notes that the lines south of Northport would carry similar volumes of traffic as the Eagle Butte-to-Reno Junction line in the peak traffic year. Xcel rejects BNSF's comparison to the WRPI line, claiming that line carried 171 million tons in 2002, a much higher tonnage than any segment of the WCC would carry.

BNSF has not explained why a 24-foot roadbed width would be adequate for some segments but not other segments with similar traffic densities.

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[71] BNSF Reply WP. III-F-00056.

[72] Xcel Open. Narr. III-F-14 & Exh. III-F-11.

[73] *See* Xcel Open. Narr. III-F-3.

Furthermore, BNSF has not supported its claim that train inspections would necessitate a roadbed wider than 24 feet, nor has it explained how its ballast spread argument relates to the initial width of the roadbed. Accordingly, a 24-foot wide roadbed is used here for all segments of the WCC for which the parties have not agreed to a wider roadbed.

ii. Center-to-Center Track Spacing

Xcel assumed that on double-track segments of the WCC the centers of the tracks would be 15 feet apart. BNSF argues that, on the higher volume segments, this spacing would lead to inefficient train operations;[74] that full-speed train operations on double track can only take place if there is a minimum of 25 feet between the track centers; that when there is less than 25 feet between track centers, FRA regulations (at 49 CFR 214.7, 214.321(d), 214.327(b)) require that trains on adjacent track be slowed to 20 mph when maintenance is being performed; and that BNSF has segments of triple track on the Orin Line with 25-foot centers. Xcel responds that the WCC would adopt rules, consistent with FRA regulations, for safe operations through track zones with 15-foot centers, but admits that trains might not be able to operate at full speed through work areas.[75]

Xcel's 15-foot track centers would restrict full speed operations through maintenance areas. Because the Board uses BNSF's MOW plan, under which a more intense operating maintenance program would be conducted than that proposed by Xcel, the potential for maintenance-related delays would be more significant than Xcel had assumed. Thus, to ensure the train speeds needed to accommodate WCC operations, BNSF's track centers are used here.

iii. Side Slopes

Xcel proposed side slopes of 1.5:1, consistent with Board precedent in SAC cases and with the slopes on portions of the BNSF line that would be replicated by the WCC. BNSF proposed that side slopes be based on an average of the actual side slopes on BNSF's line (which is closer to 2:1) as documented by Xcel during its inspection of the line, except for the Brush-to-Pawnee Junction segment, for which BNSF has agreed to 1.5:1 side slopes.

While Xcel's inspection shows that BNSF has varying side slope ratios, it also shows that a 1.5:1 slide slope is feasible. Under the SAC test, a new entrant need not replicate a particular characteristic of the incumbent's line, as long as its proposal is reasonable and feasible. Because Xcel has shown that side slopes of 1.5:1 are reasonable and feasible, this ratio is used here. This is consistent with prior SAC decisions. *See TMPA*, 6 S.T.B. at 701 n.183; *WPL*, 5 S.T.B. at 1021-22; *FMC Wyoming Corp. v. Union Pac. R.R.*, 4 S.T.B. 699, 795 (*FMC*).

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[74] *See* BNSF Reply Narr. III-F-27.
[75] Xcel Reb. Narr. III-F-20-21.

iv. Access Roads

BNSF argues that an efficient railroad would construct access roads along any segment that could not be reached by existing and easily accessible parallel roads or service tracks. (BNSF acknowledges that it is feasible to operate a railroad without access roads but argues that the railroad would incur both higher operating and maintenance costs.) BNSF would thus have the WCC build access roads of 10 feet in width. Xcel responds that any access roads in place at the time of the ICC Engineering Reports (*Engrg Rpts*)—a compendia of data collected in the early part of the 20th century by the ICC detailing the material quantities required to build most rail lines in place in the United States at the time—have been included in the grading quantities reported, and that it included all access roads on the more recently constructed Orin Line, but that BNSF has not shown that it or its predecessors constructed any other access roads. Therefore, Xcel included costs for those access roads.

BNSF has not demonstrated that any access roads would be needed where it does not already have such roads itself, nor quantified how much operating or maintenance costs would increase without additional access roads. Thus, Xcel's proposal to replicate only the access roads currently in place on BNSF's lines is reasonable and is used in the Board's analysis here.

b. Grading Quantities

i. Eagle Butte-to-Campbell Segment

Three line segments that would be replicated by the WCC did not exist when the *Engrg Rpts* were compiled. For two of the segments (Donkey Creek-to-Bridger Junction and Reno Junction-to-Jacobs Junction), the parties agree on the methodology for estimating earthwork quantities except for the difference between their proposed roadbed widths. Because Xcel's 24-foot roadbed width is used, its earthwork quantities are used for these segments.

For the Eagle Butte-to-Campbell segment, there is a dispute as to the amount of grading that would be required. Xcel estimated grading quantities based on the *Engrg Rpts* for the valuation section associated with the Eagle Butte branch to which the Eagle Butte/Campbell segment would connect. To account for the fact that the *Engrg Rpts* do not reflect present conditions, Xcel adjusted those data to modern standards. BNSF, in contrast, used the original specifications for this line, including contract documents and bid specifications.[76] Xcel criticizes BNSF for not producing this information during discovery.

Xcel reasonably relied on the information it received from BNSF in developing its evidence, and BNSF may not impeach that evidence with information it failed to produce during discovery. Therefore, Xcel's estimates

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[76] *See* BNSF Reply e-WP. "III F 2 Grading.xls.Eagle Butte."

of grading quantity for the Eagle Butte-to-Campbell line segment are used here.

ii. Tunnel Daylighting

The parties agree that it would be necessary to daylight a portion of the Canyon Subdivision, as was done by BNSF in 1998 when it daylighted Tunnel No. 2. Daylighting involves extensive excavating so that, rather than the roadbed being in a tunnel, it is in an above-ground cut. Daylighting is performed when the cost of boring a tunnel is greater than the cost to excavate for the roadbed. Here the parties agree that the daylighted cut would have single track, rather than BNSF's current double-track configuration. However, the parties disagree on the costs associated with the daylighting project.

In preparing its cost estimate of $2.4 million, Xcel halved the grading quantity estimated by BNSF for its current double track operation,[77] and Xcel did not include the cost of a highway bridge spanning the cut, nor any cost for slope protection or for elevating the track roadbed. BNSF argues that Xcel has understated the quantity of earthwork required, that side slope protection would be necessary because the existing cut has steep 0.5:1 side slopes that are reinforced with wire mesh rock-bolted to the slope and covered with concrete, and that the track grade must be raised 6-8 feet. BNSF proposed a single-tracked cut, with the same side slope design and track grade as the existing cut, for a total of $8.55 million (approximately $5.3 million for earthwork and $3.2 million for slope protection) and the construction of a bridge over the cut. (BNSF estimated that using 1.5:1 side slopes and no slope protection would cost even more.)

Xcel's proposed grading quantity is not supported by its workpapers, and as discussed *infra*, it erroneously excluded the cost of a highway bridge to span the cut. However, costs for side slope protection and raising the track grade are not included because BNSF failed to make Xcel aware of these project components so that Xcel could either account for them or propose suitable alternatives. Xcel is entitled to rely on information about the project received through discovery.

iii. Yard Locations

It is well established that, for purposes of a SAC analysis, it is reasonable to assume that a SARR could replace or replicate existing lines and facilities used by the defendant railroad, at the same location as the existing lines and facilities. Here, however, Xcel improperly assumed that the SARR could locate one of its yards at the same location as the yard of another (non-defendant) railroad without accounting for the other carrier's presence. Specifically, Xcel proposed siting the WCC Bill yard at the location of an existing UP yard. BNSF would move the Bill yard to the east side of the existing track and would include the cost to relocate Highway 59 to

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[77] *See* Xcel Open. WP. 3885-88.

accommodate the WCC yard there. Because it is the only feasible configuration presented, BNSF's siting of the Bill yard is used here.

As Xcel notes, BNSF would also move the WCC's Northport yard to the north side of the main line, to avoid relocation of a country road, irrigation ditches and the connection to an existing rail car repair facility. Xcel claims that BNSF misunderstood the location of the proposed yard in relation to the main line and that no movement of the yard is necessary, because Xcel shifted the WCC's main line slightly north to avoid these obstacles, leaving the yard on the south side.[78] Xcel's explanation of the location of the yard establishes the feasibility of its proposal, and Xcel's siting of the Northport yard is therefore used here.

iv. Yard Grading and Site Access

Consistent with the procedure used in prior SAC cases, Xcel included yard grading costs for those yards located along segments where yards existed when *Engrg Rpts* were compiled and assumed that each yard would require 1 foot of fill. (This assumption has been used in prior cases because the *Engrg Rpts* show only an aggregate grading quantity for the line and yards combined. The remainder of the grading not allocated to yard construction is assumed to be associated with construction of the line on which the yard would be located.) For the Bill yard, located on the more recently constructed Orin Line where no yards originally existed, Xcel developed grading costs for the yard based on the grading required to construct the Orin Line ROW.[79]

BNSF agrees to the use of 1 foot of fill for the Sterling yard—a yard that existed at the time the *Engrg Rpts* were compiled. For other yards proposed for the WCC, BNSF developed earthwork quantities based on its proposed track configuration and the existing topography as those yards were not listed in *Engrg Rpts*.[80]

There is no evidence, however, that the amount of grading per acre that would be required in the WCC yards would be different from what was historically undertaken in the yards accounted for in *Engrg Rpts*. While BNSF attempts to justify additional grading by discussing the topography at various locations where WCC yards would be situated, BNSF does not contrast this with the topography of the yards listed in *Engrg Rpts*. Rather, BNSF simply asserts that the original yards required only minimal grading.[81] But BNSF's mere assertion does not support a departure from the 1-foot fill assumption. *See WPL* 5 S.T.B. at 1022. Thus, unless there is something unique about a SARR yard's location in contrast to the incumbent's existing

[78] Xcel Reb. Narr. III-F-33.

[79] *See* Xcel Open. Exh. III-F-10.

[80] *See* BNSF Reply Narr. III-F-44.

[81] *See* BNSF Reply Narr. III-F-43 (yards listed in *Engrg Rpts* "were likely in locations requiring minimal amounts of earthworks").

yards, there is no reason to depart from the 1-foot fill assumption.[82] Accordingly, Xcel's assumption of 1 foot of fill is used for all of the WCC yards other than the Bill yard.

As discussed above, Xcel located the WCC's Bill yard at the site of UP's existing yard and used a grading quantity of 33,127 cubic yards (CY) per mile for the Bill yard track.[83] BNSF developed earthwork quantities based on its proposed Bill yard configuration, including the relocation of Highway No. 59, and existing topography. BNSF's relocation of the Bill yard is used because Xcel's siting is infeasible. Because Xcel's grading quantities for this yard do not take into account the relocation of Highway No. 59, BNSF's grading quantities are used here.

Finally, Xcel assumed that the WCC yard locations would be used as staging areas during construction. BNSF proposed 14 staging areas, including 9 areas other than at locations where WCC yards would be sited, and based on *Means* developed a cost of $4.23 million for stripping, grading and a stone base. However, Xcel's plan to use WCC yard locations for staging areas is reasonable and consistent with SAC precedent and BNSF has not shown why 9 additional sites are required. Nor has BNSF supported the extent of its proposed costs. Therefore, BNSF's additional costs for staging areas are not included.

c. Unit Costs

For all types of excavation, BNSF would include costs for spreading all excavated material, while Xcel included costs only for spreading waste material. However, Xcel has not explained why spreading costs should be included only for waste and not other excavated material. Therefore, the Board includes spreading costs for all excavated material.

The *Engrg Rpts* classify earthwork into various categories: common earth, loose rock, and solid rock excavation and borrow (material moved to the construction site for fill). For common excavation, Xcel would use 11 CY elevated scrapers. BNSF claims that this type of scraper would be unsuitable for excavating the materials encountered during construction of the WCC because its lack of versatility would lead to reduced production and thus higher costs.[84] BNSF proposes 14 CY scrapers with a dozer for every four scrapers,[85] and equipment to compact soil as water is added. Xcel responds that BNSF has provided no soil studies to support its claim for special compaction equipment, nor evidence that BNSF incurs such costs for its own construction projects. Xcel states that, with the equipment it proposes, water would be mixed with the soil as the layers of earth are laid and compacted.

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[82] *Compare Duke/CSXT*, 7 S.T.B. at 478-479 (using a grading estimate based on the topography of a new yard located in a river gorge because the complainant shipper acknowledged that its grading costs, based on the 1-foot fill assumption, were underestimated).

[83] *See* Xcel Open. Exh. III-F-10.

[84] *See* BNSF Reply WP. III-F-00357.

[85] *See* BNSF Reply WP. III-F-00355-57.

Xcel's common excavation costs are supported by *Means*. Moreover, BNSF has not shown that Xcel's mix of equipment would not be capable of compacting the soil. Therefore, Xcel's cost figures for common excavation are used here.

In determining the relative amounts of solid rock and loose rock areas along the WCC, the parties agreed that 50% of the quantities classified as solid rock in *Engrg Rpts* would be rippable (i.e., not require blasting) using modern equipment. For loose rock excavation, Xcel would use 200 horsepower (HP) dozers, 3 CY shovels, and 42 CY haulers (off-road trucks). BNSF again claims Xcel understated costs by using unsuitable equipment. BNSF proposes the use of 300 HP dozers, 3 CY shovels, and 12 CY dump trucks. BNSF also would include additional dozers to gather loose rock into piles so that 3 CY shovels could meet production rates; a 60% additive to the 3 CY shovel cost to account for excavation of "heavy soil or stiff clay;" and a 15% additive to the 3 CY shovel cost for loading bulk excavated materials into trucks.[86] Xcel responds that BNSF has not supported its equipment proposals or additives.

Xcel's equipment specifications are used here because they are supported by *Means*, and BNSF has not discredited them. However, BNSF's additional cost for dozers to gather loose rock is included because BNSF has shown that, in order to maintain the hourly production rate used in *Means*, additional dozers would be required.[87] Xcel has not shown that the shovels alone could maintain their production rates. The 15% additive is also included because it is supported by *Means*, and Xcel has not shown why it excluded this component. However, BNSF's proposed 60% additive is excluded because BNSF has not shown, through submission of soil samples or other such evidence, that the material excavated here would be "heavy soil or stiff clay," and its claim is inconsistent with its position that water would be required for compaction during grading.

For solid rock excavation, Xcel used an average of the *Means* costs for "bulk drilling and blasting" and "drilling and blasting over 1,500 cubic yards." BNSF objects to the inclusion of a bulk drilling and blasting cost, which it contends represents the lowest possible cost for blasting and pertains only to quarry operations. BNSF would instead use an average of the *Means* costs for "drilling and blasting over 1,500 cubic yards" and "drilling and blasting under 1,500 cubic yards." Because the majority of the solid rock excavation and blasting requirements for the WCC would be concentrated on a 50-mile segment of the WCC,[88] Xcel's use of unit costs for large blasting operations is appropriate. Moreover, according to *Means* the bulk drilling and blasting cost used by Xcel is not the minimum cost for such activities, but rather an average figure for blasting large quantities of rock.[89] Finally, there is no indication that the figure used by Xcel pertains only to quarry

[86] *See* BNSF Reply WP. III-F-00395-96.
[87] BNSF Reply Narr. III-F-56.
[88] *See* Xcel Open. Exh. III-F-13.
[89] *See* BNSF Reply WP. III-F-00384.

operations. In fact, *Means* has a separately listed cost for drilling and blasting in pits, which would seem to apply to quarry operations. Therefore, Xcel's unit cost for blasting is reasonable and is used here.

BNSF proposes additional costs to reduce the size of large boulders resulting from blasting and drilling activities. Xcel claims that large boulders would not be encountered if blasting were conducted correctly. Because BNSF provides no evidence, such as from its own construction projects that are potentially similar to the WCC, showing that secondary blasting of boulders would be needed, and because Xcel's costs for removing blasted material are supported by *Means*, no additional costs are included here for solid rock excavation.

Xcel excluded costs for fine grading (using specialized equipment to achieve the final grade prior to placement of sub-ballast on the roadbed), claiming that fine grading would not be necessary because the grading equipment would shape the roadbed sufficiently for the placement of sub-ballast, and that sub-ballast would act as a surrogate for fine grading. BNSF claims that fine grading using specialized equipment would be necessary to eliminate ruts or depressions and to avoid drainage problems,[90] and that *Means* lists fine grading separately from other grading activities.[91] BNSF also notes that fine grading is typically an element of railroad construction projects (e.g., fine grading was used on the WRPI line[92]) and that sub-ballast is not intended to be used as a substitute for fine grading.

Costs for fine grading are included here because BNSF has provided evidence (from its construction of the WRPI line and *Means*) showing that this is an actual and necessary construction element for rail lines, and thus that this additional step would be needed to shape the WCC roadbed.[93]

3. Drainage

a. Lateral Drainage

The parties agree on the quantity of pipe that would be needed for lateral drainage, but they disagree on the associated costs. Xcel used unit costs from *Means* and argues that lateral drainage would be accomplished as part of the initial grading process. In contrast, BNSF would have the WCC install the lateral drainage by re-excavating (after completion of the initial roadbed grading), backfilling and sealing.[94] In support of it position, BNSF points to the 1937 reference *Handbook of Culvert and Drainage Practice* and the 1985 AAR/AREMA *Track Cyclopedia*. BNSF would also include costs for geotextile fabric and for hauling away excavated materials.

In prior SAC cases, the Board has concluded, based on the evidence presented to it, that the more efficient construction procedure would be to

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[90] *See* BNSF Reply WP. III-F-00399-400.
[91] BNSF Reply WP. III-F-00401-02.
[92] BNSF Reply WP. III-F-00403-06.
[93] *See* BNSF Reply Narr. III-F-67-68 & WP. III-F-00395-406.
[94] *See* BNSF Reply WP. III-F-00407-30.

install lateral drainage at the same time as the other excavation work would be performed. *See, e.g., PPL*, 6 S.T.B. at 306. However, here, BNSF has introduced evidence showing that industry practice is to install lateral drainage after initial grading, and Xcel has not rebutted that evidence. A SARR proponent need not follow industry practice if it can show that its alternative methodology is feasible, but Xcel has not done so here given BNSF's evidence that standard practice is to install drainage after initial grading. Thus, BNSF's lateral drainage costs are used here, including the use of geotextile fabric, which *Track Cyclopedia* indicates is also industry practice.

b. Yard Drainage

Xcel used a $1.8 million estimate for yard drainage, including costs for catch basins and piping, and assumed that the drainage excavation could be done as part of the initial grading process. BNSF argued that to install pipe for drainage the WCC would need to excavate at least 4 feet deep, and that the excavation could not be done at the same time as the initial grading. Accordingly, BNSF would include $2.61 million for yard drainage at Guernsey, including costs for excavation and backfill.[95]

As discussed in the previous section, the Board finds that drainage could not be installed as part of the initial grading process. Accordingly, BNSF's cost estimate for yard drainage is used here.

4. Culverts

Xcel based its culvert quantities on information produced by BNSF in discovery, modified to reflect its proposed WCC track configuration. BNSF included additional culverts based on its WCC configuration. Because BNSF's WCC configuration with its additional tracks is used here, BNSF's evidence on culvert quantities is used.

Xcel proposes concrete box, corrugated aluminized metal pipe (AMP), and galvanized steel plate pipe (SPP) culverts. It developed unit costs from *Means*. Xcel agrees on rebuttal to add bedding (foundation) costs for the culverts, and to use BNSF's unit costs for reinforced concrete box culverts. While BNSF agrees to the unit costs for AMP and SPP culverts, it claims that costs for excavation and backfill must also be added to the unit costs, according to *Means* and under AREMA standards,[96] and that SPP culverts would need asphalt coating.

Additional excavation and backfill costs are included for AMP and SPP culverts because *Means* includes those costs and Xcel has failed to discredit this evidence. However, BNSF has not shown that SPP culverts would need to be coated (or that its existing culverts are coated).

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[95] *See* BNSF Reply WP. III-F-00494-97.

[96] *See* BNSF Reply WP. III-F-00442-44; BNSF Reply e-WP. "III F Construction.xls."

5. Retaining Walls

For retaining walls, the parties agree to the quantity of gabions (steel mesh boxes filled with rock) needed for the WCC, but disagree on the costs. Xcel proposed soil stabilization gabions (using costs from *Means*), while BNSF proposed structurally stronger, retaining wall gabions, and added costs for installation (also relying on *Means*). BNSF's costs are used here because Xcel has not shown that its proposed gabions would be capable of functioning as retaining walls.

6. Rip Rap

The parties agree on the unit cost of rip rap but they disagree on the quantity. Rip rap are large stones placed at the ends of drains and culverts to slow and deflect drainage. Because the parties' total cost estimates are close and because BNSF's drainage and culvert evidence is used, its rip rap costs are used as well.

7. Relocating and Protecting Utilities

Xcel included costs for relocating utilities on the lines from Eagle Butte Junction to Bridger Junction and from Reno Junction to Jacobs Junction, because those existing lines were built within the last 30 years, when utility structures were already in place. However, Xcel excluded costs for utility relocation south of Bridger Junction because few, if any, utilities would need to be relocated and these costs were not incurred by the incumbent, as the original rail lines predate the utilities.

BNSF claims that costs should be included for all line segments, whether or not the incumbent had to relocate any utilities, because the WCC would benefit from the established utilities. BNSF accepts Xcel's per mile unit cost for relocation of utilities.

Xcel's unit costs are used here and applied to the route miles north of Bridger Junction. No costs are included here for the lines south of Bridger Junction because those lines were built prior to the placement of utilities and under established precedent the WCC need not incur costs the incumbent did not incur. *See WPL*, 5 S.T.B. at 1024-25 n.159; *PPL*, 6 S.T.B. at 307.

8. Seeding/Topsoil Placement

Xcel included costs for seeding and topsoil placement for those locations where BNSF incurred these costs. For the Eagle Butte-to-Bridger Junction and Reno Junction-to-Jacobs Junction segments of the WCC, Xcel based its cost estimate on the actual topsoil placement costs associated with the construction of the Orin Line, which Xcel claims included seeding costs, based on testimony cited by the Board in *WPL*, 5 S.T.B. at 1024. For the remaining line segments, Xcel used the *Engrg Rpts* ("embankment protection" quantities) to estimate topsoil and seeding costs.[97]

BNSF disputes the claim that seeding costs are included in the Orin Line topsoil costs, because seeding costs are generally incurred after the topsoil has been spread. BNSF argues that separate costs for seeding should be included based on bid documents for a recent construction project. BNSF would use costs from *Means* for topsoil and seeding for the entire line.

It is inappropriate to include topsoil placement and seeding costs unless the incumbent railroad or its predecessors actually incurred such costs. *See FMC*, 4 S.T.B. at 801-02; *WPL*, 5 S.T.B. at 1024. Accordingly, these costs are included only for the Orin Line and for those areas listed in *Engrg Rpts*. A separate seeding cost is not included for other areas of the WCC because BNSF has not shown that it incurred seeding costs for any line segment other than the Orin Line, and the seeding costs for that line were included in the topsoil placement costs. *See WPL*, 5 S.T.B. at 1024 n.159 . BNSF's claim that seeding costs were not included in the Orin Line topsoil costs is not supported by any evidence.

9. Water for Compaction

The parties agree that water would need to be added to the roadbed to achieve adequate compaction. Xcel included $3.5 million for water that would be used for compaction of the WCC roadbed, based on data from construction of the Orin Line. BNSF accepts Xcel's unit costs, but argues that Xcel miscalculated the amount of water needed. BNSF argues that 20 gallons of water per CY of excavation would be needed, rather than the 14 gallons per CY used by Xcel. Xcel claims that it correctly calculated the water quantity. Moreover, it attempts to buttress its proposed figure by claiming that part of the WCC route would traverse more moist terrain that would require less water for compaction than the segments on which it based its water quantity calculation.

Xcel miscalculated the amount of water needed per CY by failing to account for the fact that not all of the total excavated material on the Orin Line required compaction.[98] Accordingly, BNSF's costs, which correct Xcel's error, are used here.

10. Road Surfacing

The parties agree to include costs for road surfacing for the WCC sections north of Bridger Junction, as the BNSF lines north of Bridger Junction were built after the establishment of surfaced roads. BNSF would include additional costs for hot bituminous pavement and a base course, claiming these additional materials are shown in the quantity lists for those

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[97] *See* Xcel Open. Narr. III-F-24 & Exh. III-F-14.

[98] *See* Xcel Open. Exh. III-F-14 (line 2 should reflect only the cubic yards of material needing compaction).

segments.[99] However, BNSF has not provided the quantity lists it references in support of its claim. Therefore, Xcel's surfacing costs are used here.

11. Environmental Compliance

The parties agree on the investment cost per route mile associated with environmental mitigation. The agreed upon costs are used in conjunction with the route miles discussed in Appendix A.

12. Waste Excavation

The WCC would need land for disposing of excess excavation (waste) material. The parties agree on the unit cost of $400 per acre, but differ on the amount of waste material each acre could hold. Xcel assumed that the WCC could dispose of waste on efficiently sized parcels of land located near the ROW while BNSF would have the WCC dispose of waste on narrow strips of land along the ROW, which would be capable of holding less waste per acre. Xcel's proposal is feasible (Xcel has accounted for the cost of moving the waste to the disposal sites) and, accordingly, the Board calculates the number of acres needed using Xcel's estimate of the waste per acre and the restated amount of waste material resulting from grading the WCC.

C. Track Construction

A variety of materials would be needed to assemble the tracks of the WCC. Table D-5 summarizes the cost estimates associated with this aspect of constructing the WCC. The parties agree on materials quantities except for: geotextile fabric, 10-foot ties, second-hand rail, compromise joints, rail lubricators, and insulated joints. The parties agree on unit costs except for: sub-ballast, plant welds, propane tanks, and switch heaters. The parties disagree on transportation and installation costs.

[99] *See* BNSF Reply Narr. III-F-86.

Table D-5
Track Construction Cost
($ millions)

	Xcel	BNSF	STB
Sub-ballast & Ballast	$37.07	$53.52	$40.91
Geotextile Fabric	0.11	0.28	0.17
Ties	53.28	59.79	59.56
Rail	70.18	81.30	81.01
Other Track Materials	24.35	27.34	27.25
Turnouts	16.75	43.00	29.78
Transportation	35.38	81.59	39.12
Labor	68.19	78.87	78.73
TOTAL	$305.31	$425.69	$356.53

1. Sub-ballast and Ballast

The parties agree on the need for 8 inches of sub-ballast and 12 inches of ballast for main-line track and passing sidings, and 6 inches of sub-ballast and 6 inches of ballast for yards and set-out tracks. The difference between their quantities is due to their differing track-mile estimates. The quantities of sub-ballast and ballast are restated based on the network configuration used in the Board's analysis here.

Xcel used a unit cost of $7.68 per CY for delivered sub-ballast, based on a price obtained from BNSF through discovery.[100] BNSF argues that Xcel has understated this unit cost by excluding costs for provisioning and stockpiling. BNSF proposed a unit cost of $14.55 based on a recent construction project.[101] Xcel responds that the only evidence offered by BNSF to attack Xcel's figure is a letter prepared by a BNSF employee shortly before the filing of its reply evidence indicating the price is incomplete. Xcel's unit cost figure is used here, because Xcel reasonably relied on the information received from BNSF in discovery and BNSF may not impeach that information.

The parties agree on an $11.25 per CY unit cost for ballast.[102]

[100] *See* Xcel Open. WP. 3901, 3907.
[101] *See* BNSF Reply WP. III-F-00517-20.
[102] BNSF Reply Narr. III-F-94.

2. Geotextile Fabric

The parties agree on the unit cost of geotextile fabric, but disagree as to the extent of its use on the WCC. Xcel would place geotextile fabric only under turnouts, because this material is a relatively recent innovation and many of the BNSF lines that would be replicated were constructed prior to the use of geotextiles. Moreover, Xcel claims, there is no evidence that geotextiles were used for construction of the Orin Line. BNSF argues that a greater area of fabric would be needed under turnouts than Xcel proposed, but does not address any need for geotextiles elsewhere.

BNSF's estimate of the number of turnouts is used to estimate the amount of geotextiles because, for the most part, its proposed configuration is used. However, Xcel's estimate of the quantity of fabric required under each turnout is used because its specifications are supported.[103] Furthermore, because BNSF does not contest Xcel's evidence, geotextile fabric is not included elsewhere.

3. Ties

Xcel and BNSF agree that timber ties could be used for all WCC tracks (AREMA Grade 5, 7" x 9" x 8'6" ties for main-line track and passing sidings; AREMA Grade 3, 6" x 6" x 8'6" ties for yard and set-out track). For main-line track and passing sidings, the parties agree on a tie spacing of 19.5 inches (3,250 ties per mile); and for yards and set-out tracks, a tie spacing of 21 inches (3,017 ties per mile). However, BNSF would add costs for 10-foot transition ties under road crossings and turnouts,[104] while Xcel argues that standard size ties could be used at those points.

BNSF's specifications for transition ties under road crossings and turnouts are used because such ties are part of BNSF's current track specifications. Xcel has not shown that standard size ties are used by any railroad in place of transition ties.

4. Rail

The parties agree that the WCC would be built with new 136-pound continuous welded rail (CWR) between Reno Junction and Northport, and new 132-pound CWR between Eagle Butte Junction and Reno Junction, and between Northport and Pawnee Junction. The parties agree on the unit costs for new rail, but BNSF would adjust the quantities for the additional track miles it argues the WCC would need. The quantities of new rail are restated here based on the network configuration used in the Board's analysis. The parties agree on the quantity and unit costs of second-hand rail that would be used on main-line track. However, BNSF does not account for the value of

[103] *See* Xcel Reb. WP. 6192-95.
[104] BNSF Reply WP. III-F-00524-27.

the scrap steel that would be left over after the ends of the rail were cropped. Therefore, Xcel's scrap steel adjustment is used.

The parties agree that 132-pound second-hand CWR could be used for WCC yards and set-out tracks, except for the main-lead tracks at the Guernsey and Bill yards, where Xcel specified new 136-pound CWR. The difference in the amount of yard rail is due to the parties' different yard configurations. Because BNSF's yard configuration is used here, its yard rail quantities are used here as well. The parties disagree on the quantity of rail that would be needed for set-out tracks because they propose different set-out track configurations and MOW plans. Again, because BNSF's MOW and operating plans are used here, its set-out track configuration and rail quantities are used here as well.

Xcel excluded compromise joints because it argues that the 132- and 136-pound rail are similar enough in size that they can be welded together without compromise joints. Xcel states this is standard practice on the former Chicago and North Western Railway Company and on the Belt Railway of Chicago. BNSF proposed the use of compromise joints, based on a list of track material costs produced to Xcel in discovery.[105] However, costs for compromise joints are excluded here as Xcel has shown that other railroads join 132- and 136-pound rail simply by welding.

5. Other Track Materials

The parties agree on the cost and need for rail lubricators on tracks with curvature greater than 2 degrees. They also agree on the specifications for plates, spikes and anchors. The parties differ on quantities due to the differences between their network configurations. The quantities are restated here based on the network configuration used in the Board's analysis.

6. Turnouts

The parties agree on the unit costs for turnout materials, except for those discussed below, but they differ on the quantities based on their respective network configurations.

a. Crossing Tracks

BNSF would include tracks to cross not only the existing UP/BNSF joint line in the PRB but the residual BNSF at other locations. Xcel excluded tracks that would cross UP, claiming it would be unnecessary for the WCC to continually cross existing trackage. Xcel also objects to the crossovers that BNSF has proposed over BNSF lines.

The crossovers will be included to the extent they cross UP, because a SAC analysis may not ignore real life obstacles such as the presence of a

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[105] *See* Xcel Open WP. 3892, 3894.

third-party railroad. However, the crossovers will be excluded to the extent they cross BNSF, because the SAC analysis assumes that the WCC would replace the defendant carrier at the locations proposed by BNSF, not compete with it.

b. Propane Tanks

Xcel used a $1,000 unit cost for propane tanks, which are used for switch heaters (discussed *infra*). BNSF used a unit cost of $1,100, based on a quotation from its tank supplier.[106] Because Xcel provided no support for its cost estimate, BNSF's unit cost is used here.

c. Installation

The parties disagree on whether additional costs should be included for installing turnouts. Xcel claims that the turnout costs provided by BNSF in discovery include installation costs,[107] while BNSF would include additional costs based on an unspecified e-mail. Because the evidence shows that installation costs were included in the base costs agreed to by the parties, no additional costs for installation are included here.[108]

d. Switch Heaters

BNSF claims that Xcel's unit cost for switch heaters is unsupported,[109] and BNSF would add installation costs for the switch heaters.[110] BNSF also claims that generators would be needed to ensure that the switches would remain clear of snow even during power outages. Xcel claims that it included costs for switch heater installation, and that these costs are similar to those that BNSF estimated for installation of failed equipment detectors.[111] Xcel claims generators would not be necessary because the switches could be operated manually, the WCC could be operated by "train order," and BNSF has not shown that it uses generators at all of the power turnout locations on the lines that would be replicated by the WCC.

BNSF's costs for installation of switch heaters are used here because Xcel has not provided any documentary support for its estimate of these costs, and Xcel's attempt to bolster its estimate by comparison to installation costs for failed equipment detectors is similarly unsupported. BNSF's generator costs are included because BNSF has demonstrated that its practice is to use such generators along the lines that would be replicated by the WCC,[112] and it

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[106] BNSF Reply WP. III-F-00540.
[107] Xcel Open. WP. 3896-98; Xcel Reb. WP. 6214-19.
[108] Xcel Open. WP. 3896-98; BNSF Reply Narr. III-F-106; Xcel Reb. Narr. III-F-75.
[109] Xcel Open. WP. 3909.
[110] BNSF Reply WP. III-F-00537-38.
[111] Xcel Reb. Narr. III-F-75.
[112] *See* BNSF Reply Narr. III-F-107 & e-WP. "III F Construction.xls.Generator."

is infeasible to assume the WCC could maintain its operating schedule using only train orders and manual operation of switches.

e. Crossing Diamonds

Xcel excluded costs for crossing diamonds. While Xcel agrees with BNSF that two crossing diamonds would be needed for the WCC to cross UP at Northport, it claims that UP would be responsible for the costs. Xcel also notes that BNSF's cost of $170,000 for each crossing diamond is three times as much as it estimated for such investment in *TMPA*. BNSF's costs for crossing diamonds are used here because Xcel has not provided any evidence or support showing which railroad (UP or BNSF) was built first, and has presented no alternative cost proposal.

f. Insulated Joints

Insulated joints are used to insulate the track around crossings from the rest of the system. BNSF claims that Xcel has underestimated the number of insulated joints required at grade crossings. Xcel claims that BNSF has overestimated the costs for insulated joints because it overstated turnout quantity and it improperly included costs for grade crossing protection devices south of Bridger Junction.

The costs used here for installed joints are based on the number of turnouts accepted here (discussed *supra*) and BNSF's costs for crossing protection (discussed *infra*).

7. Transportation

Xcel used unit costs of $0.035 per ton-mile for the transportation of materials to the WCC construction sites.[113] Xcel used the PC*Rail software program to calculate mileages. BNSF claims that Xcel has understated costs by assuming that the WCC would be able to transport materials at cost over its own system during construction. Using a railroad atlas, BNSF restated Xcel's costs to reflect transportation over the BNSF system.[114] Xcel complains that BNSF assumed transportation over the residual BNSF, and that BNSF has overstated certain of its mileage calculations.[115]

Because Xcel has provided an acceptable method for calculating transportation costs, Xcel's transportation cost figures are used here. BNSF has not shown that Xcel erred in its cost calculations, only that its calculations were different.

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[113] *See* Xcel Open. e-WP. "WCC Transportation.xls"; *PPL* 6 S.T.B. at 314.
[114] *See* BNSF Reply e-WP. "III F Construction.xls.transportation."
[115] *See* Xcel Reb. Narr. III-F-79.

8. Labor

The parties agree that track construction costs would be $114,877 per mile, but they differ in their estimates of the total costs due to the difference in their track mileage estimates. The agreed-upon unit cost is applied to the track miles accepted in Appendix A.

D. Tunnels

The parties agree on tunnel lengths and the base unit cost of $2,561 per linear foot (LF) developed in *Coal Trading*, 6 I.C.C.2d at 422. Using *Means*, Xcel indexed this cost from 1980 to 2001, arriving at a current unit cost of $5,008 per LF. In contrast, BNSF used an AAR index to inflate the costs from 1978 to 2001, arriving at a current unit cost for tunnels of $6,258 per LF.[116]

While the SARR in *Coal Trading* was to be built in 1977-78, the costs were developed for 1980 and then indexed back (in the DCF analysis) to the time the various assets would have been needed for construction. *See Coal Trading*, 6 I.C.C.2d at 378. Thus, the cost in *Coal Trading* was expressed in 1980 dollars. Moreover, the *Means* construction index is more appropriate for tunnel construction costs than is an AAR index, which is a more general railroad price index. Therefore, Xcel's figure for tunnels is used here.

E. Bridges

The parties agree that the WCC bridges would have the same span and overall lengths as the replicated bridges, they agree to exclude costs for bridges that cross only highways, and they agree upon walkway costs and designs. They differ on the number of bridges for which costs should be included, however, and on capacity and design specifications. They also disagree on whether the cost of a highway bridge over the daylighted area in Guernsey State Park should be included.

1. Number of Bridges

Xcel excluded two bridges, claiming that the first (at milepost (MP) 21.77) does not appear on BNSF's bridge inventory, and that the second (at MP 102.39) crosses only a highway. BNSF argues for inclusion of these bridges, noting that the MP 21.77 bridge appears on its track charts and that the MP 102.39 bridge was constructed for purposes of drainage as well as grade separation from highways. Xcel responds that the bridge inventory is more definitive evidence than are track charts, and that even if the MP 102.39 bridge does facilitate drainage, such drainage could be managed by using a culvert on the WCC.

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116 *See* BNSF Reply WP. III-F-00546-49 & e-WP. "III-F 4 Tunnel Cost Index.xls."

The MP 21.77 bridge will be excluded because BNSF's bridge inventory, containing the most up-to-date information for bridges on its system, does not include this bridge. However, the bridge at MP 102.39 will be included, because Xcel has not rebutted BNSF's contention that the bridge permits drainage and there is no evidence that Xcel included a culvert in place of the bridge.[117]

2. Bridge Design

Xcel's bridge designs were based on the experience of its engineering witness. BNSF claims that Xcel's bridge designs should be rejected because they are undocumented and unsupported, and because Xcel has not shown they would be feasible. BNSF's bridge designs are based on the actual bridges on the route that the WCC would replicate, and on a recently constructed bridge in Plamore, NE.

Xcel has not met its burden of proof to show that its proposals would be feasible and capable of supporting the needs of the WCC. Xcel's evidence consists of only two pages of handwritten materials and the unsupported assertions of its engineering witness. Therefore, BNSF's designs are used here.

3. Unit Costs

Xcel used *Means* and third-party sources to estimate bridge construction costs, claiming that BNSF did not provide bridge construction costs to Xcel. BNSF argues that Xcel has provided no explanation of how it aggregated *Means* unit costs into an average cost for any of the bridge types it proposed. BNSF restated costs based on its own bridge classification system.[118] Because the Board rejects Xcel's bridge designs here as unsupported, the Board also rejects Xcel's unit costs, as they are based on the unsupported bridge designs. Accordingly, BNSF's unit costs are used as the only other evidence of record.

4. Guernsey State Park Bridge

The United States Department of the Interior required BNSF to build a bridge over the excavated, daylighted tunnel in the Guernsey State Park. Even though BNSF paid for the bridge, Xcel argues that it need not include the costs for the bridge in its SAC analysis because the BNSF line that would be replicated was constructed prior to the creation of the State Park. Xcel reasons that, had BNSF daylighted the tunnel when the line was first constructed, BNSF would not have been obligated to pay for the bridge.

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[117] *See* Xcel Reb. Narr. III-F-82.
[118] BNSF Reply WP. III-F-00570.

Xcel misapplies the SAC cost exclusion principle. Under SAC procedures, a SARR is not required to incur costs for construction activities that the defendant railroad has never incurred. Here, however, the inclusion of the cost of this bridge is appropriate as BNSF incurred the cost to build the bridge. Accordingly, BNSF's evidence on the cost of the bridge ($413,772) is included. *See TMPA*, 6 S.T.B. at 727-28.

F. Signals and Communications

Table D-6
Communications and Signal Systems
($ millions)

	Xcel	BNSF	STB
CTC	$61.51	$65.58	$65.38
Failed Equipment Detectors	0.79	1.34	1.34
Communications	8.93	8.93	8.93
Electric Locks	0.22	1.11	1.11
TOTAL	$71.45	$76.96	$76.76

1. Centralized Traffic Control

Xcel and BNSF agree that the entire WCC would be equipped with a centralized traffic control (CTC) system, based on costs accepted by the Board in *FMC*. The parties disagree, however, as to whether the WCC would need to connect to existing power sources to fully cover the provision of power for the CTC. BNSF states it incurs costs for connecting power to its signals and switches, particularly in remote areas where it constructed pole lines to bring power from the nearest utility source to the ROW. BNSF estimated these costs based on *Engrg Rpts*, witness observations, surrounding terrain and accessibility of the ROW.[119] Xcel responds that *Engrg Rpts* do not prove that BNSF or its predecessor incurred costs for connecting to power when its ines were originally constructed.[120]

Because the CTC system would need power, the infrastructure to get that power to the WCC is appropriately included in the SAC analysis. Indeed, the Board has accepted the inclusion of power provision in previous SAC cases. *See WPL*, 5 S.T.B. at 1033; *FMC*, 4 S.T.B. at 808. Accordingly, BNSF's costs are included here because they are supported and because Xcel has not provided an alternative cost estimate.

[119] BNSF Reply Exh. III-F-3.
[120] *See* Xcel Reb. Narr. III-F-87.

2. Failed Equipment Detectors

The parties agree upon the unit costs for FEDs but they disagree as to the number of detectors that would be needed and their installation costs. Xcel maintains that the WCC would require 12 automatic roll-by hot bearing and defective equipment detectors. BNSF would increase the FED count to 14, because it proposed additional double track for the WCC. BNSF also claims that Xcel failed to include installation costs, which BNSF calculated based on its 1997 expenditure for installation.[121] Xcel concedes it should have included installation costs, but claims that BNSF erroneously included separate engineering costs for FEDs in addition to project engineering costs.

BNSF's FED count is used here based on the Board's use of BNSF's network configuration. Furthermore, BNSF's installation costs are used as well, because a review of its workpapers does not show a double-counting of engineering costs.

3. Communications

The parties agree that the WCC communications system would consist of a 6-Ghz microwave network with 35 sites along the WCC, at a cost of $8.93 million. Each site would contain a microwave tower, microwave antennas, and a communications equipment enclosure.

4. Electric Locks

The parties disagree on the quantity of electric locks for turnouts that would be required, because they disagree on the number of turnouts (as discussed *supra*). Because the Board's analysis here uses BNSF's turnout quantities, it uses BNSF's electric lock quantity as well.

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[121] BNSF Reply WP. III-F-00579.

G. Buildings and Facilities

Table D-7
Buildings and Facilities
($ millions)

	Xcel	BNSF	STB
Fueling Facilities	$7.5	$22.5	$22.5
Locomotive Repair	9.0	12.6	9.0
Car Repair	0.0	8.9	0.0
Headquarters Buildings	4.1	4.9	4.9
MOW/Roadway Buildings	1.2	4.9	4.9
TOTAL	$21.8	$53.7	$41.2

1. Fueling Facilities

Xcel proposed two fueling stations at Guernsey Yard. One would be located in the locomotive repair and servicing facility and the other would be a main-line fueling station used to refuel locomotives on loaded southbound trains. Xcel estimates the cost for the main-line fueling station at $7.5 million, based on the costs for a similar facility recently constructed by BNSF at Hauser, ID.[122]

BNSF also proposed two fueling facilities at Guernsey, but with the capacity to fuel a greater number of locomotives simultaneously, based on the size of its proposed locomotive fleet. BNSF also based its cost estimate on the cost of the Hauser facility, first determining the fueling station cost per locomotive for that facility, then applying that cost to the configuration proposed for the WCC facility. BNSF estimated a cost of $22.4 million.

BNSF's fueling facilities costs are used. While both parties base their cost estimates on the Hauser facility, Xcel has not shown that its simplistic scaling down of the size of the Hauser facility accurately accounts for the WCC's needs. In contrast, BNSF's procedure, which ties the facility cost to the size of the locomotive fleet, is a reasonable approach. Because BNSF's locomotive fleet size is used, its proposed locomotive fueling facilities and cost estimates are used as well.

2. Locomotive Repair Facility

To service a proposed fleet of 135 locomotives, Xcel proposed a locomotive repair facility at Guernsey Yard with an inspection and repair building containing four tracks as well as fueling and servicing facilities.

[122] *See* Xcel Open. WP. 4096-4100.

Two shorter tracks would be available for heavy repairs, and two longer tracks for light repairs. Xcel based the building's cost of $9 million on the locomotive servicing and repair facilities cost accepted in *WPL*,[123] adjusted to reflect the characteristics of the WCC.

To service a proposed fleet of 140 locomotives, BNSF would have the WCC build a 59,400-square foot building at a cost of $150 per square foot, based on a third-party quotation. BNSF also included a specialties charge of $25 per square foot for a total cost of $12.6 million. Xcel claims that BNSF overstated the building costs by applying a cost per square foot of $150, derived from an 8,500-square foot building to a 59,400-square foot building without reflecting any cost savings from economies of scale; that BNSF proposed a $90 per square foot building in *TMPA*; and that the Board rejected BNSF's proposed $25 per square foot specialties charge in *TMPA*.

Xcel's size for the locomotive repair facility is used here because its use of a scaled version of the locomotive repair facility from *WPL* is the best evidence of record. Through comparison of the configuration and annual tonnages of the SARR in *WPL* to the WCC, Xcel has supported its cost proposal. BNSF has failed to discredit Xcel's proposal, and BNSF's unit cost does not account for the economies of scale associated with building larger facilities such as Xcel has proposed. BNSF also has not supported its additional $25 per square foot cost.

3. Car Repair Facilities

Xcel did not include any costs for car repair facilities, arguing that under a full-service lease repairs would be made by a third-party contractor at the contractor's facilities. (Xcel included the cost of the full-service lease as an operating expense.) BNSF estimates that it would cost approximately $8.9 million for a car repair shop. No costs for a car repair facility are included here because BNSF has accepted Xcel's car maintenance plan.[124] The Board has previously accepted a shipper's contention that car maintenance and repair costs can be included in a full-service lease. *See CP&L*, 7 S.T.B. at 333-334; *Duke/NS*, 7 S.T.B. at 196.

4. Headquarters Buildings

Xcel proposed a 16,500-square foot headquarters building at Guernsey to house the WCC's operating, supervisory, clerical, and dispatching staff, the CTC center, and general and administrative staff. It proposed a 10,000-square foot operations building at Bill to house the WCC's transportation management staff and provide crew facilities. Xcel used *Means* to calculate building unit costs.

BNSF claims that Xcel understated the Guernsey building size because it underestimated the number of employees that would be required for the

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[123] *See* Xcel Open. WP. 4090-95.
[124] *See* BNSF Reply Narr. III-D-12.

WCC. BNSF proposed a 26,278 square foot headquarters building instead. BNSF accepts Xcel's unit costs, but added costs for an elevator and directory board (necessities because of the size buildings proposed), and makes minor adjustments to clearing, grubbing, excavation, and lighting costs.[125]

Because BNSF's operating plan is used, its building sizes and costs are used as well.

5. Maintenance-of-Way and Roadway Crew Change Buildings

Xcel proposed five crew change facilities (at Campbell, Guernsey, Northport, Bill and Sterling yards), and five MOW facilities (at Reno, Bill, Bridger Junction, Scottsbluff, NE, and Sterling). BNSF proposed an additional crew change facility at Pawnee Junction, six additional MOW facilities, and larger building sizes to accommodate the greater numbers of operating and G&A personnel it proposed for the WCC. Xcel maintains that a crew change facility at Pawnee Junction would not be necessary because crews would operate between that point and Sterling in turn-around service. Xcel also objects to the additional MOW facilities and the larger building sizes. BNSF's building counts and sizes are used here, based on the Board's use of BNSF's operating and MOW plans and personnel.

Xcel based its crew change and MOW building unit costs on *Means*.[126] BNSF claims that Xcel erroneously based its costs for crew change facilities on costs for 10,000 square foot facilities, taking advantage of economies of scale where those economies would not exist for the smaller facilities proposed by Xcel. BNSF, in contrast, proposed unit costs based on the average of 2,000-square foot buildings and 10,000-square foot garage costs from *Means*. Xcel has not responded to BNSF's allegations that the unit cost for smaller buildings exceeds Xcel's unit cost. Accordingly, BNSF's costs are used here, because Xcel's cost does not reflect the unit cost for the smaller scale buildings that the WCC would need.

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[125] *See* BNSF Reply Narr. III-F-132.
[126] *See* Xcel Reb. e-WP. "WCC_bldgs Rebuttal.xls."

H. Public Improvements

Table D-8
Public Improvements
($ millions)

	Xcel	BNSF	STB
Fencing	$6.80	$6.83	$6.83
Roadway Signs	0.12	0.18	0.12
At-Grade Crossings	0.78	2.86	2.86
Crossing Protection	1.15	2.52	2.52
Grade Separations	8.09	21.92	10.86
TOTAL	$16.94	$34.31	$23.19

1. Fencing

The parties differ slightly in their estimates of fencing costs. Xcel has conceded on rebuttal that its opening proposal did not fully account for all the costs of fencing that would be needed.[127] BNSF's fencing costs are thus used here.

2. Roadway Signs

The parties agree upon the unit costs and quantities of signs for the WCC except for flanger (warning) signs. BNSF would use flanger signs in heavy snowfall areas to alert snowplow operators of turnouts ahead. Xcel would include flanger signs at all rail lubricators and FEDs but not at crossings, bridges with inner guardrails, and turnouts, reasoning that signs would be unnecessary there as these items could be seen by snowplow operators. Xcel's sign costs are used. Xcel's proposal to use flanger signs only at obstructions that could not be seen by snowplow operators is reasonable, *see PPL*, 6 S.T.B. at 317 (2002) and BNSF has not shown that it actually uses flanger signs at other places on the lines that the WCC would replicate.

3. At-Grade Crossings

Xcel included costs for grade crossings for the segments of the WCC north of Bridger Junction because these segments of BNSF's lines were constructed after the establishment of roads. Xcel excluded crossings for other portions of the WCC line on barrier-to-entry grounds. BNSF included costs for crossings over the entire WCC, claiming that *Engrg Rpts* support a minimum of 245 crossings based on the amount of road-crossing planking

[127] Xcel Reb. Narr. III-F-99.

material listed. BNSF argues that the Board should accept 100% of these costs, as it did in *TMPA* 6 S.T.B. at 741-42 where the railroad showed that it had paid these costs. Xcel argues that *Engrg Rpts* are not helpful in determining whether BNSF or its predecessors paid for these crossings because the rules governing data collection for those reports allowed the railroads to include the cost of construction, even when their contribution to construction costs might have been minimal or non-existent.

BNSF's at-grade crossing costs will be included because the Board has previously found that *Engrg Rpts* are adequate support showing that the railroad incurred some investment for crossings. *See TMPA*, 6 S.T.B. at 741-42.

4. Crossing Protection

Xcel included costs for crossing protection (gates, signs, signals, etc.) for the line segments north of Bridger Junction consistent with its at-grade crossing proposal and its position that *Engrg Rpts* does not establish that the incumbent paid for these assets elsewhere. BNSF accepts Xcel's unit costs, but included 10% of the costs for crossing protection for the entire line, consistent with its average level of initial investment in crossing protection and with SAC precedent as reflected in *TMPA*, 6 S.T.B. at 742.

BNSF's at-grade crossing costs are used here as the *Engrg Rpts* indicate that the incumbent or its predecessors incurred a portion of these costs. *See, e.g., Duke/CSXT,* 7 S.T.B. at 504; *TMPA*, 6 S.T.B. at 741-742.

5. Grade Separations

Xcel included costs for grade-separated crossings (bridges or underpasses) for the segments north of Bridger Junction because those segments of BNSF's lines were constructed after the establishment of roads, but Xcel excluded those costs for other portions of the line on the ground that a SARR need not pay for investments that the incumbent carrier did not incur. BNSF included 10% of the costs for grade-separated crossings over the entire WCC, claiming that *Engrg Rpts* show its predecessors made some level of investment and that it cannot correlate that investment to the current cost of its highway bridges. Because *Engrg Rpts* show that the railroad incurred some of the costs for grade separations, and because BNSF's inclusion of 10% of those costs is consistent with SAC precedent, *see, e.g., Duke/CSXT*, 7 S.T.B. at 504; *TMPA*, 6 S.T.B. at 743-744, its grade-separation costs are included here.

I. Mobilization

The parties agree upon a 3.5% mobilization cost, covering initial mobilization, demobilization, and performance bonds.

J. Engineering

Table D-15
Engineering Costs

		Xcel	BNSF	STB
Percentage of Investment	Basic Engineering Services	5.0%	5.7%	—
	Construction Management	3.5%	4.9%	—
	Total Design Engineering Fees	8.5%	10.6%	10.0%
Flat Fee	Location & Design Surveys (per mile)	$8,464	$9,631	—

Xcel included 8.5% for engineering, based on *WPL*, 5 S.T.B. at 1037-38. Xcel notes that the parties in that case agreed on 5% for design engineering, and used $8,464 per route mile for mapping and subsurface investigation, the costs of which it claims should be similar for the WCC based on the similarity of length between the SARRs in the two cases. Xcel also notes that the Board in *WPL* accepted a 2.5% figure for construction management, based on *Means*, and a 1% figure for inspection costs.

BNSF claims that 8.5% is inadequate; BNSF would use a 10.6% figure. It bases its proposed design engineering factor of 5.7% on the American Society of Civil Engineers' *Manual 45* for a project of above-average complexity.[128] In addition, BNSF proposed a construction management factor of 4.9% (including inspection costs), based on its witness' opinion of the magnitude and complexity of the project and on third-party quotations. Xcel responds that BNSF agreed to a 5% factor for design engineering in two recent SAC cases (*see TMPA*, 6 S.T.B. at 745-46; *PPL*, 6 S.T.B. at 319) and has not presented evidence why that percentage should be different here.

For location and design surveys, BNSF rejects Xcel's additive of $8,464 per mile, claiming that Xcel has provided no evidence showing that the figure calculated in a past case would be appropriate here. BNSF restates the cost estimate to $9,631 per mile by calculating the components of location and design surveys, for which it has provided detailed costing data.

Xcel has proposed an overall engineering factor of approximately 8.9%, while BNSF has proposed a factor of slightly under 11%. Over the course of recent SAC cases, the Board has used a range of engineering factors, between 9.5% in *Arizona* and 11.7% in *FMC*, but hovering around 10% in the last several cases. The Board finds that a 10% estimate is appropriate here and in future cases for the aggregate of all engineering cost components. As noted in

[128] BNSF Reply WP. III-F-00632-34b.

prior cases, construction of a railroad, while a massive undertaking, is not "above average" in complexity. Thus, BNSF's 11% factor is overstated. In addition, Xcel has understated the engineering factor, as it has acknowledged that the engineering factor here should be similar to that used in *WPL*, where a 10% factor was used.

K. Contingencies

Xcel and BNSF agree upon a 10% contingency factor.

L. Calibration for Additional Tonnage

As discussed in the body of the decision, the road property investment must be increased to ensure that it would be sufficient to accommodate the JEC traffic. The challenge is to determine by how much that investment should be increased. As explained in the body of the decision, a straight proportional increase would likely overstate investment, as that would assume no more economies of densities at that tonnage level. To develop a mechanism for adjusting the road property investment, the Board examined prior SAC cases to assess the relationship between tonnages and road property investment. Based on that examination the Board concluded that road property investment should increase approximately 13.6% or $150 million to accommodate the JEC traffic.

APPENDIX E—VARIABLE COSTS

The Pawnee plant currently receives nearly all of its coal from the Belle Ayr and Eagle Butte mines. BNSF concedes that the challenged rates produce revenue-to-variable cost (R/VC) percentages for shipments from those mines to Pawnee that exceed the 180% jurisdictional threshold level. But because variable cost computations establish the floor for any rate prescription, the parties have presented variable cost calculations for those movements.

Xcel has also provided variable cost information for one other movement—a February 2001 train from the Black Thunder mine that was diverted from Xcel's Arapahoe plant to the Pawnee plant. However, Xcel does not dispute BNSF's contention that this diverted shipment is atypical of Xcel movements to Pawnee. Because this movement is not representative, it is not separately analyzed here. In addition, the Board's analysis does not include variable costs for quarters in which traffic did not move as it is unnecessary to calculate a rate floor for those periods.

The traffic at issue moves in both steel and aluminum railcars that are supplied by the shipper. During the time period covered by the parties' evidence (the 1st quarter of 2001 through the 1st quarter of 2003), there are some quarters in which the movements from one or both mines did not involve both types of railcars. Where there were no moves in a particular car type, variable costs are not calculated.

The parties' evidence and the Board's findings for the 1st quarter of 2001 through the 1st quarter of 2003 are summarized in Tables E-1 and E-2 below. For movements during other time periods and from other PRB mines covered by the complaint, the parties should use the procedures set forth in this appendix to develop the variable costs.

Table E-1
Variable Costs and R/VC Percentages
Xcel Steel Cars - 1st Qtr 2001 through 1st Qtr 2003

	BNSF		Xcel		STB	
	Var. Cost	R/VC	Var. Cost	R/VC	Var. Cost	R/VC
Eagle Butte:						
1st Qtr 2001	$3.53	262%	$2.56	361%	$3.06	302%
2nd Qtr 2001	$3.48	263%	$2.56	358%	$3.01	304%
3rd Qtr 2001	$3.60	255%	$2.53	363%	$3.13	294%
4th Qtr 2001	$3.70	248%	$2.62	350%	$3.23	284%
1st Qtr 2002	$3.42	268%	$2.49	368%	$2.95	311%
2nd Qtr 2002	$3.49	262%	$2.50	366%	$3.02	303%
3rd Qtr 2002	$3.47	264%	$2.53	362%	$3.01	304%
4th Qtr 2002	$3.53	259%	$2.56	358%	$3.07	298%
1st Qtr 2003	$3.65	256%	$2.67	350%	$3.18	294%
Belle Ayr:						
1st Qtr 2001	$3.52	263%	$2.56	361%	$3.07	301%
2nd Qtr 2001	$3.27	280%	$2.42	380%	$2.84	323%
3rd Qtr 2001	$3.21	286%	$2.33	394%	$2.77	332%
4th Qtr 2001	N/A	N/A	$2.35	391%	N/A	N/A
1st Qtr 2002	$3.56	257%	$2.38	385%	$3.12	294%
2nd Qtr 2002	$3.41	269%	$2.35	390%	$2.95	311%
3rd Qtr 2002	N/A	N/A	$2.34	391%	N/A	N/A
4th Qtr 2002	$3.45	266%	$2.44	375%	$3.01	304%
1st Qtr 2003	N/A	N/A	$2.43	384%	N/A	N/A

Table E-2
Variable Costs and R/VC Percentages
Xcel Aluminum Cars - 1st Qtr 2001 through 1st Qtr 2003

	BNSF		Xcel		STB	
	Var. Cost	R/VC	Var. Cost	R/VC	Var. Cost	R/VC
Eagle Butte:						
1st Qtr 2001	$3.33	270%	$2.39	376%	$2.88	312%
2nd Qtr 2001	$3.14	284%	$2.31	386%	$2.71	329%
3rd Qtr 2001	$3.25	275%	$2.29	390%	$2.82	317%
4th Qtr 2001	$3.29	271%	$2.33	383%	$2.86	312%
1st Qtr 2002	$3.05	292%	$2.22	401%	$2.62	340%
2nd Qtr 2002	$3.16	282%	$2.27	392%	$2.73	326%
3rd Qtr 2002	N/A	N/A	$2.26	394%	N/A	N/A
4th Qtr 2002	$3.19	279%	$2.29	389%	$2.76	322%
1st Qtr 2003	$3.35	271%	$2.39	380%	$2.92	311%
Belle Ayr:						
1st Qtr 2001	$3.29	273%	$2.39	376%	$287	313%
2nd Qtr 2001	N/A	N/A	$2.23	400%	N/A	N/A
3rd Qtr 2001	$2.86	312%	$2.12	409%	$246	363%
4th Qtr 2001	N/A	N/A	$2.18	421%	N/A	N/A
1st Qtr 2002	N/A	N/A	$2.30	387%	N/A	N/A
2nd Qtr 2002	$3.07	290%	$2.18	408%	$266	335%
3rd Qtr 2002	N/A	N/A	$2.25	396%	N/A	N/A
4th Qtr 2002	N/A	N/A	$2.21	403%	N/A	N/A
1st Qtr 2003	N/A	N/A	$2.31	393%	N/A	N/A

A. General Cost Estimation Procedures

The Uniform Railroad Costing System (URCS) is the cost accounting tool that the Board uses to estimate variable costs. URCS reflects the extent to which different types of costs incurred in the rail industry have been found to change in direct proportion to changes in output. Each year, the cost and operating statistics from each Class I carrier's Annual Report (STB Form R-1), Carload Waybill Sample, Annual Report of Cars Loaded and Terminated (STB Form CS-54), and Report of Freight Commodity Statistics (STB Form QCS) are used to determine the URCS system-average variable costs for that carrier. Here both parties used the Board's final 2001 URCS numbers for BNSF to develop their variable cost evidence.

BNSF adjusted the URCS return on investment (ROI) costs by excluding the debt-service expenses recorded in its R-1 Reports in Account 76 (Interest During Construction) and substituting Account 90 (Construction in Progress) expenses, in order to reflect its full capital costs (both debt and equity) rather than only the debt costs associated with that investment. Xcel argues that this is contrary to precedent and that variable cost calculations should exclude Account 90 monies and include Account 76 monies.

This issue was addressed most recently in *TMPA*, 6 S.T.B. at 616-17 and *CP&L*, 7 S.T.B. at 345, where the Board explained that substitution of Account 90 for Account 76 is appropriate in rate cases unless the construction projects included in Account 90 are long-term in nature. Here, BNSF has provided evidence that its Account 90 expenses involve only short-term construction projects. Xcel has not provided any new arguments or evidence not already addressed in *TMPA* and *CP&L*. Accordingly, the substitution of Account 90 for Account 76 is allowed here.

B. Movement-Specific Adjustments

URCS calculates the system-average variable costs based upon 21 standard traffic characteristics (service units and operating statistics). Here, the parties' evidence regarding service units and operating statistics associated with Xcel's traffic has been evaluated and, where appropriate, restated to reflect the most accurate operating data. Because a carrier's system-wide average costs are not necessarily representative of the costs of providing a particular service, the parties have also proposed various movement-specific adjustments to particular expense categories to better reflect the variable costs associated with providing service to Pawnee. Each proposed adjustment has been analyzed to determine whether it is supported by reliable evidence and whether it produces costs more reflective of the service at issue than the system-average cost figures.

Tables E-3 and E-4 show (for a movement from both the Eagle Butte and Belle Ayr mines to Pawnee) the various service units and operating characteristics used by the parties and the Board to develop the variable costs associated with transporting Xcel's issue traffic. Statistics for all Xcel movements from the two mines are shown in Table E-10 at the end of this appendix. As shown in the tables, the parties agree on Items 12, 13, 17, and 21, but they disagree on the remainder of the items. The discussion following Table E-4 addresses those items for which there is disagreement between the parties.

Table E-3
Service Units/Operating Characteristics
Eagle Butte Mine to Pawnee Plant – Steel Cars
1st Quarter 2002

ITEM	Xcel	BNSF	STB
1. Lading Weight (Tons)	100.9	100.9	100.9
2. Tare Weight (Tons)	27.7	27.8	27.8
3. Cars Per Train	122.9	122.9	122.9
4. Loaded Miles	382.3	382.3	382.3
5. Empty Miles	382.4	382.4	382.4
6. Round Trip Miles	764.7	764.7	764.7
7. Origin Loop Miles – Loaded	3.3	3.3	3.3
8. Origin Loop Miles – Empty	4.3	4.3	4.3
9. Destination Loop Miles – Loaded	2	3.1	3.1
10. Destination Loop Miles – Empty	1	3.1	3.1
11. Round Trip Miles (incl. loop track)	775.3	778.5	778.5
12. Joint Facility Miles	24.5	24.5	24.5
13. Locomotive Units Per Train	3	3	3
14. Locomotive Cycle Hours	87.7	90	90
15. Sw.- Yd. Loco. (SEMs/Car)	0.42	1.32	1.3
16. Sw.- Rd. Loco, Non-Yd (SEMs/Car)	0.16	0.45	0.45
17. Sw. - Rd. Loco, Yd (SEMs/Car)	0	0	0
18. Gross Ton Miles/Car	59,757.80	59,832.73	59,832.73
19. Train-Miles Per Car	6.31	6.33	6.33
20. Locomotive Unit-Miles Per Car	18.93	18.67	18.67
21. Helper Units Per Train	5 .0	5	5

Table E-4
Service Units/Operating Characteristics
Belle Ayr Mine to Pawnee Plant – Aluminum Cars
3rd Quarter 2001

ITEM	Xcel	BNSF	STB
1. Lading Weight (Tons)	117.4	117.4	117.4
2. Tare Weight (Tons)	25.1	24.9	24.9
3. Cars Per Train	123	123	123
4. Loaded Miles	362.8	362.8	362.8
5. Empty Miles	371.9	372.2	372.2
6. Round Trip Miles	734.7	735	735
7. Origin Loop Miles – Loaded	2	0.8	0.8
8. Origin Loop Miles – Empty	2	1	1
9. Destination Loop Miles – Loaded	2	3.1	3.1
10. Destination Loop Miles – Empty	1	3.1	3.1
11. Round Trip Miles (incl. loop track)	741.6	742.8	742.8
12. Joint Facility Miles	24.5	24.5	24.5
13. Locomotive Units Per Train	3	3	3
14. Locomotive Cycle Hours	74.8	74	74
15. Sw. - Yd. Loco. (SEMs/Car)	0.42	1.31	1.3
16. Sw.- Rd. Loco, Non-Yd (SEMs/Car)	0.16	0.45	0.45
17. Sw. - Rd. Loco, Yd (SEMs/Car)	0	0	0
18. Gross Ton Miles/Car	61,027.50	60,894.22	60,894.22
19. Train-Miles Per Car	6.03	6.04	6.04
20. Locomotive Unit-Miles Per Car	18.09	17.93	17.93
21. Helper Units Per Train	1	1	1

1. Lading Weight (Item 1)

There is little difference between the parties' calculations of lading weights. The Board has reviewed both parties' workpapers and determined that Xcel erred by developing the lading weight in steel cars based on the tons that an aluminum car can hold. This error is apparent when the tare weights calculated in Xcel's tons worksheet are compared to the tare weights Xcel submitted from another source in this proceeding.[129] Therefore, BNSF's properly developed lading weights are used here.

2. Tare Weight (Item 2)

There is little difference between the parties' tare weights. Xcel used various train movement data to develop its tare weights, while BNSF relied on hardcopy invoices of Xcel's freight bills. Xcel's use of multiple sources to develop its operating statistics resulted in the inclusion of inconsistent tare weights.[130] Given the inconsistencies in Xcel's evidence, BNSF's more accurate results are used here.

3. Cars Per Train (Item 3)

Both parties presented similar figures on the number of cars per train. Xcel relied on the same data it used to develop its lading weights, while BNSF used the same data from which it calculated lading and tare weights. For the reasons discussed above, the Board uses BNSF's evidence on the number of cars per train.

4. Loaded and Empty Miles (Items 4 and 5)

BNSF and Xcel agree on the number of loaded and empty miles between Eagle Butte and Pawnee, but disagree for some quarters on the number of loaded and empty miles between Belle Ayr and Pawnee. In its reply evidence, BNSF accepted the number of loaded and empty miles between Belle Ayr and Pawnee contained in Xcel's opening statement. Xcel nonetheless restated its loaded and empty mileage calculation in its reply evidence, without explaining the reason for this change. Because BNSF had accepted Xcel's opening loaded and empty miles, and Xcel did not support its change on reply, the Board uses the agreed-upon loaded and empty miles between Belle Ayr and Pawnee that are contained in Xcel's opening evidence.

5. Round-Trip Miles (Item 6)

Round-trip miles are a combination of the loaded miles and empty miles. The round-trip mileages used here reflect the loaded- and empty-mile figures accepted in the previous section.

6. Origin Loop Miles - Loaded and Empty (Items 7 and 8)

There is little difference between the parties' origin loop track miles. Both parties developed the origin loop track miles using BNSF timetables and

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[129] *See* Xcel Reb. e-WP. "Analysis of Pawnee Freight Bills.123" & "Tare Weight.123."
[130] *Id.*

track charts and topographical maps from the United States Geological Survey (USGS). The parties agree on the origin loop miles at Eagle Butte. On reply, BNSF accepted Xcel's opening evidence on the origin loop miles at Belle Ayr. Therefore, the Board's restatement uses the agreed-upon origin loop track miles at the Eagle Butte and Belle Ayr mines contained in Xcel's opening evidence, including Xcel's split between loaded and empty miles.

7. Destination Loop Miles - Loaded and Empty (Items 9 and 10)

Xcel calculated its destination loop track miles using a track schematic and a topographical map from the USGS and arrived at a figure of 1.0 loaded mile and 2.0 empty miles. Although BNSF used a similar procedure, it arrived at a figure of 3.1 loaded miles and 3.1 empty miles. The Board has reviewed the maps and calculations submitted by both parties and found that Xcel's calculations failed to include the lead track from BNSF's main line to the start of the loop track. Because of this omission, BNSF's more accurate destination loop track miles are used here.

8. Round-Trip Miles (incl. Loop Track) (Item 11)

Round-trip miles (including loop track) are a combination of the round-trip miles (Item 6), origin loop miles – loaded (Item 7), origin loop miles – empty (Item 8), destination loop miles – loaded (Item 9), and destination loop miles – empty (Item 10). The total round-trip miles (including loop track miles) used by the Board reflect the figures discussed above for Items 6-10.

9. Locomotive Cycle Hours (Item 14)

There are significant differences between the parties' calculations of locomotive cycle time, caused primarily by a difference in methodology. For each origin/destination pair, Xcel split the locomotive cycle time into four components: the average time the trains spend at the mine (including dwell time and loading time), the average loaded transit time from the mine to Pawnee, the average time at Pawnee (including both unloading and dwell time), and finally the empty transit time between Pawnee and the mine. Xcel then summed these four cycle-time components to yield the average cycle time for each quarter.

BNSF, in contrast, calculated the overall average round trip cycle time for each origin/destination pair. For example, for all shipments originating at a particular mine and terminating at Pawnee, BNSF calculated the average time between when an empty train arrives at the mine for loading until the empty train returns for subsequent loading. Xcel's only criticism of BNSF's methodology is that BNSF included times for trains that do not make round trips to the origin mine, an error BNSF's rebuttal evidence corrects.[131]

BNSF's use of actual cycle times is preferable to the constructed cycle times developed by Xcel, as it more accurately reflects total cycle time and the carrier's actual costs. Therefore, the Board uses the corrected locomotive cycle times contained in BNSF's restatement.

10. Switching – Yard Locomotives (SEMs/Car) (Item 15)

There is a significant difference between the parties' calculations of yard locomotive switching time. In its opening evidence, Xcel pointed out that the BNSF "Train Activity Reports" (TARs) for Xcel trains showed no switching.[132] However, to be conservative, Xcel assumed that one bad-order car per train would require 40 minutes of switching (20 minutes to switch the car out and 20 minutes to switch a car back into the train).

BNSF conducted special studies to develop yard locomotive switching expenses at the Alliance and Guernsey Yards. To develop yard switching expenses, BNSF identified the total switching minutes at Alliance from November 1, 2002 through November 28, 2002. BNSF then determined which movements were coal. Xcel points out that BNSF's study did not focus specifically on trains serving Pawnee.

Because BNSF's special studies are not exclusively studies of Pawnee coal traffic, but rather broader studies of all coal traffic, the Board is not persuaded that BNSF's special switching study is representative of the Pawnee traffic. Accordingly, the Board has no basis for finding that BNSF's evidence is superior to URCS system-average costs. Also Xcel's assumption of one bad-order switch per train is rejected, as it has no support. In the absence of demonstrably better evidence, the Board uses the URCS system-average inter/intra-train switching costs. *See TMPA*, 6 S.T.B. at 621-22.

11. Switching – Road Locomotives Non-Yard Tracks (SEMs/Car) (Item 16)

There is a significant difference between the parties calculations of road locomotive non-yard switching time. BNSF conducted a special study of road switching activities at the Pawnee plant to identify the switching tasks performed by BNSF road crews, and to determine the average time BNSF road crews are engaged in such activities. From August 29, 2002 to November 11, 2002, road crews working the Xcel trains maintained logs of the activities they performed in serving Pawnee and the time associated with each activity.[133] Using these logs and TARs, BNSF identified two general switching activities that are performed by BNSF road crews at Pawnee—reconfiguring the locomotive consist to move the distributed power unit to the head of the train for the return trip to the PRB, and switching bad-order cars and reconnecting the train when it separates during the unloading

[131] *See* BNSF Reb. Narr. II-18.
[132] *See* BNSF Open. WP. at 440-592; BNSF Open. Narr. II-A-16.
[133] *See* BNSF Open. WP. II-A-146-241 & e-WP. "Pawnee Switching.123."

process. To calculate the average number of minutes per train that the road crews devote to switching at Pawnee, BNSF summed the minutes associated with these activities listed in the crew logs and TARs and then divided the total by the number of trains in the study. BNSF thereby developed an average switching time of 55 minutes per train at Pawnee.

On opening, Xcel used a figure of 60 minutes for switching at Pawnee, based on an inspection of the Pawnee operation. On reply, it reduced the switching minutes per train to 19, asserting that most of the road switching activity that takes place at Pawnee is hostling and should not be included as road switching time, as hostling activities are not used by URCS to calculate SEM costs. (Hostling involves the transfer of locomotives between fueling, servicing, and maintenance areas and the relay tracks where they are made available to road crews.)

Xcel's reply presentation (which should have been presented in its case-in-chief) is rejected because the Uniform System of Accounts includes hostling expenses in Account 69 – Servicing Locomotives,[134] and these expenses are associated with road switching. Thus, BNSF would not be fully compensated for these costs if the Board were to exclude the time it spends to reconfigure the locomotive consist and remove and change EOTDs at Pawnee. The Board therefore uses BNSF's special study of Pawnee switching time, which is similar to the switching times that Xcel observed directly.

12. Gross Ton-Miles (Item 18)

GTMs are a combination of the lading weight (Item 1), tare weight (Item 2), loaded miles (Item 4), and empty miles (Item 5). The GTMs are restated here to reflect the figures for lading weight, tare weight, loaded miles, and empty miles figures accepted above.

13. Train-Miles Per Car (Item 19)

Train-miles per car are determined by dividing the round trip miles (including loop track) (Item 11) by the number of cars per train (Item 3). The train-miles per car are restated to reflect the round-trip miles (including loop track) and the cars-per-train figures discussed above.

14. Locomotive Unit-Miles Per Car (Item 20)

LUMs per car are the product of the round-trip miles and the number of locomotive units per train divided by the number of cars per train. The Board's restatement here reflects the cars per train (Item 3), round-trip miles (Item 6) and locomotive units (Item 13) discussed above.

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[134] *See* 49 CFR Part 1201 (Operating Expense Account 69).

C. Variable Costs

After determining the appropriate traffic characteristics and operating statistics, variable costs and the resulting R/VC percentages can be determined. Tables E-5 and E-6 below show the component parts of the variable-cost calculations for movements from Eagle Butte and Belle Ayr to Pawnee. As seen in the tables, the parties agree on expenses associated only with Item 1 – Carload Other Than (O/T) Clerical Expense and Item 5 – Switching Expense – Road Locomotives (Yard). The disputes over the remaining items are discussed following Table E-6.

Table E-11, at the end of this appendix, contains variable costs for all quarters for which traffic data are contained in the record.

Table E-5
Variable Cost Per Ton
Eagle Butte to Pawnee
Xcel Steel Cars
(1st Quarter 2002)

Service Category	Xcel	BNSF	STB
1. Carload O/T Clerical Expense	$8.02	$8.02	$8.02
2. Carload Handling – Other Expense	0.73	0.46	0.46
3. Switching Expense – Yard Locomotives (SEM)	2.20	6.97	6.88
4. Switching Expense – Road Locomotives (Non-Yard)	0.00	0.62	0.62
5. Switching Expense – Road Locomotives (Yard)	0.00	0.00	0.00
6. Gross Ton-Mile Expense (GTM)	87.20	139.69	98.89
7. Loop Track Expense – Origin & Destination	1.00	1.44	1.44
8. Train-Mile Expense – Other than Crew	1.63	1.64	1.64
9. Train-Mile Expense – T&E Crew	47.93	48.31	48.31
10. Helper Service Expense – Other than Crew	0.06	2.71	2.71
11. Helper Service Expense – T&E Crew	0.38	4.88	4.88
12. Locomotive Unit–Mile Expense	37.70	42.46	42.46
13. Locomotive Ownership Expense	53.92	67.56	68.38
14. Third Party Loading Charges	0.00	2.12	2.12
15. Operating Expense – Substitute Cars	1.33	2.53	1.80
16. User Responsibility – Car Repair Expense	2.16	2.19	2.19
17. Caboose and EOTD Ownership Expense	0.06	0.07	0.07
18. Joint Facility Payment	8.07	14.93	8.92
19. Loss and Damage Expense	0.38	0.28	0.38
20. Total Variable Cost Per Car	$252.	$344.7	$300.17
21. Tons Per Car	101	100.9	100.9
22. Variable Cost Per Ton	$2.51	$3.44	$2.97
23. RFA – URCS Linking Factor	0.99	0.993	0.9934
24. Linked Variable Cost Per Ton	$2.49	$3.42	$2.95
25. Jurisdictional Threshold (L. 24 * 180%)	$4.48	$6.16	$5.31
26. Rate Per Ton	$9.16	$9.16	$9.16
27. R/VC Percentage (L. 26/L. 24)	368%	268%	311%

Table E-6
Variable Cost Per Ton
Belle Ayr to Pawnee
Xcel Aluminum Cars
(3rd Quarter 2001)

Service Category	Xcel	BNS	STB
1. Carload O/T Clerical Expense	$8.09	$8.09	$8.09
2. Carload Handling – Other Expense	0.74	0.46	0.46
3. Switching Expense – Yard Locomotives	2.24	7.05	6.99
4. Switching Expense – Road Locomotives (Non-Yard)	0.00	0.67	0.67
5. Switching Expense – Road Locomotives (Yard)	0.00	0.00	0.00
6. Gross Ton-Mile Expense (GTM)	98.75	148.5	109.12
7. Loop Track Expense – Origin and Destination	0.82	0.99	0.99
8. Train-Mile Expense – Other than Crew	1.57	1.59	1.59
9. Train-Mile Expense – T&E Crew	40.64	43.25	43.25
10. Helper Service Expense – Other than Crew	0.02	0.58	0.38
11. Helper Service Expense – T&E Crew	0.13	1.61	1.90
12. Locomotive Unit–Mile Expense	40.19	45.41	45.41
13. Locomotive Ownership Expense	45.03	58.72	58.39
14. Third Party Loading Charges	0.00	0.00	0.00
15. Operating Expense – Substitute Cars	1.25	2.32	1.64
16. User Responsibility – Car Repair Expense	2.09	2.11	2.11
17. Caboose and EOTD Ownership Expense	0.05	0.07	0.07
18. Joint Facility Payment	8.07	15.88	9.49
19. Loss and Damage Expense	0.44	0.33	0.44
20. Total Variable Cost Per Car	$250.1	$337.	$290.9
21. Tons Per Car	117.4	117	117.38
22. Variable Cost Per Ton	$2.13	$2.88	$2.48
23. RFA – URCS Linking Factor	0.993	0.99	0.9934
24. Linked Variable Cost Per Ton	$2.12	$2.86	$2.46
25. Jurisdictional Threshold (L. 24 * 180%)	$3.82	$5.15	$4.43
26. Rate Per Ton	$8.93	$8.93	$8.93
27. R/VC Percentage (L. 26/L. 24)	421%	312%	363%

1. Carload O/T Clerical Expense (Item 1)

The parties generally agree on this expense, with the only difference resulting from the indexing procedures used by each party. Indexing is addressed *infra*.

2. Carload Handling – Other Expense (Item 2)

Xcel reduced the system-average costs to exclude costs associated with car loading devices, grain doors and cleaning of car interiors. BNSF agrees with Xcel that costs for expenses not incurred on the Xcel movements should not be included. However, BNSF corrected Xcel's calculation of the adjustment factor to use the expenses reported in BNSF's R-1 annual report, rather than the unsupported and unexplained expense numbers used by Xcel. The Board uses BNSF's adjustment, as it is based on the verifiable numbers from the R-1.

3. Switching Expense – Yard Locomotives and Road Locomotives (Items 3-5)

In developing yard and road locomotive switching expenses, both parties used the BNSF 2001 URCS system-average unit costs (allocated between road and yard switching) and then estimated the number of SEMs associated with Xcel switching activity requirements. In particular, the parties developed switching expenses based on two distinct switching activities: yard switching of bad-ordered cars at the Alliance and Guernsey yards, and road switching at Pawnee. For the reasons discussed above (in Part B, Items 15 and 16), the Board rejects the SEM estimates for both parties for the switching of bad-ordered cars. Instead, the Board uses the system-average URCS inter/intra train switch for the yard operation. To develop its estimate for road switching, the Board uses BNSF's special study SEMs associated with road switching at Pawnee (for the reasons discussed in Part B) to develop switching costs.

4. Gross Ton-Mile Expense (Item 6)

GTM expenses include MOW, return on investment and depreciation for road property, locomotive fuel, locomotive maintenance, and other GTM expenses. Tables E-7 and E-8 are summaries of the GTM expenses included in the Board's restatement.

Table E-7
GTM Expense Per Car
(Eagle Butte to Pawnee) – Steel Cars

Category	1st Qtr 2002
Maintenance-of-Way Expense	$20.11
Return on Road Property Investment	$14.78
Road Property Depreciation	$9.86
Locomotive Fuel Expense	$23.83
Locomotive Maintenance Expense	$9.39
Other GTM Expense	$20.91
TOTAL	$98.89

Table E-8
GTM Expense Per Car
(Bell Ayr to Pawnee) – Aluminum Cars

Category	3rd Qtr 2001
Maintenance-of-Way Expense	$20.57
Return on Road Property Investment	$17.15
Road Property Depreciation	$10.00
Locomotive Fuel Expense	$30.44
Locomotive Maintenance Expense	$9.64
Other GTM Expense	$21.31
TOTAL	$109.12

a. Maintenance-of-Way Expense

For variable MOW expenses, BNSF relied on URCS system-average costs. Xcel argues that the "speed factored gross ton" (SFGT) model, which has been used in many previous rail rate reasonableness cases, develops MOW costs that are more specific to Xcel's traffic than URCS system-average cost data. BNSF counters that the SFGT model is outdated and has not been shown to produce reliable estimates of MOW expenses for today's railroads.

In *TMPA*, 6 S.T.B. at 632, the Board concluded the rail industry has changed significantly since the SFGT was developed in 1973 to allocate MOW costs between passenger and freight traffic. It was based on research on track degradation and MOW activities from 1950 to 1970, and the precise parameters of the formula were estimated using those data and standard regression analysis. *See generally Nat'l R.R. Passenger Corp. & Consolidated Rail Corp.*, 10 I.C.C.2d 863, 872-74 (1995) (*Amtrak*).

Specifically, there have been changes in the manner of accounting for MOW expenses, the types of track materials and maintenance practices employed, and traffic densities. *See TMPA*, 6 S.T.B. at 633 n.92. In 1983 the ICC changed the accounting system that is used by railroads from a retirement, replacement, and betterment system to a depreciation accounting system, which treats a significantly greater portion of maintenance as capital cost (as opposed to an operating expense) than the retirement, replacement, and betterment system had. Track materials have become more durable. In 1978 the average rail line had 111-lb. rail, only 6% of which was continuous welded rail (CWR); by 1999, the average weight of rail was 125-lb., and 62% of that was CWR. And industry maintenance practices have changed over the years, so that more of the maintenance that is being performed is planned maintenance, which is capitalized under depreciation accounting. *TMPA*, 6 S.T.B. at 633 n.92. Furthermore, the average traffic densities of railroads in the 1970's bear no relation to the average traffic densities of railroads today. The SFGT formula reflects railroad lines with an average density of 10-15 million gross tons, and densities of 25 MGT were relatively rare. *See Amtrak*, 10 I.C.C.2d at 877. Further, present-day railroad maintenance expenses and practices bear little resemblance to those of 30 to 50 years ago.

The SFGT formula, however, has not been re-benchmarked to address these changes. And scholars have long cautioned of the dangers of using a regression analysis to extrapolate beyond the range of existing data. *See, e.g.*, Rudolf Freud & William Wilson, *Regression Analysis: Statistical Modeling of a Response Variable* (1998), at 65 n.53. *See also Amtrak*, 10 I.C.C.2d at 877 ("Applying [the SFGT] regression results to circumstances outside the relevant range of data upon which the regression equations are based may not produce valid results."). Absent evidence that SFGT produces MOW expenses that are comparable to current MOW expenses for any rail line, and given the fundamental changes in the rail industry relating to MOW expenses, the Board finds, as it did in *TMPA*, 6 S.T.B. at 633, that the SFGT formula can no longer be considered reliable. Because no other method has been shown to be a superior method for calculating MOW expenses, the Board relies on BNSF's URCS system-average unit costs in its restatement.

b. Return on Road Property and Depreciation Expense

BNSF relied on URCS system-average costs to estimate road property ROI and depreciation expenses. Xcel contends that system-average ROI and depreciation costs should be reduced to reflect economies associated with traffic traveling over very high-density lines. Xcel developed movement-specific adjustments to the system-average costs using data from BNSF's "Fixed Asset Data Base" (FADB), which contains investment data for individual segments of the railroad.

BNSF argues that use of its FADB numbers is inappropriate because those figures do not correlate to its R-1 annual report, which is used to develop URCS system-average costs. Furthermore, BNSF claims that the FADB does not reflect investment in assets that are not specifically assigned to any particular line segment.

The Board finds these arguments against the use of BNSF's FADB unpersuasive. Contrary to BNSF's arguments, FADB information appears to be compatible with the information in the R-1 reports. BNSF complains that the FADB investment figures used by Xcel are approximately 28.5% less than the total road property investment figures in its R-1 annual report. But the FADB data used by Xcel include data for only the 13 road property investment accounts that are used by URCS to develop ROI and depreciation variable costs. Comparison of the FADB number used by Xcel to the corresponding 13 accounts in the R-1 report shows a close correspondence between the two sets of data. Moreover, BNSF states that investment costs that are not assignable to any particular segment are allocated across-the-board to all line segments in its system, based on the relative mileage of each line segment. *Accord TMPA*, 6 S.T.B. at 634-35. Thus, unassigned investments are taken into account in the FADB.

BNSF also argues that Xcel has not properly taken into account how expenses vary with output on the individual lines over which Xcel's traffic moves. Although URCS assumes that 50% of total ROI and depreciation expenses on a carrier's system are variable, BNSF contends that on higher density lines, a greater proportion of those costs are actually variable. BNSF argues that this greater variability, when multiplied by the lower-than-system-average investment per GTM on high-density lines, does not necessarily result in lower-than-system-average unit costs as suggested by Xcel.

Xcel counters that its line-specific calculations are consistent with the recent rail rate complaint cases, such as *TMPA*, 6 S.T.B. at 634-35. Furthermore, Xcel claims that its analysis of BNSF's road property investment return and depreciation costs is based on the specific investment used to provide Xcel service.

The Board has routinely accepted a wide variety of movement-specific adjustments without any adjustment of the system-average variability factors of URCS, including adjustments to ROI and depreciation. BNSF itself has made various movement-specific adjustments in this case, applying the system-average variability factors used by URCS. For example, BNSF introduced adjustments to the URCS unit costs for a variety of switching activities and crew wages, as well as a fuel adjustment, without questioning the applicability of the system-average variability factors used by URCS. BNSF has not explained why ROI and depreciation expenses should be treated any differently from other categories of expenses.

Accordingly, Xcel's adjustments for ROI and depreciation expenses are used here, except that one error must be corrected. URCS distributes investment between running and switching operations, but only the running portion is utilized in the calculation of ROI and depreciation expense. Accordingly, the Board has restated Xcel's line-specific adjustment factor for both the calculation of ROI and depreciation expense so as to reflect only the running portion of the line-specific investment and depreciation expense.

c. Locomotive Fuel Expense

BNSF based its variable cost calculations for fuel consumption on a study of Xcel trains, while Xcel relied on the system-average unit costs. BNSF's fuel-consumption study used the methodology accepted by the Board in *TMPA*, 6 S.T.B. at 635-36. BNSF used locomotive event recorder data to document the higher fuel-consumption rate of Xcel locomotives (as compared to the system-average fuel-consumption rate for BNSF's system). The results show that the average fuel consumption on Xcel trains is approximately 15% above system-average.

Xcel claims that BNSF's fuel study relied on faulty data and methodology. But BNSF's study is consistent with the methodology used in *TMPA*, which was also based on event recorders and the manufacturer's fuel consumption tables. Field tests found the event recorder calculations to be within 1% of actual fuel consumption.[135] There is no evidence to support Xcel's claim that BNSF relied on incorrect fuel tables. And there is no support for Xcel's claim that the use of non-SD70MAC locomotives resulted in increased average fuel consumption. To the contrary, BNSF's workpapers demonstrate that inclusion of non-SD70MAC locomotives in the fuel study did not increase fuel consumption.[136]

The Board also rejects Xcel's argument that trains in the fuel study were operated differently than other trains. The perceived difference is attributable not to the manner in which the trains were operating, but rather the different procedures Xcel used to calculate the cycle times of the study trains. The Board's recalculation of Xcel's worksheet shows that the BNSF fuel study trains are in fact consistent with all Xcel issue-traffic trains.

The overlapping segment times discussed by Xcel have little impact on the fuel study. BNSF admits that there is some overlap, but points out that it only results in an insignificant amount of additional fuel being consumed (1.28 gallons for the entire study).

Xcel's claim that BNSF fabricated data for trains that failed to record data for part of the movement is also without merit. An examination of the record shows that BNSF used reasonable procedures to correct data collection problems that are inherent to studies of this nature. For example, in two instances, BNSF reasonably substituted data from another locomotive in the same consist when the event recorder in one locomotive failed.

Xcel's assertion that the fuel study contains inconsistent segment times is also rejected. The segment times of individual locomotives for the same train are consistent when the time a locomotive is out of service is included.

Finally, Xcel's argument that BNSF could have reduced fuel consumption by isolating locomotives on the empty return trip from Pawnee

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[135] *See* BNSF Reb. Narr. II-41.
[136] *See* BNSF Reb. Narr. II-43 & e-WP. "Fuel Sensitivities.123."

is purely hypothetical. The variable cost calculation is addressed to actual—not hypothetical—operations.

For these reasons, the Board accepts BNSF's adjustment to the system-average fuel unit costs in its restatement of the variable costs.

d. Locomotive Maintenance

To calculate locomotive maintenance expenses, BNSF relied on system-average costs, while Xcel relied on costs from BNSF's full service locomotive maintenance contract.[137] BNSF asserts that system-average locomotive maintenance costs must be used because data to accurately determine locomotive maintenance costs for a specific locomotive, locomotive model, or series are not available.

Xcel argues that in *TMPA*, 6 S.T.B. at 636 the Board accepted locomotive maintenance expense figures based on maintenance contracts. But in *TMPA* the Board also noted that many repair costs are not covered by maintenance contracts, such as costs incurred due to wrecks, derailments, vandalism, abuse, or running out of fuel, and that these other, non-routine maintenance costs "must be accounted for in developing variable costs." *TMPA*, 6 S.T.B. at 636. On reply, Xcel continued to rely on the maintenance contracts, but it contends that it took into account these other locomotive maintenance costs.

A review of Xcel's workpapers does not reveal any change in methodology to include other, non-routine maintenance costs. Rather, Xcel merely offers a new argument that non-routine costs are included in URCS system-average costs. Xcel has thus not addressed the concern that non-routine maintenance costs are not covered by its adjustment method and thus understate BNSF maintenance expenses. Therefore, the Board uses BNSF's URCS system-average costs to calculate locomotive maintenance expense in its restatement.

e. Other GTM Expense

Other GTM expenses include such expenses as: locomotive shop repairs; locomotive servicing facilities; locomotive administration; locomotive equipment damage; small tools; work equipment and non-revenue equipment repair; and other casualties. Both parties developed these expenses based on URCS system-average costs, but they arrived at differing expense figures due to differences in the GTMs/car and ROI overhead ratio that they used. The Board's restatement reflects the Board's resolution of gross ton-miles (as detailed above in Part B, Gross Ton-Miles (Item 18) and BNSF's ROI adjustment (as discussed above in Part A).

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[137] *See* Xcel Open. WP. 215-409.

5. Loop Track Expense (Item 7)

Loop track expense reflects costs associated with running over the loop tracks at origin mines and the Pawnee destination. Because BNSF does not own the loop tracks at the PRB mines or at Pawnee, only operating costs (fuel, locomotive maintenance and other GTM expenses) are appropriately included in this variable cost. For a detailed discussion of the various components that comprise the loop track expense category, see Part C, Item 6 - Gross Ton-Mile Expense, discussed above; Part C, Item 12 – Locomotive Unit-Mile Expense, discussed below; and the appropriate loop track mileages to be used at origin and destination discussed above in Part B, Items 7 through 10.

6. Train-Mile Expense – Other Than Crew (Item 8)

Train-mile expense (other than crew expense) includes road operations and ownership expenses, train inspections expenses, and caboose expenses. The only disagreement between the parties arises because of the differences in the treatment of Accounts 76 and 90 (which affects the ROI overhead ratio) and the total round-trip miles (including loop track). The treatment of Accounts 76 and 90 is discussed in Part A above, and the resolution of the mileage issue is discussed in Part B, Item 11 - Round Trip Miles (including loop track) above.

7. Train-Mile Expense – Train & Engine Crew (Item 9)

Both parties developed T&E crew costs based on the actual crew costs incurred by BNSF in providing service to Xcel. Although the parties used the same methodology, they arrived at slightly different figures due to disagreements over the appropriate mark-up ratio and an adjustment to account for the number of trains a crew loads during a day.

a. Mark-Up Ratio

Both parties marked up crew wages to account for the compensation paid by BNSF that is not specifically assignable to any particular train, such as medical leave and vacations. However, BNSF used separate mark-up ratios for each service (i.e., road crews, loading crews, and helper crews), whereas Xcel developed a single mark-up ratio based on a combination of non-train related wages for all crews. BNSF also included certain constructive allowance expenses in its mark-up ratio, which Xcel did not include. Despite these differences, the disparity between the parties' calculations is not large.[138]

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[138] *See* BNSF Reb. WP. II-A-00201 for a comparison of BNSF's and Xcel's mark-up ratios.

Xcel's use of a single mark-up ratio is less accurate than the use of mark-up ratios specifically applicable to each particular service. Accordingly, the Board uses BNSF's approach.

With respect to constructive allowances, the only item of significance is Code 30—Held Away from Home Terminal. (The other seven items represent less than 0.005% of the total 2001 wages included in its mark-up calculation.)[139] The Board has previously accepted "held-away-from-home terminal" expenses as an item properly included in T&E expenses, *see FMC*, 4 S.T.B. at 769, and does so here.

b. Loading Crews

Xcel developed the number of trains a crew can load by dividing a loading crew's shift by the amount of time it takes to load a train.[140] BNSF claims that this approach overstates the number of trains a crew can load because it ignores the fact that loading crews generally spend significant time engaged in activities other than actual loading and assumes that a BNSF train is always waiting to be loaded immediately after the previous loading. BNSF argues that loading crews often must wait with a train while it is queued for loading; deliver a loaded train to a road crew on the main line; and travel to a different mine for the next loading job—all activities that reduce the number of trains a crew can load during its shift. BNSF notes that in 2001, only 371 trains were loaded at Belle Ayr, approximately one train per day, not the four to five trains per day that Xcel claims.

BNSF's crew loading costs best reflect the actual cost of providing service to Xcel. Xcel's calculations do not account for the non-productive time inherent in normal loading operations, even though BNSF pays loading crews for both the actual loading time and non-productive time. Thus, the Board uses BNSF's evidence on T&E costs.

8. Helper Service Expense - Other Than Crew and T&E Crew (Items 10 and 11)

Xcel and BNSF disagree on the location and frequency of helper service for Xcel trains. BNSF maintains that loaded Xcel trains originating at Eagle Butte are helped by the Campbell and Crawford helpers, and that loaded Xcel trains originating at Belle Ayr are helped by the Belle Ayr and Crawford helpers.[141] In addition, loaded Xcel trains traveling south on the Orin Line (a small minority of the issue traffic) are helped by the Logan helper during adverse weather conditions. Xcel argues that BNSF's use of distributed power locomotives has largely eliminated the need for helper service on Xcel's trains. Xcel claims that a review of BNSF's Train Activity Reports (TARs) shows that Eagle Butte trains were only helped by the Campbell

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[139] *See* Xcel Reply e-WP. "2001 mark ups-reply.xls."
[140] *See* Xcel Reply Narr. II-A-100.
[141] *See* BNSF Open. Narr. II-A-10-11.

helpers and then only 14% of the time, and that Belle Ayr trains were only helped by Belle Ayr helpers and then only 7% of the time.[142]

BNSF counters that Xcel's study suffers from two fundamental flaws. First, Xcel erroneously assumed that BNSF crews on Xcel trains regularly record receipt of helper service on TARs. BNSF notes that, absent an unusual delay or problem associated with the helper service, conductors generally do not record the helper service on a TAR. Second, several of the TARs relied upon by Xcel in its study do not even apply to the movement of loaded Xcel trains. According to BNSF, use of distributed power configurations has resulted in BNSF moving longer and heavier trains (16,000-18,000 trailing tons) that routinely require helper service at Campbell, Belle Ayr, and Crawford. Finally, BNSF notes that trains traversing Logan Hill occasionally require helper service during adverse weather conditions.

BNSF has shown that the TARs are not accurate indicators of the frequency of helper service. In addition, BNSF has provided unrebutted evidence that Xcel's longer and heavier trains now being utilized require helper service at Belle Ayr, Crawford, and Campbell. Accordingly, the Board's analysis includes the cost for helper service at these three points. However, the Board does not include helper service costs for Logan Hill. Although BNSF has acknowledged that trains require assistance at that location only occasionally (in adverse weather), its cost evidence assumes that all Xcel trains require helper service at that location. In the absence of evidence as to how often Xcel's trains require helper service, it is inappropriate to attribute these costs to all Xcel trains traversing Logan Hill.

9. Locomotive Unit-Mile Expense (Item 12)

The Board has restated the parties' LUM expense to reflect the costs associated with locomotive maintenance and fuel expenses (discussed above in Part C, Item 6 - Gross Ton-Mile Expense) and the treatment of Accounts 76 and 90 (discussed above in Part A).

10. Locomotive Ownership Expense (Item 13)

BNSF developed its locomotive ownership cost figure based solely on SD70MAC locomotives, whereas Xcel developed its figure from data on the various types of locomotives in BNSF's Alliance Locomotive Pool. But as Xcel has acknowledged, 96.5% of the locomotives used in Xcel service are SD70MAC locomotives. Thus, the Board uses the locomotive ownership costs that are specific to the SD70MAC locomotives, as the better evidence of record.

Xcel developed locomotive lease costs by identifying the specific lease payments made by BNSF in 2001 and 2002, whereas BNSF developed lease costs by normalizing payments over the life of the lease. Xcel states that BNSF's locomotive operating leases have lower payments in the first 8 to 10

[142] Xcel Open. WP. 437-39.

years of the lease life, in part because of tax advantages available to the lessor. As those tax advantages are used up, the payments by the railroad are increased to fully compensate the lessor.

As in *WPL* 5 S.T.B. at 1004-05, the Board uses the actual lease payments made in 2001 and 2002 to develop variable costs for those years. Any change in annual lease payments should be reflected in the variable cost calculations performed for later years as those costs are actually incurred.

The parties also disagree on the number of spare locomotives. Xcel calculated a spare margin requirement of 5.5%, based on the availability guarantees provided by the equipment manufacturers in BNSF's locomotive maintenance contracts. But as BNSF notes, the availability guarantees to which Xcel refers expired in January 2001. Xcel's spare margin figure therefore must be rejected, as it is based on a contract that was not in effect during the period for which the variable costs are being calculated.

BNSF performed a study of the SD70MAC locomotives in its Alliance Pool—the pool from which Xcel's locomotives are drawn. Based on that study, BNSF calculated spare margins of 21% for 2001 and 22% for 2002. Xcel argues that BNSF's study is invalid because: (1) it is based on all SD70MACs in the Alliance Pool and thereby excludes the other types of locomotives used in Pawnee service; (2) it conflicts with the availability guarantees in the maintenance agreements; and (3) it relies on an incorrect definition of spare margin.

The Board has considered Xcel's criticisms and finds them to be unfounded. First, BNSF's reliance on SD70MACs in the Alliance Pool is reasonable, as SD70MACs represent over 96.5% of the locomotives used in the Xcel service. Second, as the Board has rejected the calculation of the spare margin based upon the maintenance agreements, those agreements do not provide a basis for challenging this study.

Finally, the Board is unpersuaded by Xcel's claim that BNSF incorrectly defined its spare margin to include all time in which a locomotive is not used, rather than only the time it is not available for service because it is undergoing repairs or maintenance. Xcel argues that the agency previously has limited the definition of spare margin to only the time that locomotives are undergoing repairs or maintenance. That interpretation of precedent is incorrect. While prior SAC decisions rejected spare margin figures submitted by BNSF (ranging from 15% to 30%), which included all non-utilized time, those findings were based on shortcomings in BNSF's evidence, not BNSF's definition of spare margin.[143] Here, in contrast, BNSF has submitted a well-supported study that quantifies the actual time that locomotives cannot be used for service for any reason. URCS system-average costs implicitly take into account all of the time that locomotives are not being used, and thus BNSF's measure comports with URCS. Because variable cost measures the

[143] *See, e.g., Increased Rates on Coal, BN, Montana to Superior, Wisconsin*, 362 I.C.C. 625 (February 25, 1980) (no demonstration on record to support BNSF's use of 30% spare margin); *Arkansas Power & Light Co. v. Burlington N. R.R.*, 3 I.C.C.2d 757 (1987) (rejecting BNSF's study because of distortions inherent in BNSF's procedure).

actual operation of the railroad, and BNSF has submitted well supported evidence of the spare margin for this service, the Board relies on BNSF's study.

11. Third-Party Contract Loading Expense (Item 14)

Because BNSF has had contract crews load BNSF trains at Eagle Butte since July 2001, it included a $0.021 per ton contract cost for these trains. On rebuttal, Xcel argued that third-party loading crew wages should not be included here in this category because they are already included in the mark-up ratio that covers non-wage expenses. *See* Part C, Item 9, *supra*.

The Board has reviewed BNSF's mark-up ratio and finds no reference or calculation to support Xcel's contention. Moreover, the Board has included third-party loading costs in past rail rate cases (most recently in *TMPA*, 6 S.T.B. at 642), for without these contract crews, BNSF would not be able to provide service to Xcel. Because Xcel has failed to include these costs in its variable cost calculations, the Board accepts BNSF's assignment of this loading cost to Eagle Butte shipments after July 1, 2001.

12. Operating Expense – Substitute Cars (Item 15)

URCS develops a system-average unit maintenance cost by spreading maintenance expenses over the days in which the cars are actually used. Xcel argues that the URCS procedure results in an artificial inflation of the per-day maintenance cost by assigning the expenses only to the days during which the cars are actually in use. Xcel would spread the maintenance expense over 365 calendar days.

Adjustments to unit costs are permitted when data are available that more accurately reflect the service at issue. Adjustments that alter the logic and assumptions in URCS, however, are a collateral attack on the model itself and are thus inappropriate here. In any event, because the railroad receives revenue for substitute cars only when those cars are in service, the URCS formula properly spreads car maintenance costs over active car days. This procedure allows the railroad to recover all of its maintenance costs from the users of the cars. Thus, the Board uses BNSF's unit-cost evidence, which is based on URCS. BNSF calculated freight car maintenance expense using the URCS system-average unit costs only for open-top general service hoppers. Xcel calculated the percentage of each car type BNSF actually substituted for Xcel railcars, then used this percentage to weight the URCS system-average unit cost for each car type. Xcel's data relating to the actual cars used to provide service is preferable to BNSF's unsupported reliance on open-top general service hoppers alone. Accordingly, the Board uses Xcel's mix of cars.

13. User Responsibility – Car Repair Expense (Item 16)

Both parties included costs for user responsibility for car repair (expenses BNSF incurs to repair Xcel-owned cars) in their variable cost evidence. The slight difference between the parties' cost estimates resulted from differences in the total mileage each party used to develop this per-mile cost. BNSF's calculation included the loop track miles while Xcel's calculation did not.

The Board uses BNSF's calculation as the cost of repairs is appropriately apportioned over all of the miles a car travels between origin and destination.

14. Caboose & EOTD Ownership Expense (Item 17)

Xcel and BNSF differ only slightly on ownership expense for the EOTD. The small differences are due to: the cycle times used; the treatment of Accounts 76 and 90; and the locomotive spare margin utilized. Because the Board has resolved each of these issues in favor of BNSF, as discussed above, the Board uses BNSF's EOTD ownership expense estimates in its restatement.

15. Joint Facility Payments (Item 18)

Joint facility payments reflect the costs incurred by BNSF for using facilities owned by other railroads. The parties developed joint facility expenses by examining the joint facility between Sterling and Union, for which BNSF pays a per-ton-mile amount to UP for use of its tracks. The dispute between the parties centers on whether BNSF's use of a variability factor different than the one in URCS is appropriate and whether Xcel's exclusion of costs associated with switching activities is appropriate.

BNSF asserts that, because it pays for use of the joint facility on a gross ton-mile basis, its payments are 100% variable.[144] But as Xcel notes, URCS treats an entire group of expenses, including joint facility costs, as 59.8% variable. Because the variability factor calculated for joint facility expenses is an average that applies to all the accounts contained in the group, if one expense item from the group that is more variable than average were removed, the group average for the remaining expense items would decrease. Thus, BNSF cannot treat some of the accounts from the group as more variable than the average without also lowering the variability percent for the other accounts contained in the group, which BNSF has not done here. Accordingly, the Board rejects BNSF's adjustment and uses the URCS system-average variability percentage of 59.8%. BNSF argues that Xcel's reduction of joint facility costs to account for switching is unjustified, as Xcel admits that the joint facility invoices and contract reflect no switching.[145] Xcel, on the other hand, claims that the adjustment should be made, because switching can occur on the joint facilities.[146] Because Xcel has not shown that any switching takes place on the joint facility segments, the Board rejects Xcel's proposed adjustment to reduce switching expenses. *Accord TMPA*, 6 S.T.B. at 641.

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[144] *See* BNSF Reply Narr. II-41.

[145] BNSF Reply Narr. II-A-44.

[146] *See* Xcel Reply Narr. II-A-44, n.65.

Finally, for the reasons stated in Part C, Item 6a. - Gross Ton-Mile Expense - Maintenance-of-Way Costs, *supra*, the Board rejects Xcel's use of the SFGT formula to develop the MOW costs of the joint facility and instead uses URCS system-average.

16. Loss and Damage Expense (Item 19)

Xcel's expense for this item was developed from actual loss and damage (L&D) claims for Xcel traffic during the past 3 years. BNSF used the URCS system-average L&D expense to calculate its variable costs, which produces a lower estimate of the L&D expense than Xcel's data of the amount of actual claims.

The Board favors actual L&D data to the URCS system-average. *See WPL*, 5 S.T.B. at 1005; *TMPA*, 6 S.T.B. at 642. Therefore, it uses Xcel's 3-year average as representative of the L&D expense for the Xcel traffic.

17. Indexing

Although Xcel agreed to use BNSF's indexes, it used a different value for the 1st quarter of 2003 without explanation. The Board uses the agreed-upon BNSF indexes shown in Table E-9 below, including BNSF's figure for the 1st quarter of 2003.

Table E-9
Indexes

Category	1 Q 01	2 Q 01	3 Q 01	4 Q 01	1 Q 02	2 Q 02	3 Q 02	4 Q 02	1 Q 03
Composite	1.00671	1.00482	0.99975	0.9886	0.9908	0.99592	0	1.00219	1.02077
Fuel	1.04694	1.01668	0.99852	0.94043	0.78672	0.88475	0.89444	0.94043	1.13529
Crew Wages	1	1	1	1	1	1	1	1	1

18. Supporting Tables

Provided below are two tables reflecting the operating statistics (Table E-10) and variable costs (Table E-11) used by the Board for all of the issue movements.

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	1 Eagle Butte 1 Qtr 2001 100 Ton Rate	2 Eagle Butte 2 Qtr 2001 100 Ton Rate	3 Eagle Butte 3 Qtr 2001 100 Ton Rate
1.	Lading Weight	104.3	104.2	105.2
2.	Tare Weight	27.6	28.7	27.7
3.	Cars Per Train	123.10	123.00	122.70
4.	Loaded Miles	382.30	382.30	382.30
5.	Empty Miles	382.50	382.50	382.50
6.	Round Trip Miles	764.80	764.80	764.80
7.	Origin Loop Miles - Loaded	3.32	3.32	3.32
8.	Origin Loop Miles - Empty	4.30	4.30	4.30
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop Miles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	778.56	778.56	778.56
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	84	82	103
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.44	0.45	0.45
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	60982.37	61785.42	61402.92
19.	Train-Miles/Car	6.32	6.33	6.35
20.	Locomotive Unit-Miles Per Car	18.64	18.65	18.70
21.	Helper Units Per Train	5	5	5

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	4 Eagle Butte 4 Qtr 2001 100 Ton Rate	5 Eagle Butte 1 Qtr 2002 100 Ton Rate	6 Eagle Butte 2 Qtr 2002 100 Ton Rate
1.	Lading Weight	101.0	100.9	104.5
2.	Tare Weight	27.7	27.8	28.1
3.	Cars Per Train	122.80	122.90	122.80
4.	Loaded Miles	382.30	382.30	382.30
5.	Empty Miles	382.50	382.40	382.40
6.	Round Trip Miles	764.80	764.70	764.70
7.	Origin Loop Miles - Loaded	3.32	3.32	3.32
8.	Origin Loop Miles - Empty	4.30	4.30	4.30
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop Miles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	778.56	778.46	778.46
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	102	90	100
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.45	0.45
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	59797.26	59832.73	61438.42
19.	Train-Miles/Car	6.34	6.33	6.34
20.	Locomotive Unit-Miles Per Car	18.68	18.67	18.68
21.	Helper Units Per Train	5	5	5

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	7 Eagle Butte 3 Qtr 2002 100 Ton Rate	8 Eagle Butte 4 Qtr 2002 100 Ton Rate	9 Eagle Butte 1 Qtr 2003 100 Ton Rate
1.	Lading Weight	105.9	104.6	107.0
2.	Tare Weight	27.2	27.6	28.7
3.	Cars Per Train	122.90	122.90	122.70
4.	Loaded Miles	382.30	382.30	382.30
5.	Empty Miles	382.50	382.50	382.50
6.	Round Trip Miles	764.80	764.80	764.80
7.	Origin Loop Miles - Loaded	3.32	3.32	3.32
8.	Origin Loop Miles - Empty	4.30	4.30	4.30
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop MIles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	778.56	778.56	778.56
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	98.75	98.75	98.75
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.45	0.45
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	61288.13	61097.06	62855.86
19.	Train-Miles/Car	6.33	6.33	6.35
20.	Locomotive Unit-Miles Per Car	18.67	18.67	18.70
21.	Helper Units Per Train	5	5	5

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	10 Eagle Butte 1 Qtr 2001 116 Ton Rate	11 Eagle Butte 2 Qtr 2001 116 Ton Rate	12 Eagle Butte 3 Qtr 2001 116 Ton Rate
1.	Lading Weight	112.0	117.2	118.1
2.	Tare Weight	26.6	25.1	24.3
3.	Cars Per Train	123.00	122.20	122.80
4.	Loaded Miles	382.30	382.30	382.30
5.	Empty Miles	382.50	382.50	382.50
6.	Round Trip Miles	764.80	764.80	764.80
7.	Origin Loop Miles - Loaded	3.32	3.32	3.32
8.	Origin Loop Miles - Empty	4.30	4.30	4.30
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop MIles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	778.56	778.56	778.56
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	84	82	103
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.45	0.45
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	63161.28	64002.04	63734.27
19.	Train-Miles/Car	6.33	6.37	6.34
20.	Locomotive Unit-Miles Per Car	18.65	18.78	18.68
21.	Helper Units Per Train	5	5	5

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	13 Eagle Butte 4 Qtr 2001 116 Ton Rate	14 Eagle Butte 1 Qtr 2002 116 Ton Rate	15 Eagle Butte 2 Qtr 2002 116 Ton Rate
1.	Lading Weight	116.6	115.2	117.1
2.	Tare Weight	24.2	23.8	24.9
3.	Cars Per Train	121.50	122.50	122.50
4.	Loaded Miles	382.30	382.30	382.30
5.	Empty Miles	382.50	382.40	382.40
6.	Round Trip Miles	764.80	764.70	764.70
7.	Origin Loop Miles - Loaded	3.32	3.32	3.32
8.	Origin Loop Miles - Empty	4.30	4.30	4.30
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop MIles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	778.56	778.46	778.46
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	102	90	100
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.45	0.45
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	63084.34	62240.82	63808.36
19.	Train-Miles/Car	6.41	6.35	6.35
20.	Locomotive Unit-Miles Per Car	18.88	18.73	18.73
21.	Helper Units Per Train	5	5	5

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	16 Eagle Butte 4 Qtr 2002 116 Ton Rate	17 Eagle Butte 1 Qtr 2003 116 Ton Rate	18 Belle Ayr 1 Qtr 2001 100 Ton Rate
1.	Lading Weight	117.4	116.4	101.4
2.	Tare Weight	24.1	24.2	29.5
3.	Cars Per Train	122.90	122.80	122.70
4.	Loaded Miles	382.30	382.30	362.80
5.	Empty Miles	382.50	382.50	372.20
6.	Round Trip Miles	764.80	764.80	735.00
7.	Origin Loop Miles - Loaded	3.32	3.32	0.75
8.	Origin Loop Miles - Empty	4.30	4.30	0.95
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop MIles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	778.56	778.56	742.84
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	98.75	98.75	85
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.45	0.45
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	63313.70	63007.88	58470.42
19.	Train-Miles/Car	6.33	6.34	6.05
20.	Locomotive Unit-Miles Per Car	18.67	18.68	17.97
21.	Helper Units Per Train	5	5	1

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	19 Belle Ayr 2 Qtr 2001 100 Ton Rate	20 Belle Ayr 3 Qtr 2001 100 Ton Rate	21 Belle Ayr 1 Qtr 2002 100 Ton Rate
1.	Lading Weight	102.7	103.2	104.7
2.	Tare Weight	29.6	29.4	27.7
3.	Cars Per Train	123.00	123.00	123.00
4.	Loaded Miles	362.80	362.80	388.10
5.	Empty Miles	372.20	372.20	379.20
6.	Round Trip Miles	735.00	735.00	767.30
7.	Origin Loop Miles - Loaded	0.75	0.75	0.75
8.	Origin Loop Miles - Empty	0.95	0.95	0.95
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop MIles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	742.84	742.84	775.14
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	73	74	121
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.45	0.45
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	59015.56	59049.96	61888.28
19.	Train-Miles/Car	6.04	6.04	6.30
20.	Locomotive Unit-Miles Per Car	17.93	17.93	18.71
21.	Helper Units Per Train	1	1	5

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	22 Belle Ayr 2 Qtr 2002 100 Ton Rate	23 Belle Ayr 4 Qtr 2002 100 Ton Rate	24 Belle Ayr 1 Qtr 2001 116 Ton Rate
1.	Lading Weight	103.8	102.2	114.6
2.	Tare Weight	29.4	27.6	27.8
3.	Cars Per Train	123.00	123.00	115.00
4.	Loaded Miles	388.10	375.45	362.80
5.	Empty Miles	379.20	375.70	372.20
6.	Round Trip Miles	767.30	751.15	735.00
7.	Origin Loop Miles - Loaded	0.75	0.75	0.75
8.	Origin Loop Miles - Empty	0.95	0.95	0.95
9.	Destination Loop Miles - Loaded	3.07	3.07	3.07
10.	Destination Loop MIles - Empty	3.07	3.07	3.07
11.	Round Trip Miles (incl. loop track)	775.14	758.99	742.84
12.	Joint Facility Miles	24.5	24.5	24.5
13.	Locomotive Units	3	3	3
14.	Locomotive Cycle Hours	90	95	85
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.45	0.48
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00	0.00
18.	Gross Ton Miles/Car	62843.40	59102.73	62009.88
19.	Train-Miles/Car	6.30	6.17	6.46
20.	Locomotive Unit-Miles Per Car	18.71	18.32	19.17
21.	Helper Units Per Train	5	5	1

Table E-10
Operating Statistics

	STB Summary Service Units And Operating Characteristics Service Units/Operating Characteristics Category	25 Belle Ayr 3 Qtr 2001 116 Ton Rate	26 Belle Ayr 2 Qtr 2002 116 Ton Rate
1.	Lading Weight	117.4	117.2
2.	Tare Weight	24.9	24.2
3.	Cars Per Train	123.00	120.00
4.	Loaded Miles	362.80	388.10
5.	Empty Miles	372.20	379.20
6.	Round Trip Miles	735.00	767.30
7.	Origin Loop Miles - Loaded	0.75	0.75
8.	Origin Loop Miles - Empty	0.95	0.95
9.	Destination Loop Miles - Loaded	3.07	3.07
10.	Destination Loop MIles - Empty	3.07	3.07
11.	Round Trip Miles (incl. loop track)	742.84	775.14
12.	Joint Facility Miles	24.5	24.5
13.	Locomotive Units	3	3
14.	Locomotive Cycle Hours	74	90
15.	Sw. - Yd. Loco. (SEMs/Car)	1.30	1.30
16.	Sw. - Rd. Loco. non-yd (SEMs/Car)	0.45	0.46
17.	Sw. - Rd. Loco. yd (SEMs/Car)	0.00	0.00
18.	Gross Ton Miles/Car	60894.22	64053.98
19.	Train-Miles/Car	6.04	6.46
20.	Locomotive Unit-Miles Per Car	17.93	19.18
21.	Helper Units Per Train	1	5

Table E-11
Variable Costs and R/VC Percentages

	STB Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	1 Eagle Butte 1 Qtr 2001 100 Ton Rate	2 Eagle Butte 2 Qtr 2001 100 Ton Rate	3 Eagle Butte 3 Qtr 2001 100 Ton Rate
1.	Carload O/T Clerical Expense	$8.14	$8.13	$8.09
2.	Carload Handling - Other Expense	0.47	0.47	0.46
3.	Switching Expense - Yard Locomotives (SEM)	7.04	7.02	6.99
4.	Switching Expense - Road Locomotives (Non-Yard)	0.70	0.69	0.69
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	109.81	110.18	108.62
7.	Loop Track Expense - Origin & Destination	1.72	1.71	1.68
8.	Train-Mile Expense - Other than Crew	1.67	1.67	1.66
9.	Train-Mile Expense -T&E Crew	52.77	52.72	50.26
10.	Helper Service Expense - Other than Crew	3.07	3.03	3.00
11.	Helper Service Expense - T&E Crew	4.75	4.73	4.80
12.	Locomotive Unit-Mile Expense	48.88	48.16	47.74
13.	Locomotive Ownership Expense	69.06	63.64	81.48
14.	Third Party Loading Charges	N/A	N/A	2.21
15.	Operating Expense - Substitute Cars	1.77	1.75	1.91
16.	User Responsibility - Car Repair Expense	2.22	2.22	2.21
17.	Caboose and EOTD Ownership Expense	0.07	0.07	0.09
18.	Joint Facility Payment	8.88	8.99	9.14
19.	Loss and Damage Expense	0.40	0.39	0.40
20.	Total Variable Cost Per Car	$321.41	$315.56	$331.42
21.	Tons Per Car	104.30	104.20	105.20
22.	Variable Cost Per Ton	$3.08	$3.03	$3.15
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$3.06	$3.01	$3.13
25.	Jurisdictional Threshold (L. 24 * 180%)	$5.51	$5.42	$5.63
26.	Rate Per Ton	$9.24	$9.16	$9.19
27.	R/VC Percentage (L. 26/L. 24)	302%	304%	294%

Table E-11
Variable Costs and R/VC Percentages

	STB Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	4 Eagle Butte 4 Qtr 2001 100 Ton Rate	5 Eagle Butte 1 Qtr 2002 100 Ton Rate	6 Eagle Butte 2 Qtr 2002 100 Ton Rate
1.	Carload O/T Clerical Expense	$8.00	$8.02	$8.06
2.	Carload Handling - Other Expense	0.46	0.46	0.46
3.	Switching Expense - Yard Locomotives (SEM)	6.91	6.88	6.93
4.	Switching Expense - Road Locomotives (Non-Yard)	0.67	0.62	0.65
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	103.35	98.89	104.91
7.	Loop Track Expense - Origin & Destination	1.59	1.44	1.57
8.	Train-Mile Expense - Other than Crew	1.64	1.64	1.65
9.	Train-Mile Expense -T&E Crew	53.96	48.31	49.28
10.	Helper Service Expense - Other than Crew	2.91	2.71	2.85
11.	Helper Service Expense - T&E Crew	4.85	4.88	4.93
12.	Locomotive Unit-Mile Expense	46.06	42.46	44.92
13.	Locomotive Ownership Expense	82.04	68.38	75.85
14.	Third Party Loading Charges	2.12	2.12	2.19
15.	Operating Expense - Substitute Cars	1.89	1.80	1.88
16.	User Responsibility - Car Repair Expense	2.18	2.19	2.20
17.	Caboose and EOTD Ownership Expense	0.09	0.07	0.08
18.	Joint Facility Payment	8.92	8.92	9.15
19.	Loss and Damage Expense	0.38	0.38	0.39
20.	Total Variable Cost Per Car	$328.01	$300.17	$317.95
21.	Tons Per Car	101.00	100.90	104.50
22.	Variable Cost Per Ton	$3.25	$2.97	$3.04
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$3.23	$2.95	$3.02
25.	Jurisdictional Threshold (L. 24 * 180%)	$5.81	$5.31	$5.44
26.	Rate Per Ton	$9.18	$9.16	$9.16
27.	R/VC Percentage (L. 26/L. 24)	284%	311%	303%

Table E-11
Variable Costs and R/VC Percentages

	STB Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	7 Eagle Butte 3 Qtr 2002 100 Ton Rate	8 Eagle Butte 4 Qtr 2002 100 Ton Rate	9 Eagle Butte 1 Qtr 2003 100 Ton Rate
1.	Carload O/T Clerical Expense	$8.09	$8.11	$8.26
2.	Carload Handling - Other Expense	0.47	0.47	0.47
3.	Switching Expense - Yard Locomotives (SEM)	6.96	6.98	7.14
4.	Switching Expense - Road Locomotives (Non-Yard)	0.66	0.67	0.74
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	105.23	106.43	116.89
7.	Loop Track Expense - Origin & Destination	1.58	1.61	1.85
8.	Train-Mile Expense - Other than Crew	1.66	1.66	1.69
9.	Train-Mile Expense -T&E Crew	51.33	51.34	53.79
10.	Helper Service Expense - Other than Crew	2.87	2.93	3.20
11.	Helper Service Expense - T&E Crew	4.94	4.94	5.16
12.	Locomotive Unit-Mile Expense	45.22	46.35	51.46
13.	Locomotive Ownership Expense	76.04	75.44	75.66
14.	Third Party Loading Charges	2.22	2.20	2.25
15.	Operating Expense - Substitute Cars	1.88	1.88	1.91
16.	User Responsibility - Car Repair Expense	2.21	2.21	2.26
17.	Caboose and EOTD Ownership Expense	0.08	0.08	0.08
18.	Joint Facility Payment	9.12	9.10	9.34
19.	Loss and Damage Expense	0.40	0.39	0.41
20.	Total Variable Cost Per Car	$320.96	$322.79	$342.56
21.	Tons Per Car	105.90	104.60	107.00
22.	Variable Cost Per Ton	$3.03	$3.09	$3.20
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$3.01	$3.07	$3.18
25.	Jurisdictional Threshold (L. 24 * 180%)	$5.42	$5.53	$5.72
26.	Rate Per Ton	$9.16	$9.16	$9.34
27.	R/VC Percentage (L. 26/L. 24)	304%	298%	294%

Table E-11
Variable Costs and R/VC Percentages

	STB Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	10 Eagle Butte 1 Qtr 2001 116 Ton Rate	11 Eagle Butte 1 Qtr 2001 116 Ton Rate	12 Eagle Butte 3 Qtr 2001 116 Ton Rate
1.	Carload O/T Clerical Expense	$8.14	$8.13	$8.09
2.	Carload Handling - Other Expense	0.47	0.47	0.46
3.	Switching Expense - Yard Locomotives (SEM)	7.04	7.02	6.99
4.	Switching Expense - Road Locomotives (Non-Yard)	0.69	0.68	0.67
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	113.18	113.62	112.22
7.	Loop Track Expense - Origin & Destination	1.74	1.72	1.70
8.	Train-Mile Expense - Other than Crew	1.67	1.68	1.66
9.	Train-Mile Expense -T&E Crew	52.81	53.07	50.22
10.	Helper Service Expense - Other than Crew	3.07	3.05	3.00
11.	Helper Service Expense - T&E Crew	4.76	4.76	4.79
12.	Locomotive Unit-Mile Expense	48.51	48.10	47.31
13.	Locomotive Ownership Expense	69.12	64.05	81.41
14.	Third Party Loading Charges	N/A	N/A	2.48
15.	Operating Expense - Substitute Cars	1.77	1.75	1.91
16.	User Responsibility - Car Repair Expense	2.22	2.22	2.21
17.	Caboose and EOTD Ownership Expense	0.08	0.07	0.09
18.	Joint Facility Payment	9.18	9.30	9.47
19.	Loss and Damage Expense	0.42	0.44	0.44
20.	Total Variable Cost Per Car	$324.87	$320.12	$335.11
21.	Tons Per Car	112.00	117.20	118.10
22.	Variable Cost Per Ton	$2.90	$2.73	$2.84
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$2.88	$2.71	$2.82
25.	Jurisdictional Threshold (L. 24 * 180%)	$5.18	$4.88	$5.08
26.	Rate Per Ton	$8.98	$8.91	$8.93
27.	R/VC Percentage (L. 26/L. 24)	312%	329%	317%

Table E-11
Variable Costs and R/VC Percentages

	STB Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	13 Eagle Butte 4 Qtr 2001 116 Ton Rate	14 Eagle Butte 1 Qtr 2002 116 Ton Rate	15 Eagle Butte 2 Qtr 2002 116 Ton Rate
1.	Carload O/T Clerical Expense	$8.00	$8.02	$8.06
2.	Carload Handling - Other Expense	0.46	0.46	0.46
3.	Switching Expense - Yard Locomotives (SEM)	6.91	6.88	6.93
4.	Switching Expense - Road Locomotives (Non-Yard)	0.67	0.60	0.63
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	108.53	102.43	108.47
7.	Loop Track Expense - Origin & Destination	1.62	1.47	1.59
8.	Train-Mile Expense - Other than Crew	1.66	1.64	1.65
9.	Train-Mile Expense -T&E Crew	54.53	48.47	49.40
10.	Helper Service Expense - Other than Crew	2.95	2.71	2.85
11.	Helper Service Expense - T&E Crew	4.91	4.89	4.95
12.	Locomotive Unit-Mile Expense	46.18	42.27	44.68
13.	Locomotive Ownership Expense	82.93	68.60	76.05
14.	Third Party Loading Charges	2.45	2.42	2.46
15.	Operating Expense - Substitute Cars	1.89	1.80	1.88
16.	User Responsibility - Car Repair Expense	2.18	2.19	2.20
17.	Caboose and EOTD Ownership Expense	0.09	0.07	0.08
18.	Joint Facility Payment	9.38	9.26	9.48
19.	Loss and Damage Expense	0.43	0.43	0.44
20.	Total Variable Cost Per Car	$335.76	$304.61	$322.26
21.	Tons Per Car	116.60	115.20	117.10
22.	Variable Cost Per Ton	$2.88	$2.64	$2.75
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$2.86	$2.62	$2.73
25.	Jurisdictional Threshold (L. 24 * 180%)	$5.15	$4.72	$4.91
26.	Rate Per Ton	$8.92	$8.90	$8.90
27.	R/VC Percentage (L. 26/L. 24)	312%	340%	326%

Table E-11
Variable Costs and R/VC Percentages

	Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	16 Eagle Butte 4 Qtr 2002 116 Ton Rate	17 Eagle Butte 1 Qtr 2003 116 Ton Rate	18 Belle Ayr 1 Qtr 2001 100 Ton Rate
1.	Carload O/T Clerical Expense	$8.11	$8.26	$8.14
2.	Carload Handling - Other Expense	0.47	0.47	0.47
3.	Switching Expense - Yard Locomotives (SEM)	6.98	7.14	7.04
4.	Switching Expense - Road Locomotives (Non-Yard)	0.65	0.72	0.71
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	109.80	116.62	107.11
7.	Loop Track Expense - Origin & Destination	1.63	1.84	1.01
8.	Train-Mile Expense - Other than Crew	1.66	1.69	1.60
9.	Train-Mile Expense -T&E Crew	51.34	53.75	54.87
10.	Helper Service Expense - Other than Crew	2.93	3.20	0.39
11.	Helper Service Expense - T&E Crew	4.94	5.16	1.89
12.	Locomotive Unit-Mile Expense	45.98	50.99	47.13
13.	Locomotive Ownership Expense	75.44	75.60	70.11
14.	Third Party Loading Charges	2.47	2.44	N/A
15.	Operating Expense - Substitute Cars	1.88	1.91	1.74
16.	User Responsibility - Car Repair Expense	2.21	2.26	2.12
17.	Caboose and EOTD Ownership Expense	0.08	0.08	0.08
18.	Joint Facility Payment	9.41	9.36	8.93
19.	Loss and Damage Expense	0.44	0.45	0.38
20.	Total Variable Cost Per Car	$326.42	$341.94	$313.70
21.	Tons Per Car	117.40	116.40	101.40
22.	Variable Cost Per Ton	$2.78	$2.94	$3.09
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$2.76	$2.92	$3.07
25.	Jurisdictional Threshold (L. 24 * 180%)	$4.97	$5.26	$5.53
26.	Rate Per Ton	$8.90	$9.08	$9.24
27.	R/VC Percentage (L. 26/L. 24)	322%	311%	301%

Table E-11
Variable Costs and R/VC Percentages

	Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	19 Belle Ayr 2 Qtr 2001 100 Ton Rate	20 Belle Ayr 3 Qtr 2001 100 Ton Rate	21 Belle Ayr 1 Qtr 2002 100 Ton Rate
1.	Carload O/T Clerical Expense	$8.13	$8.09	$8.02
2.	Carload Handling - Other Expense	0.47	0.46	0.46
3.	Switching Expense - Yard Locomotives (SEM)	7.02	6.99	6.88
4.	Switching Expense - Road Locomotives (Non-Yard)	0.69	0.68	0.61
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	107.09	106.30	104.44
7.	Loop Track Expense - Origin & Destination	1.00	0.99	0.86
8.	Train-Mile Expense - Other than Crew	1.60	1.59	1.63
9.	Train-Mile Expense -T&E Crew	49.01	43.25	50.99
10.	Helper Service Expense - Other than Crew	0.38	0.38	2.65
11.	Helper Service Expense - T&E Crew	1.89	1.89	4.02
12.	Locomotive Unit-Mile Expense	46.30	45.77	42.55
13.	Locomotive Ownership Expense	56.66	58.39	91.86
14.	Third Party Loading Charges	N/A	N/A	N/A
15.	Operating Expense - Substitute Cars	1.64	1.64	2.04
16.	User Responsibility - Car Repair Expense	2.12	2.11	2.18
17.	Caboose and EOTD Ownership Expense	0.07	0.07	0.10
18.	Joint Facility Payment	9.01	9.21	9.11
19.	Loss and Damage Expense	0.39	0.39	0.39
20.	Total Variable Cost Per Car	$293.46	$288.21	$328.78
21.	Tons Per Car	102.70	103.20	104.70
22.	Variable Cost Per Ton	$2.86	$2.79	$3.14
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$2.84	$2.77	$3.12
25.	Jurisdictional Threshold (L. 24 * 180%)	$5.11	$4.99	$5.62
26.	Rate Per Ton	$9.16	$9.19	$9.16
27.	R/VC Percentage (L. 26/L. 24)	323%	332%	294%

Table E-11
Variable Costs and R/VC Percentages

	STB Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	22 Belle Ayr 2 Qtr 2002 100 Ton Rate	23 Belle Ayr 4 Qtr 2002 100 Ton Rate	24 Belle Ayr 1 Qtr 2001 116 Ton Rate
1.	Carload O/T Clerical Expense	$8.06	$8.11	$8.14
2.	Carload Handling - Other Expense	0.46	0.47	0.47
3.	Switching Expense - Yard Locomotives (SEM)	6.93	6.98	7.04
4.	Switching Expense - Road Locomotives (Non-Yard)	0.64	0.66	0.73
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	109.50	104.92	113.06
7.	Loop Track Expense - Origin & Destination	0.92	0.94	1.05
8.	Train-Mile Expense - Other than Crew	1.64	1.62	1.70
9.	Train-Mile Expense -T&E Crew	46.40	47.59	58.54
10.	Helper Service Expense - Other than Crew	2.78	2.86	0.42
11.	Helper Service Expense - T&E Crew	4.12	4.12	2.03
12.	Locomotive Unit-Mile Expense	44.98	45.47	49.86
13.	Locomotive Ownership Expense	68.15	72.53	74.81
14.	Third Party Loading Charges	N/A	N/A	N/A
15.	Operating Expense - Substitute Cars	1.81	1.83	1.74
16.	User Responsibility - Car Repair Expense	2.19	2.16	2.12
17.	Caboose and EOTD Ownership Expense	0.07	0.07	0.08
18.	Joint Facility Payment	9.25	8.97	9.48
19.	Loss and Damage Expense	0.39	0.39	0.43
20.	Total Variable Cost Per Car	$308.30	$309.69	$331.69
21.	Tons Per Car	103.80	102.20	114.60
22.	Variable Cost Per Ton	$2.97	$3.03	$2.89
23.	RFA - URCS Linking Factor	0.9934	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$2.95	$3.01	$2.87
25.	Jurisdictional Threshold (L. 24 * 180%)	$5.31	$5.42	$5.17
26.	Rate Per Ton	$9.16	$9.16	$8.98
27.	R/VC Percentage (L. 26/L. 24)	311%	304%	313%

Table E-11
Variable Costs and R/VC Percentages

	STB Summary Cost Categories TO Pawnee Jct. CO From Period SERVICE CATEGORY	25 Belle Ayr 3 Qtr 2001 116 Ton Rate	26 Belle Ayr 2 Qtr 2002 116 Ton Rate
1.	Carload O/T Clerical Expense	$8.09	$8.06
2.	Carload Handling - Other Expense	0.46	0.46
3.	Switching Expense - Yard Locomotives (SEM)	6.99	6.93
4.	Switching Expense - Road Locomotives (Non-Yard)	0.67	0.65
5.	Switching Expense - Road Locomotives (Yard)	0.00	0.00
6.	Gross Ton-Mile Expense (GTM)	109.12	111.12
7.	Loop Track Expense - Origin & Destination	0.99	0.92
8.	Train-Mile Expense - Other than Crew	1.59	1.68
9.	Train-Mile Expense -T&E Crew	43.25	47.56
10.	Helper Service Expense - Other than Crew	0.38	2.85
11.	Helper Service Expense - T&E Crew	1.90	4.22
12.	Locomotive Unit-Mile Expense	45.41	45.75
13.	Locomotive Ownership Expense	58.39	69.86
14.	Third Party Loading Charges	N/A	N/A
15.	Operating Expense - Substitute Cars	1.64	1.81
16.	User Responsibility - Car Repair Expense	2.11	2.19
17.	Caboose and EOTD Ownership Expense	0.07	0.07
18.	Joint Facility Payment	9.49	9.42
19.	Loss and Damage Expense	0.44	0.44
20.	Total Variable Cost Per Car	$290.99	$314.00
21.	Tons Per Car	117.40	117.20
22.	Variable Cost Per Ton	$2.48	$2.68
23.	RFA - URCS Linking Factor	0.9934	0.9934
24.	Linked Variable Cost Per Ton	$2.46	$2.66
25.	Jurisdictional Threshold (L. 24 * 180%)	$4.43	$4.79
26.	Rate Per Ton	$8.93	$8.90
27.	R/VC Percentage (L. 26/L. 24)	363%	335%