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**SURFACE TRANSPORTATION BOARD**

**DECISION**

STB Docket No. 42071

**OTTER TAIL POWER COMPANY**

**v.**

**BNSF RAILWAY COMPANY<sup>1</sup>**

Decided: January 25, 2006.

The Board finds that the complainant has failed to establish that the challenged  
rates are unreasonably high. Accordingly, the complaint is dismissed.

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<sup>1</sup> Effective January 20, 2005, The Burlington Northern and Santa Fe Railway Company changed its name to BNSF Railway Company.

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**ACRONYMS**

|        |                                                                     |
|--------|---------------------------------------------------------------------|
| AAR    | Association of American Railroads                                   |
| AFE    | Authorization for Financial Expenditure                             |
| AREMA  | American Railway Engineering and Maintenance-of-Way Association     |
| ATF    | across-the-fence                                                    |
| BNSF   | BNSF Railway Company                                                |
| CARDS  | Computer Aided Railway Design System                                |
| CMP    | constrained market pricing                                          |
| CTC    | centralized traffic control                                         |
| CY     | cubic yards                                                         |
| DARA   | Density Adjusted Revenue Allocation                                 |
| DCF    | discounted cash flow                                                |
| EIA    | Energy Information Administration, U.S. Department of Energy        |
| EOTD   | end-of-train device                                                 |
| FEDs   | failed equipment detectors                                          |
| FRA    | Federal Railroad Administration                                     |
| G&A    | general and administrative                                          |
| GAAP   | generally accepted accounting principles                            |
| GDP    | gross domestic product                                              |
| GTM    | gross ton-mile                                                      |
| IT     | information technology                                              |
| KCS    | Kansas City Southern                                                |
| LF     | linear feet                                                         |
| LUM    | locomotive unit-mile                                                |
| MGT    | million gross tons                                                  |
| MOW    | maintenance-of-way                                                  |
| MRL    | Montana Rail Link                                                   |
| MSP    | Modified Straight-Mileage Prorate                                   |
| OTRR   | Otter Tail Railroad                                                 |
| OTVRC  | Otter Tail Valley Railroad Company                                  |
| 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 |
| ROW    | right-of-way                                                        |
| RTC    | Rail Traffic Controller                                             |
| R/VC   | revenue-to-variable cost                                            |
| SAC    | stand-alone cost                                                    |
| SARR   | stand-alone railroad                                                |
| T&E    | train and engine                                                    |
| UP     | Union Pacific Railroad Company                                      |
| URCS   | Uniform Railroad Costing System                                     |
| WCNA   | Wisconsin Central North American Railroad                           |
| WCS    | Wisconsin Central System                                            |
| WRPI   | Western Rail Properties, Inc.                                       |

**BY THE BOARD:**

By complaint filed on January 2, 2002, Otter Tail Power Company (Otter Tail) challenges the reasonableness of the rates charged by BNSF Railway Company (BNSF) for movements of coal from mine origins in the Powder River Basin (PRB) of Wyoming to the Big Stone Generating Station (Big Stone) located near Milbank, SD. The rail transportation to the Big Stone plant was previously provided by BNSF under a transportation contract. When that contract was not renewed, BNSF established common carriage rates (in Common Carrier Pricing Authority 90062), effective on January 1, 2002. Otter Tail seeks to demonstrate the unreasonableness of these rates under the agency's stand-alone cost (SAC) methodology.

Otter Tail is the first complainant to successfully show that its proposed configuration and operating plan for the hypothetical stand-alone railroad (SARR) would be capable of moving all of the traffic included in the traffic group. Indeed, its operating plan is clearly superior to the operating plan submitted by BNSF. We will therefore use Otter Tail's proposed configuration of the SARR, as well as its transit-time evidence derived from its proposed operating plan for the SARR. And in large part, we accept as reasonable the broad traffic group that Otter Tail selected. But the maintenance-of-way (MOW) expenses proposed by Otter Tail are unrealistically low. Our analysis primarily uses BNSF's MOW evidence, derived from the expenses BNSF incurs to maintain the rail lines that the SARR would replicate, although we have modified those costs to remove double-counts and other overstatements identified by Otter Tail.

After all other disputed issues are resolved, we conclude that Otter Tail's SAC presentation does not support a finding that the challenged rate is unreasonable under the SAC constraint. The evidence must demonstrate that, under the challenged rate, Otter Tail is cross-subsidizing parts of BNSF's rail network from which Otter Tail derives no benefit, or is paying for inefficient service. Here, however, Otter Tail has failed to demonstrate that it is paying for more than is needed for the 1,108 miles of infrastructure required to connect the Big Stone plant to the PRB. To the contrary, Otter Tail's SAC presentation relies on a cross-subsidy of that infrastructure by PRB traffic that does not use or benefit from that portion of BNSF's network, but instead moves south from the PRB region. Accordingly, its complaint against BNSF is dismissed.

**PRELIMINARY MATTER – BNSF MOTION TO STRIKE**

The development of the evidentiary record in this case has been complex. On June 13, 2003, Otter Tail filed its opening evidence, to which BNSF replied on October 8, 2003. The Board then issued the Duke/NS decision.<sup>2</sup> Based on certain pronouncements in that decision related to the Board's method for allocating "cross-over" traffic revenue, Otter Tail sought an opportunity to modify its case-in-chief. In fairness to Otter Tail, the Board permitted it to revise its opening evidence,<sup>3</sup> and Otter Tail filed its supplemental opening evidence on January 9, 2004.

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<sup>2</sup> Duke Energy Corp. v. Norfolk S. Ry., STB Docket No. 42069 (STB served Nov. 6, 2003) (Duke/NS).

<sup>3</sup> Otter Tail Power Co. v. BNSF, STB Docket No. 42071 (STB served Nov. 21, 2003) (November 2003 Decision).

BNSF filed its supplemental reply on March 22, 2004, and Otter Tail filed its rebuttal on April 29, 2004.<sup>4</sup>

On June 8, 2004, BNSF filed a motion to strike those portions of Otter Tail's April 2004 rebuttal evidence relating to: (1) Otter Tail's purchase of coal from certain southern PRB mines; (2) revised capacity and operating statistics; (3) changes to yard configuration; (4) productivity adjustments; and (5) the cost of capital.<sup>5</sup> BNSF also challenged Otter Tail's statistical analysis of rerouted traffic (i.e., traffic that Otter Tail would have the SARR serve over lines not used by BNSF for that traffic), arguing that Otter Tail's submission does not meet the admissibility standards for expert testimony.<sup>6</sup>

While this motion was pending, the Board instructed the parties to submit supplemental evidence showing the impact on their respective SAC analyses of the inclusion and/or exclusion of certain disputed traffic.<sup>7</sup> The Board suggested that, in developing its evidence on rail operations, Otter Tail use a different computer simulation model, because the "string" program on which its earlier evidence had been based had been rejected as unreliable in Xcel.<sup>8</sup> Acting on that suggestion, Otter Tail developed its further evidence using the Rail Traffic Controller (RTC) model, and BNSF had a full opportunity to respond to that supplemental evidence. Accordingly, BNSF's challenge to Otter Tail's earlier evidence based on the string program, including yard capacities, has been mooted. BNSF's remaining evidentiary challenges are addressed here.

Our general rules of practice limit "[r]ebuttal statements . . . to issues raised in the reply statements to which they are directed." 49 CFR 1112.6. Thus, as the Board explained in Duke/NS at 14-15, the shipper may use its rebuttal presentation either to demonstrate that its opening evidence was feasible and supported, to adopt the railroad's evidence, or in certain circumstances to refine its opening evidence. Where the railroad has identified flaws in the shipper's evidence but has not provided evidence that can be used in the Board's SAC analysis, or where the shipper shows that the railroad's reply evidence is itself unsupported, infeasible or unrealistic, the shipper may supply corrective evidence in its rebuttal. However, a shipper is not free on rebuttal to significantly redesign its SARR or alter the core assumptions upon which its case-in-chief was based without obtaining leave to do so and affording the railroad an opportunity to address the redesign or alterations. Id. at 15. In other words, rebuttal may not be used in SAC cases as an opportunity to introduce new evidence that could and should have been submitted in the party's case-in-chief. See General Procedures for Presenting Evidence in Stand-Alone Cost Rate Cases, 5 S.T.B. 441, 445-46 (2001).

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<sup>4</sup> The due dates established in the November 2003 Decision for filing the supplemental reply and rebuttal were extended in decisions served on December 12, 2003, February 19, 2004 and March 29, 2004.

<sup>5</sup> BNSF Motion to Strike at 2-3 (filed June 8, 2004).

<sup>6</sup> Id. at 20-22.

<sup>7</sup> Otter Tail Power Co. v. BNSF, STB Docket No. 42071 (STB served Dec. 13, 2004) (December 2004 Decision).

<sup>8</sup> Public Serv. Co. of Colo. d/b/a Xcel Energy v. Burlington N. & S.F. Ry., STB Docket No. 42057, slip op. at 26-27 (STB served June 8, 2004) (Xcel).

Applying these evidentiary standards, we accept Otter Tail's rebuttal evidence regarding its purchase of coal from southern PRB mines. This evidence was a permissible response to the argument made by BNSF in its supplemental reply that certain traffic should be excluded from the traffic group because it does not share facilities with the issue movement.

In contrast, Otter Tail's evidence seeking to modify its original cost-of-capital calculation is inappropriate on rebuttal. In its reply, BNSF adopted the cost-of-capital evidence submitted by Otter Tail in its opening submission. In such circumstances, a complainant may not seek to alter its position on rebuttal.<sup>9</sup>

This leaves the evidence regarding potential productivity improvements the SARR might experience over the next 20 years, which Otter Tail submitted for the first time in its April 2004 rebuttal evidence. Otter Tail uses this evidence to support its argument that operating expenses should be indexed using a forecast of the rail cost adjustment factor adjusted for changes in productivity (RCAF-A) rather than one that is unadjusted (RCAF-U).<sup>10</sup> Before Otter Tail filed its initial opening evidence, the Board had ruled in another SAC case that, "in the absence of any evidence showing specific productivity improvements for unit coal train operations," RCAF-U should be used to index operating expenses.<sup>11</sup> Notwithstanding this precedent, on opening Otter Tail advocated the use of RCAF-A, without offering any supporting evidence of specific likely productivity improvements.<sup>12</sup> BNSF's reply, following precedent, used a forecast for RCAF-U and offered a short critique of using RCAF-A.<sup>13</sup> Thereafter, in Duke/NS, the Board reconfirmed that, in the absence of any evidence of specific likely productivity improvement for a SARR, RCAF-U will be used to index operating expenses.<sup>14</sup> Otter Tail nevertheless offered no such evidence in its supplemental opening evidence. Not until its April 2004 rebuttal did Otter Tail offer evidence it claims shows specific likely productivity improvements for the SARR and thus purportedly justifies use of RCAF-A.<sup>15</sup>

As the party seeking a departure from Board precedent, Otter Tail had the burden of justifying such a departure, and it needed to present its arguments on that issue on opening to provide BNSF a fair chance to reply. Otter Tail had not one, but two opportunities to do that here: first in its opening evidence filed after the TMPA decision, and again in its supplemental opening filed after the Duke/NS decision. Instead, Otter Tail did not offer any evidence on this issue until its rebuttal, when BNSF had no opportunity to respond. Accordingly, Otter Tail's evidence regarding potential productivity improvements applicable to the SARR was impermissible rebuttal evidence. Thus, BNSF's motion to strike that evidence is granted.

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<sup>9</sup> Cf. Xcel at 61 (finding it inappropriate for complainant to revise uncontested evidence regarding the cost of fuel on rebuttal).

<sup>10</sup> RCAF-A and RCAF-U are described in more detail in **Section E**.

<sup>11</sup> Texas Municipal Power Agency v. Burlington N. & S.F. Ry., STB Docket No. 42056, slip op. at 161 (STB served Mar. 24, 2003) (TMPA).

<sup>12</sup> See Otter Tail Open. Narr. III-G-3.

<sup>13</sup> BNSF Reply Narr. III-G-1-3.

<sup>14</sup> Duke/NS at 37.

<sup>15</sup> See Otter Tail Reb. Narr. III-G-4-13.

Our decision to strike this evidence does not affect the outcome of this case. The result would not change if we were to use RCAF-A to index operating expenses of the SARR. See Section E.

### MARKET DOMINANCE

We can consider the reasonableness of a challenged rail rate 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, a carrier is not considered to have market dominance if the rate it charges is less than 180% of its variable cost of providing the service. 49 U.S.C. 10707(d)(1)(A).

In this case, BNSF does not dispute Otter Tail’s claim that there are no effective competitive alternatives for transporting coal between PRB mines and Big Stone. Moreover, BNSF acknowledges that its challenged rate for these movements produce revenue-to-variable cost (R/VC) percentages that exceed 180%.<sup>16</sup> Thus, we find that BNSF has market dominance over this traffic.

### 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.<sup>17</sup> 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.” Id. 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 SAC constraint protects a captive shipper from bearing costs of inefficiencies or from cross-subsidizing other traffic by paying more than the revenue needed to replicate rail service to a select subset of the carrier’s traffic base. Id. at 542-46. As stated, Otter Tail seeks relief under the SAC constraint.

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<sup>16</sup> See BNSF Open. Narr. II-60.

<sup>17</sup> A fourth constraint – phasing – can be used to limit the introduction of otherwise-permissible rate increases when necessary for the greater public good. Guidelines, 1 I.C.C.2d at 546-47.

## B. SAC Test

A SAC analysis seeks to determine whether a complainant is bearing the cost of any inefficiencies or the cost of any facilities or services from which it derives no benefit by simulating the competitive rate that would exist in a “contestable market.” A contestable market is defined as one that is free from barriers to entry. The economic theory of contestable markets does not depend on a large number of competing firms in the marketplace to assure a competitive outcome. Id. at 528. In a contestable market, even a monopolist must offer competitive rates or lose its customers to a new entrant. Id. In other words, contestable markets have competitive characteristics which preclude monopoly pricing.

To simulate the competitive price that would result if the market for rail service were contestable, the costs and other limitations associated with entry barriers must be omitted from the SAC analysis. Id. at 529. This removes any advantages which the existing railroad would have over a new entrant that create the existing railroad’s monopoly power. A SARR is therefore hypothesized that could serve the traffic at issue if the rail industry were free of entry barriers. 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. This analysis produces a simulated competitive rate against which we judge the challenged rate. Id. at 542.

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 to which the challenged rate applies) that the SARR would serve.

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 for the SARR. The operating plan is a crucial factor in determining both the total investment in physical plant and the annual operating costs that would be incurred by the SARR. For example, roadway facilities must be sufficient to permit the attainment of the speeds and traffic densities 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 densities 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 tonnage per carload, which yields 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, that the SARR would continue to operate into the indefinite future, and that recovery of the investment costs would occur over the economic life of the assets. The Board's SAC analyses are limited to a finite period of time – here, 20 years – and examine the revenue requirements for the SARR based on the operating expenses that would be incurred over that period and 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 defendant railroad is expected to earn from the traffic group. There is a presumption that the revenue contributions from non-issue traffic – i.e., traffic other than that moving to Big Stone – should be based on the revenues produced by the current rates. 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 are less than the present value of the SARR's revenue requirements, then the complainant has failed to demonstrate that the challenged rate levels violated the SAC constraint.

If the revenues from the traffic group exceed the revenue requirements of the SARR, then the Board must decide what relief to provide to the complainant by allocating the revenue requirements of the SARR among the traffic group and over time. Under Guidelines, a carrier's joint and common costs – i.e., those costs that cannot be attributed to particular traffic and thus are to be shared by all of the traffic using the facilities and services – should be allocated among the traffic using those facilities and services based on Ramsey pricing principles. Id. at 546. Under Ramsey pricing, such unattributable costs are allocated based on relative demand elasticity, which would reflect the relative degree of captivity or price sensitivity. Id. at 526-27. However, as the Board explained in the PPL case, a complainant cannot “shift responsibility for paying for facilities it uses to other shippers who do not benefit from those facilities.”<sup>18</sup>

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<sup>18</sup> PPL Montana, LLC v. Burlington N. & S.F. Ry., STB Docket No. 42054, slip op. at 6 & n.21 (STB served Mar. 24, 2003) (PPL 2003) (quoting Guidelines, 1 I.C.C.2d at 523-24); see also PPL Montana, LLC v. Burlington N. & S.F. Ry., STB Docket No. 42054 (STB served Aug. 20, 2002) (PPL 2002).

## **STAND-ALONE COST ANALYSIS**

In this case, Otter Tail designed a hypothetical SARR called the Otter Tail Railroad (OTRR) to serve a traffic group consisting mostly of coal traffic moving in unit-train service from PRB coal fields in Wyoming. In addition to the Big Stone traffic, the OTRR 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 OTRR). The OTRR would also originate a coal movement that is interchanged with the Otter Tail Valley Railroad Company (OTVRC) at Fargo, for delivery to Otter Tail's Hoot Lake plant. Finally, the OTRR would provide service for smaller amounts of grain, manifest, and intermodal traffic. The component parts of the SAC analysis are discussed in turn below.

### **A. OTRR Configuration**

The OTRR would replicate existing BNSF routes from the Wyoming PRB mines to the Big Stone plant in South Dakota, and would interchange traffic with the "residual" (off-SARR) part of the BNSF system at Converse, Donkey Creek, Moran Junction, Terry, Mandan, Fargo and Benson, and with the OTVRC at Fargo. The OTRR would extend from mines in the PRB through Donkey Creek, then west to Moran Junction. From Moran Junction the line would turn northeast to Glendive via Terry. From Glendive the line would turn east to Fargo, then south to Benson, and finally west to Big Stone. Our resolution of evidentiary disputes regarding the amount of track that would be needed for the OTRR to operate this system is contained in **Appendix A**.

### **B. OTRR Traffic Group**

Otter Tail has selected a traffic group that includes 75 power plants and some industrial users that procure coal from the PRB coal fields in Wyoming and Montana. Non-coal freight traffic would also move over the OTRR along its northern portion. As discussed below, the parties disagree on the permissible 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. The Traffic Group – Rerouted Northern Traffic and Cordero-South Traffic**

The most contentious dispute between the parties has involved what traffic may be included in the traffic group. Otter Tail initially proposed a traffic group that would have included 13.7 million tons of traffic rerouted from its usual BNSF northern-tier route onto a longer OTRR route between Snowden and Fargo, ND. The Board had concerns about this traffic and ordered Otter Tail to present supplemental evidence showing the effect on its SAC presentation if the disputed rerouted northern non-coal traffic were excluded from the traffic group.<sup>19</sup> At oral argument, Otter Tail stated it was no longer relying on this traffic.<sup>20</sup> Therefore, we exclude the rerouted northern traffic from the SAC analysis. The traffic group still includes some non-coal traffic that would move between Moran Junction, MT, and Benson, MN.

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<sup>19</sup> See December 2004 Decision at 2.

<sup>20</sup> Transcript of Otter Tail's Oral Argument at 9, Otter Tail Power Co. v. BNSF, STB Docket No. 42071 (July 27, 2005).

BNSF has objected to the inclusion of the “Cordero-South” coal traffic. This non-issue traffic would originate at the Cordero mine or other PRB mines south of Cordero, which the OTRR would haul 46 miles south to Converse, where it would be interchanged with the residual BNSF. BNSF contends that this traffic should not be included in the traffic group because Otter Tail does not purchase coal from any mine south of Cordero, and thus this traffic does not share any facilities in common with Otter Tail’s traffic at issue here.<sup>21</sup> Otter Tail contends that this traffic should be included in the traffic group to share the capital costs of the PRB infrastructure.<sup>22</sup> It points out that the challenged tariff applies to transportation from mines south of Cordero, and that Otter Tail previously received coal from the Black Thunder and Rochelle mines.<sup>23</sup> It also argues that exclusion of the traffic would violate CMP principles and weaken the SAC test by depriving it of the ability to group traffic.<sup>24</sup> Finally, Otter Tail notes that the Board rejected an analogous railroad challenge in Duke/CSXT.<sup>25</sup> In its supplemental evidence, BNSF maintained that, if this traffic is included in the traffic group, the internal cross-subsidy analysis described in PPL should be applied not only as a threshold inquiry, but also as a limitation on potential rate relief, to ensure that no impermissible internal cross-subsidy is created through any rate prescription.<sup>26</sup>

A generalized schematic is provided to illustrate the concerns raised by BNSF and why excluding the disputed traffic is not the appropriate solution. The schematic depicts a captive shipper (Shipper 1) who has challenged a rate for transportation from the PRB, is located north of the PRB, and receives coal from Cordero and other PRB mines north of Cordero. Any SAC presentation generally must include the replacement costs of the “core facilities” needed to serve Shipper 1. Shipper 2, located near Shipper 1, also uses those core facilities and, under Guidelines, may share the capital costs of that infrastructure. Shipper 2, however, also takes coal from mines as far south as Rochelle. A full SAC presentation may include the “secondary facilities” needed to serve Shipper 2 but not used by Shipper 1.

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<sup>21</sup> BNSF Reply Narr. III-A-20-23.

<sup>22</sup> Otter Tail Reb. Narr. III-A-23-26.

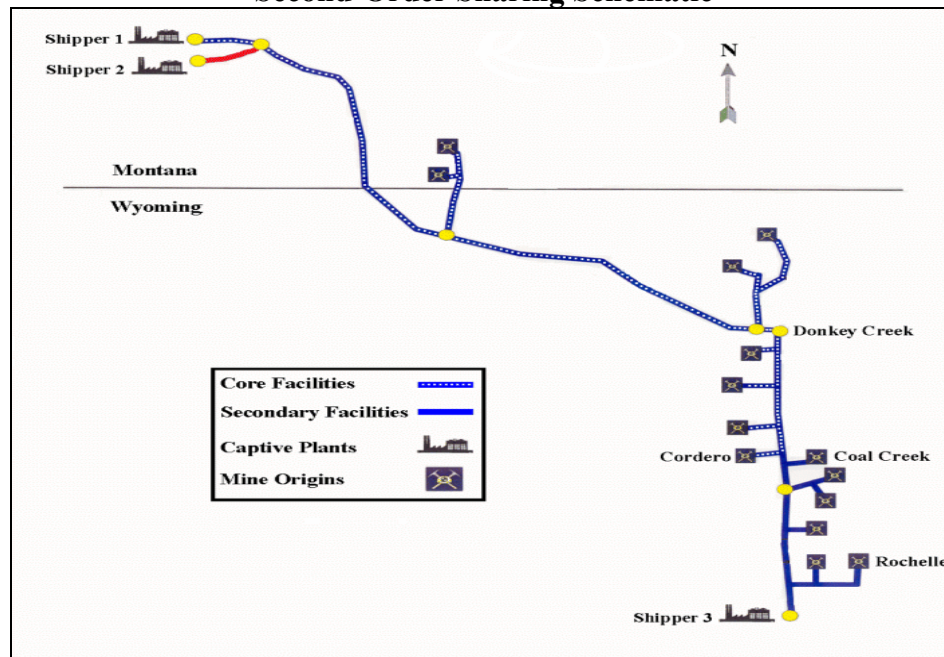
<sup>23</sup> Id. at III-A-24.

<sup>24</sup> Id. at III-A-25-27.

<sup>25</sup> Duke Energy Corp. v. CSX Transp., Inc., STB Docket No. 42070, slip op. at 23 (STB served Feb. 4, 2004) (Duke/CSXT) (including steel movement over defendant’s objection).

<sup>26</sup> BNSF Supp. Narr. III-A-35-39 (filed Mar. 1, 2005).

### Second-Order Sharing Schematic



The issue presented here is whether the traffic group may also include Shipper 3, who is located south of the PRB and receives its coal exclusively from Cordero and mines south of Cordero. Shipper 3 uses only the secondary facilities and does not use the core facilities. BNSF's argument that revenue from Shipper 3 should not be used to pay for the core facilities is correct, but BNSF's solution of excluding the traffic altogether is too extreme. As the Board recognized in Duke/CSXT at 23, it is consistent with the SAC test and the underlying theory of contestable markets to include Shipper 3 in the traffic group to share in the expense of the secondary facilities. A hypothetical entrant in a contestable market who has decided to serve Shipper 2 and has constructed the secondary facilities would naturally seek to serve Shipper 3 to cover some of the capital expense of those secondary facilities. And by including this traffic in the analysis, Shipper 2 can share more of the capital costs of the core facilities, which will ultimately lower the rate the SARR would need to charge the captive shipper to earn a reasonable return on the core facilities. Indeed, if the revenue contribution from Shipper 3 were sufficient to cover the entire capital cost of the secondary facilities, then all of the revenue from Shipper 2 could be used to share the expenses of the core facilities. That would not entail a cross-subsidy.

A refinement to the Board's cross-subsidy analysis is needed, however, to ensure that the agency itself does not create a cross-subsidy when we set a rate prescription. Using the illustration above, assume that the total capital and operating costs attributable to serving Shippers 1 and 2 is \$100, while the total SAC cost of serving all three shippers is \$110. The cross-subsidy analysis we applied in PPL would examine whether the total revenue contribution from Shipper 1 and 2 is sufficient to cover the costs attributable to handling their traffic. Assume further that the total revenue contribution from their traffic is \$110, or 10% above attributable costs. The SAC presentation would pass the PPL threshold inquiry. But the same analysis also reveals the upper limit on any rate relief to which Shipper 1 should be entitled under the SAC test, as revenues from Shipper 3 should not be used to pay for the core facilities. Thus, if the revenue contribution from Shipper 3 were \$20, so that total revenues exceeded the total SAC costs by 18%, the Board could not reduce the challenged rate by 18% without setting the rate

prescription below the costs attributable to handling the issue movement, and thus creating an impermissible cross-subsidy. See PPL 2002 at 9 n.17 (observing that the Board could exacerbate an internal cross-subsidy by ordering the defendant to lower the challenged rate).

Otter Tail objects to the proposition that there should be any limit on the rate prescription if its SAC presentation were to survive the threshold PPL analysis. Otter Tail reasons that, because the Board's remedial authority in a particular rate proceeding is limited to the movements subject to the complaint, the revenues the defendant could expect to earn from the other movements would be unaffected by any prescription ordered by the Board. Thus, Otter Tail argues, placing any limit on the rate prescription would provide the defendant with unjustified profits.<sup>27</sup> But other captive shippers in the traffic group could bring a challenge to their own rates in the future. Even rates that are currently under contract will be renegotiated at some point, and the potential regulatory relief that might be available if a contract is not renewed or revised is the backdrop to such negotiations. Furthermore, the goal of the SAC analysis is to simulate the competitive market rate that would prevail in a contestable marketplace, where no rates above the SAC level for any shipper in the selected traffic group would be sustainable without attracting new entry. Thus, our analysis must assume the repeated application of the SAC test to all shippers in the traffic group. To the extent there is a potential "windfall" inherent in the 180% R/VC floor on our authority over rail rates, that was the product of Congressional legislation and it would be inappropriate to circumvent Congress' intent by shifting any unregulated revenues from the railroad to a particular captive shipper.

Therefore, with the qualification that our PPL cross-subsidy analysis serves as both a threshold inquiry and a limit on potential rate relief, the Cordero-South traffic is included in the SAC analysis.

## 2. Cross-Over Traffic

As in many recent SAC cases, the complainant here relies extensively on "cross-over" traffic in its SAC presentation. Cross-over traffic refers to movements for which the OTRR would not replicate all of BNSF's current movement, but would instead interchange the traffic with the residual portion of the BNSF system. The use of cross-over traffic to simplify the SAC presentation is a well-established practice.<sup>28</sup> 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.<sup>29</sup> For a lengthy discussion of the use of this modeling device in SAC decisions, see Xcel at 13-17.

BNSF continues to object to the use of cross-over traffic in SAC cases. On brief, BNSF asks that we resurrect the notion suggested in Omaha Public Power District v. Burlington N. R.R., 3 I.C.C.2d 123 (1986) (OPPD) that the use of cross-over traffic be permitted only where the complainant shows that the full off-SARR costs would be covered by the off-SARR portion

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<sup>27</sup> Otter Tail Reply to Supp. Narr. I-7-8 (filed Apr. 4, 2005).

<sup>28</sup> See, e.g., Duke/CSXT at 20-22; TMPA at 17-18; Bituminous Coal-Hiawatha, UT to Moapa, NV, 10 I.C.C.2d 259, 265-68 (1994) (Nevada Power).

<sup>29</sup> TMPA at 17 (citing Nevada Power, 10 I.C.C.2d at 265 n.12).

of the revenue allocation. That notion has long since been rejected,<sup>30</sup> and such a showing has not been required in any subsequent case.<sup>31</sup> For the final time, we reject any continuing viability of OPPD. The showing contemplated by OPPD is not possible without developing the off-SARR operating and investment costs, and then comparing those off-SARR costs to the revenue not only from the cross-over traffic selected by the complainant but also from the secondary traffic that also uses those facilities. In short, it would entail a complete SAC analysis of the off-SARR network at tremendous expense to the complainant, thereby defeating the purpose of simplifying the SAC presentation by using this cross-over device.

BNSF complains that permitting complainants to use cross-over traffic may bias the results in favor of the complainant. BNSF therefore urges the Board to prohibit Otter Tail from relying on cross-over traffic as the predominant source of revenue for the OTRR. 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 defeated by severing the connection between the revenues and costs associated with serving that traffic.<sup>32</sup>

The modeling device of cross-over traffic has become an indispensable part of administering a workable test. Without cross-over traffic, the SARR would replicate the entire service provided by the defendant railroad for all of the traffic included in the SAC analysis, so that all capital and operating costs associated with serving the traffic group would be included in the SAC analysis, rather than relying on the “residual defendant” to provide what is often the majority of the transportation for the traffic group. Such an expanded SAC analysis, however, would be impracticable and would not allow us to meet our regulatory objectives. We must guard against the SAC process becoming so complex and expensive as to deny captive shippers meaningful access to the rate review provided for under Guidelines.<sup>33</sup>

As explained in Xcel, we must balance the impact on the accuracy of the SAC analysis from including cross-over traffic against the daunting complexity and cost of a SAC analysis without cross-over traffic. Congress has directed the Board not only to provide for the “expeditious handling and resolution” of all proceedings, see 49 U.S.C. 10101(15), but to provide alternative guidelines for considering rail rate complaints where the value of the case is less than the cost of a full SAC presentation, 49 U.S.C. 10701(d)(3). Pursuant to the latter

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<sup>30</sup> See Rate Guidelines–Non-Coal Proceedings, 1 S.T.B. 1004, 1015-16 (1996) (Simplified Guidelines); PPL 2002 at 10 n.20.

<sup>31</sup> See, e.g., Duke/CSXT at 20-22; TMPA at 17-18; Wisconsin Power & Light Co. v. Union Pac. R.R., 5 S.T.B. 955, 975 (2001), modified, STB Docket No. 42051 (STB served May 14, 2002), aff’d 62 F.App’x 354 (D.C. Cir. Apr. 30, 2003) (WPL); Nevada Power, 10 I.C.C.2d at 265-68.

<sup>32</sup> See BNSF Reply Narr. III-A-6-19; BNSF Reply Exh. III-A-2 (verified statement of Professor Janusz A. Ordover).

<sup>33</sup> See Consolidated Rail Corp. v. United States, 812 F.2d 1444, 1462 (3d Cir. 1987) (Becker, J., concurring in part) (cautioning the Interstate Commerce Commission not to let the SAC test become prohibitively expensive).

directive, we have adopted simplified guidelines that are necessarily cruder than CMP.<sup>34</sup> Barring the use of cross-over traffic, in an effort to achieve greater precision, would increase the cost of a full SAC presentation, leaving additional captive shippers with only these even cruder guidelines available to them. We must therefore balance the degree of accuracy to be achieved against the consequences of making a SAC presentation even more complex and expensive. We continue to believe that this balance is best achieved by permitting the use of cross-over traffic. Otherwise, the expense of a full SAC proceeding would increase exponentially, driving more captive shippers (indeed, perhaps all captive shippers) to use the untested Simplified Guidelines. The public interest would not be served by such a result. Accordingly, we reaffirm the ability of a complainant to use cross-over traffic, which is now a bedrock feature of the SAC test.

### 3. Revenue Allocation

When cross-over traffic is used to simplify the SAC presentation, a key issue is what portion of the revenues from cross-over traffic should be attributed to the part of the move handled by the SARR network and what portion to the part of the move occurring off-SARR on the defendant's residual network. The Board has stated 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.<sup>35</sup> And in the four most recent SAC cases, the Board has used a "Modified Straight-Mileage Prorate" (MSP) approach. Under MSP, 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.<sup>36</sup>

We have acknowledged the limitations of the MSP approach, but any party seeking a departure from precedent bears the burden of a persuasive showing that its alternative is superior, as there is a norm of regularity in government conduct that presumes an agency's duties are best "carried out if the settled rule is adhered to."<sup>37</sup> In this case, each party proposes a different revenue allocation methodology. For the reasons discussed below, neither party has justified a departure from precedent. Accordingly, we will use the MSP approach here.

#### a. Otter Tail's Proposed "Market-Based" Division

Otter Tail proposes a revenue allocation methodology based on a limited number of actual divisions produced by BNSF during discovery. Otter Tail asks us to reconsider the decision in Duke/NS to reject the use of a market-based approach in favor of a cost-based approach. For the reasons discussed below, we are not persuaded that a departure from the cost-based principle in Duke/NS is warranted.

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<sup>34</sup> Simplified Guidelines, 1 S.T.B. at 1008; see generally Association of Am. R.R.s. v. STB, 146 F.3d 942 (D.C. Cir. 1998) (holding that simplified guidelines not ripe for review).

<sup>35</sup> Duke/NS at 18-20.

<sup>36</sup> See Xcel at 17-18; Duke/CSXT at 20-22; Carolina Power & Light Co. v. Norfolk S. Ry., STB Docket No. 42072, slip op. at 20-21 (STB served Dec. 23, 2003) (CP&L); Duke/NS at 22-25.

<sup>37</sup> Atchison, Topeka & S.F. Ry. v. Wichita Bd. of Trade, 412 U.S. 800, 808 (1973); Black v. Romano, 471 U.S. 606, 622 n.18 (1985) (Marshall, J., concurring).

Our goal in allocating revenue from cross-over traffic is to ensure that a simplified SAC analysis using cross-over traffic will approximate a full SAC analysis without cross-over traffic. We do not permit the use of cross-over traffic so that complainants might win where they should not; rather, the goal is to make the analysis more manageable without introducing bias. A full SAC analysis without any cross-over traffic would compare the total SAC costs against the total revenues the defendant carrier is expected to earn from the traffic group. A SAC presentation with cross-over traffic, however, calculates only part of the total SAC costs to serve the selected traffic. Thus, the portion of the revenue allocated to those facilities replicated by the SARR should ideally equal the total revenue from that movement multiplied by the share of total SAC costs represented by the cross-over segments of the movement (i.e., multiplied by the ratio of the SAC costs using cross-over traffic to the total SAC costs without cross-over traffic).

We face a dilemma, however, if we attempt to allocate revenues based on the relationship between a simplified and full SAC analysis. The full SAC costs for a particular cross-over movement cannot be judged without a full SAC analysis, an undertaking that would defeat the purpose of using cross-over traffic in the first place. Even if we knew the total replacement costs of the off-SARR segments used by cross-over movements, we have no method for allocating a share of those investment costs to just the cross-over movement. The off-SARR segments would have other traffic flowing over those lines that would be expected to contribute to the investment costs, but whose contribution would depend on the profitability of that traffic.

In Duke/NS, the Board resolved this dilemma by focusing on the average costs that the defendant carrier currently incurs to haul the traffic over the relevant segments. As stated there, the objective should be to select a revenue allocation methodology that reflects, to the extent practicable, the defendant carrier's relative average costs of providing service over the two segments.<sup>38</sup> By focusing on the ratio of actual costs incurred by the defendant carrier, the revenue allocation method should maintain, to the extent possible, the relationship between revenues and costs that would exist in a full SAC analysis. In the prolonged debate over how to allocate revenue from cross-over traffic, no party has yet offered a better approach.

The decision to move to a cost-based approach also rests on well-founded public policy considerations. In Duke/NS, the railroad argued that the SARR proposed there would have little bargaining leverage over the residual defendant. The railroad reasoned that, because both the residual defendant and CSX Transportation, Inc., would provide competition to the SARR from other Central Appalachian coal origins, the residual railroad, as the bottleneck carrier at the destinations of these movements, could exert bargaining leverage that would drive the revenue division on cross-over traffic down close to variable cost levels.<sup>39</sup> In other words, a market-based approach would allocate the lion's share of revenues to the bottleneck segment. The Board concluded that such a result would be contrary to the goals of the SAC test.<sup>40</sup>

Otter Tail argues that the SARR should be considered to enjoy the same market power that the defendant carrier enjoys regarding the services replicated.<sup>41</sup> This argument is flawed.

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<sup>38</sup> See Duke/NS at 18-20.

<sup>39</sup> See Duke/NS at 18.

<sup>40</sup> See id. at 18-20.

<sup>41</sup> See Otter Tail Br. at 4.

With regard to cross-over movements, “a defendant carrier does not negotiate with itself as to whether one segment of its line should be allocated a larger share of the revenue from a movement than another segment of its own line.”<sup>42</sup> And if the question were what revenue division would result in a contestable marketplace, a market-based inquiry would collapse to a cost-based approach. The key feature of a contestable marketplace is the absence of entry barriers, such that a firm operating in this environment would have no market power.<sup>43</sup> Thus, in a contestable market, divisions would be cost-based.

In sum, a revenue allocation based on the relative costs of handling the movement is superior to a market-based approach for ensuring that a SAC analysis using cross-over traffic will approximate a full analysis without cross-over traffic. Where a SAC presentation replicates only the bottleneck segment of a movement, for example, an allocation of the lion’s share of revenue to the bottleneck segment would seriously bias the outcome of the SAC analysis by distorting the relationship between costs and revenues. Thus, even though the agency might once have thought otherwise,<sup>44</sup> the Board has since concluded that “a debate over how much of the revenues from cross-over traffic the hypothetical carrier could negotiate with the residual defendant has no place in a SAC analysis.”<sup>45</sup> For these reasons, we will not depart from the precedent set in Duke/NS. Because we reject Otter Tail’s market-based approach, there is no need to address the technical concerns raised by BNSF with the econometric approach used by Otter Tail.

#### **b. BNSF’s Proposed Alternatives**

BNSF agrees that a cost-based approach is the proper means to allocate revenue from cross-over traffic, and that MSP is superior to the method used prior to Duke/NS. It contends, however, that there are two shortcomings with MSP as currently formulated: the 100-mile block in MSP is not a good proxy for the costs to originate or terminate the traffic in this traffic group; and MSP does not account for how costs are affected by traffic density.<sup>46</sup> While BNSF’s criticisms have some merit, its proposed solutions do not remedy the identified flaws. Accordingly, BNSF has not justified a departure from MSP in this proceeding.

BNSF’s first alternative is the “Density Adjusted Revenue Allocation” (DARA) method. Under DARA, the defendant railroad’s variable cost for each segment of the movement would be calculated. Revenues would then be allocated between the segments of the movement in proportion to each segment’s relative variable cost, distance, and density. BNSF observes that in the railroad industry, “average total costs per unit of traffic decline as traffic density increases.”<sup>47</sup> It argues that the revenue allocation method should reflect this fact.<sup>48</sup> This revenue allocation

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<sup>42</sup> Duke/NS at 19-20.

<sup>43</sup> See Guidelines, 1 I.C.C.2d at 528.

<sup>44</sup> Nevada Power, 10 I.C.C.2d at 268; see also FMC Wyo. Corp. & FMC Corp. v. Union Pac. R.R., 4 S.T.B. 699, 729 (2000) (FMC).

<sup>45</sup> Duke/NS at 19.

<sup>46</sup> BNSF Supp. Reply Narr. III-A-32-33.

<sup>47</sup> BNSF Supp. Reply Narr. III-A-33.

<sup>48</sup> Id.

formula is identical to the method proposed by the defendant railroad in Xcel, Duke/CSXT, CP&L, and Duke/NS. In Xcel, DARA was rejected because as the relative economies of density changed (reflected by changes in average total costs) DARA would not adjust the portion of the revenues allocated to each segment, and thus would not achieve its stated objective.<sup>49</sup>

On brief, BNSF argues that it was error to reject DARA in Xcel and insists that, to determine the relative economies of density, the Board “should have looked at the average fixed cost per ton of each movement rather than the average total cost per ton.”<sup>50</sup> But all firms experience decreasing average fixed cost as output increases; it is a mathematical certainty. The defining feature of industries with strong economies of density is decreasing average total cost with output, not decreasing average fixed costs. Moreover, BNSF’s argument on brief conflicts with its earlier argument that the revenue allocation method should reflect the fact that “average total costs per unit of traffic decline as traffic density increases.”<sup>51</sup> As demonstrated in Xcel, DARA does not reflect this fact.

BNSF also makes the unsupported claim that, even if DARA does not “precisely” account for the degree of economies of density, it is more sensitive to economies of density than MSP.<sup>52</sup> But as illustrated in Xcel, the complicated DARA formula is completely insensitive to the actual economies of density between the various line segments. To justify a departure from precedent, BNSF must offer an alternative that does not suffer from the same flaw complained of with regard to the established method. In sum, BNSF has offered no persuasive reason why we should reconsider DARA.

Alternatively, BNSF urges us to refine the MSP approach to better reflect the relative costs of carrying the movements over different parts of its network. In particular, BNSF proposes a modification to the 100-mile credits in MSP for originating and terminating a movement. While the 100-mile credit may reflect the origination and termination costs of a “system-average” carload, the railroad argues that it overstates the costs to originate or terminate a unit train of coal, while understating the costs to originate or terminate merchandise and intermodal traffic.<sup>53</sup> As BNSF demonstrates, our Uniform Railroad Costing System (URCS) assumes that the costs to originate and terminate shipments of coal and merchandise traffic are roughly 25% and 237% of system-average costs, respectively. BNSF therefore argues that the mileage block for those movements should be 25 miles and 237 miles, respectively. For intermodal traffic, BNSF would not rely on URCS, claiming that URCS does not cost this traffic correctly. Instead, BNSF proposes that the mileage credit for originating or terminating an intermodal train be set at 560 miles,<sup>54</sup> based on a cost study by a former Vice President for

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<sup>49</sup> Public Serv. Co. of Colo. d/b/a Xcel Energy v. Burlington N. & S.F. Ry., STB Docket No. 42057, slip op. at 11 (STB served Jan. 19, 2005) (Xcel Recon.).

<sup>50</sup> BNSF Br. at 10 n.5 (emphasis in original).

<sup>51</sup> BNSF Supp. Reply Narr. III-A-33 (emphasis added).

<sup>52</sup> BNSF Br. at 10 n.5.

<sup>53</sup> See BNSF Supp. Reply Narr. III-A-33.

<sup>54</sup> See BNSF Supp. Reply Exh. III-A-9 at 12.

Canadian National Railway Company, much of which was based solely on “his personal knowledge and experience with intermodal operations.”<sup>55</sup>

This alternative approach is also flawed. As Otter Tail notes, BNSF ignores the fact that, while the cost to originate a unit train of coal may be lower than the system average, the “line haul” costs (the cost to haul the train from the mine to the utility) are also lower.<sup>56</sup> BNSF purports to have “examined the relationship between unit-train line haul costs and unit-train originations costs as determined by URCS” and asserts that there is little difference between the line-haul costs for unit trains and other trains.<sup>57</sup> This contention, however, is unsupported, inadequately explained, and contrary to BNSF’s prior statement that unit trains are very efficient because, in part, there is no need for “switching that would otherwise be incurred to create a trainload from numerous individually originated cars or blocks of cars.”<sup>58</sup> Adjusting MSP only to reflect the lower cost to originate the unit trains, while ignoring the lower line-haul costs for unit trains, would bias the results in BNSF’s favor.<sup>59</sup> Moreover, BNSF fails to apply its new approach to all traffic in the traffic group, arguing that intermodal traffic is a special case and requires its own special cost study. But URCS is our “general purpose costing system for all regulatory costing purposes”<sup>60</sup> developed through a rulemaking proceeding in which all interested parties could participate. As such, it may not be selectively attacked in an individual rate investigation; nor should a party have to defend our general purpose costing model in such a proceeding.<sup>61</sup>

For all of these reasons, BNSF has failed to justify a departure from precedent. We will therefore use MSP to allocate revenues from cross-over traffic in this proceeding.

#### 4. Tonnage and Revenues

The annual tonnage and revenues for the OTRR traffic group are addressed in **Appendix B**. As discussed there, for projecting future tonnage and revenues for the traffic group, our analysis relies on existing contracts (where applicable), actual data for 2002, BNSF’s internal coal tonnage forecasts for 2003, 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 2003-21 (Annual Energy Outlook 2005).

#### C. Operating Expenses

The OTRR was designed to be an efficient, modern freight railroad. All trains would operate between terminals as unit trains, with run-through service for interchanged trains. All

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<sup>55</sup> Id. at 7 n.8.

<sup>56</sup> See Otter Tail Reb. Exh. III-A-13.

<sup>57</sup> BNSF Supp. Reply Exh. III-A-9 at 3.

<sup>58</sup> Id. at 2.

<sup>59</sup> See Otter Tail Reb. Exh. III-A-13 at 5.

<sup>60</sup> See Adoption of the Uniform Railroad Costing System As A General Purpose Costing System For All Regulatory Costing Purposes, 5 I.C.C.2d 894, 899 (1989).

<sup>61</sup> Cf. Xcel at 143 (“Adjustments that alter the logic and assumptions in URCS, however, are a collateral attack on the model itself and are thus inappropriate here.”).

trains would operate with two-person crews and the length of the trains would be the same size as BNSF currently uses for each customer in the traffic group. The coal trains would use distributed power, 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.

We discuss below our decision to accept Otter Tail's operating plan and the methodology we use to calculate the peaking factor for locomotives. A multitude of other evidentiary disputes are discussed and resolved in **Appendix C**.

## 1. Operating Plan

How a SARR would operate is a prime determinant of the configuration (physical plant) and annual operating expenses of the SARR. In this case, Otter Tail's method for development of the operating plan is plainly superior to that submitted by BNSF. Using the RTC model, which the Board has endorsed in prior cases,<sup>62</sup> Otter Tail modeled the operations of the entire OTRR during the peak week of the forecast peak year. Its sophisticated model reflects the proposed configuration of the OTRR and the dwell times at yards. BNSF accepted the transit times proposed by Otter Tail in its supplemental evidence, but argued that the yard dwell times used by Otter Tail would be inadequate to perform all of the necessary yard functions. However, BNSF failed to model the OTRR and show the impact of increasing the yard dwell times on the total transit times. As a network, BNSF cannot propose changes to yard times without tracing the effect through the entire network. BNSF itself has made this point in the TMPA case, when criticizing the operating plan submitted by that complainant.<sup>63</sup> Similarly, changing dwell times in yards would change the interaction between trains all along the network, sometimes in unexpected ways. For example, holding a train at a location longer can improve the downstream fluidity of the rail network and improve overall transit times. This is why BNSF was instructed "to submit supplemental evidence based on an operating plan for the entire SARR that includes the southbound coal traffic originating south of Cordero."<sup>64</sup> At oral argument, BNSF offered no reason why it did not follow this instruction.<sup>65</sup>

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<sup>62</sup> See, e.g., Xcel at 27.

<sup>63</sup> See, e.g., TMPA, BNSF Reply Narr. at III-C-25-26 (filed Jan. 15, 2002) ("When [the complainant's] model makes an adjustment to resolve a conflict between two trains, the adjustment can cause a host of new conflicts for other trains on the system, many of which appear to go unnoticed by the [complainant's] model. And even if the model notices a conflict involving other trains on the system, any change to the operations of those trains will have its own ripple effect throughout the system that will again need to be reviewed. [Our operating expert] explains that if one is to rely on a string line model to establish the operating and facility requirements of a system as large as the [SARR], that model must have sufficient complexity and iterative capability to monitor all the trains on the system at once.").

<sup>64</sup> Otter Tail Power Co. v. BNSF, STB Docket No. 42071, slip op. at 2 (STB served Feb. 18, 2005).

<sup>65</sup> Transcript of BNSF's Oral Argument at 95-96, 105-107, Otter Tail Power Co. v. BNSF, STB Docket No. 42071 (July 27, 2005).

We, therefore, accept Otter Tail's operating plan as the best evidence of record. Using the RTC model, Otter Tail has demonstrated the feasibility of its proposed configuration and operating plan for the OTRR, calculating transit times for trains during the peak period. Objecting to the yard dwell times used by Otter Tail as inputs into the RTC model, BNSF added extra time to yard dwell times and expanded the size of the yards. But by failing to submit a workable RTC model, BNSF has failed to provide evidence on the impact of its changes to yard capacity and dwell times on the operating plan and thus has failed to rebut Otter Tail's showing that its system configuration and operating statistics are feasible and supported.

In sum, BNSF cannot protest that an input into the RTC model is flawed without showing the consequence of changing that input on the output of the model. In reviewing the RTC model, we do not believe it is appropriate to just add time to a particular movement to reflect longer dwell times at yards. And yard configuration is not just a function of dwell time, but also of when and how many trains would flow into and out of the yard. Because BNSF failed to analyze how a change in yard dwell time would affect the overall operations of the OTRR, we accept as the best evidence of record the total transit times proposed by Otter Tail, as well as its yard configurations.

## 2. Peaking Factor

Locomotive requirements are calculated based on the estimated number of annual train starts. The OTRR must, however, have enough locomotives to handle the ebbs and flows of its traffic group. The need for a "peaking factor," to assure that the SARR would have sufficient locomotives to handle the peak demands of the traffic group, was established in TMPA before Otter Tail filed its opening evidence.<sup>66</sup> In its initial opening evidence, however, Otter Tail did not include a peaking factor or justify its failure to do so. In its supplemental reply evidence, BNSF used a peaking factor of 34%, based on its analysis of the number of locomotives needed to serve the peak day.<sup>67</sup> On rebuttal, Otter Tail argued that a 34% factor was unrealistic. Otter Tail submitted evidence showing that BNSF's surge fleet (the number of SD70 locomotive hours that were available, but not utilized, by BNSF in 2002) equaled 11.9% of its entire fleet.<sup>68</sup> Otter Tail argued that the OTRR could use run-through agreements to hold onto BNSF's locomotives to meet its peak period needs or, alternatively, could acquire additional equipment on a short-term basis to meet peak period needs.<sup>69</sup> Otter Tail calculated the aggregate number of trains that exceed the average trains per day on any given day and the number of locomotives the OTRR would have to lease on a short-term basis to meet its peak demand. Its analysis showed 1,625 trains, or 6.3% of the aggregate number of the trains in the year.

We agree with Otter Tail that a peaking factor based on a peak day analysis is unrealistic. Facing the same dispute in Xcel, the Board concluded that the SARR must have sufficient locomotives available to handle the forecasted peak week demand.<sup>70</sup> In that case, total train starts were calculated using a 7-day rolling average to derive the peaking factor. Using the same

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<sup>66</sup> See TMPA at 81.

<sup>67</sup> See BNSF Supp. Reply Narr. III-C-11-12.

<sup>68</sup> Otter Tail Reb. Narr. III-C-41-42.

<sup>69</sup> Otter Tail Reb. Narr. III-C-40.

<sup>70</sup> See Xcel Recon. at 13.

methodology here, we estimate a peaking factor of 15.3% for coal trains and 28.9% for general freight would be needed to have enough locomotives on hand to handle the demands of the traffic group selected.

The OTRR must have sufficient locomotives to serve its customers during the peak week. Otter Tail's peaking factor of 6.3% assumes that the OTRR could satisfy the peak demands by borrowing locomotives, either from the residual BNSF on a run-through arrangement, or leasing the locomotives on a temporary basis at no extra cost. We do not believe, however, that it is appropriate to assume that other railroads would have extra locomotives readily available to help the OTRR serve its customers. And Otter Tail provided no evidence on the additional cost to lease locomotives on a short-term basis, or on how quickly such locomotives could be placed into service.

Nor is Otter Tail's evidence regarding BNSF's surge fleet conclusive. Our review of this evidence is hampered by the fact that it was submitted for the first time on rebuttal, and thus we have heard from only one party on the issue. Even if its calculation of BNSF's practice is accurate, BNSF may itself be able to serve its entire network with a lower spare margin than the OTRR could, as BNSF handles a much larger, more diverse mix of traffic. Where coal traffic might peak in one month, chemical traffic may peak in another, and so forth. Because SD70 locomotives are fungible, the diversity of traffic may thus permit BNSF to achieve greater utilization of its locomotive fleet.

In sum, Otter Tail has failed to persuade us that the OTRR could obtain such locomotives from other railroads or from leasing companies instantly and at no extra cost. Therefore, we will adhere to Board precedent and include a peaking factor sufficient to guarantee that the OTRR would have enough locomotives on hand to handle peak demand.

### 3. Results

As noted above, we use Otter Tail's operating plan, and thus its transit time evidence. To determine the total operating expenses, we must also resolve a number of unrelated evidentiary disputes between the parties, such as the unit costs for various items, the proper identification of shipper-supplied railcars, and the spare margins for locomotives and railcars. These and other disputes are discussed in **Appendix C**. Of particular note, we use Otter Tail's basic staffing levels for general and administrative (G&A) employees, with a few modifications. However, Otter Tail failed to adequately support its MOW staffing levels, and we therefore use BNSF's evidence, with some modifications, which are based on its experience in maintaining the lines that would be replicated by the OTRR. The resulting total operating expense figure used here is \$285.6 million in the base year.

#### D. Road Property Investment

There is a substantial difference between the parties' estimates of the level of investment that would be required to construct the OTRR. Otter Tail claims that the OTRR could be built for slightly more than \$2.3 billion, while BNSF claims that it would cost \$4 billion. Our resolution of the disputes concerning the various component parts of these figures is discussed in **Appendix D**. **Table D-1** in **Appendix D** provides a summary of the parties' investment figures by category and our restatement. As shown, we find that total road property investment costs for the OTRR would be \$2.5 billion.

## E. DCF Analysis

A DCF analysis is used to distribute the total capital costs (in current year dollars) of the OTRR over the 20-year analysis period. Operating expenses are calculated for a base year and forecast into other years by indexing for inflation and forecasted changes in tonnage. The OTRR's total revenue requirements (capital and operating expenses) are then compared against the stream of revenues BNSF is expected to earn from the traffic group, discounted to the starting year (2002).

The primary difference between the parties here regarding the DCF analysis is how to index the OTRR's operating expenses to account for projected changes in costs over the 20-year analysis period. That difference is addressed below. The remaining DCF disputes, together with tables showing the results of the analysis, are set forth in **Appendix E**.

### 1. Indexing 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 RCAF, an index of railroad costs that we publish on a quarterly basis. We publish 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 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).

The issue of which of these indexes to use has been heavily litigated by the complainants and defendant railroads in recent SAC cases, and the Board has concluded that the RCAF-U is the more appropriate index to apply.<sup>71</sup> The parties here assume their customary positions. On opening, Otter Tail advocated the use of a forecast of the RCAF-A from DRI-WEFA (a private consulting firm now called Global Insight), with no accompanying explanation for why a departure from precedent is appropriate. On reply, BNSF followed precedent and used a forecast of RCAF-U, also from DRI-WEFA, to project operating expenses.<sup>72</sup> BNSF argued that, because the OTRR is designed to be the most efficient, least-cost railroad, it would be inappropriate to impute to the OTRR improvements in productivity that the nation's Class I railroads are still in the process of achieving. BNSF also notes that the productivity reflected in the RCAF-A is a result of railroads making changes incrementally as their older-technology assets wear out.<sup>73</sup>

On rebuttal, Otter Tail argues that the OTRR would experience productivity equal to, or indeed greater than, the railroad industry as a whole. Broadly speaking, it claims that this productivity will come from two sources: (1) increasing traffic volumes, and (2) changes in technology and railroad operating practices.<sup>74</sup>

As noted in Xcel (at 34), any productivity gain associated with increasing traffic volumes is already incorporated in the SAC analysis. The DCF model holds constant several cost components, such as MOW, G&A, and road property investment, even as tonnages increase,

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<sup>71</sup> See Xcel at 33-34; Duke/CSXT at 30; CP&L at 27-28; Duke/NS at 37; TMPA at 161.

<sup>72</sup> BNSF Reply Narr. III-G-1.

<sup>73</sup> Id. at 2.

<sup>74</sup> Otter Tail Reb. Narr. III-G-4 and III-G-10.

such that even using RCAF-U, operating costs per ton would fall (in real terms) as traffic volumes increase. As a total factor productivity index, RCAF-A includes not only productivity gains from changes in technology and operating practices, but also productivity gains the industry is experiencing by reducing the size of the rail network and increasing utilization of the remaining capital facilities. In contrast, the OTRR would not expect to abandon any of the existing infrastructure over the DCF analysis period. From the start, then, RCAF-A would overstate the expected productivity of a SARR, even if the hypothetical railroad were expected to realize the same productivity gains from improvements in technology and rail practices.

While it is unlikely that the SARR would realize the full level of industry-average productivity gains from future technological and operating improvements in the short term, we recognize that as the SARR matures, it could expect some measure of productivity gains in the outward years. Otter Tail offered some evidence on specific likely productivity improvements, but that evidence was untimely because it was submitted on rebuttal. As the party seeking a departure from established precedent, Otter Tail had an obligation to submit this evidence in its case-in-chief, so that the railroad would have an opportunity to respond and we would have a complete record on the issue. In any event, the evidence would not appear to justify the use of RCAF-A to index operating expenses over the entire DCF analysis period. The productivity gain reflected in RCAF-A is for the entire industry, which has a mix of highly productive operations (like unit coal trains) and less productive operations (like manifest traffic). Even amongst coal train operations, transportation into and out of the PRB is already among the most efficient in America, with dedicated unit trains, expedited loading and unloading, and no need to combine cars going to various destinations at yards (an expensive and time-consuming endeavor). Thus, even if Otter Tail had submitted timely evidence regarding specific productivity improvements the OTRR might experience, one cannot assume that the OTRR would experience the same productivity gains as forecast for the industry as a whole.

On brief, Otter Tail suggests for the first time that the Board could use RCAF-U for the period from 2002-2007, and then transition to RCAF-A in year 2008.<sup>75</sup> While this general idea has some intuitive appeal, the record is too bare to support a departure from precedent. Moreover, even if we agreed that some productivity gains should be phased in over time, it is unclear whether or when the SARR would experience the full productivity gains forecast for the entire rail industry.

Because the record in this case does not support a departure from precedent, we use RCAF-U to adjust operating expenses for inflation over the 20-year SAC analysis period. We note, however, that the outcome of this case would not change if we were to use RCAF-A or some combination of the two measures to index operating expenses.

## 2. Results

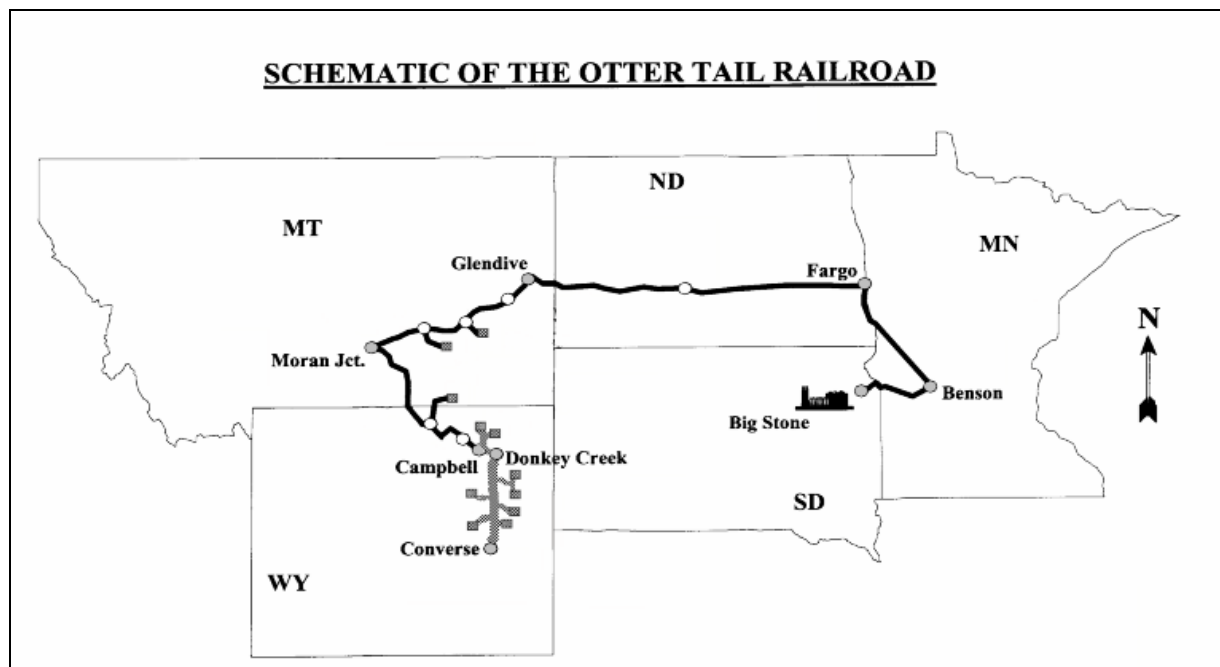
The results of our DCF calculations are shown in **Appendix E**. It shows that, based on the record presented here, over the 20-year SAC analysis period the present value of the revenues BNSF is expected to earn from the entire traffic group would exceed the present value of the OTRR's expected revenue requirement by approximately \$329 million, or 5.93%. However, as discussed below, the SAC analysis does not satisfy our threshold internal cross-subsidy analysis.

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<sup>75</sup> Otter Tail Br. at 14.

### F. Internal Cross-Subsidy Analysis

The OTRR can be viewed as comprised of two parts. The east-west part is the lighter-density part between the Big Stone plant and Campbell, WY. The north-south part is the heavier-density part that embraces both the northern PRB mines (above Donkey Creek) and the southern PRB mines (between Donkey Creek and Converse). A schematic of the OTRR is provided below to illustrate.



BNSF challenges Otter Tail's SAC analysis on the ground that it relies on traffic that would use only the north-south part to pay for the extensive infrastructure on the east-west part needed to serve Otter Tail. BNSF's concern stems from the dramatic imbalance in tonnage and revenue contribution associated with the two parts of the OTRR. Although the east-west part is 1,108 miles long, or 92% of the OTRR, only 27% of the traffic uses that part. And a comparison of the revenue per gross ton-mile (GTM) reveals a significant disparity in the relative profitability of the traffic that would use only the north-south part and the traffic that would use the east-west part.

**Table 1**  
**Comparative Analysis (2002)**

|                           | OTRR  | East-West Part | North-South Part |
|---------------------------|-------|----------------|------------------|
| Route Miles               | 1,208 | 1,108 (92%)    | 100 (8%)         |
| Tons (millions)           | 220   | 60 (27%)       | 160 (73%)        |
| Total Revenues (millions) | \$582 | \$406 (70%)    | \$176 (30%)      |
| Revenue per GTM (mills)   | 8.27  | 6.62           | 19.52            |

Below, we discuss the general principles behind our internal cross-subsidy analysis and address Otter Tail's challenges to that precedent. Then, to test BNSF's claim of an internal cross-subsidy, we estimate the road property investment and operating expenses attributable to the traffic that would use the east-west part. We then compare those costs, which include a

reasonable return on the capital investment for the east-west part, to the total revenue the defendant is expected to earn from the traffic that would use those facilities.

## 1. General Principles

The SAC test is designed to determine if a captive shipper is cross-subsidizing parts of the defendant's rail network from which it derives no benefit or otherwise paying for inefficient service.<sup>76</sup> A complainant cannot, however, prove an impermissible cross-subsidy by shifting "responsibility for paying for facilities it uses to other shippers who do not benefit from those facilities."<sup>77</sup> Rather, a complainant may share the cost of the infrastructure required to serve it only with other shippers using those same facilities.<sup>78</sup> Thus, to show that the captive shipper is cross-subsidizing other traffic, the evidence must at a minimum demonstrate that the revenue from the challenged rate, combined with revenue from other traffic that could share those facilities, exceeds the costs attributable to serving those shippers.<sup>79</sup>

Otter Tail contends that any internal cross-subsidy analysis violates the principles of CMP.<sup>80</sup> But a core economic underpinning of CMP is the principle that a shipper must cover its own attributable costs and only unattributable costs are to be allocated among the traffic group.<sup>81</sup> Indeed, this theme permeates Guidelines.<sup>82</sup>

The internal cross-subsidy test also flows naturally from the economic theory of contestable markets, upon which the SAC test rests. There can be no sustainable cross-subsidies in a contestable marketplace because a new entrant would seek out any customers who are cross-subsidizing others.<sup>83</sup> Conversely, if the revenues from traffic using one part of a system are less than the costs attributable to that traffic, there would be no economic incentive for a SARR to enter the market to serve those shippers. And when the existing rates are less than the sustainable rates in a contestable market, those rates do not exceed the maximum reasonable level established by the SAC test. If BNSF offers rates below the level sustainable in a contestable market, it is because its investment is sunk: i.e., the investment cannot feasibly be

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<sup>76</sup> See Guidelines, 1 I.C.C.2d at 523.

<sup>77</sup> PPL 2003 at 6 & n.21 (quoting Guidelines, 1 I.C.C.2d at 523-24).

<sup>78</sup> Id. at 544.

<sup>79</sup> PPL 2002 at 8-10.

<sup>80</sup> See, e.g., Otter Tail Br. at 17-19.

<sup>81</sup> Guidelines, 1 I.C.C.2d at 526-28 (discussing the need to cover unattributable costs through differential pricing).

<sup>82</sup> See, e.g., Guidelines, 1 I.C.C.2d at 534, 547-48.

<sup>83</sup> See William J. Baumol, John C. Panzar & Robert D. Willig, Contestable Markets and the Theory of Industry Structure at 351 (1982) ("[P]rices cannot be sustained if they involve any cross subsidy. If any product or set of products of the incumbent firms does not yield incremental net revenues as great as its incremental net costs, then an entrant can cut prices and nevertheless earn more than the incumbent previously did. The entrant can do so by offering only the remunerative products, keeping the incumbent's subsidized products out of its own product line. Consequently, sustainable prices must all involve no cross subsidization.").

used for other purposes. Otter Tail reasons that, by not permitting the SARR to serve traffic that does not cover its attributable cost, the Board has introduced a “barrier to entry” into the SAC analysis.<sup>84</sup> This argument is without merit. Because BNSF’s capital investments are sunk, it may offer captive shippers a rate below the SAC constraint, or in other words below the level that would attract entry in a contestable marketplace. It cannot follow that the Board should grant relief under the SAC constraint where the challenged rate does not provide a reasonable return on the facilities needed to serve that captive shipper, let alone cross-subsidize other parts of the defendant’s rail network, which is the controlling legal standard adopted in Guidelines.

Otter Tail argues that the internal cross-subsidy analysis deprives shippers in rural, light-density areas of relief under the SAC constraint.<sup>85</sup> A captive shipper may well have to bear a greater portion of the costs of the infrastructure required for a lightly used line. But as the Board has explained, it would “turn the CMP principle against cross-subsidization on its head to protect a captive shipper from subsidizing other traffic, while at the same time allowing that shipper’s rates to be subsidized by other traffic.”<sup>86</sup> A test designed to root out costs associated with cross-subsidization would be transformed into one where captive shippers seek out cross-subsidies to pay for the facilities needed to serve them. Indeed, were that allowed, captive shippers located on light-density lines almost anywhere on BNSF’s 30,000 mile rail network could seek to exploit the traffic densities in the PRB to subsidize its traffic, and the SAC test would be corrupted beyond repair. Accordingly, we reaffirm the conclusion in the PPL case that, if a challenged rate would not cover the total, long-run costs attributable to serving the complainant, that rate does not violate the SAC constraint.

## 2. Analysis

### a. Allocation of Road Property Investment

Although the investment costs for numerous items were contested, the parties appear to agree on the general proposition that the road property investment costs that are attributable to the traffic using the east-west part are the investment cost of the infrastructure north of Campbell (the east-west part of the OTRR). Having resolved the myriad engineering disputes between the parties, as set forth in **Appendix D**, we find the investment cost of this infrastructure to be \$2,162.6 million.

### b. Allocation of Operating Expenses

The portion of each operating expense category that should be attributed to the east-west part can be estimated using either a bottom-up or top-down approach.<sup>87</sup> Under a bottom-up approach, one would calculate the operating expense attributable to the east-west part traffic through analysis of the annual volumes, the type of railcars used, train sizes, distance traveled, and other characteristics of the traffic. This approach is well suited for the “direct operating

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<sup>84</sup> Otter Tail Br. at 18-19.

<sup>85</sup> See Otter Tail Br. at 19.

<sup>86</sup> PPL 2003 at 6.

<sup>87</sup> See generally PPL Montana, LLC v. Burlington N. & S.F.Ry., STB Docket No. 42054 (STB served Aug. 31, 2004) (PPL 2004).

expenses”—such as locomotive, crew, and railcar expenses—that can be derived from the characteristics of the traffic.<sup>88</sup>

The top-down approach arrives at the attributable costs from the other direction. This approach would start with the SARR’s full operating expense for a particular category and then try to back out the “threshold costs,” i.e., the basic operating expenses the OTRR would incur to move any traffic. The remaining portion of that expense is the “variable” component, i.e., the amount by which the cost would increase with increasing traffic. The top-down approach would then allocate to the east-west part traffic a share of the variable portion of the operating expense (for example on a ton-mile basis). This approach is less precise, but it is well suited for allocating “indirect operating expenses” (such as G&A and MOW) that otherwise might be difficult to allocate. If performed correctly, the two approaches should yield similar results.<sup>89</sup>

We use the bottom-up approach to estimate the direct operating expenses that the OTRR would incur to handle the traffic using the east-west part, as recommended by both parties. We use the electronic spreadsheet provided by BNSF for this calculation, substituting our findings regarding transit times, peaking factor, spare margins, unit costs, and all the other findings set forth in **Appendix C**. Our resulting findings on the direct operating expenses attributable to the traffic using the east-west part of the OTRR are set forth below.

**Table 2**  
**Direct Operating Expenses**

| <b>Operating Expenses</b>   | <b>OTRR</b>          | <b>Western Part</b>  |
|-----------------------------|----------------------|----------------------|
| Train & Engine Personnel    | \$51,325,519         | \$42,003,933         |
| Locomotive Ownership        | 22,573,687           | 15,607,906           |
| Locomotive Maintenance      | 19,244,563           | 14,355,988           |
| Locomotive Operations       | 58,857,901           | 51,212,536           |
| Railcar                     | 13,068,817           | 11,767,897           |
| Material & Supply Operating | 900,964              | 892,977              |
| Ad Valorem Tax              | 5,731,902            | 4,236,187            |
| Trackage Rights             | 82,839               | 82,839               |
| Insurance                   | 13,496,554           | 11,178,530           |
| <b>Total</b>                | <b>\$185,282,746</b> | <b>\$151,338,793</b> |

For indirect operating expenses, Otter Tail proposed applying the URCS-based approach used in PPL. URCS contains a set of equations, derived from a complex econometric model, that describe the relationship between various operating expenses and the capacity and output of a railroad. Equation 1 below illustrates the generic equation.

|                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------|
| <b>Total Expense = F(Capacity, Output) = <math>\alpha \times \text{Capacity} + \beta \times \text{Output}</math> (Eq. 1)</b> |
|------------------------------------------------------------------------------------------------------------------------------|

Each year, we use these equations to estimate the portion of a carrier’s operating expenses that are treated as “variable” by URCS. First, we develop the capacity and output of the particular railroad, based on information reported by the carrier. Each particular URCS

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<sup>88</sup> Id. at 5.

<sup>89</sup> Id.

equation has different measures of output and capacity. A variability percentage is then estimated using this information and the URCS equations, illustrated in Equation 2 below:

$$\text{Percent Variable} = 1 - F(C, \emptyset) \div F(C, O) = (\beta \times O) \div (\alpha \times C + \beta \times O) \quad (\text{Eq. 2})$$

O = output of the railroad (e.g., GTMs)

C = capacity of the railroad (e.g., running track miles)

$\alpha$ ,  $\beta$  = parameters from URCS regressions

$F(C, \emptyset)$  = total expense when output is zero

URCS then uses this variability percentage to estimate the variable costs of a particular movement. We do not use the URCS equations to estimate the variable portion of a particular expense category directly, because the estimated parameters of those equations are in 1980s' prices. Rather, the equations are used to estimate the percentage of the expense that is expected to change with changes in output (but not capacity), which together with the actual total costs reported by the carrier is used to estimate the variable component of that particular expense category.<sup>90</sup>

Otter Tail would have the Board use these equations in a similar manner to allocate several indirect operating expenses to the traffic using the east-west part.<sup>91</sup> Using the URCS equation that corresponds to the expense category in question, Otter Tail would have us estimate a variability percentage for the OTRR using the procedure outlined above. It would then have us use this percentage to back out the OTRR's threshold expenses (costs that cannot be fairly attributed to any subset of traffic), and to then allocate a share of the variable portion to traffic using the east-west part.

While an approach using the URCS equations is sound, the details of Otter Tail's approach require refinement. Equation 2 assumes that capacity of the railroad is constant, such that the variable portion of a particular expense is just  $\beta \times O$ . In this case, however, we are seeking to estimate the operating costs (such as MOW) attributable to both increasing output by adding traffic and expanding the SARR by some 1,100 miles. In practical terms, this means the approach used in PPL would fail to capture how a change in rail capacity would change an operating expense such as MOW, and would thus underestimate the costs attributable to the east-west part.

We modify Otter Tail's approach to correct this flaw. As shown in Equation 3 below, using the URCS equation most suitable for a particular expense category, the cost attributable to the traffic using the east-west part is derived as follows:

<sup>90</sup> See generally M. Daniel Westbrook, Research Report on URCS Regression Equations at 17-21, 36 (Oct. 17, 1988).

<sup>91</sup> We note that Otter Tail's electronic spreadsheets did not follow the approach described in its narrative testimony. We assume that Otter Tail had intended to follow the approach described in the narrative.

$$AC = TC \times (1 - F(C2,O2) \div F(C1,O1)) = \quad (Eq. 3)$$

$$TC \times (1 - (\alpha \times C2 + \beta \times O2) \div (\alpha \times C1 + \beta \times O1))$$

O1 = output of the total SARR

O2 = output without east-west part

C1 = capacity of the total SARR

C2 = capacity without east-west part

$\alpha$ ,  $\beta$  = parameters from appropriate URCS regression

TC = total expense of the SARR (e.g., total MOW expense)

AC = total expense attributable to traffic using the east-west part

The approach set forth above flows from URCS and is relatively simple to apply. Equation 3 uses the relevant URCS equation to estimate the expected expense for the entire SARR and then the expected expense for the SARR without the east-west part. The ratio can be used to estimate the portion of costs attributable to the traffic using the east-west part. For example, assume the MOW expense for the entire SARR – which in the equation above is  $F(C1,O1)$  – is predicted by the URCS equation to equal \$100, while the MOW expense for the SARR without the traffic using the east-west part,  $F(C2,O2)$ , is predicted to be \$25 dollars. We can then estimate the attributable MOW costs for the traffic using the east-west part as 0.75 (or  $1 - F(C2,O2) \div F(C1,O1)$ ) times the total MOW expense from the SAC analysis. Once again, we cannot use the output of the URCS equations to estimate the attributable costs directly. But we can use the cost relationship in those equations to estimate the percentage that total expenses are expected to change with changes in both output and capacity, and thereby estimate the costs attributable to the traffic using the east-west part.

Parties in future cases may seek to refine this approach and may address which URCS equation should be used to allocate a particular expense category. In this case, for G&A we use equation 14 from URCS worktable C, titled “General and Administrative Expenses.”<sup>92</sup> For indirect operating managers, we use equation 4, titled “Transportation Overhead Expense.”<sup>93</sup> For loss and damages, URCS treats the expense as 100% variable, and allocates the expense on a shipment-ton basis; we do the same here. Finally, URCS breaks MOW expenses into several different categories. Therefore, to allocate the total MOW of the OTRR to the east-west part, we combine URCS equations 1, 2, and 7 into a single equation.<sup>94</sup> **Table 3** shows the resulting allocation of these indirect operating expenses used in our internal cross-subsidy analysis.

<sup>92</sup> Equation 14 in URCS is  $(4940.9 \times TR) + (0.0012912 \times GTMC)$ , where TR is running track miles and GTMC is the GTMs of the cars, contents, and caboose.

<sup>93</sup> Equation 4 in URCS is  $(2082.7 \times TR) + (2.4038 \times TM)$ , where TM is running train miles.

<sup>94</sup> Equation 1 is  $(3446.6 \times TR) + (0.0004328 \times GTMC)$ . Equation 2 is  $(7036.2 \times TR) + (0.0004811 \times GTMC)$ . Equation 7 is  $(1452.0 \times TR) + (0.5834 \times TM)$ . We use the combination of these equations to predict how MOW would vary with changes in capacity (TR) and output (GTMC and TM).

**Table 3**  
**Operating Expenses Attributed to Western Part**

| <b>Operating Expenses</b> | <b>OTRR</b>          | <b>Western Part</b> |
|---------------------------|----------------------|---------------------|
| Operating Managers        | \$11,680,180         | \$10,512,988        |
| General & Administrative  | 13,322,905           | 11,605,583          |
| Training & Recruitment*   | 26,345,162           | 20,441,986          |
| Loss & Damage             | 189,799              | 189,799             |
| Maintenance-of-Way        | 48,776,190           | 42,462,979          |
| <b>Total</b>              | <b>\$100,314,236</b> | <b>\$85,213,335</b> |

\* First year only; for later years the expense is 5.5% of these amounts, respectively.

Training and recruitment presents a special case. The training costs for the engineers and conductors are estimated directly from the number of crews needed to serve the traffic using the east-west part. The remaining training and recruitment expenses are broken into three categories: indirect, G&A, and MOW. These sub-components are then allocated to the east-west part using the same top-down approach described above for indirect operating expenses, G&A, and MOW. Insurance is calculated as described in **Appendix C**. All of the trackage rights fees are attributable to traffic using the east-west part. The total portion of the OTRR's operating expenses attributable to traffic using the east-west part is set forth in **Table 4** below.

**Table 4**  
**Operating Expenses Attributed to Western Part**  
**(\$ millions)**

|                                         | <b>OTRR</b>    | <b>Western Part</b> |
|-----------------------------------------|----------------|---------------------|
| <b>Train &amp; Engine Personnel</b>     | \$51.3         | \$42.0              |
| <b>Locomotive Ownership</b>             | 22.6           | 15.6                |
| <b>Locomotive Maintenance</b>           | 19.2           | 14.4                |
| <b>Locomotive Operations</b>            | 58.9           | 51.2                |
| <b>Railcar</b>                          | 13.1           | 11.8                |
| <b>Materials &amp; Supply Operating</b> | 0.9            | 0.9                 |
| <b>Ad Valorem Tax</b>                   | 5.7            | 4.2                 |
| <b>Operating Managers</b>               | 11.7           | 10.5                |
| <b>General &amp; Administrative</b>     | 13.3           | 11.6                |
| <b>Training &amp; Recruitment</b>       | 26.3           | 20.4                |
| <b>Loss &amp; Damage</b>                | 0.2            | 0.2                 |
| <b>Maintenance-of-Way</b>               | 48.8           | 42.5                |
| <b>Insurance</b>                        | 13.5           | 11.2                |
| <b>Trackage Rights Fees</b>             | 0.1            | 0.1                 |
| <b>TOTAL</b>                            | <b>\$285.6</b> | <b>\$236.6</b>      |

#### **c. DCF Analysis of East-West Part**

The results of the DCF analysis for the east-west part, in **Table 5**, show that the revenues BNSF is expected to earn from the traffic using the east-west part are less than the stand-alone costs attributable to that traffic for each year from 2002-2020, and cumulatively for the entire 20-year SAC analysis period. The present value of the stand-alone costs attributable to providing

service over the east-west part exceed the revenue from traffic using those facilities by \$697 million.

**Table 5**  
**Western Part DCF Analysis**

| <b>Year</b> | <b>Attributable Costs</b> | <b>Forecast Revenues</b> | <b>Difference</b> | <b>Present Value</b> | <b>Cumulative Difference</b> |
|-------------|---------------------------|--------------------------|-------------------|----------------------|------------------------------|
| 2002        | \$454,167,312             | \$406,470,450            | (\$47,696,862)    | (\$47,101,942)       | (\$47,101,942)               |
| 2003        | 445,997,872               | 399,426,444              | (46,571,428)      | (41,607,701)         | (88,709,643)                 |
| 2004        | 479,350,169               | 432,309,780              | (47,040,389)      | (36,634,992)         | (125,344,635)                |
| 2005        | 515,759,542               | 467,352,489              | (48,407,053)      | (34,199,947)         | (159,544,582)                |
| 2006        | 530,570,933               | 475,870,042              | (54,700,891)      | (34,994,654)         | (194,539,237)                |
| 2007        | 546,631,876               | 487,537,462              | (59,094,414)      | (34,232,944)         | (228,772,181)                |
| 2008        | 558,224,011               | 487,529,323              | (70,694,688)      | (37,083,021)         | (265,855,202)                |
| 2009        | 569,806,399               | 485,233,069              | (84,573,330)      | (40,170,966)         | (306,026,168)                |
| 2010        | 586,171,630               | 496,126,087              | (90,045,543)      | (38,728,580)         | (344,754,748)                |
| 2011        | 601,966,944               | 505,196,500              | (96,770,444)      | (37,687,957)         | (382,442,706)                |
| 2012        | 617,672,665               | 514,068,950              | (103,603,715)     | (36,536,396)         | (418,979,102)                |
| 2013        | 633,994,015               | 523,012,861              | (110,981,154)     | (35,439,708)         | (454,418,809)                |
| 2014        | 650,768,079               | 531,849,406              | (118,918,673)     | (34,385,984)         | (488,804,794)                |
| 2015        | 668,055,197               | 541,144,177              | (126,911,020)     | (33,229,305)         | (522,034,098)                |
| 2016        | 685,656,993               | 549,921,768              | (135,735,225)     | (32,181,405)         | (554,215,503)                |
| 2017        | 703,794,269               | 559,067,384              | (144,726,885)     | (31,070,780)         | (585,286,283)                |
| 2018        | 722,652,683               | 569,016,907              | (153,635,776)     | (29,866,602)         | (615,152,885)                |
| 2019        | 742,318,000               | 580,430,658              | (161,887,342)     | (28,496,850)         | (643,649,735)                |
| 2020        | 761,979,387               | 591,613,698              | (170,365,689)     | (27,155,426)         | (670,805,160)                |
| 2021        | 782,441,296               | 604,145,211              | (178,296,085)     | (25,733,970)         | (696,539,131)                |

As this analysis demonstrates, Otter Tail's SAC presentation relies on an improper cross-subsidization of the traffic on the east-west part, which includes Otter Tail's own traffic. Otter Tail has thus failed to demonstrate that it is paying more than would be necessary for efficient service or is cross-subsidizing other parts of the BNSF network. Its complaint is therefore dismissed.

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

It is ordered:

1. BNSF's motion to strike is granted in part and denied in part.
2. The complaint is dismissed.
3. This decision is effective February 26, 2006.

By the Board, Chairman Buttrey and Vice Chairman Mulvey.

Vernon A. Williams  
Secretary

## **APPENDIX A—OTRR CONFIGURATION**

The OTRR would replicate the existing BNSF lines from the Wyoming PRB mines to Big Stone, SD. The OTRR would transport coal traffic moving from PRB mines to Otter Tail's power plant and to five interchange locations with the residual BNSF. Traffic would be interchanged with the residual BNSF at Converse and Donkey Creek, WY; Moran Junction, MT; Fargo, ND; and Benson, MN. The OTRR would also transport some non-coal traffic from Moran Junction to Benson.

The OTRR would begin in southern Wyoming at Converse and proceed in a northwesterly direction through the PRB to Moran Junction, MT. At Moran Junction, the OTRR would continue northeasterly to Glendive, MT, then easterly across North Dakota to Fargo. The OTRR would then continue south to Benson, MN, and back west to the branch line that serves Otter Tail's Big Stone generating station, the eastern terminus of the OTRR. OTRR would use approximately 10 miles of trackage rights over the Red River Valley and Western Railroad between East Breckinridge and Brushvale, MN.

### **A. Route and Track Miles**

The parties agree that the OTRR route would be 1,207.68 miles long, and they agree that the OTRR would use an additional 277.32 miles of double-track main line and sidings.<sup>95</sup> The parties' disagreement on the number of miles of yard and set-out track that the OTRR would require results from their differing assumptions on facilities and yard dwell times.

#### **1. Set-Out Track**

Otter Tail specifies 11.14 miles of set-out tracks. Two tracks, each with an entrance at only one end, would be located at each defect detector, facing in opposite directions. BNSF argues that 23.03 miles of set-out tracks would be needed at the defect detectors, each longer than those proposed by Otter Tail, and opening in both directions.

Otter Tail's configuration appears feasible for the system proposed, and BNSF has not demonstrated otherwise. Thus, Otter Tail's set-out track mileage is used.

#### **2. Yard Track**

The parties agree on the yard track configuration for six yards (Campbell and Dutch, WY; Moran Junction and Terry, MT; Fargo, ND; and Benson, MN), but they disagree on the configuration for the Converse and Donkey Creek, WY and Glendive, MT yards. Otter Tail specified a total of 66.72 miles of track for all nine yards, while BNSF argues that a total of 91.22 miles of track would be needed for the yards.<sup>96</sup> BNSF argues that OTRR trains would require longer dwell times at Converse, Donkey Creek, and Glendive for servicing and inspection, and thus that more track miles would be needed. As discussed in the decision, we are using Otter Tail's proposed operating plan as the best evidence of record, and thus we will use its proposed configurations for the three disputed yards as they are feasible and supported.

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<sup>95</sup> Otter Tail Errata to Supp. Narr. III-B-1-2 (filed Mar. 14, 2005); BNSF Reply to Supp. Narr. III-B-2 (filed Apr. 4, 2005).

<sup>96</sup> Otter Tail Errata to Supp. Narr. III-B-4; BNSF Reply to Supp. Narr. III-B-4.

## **APPENDIX B—TRAFFIC VOLUMES AND REVENUES**

This appendix addresses the amount of total traffic, both coal and non-coal, that the OTRR would transport, and the total revenues that traffic would generate, over the 20-year SAC analysis period (2002-2021).

### **A. Tonnage**

The parties agree on the traffic volumes for the non-coal traffic in the traffic group. The disputes regarding the projections for coal traffic are discussed below.

#### **1. 2002**

For the base year 2002, the parties agree on traffic volumes, with the exception of the coal tonnage moving from Cordero southward onto the residual BNSF (Cordero-South traffic), which Otter Tail included and BNSF would exclude. As discussed in the body of the decision, the Cordero-South traffic is included in the Board's SAC analysis. Accordingly, Otter Tail's evidence of 2002 volumes, which account for the Cordero-South traffic, is used here.

Otter Tail submitted both a "base" and "alternative" case in its traffic projections. Its base case would exclude all traffic that travels less than 1.1% of its total movement on the OTRR (to correlate with its statistical analysis of real "market-based" divisions underlying the base case), and its alternative case would include this so-called 1.1% traffic. Because we have rejected Otter Tail's market-based division approach, we use its alternative case figures.

#### **2. 2003**

For 2003, the parties agree to use BNSF's internal forecasts. However, BNSF's evidence excludes the Cordero-South traffic. For the reasons discussed in the body of this decision, we include the Cordero-South traffic in the traffic group.

#### **3. 2004 Through 2021**

For the period 2004-2021, the parties agree to use EIA tonnage forecasts for the PRB for their year-to-year percentage changes in coal traffic, in conformity with recent Board precedent. See Xcel at 53-54; CP&L at 16-18; TMPA at 25. The parties also agree to cap the projected tonnage growth in coal traffic at 85% of plant capacity for both Otter Tail and non-Otter Tail power plants. However, the parties disagree on certain adjustments, discussed below. We update the EIA forecasts by using the most currently available figures from 2005. See Xcel at 53.

##### **a. Riverside and Highbridge**

BNSF argues that, beginning in 2005, volumes to the Public Service Company of Colorado d/b/a Xcel Energy (Xcel) Riverside and Highbridge 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,<sup>97</sup> as well as evidence that MPUC approved the conversions.<sup>98</sup> Otter Tail counters that, contrary to BNSF's assumption, the March 2004

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<sup>97</sup> BNSF Reply Narr. III-A-32-33; BNSF Reply WP. III-A-0089-0126.

<sup>98</sup> BNSF Supp. Reply Narr. III-A-17-18.

approval of the conversion project does not guarantee implementation of the project,<sup>99</sup> and that these traffic volumes thus should remain in the forecasts.

As the Board found in Xcel (at 54), Xcel's representations to the MPUC leave little doubt as to its intent to convert these plants, and that traffic volumes would likely cease to these plants upon their conversion. Accordingly, as in Xcel, we use the projected traffic volumes to Riverside/Highbridge through 2007, then decrease the coal volumes to 50% in 2008 (with the expected conversion of Highbridge), and eliminate them altogether in 2009 (with the expected conversion of Riverside).

#### **b. Superior Dock**

BNSF argues that Otter Tail overstated BNSF coal tonnages shipped to the Dock in Superior, WI, for the outward years of the DCF period. Otter Tail claims to calculate coal traffic volume so as not to surpass BNSF's capacity limit at the Superior Dock in any year, but BNSF argues that Otter Tail failed to include Consumers' Energy traffic in its overall traffic volume. BNSF claims that, once this customer's traffic is included, the traffic volume would exceed BNSF's capacity at Superior Dock for the years 2011 to 2021. Otter Tail argues that no such limitation is necessary, but it has offered no persuasive reason why. We agree with BNSF's argument that Consumers' Energy's traffic should be included in the tonnage forecast and that its inclusion would result in a traffic level exceeding BNSF's capacity. Thus, we reduce the Superior Dock tonnage below Otter Tail's forecasts.

However, we continue to rely on Otter Tail's measure of BNSF's share of capacity at the dock, despite BNSF's objections. Otter Tail uses vessel shipment data from Lake Carrier Association in its calculations, while BNSF uses combined BNSF and Union Pacific Railroad Company (UP) delivery data. Otter Tail's evidence is used because the relevant capacity of the dock is the number of tons that can be loaded onto vessels (a measure obtained from independent sources) rather than the number of tons that can be delivered to the dock.

#### **c. Omaha & Arbor**

When BNSF filed its supplemental evidence in this case, it advised the Board that, as of 2004, it no longer moves coal to Omaha Public Power District's North Omaha and Arbor plants.<sup>100</sup> It therefore asked the agency to remove this traffic from the traffic group. Otter Tail objects, arguing that new traffic might offset this loss, such as a new movement to the Georgia Power Scherer plant.<sup>101</sup> Otter Tail argues that it would be prejudiced by dropping the Omaha and Arbor traffic without first obtaining new discovery of all BNSF traffic in 2004.

Without full discovery of the BNSF traffic in 2004, we conclude that excluding the Omaha and Arbor traffic is inappropriate. Any loss of this traffic would appear to be more than offset by other traffic gains, such as the Scherer plant, and we will not reopen discovery at this late stage.

**Table B-1** sets forth the total tonnage figures of the parties, for both coal and non-coal traffic, and the Board's findings here.

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<sup>99</sup> Otter Tail Reb. Narr. III-A-32-33.

<sup>100</sup> BNSF Supp. Reply Narr. III-A-13 n.27.

<sup>101</sup> Otter Tail Reply to Supp. Narr. III-A-4-5.

**Table B-1**  
**Tonnage Forecasts**

|      | <b>Otter Tail</b> | <b>BNSF</b> | <b>STB</b>  |
|------|-------------------|-------------|-------------|
| 2002 | 219,571,373       | 219,575,155 | 219,571,373 |
| 2003 | 218,836,040       | 218,789,344 | 218,785,562 |
| 2004 | 220,781,455       | 215,778,662 | 229,603,057 |
| 2005 | 222,710,548       | 216,855,607 | 235,451,551 |
| 2006 | 226,769,288       | 220,710,671 | 235,772,526 |
| 2007 | 231,497,440       | 223,670,235 | 238,116,877 |
| 2008 | 234,919,453       | 226,878,305 | 238,751,358 |
| 2009 | 237,468,434       | 229,222,567 | 238,871,034 |
| 2010 | 241,429,971       | 232,852,676 | 239,942,102 |
| 2011 | 243,365,689       | 234,262,669 | 240,533,786 |
| 2012 | 244,689,937       | 234,952,979 | 240,966,140 |
| 2013 | 245,476,827       | 235,348,265 | 241,328,211 |
| 2014 | 245,898,103       | 235,715,626 | 241,535,025 |
| 2015 | 246,287,511       | 236,055,198 | 241,782,558 |
| 2016 | 246,848,378       | 236,542,244 | 241,933,255 |
| 2017 | 247,485,634       | 237,086,145 | 242,097,390 |
| 2018 | 247,855,571       | 237,399,305 | 242,422,786 |
| 2019 | 248,282,036       | 237,752,428 | 242,897,481 |
| 2020 | 248,687,778       | 238,071,612 | 243,027,886 |
| 2021 | 248,783,451       | 238,144,985 | 243,318,759 |

## **B. Revenue**

Otter Tail and BNSF agree on most aspects of how to forecast revenues for the traffic over the 20-year analysis period. Specifically, they agree on how to project revenues for the issue traffic,<sup>102</sup> for the non-coal movements over the entire period,<sup>103</sup> and for coal movements that are under contract. They disagree on the revenue from a movement to Hoot Lake and on how to project revenue from 2004 to 2021 for coal traffic that will no longer be governed by a contract. The positions of the parties and the Board's findings are discussed below.

### **1. Hoot Lake Traffic**

Otter Tail included in the traffic group one movement of coal that is interchanged to the OTVRC at Fargo, ND, for delivery to Otter Tail's Hoot Lake plant, at Fergus Falls, MN. BNSF points out that the movement to Hoot Lake is interchanged with the OTVRC at Dilworth, MN, which is 4.4 miles east of Fargo.<sup>104</sup> More importantly, BNSF advises that the revenue reported in BNSF's traffic data as BNSF revenues are the combined revenues of both carriers for the

<sup>102</sup> See BNSF Reply at III-A-55; Otter Tail Reb. Narr. at III-A-62-63.

<sup>103</sup> See BNSF Reply at III-A-55; Otter Tail Reb. Narr. at III-A-107.

<sup>104</sup> See BNSF Reply at III-A-56.

movement.<sup>105</sup> Otter Tail does not contest this evidence, but objects to BNSF's failure to produce the actual division BNSF receives for the Hoot Lake traffic.

Otter Tail should have brought this discovery dispute to the Board's attention with a motion to compel. In the absence of the actual division BNSF received or switching charges paid, we use MSP to allocate a portion of the through revenue to the facilities and service replicated by the OTRR.

## 2. Post-Contract Traffic

The parties do not agree on how to forecast rates after an existing contract expires. Otter Tail uses a different approach depending on whether the traffic is "captive" or "competitive." For traffic it categorized as competitive, it developed, from contracts in effect in 2002 and 2003, a "competitive market rate" for each year of the analysis period, indexed by a "competitive marketplace rate adjustment" also derived from the same contracts. For traffic it categorized as captive, Otter Tail forecast the rate to continue to increase, once the existing contract expires, and projected the annual change produced by its contract rate adjustment mechanism.

BNSF disagrees with how Otter Tail categorized plants as captive and competitive. It also provides evidence that for sole-served destinations, the new rate is generally lower than the expired contract rate. Thus, for plants BNSF characterizes as captive, the railroad's evidence assumed that those rates would decline by the average rate reduction from BNSF's recently negotiated contracts to sole-served destinations that became effective in 2002 and 2003. BNSF also asserts that a separate competitive market rate should be estimated for transportation provided in shipper-supplied cars than for transportation provided in railroad-supplied cars. BNSF revised Otter Tail's methodology accordingly.

After the parties developed their revenue forecasting methodologies, the Board adopted a practice of using long-term EIA rate forecasts to forecast how rates for transportation of coal will change over a SAC analysis period. As the Board explained in TMPA at 28-29, forecasts such as those proposed by Otter Tail and BNSF, which use 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." It is not clear that, in today's marketplace where all railroads are facing growing capacity constraints, shippers will experience a reduction in rates once existing contracts expire. See Congressional Budget Office, Freight Rail Transportation: A Review of the 2004 Experience at 9-12 (May 2005). Moreover, as the Board explained in Xcel at 55, Duke/NS at 64-65, and TMPA at 29, 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.

As discussed, in this case, both parties use EIA 2003 PRB tonnage forecasts contained in EIA's "2003 Annual Energy Outlook." Using the matching PRB rate forecast preserves the economic linkage between supply and demand. See TMPA at 28-29. In this case, we take

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<sup>105</sup> Id.

official notice of the updated PRB tonnage forecasts contained in EIA’s “2005 Annual Energy Outlook.” In accordance with the decisions in Xcel, Duke/CSXT, CP&L, Duke/NS, and TMPA, we also take official notice of the matching rate forecasts for the PRB, which are available upon request from EIA.

### 3. EIA PRB Rate and Traffic Forecast

At our request, we received from EIA its most recent rate and tonnage forecasts for the PRB, contained in its “2005 Annual Energy Outlook.” These forecasts are for 2003-2021 low-sulfur sub-bituminous coal tonnage and transportation rates for “Western Montana & Wyoming PRB” and “Western Wyoming.” Following EIA’s procedure for generating current dollar forecast rate series, we use the gross domestic product (GDP) implicit price deflator, in combination with EIA’s “Transportation Multiplier” index for the West, to adjust the revenue forecasts for use in the DCF analysis. **Table B-2** shows the forecasts received from EIA, as well as the final rate index used in this proceeding to forecast revenues once an existing contract expires.

**Table B-2**  
**EIA Tonnage and Transportation Rate Forecasts**

|      | <b>EIA Tonnage<br/>Forecast For PRB<br/>(% change from<br/>previous year)<br/>(1)</b> | <b>EIA<br/>Transportation<br/>Multiplier Index<br/>(2)</b> | <b>GDP<br/>Deflator<br/>(3)</b> | <b>Rate Index<br/>Col. (2) x (3)</b> |
|------|---------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------|--------------------------------------|
| 2003 | 0.53                                                                                  | 1.000                                                      | 1.000                           | 1.000                                |
| 2004 | 10.69                                                                                 | 0.992                                                      | 1.021                           | 1.013                                |
| 2005 | 7.30                                                                                  | 1.018                                                      | 1.041                           | 1.060                                |
| 2006 | 0.36                                                                                  | 1.017                                                      | 1.059                           | 1.078                                |
| 2007 | 3.73                                                                                  | 1.010                                                      | 1.079                           | 1.090                                |
| 2008 | 3.19                                                                                  | 1.008                                                      | 1.101                           | 1.110                                |
| 2009 | 2.49                                                                                  | 1.004                                                      | 1.124                           | 1.128                                |
| 2010 | 2.07                                                                                  | 0.997                                                      | 1.149                           | 1.146                                |
| 2011 | 1.54                                                                                  | 0.990                                                      | 1.177                           | 1.165                                |
| 2012 | 1.51                                                                                  | 0.983                                                      | 1.206                           | 1.186                                |
| 2013 | 1.44                                                                                  | 0.977                                                      | 1.235                           | 1.207                                |
| 2014 | 0.97                                                                                  | 0.971                                                      | 1.265                           | 1.228                                |
| 2015 | 1.15                                                                                  | 0.964                                                      | 1.296                           | 1.249                                |
| 2016 | 0.69                                                                                  | 0.958                                                      | 1.325                           | 1.270                                |
| 2017 | 0.75                                                                                  | 0.950                                                      | 1.359                           | 1.291                                |
| 2018 | 1.47                                                                                  | 0.942                                                      | 1.395                           | 1.314                                |
| 2019 | 2.40                                                                                  | 0.934                                                      | 1.434                           | 1.340                                |
| 2020 | 0.67                                                                                  | 0.927                                                      | 1.475                           | 1.367                                |
| 2021 | 1.48                                                                                  | 0.920                                                      | 1.518                           | 1.397                                |

**Table B-3** 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-3**  
**Revenue Forecasts**

|      | <b>Otter Tail</b> | <b>BNSF</b>   | <b>STB</b>    |
|------|-------------------|---------------|---------------|
| 2002 | \$583,000,678     | \$474,856,887 | \$581,723,726 |
| 2003 | 582,147,366       | 472,037,513   | 581,047,980   |
| 2004 | 605,086,569       | 479,980,710   | 619,448,542   |
| 2005 | 653,987,994       | 485,613,940   | 666,104,933   |
| 2006 | 668,217,909       | 496,683,502   | 678,131,443   |
| 2007 | 689,285,805       | 489,301,623   | 694,046,417   |
| 2008 | 708,313,210       | 504,446,628   | 698,860,637   |
| 2009 | 730,063,022       | 518,797,415   | 700,974,232   |
| 2010 | 746,170,864       | 535,874,005   | 715,874,161   |
| 2011 | 765,731,003       | 547,900,110   | 729,011,853   |
| 2012 | 784,581,234       | 553,045,388   | 742,232,436   |
| 2013 | 801,654,559       | 561,434,256   | 755,540,144   |
| 2014 | 817,145,188       | 565,878,211   | 768,300,146   |
| 2015 | 832,953,301       | 575,645,642   | 781,732,058   |
| 2016 | 848,741,327       | 585,832,100   | 794,396,655   |
| 2017 | 865,037,455       | 596,183,610   | 807,599,773   |
| 2018 | 882,051,243       | 606,386,447   | 821,985,494   |
| 2019 | 900,213,114       | 616,870,328   | 838,500,909   |
| 2020 | 917,131,562       | 627,586,207   | 854,708,738   |
| 2021 | 934,770,357       | 637,016,847   | 872,921,277   |

## APPENDIX C—OPERATING EXPENSES

This appendix addresses the annual operating expenses that would be incurred by the OTRR. 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, Otter Tail’s proposed operating plan for the OTRR is used here. Accordingly, unless specifically discussed, Otter Tail’s operating assumptions are used here to determine the level of operational resources the OTRR would need for a given level of traffic. **Table C-1** summarizes the operating cost estimates reflected in the parties’ evidence and the figures used by the Board.

**Table C-1**  
**OTRR Operating Costs**  
**(\$ millions)**

|                                         | <b>Otter Tail</b> | <b>BNSF</b>    | <b>STB</b>     |
|-----------------------------------------|-------------------|----------------|----------------|
| <b>Train &amp; Engine Personnel</b>     | \$39.6            | \$55.4         | \$51.3         |
| <b>Locomotive Ownership</b>             | 15.3              | 31.3           | 22.6           |
| <b>Locomotive Maintenance</b>           | 15.5              | 23.5           | 19.2           |
| <b>Locomotive Operations</b>            | 57.0              | 63.0           | 58.9           |
| <b>Railcar</b>                          | 10.8              | 21.1           | 13.1           |
| <b>Materials &amp; Supply Operating</b> | 0.8               | 3.4            | 0.9            |
| <b>Ad Valorem Tax</b>                   | 4.7               | 5.7            | 5.7            |
| <b>Operating Managers</b>               | 10.1              | 14.9           | 11.7           |
| <b>General &amp; Administrative</b>     | 11.7              | 20.3           | 13.3           |
| <b>Training &amp; Recruitment</b>       | 8.9               | 25.9           | 26.3           |
| <b>Loss &amp; Damage</b>                | 0.3               | 0.2            | 0.2            |
| <b>Maintenance-of-Way</b>               | 16.4              | 68.6           | 48.8           |
| <b>Insurance</b>                        | 6.9               | 18.5           | 13.5           |
| <b>Trackage Rights Fees</b>             | 0.1               | 0.1            | 0.1            |
| <b>TOTAL</b>                            | <b>\$198.1</b>    | <b>\$351.9</b> | <b>\$285.6</b> |

### A. Locomotives

#### 1. Locomotive Requirements

Locomotive requirements are primarily determined by how the OTRR would operate. Otter Tail proposes that the OTRR would use SD70 locomotives for coal service, C44-9 locomotives for general freight, and SD40 locomotives for switching and work trains. BNSF agrees to Otter Tail’s selection of locomotive types. There is, however, a substantial difference in the number of locomotives each party assumes the OTRR would need. The difference is attributable to several factors, including: (a) how to annualize the peak week operating statistics to estimate the annual operating statistics; (b) the number of locomotives needed to serve as spares to replace unavailable locomotives (the “spare margin”); and (c) the number of extra locomotives needed to handle peak week demands (the “peaking factor”). Our resolution of these issues is discussed below.

### **a. Annualizing Otter Tail's Peak Week Analysis**

Both parties model only the peak week of the OTRR's operations, rather than trying to model an entire year's operations. It is therefore necessary to develop the annual operating expenses for the peak year from the peak week analysis. However, the parties propose different annualizing methods. Using transit times from its operating plan, Otter Tail first developed operating statistics for the peak week trains, then estimated the peak year statistics by multiplying the peak week statistics by 52.

BNSF used a more complex methodology. Also starting with the output of Otter Tail's operating plan, BNSF developed average transit times between segments of the OTRR and then developed total transit times for any movement on the SARR by adding the transit time for each segment the train traverses, plus time spent in yards and loading/unloading times. In this fashion, BNSF developed transit times for all trains moving in the peak year, even if there was no comparable train moving during the peak week.

Otter Tail's approach risks substantially over- or understating the annual operating statistics if the peak week traffic mix is not representative of the annual traffic. For example, if during the peak week, the OTRR were to serve a mix of traffic that is predominantly less expensive to service (e.g., the short-haul southbound PRB traffic) than the traffic mix throughout the year, then simply multiplying the peak week operating statistics by 52 would not accurately reflect the annual operating expenses. BNSF's approach is more precise, as it rests on the actual traffic forecast for that year. It is also the approach used by the Board in most recent SAC cases. Thus, even though we use Otter Tail's operating plan, we use BNSF's more precise method for annualizing expenses.

### **b. Locomotive Spare Margin**

Because individual locomotives would not be available 100% of the time, additional locomotives would need to be acquired to serve as spares. Otter Tail proposed a locomotive 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. It concluded that, between January and June 2002, SD70 locomotives were unavailable (undergoing repairs or periodic maintenance) 7.94% of the time. Similarly, it found that C44-9 locomotives were unavailable 10.3% of the time. No spare margin data was provided for SD-40 switch engines.<sup>106</sup>

Here, as in Xcel (at 59-60), BNSF has offered persuasive evidence that a 5% locomotive 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 placement on a train, and unavailability due to collision or other accidents). Moreover, the contract relied upon by Otter Tail was amended in 2001 to remove the 5% clause. For these reasons, BNSF's spare margins are used here as the best evidence of record.

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<sup>106</sup> See BNSF Reply Narr. III-C-60-63; BNSF Reply e-WP. "Spare Margin (C44-9).xls"; BNSF Reply e-WP. "Spare Margin (SD70 MAC).xls."

### c. Peaking Factor

For the reasons discussed in the body of the decision, we use a peaking factor of 15.3% for the SD70 locomotives for coal service, and 28.9% for C44-9 locomotives for general freight.

### d. Total Locomotive Requirement

Using the peak week operating statistics developed by Otter Tail's operating plan, BNSF's spare margins and method for annualizing those operating statistics, and the peaking factors noted above, we compute the following peak year locomotive requirements. In addition, BNSF argues that the OTRR would require four additional work trains operating throughout the year to perform maintenance service, and each of these trains would require a SD-40 locomotive. Otter Tail responded that the OTRR would have a sufficient number of locomotives in its total fleet count to handle work train assignments and that any additional work train locomotives required by OTRR operations would be provided by the MOW contractor. Otter Tail thus does not include additional locomotives for this purpose. Because we are accepting most of BNSF's proposed MOW expenses, **Section K**, we include its four work train locomotives for MOW activities. See TMPA at 81.

**Table C-2**  
**Total Locomotive Requirements**

|                               | <b>Otter Tail</b> | <b>BNSF</b> | <b>STB</b> |
|-------------------------------|-------------------|-------------|------------|
| <b>Road – SD70</b>            | 150               | 211         | 152        |
| <b>Road – Dash9 or C-44-9</b> | 15                | 22          | 17         |
| <b>Switch – SD40</b>          | 4                 | 8           | 4          |
| <b>Work – SD40</b>            | 0                 | 4           | 4          |
| <b>Total</b>                  | <b>169</b>        | <b>245</b>  | <b>177</b> |

### e. Locomotive Unit Costs

The parties do not agree on the unit cost for acquiring (by lease) the SD70, C-44-9, and SD40 locomotives the OTRR would need. For the road locomotives, Otter Tail used the lease payment for the year 2002, holding that payment constant over the life of the OTRR. It accordingly used a cost of \$93,511 for SD70 locomotives and \$73,809 for C44-9 locomotives. BNSF, however, demonstrated that the average lease payments between 2002 and 2023 would be higher than the initial lease rate. Developing an average lease rate, BNSF estimated the acquisition cost at \$133,052 for SD70 locomotives and \$109,967 for C44-9 locomotives. We use BNSF's evidence as the best evidence of record, as lease rates for the first year appear significantly lower than the average over the full rental period. These estimates are also in line with the lease cost used in Xcel (\$132,795 for SD70 locomotives). Xcel at 60.

For SD40 locomotives, Otter Tail used a cost of \$52,925, based on the lowest available daily lease rate that BNSF paid for that type of locomotive. BNSF, however, proposes a cost of \$60,043, based on an average daily rate. We use 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 Xcel at 60 (cost estimated at \$72,472 per SD40 locomotive); CP&L at 56 (the parties agreed that the cost of SD40 locomotives would be \$76,281).

## 2. Locomotive Maintenance Expense

**SD70 Locomotives.** The parties agree on the maintenance expenses per locomotive unit-mile (LUM) for the SD40 locomotives. Based on our restated LUM calculations, discussed infra, and the agreed-upon rate tables, we restate the locomotive maintenance expense for the OTRR.

In addition to annual maintenance, each SD70 locomotive would need to be overhauled every 6 years. Otter Tail estimates the annual expense at \$206,863, based on an overhaul contract produced by BNSF in discovery. BNSF, however, argues that the estimate used by Otter Tail did not include labor expenses, and BNSF would therefore increase the expense to \$350,100, based on an invoice from the same supplier. In rebuttal, Otter Tail argues that BNSF's calculation is unrealistic, citing BNSF invoices showing the actual cost after any labor cost adjustment to be \$264,777. Although Otter Tail's initial position appears to have been slightly understated, it has demonstrated that BNSF's evidence is itself unrealistic. Thus, we use the figure from Otter Tail's rebuttal testimony, which is in accordance with the findings in Xcel (where the Board used an estimate of \$232,711).

**C44-9 Locomotives.** The parties use the same maintenance expense rate per LUM for the first 10,000 miles for C44-9 locomotives. Based on a General Electric lease agreement, Otter Tail reduces the mileage charges by 55% for the next 3,000 miles, and by 40% for mileage charges over 13,000. BNSF agrees to this procedure (although it inadvertently multiplied the base rate by 55% and 40%, rather than lowering the base rate by those amounts). Accordingly, we use Otter Tail's maintenance expense rates. The total maintenance expense is then a function of the restated LUMs. The parties also agree to the cost to overhaul the C44-9 locomotives.

**SD40 Locomotives.** The parties agree on the mileage maintenance expense. We adjust the total expense to our LUM calculation for the spare locomotives and the addition of the four work trains. The parties agree on an overhaul cost of \$300,933 every 9 years.

## 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 agree on the cost of fuel per gallon (72.43 cents).

For fuel consumption, Otter Tail developed a fuel consumption rate for each train from BNSF's system-average fuel expenses for these types of locomotives. BNSF accepted that procedure, with one exception. It notes that for SD70 and C44-9 locomotives, Otter Tail failed to take into account the fuel consumption for switching that is included in URCS. Otter Tail argues that, under its operating plan, switching would be done only by the SD40 locomotives, so including fuel consumption associated with switching by SD70 and C44-9 locomotives would overstate fuel expenses for those types of locomotives.

Otter Tail's fuel consumption estimates for these two types of locomotives are supported and reasonable. Because we use Otter Tail's operating plan, under which all switching is performed by SD40 locomotives, we use Otter Tail's fuel consumption estimates for SD70 and C44-9 locomotives.

## **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 (\$0.078 per LUM), which is used here in conjunction with our finding on the number of LUMs for the OTRR.

## **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 Otter Tail's operating plan is used here, that plan is used to estimate the number of coal cars that would be required. However, there is a large difference between the parties on the number of privately owned freight cars used by the traffic group. The difference is due to how the parties interpret the markings on the cars. Otter Tail considers only those cars marked BN or BNSF as railroad-owned cars. BNSF would include additional cars with "X" markings, which are leased by BNSF from private firms. We conclude that those cars that are leased by BNSF from private firms should be considered as railroad-owned cars, as they are not supplied by the shipper. This results in a substantial increase in the number of railcars.

Furthermore, because of maintenance considerations, cars would not be available at all times, and thus the OTRR would need additional cars to serve as spares. Otter Tail assumed that the OTRR would need a 5% spare margin, while BNSF assumed a 10% spare margin based on the Board's findings in prior SAC cases. BNSF notes that Otter Tail's own fleet of coal cars has over an 8% spare margin, while Otter Tail supports its figure with reference to the spare margins in several BNSF transportation contracts.

The Board accepted a 10% rail car spare margin in Xcel (at 61) because the complainant there had failed to support its 5% figure. Here, in contrast, Otter Tail's estimate is supported and appears feasible. Thus, Otter Tail's proposed 5% rail car spare margin is used as the least cost figure.

### **2. Railcar Lease Expense, Maintenance Expense, and Private Car Allowance**

**a. Coal Cars.** Otter Tail uses a cost of \$422 per hopper car and \$403 per gondola car, based on the lowest advertised lease rates produced during discovery. BNSF uses the actual leases, rather than advertised lease rates, and includes an additional expense for maintenance costs. However, we agree with Otter Tail that BNSF has double-counted maintenance costs, as the leases appear to be full-service leases with maintenance included. Moreover, Otter Tail's estimates appear feasible and supported. Thus, we use Otter Tail's figures.

**b. General Freight Cars.** There is a modest difference between the parties in their calculation of the articulated car adjustment. Based on the supplemental evidence submitted by the parties, we find that the results of BNSF's articulated car adjustment more accurately reflect the general freight car requirements of the OTRR system, including the southbound PRB traffic and excluding the northern rerouted traffic.

### 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 OTRR 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 OTRR would require. The operating plan is the prime determinant of the number of T&E personnel. Because Otter Tail's operating plan is used here, our SAC analysis is generally based on the number of crew personnel specified by Otter Tail. However, we add eight work crews to operate the four MOW work trains we have previously included, see Section A.1.d. Finally, we restate the number of line-haul personnel from 407 to 438, based on our restated LUM and car-mile calculations.

### D. Non-Train Operating Personnel

There is a modest difference in the parties' estimates for the number of 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.

**Table C-3**  
**Non-Train Operating Personnel**

|                                                  | <b>Otter Tail</b> | <b>BNSF</b> | <b>STB</b> |
|--------------------------------------------------|-------------------|-------------|------------|
| <b>Vice President – Transportation</b>           | 1                 | 1           | 1          |
| <b>Assistant</b>                                 | 1                 | 1           | 1          |
| <b>Dir/Mgrs Train &amp; Loco. Op.</b>            | 7                 | 7           | 7          |
| <b>Asst. Train Managers</b>                      | 10                | 12          | 10         |
| <b>Yardmasters</b>                               | 0                 | 15          | 15         |
| <b>Crew Manager</b>                              | 1                 | 1           | 1          |
| <b>Crew Callers</b>                              | 9                 | 9           | 9          |
| <b>Crew Haulers</b>                              | 0                 | 36          | 0          |
| <b>Dispatchers</b>                               | 14                | 14          | 14         |
| <b>Dir/Mgr - Operations Control</b>              | 6                 | 6           | 6          |
| <b>Dir/Mgr - Safety &amp; Training</b>           | 6                 | 3           | 6          |
| <b>Customer Service</b>                          | 6                 | 6           | 6          |
| <b>Vice President – Eng., Mech., &amp; Admin</b> | 1                 | 1           | 1          |
| <b>Assistant</b>                                 | 1                 | 1           | 1          |
| <b>Dir/Mgr – Mech. Operations</b>                | 3                 | 4           | 3          |
| <b>Equip. Planning</b>                           | 1                 | 0           | 0          |
| <b>Equip. Inspectors &amp; Welders</b>           | 50                | 63          | 50         |
| <b>TOTAL</b>                                     | <b>117</b>        | <b>180</b>  | <b>131</b> |

#### 1. Train Managers and Asst. Train Managers

The parties agree on the number of train managers that would be needed. BNSF's evidence excluded one assistant train manager, on the ground that one less operating manager would be needed if the southbound traffic were excluded from the traffic group. However, we include that traffic here. Because the number of assistant train managers is dependent on the operating plan and we use Otter Tail's operating plan here, we use Otter Tail's evidence regarding the number of assistant train managers.

## 2. Yardmasters

Otter Tail 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 Donkey Creek, Converse, and Glendive yards for a variety of activities, especially switching activities. Otter Tail has not rebutted that evidence. Thus, we use BNSF's evidence on yardmasters, which is consistent with the Board's finding in Xcel for a similar SARR. See Xcel at 63 (accepting BNSF's evidence of five yardmasters each at three yards).

## 3. Crew Haulers

BNSF would include 36 crew hauler positions to transport train crews that exceed their hours of service. Otter Tail, however, has already included an expense for taxi service to ferry relief crews to and from main-line trains. BNSF's staffing proposal is therefore duplicative and unnecessary. Accord Xcel at 64.

## 4. Equipment Planning

Otter Tail included a position for "equipment planning" manager, but it offered no justification for this position. BNSF excluded this position from its reply testimony. BNSF's omission appears to be a concession that this is an unnecessary, avoidable cost. Therefore, we exclude the position.

## 5. Car/Equipment Inspectors

Otter Tail would have the OTRR hire 50 equipment inspectors. BNSF's evidence includes 63 inspectors. Because BNSF has not adequately supported this higher number, we use Otter Tail's figure for equipment inspectors.

## E. General & Administrative Personnel

The parties' general and administrative (G&A) personnel estimates for the OTRR differ substantially. **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**

|                                                | <b>Otter Tail</b> | <b>BNSF</b> | <b>STB</b> |
|------------------------------------------------|-------------------|-------------|------------|
| <b>7-Member Board of Directors</b>             |                   |             |            |
| <b>Outside Directors</b>                       | 4                 | 5           | 4          |
|                                                |                   |             |            |
| <b>President/CEO</b>                           | 1                 | 1           | 1          |
| <b>Assistants</b>                              | 1                 | 1           | 1          |
| <b>Director - Corporate Relations</b>          | 0                 | 1           | 1          |
| <b>Secretary</b>                               | 0                 | 0           | 0          |
| <b>Vice President – Finance Operations</b>     | 1                 | 1           | 1          |
| <b>Assistant</b>                               | 1                 | 1           | 1          |
| <b>Treasurer</b>                               | 1                 | 1           | 1          |
| <b>Ass't Treasurer</b>                         | 0                 | 1           | 0          |
| <b>Cash Manager</b>                            | 1                 | 1           | 1          |
| <b>Controller</b>                              | 1                 | 1           | 1          |
| <b>Revenue Accounting</b>                      | 4                 | 10          | 5          |
| <b>Taxes</b>                                   | 1                 | 1           | 1          |
| <b>Financial Reporting</b>                     | 2                 | 7           | 4          |
| <b>Disbursements</b>                           | 6                 | 5           | 6          |
| <b>Revenue Analysts</b>                        | 0                 | 2           | 0          |
| <b>Purchasing</b>                              | 0                 | 3           | 1          |
| <b>Real Estate</b>                             | 0                 | 2           | 0          |
| <b>Miscellaneous</b>                           | 2                 | 4           | 3          |
| <b>General Counsel/VP – Law</b>                | 1                 | 1           | 1          |
| <b>Attorneys</b>                               | 1                 | 1           | 1          |
| <b>Paralegals</b>                              | 1                 | 1           | 1          |
| <b>Vice President – Human Resources</b>        | 1                 | 1           | 1          |
| <b>HR Staff</b>                                | 6                 | 12          | 6          |
| <b>Vice President – Marketing</b>              | 1                 | 1           | 1          |
| <b>Marketing Staff</b>                         | 3                 | 15          | 3          |
| <b>Vice President – Information Technology</b> | 0                 | 1           | 0          |
| <b>Director – IT</b>                           | 1                 | 1           | 1          |
| <b>Specialists - IT</b>                        | 8                 | 9           | 8          |
|                                                |                   |             |            |
| <b>TOTAL</b>                                   | <b>49</b>         | <b>91</b>   | <b>55</b>  |

## 1. Board of Directors

Otter Tail proposed a 7-person board of directors for the OTRR, with four paid outside board members. BNSF would provide for five paid outside directors. Otter Tail's proposal would provide sufficient oversight independent from OTRR management. But see Xcel at 66; Duke/CSXT at 60; CP&L at 62; Duke/NS at 74; TMPA at 95 (finding that the complainants'

proposed boards of directors were unreasonable). Therefore, Otter Tail's proposed number of outside directors is used here.

## 2. President's Office

BNSF argues that a corporate secretary would be needed to ensure compliance with laws and regulations and to assume responsibility for corporate relations. Otter Tail argues that the legal functions would come under the responsibility of the legal department, see Xcel at 66, but Otter Tail has not replied to the asserted need for an employee to handle corporate relations. Because that position has been included in prior SAC cases, see Xcel at 66; TMPA at 9, we include a director of corporate relations as proposed by BNSF.

## 3. Treasurer's Office

Otter Tail provided for a treasurer and a cash manager. BNSF argues that an assistant manager would be needed given the substantial revenues the OTRR would receive from the traffic group. Otter Tail's evidence appears feasible and supported, given the comparatively small size and limited complexity of the OTRR as a non-public company. BNSF has failed to show that a larger treasurer's office is necessary. Accordingly, we use Otter Tail's evidence here.

## 4. Controller Operations

**Revenue Accounting.** BNSF argues that a large revenue accounting department would be needed because many of the non-coal shipments would likely move on a "Rule 11" basis, where each carrier in the route bills the customer for its portion of the move. Otter Tail counters that the OTRR would handle most non-coal traffic under contract rates. We conclude that Otter Tail's proposed revenue accounting department is adequate and that BNSF has not justified a larger department, particularly because the rerouted portion of the non-coal traffic is excluded from the traffic group.

**Financial Reporting.** The large staff proposed by BNSF is unrealistic because the OTRR would not be a publicly traded corporation, whereas Otter Tail's proposed staffing for financial reporting is feasible and supported. Accordingly, we use Otter Tail's evidence for this expense.

**Disbursements.** Otter Tail would have the OTRR handle disbursements with an assistant controller, payroll manager, two payroll clerks, and two disbursement clerks. BNSF proposes different staffing (adding a manager of accounts payable, and removing one payroll clerk and one disbursement clerk). Because Otter Tail's evidence is feasible and supported, it is used here.

**Revenue Analysts.** BNSF would have us add two positions to analyze revenues, including such matters as overcharging, undercharging, miscoded bills, etc. We agree with Otter Tail, however, that these positions would be unnecessary, given the relatively simple operations of the OTRR.

**Purchasing.** Otter Tail did not provide for a purchasing department for the OTRR. It would have the Engineering/Mechanical department handle all purchasing needs for the entire company. However, Otter Tail's plan is infeasible, as all departments in the OTRR would need supplies and purchasing support, not just the Engineering/Mechanical Department. BNSF would have us add a purchasing department consisting of three employees. Because two of these

positions are already included in our MOW calculations (the managers of purchasing), we add only one position for purchasing here.

**Real Estate.** Otter Tail argues that with its revised configuration, the OTRR would not need a real estate department, because no property would be bought or sold in the near future. BNSF, however, argues that real estate issues would arise from time to time with respect to such matters as new grade crossings or purchases of additional land. We agree with Otter Tail that few or no real estate issues would be likely to arise, and that it is therefore unrealistic to include any personnel for a real estate function.

**Miscellaneous.** The parties agree that the OTRR would need a manager for car-hire and a cost and budget clerk. BNSF would also add a manager of miscellaneous billing and an internal audit director. Although BNSF has not justified the additional manager, we agree with BNSF that the OTRR would need an internal auditor to oversee the various finance functions.

## **5. Law Department**

The parties agree that the legal department would consist of the general counsel, a staff attorney, and a paralegal. The parties disagree, however, on the amount of outside legal fees that the OTRR would likely incur. Otter Tail estimated that the OTRR would incur fees of \$250,000 per year, based on the experience of its witness, Mr. Sugar. BNSF claims that the legal fees would be \$805,000 per year, based on a comparison to the legal fees of Wisconsin Central System (WCS) and Montana Rail Link (MRL). Otter Tail maintains that, because the OTRR would be privately held and would carry limited commodities, it would incur fewer legal fees than WCS and MRL. Although this may be true, Otter Tail has not shown why its proposed amount is a more accurate figure. Because the burden rests on Otter Tail to show that its figure is feasible, and it has failed to satisfy that burden here, we use BNSF's outside legal expense estimate.

## **6. Human Resources**

Otter Tail would staff the human resources department with a vice president, and six staffers in various positions. BNSF would add three additional staff for safety and security and three other extra personnel. Otter Tail claims that safety and security would be handled by the individual departments, and that BNSF has failed to explain what function the other personnel would fill. We concur. Because Otter Tail's proposed staffing for human resources appears feasible and supported, we use its figures.

## **7. Marketing Department**

An important department for any railroad is marketing. Most of the shippers in the OTRR 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 OTRR'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 OTRR's marketing representatives would need to constantly monitor the coal and energy markets of the utility companies to analyze and respond to offers, make counter-proposals, and negotiate new terms and conditions. And the industry trend is towards shorter contract terms, which would increase the importance of the marketing department.

In past cases, complainants have attempted to outsource the entire marketing department at a nominal cost, a proposal the Board has rejected as infeasible. See, e.g., Xcel at 67. Here, Otter Tail proposes a more reasonably staffed marketing department. The department would be headed by a vice president, who would have three staff to assist in contract renewals and day-to-day marketing functions. BNSF claims that a staff of 15 persons would be needed. Such a marketing department would be as large as BNSF's own 15-person coal marketing department. The OTRR would plainly not need a marketing department as large as that used by BNSF for its entire coal transportation business, as the OTRR would serve only a subset of BNSF's coal customers. Although Otter Tail's proposed staffing level is lean, it does not appear infeasible, whereas BNSF's proposal would overstate the marketing department the smaller OTRR would need. Accordingly, we use Otter Tail's marketing department staffing levels.

## **8. Information Technology**

Otter Tail proposed to handle the information technology (IT) needs of the OTRR with a 9-person IT department (a manager and 8 specialists). BNSF claims that the IT department would be too important not to be overseen by an assistant vice president, and BNSF would also add an additional specialist. Although we recognize the importance of technology to a modern railroad, Otter Tail's proposal is supported by reference to the Kansas City Southern (KCS) railroad, and BNSF has failed to present persuasive contrary evidence. Accordingly, we use Otter Tail's staffing levels for IT.

## **F. Wages and Salaries**

### **1. Crew Compensation**

#### **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 Wage Forms A&B for "Thru Engineers and Thru Conductors," Otter Tail developed a base wage of \$49,252 per engineer and \$39,516 per conductor. BNSF disputes the appropriateness of those calculations, arguing that the data relied on by Otter Tail includes the wages for all BNSF engineers and conductors, the majority of which worked less than 270 shifts per year. BNSF argues that engineers and conductors working the 270 shifts proposed by Otter Tail would require higher compensation, similar to BNSF's practice. Accordingly, BNSF based its proposed crew wage evidence on a group of BNSF engineers and conductors that worked between 255 and 284 shifts per year during 2002, resulting in a base crew wage of \$49,497 per engineer and \$44,213 per conductor.

We agree with BNSF that employees working more hours would command more compensation. Because BNSF's calculations are reasonable, we use BNSF's base crew wage estimate here. See Xcel at 68.

#### **b. Constructive Allowance**

Otter Tail produced a list of 110 expense categories for engineers and/or conductors and then excluded 33 of these categories as being irrelevant to the OTRR. These exclusions include such significant expenses as vacations and "short crew allowances" (additional payments for train crews when the assigned number of employees is not present for a given shift). As an illustration, Otter Tail sought to justify the exclusion of the "short crew allowances" by assuming that the OTRR would always have two employees on each train (a conductor and engineer) and

thus no short crew allowances would accrue. It offered no rational reason for excluding vacations. BNSF objects to the exclusion of all 33 allowances.

As explained in Xcel (at 68), these types of “constructive allowances” are an integral part of the total compensation that BNSF pays its conductors and engineers. Whether that payment is labeled as “salary” or an “allowance,” the payment is part of the prevailing market wage that the OTRR would have to pay to attract and retain its train crews. Thus, we will not remove a crew allowance absent compelling evidence that a non-unionized railroad could attract and retain a sufficient workforce without paying these benefits, and no such evidence has been presented here. Accordingly, BNSF’s total constructive allowances, based on BNSF’s own workforce, are used here. Accord Duke/NS at 75; Xcel at 69.

### **c. Taxi Expenses**

Otter Tail developed three different taxi costs: \$5 for yard movements, \$10 for hotel runs, and \$25 for branch operations. BNSF accepts the latter two rates, but would exclude taxis for yard operations, relying on crew haulers instead. Because Otter Tail’s use of taxi service for yard operations in lieu of crew haulers is reasonable, we use Otter Tail’s taxi expense estimates.

### **d. Overnight Expenses**

The parties agree on a \$44.89 cost for overnight lodging and meals, but they differ on the number of overnight stays that would be required by train crews. Based on our LUMS and car-mile calculations, we estimate that a cost of \$35,924 for overnights would be required.

## **2. Executive Compensation**

Otter Tail developed executive-level compensation based on the salaries paid at the Wisconsin Central North America Railroad (WCNA). Otter Tail would have the OTRR pay its President a \$372,364 annual salary, its VP-Finance and VP-Transportation a \$240,475 annual salary, and its treasurer, controller, general counsel, VP-Marketing, and VP-Human Resources a \$200,281 annual salary.

BNSF has provided testimony from the former President of WCNA that he was paid far more than Otter Tail asserts (over \$800,000 in salary, bonus, and stock options). BNSF has also provided a chart showing the compensation for various executive positions on Class I and shortline railroads. BNSF would have the OTRR pay its President \$695,383, based on a comparison to the amount that KCS paid its President. Based on its witness’ testimony, BNSF would have the OTRR pay its vice presidents of major departments \$298,021, its vice presidents of smaller departments \$248,351, and its assistant vice presidents \$199,070.

Although the former WCNA President was given stock options, Otter Tail points out that these stock options were not counted as an expense by WCNA. Once stock options are excluded, Otter Tail’s proposed compensation, which includes both salary and bonus, is close to the compensation WCNA’s former President received in salary and bonus. Moreover, BNSF’s proposed compensation is based on the compensation paid to the President of KCS, and we agree with Otter Tail that BNSF’s reliance on that carrier is not appropriate because KCS’s President is responsible for managing a much larger system than the OTRR. Thus, Otter Tail’s proposed compensation for the OTRR’s President is reasonable and we use that figure.

For the vice president positions, BNSF’s Wage Forms A&B show compensation of slightly over \$200,000 for executives and general officers. Also, BNSF’s evidence on executive

compensation shows a wide range of compensation, and Otter Tail's proposed figures fall within that range. Because Otter Tail's estimates are supported by reference to WCNA, and BNSF has not provided convincing evidence that the compensation at WCNA is unreasonably low, we use Otter Tail's proposed salaries for the vice presidents and similar positions.

### **3. Administrative Assistants**

The parties disagree on the compensation that executive assistants should receive. Otter Tail uses the wage from BNSF's Wage Forms A&B for clerical technicians and specialists (\$43,233). BNSF argues that this position is essentially an executive secretarial position, not a clerical position, and thus it would have us use the wage for secretaries, stenographers, and typists (\$69,071). We agree with BNSF, and we use its higher wage figure here.

### **4. 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. In many instances, the parties agree on the appropriate salary, although they use different indexing methodologies, discussed below. However, Otter Tail claims that BNSF incorrectly selected certain labor classes and misclassified several positions.

In general, the labor classes from the Wage Forms A&B selected by Otter Tail appear to more accurately reflect the level of responsibility of the OTRR employees. Therefore, we use Otter Tail's figures, with some exceptions.

BNSF's evidence on the salary of yardmasters is used here as that is the only evidence of record relating to those positions. Although Otter Tail challenged the need for yardmasters, it did not challenge BNSF's evidence on the compensation such employees would require.

For human resource personnel, BNSF provided salaries that are generally less than those proposed by Otter Tail. We use BNSF's figures as the least cost estimates.

Finally, for the staff attorney, we use BNSF's higher estimate as the better evidence of record. Because the OTRR would have a lean legal department, it would have to hire a staff attorney of considerable skill to handle the wide variety of general legal issues that could arise. BNSF's estimate therefore appears more appropriate.

### **5. Outside Directors**

The parties agree that outside directors would be paid \$40,000 a year. Although contrary to agency precedent, see Xcel at 70-71; Duke/CSXT at 62; CP&L at 64; Duke/NS at 77; TMPA at 95 (finding that outside directors would likely have a direct interest in the SARR's success and thus would be willing to serve on the SARR's board with only minimal compensation), the estimate is used here because there is no dispute regarding this cost.

### **6. Fringe Benefits**

Otter Tail calculated fringe benefit ratios (which vary by department) from the ratios of supplements to base wages for all Class I carriers, information derived from the First Quarter 2002 RCAF calculations. BNSF calculated higher fringe benefits, based on what it pays its own employees (information derived from its 2002 R-1 filings with the Board), rather than using the lower industry averages derived by Otter Tail. Because the OTRR is designed to be the most efficient railroad, and BNSF has failed to explain why the OTRR could not attract and retain its employees by paying the industry average level of fringe benefits, we use Otter Tail's factors.

## 7. Travel Expenses

Otter Tail would include travel expenses for specific operating and administrative personnel at an annual expense of \$6,667, based on an annual survey of corporate travel managers performed by Runzheimer International, which estimates the annual cost of corporate travel. BNSF would have us include a much higher travel expense—equal to 5% of total wages and salaries of most employees, and 15% of salary for marketing—but the derivation of these estimates is unsupported. Otter Tail’s proposal appears feasible and is supported, whereas BNSF’s appears unrealistic. The OTRR would be a regional railroad, and it is improbable that nearly every employee would require compensation for travel expenses. Accordingly, we use Otter Tail’s \$6,667 per person travel expense estimate.

## 8. Indexing Methodology

Otter Tail’s methodology for indexing wages suffers the same analytical flaw discussed in Xcel at 71. For the reasons stated in that decision, BNSF’s indexing method, which is mathematically sound and was used in Xcel, is used here.

## G. Materials, Supplies, and Equipment

Materials, supplies, and equipment would be needed to support OTRR 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 Otter Tail’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. Otter Tail would have the OTRR purchase 24 Ford Explorer SUVs and 6 Chevrolet Malibu vehicles, to be placed in a common pool at Donkey Creek for use by the executives. BNSF would have us add 8 Suburbans for crew hauling, 10 Ford F-150 pickups for equipment inspectors, and 39 Explorers, so that each manager would have his or her own vehicle. We agree with BNSF that the additional trucks are needed for the equipment inspectors. In all other respects, we find Otter Tail’s evidence feasible and supported, and we use its figures for the number and type of vehicles.

Although both parties relied on Edmunds.com for the prices of the vehicles, there is nonetheless a modest difference between the parties in the cost for Explorers. Based on our review of the record, and Edmunds.com prices for four-wheel-drive Explorers, we use the prices submitted by BNSF.

Finally, the parties agree that the vehicles would have an average life of 6 years and a salvage value of 13% of the initial acquisition cost. They disagree, however, on the interest rate to use. BNSF would use the industry average cost of capital, while Otter Tail advocates a 4.29% interest rate. Otter Tail has provided no rationale for departing from our general 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 OTRR would make. Such an examination would significantly

complicate SAC cases but in the end would have no perceptible effect on the overall costs that the OTRR would incur, as some investments would have financing costs above the aggregate cost of capital while others would have lower rates. See Xcel at 72-73.

## **2. Desks**

The parties agree on the cost per desk (\$2,461) but disagree on the expected life of the desk. Otter Tail assumes an 8-year amortization period, while BNSF assumed a 5-year period, consistent with the precedent in Xcel (at 73). In this case, Otter Tail has failed to justify a departure from that precedent. However, as was the case in Xcel, BNSF's method of amortizing throughout the amortization period is flawed. BNSF would have the OTRR 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. BNSF's method would overstate the desk expenses. Therefore, we use Otter Tail's amortization method, except that we use an amortization period of 5 years.

## **3. Safety Equipment**

The parties do not agree on the amount of safety equipment that each T&E employee would need. Otter Tail'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 \$240.81 per employee for items such as prescription glasses, safety shoes, and cold- and warm-weather gloves. Otter Tail points out that railroads do not typically supply employees with clothing items, and BNSF has not provided any evidence that railroads generally provide such equipment to their employees. Therefore, we use Otter Tail'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. We use BNSF's evidence regarding EOTDs, as it is the least-cost evidence on the record.

## **5. Radios**

The parties agree on supplying each locomotive with a 2-way radio, at a per-unit cost of \$500 and an expected life of 5 years. BNSF amortized the expense of each radio over 5 years, whereas Otter Tail used a cost-of-capital approach and included a sales tax. Otter Tail's method is superior and consistent with the way we amortize vehicle purchases, and we therefore use it for this expense.

## **6. Inspection Tools and Supplies**

The parties agree on the unit cost for a tool set and car parts for the inspectors. Otter Tail would provide 5 tool sets and \$150,000 worth of parts for 8 inspectors, whereas BNSF would provide 10 tool sets and \$1.5 million worth of parts. While it appears reasonable to provide each inspector with his or her own tool set, we believe that it is unrealistic to provide each with a full set of parts. Thus, we include 8 tool sets and \$150,000 worth of car parts for the inspectors.

## **7. Office Supplies**

The parties agree on the unit cost per staff member for office supplies (\$230.75), but Otter Tail would apply this to each person, whereas BNSF would apply this cost to each desk.

We believe that the amount of office supplies needed is more likely to be based on the number of persons than the number of desks. Therefore, we use Otter Tail's approach.

## **8. Utilities**

Otter Tail estimated a utilities expense of \$250,000 per year. BNSF accepts this as a base number, but would increase it by 35% to reflect its proposed increase in non-train operating personnel. However, BNSF has offered no explanation for why utilities expenses should increase in direct proportion to the number of employees. Therefore, we use Otter Tail's estimate.

## **H. Start-Up Costs**

### **1. Training & Recruitment**

The parties agree that the OTRR would incur costs to recruit professional employees and to train other employees. They also agree on the cost to train dispatchers, maintenance supervisors, and equipment inspectors. However, the parties do not agree on the recruitment or training costs for other employees or generally whether to expense or capitalize the start-up training and recruitment costs.

#### **a. Training**

Otter Tail assumes that many of the conductors and engineers would have prior experience and would thus not require training. It assumes a mix of experience and projects formal classroom training costs accordingly. BNSF argues that the OTRR would not be able to get experienced personnel and would have to train all new engineers and conductors. We agree with BNSF. There is a great demand for conductors and engineers, and the major Class I railroads are hiring new employees by the hundreds. Thus, we include a full 6-week training class, at an expense of \$4,700 per conductor or engineer.

Both BNSF and Otter Tail provide for \$5,000 per MOW crew employee for initial training.

#### **b. Wages While Training**

The parties generally agree that employees would be paid a salary while undergoing training. They disagree, however, on what percentage of their respective salaries each should receive. Because Otter Tail has failed to justify its wage number, or to show that BNSF's evidence is unrealistic, we use BNSF's proposed percentages.

#### **c. Travel, Meals, & Lodging**

For each dispatcher, conductor and engineer, BNSF would have the OTRR provide a per diem of \$75 per day, lodging, and airfare during training, whereas Otter Tail provides for none of these expenses. Neither party has provided any discussion as to why these costs should or should not be included. In Xcel, the Board accepted a per diem of \$35 per day for meals, and neither party has supported a departure from that precedent. Therefore, we use that figure. For lodging and travel, however, we accept BNSF's evidence as Otter Tail has failed to support its own position, or shown that BNSF's evidence is unrealistic.

#### **d. Recruitment Cost per Employee**

The parties agree that, for employees who would not require any training (such as executives and managers), the OTRR would incur recruitment costs. BNSF would have us allocate \$1,348 per non-executive and 25% of salary for each executive. Otter Tail, however, argues that many employees would be hired through advertisements, not search firms. Otter Tail also offered evidence that headhunters could charge as little as 10% of salaries for executives. For non-executive employees, Otter Tail agrees that a recruitment cost of \$1,348 is appropriate, but disputes the number of employees this amount should be applied to. We do not apply this recruitment cost to either parties' suggested count, but instead, use our own number, due to the fact that we have made adjustments to the number of conductors, engineers, and administrative positions, and thus neither parties' non-executive count would be accurate. In addition, we are persuaded by Otter Tail's showing that the OTRR could recruit executives using lower-cost headhunters, and we use its 10% figure for that expense.

BNSF would also have us allocate \$100 per employee for pre-employment testing, pointing out that WCS incurs such costs. Otter Tail argues this expense is unnecessary, as it could be done as part of the initial training for crews or pre-employment interviews. We agree with Otter Tail that pre-employment testing would not be necessary, and we therefore exclude this additional expense.

#### **e. Start-Up Recruitment & Training Expenses**

Otter Tail would capitalize, rather than expense, the initial recruitment and training costs that the OTRR would incur. Otter Tail argues that this large, upfront expense should be treated like other start-up capital investments and annualized over the life of the OTRR. However, under generally accepted accounting principles (GAAP), the cost of training and recruiting employees is treated as an operating expense that is not capitalized. See American Institute of Certified Public Accountants, Statement of Position 98-5, Reporting on the Costs of Start-Up Activities (1998) (SOP 98-5). Otter Tail cites SOP 98-5 for the proposition that "GAAP principles require start-up recruitment and training expenses to be capitalized." Although Otter Tail acknowledges that SOP 98-5 requires these kinds of expenses to be "expensed as incurred," it argues that these expenses would occur before the SARR would begin operations, and therefore should be amortized (i.e., capitalized). See Otter Tail Br. at 22.

As this argument was raised for the first time on brief, BNSF had no chance to respond. But all start-up expenses, by definition, occur before a firm begins operations. SOP 98-5 defines start-up activities as one-time activities an entity undertakes when it opens a new facility, introduces a new product or service, conducts business in a new territory or with a new class of customer or beneficiary, initiates a new process in an existing facility or commences some new operation. Furthermore, SOP 98-5 states that such start-up expenses, which include training and recruitment of employees, should not be capitalized. Otter Tail has somehow turned SOP 98-5 full circle to require the amortization of all startup expenses that occur before the company begins operation. We are not persuaded by Otter Tail's argument. Therefore, consistent with SOP 98-5 and SAC precedent (see, e.g., Xcel at 75; Duke/CSXT at 64-65), we include the full start-up costs as an annual operating expense in the OTRR's first year of operation.

#### **f. Subsequent Annual Recruitment & Training Expenses**

The OTRR, like all businesses, would need to replace employees lost to attrition. BNSF estimates that the OTRR would have an attrition rate of 5.5% annually. Otter Tail's narrative testimony does not discuss attrition rates. Consistent with prior practice (see Xcel at 76; Duke/CSXT at 64; CP&L at 66; Duke/NS at 79) and the record in this case, we use an attrition rate of 5.5%. However, we apply this rate only when recruiting and training of replacement employees would be needed. When the amount of traffic on the OTRR is projected to increase, the OTRR would have to train new employees not only to replace those lost to attrition, but also to handle the additional traffic. Conversely, in those years when traffic volumes are projected to decrease, the OTRR would not need to train the same number of new employees as the number that would be lost to attrition.

### **2. Equity Financing Fee**

BNSF argues that the OTRR 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 Xcel at 76; TMPA at 162; WPL at 107. Here, BNSF has offered no more evidence than what the Board has found inadequate in prior cases. Based on discussions with the President and CEO of Anacostia & Pacific Co., BNSF asserts that the OTRR would need to employ investment bankers to raise this equity capital and that it would cost approximately 4% of face value. But absent evidence of the existence and rate of equity flotation fees associated with equity issuances of a similar size, BNSF has not justified a departure from precedent.

#### **I. Ad Valorem Tax**

Otter Tail adjusts the ad valorem taxes to exclude certain portions of BNSF property that is leased. BNSF, however, has shown that it pays such taxes on that property in several states. Therefore, the expense is included here.

#### **J. Loss and Damage**

The parties use the same loss-and-damage rates by two-digit Standard Transportation Commodity Codes and they agree on the loss and damages applicable to coal traffic. However, neither party submitted convincing evidence as to the amount of tonnage that should be applied to particular non-coal Standard Transportation Commodity Codes. Because Otter Tail has the burden of proof on this issue, and has failed to satisfy its burden, we use BNSF's evidence for non-coal traffic.

#### **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**

|                                                     | <b>Otter Tail</b>   | <b>BNSF</b>         | <b>STB</b>          |
|-----------------------------------------------------|---------------------|---------------------|---------------------|
| <b>Staffing</b>                                     | \$9,087,930         | \$30,957,988        | \$26,939,803        |
| <b>Equipment</b>                                    | 1,716,000           | 13,507,421          | 3,999,425           |
| <b>Materials</b>                                    | 0                   | 2,136,852           | 2,136,852           |
| <b>Weed Spray</b>                                   | 90,850              | 721,078             | 90,850              |
| <b>Ultrasonic Rail Testing</b>                      | 175,123             | 476,522             | 476,522             |
| <b>Track Geometry</b>                               | 371,187             | 476,358             | 371,517             |
| <b>Rail Grinding</b>                                | 1,390,156           | 2,495,751           | 2,495,751           |
| <b>Switch Grinding</b>                              | 0                   | 276,526             | 276,480             |
| <b>Crossing Grinding</b>                            | 0                   | 70,618              | 70,560              |
| <b>Bridge Contract Work</b>                         | 1,045,245           | 806,535             | 806,535             |
| <b>Yard Cleaning</b>                                | 0                   | 100,700             | 100,464             |
| <b>Misc. Engineering</b>                            | 0                   | 828,255             | 828,255             |
| <b>Building Maintenance</b>                         | 0                   | 440,164             | 440,164             |
| <b>Contract Labor For Track Program Maintenance</b> | 3,772,650           | 0                   | 0                   |
| <b>Derailment Allowance</b>                         | 0                   | 2,225,000           | 2,225,000           |
| <b>Snow Removal</b>                                 | 209,054             | 402,100             | 402,100             |
| <b>Casualties</b>                                   | 0                   | 782,000             | 0                   |
| <b>Ditching</b>                                     | 143,560             | 444,020             | 443,880             |
| <b>Environmental Mitigation</b>                     | 0                   | 370,000             | 181,000             |
| <b>Stabilization</b>                                | 0                   | 1,015,000           | 1,015,000           |
| <b>Clearing Wrecks</b>                              | 80,803              | 0                   | 0                   |
| <b>Training/Recruitment</b>                         | 0                   | 4,612,054           | 0                   |
| <b>Track Materials</b>                              | 2,022,576           | 5,476,032           | 5,476,032           |
| <b>TOTAL</b>                                        | <b>\$20,105,134</b> | <b>\$68,620,974</b> | <b>\$48,776,190</b> |

### 1. Staffing & Equipment

The OTRR 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 OTRR'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). Otter Tail claims that the OTRR would need a permanent MOW staff of only 17 management supervisory staff, and 190 field personnel, for a total of 207 MOW personnel. Otter Tail argues that the OTRR's on-staff personnel would handle the majority of the annual, "spot" maintenance (which is considered an operating expense), and that the OTRR would contract out program maintenance (which is not considered an operating expense) that could be scheduled and accomplished in a practical, efficient, and economic manner.<sup>107</sup> According to Otter Tail, annual maintenance would be handled by 13 crews made up of 14 members each,<sup>108</sup> with each

<sup>107</sup> See Otter Tail Reb. Narr. III-D-97-98.

<sup>108</sup> See Otter Tail Supp. Narr. III-D-11 (filed Mar. 1, 2005).

crew covering an area of about 100 miles.<sup>109</sup> In addition to the 13 MOW gangs, Otter Tail would include 2 electricians, 2 masonry workers, 2 carpenters, and 2 water service workers. Otter Tail also claims that the OTRR could perform regular maintenance activities with fewer maintenance crews than BNSF by training its maintenance personnel to perform a variety of different functions.<sup>110</sup> In addition, Otter Tail asserts that the OTRR would experience less MOW problems than BNSF, as the OTRR system would be constructed with newer and more durable materials.<sup>111</sup>

BNSF argues that Otter Tail's proposed staffing levels are unrealistic, based on comparisons to BNSF's staffing levels, as well as those of similar railroads, specifically, Florida East Coast Railway and MRL. BNSF argues that Otter Tail's internal workforce would be too sparse to handle even the routine spot MOW work, let alone unplanned emergencies. BNSF proposes a total OTRR MOW staff of 483 employees to handle spot maintenance (which would include 42 seasonal employees, which the workpapers reveal would work for 9 months a year to perform various spot maintenance rather than programmed maintenance).

We examine each aspect of the parties' proposed MOW staffing below.

#### **a. Staffing Levels**

There is a massive difference between the parties on the MOW staffing levels that the OTRR would require. Otter Tail argues that the staffing levels could be lower than BNSF's because the OTRR's MOW operations would be more efficiently organized and structured. In particular, Otter Tail claims that the OTRR MOW force would be patterned after the MOW department of the defunct Western Rail Properties, Inc. (WRPI), with the exception that OTRR would contract out its program maintenance work.<sup>112</sup> Otter Tail states that a basic maintenance force was all that WRPI needed to handle day-to-day problems that occurred on its system. Otter Tail's MOW evidence is based on the experience of its witness, Mr. McDonald, a former executive at WRPI.

Otter Tail, however, provides scant evidence of the specifics of this comparison. Otter Tail provides no evidence regarding the number of supervisors or field personnel WRPI employed or how employees were distributed throughout WRPI's system. For example, Otter Tail proposes that its 14-member road gangs could cover an area of approximately 90 to 100 miles in length, but it provides no evidence that WRPI used similar crew sizes or that WRPI's crews covered a comparable area. One of the few specific comparisons that Otter Tail offers is that the OTRR's one field employee per every 6.4 route miles would be similar to WRPI's one employee per 5.8 route miles.<sup>113</sup> However, Otter Tail provided no source for the asserted WRPI statistic.

Otter Tail also argues that the OTRR could get by with a smaller MOW force because it would be a newer system and would therefore experience fewer maintenance problems. While

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<sup>109</sup> See Otter Tail Reb. Narr. III-D-101.

<sup>110</sup> Id. at III-D-99-100.

<sup>111</sup> Id. at III-D-95-98.

<sup>112</sup> Id. at III-D-97.

<sup>113</sup> Id. at III-D-122.

this may be true, Otter Tail fails to quantify the impact on spot MOW expenses of using newer, more durable materials.

Otter Tail's proposed staffing level is also lacking when it comes to unplanned emergencies. BNSF notes that OTRR's track structure would be subject to enormous forces from snow and ice caused by the severe winters in certain areas where parts of the OTRR system would be located.<sup>114</sup> BNSF argues that the area an OTRR road gang would have to cover is too great should an emergency occur, as "travel time alone—especially during the winter months of ice and snow—[would] preclude rapid response even to normal signal indications and calls from dispatchers to have signals cleared or track repaired to get the trains running."<sup>115</sup>

Otter Tail responds that, in the event of extreme inclement weather, the OTRR would have its basic forces complemented with scheduled contract forces.<sup>116</sup> However, Otter Tail fails to explain how the OTRR would accomplish the feat of hiring contractors and marshaling them to the trouble spot, despite the possible presence of inclement weather, in the relatively short period of time that would be required for service to be restored without significant interruption of traffic flows.

Otter Tail also claims that the OTRR's MOW forces would never be more than 1 to 2 hours away on the heavy-tonnage lines, and that its gangs would be in a position to assist the gang from another territory should a problem arise. However, as BNSF points out in its reply, such a practice would result in one or more gangs being taken away from their own daily MOW activities.<sup>117</sup> If the emergency were severe, requiring the additional gangs to assist in repairs for several days, the segments from which the gangs would be diverted could end up being significantly neglected.

Finally, Otter Tail provided many of the details of its MOW staffing plan for the first time on rebuttal. Although in its opening narrative it referred to a section of its workpapers that is several hundred pages long for evidence supporting the development of its MOW cost estimates, the section is actually evidence of Information Technology costs.<sup>118</sup> Otter Tail's actual MOW workpapers—which are much briefer—provide support only for contract spot maintenance costs, not for staffing levels.<sup>119</sup> Otter Tail offered its only detailed explanation of the composition of its proposed MOW force in its rebuttal, leaving BNSF to piece together the details of Otter Tail's plan from its spreadsheets.

As the party with the burden of proof, Otter Tail has failed to persuade us that its proposed MOW staffing level is feasible; nor has it demonstrated that BNSF's proposed staffing level is unrealistic. On rebuttal, Otter Tail challenges the number of employees that BNSF would have us assign to bridge, signaling, or communications repair as not being the least-cost approach. Similarly, Otter Tail would challenge as inefficient the number of supervisors that

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<sup>114</sup> See BNSF Reply Narr. III-D-123.

<sup>115</sup> Id. at III-D-132.

<sup>116</sup> See Otter Tail Reb. Narr. III-D-98.

<sup>117</sup> See BNSF Reply Narr. III-D-132.

<sup>118</sup> Compare Otter Tail Open. Narr. III-D-58 n.60 with Otter Tail Open. WP. 2992-3255.

<sup>119</sup> See Otter Tail Open. WP. 3256-3310.

BNSF would have us assign to manage the larger staffing force that it proposed. But BNSF is not obligated to identify a least-cost MOW plan for the OTRR, just one that comports with how a real railroad would perform the MOW needs. See Duke/NS at 13-15. By modeling its MOW plans based on its own experience maintaining the same rail lines, BNSF has satisfied its burden. Thus, we use BNSF's proposed staffing levels for the OTRR.

#### **b. Wages**

Otter Tail based MOW employee wages on BNSF's 2002 Wage Forms A&B, produced during discovery. BNSF relies instead on another document (also produced during discovery), titled "Brotherhood of Maintenance-of-Way Employees Rates of Pay - Effective July 2002 Former Burlington Northern."<sup>120</sup> Both parties calculate overtime allowances. Otter Tail's allowance, which would vary among employees, is also based on the BNSF wage forms, whereas BNSF would apply a flat percentage for all MOW employees. Finally, Otter Tail included only 65% of the overall cost for wages (including overtime, fringe benefits, office materials, track materials, and travel expenses), as well as equipment, under operating expenses, but has not explained how it derived this percentage. BNSF also split its wage figures between operating and non-operating expenses, but used different percentages for specific categories of employees, presumably based on the amount of time those employees spend on annual maintenance.

In its rebuttal testimony, Otter Tail objected to BNSF's use of a document other than its own wage forms as the source of wages for MOW employees. Otter Tail points out that its wage estimates are supported by reference to the Wage Forms A&B, whereas the internal document relied on by BNSF is of unknown origin. Otter Tail makes a good point. BNSF has offered no explanation for why it used this alternative source, or what was wrong with the source of Otter Tail's estimates. On the other hand, Otter Tail has failed to provide us with sufficient information to pair BNSF's staffing levels with Otter Tail's proposed wage levels. It failed to match the particular positions advocated by BNSF to their corresponding wages in the Wage Forms A&B. Otter Tail wrongly assumed that we would use its staffing levels, and it did not submit the evidence needed to restate BNSF's evidence to use wages from Wage Forms A&B. Having accepted BNSF's staffing levels as the better evidence of record, and because Otter Tail's evidence cannot reasonably be matched to the staffing positions used here, we are left only with the wages advocated by BNSF. Because those wages do not appear to be unrealistic and are supported by the internal document referenced above, we use BNSF's proposed wage estimates here.

In future cases, we recommend that the railroads explain why Wage Forms A&B (which are used by both parties to estimate wages for other operating employees) are an inappropriate source of wages for MOW employees. And we suggest that complainants submit rebuttal evidence that supplies the information needed to restate the railroad's evidence if the complainant believes a component of the railroad's proposed expense category is unrealistic or that its own evidence is superior. Finally, we also use BNSF's percentages for division of wages between operating and non-operating expenses, as Otter Tail failed to explain how it arrived at its arbitrary percentage and why a flat percentage should be used for all MOW employees across the board.

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<sup>120</sup> BNSF Reply WP. III-D-4-0060-0075.

### c. Fringe Benefits

The parties differ on the wage ratio that should be used to calculate fringe benefits costs. Otter Tail based its ratio on BNSF's 2002 R-1 Annual Report, whereas BNSF relied on a 2002 budgetary report. Because Otter Tail's ratio is supported by BNSF's own data and is thus feasible, we use Otter Tail's ratio here.

### d. Travel Expenses

The parties also include a wage additive of 10% for travel expenses. BNSF would apply this additive to the entire MOW staff, arguing that all MOW workers must travel to some extent to perform their jobs.<sup>121</sup> Otter Tail asserts that as the OTRR track gangs would be provided crew trucks for traveling, they would not need travel expenses.<sup>122</sup> Otter Tail would apply the travel expense only to electricians, masonry workers, water service workers, and carpenters and their helpers.<sup>123</sup> BNSF has not shown that it would be necessary to provide travel expenses for the entire MOW staff. Otter Tail's application of the travel expense additive to a limited number of employees is reasonable, and we use its approach.

## 2. Equipment

BNSF argues that Otter Tail's proposed equipment inventory would be insufficient to allow each track crew access to needed equipment and that essential items (including air compressors, brush cutters, rail drills) are missing.<sup>124</sup> Because we use BNSF's proposed staffing levels, we also use its proposed equipment list for MOW employees, which is realistic and supported. See, e.g., Xcel at 80; Duke/CSXT at 67; CP&L at 69; Duke/NS at 82.

Otter Tail, however, argues that BNSF has overstated its proposed equipment costs by including a labor-based cost that is already accounted for elsewhere in BNSF's MOW and operating expenses. According to Otter Tail, removing this labor cost would reduce BNSF's proposed overall equipment cost by 70%.<sup>125</sup> We agree with Otter Tail that BNSF's labor-based charge to its equipment cost would result in a double count, and thus should be excluded.

## 3. Office Materials

Both parties estimated their material costs using a labor-based charge of 5% of the cost of total (operating and program) annual maintenance costs (although Otter Tail failed to account for this cost in its spreadsheets). Because the parties are in agreement on the percentage, the difference in their material costs can be attributed to the number of personnel they would employ. Because we use BNSF's proposed staffing level, and Otter Tail did not include this cost in its spreadsheets, we use BNSF's office material cost.

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<sup>121</sup> BNSF Reply Narr. III-D-179.

<sup>122</sup> Otter Tail Reb. Narr. III-D-127-28.

<sup>123</sup> See Otter Tail Reply to Supp. Narr., e-WP. "OTRR\_MOW Rebuttal.123."

<sup>124</sup> BNSF Reply Narr. III-D-182.

<sup>125</sup> Otter Tail Reb. Narr. III-D-129-30.

#### 4. Track Materials

Both parties include an additive for track material cost needed for annual MOW. Otter Tail's description in its narrative of how it calculated this additive does not match the calculation from its spreadsheet. BNSF also failed to present evidence showing how it arrived at its track materials ratio. Because the burden is on Otter Tail to support its cost, we use BNSF's track materials additive.

#### 5. Training & Recruitment

Parties in SAC cases have historically discussed training and recruiting costs within the personnel portion of the operating expenses and not within the MOW cost section. However, in this case, BNSF included training and recruitment costs within its MOW evidence. Those costs are addressed at the appropriate location within the personnel portion of the operating costs discussion, see Section H.1.

#### 6. Contract Maintenance Work

The parties agree that some maintenance work would be handled by contractors, rather than by the OTRR's MOW staff, although they disagree on the extent and cost of such work. BNSF argues that Otter Tail failed to include any costs for activities such as yard cleaning, coal dust cleanup, and stabilization projects along the Yellowstone River and Jamestown Subdivision, which BNSF assumes would also be contracted out. The disputed issues are discussed below.

##### a. Weed Spraying

The parties disagree over the unit cost for weed spraying. Otter Tail based its estimated cost on a BNSF contract, but BNSF claims that Otter Tail has misinterpreted the contract. According to BNSF, the contract does not include the cost of chemicals used in the spraying, which it claims must be included in the unit cost.<sup>126</sup> BNSF also claims that Otter Tail failed to include the costs for aerial spraying and vegetation control under bridges, the latter of which BNSF claims is required by the Federal Railroad Administration (FRA). According to BNSF, it performs vegetation control under bridges using its internal maintenance crew rather than contract workers. Therefore, BNSF did not include this additional cost in its calculation here, but it notes that Otter Tail did not include it anywhere in its MOW costs. On rebuttal, Otter Tail claims that the contract specifically states that the costs for chemicals will be provided at the contractor's expense, and that the only evidence that BNSF employs aerial spraying comes from a handwritten note, as it cannot be found in any of BNSF's billing documentation.<sup>127</sup>

We find that BNSF's claims that it pays additional costs for chemicals and aerial spraying are not supported by the evidence. Additionally, although BNSF claims that vegetation control under bridges is required by the FRA, BNSF has not pointed to a specific regulation where this maintenance is required and our own inspection of the FRA's track safety rules revealed no such requirement.<sup>128</sup> Thus, we use Otter Tail's estimated cost for weed spraying. The total weed

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<sup>126</sup> See BNSF Reply Narr. III-D-185-86.

<sup>127</sup> See Otter Tail Reb. Narr. III-D-134-35.

<sup>128</sup> See 49 CFR 213.37. See also FRA's Track Safety Standards Compliance Manual at 7.5 ("In conducting bridge observations, the inspector must always keep in mind the difference between potential hazards and conditions that are merely cosmetic or indicate a need for

spraying cost is determined here by multiplying Otter Tail's unit cost times the number of track miles used by the Board.

#### **b. Ultrasonic Rail Testing**

The OTRR would have to perform ultrasonic testing of the rail to locate internal rail defects. The parties agree to the per mile cost of the testing. However, Otter Tail argues that the rail would only have to be tested twice a year. BNSF argues that rail with tonnages of 50 million gross tons (MGT) or more would have to be tested 4 times a year. (BNSF agrees that rail with less than 50 MGT should be tested twice a year.) Otter Tail has provided no evidence in support of its testing frequency. We therefore use BNSF's testing frequency as the best evidence of record.

#### **c. Track Geometry Testing**

The parties disagree on both the unit cost and frequency of the track geometry testing. Otter Tail derives its unit cost from the cost used by the Board in FMC, and it asserts that testing would need to be done only once a year and that yard track and set-out track could be excluded.<sup>129</sup> BNSF criticizes Otter Tail's use of cost data from FMC, which was decided in 1997, and instead relies on its own actual 2002 costs for track geometry testing.<sup>130</sup> BNSF also argues that line segments with densities greater than 50 MGT should be tested four times a year, while segments with densities less than 50 MGT should be tested twice a year.<sup>131</sup>

BNSF, however, has failed to support its unit cost for the track geometry testing, as its workpapers are illegible and it did not disclose the source of this figure. Nor has BNSF sufficiently explained why Otter Tail's cost figures are inadequate or why the testing must be conducted 4 times a year. Thus, Otter Tail's track geometry testing costs are used here.

#### **d. Rail Grinding**

The parties disagree on both the unit cost of the rail grinding work and the frequency with which it should be performed. Otter Tail developed its unit cost based on a BNSF invoice attached to a BNSF contract for rail grinding, but BNSF claims that there are other expenses related to this work that are not included in the contract and must be accounted for. On rebuttal, Otter Tail argued that the alleged missing expenses are included in BNSF's invoice and therefore are already included in the unit cost. However, review of this invoice shows that only half of the missing expenses are in fact included. Therefore, we rely on BNSF's unit cost for rail grinding. In addition, because Otter Tail failed to provide supporting evidence for its grinding frequencies, BNSF's grinding frequencies are used here.

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maintenance. As far as an individual bridge is concerned, FRA is primarily concerned with the ability of today's bridge to carry today's loads without risk.").

<sup>129</sup> Id. at III-D-137.

<sup>130</sup> See BNSF Reply Narr. III-D-191.

<sup>131</sup> Id. at III-D-190.

#### **e. Switch Grinding**

BNSF included the costs of grinding switches in its rail grinding calculations.<sup>132</sup> Otter Tail did not include the cost for such work in its evidence and has failed to show that this cost would not need to be incurred. Therefore, we use BNSF's unit cost and frequency for switch grinding.

#### **f. Crossing Grinding**

According to BNSF, special grinding must also be done to the rail at crossings, because the regular grinders are not permitted to pass through crossings.<sup>133</sup> Because Otter Tail has not shown why this cost is not necessary, we include the cost for this procedure.

#### **g. Yard Cleaning**

BNSF states that, for safety and health reasons, yard tracks must be cleaned annually to remove all coal and foreign materials that fall from rail cars when they are moved during handling operations. BNSF submitted a unit cost for this activity based on its actual contract costs with Knox Kershaw, Inc.<sup>134</sup> Although Otter Tail stated in its rebuttal that it would discuss why it did not include costs for yard cleaning,<sup>135</sup> it provided no such discussion. We thus use BNSF's yard cleaning cost.

#### **h. Ditching**

The parties agree on both the size and unit cost of the ditches. However, they dispute the frequency with which the ditches should be cleaned, with Otter Tail proposing every 5 years and BNSF proposing every 2 years. BNSF claims that, because Otter Tail's ditches would be smaller than the American Railway Engineering and Maintenance-of-Way Association (AREMA) standard minimum, the ditches would need to be cleaned more frequently.<sup>136</sup> On rebuttal, Otter Tail's witness, Mr. McDonald, offered no support for his assumption that ditches are cleaned, on average, every 5 years.<sup>137</sup> Therefore, we use BNSF's proposed ditch cleaning frequency for this expense.

#### **i. Miscellaneous Engineering**

Otter Tail proposed an allowance for miscellaneous engineering contract work to cover the cost of work that is not covered by routine maintenance (i.e., clean-up for large spills, survey work, bridge inspection). Relying on FMC, Otter Tail calculated a unit cost of \$1,078 per route mile.<sup>138</sup> BNSF challenges Otter Tail's reliance on FMC, as it is an entirely different SAC case, with different traffic and, presumably, different structures and facilities. BNSF developed separate costs for bridge engineering, based on the experience of its witness, Mr. Albin, and for

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<sup>132</sup> Id. at III-D-189.

<sup>133</sup> Id.

<sup>134</sup> Id. at III-D-198.

<sup>135</sup> See Otter Tail Reb. Narr. III-D-133.

<sup>136</sup> See BNSF Reply Narr. III-D-193-94.

<sup>137</sup> See Otter Tail Reb. Narr. III-D-139.

<sup>138</sup> Id. at III-D-138.

building engineering, which was derived by taking 0.5% of the construction cost of such facilities.<sup>139</sup>

We find that Otter Tail's cost evidence is unreliable. Although Otter Tail's reliance on FMC as a basis for the development of unit costs is acceptable, Otter Tail failed to adjust the cost data from FMC (which is based on evidence that is at least 6 to 7 years old) to account for inflation. Without such an adjustment, we cannot use its figures. We therefore use BNSF's miscellaneous engineering data.

#### **j. Derailments and Clearing Wrecks**

Otter Tail did not include a separate line-item cost for repairs due to derailments. Otter Tail claims that this cost is unnecessary because the OTRR's system would be newer than BNSF's system, and, therefore, the OTRR would be less "prone to failure."<sup>140</sup> Otter Tail also claims that the OTRR's maintenance personnel would be equipped to restore track damaged by derailments; thus, a separate cost for derailment repairs would not be needed. However, Otter Tail acknowledges that there would be some costs associated with cleaning wreck sites—re-railing or cleaning up wrecked cars, lading, and debris, and restoring the right-of-way (ROW) and roadbed—and it included a separate line-item cost for those activities.<sup>141</sup>

Otter Tail's assumption that the OTRR would not incur any additional costs due to derailments because its system is new is faulty. Based on BNSF's 2002 train accident report, a portion of the derailments were caused by impediments on the track and weather, which have nothing to do with the age of the system. Therefore, we use BNSF's derailment cost figure. Because BNSF's derailment cost figure incorporates the cost for the wreck-clearing activities described by Otter Tail, to avoid a double count we do not use Otter Tail's wreck-clearing cost.

#### **k. Contract Labor**

Otter Tail argues that rail and tie replacement and resurfacing is work that can be accomplished by using contracted forces, rather than program maintenance employees. Otter Tail thus includes an annual operating expense for this contracted labor of 10% of the overall cost for this program maintenance project. Because we have rejected Otter Tail's MOW staffing plan, which would include contracting out this work, we do not include this cost as an annual operating expense. Instead, this work would be performed by BNSF's program maintenance employees, and thus the labor for this work is included as part of BNSF's program maintenance costs.

#### **l. Snow Removal**

Otter Tail developed a unit cost of \$216 per mile for snow removal, based on data from the FMC decision. BNSF objects to the unit price used by Otter Tail. BNSF instead developed a higher unit cost per mile, based on its 2002 R-1 Annual report. Because the Northern territory has historically had higher weather-related costs, ranging from 10% to 25%, BNSF added 20% to

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<sup>139</sup> See BNSF Reply Narr. III-D-191-93.

<sup>140</sup> Id. at III-D-140-41.

<sup>141</sup> See Otter Tail Reb. e-WP. "Clearing Wrecks.xls"; Otter Tail Supp. Evidence e-WP. "OTRR MOW\_REBUTTAL.123."

the snow removal cost.<sup>142</sup> BNSF also claims that Otter Tail applied its unit cost only to main line track, improperly excluding any snow removal costs for branch lines, light-density track, and yard track. Otter Tail counters in its rebuttal that BNSF's 2002 snow removal cost divided by its track miles does not come out to its claimed unit cost,<sup>143</sup> but a review of the figure shows that Otter Tail's claim is without merit.

BNSF's 2002 R-1 Annual Report provides a more recent, and hence more accurate, account of snow removal costs than the older cost data from the FMC decision. Thus, we use BNSF's snow removal unit cost. We apply this cost to all the track miles on the OTRR, as Otter Tail did not show that snow removal would be unnecessary for some track.

### **m. Casualty**

BNSF argues for the inclusion of costs to cover other casualty losses that result from floods, washouts, landslides, slope failures, and the like. We agree with Otter Tail, however, that such expenses are fully accounted for in the insurance expense, discussed below. We therefore exclude BNSF's additional expense from the analysis.

### **n. Environmental Mitigation**

BNSF states that cleanup of coal dust and coal spills from the ROW—an ongoing practice on the Orin Line—would be required.<sup>144</sup> Otter Tail argues that, because the OTRR would carry only 30% of the traffic that BNSF and UP currently carry on the Orin Line, the OTRR would not experience the same level of coal dust build-up as those carriers, and Otter Tail therefore did not include any cost for such cleanup.<sup>145</sup>

Although the OTRR would not carry the same tonnage on its line that is currently carried by BNSF and UP on the Orin Line, it would still experience some coal dust buildup and coal spills that would need to be cleaned. According to Otter Tail, the tonnage of the OTRR would be 107 MGT, or approximately 30% of the traffic that BNSF and UP currently move on the Orin Line (350 MGT). Accordingly, our analysis here includes only 30% of BNSF's proposed clean-up costs for coal dust build-up and coal spills. See Xcel at 82-83.

BNSF also asserts that the OTRR would need to incur the same expenses as BNSF incurs for the maintenance of fueling facilities replicated by the OTRR, including preparation of storm water prevention plans, periodic testing of water samples for pollutants, and compliance with discharge requirements.<sup>146</sup> Otter Tail counters that the OTRR's fueling facilities would not need to incur such costs, because its facilities would contain the latest and best fueling technology.<sup>147</sup> However, Otter Tail has failed to support this claim by identifying the type of equipment it would use in its fueling facilities or explaining how this equipment would obviate any need to

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<sup>142</sup> See BNSF Reply Narr. III-D-195.

<sup>143</sup> See Otter Tail Reb. Narr. III-D-139-40.

<sup>144</sup> See BNSF Reply Narr. III-D-197-98.

<sup>145</sup> See Otter Tail Reb. Narr. III-D-142.

<sup>146</sup> See BNSF Reply Narr. III-D-196-97.

<sup>147</sup> See Otter Tail Reb. Narr. III-D-142.

incur environmental costs for maintaining the facilities. Thus, we use BNSF's proposed fueling facility maintenance costs.

#### **o. Embankment Stabilization**

The parties agree that an expense should be included for stabilization of the embankments along the Yellowstone River and along the Jamestown Subdivision. However, Otter Tail asserts that, because these expenditures are either short term in nature (a 5-year project in the case of the Yellowstone River) or are related to the "unusually high rainfall" (in the case of the Jamestown Subdivision), they are not recurring problems.<sup>148</sup> Accordingly, Otter Tail argues that these expenses should be treated as capital expenditures, or program maintenance, related to the OTRR's roadbed, rather than spot maintenance costs that should be classified as annual operating expenditures, as argued by BNSF. Otter Tail therefore included only 10% of BNSF's proposed stabilization cost as an annual operating expense.<sup>149</sup>

We find no merit to Otter Tail's position. Program maintenance involves the replacement of worn-out assets at the end of their asset lives. Here, BNSF has demonstrated that the Yellowstone River project will take 5 years to complete and the Jamestown Subdivision project will have to be repeated approximately every 3 years. As such, they are properly treated as part of annual maintenance. Moreover, Otter Tail has failed to provide an adequate explanation or support for its arbitrary selection of 10% of the cost for these two projects as the amount that should be included as an annual maintenance expense. Therefore, we use BNSF's proposed embankment stabilization cost.

#### **L. Insurance**

Otter Tail calculated an insurance expense—3.76% of total operating expenses—based on BNSF's 2002 Annual Report R-1. For this case, BNSF would have us use a higher rate (5.5%), based on statistics showing insurance costs for 2000 through 2002 for Class I railroads earning less than \$1 billion in annual revenues. BNSF argues that larger Class I railroads can obtain lower insurance rates than the OTRR could obtain because Class I railroads self-insure for the first \$25 million. BNSF's evidence of insurance costs is the best evidence of record. However, that evidence shows a downward trend in insurance rates, with the most recent rate (for 2002) being 4.96% of total operating expenses. We use this latest figure here.

#### **M. Trackage Rights Fee**

The OTRR would have trackage rights over certain lines. The parties agree on the trackage right fee per GTM. We use that number and recalculate the number of GTM's based on our tonnage findings.

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<sup>148</sup> Id. at III-D-143.

<sup>149</sup> Id.

## APPENDIX D—OTRR ROAD PROPERTY INVESTMENT

This appendix addresses the evidence and arguments of the parties concerning what it would cost to build the OTRR. **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**  
**OTRR Construction Costs**  
**(\$ millions)**

|                                        | <b>Otter Tail</b> | <b>BNSF</b>      | <b>STB</b>       |
|----------------------------------------|-------------------|------------------|------------------|
| <b>A. Land</b>                         | \$41.7            | \$76.2           | \$42.0           |
| <b>B. Roadbed Preparation</b>          | 611.9             | 1,412.7          | 674.0            |
| <b>C. Track</b>                        | 847.3             | 1,007.5          | 860.7            |
| <b>D. Tunnels</b>                      | 0                 | 0                | 0                |
| <b>E. Bridges</b>                      | 125.7             | 252.0            | 160.7            |
| <b>F. Signals &amp; Communications</b> | 203.8             | 252.3            | 203.8            |
| <b>G. Building &amp; Facilities</b>    | 30.9              | 94.4             | 53.9             |
| <b>H. Public Improvements</b>          | 31.1              | 47.5             | 39.0             |
| <b>I. Mobilization</b>                 | 43.6              | 80.8             | 48.1             |
| <b>J. Engineering</b>                  | 168.2             | 425.3            | 210.1            |
| <b>K. Contingencies</b>                | 206.2             | 357.3            | 225.0            |
| <b>TOTAL*</b>                          | <b>\$2,310.4</b>  | <b>\$4,006.0</b> | <b>\$2,517.4</b> |

\* Columns may not add to totals because of rounding.

### A. Land

The parties agree on the main line track miles and roadbed width, and, thus, the acreage for the OTRR's ROW, but they differ on yard acreage and tower acreage. **Table D-2** summarizes the acreage used by the parties and our findings.

**Table D-2**  
**Real Estate Acreage**

|                              | <b>Otter Tail</b> | <b>BNSF</b>           | <b>STB</b>    |
|------------------------------|-------------------|-----------------------|---------------|
| <b>ROW</b>                   | 12,841            | 13,579 <sup>150</sup> | 12,841        |
| <b>Easements</b>             | 792               | 792                   | 792           |
| <b>Yards</b>                 | 232               | 765                   | 232           |
| <b>Microwave Tower Sites</b> | 57                | 81                    | 66            |
| <b>TOTAL</b>                 | <b>13,922</b>     | <b>15,217</b>         | <b>13,931</b> |

The parties agree on the per-acre values for most of the acreage involved (which includes an easement fee of \$57,910.14), but they disagree on those parcels with the highest potential land values, creating a substantial dispute in their overall land values.

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<sup>150</sup> In its reply, although BNSF states that it disagrees with Otter Tail's use of a 75-foot wide ROW in certain towns that BNSF does not consider major urban areas, BNSF nonetheless accepts Otter Tail's ROW acreage. BNSF Reply Narr. III-F-6. BNSF failed to update its spreadsheets to take account of this agreement. We accordingly take the acreage agreed to by BNSF.

The areas of significant difference between the parties are: major urban areas along the OTRR's lines; the line segment between Donkey Creek, WY, and Jones Junction, MT (at Moran yard); the portion of the Orin Line replicated by the OTRR; certain smaller towns along the OTRR; and yard and microwave tower properties. **Table D-3** summarizes the parties' land values and our findings.

**Table D-3**  
**Real Estate Costs**  
**(\$ millions)**

|                                   | <b>Otter Tail</b> | <b>BNSF</b>                 | <b>STB</b>    |
|-----------------------------------|-------------------|-----------------------------|---------------|
| <b>ROW (non-Orin Line)</b>        | \$38.80           | \$62.10                     | \$38.80       |
| <b>Orin Line</b>                  | 0.08              | 4.21                        | 0.4           |
| <b>Easements</b>                  | 0.06              | 0.06                        | 0.06          |
| <b>Yards and Other Facilities</b> | 2.70              | 9.33                        | 2.70          |
| <b>Microwave Tower Sites</b>      | 0.02              | 0.41                        | 0.03          |
| <b>TOTAL</b>                      | <b>\$41.7</b>     | <b>\$76.2<sup>151</sup></b> | <b>\$42.0</b> |

The parties differ in their methodologies for determining categories of land values. Otter Tail used a multi-step process, including physical inspection, determination of land type, and compilation of comparable sales, to determine the value of land for the OTRR.<sup>152</sup> BNSF used a similar process, but made substantial adjustments to comparable sales.<sup>153</sup> Specifically, BNSF's appraiser adjusted the value of certain parcels by physically inspecting the property and then assigning to the parcels a "highest and best" use classification, as per The Appraisal of Real Estate (11th ed. 1991) at 297.<sup>154</sup> In some instances, BNSF's appraiser also multiplied the comparable sales by a compounding factor to reflect his "eyeballing" of the relationship between his land values and Otter Tail's land values at other locations near the OTRR ROW.<sup>155</sup>

### **1. Major Urban Areas Along the OTRR**

On rebuttal, Otter Tail accepted BNSF's parceling of land in the two major urban areas of Bismarck/Mandan and Fargo/Moorhead.<sup>156</sup> It also accepted BNSF's comparable land sale evidence for these areas, but it challenged BNSF's adjustments as not supported

<sup>151</sup> While the sum of this column is \$76.1, see BNSF Reply to Supp. Narr. e-WP. "OTRR Land Conclusion\_Supp Evidence.xls," BNSF uses \$76.2 in its spreadsheets, see BNSF Reply to Supp. Narr. e-WP. "IIIF OTRR Construction\_Reply to Supp Evidence.xls."

<sup>152</sup> See Otter Tail Open. Narr. III-F-4-10.

<sup>153</sup> See BNSF Reply Narr. III-F-3-4 & Exh. III-F-1-1, citing BNSF Reply e-WP. "Land\_REPORT.xls" (methodology); "OTRR Land\_Sales.xls" (sales); "OTRR\_Land\_Conclusions.xls."

<sup>154</sup> See BNSF Reply Narr. III-F-8-9 & n.10.

<sup>155</sup> See BNSF Reply e-WP. "OTRR\_Land\_Conclusions.xls," "Town Summary."

<sup>156</sup> See Otter Tail Reb. Narr. III-F-6.

by the record and not explained.<sup>157</sup> Instead, Otter Tail used a simple average of BNSF's comparable land sale data.<sup>158</sup>

The Board favors evidence based on recent market sales of comparable properties to other land-valuation methodologies. See Duke/CSXT at 73-74; TMPA at 114. Here, BNSF has failed to support its adjustments to its comparable market sales, leaving us no way to determine whether the values assigned by BNSF to these urban parcels bear an appropriate relationship to the actual comparable sales.<sup>159</sup> Otter Tail's average of comparable sales prices is the best evidence of record, and we use its evidence here. Based on that evidence, we value the urban parcels at \$14.0 million.<sup>160</sup>

## **2. Donkey Creek to Moran Junction, MT**

Otter Tail divided the portion of the ROW between Donkey Creek and Moran Junction (other than the Orin Line) into 6-mile long parcels and valued it at \$7.7 million<sup>161</sup> based on 120 comparable sales. BNSF contends that Otter Tail did not subdivide the ROW into small enough parcels.<sup>162</sup> BNSF divided the ROW into 1-mile long parcels instead and used additional comparable sales, but made additional adjustments using reappraisals of its comparable sales based on inspections of the ROW in this area by its appraiser.

Unlike major urban areas, this land does not require the same precision of parceling for valuation purposes, because it is predominantly grazing or agricultural land that does not differ greatly across large areas. Dividing land into smaller parcels is not inherently more useful, especially where, as here, the parceling does not correlate to the proposed adjustments to comparable land sales used to value those parcels.<sup>163</sup> While BNSF used a greater number of comparable sales and valuation parcels, it failed to explain its adjustment to the actual market sales. Thus, BNSF has not supported the methodology it used.

Otter Tail used a sufficient number of comparable sales to reach a reasonable valuation of this portion of the ROW, and BNSF has not shown that Otter Tail's valuation methodology was inappropriate. Thus, Otter Tail's evidence is used here.

## **3. Donkey Creek to Converse (Orin Line)**

The parties disagree on the valuation of the portion of the Orin Line that would be replicated by the OTRR (i.e., the portion between Donkey Creek and Converse). Otter Tail valued the Donkey Creek-to-Converse segment on an across-the-fence (ATF) basis,

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<sup>157</sup> Id. at III-F-13.

<sup>158</sup> See BNSF Reply e-WP. "OTRR\_Land\_Conclusions.xls."

<sup>159</sup> See BNSF Reply Exh. III-F-1-1 App. A, "Relevant Land Sales."

<sup>160</sup> See Otter Tail Reb. e-WP. "OTRR Land Rebuttal.xls."

<sup>161</sup> See Otter Tail Open. Narr. III-F-14.

<sup>162</sup> See BNSF Reply Narr. III-F-13-14.

<sup>163</sup> See Otter Tail Reb. Narr. III-F-15-16.

then applied a 1.25 assemblage factor (the additional premium associated with having to procure a continuous, uninterrupted ROW), based on appraisal literature.<sup>164</sup> BNSF claims that Otter Tail has undervalued the Donkey Creek-to-Converse segment by applying too low an assemblage factor. BNSF would use the original 1978 purchase price for the Orin Line, indexed forward 23 years by an index of agricultural land values in Wyoming that it developed,<sup>165</sup> for a total value of \$5.7 million for the entire Orin Line. Based on inspection of the ROW, BNSF's expert opined that 75% of the value of the Orin Line lies in the Donkey Creek-to-Converse segment, and therefore calculated this segment's value at \$4.2 million.<sup>166</sup>

On rebuttal, Otter Tail counters that BNSF's valuation approach is not appropriate because current comparable land values are available, that use of a 23-year indexing period is inappropriate, that BNSF overvalues the acreage that would be needed for the OTRR, and that BNSF failed to disclose in discovery the elements of the 1978 purchase.<sup>167</sup>

We generally prefer current data to indexed historical data, and thus we have previously rejected BNSF's indexed approach as inferior to recent comparable sales transactions. See Xcel at 88. Accordingly, we use the more recent ATF data submitted by Otter Tail, which is reasonable. However, because the actual assemblage factor for the Orin Line was 6.65 times the ATF value, and because BNSF has successfully discredited Otter Tail's proposed 1.25 assemblage factor for this segment, we apply the 6.65 factor to the ATF value developed by Otter Tail. The resulting valuation figure that we use for replicating this segment of the Orin Line is \$399,926.

#### **4. Smaller Towns Along OTRR**

Otter Tail valued the land in smaller towns along the OTRR ROW, including such towns as Gillette and Sheridan, WY, Ballantine and Custer, MT, and Cassleton and Jamestown, ND, at a total of \$4.5 million.<sup>168</sup> According to Otter Tail, BNSF multiplied Otter Tail's values by factors of 3.5 (or 6 in the case of Jamestown, ND),<sup>169</sup> based upon BNSF's appraiser's adjustments, resulting in a total claimed value for these properties of \$15.8 million.<sup>170</sup>

BNSF's appraiser did not inspect all of the property. BNSF attempted to support its land values by using certain residential sales, but failed to justify the application of the

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<sup>164</sup> See Otter Tail Open. Narr. III-F-7-10.

<sup>165</sup> See BNSF Reply Narr. III-F-36-37 & n.38 (citing West Texas Utils. Co. v. Burlington N. R.R., 1 S.T.B. 638 (1996)).

<sup>166</sup> See id. at III-F-37.

<sup>167</sup> See Otter Tail Reb. Narr. III-F-21-23.

<sup>168</sup> Id. at III-F-23.

<sup>169</sup> Id. at III-F-23-24; see also BNSF Reply e-WP. "OTRR\_Land\_Conclusions.xls," worksheet "Town Summary."

<sup>170</sup> See BNSF Reply Narr. III-F-32-35.

sale of urban parcels to the sale of largely agricultural properties.<sup>171</sup> We recently rejected a similar approach of applying urban valuations to rural areas. See Duke/NS at 88; CP&L at 76; Duke/CSXT at 74. Therefore, we use the valuations submitted by Otter Tail.

## 5. Yards and Other Acreage

The parties disagree on the acreage and valuation of the Donkey Creek, Glendive, and Fargo yards. In its reply, BNSF more than doubled the acreage assumed for these yards, added track miles at Donkey Creek and Glendive, and applied a higher value per acre of land for all three yards, increasing the valuation assigned to the underlying land from Otter Tail's \$2.9 million to \$11.6 million.<sup>172</sup>

We use Otter Tail's land valuations for the disputed yards, because they are supported by comparable sales and have not been shown to be unreasonable. We also use Otter Tail's yard acreage for Donkey Creek, Glendive, and Fargo yards because Otter Tail's figures are supported and its configurations are used.

In addition to land for the ROW and yards, the OTRR would require land for other facilities not located at yards. The parties agree that the OTRR would have MOW facilities at Kendrick, Sheridan, Hysham, Terry, Dickinson, Jamestown, and Herman. Otter Tail disagrees with BNSF over whether to include MOW facilities at 21 other locations along the OTRR route. Because we use BNSF's MOW staffing levels, see Appendix C—Operating Expenses, we use BNSF's MOW facility locations, as well as its acreage and valuation for those facilities.

The parties disagree on the number of acres and cost per acre of land for microwave communications towers. They disagree over the number of towers and whether the OTRR's microwave towers may be placed at different locations than those used by BNSF for the existing towers. Otter Tail would locate the towers on less expensive property, and BNSF has not shown that Otter Tail's locations are infeasible. Because its proposal appears feasible, see Nevada Power at 306, Otter Tail's acreage costs are used here. However, BNSF has demonstrated that Otter Tail's acreage is too small. We use BNSF's average of 1.5 acres of land for each tower, resulting in a total land cost of \$26,609 for microwave towers.

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<sup>171</sup> Id. at III-F-34.

<sup>172</sup> Id. at III-F-37.

**B. Roadbed Preparation**

**Table D-4**  
**Roadbed Preparation Costs**  
**(\$ millions)**

|                                      | <b>Otter Tail</b> | <b>BNSF</b>      | <b>STB</b>     |
|--------------------------------------|-------------------|------------------|----------------|
| <b>Clearing, Grubbing, Stripping</b> | \$1.4             | \$5.7            | \$1.4          |
| <b>Earthwork</b>                     | 546.4             | 1,134.2          | 603.6          |
| <b>Drainage</b>                      | 4.8               | 25.3             | 8.8            |
| <b>Culverts</b>                      | 25.9              | 26.8             | 26.6           |
| <b>Retaining Walls</b>               | 5.9               | 15.4             | 6.1            |
| <b>Rip Rap</b>                       | 9.9               | 13.3             | 9.9            |
| <b>Utility Relocation</b>            | 1.0               | 16.5             | 1.0            |
| <b>Seeding/Topsoil Placement</b>     | 3.0               | 42.4             | 3.0            |
| <b>Water for Compaction</b>          | 6.9               | 15.7             | 6.9            |
| <b>Road Surfacing</b>                | 5.0               | 21.7             | 5.0            |
| <b>Winter Construction</b>           | 0.0               | 75.6             | 0              |
| <b>Environmental Compliance</b>      | 1.4               | 1.4              | 1.4            |
| <b>Waste Excavation</b>              | 0.3               | 0.6              | 0.3            |
| <b>Access Roads</b>                  | 0                 | 18.1             | 0              |
| <b>TOTAL</b>                         | <b>\$611.9</b>    | <b>\$1,412.7</b> | <b>\$674.0</b> |

**1. Clearing, Grubbing and Stripping**

The parties agree on grubbing costs (except for differences attributable to their respective network configurations), but they disagree on the amount of acreage along the ROW that would require clearing. Otter Tail contends that, where grubbing would be required, only minimal clearing (i.e., clearing of brush rather than trees) would be necessary.<sup>173</sup> For that portion, Otter Tail proposes using a brush rake (e.g., pushing brush into piles along the ROW) without grubbing to clear the ROW, and uses a lower unit cost for this acreage. BNSF argues that the same unit costs should be used for the entire OTRR.<sup>174</sup> BNSF, however, does not show that Otter Tail's proposed use of a brush rake is infeasible. Because of this, and because Otter Tail's configuration is used, Otter Tail's acreages and costs for both clearing and grubbing are used.

Otter Tail does not include a separate cost for stripping. It explains that costs are included in its excavation quantities for removal of the top 6 inches of material along the ROW, which would substitute for stripping.<sup>175</sup> BNSF includes separate stripping costs, arguing that its own bid contracts and evidence on construction of the nearby WRPI line support including this work.<sup>176</sup> BNSF, however, does not show that it paid for stripping

<sup>173</sup> See Otter Tail Reb. Narr. III-F-40.

<sup>174</sup> See BNSF Reply Narr. III-F-60-61.

<sup>175</sup> See Otter Tail Reb. Narr. III-F-42.

<sup>176</sup> See BNSF Reply Narr. III-F-62-63.

during construction of the Orin Line or that stripping would be needed in the area traversed by the OTRR. BNSF also fails to show that stripping costs should be an additional cost not included in its excavation costs. Further, BNSF does not deny that the top 6 inches of soil would be removed during excavation, or that topsoil removal is included in waste costs. Thus, Otter Tail's exclusion of stripping as a separate cost is reasonable, and BNSF has offered insufficient support for a separate charge. Accordingly, stripping costs are not separately included in our analysis.

Otter Tail excludes costs for undercutting. BNSF argues that undercutting would be required to remove materials that typically cannot function as railroad subgrade, such as materials from swamps and low lying areas, as well as large rocks and boulders.<sup>177</sup> BNSF has failed to support this contention (and did not include in its spreadsheets the nearly \$12 million in costs it would include for undercutting). Thus, no costs for undercutting are included here.

## **2. Earthwork**

### **a. Specifications**

#### **i. Roadbed Width**

For single-track segments of the OTRR, the parties agree on the use of a 28-foot roadbed width for high-density line segments between the Converse yard and Reno Junction, Donkey Creek and Campbell, WY; Glendive, MT; and Fargo, ND; and for the Reno Junction and Eagle Butte coal mine branches.<sup>178</sup> Otter Tail uses a 24-foot roadbed width for the remaining single track segments, and BNSF agrees, except for the line segment from Reno Junction to Donkey Creek, for which BNSF argues that a 28-foot roadbed width should be used.<sup>179</sup>

BNSF contends that for this segment, WRPI used a 28-foot roadbed width and that Otter Tail failed to show that soil conditions could support unit coal trains on a 24-foot wide roadbed.<sup>180</sup> Otter Tail states that the OTRR would carry a significantly lower volume of traffic than expected by WRPI at the time the line segment was constructed and argues that BNSF fails to support its contention that soil conditions will not support a 24-foot roadbed width for this segment.<sup>181</sup> Further, Otter Tail points out BNSF accepts a 24-foot wide roadbed for the line segment between Nichols and Terry, MT, even though that segment would carry significantly more traffic than the Reno Junction to Donkey Creek segment.

Otter Tail's use of a 24-foot wide roadbed for the Reno Junction to Donkey Creek segment appears reasonable and BNSF has failed to show why this segment should be

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<sup>177</sup> Id. at III-F-65-66.

<sup>178</sup> See Otter Tail Reb. Narr. III-F-46-47; BNSF Reply Narr. III-F-68.

<sup>179</sup> See BNSF Reply Narr. III-F-68.

<sup>180</sup> See id. at III-F-67-68.

<sup>181</sup> Otter Tail Reb. Narr. III-F-38-39.

treated differently from other single-track segments. Thus, a 24-foot wide roadbed is used for the Reno Junction to Donkey Creek line segment.

## **ii. Center-to-Center Track Spacing**

The parties agree to the use of track center spacing of 15 feet for all double- and triple-tracked segments,<sup>182</sup> and therefore agree to the roadbed widths for these segments.

## **iii. Side Slopes**

The parties agree to the use of side slopes of 1.5:1,<sup>183</sup> along with additional slope stabilization costs included in MOW stabilization (see Appendix C—Operating Expenses). See TMPA at 116 n.183; Duke/NS at 90; FMC at 111; WPL at 81.

## **iv. Access Roads**

Otter Tail does not include a separate cost for access roads.<sup>184</sup> BNSF contends that access roads are an important and necessary part of its system.<sup>185</sup> It argues that, without access roads, certain operating expenses or maintenance costs would increase.<sup>186</sup> Otter Tail counters that it includes access roads to the extent that they are reflected in the earthworks quantities and that contractors and other service and maintenance vehicles can obtain access over the cleared ROW using 4-wheel drive vehicles.<sup>187</sup> It also asserts that earthwork quantities for access roads should be those quantities included in the Interstate Commerce Commission Engineering Reports (Engrg Rpts),<sup>188</sup> or the actual excavation quantities for the Orin Line and other newly constructed lines.

Otter Tail's proposal is feasible, because it is based on replicating existing access roads. BNSF has not demonstrated that it paid separately for these access roads. Nor has BNSF quantified how much operating or maintenance costs would increase without its proposed access roads. Thus, no separate cost for access roads is included here.

## **b. Grading Quantities**

For those segments that would be replicated by the OTRR and are included in Engrg Rpts, the parties agree on the methodology that should be used to determine grading quantities. However, there are six line segments that would be replicated by the OTRR that did not exist when the Engrg Rpts were compiled. The parties agree to the grading quantities for the Campbell to Eagle Butte segment, but not to quantities for the other five segments, discussed below.

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<sup>182</sup> See Otter Tail Open. Narr. III-F-51; BNSF Reply Narr. III-F-53, 55, Table III-F.2-2.

<sup>183</sup> See Otter Tail Open. Narr. III-F-16; Otter Tail Reb. Narr. III-F-36; BNSF Reply Narr. III-F-53-55.

<sup>184</sup> See Otter Tail Reb. Narr. III-F-37-38.

<sup>185</sup> See BNSF Reply Narr. III-F-56-58.

<sup>186</sup> Id. at III-F-56-57.

<sup>187</sup> See Otter Tail Reb. Narr. III-F-37-38, 97.

<sup>188</sup> Id. at III-F-37.

**i. Converse Yard to Donkey Creek, WY, and Reno Junction to Jacobs Junction, WY**

The parties agree on the methodology for determining grading quantities, but differ on roadbed width and thus on total quantities. We calculate the quantities based on the respective roadbed widths of these segments, discussed above in **Section B.2.a.i.**

**ii. Dutch to Decker, Keuhn branch and Colstrip**

The parties agree to decrease the distance of the line from Sharpy Junction to Keuhn by 1.54 miles and to increase the length of the Nichols to Big Sky segment by 0.44 miles. The parties also agree to adjust earthwork quantities to eliminate the Big Horn Tunnel. Otherwise, the parties used different computer programs to estimate the grading quantities for these segments of the OTRR. Otter Tail used a program developed by its consultants, designated the Computer Aided Railway Design System (CARDS) program.<sup>189</sup> According to Otter Tail, the use of the CARDS program was necessary because BNSF failed to provide Otter Tail with earthwork data in response to Otter Tail's discovery requests.<sup>190</sup> BNSF used a different computer program, designated the Digital Evaluation Model, Descartes, Microstation and GeoPack software, to estimate grading quantities.

BNSF criticizes Otter Tail's CARDS program calculations because it contends that Otter Tail's subgrade levels do not match the actual subgrade levels of the existing branches, and that Otter Tail manipulated the CARDS program to obtain the optimal subgrade elevations.<sup>191</sup> However, Otter Tail is not required to match BNSF's existing grades. Even though Otter Tail's subgrade levels may not match those of existing branch lines,<sup>192</sup> Guidelines permits Otter Tail to optimize the OTRR to be a least-cost, optimally efficient railroad. Although it appears that a few of Otter Tail's subgrade elevations on the Dutch to Decker branch are steeper than on BNSF's existing line,<sup>193</sup> BNSF has not shown that they would be infeasible. For the Keuhn branch and Colstrip, a comparison of Otter Tail's CARDS program estimates with the estimates from BNSF's program shows that Otter Tail has not made the grades steeper than on the existing segments.

BNSF also argues that the CARDS program does not reflect elevation changes of less than 20 feet. However, Otter Tail states that it made adjustments to take these

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<sup>189</sup> See Otter Tail Open. Narr. III-F-18-19; Otter Tail Open. WP. 4397-4464; Otter Tail Open. e-WP. "cards" subdirectory in III-F-2 folder.

<sup>190</sup> See Otter Tail Open. WP. 4503-04.

<sup>191</sup> See BNSF Reply Narr. III-F-69-70.

<sup>192</sup> See Otter Tail Open. WP. 4407-13, 4430-39, 4455-63 (Column "NAT GND ELEV"). See also Otter Tail Reb. WP. 6153-76; Otter Tail Reb. e-WP. "CARDS Elevation Interpolations.xls."

<sup>193</sup> BNSF Reply e-WP. "III F 2 CARDS Comparison.xls;" Otter Tail Reb. e-WP. "CARDS Elevation Interpolations.xls."

smaller elevation changes into account, and its workpapers show several instances where the elevation between contour lines has been interpolated or manually adjusted.<sup>194</sup>

While the CARDS program may be designed to optimize the grading quantities for the OTRR and may result in some steeper grades on the Dutch to Decker branch, BNSF has not discredited Otter Tail's methodology. Moreover, because BNSF did not provide the requested grading information in discovery, Otter Tail reasonably used the next-best evidence available to it. For these reasons, Otter Tail's CARDS program estimates for earthwork quantities for these three segments are used here.

### **iii. Yard Locations**

The parties agree on the location of the nine yards proposed by Otter Tail for the OTRR, and they agree on the facilities for the Campbell, Moran Junction, Terry, Fargo and Benson yards.

### **iv. Yard Grading and Paving**

The parties agree on the earthwork quantities for the Terry and Campbell yards. The parties disagree on track miles and earthwork quantities for the Converse yard, and they disagree on earthwork quantities for the Dutch yard. For the yards at Donkey Creek, Moran Junction, Glendive, Fargo and Benson, both parties use fewer yard track miles than the yards that were located in these valuation sections when the Engrg Rpts were prepared. In the past, a 1-foot fill assumption has been used to evaluate the earthwork for such yards, see, e.g., Xcel at 94, and Otter Tail has used that assumption here. For the Converse and Dutch yards, we use Otter Tail's track miles and earthwork quantities because we use Otter Tail's yard configurations.

BNSF contends that the earthwork for yards in "new" locations is not included in the earthwork quantities reflected in Engrg Rpts.<sup>195</sup> However, there is no evidence that the amount of grading per acre that would be required in the OTRR yards would be different from what was historically undertaken in the yards accounted for in Engrg Rpts. While BNSF attempts to justify additional grading quantities by discussing topography at various locations where OTRR yards would be situated,<sup>196</sup> it does not contrast this with the topography of the yards listed in Engrg Rpts. Thus, BNSF has failed to justify a departure from the 1-foot fill assumption. Accordingly, Otter Tail's assumption of 1-foot fill is used for the 5 yards for which the parties did not specifically agree on the earthwork.

Otter Tail included the cost for yard paving at Donkey Creek and Glendive yards.<sup>197</sup> Because Otter Tail's yard configurations are used, Otter Tail's figures are used

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<sup>194</sup> See Otter Tail Open. WP. 4407-13, 4430-39, 4455-63 (Column "NAT GND ELEV"). See also Otter Tail Reb. WP. 6153-76; Otter Tail Reb. e-WP. "CARDS Elevation Interpolations.xls."

<sup>195</sup> See BNSF Reply Narr. III-F-74 n.65.

<sup>196</sup> Id. at III-F-74-75.

<sup>197</sup> See Otter Tail Reb. e-WP. "OTRR Grading Rebuttal.XLS," tab "IIIF\_25Othr Cst."

for yard paving for the Donkey Creek and Glendive yards. BNSF also included costs for relocated yard roadways and, for the Glendive yard, demolition work.<sup>198</sup> However, it did not show that it paid these costs when constructing the original rail lines, and it failed to provide any justification for including them here. BNSF also included costs to account for highly plastic clay subgrades in yards, but failed to support its argument for these costs.<sup>199</sup> Accordingly, costs for demolition, relocated yard roadways, and subgrades are not included.

### c. Unit Costs

For earthwork unit costs for each of the three types of excavation (common, loose rock and solid rock) and borrow (material moved to the construction site for fill), the parties agree to use the 2002 Means Handbook (Means) unit costs, adjusted by the Means location factor. However, the parties disagree on the appropriate equipment. BNSF criticizes Otter Tail's equipment selection and contends that Otter Tail overlooked many of the costs associated with its choice of equipment.<sup>200</sup> Otter Tail generally observes that BNSF has not presented any evidence from its own construction projects in support of its criticisms or counterproposals.<sup>201</sup>

For common earth excavation east of Bismarck and half of the excavation west of Bismarck, Otter Tail proposed using an elevating scraper (assisted by dozers) to load, haul and distribute the soil, and a sheepsfoot roller and vibrating roller to compact the earthwork distributed by the scraper, at a unit cost of \$3.67 per cubic yard (CY).<sup>202</sup> For the other half of the OTRR west of Bismarck, Otter Tail proposed using a 1½ CY power shovel in combination with a 42 CY off-road hauler, at a unit cost of \$3.90 per CY. This results in a weighted average common excavation cost of \$3.84 per CY. Otter Tail's common excavation costs are supported by Means.

BNSF claims that the elevating scraper used by Otter Tail would be unsuitable for excavating the material along the OTRR unless the material had already been windrowed by a dozer or motor grader.<sup>203</sup> BNSF would substitute a higher-cost scraper (assisted by dozers) for the OTRR east of Bismarck and would use a 50/50 distribution of the higher-cost scraper (assisted by dozers) and a 3 CY capacity backhoe excavator in combination with a 22 CY off-road hauler west of Bismarck, at a unit cost of \$9.30 CY east of Bismarck and \$8.45 per CY west of Bismarck.

BNSF, however, has provided no soil studies or other evidence to support its higher-cost equipment, no support that a dozer would be needed to incorporate the water for compaction in embankments or to spread the waste materials in the areas where the

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<sup>198</sup> See BNSF Reply Narr. III-F-76-77.

<sup>199</sup> See id. at III-F-124.

<sup>200</sup> Id. at III-F-80-81.

<sup>201</sup> Otter Tail Reb. Narr. III-F-56-57.

<sup>202</sup> See Otter Tail Open. Errata e-WP. "OTRR Grading.xls"; Otter Tail Reb. Narr. III-F-57.

<sup>203</sup> See BNSF Reply Narr. III-F-82-84.

elevated scrapers could do the job, and no evidence demonstrating that Otter Tail's mix of equipment would not be capable of compacting the soil. In short, Otter Tail's proposal is feasible and BNSF has not discredited it. Therefore, Otter Tail's cost figures for common excavation are used here.

In determining the relative amounts of solid rock and loose rock areas along the OTRR, the parties agreed that 50% of the quantities classified as solid rock in Engrg Rpts would be rippable using modern equipment and would not require blasting. For loose rock excavation, Otter Tail would use 300 horsepower (HP) dozers, 1½ CY shovels and 42 CY off-road haulers.<sup>204</sup> BNSF proposes the use of 460 HP dozers, 3 CY backhoes and 22 CY off-highway haulers.<sup>205</sup> BNSF would include additional dozers to gather loose rock into piles, so that the shovels and backhoes could meet production rates. BNSF would also make two additional adjustments: a 60% additive to all equipment costs to account for handling "heavy soil or stiff clay;" and a 15% additive to all equipment costs for loading bulk excavated materials onto the haulers.<sup>206</sup> BNSF also contends that Otter Tail's 42 CY haulers could not turn in narrow areas, but Otter Tail explains that they could use a three-point turn when necessary.<sup>207</sup>

Otter Tail'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. Otter Tail 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 Otter Tail has not shown why it excluded this component. However, BNSF's proposed 60% additive is excluded because BNSF did not show that the material excavated 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, Otter Tail used an average of the Means costs for "bulk drilling" and "drilling and blasting over 1,500 cubic yards."<sup>208</sup> BNSF objects to the inclusion of a bulk drilling and blasting cost,<sup>209</sup> 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."

According to Means, the bulk drilling and blasting cost used by Otter Tail is not the minimum cost for such activities, but an average for blasting large quantities of rock,

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<sup>204</sup> See Otter Tail Reb. Narr. III-F-65-67.

<sup>205</sup> See BNSF Reply Narr. III-F-90-93.

<sup>206</sup> Id. at III-F-92.

<sup>207</sup> See Otter Tail Reb. Narr. III-F-67.

<sup>208</sup> Id. at III-F-68.

<sup>209</sup> See BNSF Reply Narr. III-F-96-97.

as would be necessary here. Thus, Otter Tail's drilling and blasting costs are reasonable and are used.

BNSF proposes additional costs to reduce the size of large boulders resulting from blasting and drilling activities.<sup>210</sup> Otter Tail argues that large boulders would not be encountered if blasting were conducted correctly.<sup>211</sup>

BNSF has provided no evidence of the need for secondary blasting of boulders, which could have been produced, if it exists, from its own similar construction projects. Moreover, Otter Tail's costs for removing blasted material are supported by Means. Therefore, no additional cost is included here for solid rock excavation.

For loading the blasted solid rock to be hauled away as fill or removed as waste, Otter Tail, in response to BNSF's criticisms, changed from proposing a 1½ CY power shovel to a 3 CY power shovel.<sup>212</sup> It also used an average of the costs for a sheepsfoot roller and vibratory roller for compaction of fill.<sup>213</sup> In contrast, BNSF used a different equipment mix and set of construction tasks.<sup>214</sup> It also proposed dozers to stockpile rock for loading by 3 CY backhoes, with a 60% markup for heavy soil and a 15% markup for lading stockpiled materials into 22 CY haulers.<sup>215</sup>

Otter Tail's equipment mix and construction tasks for solid rock excavation are used. BNSF has not shown that additional dozers would be needed because it has not shown that the stockpiling of blasted rock would be necessary to meet production rates, as it did for the smaller shovel used in loose rock excavation. However, BNSF has shown that there would be a need for dozers to spread material dumped from trucks. Therefore, dozers are added to Otter Tail's equipment mix. A 15% mark-up for loading trucks is also added to Otter Tail's costs, because it is supported by Means, and Otter Tail has not shown why it excluded this component.

Concerning hauling borrow material, BNSF accepts Otter Tail's equipment mix with two exceptions.<sup>216</sup> BNSF includes dozers to spread dumped material and uses a sheepsfoot roller to compact the borrow material. Dozers would be necessary to spread material dumped from the haulers to maintain production rates. But because BNSF has not shown that a sheepsfoot roller would be needed in addition to Otter Tail's proposed compaction equipment, that cost is excluded.

Otter Tail 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

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<sup>210</sup> Id. at III-F-97-100.

<sup>211</sup> See Otter Tail Reb. Narr. III-F-69.

<sup>212</sup> Id. at III-F-66.

<sup>213</sup> Id. at III-F-63.

<sup>214</sup> See generally BNSF Reply Narr. III-F-95-100.

<sup>215</sup> See id. at III-F-91-92.

<sup>216</sup> See id. III-F-100; Otter Tail Reb. Narr. III-F-70.

sufficiently for the placement of sub-ballast, and that sub-ballast would act as a surrogate for fine grading.<sup>217</sup> BNSF claims that fine grading using specialized equipment would be necessary to eliminate ruts or depressions and to avoid drainage problems, and that Means lists fine grading separately from other grading activities. BNSF also notes that fine grading is typically an element of railroad construction projects (e.g., fine grading was used on the WRPI line) and that failure to use fine grading could result in costly repairs in the future.<sup>218</sup>

Costs for fine grading are included here because BNSF has provided evidence 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 OTRR roadbed. BNSF, however, has included additional items of equipment not included in the WRPI specifications or otherwise supported. Because these additional items are not supported, only the additional cost of the road grader is included here.

### 3. Drainage

#### a. Lateral Drainage

The parties agree on the quantity of pipe that would be needed for lateral drainage, but they disagree on unit costs, pipe selection, backfill material, and compaction methods. Otter Tail uses Means to develop unit costs and contends that trenching would be accomplished as part of the initial grading process.<sup>219</sup> Relying on two publications, C.C. Summerlin, Handbook of Culvert and Drainage Practice (1937) and the 1985 Association of American Railroad (AAR) Track Cyclopedia at 314-319, BNSF would have the OTRR install the lateral drainage by re-excavating after initial grading of the roadbed,<sup>220</sup> and would have it install geotextile fabric.

BNSF has introduced evidence showing that industry practice is to install lateral drainage after initial grading,<sup>221</sup> and Otter Tail has not rebutted this evidence. Although a SARR proponent need not follow standard industry practice, it must show that its alternative methodology is feasible. Otter Tail has not demonstrated that the OTRR could accomplish drainage installation during the initial grading process. See Xcel at 98. BNSF has also shown that Otter Tail's pipe selection is inappropriate. It is unlikely that 8-inch perforated pipes installed during initial grading would support earthmoving equipment moving over them without severe damage to the pipes. Thus, BNSF's lateral drainage costs are used here, including the use of geotextile fabric which The Track Cyclopedia and Handbook of Culvert and Drainage Practice show is a standard industry practice.

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<sup>217</sup> See Otter Tail Reb. Narr. III-F-74-75.

<sup>218</sup> See BNSF Reply Narr. III-F-105-106.

<sup>219</sup> See Otter Tail Reb. Narr. at III-F-76.

<sup>220</sup> See BNSF Reply Narr. at 108-09.

<sup>221</sup> Id. at III-F-109 n.100.

### **b. Yard Drainage**

Otter Tail provided drainage for only a portion of the yards at Donkey Creek and Glendive, arguing that drainage would only be necessary for paved inspection roads, and that BNSF's additional paved roads would be unnecessary because the yards would be located adjacent to track, near existing roads, and the terrain is relatively flat.<sup>222</sup> BNSF would include drainage for the entire area of each yard.

Through design specifications, BNSF has shown that Otter Tail's drainage would be inadequate,<sup>223</sup> and Otter Tail has not successfully rebutted this showing. Thus, we use BNSF's design for drainage of the full yards, and Means-based costs, adapted to Otter Tail's yard acreage, as Otter Tail's yard configurations are used.

### **4. Culverts**

The parties agree on the three different types of culverts that would be used on the OTRR: corrugated metal pipe; structural plate pipe; and reinforced concrete box culverts. The parties disagree on unit cost and quantity.<sup>224</sup> Otter Tail developed its unit costs from Means. BNSF claims that Means does not include costs for the excavation and backfill of culverts, and that these costs should be added.<sup>225</sup> Because installation costs were included for lateral drainage, and because Means does not include these costs,<sup>226</sup> excavation and backfill costs will be added to Otter Tail's costs.

BNSF also claims that Otter Tail failed to include transportation costs for corrugated metal pipe culverts.<sup>227</sup> However, Otter Tail demonstrates that Means does in fact include transportation costs.<sup>228</sup> Thus, including additional transportation costs would not be appropriate.

The parties differ only slightly on the number of culverts necessary. Otter Tail's quantities are used because Otter Tail relied on BNSF's culvert inventory, while BNSF did not provide support for its additional figure.

### **5. Retaining Walls**

The parties agree on the use of retaining wall gabions (steel mesh boxes filled with rock) for retaining walls on the OTRR, but they disagree on the length of gabions (Otter Tail proposes 6 feet, while BNSF proposes 12 feet).<sup>229</sup> Otter Tail contends that the

<sup>222</sup> See Otter Tail Reb. Narr. at III-F-94-95.

<sup>223</sup> See BNSF Reply WP. III-F-0406-13.

<sup>224</sup> See BNSF Reply e-WP. "III F OTRR Construction.xls," worksheet "Culvert List"; Otter Tail Reb. e-WP. "OTRR Culverts Rebuttal.XLS."

<sup>225</sup> See BNSF Reply Narr. III-F-111.

<sup>226</sup> See Otter Tail Open. WP. 4470-73.

<sup>227</sup> See BNSF Reply Narr. III-F-111.

<sup>228</sup> See Otter Tail Reb. WP. 6227.

<sup>229</sup> See Otter Tail Reb. Narr. at III-F-83. See also BNSF Reply Errata e-WP. "IIIF2 OTRR GRADING\_Errata.xls," worksheet "Unit Costs."

6-foot long gabions would be equally sound, but easier to manipulate and install than the 12-foot long gabions.

Otter Tail's proposal is feasible and supported, and BNSF has failed to explain why the longer, more expensive gabions would be needed. Thus, Otter Tail's 6-foot long gabions are used.

BNSF would increase by 50% Otter Tail's retaining wall quantities to reflect the higher walls necessitated by the OTRR's use of a wider roadbed than that reflected in Engrg Rpts.<sup>230</sup> On rebuttal, Otter Tail argues that BNSF assumed incorrectly that, at every retaining wall location, the surrounding earth side wall would always be slanting upward (in a cut) or downward (in a fill) from the center of the roadbed. Depending on the topography at each location, there might be a decrease in the size of the retaining wall needed or no effect at all (e.g., a wider roadbed could result in a shorter retaining wall in a cut or a lower retaining wall in a fill).<sup>231</sup> Further, Otter Tail asserts that it might be possible to accommodate a wider roadbed on the side where a retaining wall would not be required, so that no adjustment in size would be necessary. Because BNSF has failed to support its assumptions about retaining wall quantities, and because Otter Tail has successfully rebutted those assumptions in any event, we use Otter Tail's retaining wall quantities.

Finally, BNSF added costs for trenching and installation of the gabions.<sup>232</sup> Otter Tail excludes them, arguing that installation would occur during initial grading.<sup>233</sup> However, Otter Tail has not shown that installation is included in its grading costs. Conversely, BNSF has demonstrated that it is industry practice to excavate and backfill as a separate function from the initial grading of the line. Thus, as with lateral drainage and culverts, BNSF's proposed cost of installing retaining walls is added to Otter Tail's Means-based unit costs.

## 6. Rip Rap

Rip rap are large stones placed at the ends of drains and culverts to slow and deflect drainage. For the OTRR's rip rap, the parties agree on the use of Engrg Rpts to determine quantities and Means to determine unit costs. BNSF argues that transportation costs should be included, because granite for the rip rap is not locally available.<sup>234</sup> Otter Tail contends that such costs are included in the Means costs. Because Means specifically states that costs include delivery and BNSF has not provided evidence that Means costs should be augmented by additional transportation costs, no separate transportation costs are included here.

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<sup>230</sup> See BNSF Reply Narr. III-F-114-15.

<sup>231</sup> See Otter Tail Reb. Narr. III-F-82.

<sup>232</sup> See BNSF Reply Narr. III-F-115; BNSF Reply e-WP. "IIIF2 OTRR GRADING.XLS," worksheet "IIIF\_6 Othr EW."

<sup>233</sup> See Otter Tail Reb. Narr. III-F-84.

<sup>234</sup> See BNSF Reply Narr. III-F-116; BNSF Reply e-WP. "IIIF2 OTRR GRADING.XLS."

## 7. Relocating and Protecting Utilities

The parties agree on the unit cost of utility protection and relocation, but differ in their total numbers due to their respective network configurations. Because we use Otter Tail's configuration, we use its costs for relocating and protecting utilities.<sup>235</sup>

## 8. Seeding/Topsoil Placement

The parties agree on the unit cost for topsoil placement, but disagree on total costs due to differences in their network configurations. They do not agree on seeding costs. Otter Tail did not include a separate cost for seeding, claiming that BNSF did not incur such a cost. Otter Tail bases this claim on the inclusion of seeding in the cost of top soil for the Orin Line and for those areas listed in Engrg Rpts.<sup>236</sup> See WPL at 85 n.159. BNSF includes seeding as a separate cost, asserting that it entered into a separate contract for seeding of the Orin Line.

BNSF, however, has not submitted a copy of that contract or other evidence supporting inclusion of a separate seeding cost. As the Board has previously found, it is inappropriate to include topsoil placement and seeding costs unless the incumbent railroad or its predecessor actually incurred such costs. See Xcel at 100. BNSF has not shown that it incurred seeding costs on any line segment that the OTRR would replicate, and so no separate cost for seeding is added here. Because Otter Tail's configuration is used for the OTRR, and because the parties agree on unit cost, Otter Tail's costs for topsoil placement is used here.

## 9. Water for Compaction

The parties agree that water would need to be added to the roadbed to achieve adequate compaction. They agree on the unit cost for water. They also agree on the amount of water per cubic yard of earthwork for the Orin Line and Eagle Butte branch. BNSF, however, disagrees with the quantities of water Otter Tail used for the remainder of the OTRR, arguing that these areas have "dry silty sand soils" that would require substantially more water for compaction (twice the water for compaction than would be used on the Orin Line and Eagle Butte branch).<sup>237</sup> BNSF estimates that these line segments would require an average of 30.13 gallons of water per CY, whereas Otter Tail uses a weighted average of 14.47 gallons per CY.<sup>238</sup>

BNSF's position is unsupported by soil analysis or other evidence and appears inconsistent with its (unsupported) position that significant "soil foundation conditioning" would be required.<sup>239</sup> Because Otter Tail's calculations are reasonable and

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<sup>235</sup> See BNSF Reply e-WP. "IIIF2 OTRR GRADING.XLS," worksheet "IIIF\_14Othr Cst"; Otter Tail Reb. Narr. III-F-85.

<sup>236</sup> See Otter Tail Reb. Narr. III-F-87.

<sup>237</sup> See BNSF Reply Narr. III-F-120.

<sup>238</sup> See Otter Tail Reb. Narr. Exh. III-F-25.

<sup>239</sup> Compare BNSF Reply Narr. III-F-63-64 (soil foundation conditioning) and BNSF Reply Narr. III-F-119-20 (water for compaction).

BNSF has not demonstrated that the soil would require more than twice the water for compaction that it accepts for the Orin line and Eagle Butte branch, we use Otter Tail's determination of water for compaction for each line segment.

## 10. Road Surfacing

The parties agree on the unit cost for aggregate paving, but BNSF includes additional costs for bituminous asphalt on six road crossings and for detours, without evidentiary support.<sup>240</sup> Otter Tail's costs for road surfacing are used here because BNSF has not supported its additional costs, and because we have excluded road costs where the incumbent railroad did not pay for that investment. See Duke/CSXT at 84; CP&L at 86; TMPA Recons. at 26.

## 11. Winter Construction

Otter Tail did not include costs for removal of snow and frozen material, extra equipment, and construction lighting for construction during winter months.<sup>241</sup> BNSF includes costs for each of these items,<sup>242</sup> arguing that they would be necessary because According to Otter Tail's proposed construction schedule, the OTRR would be constructed in part between the months of November through January.<sup>243</sup> BNSF argues that daylight would be limited to about 9 hours a day and temperatures would average below-freezing. However, BNSF did not provide evidence to support its proposed additional costs. Otter Tail contends that it has sufficient flexibility built into its 30-month construction schedule to accommodate rescheduling grading activities to warmer months should the need arise.<sup>244</sup> It also argues that additional winter construction costs should be covered by contingency funds.

We reject Otter Tail's proposal to use contingency funds to pay for winter construction costs, as a contingency is used to cover unforeseen costs that may arise during construction, and winter construction costs would not be an unexpected expense. However, based on the flexibility to alter the OTRR construction schedule by 3 months, and because BNSF failed to support its costs, no additional costs for winter construction are included here.

## 12. 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—OTRR Configuration**.

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<sup>240</sup> See BNSF Reply Narr. III-F-121.

<sup>241</sup> See Otter Tail Reb. Narr. III-F-72-75.

<sup>242</sup> See BNSF Reply Narr. III-F-101-05.

<sup>243</sup> Id. at III-F-101.

<sup>244</sup> See Otter Tail Reb. Narr. III-F-73-74.

### 13. Waste Excavation

The OTRR would need land to hold excess excavation (waste) material. The parties agree on a unit cost of \$384.51 per acre, but differ on the number of acres and amount of waste material each acre would hold. According to BNSF, Otter Tail assumed 15-foot vertical walls at the edges of waste stockpiles but did not propose retaining walls.<sup>245</sup> Otter Tail used a haul distance of 0.5 miles, so that the waste materials could be placed feasibly on the square parcels that it proposes to use for waste stockpiles.<sup>246</sup> BNSF proposes the use of 1.5:1 side slopes for the stockpiles,<sup>247</sup> in long narrow strips of land adjacent to the ROW.

We agree with BNSF that such vertical walls of waste material could not be maintained without retaining walls, and thus we use 1.5:1 side slopes. We find Otter Tail's proposed haulage and disposal on square parcels to be feasible. We therefore adjust the number of acres needed to hold waste material to reflect BNSF's side slope geometry and Otter Tail's square parcels.

### C. Track Construction

A variety of materials would be needed to assemble the tracks of the OTRR. **Table D-5** summarizes the cost estimates associated with this aspect of constructing the OTRR.

**Table D-5**  
**Track Construction**  
**(\$ millions)**

|                                  | <b>Otter Tail</b> | <b>BNSF</b>      | <b>STB</b>     |
|----------------------------------|-------------------|------------------|----------------|
| <b>Sub-ballast &amp; Ballast</b> | \$90.9            | \$183.5          | \$96.0         |
| <b>Geotextile Fabric</b>         | 0.3               | 1.3              | 0.5            |
| <b>Ties</b>                      | 139.7             | 141.1            | 139.7          |
| <b>Rail</b>                      | 164.6             | 178.7            | 164.6          |
| <b>Other Track Materials</b>     | 76.4              | 87.1             | 76.4           |
| <b>Turnouts</b>                  | 33.7              | 58.9             | 33.7           |
| <b>Transportation</b>            | 99.1              | 108.4            | 107.0          |
| <b>Labor</b>                     | 242.8             | 248.5            | 242.8          |
| <b>TOTAL</b>                     | <b>\$847.3</b>    | <b>\$1,007.5</b> | <b>\$860.7</b> |

#### 1. Ballast and Sub-ballast

The parties agree on the need for 12 inches of ballast for main line track, 9 inches of ballast for "light density" lines (Fargo, ND, to Benson, MN, and the Keuhn, Big Sky and Big Stone branches)<sup>248</sup> and passing track, and 6 inches of ballast in yards. The

<sup>245</sup> See BNSF Reply Narr. III-F-123.

<sup>246</sup> See Otter Tail Reb. Narr. III-F-92-93.

<sup>247</sup> See BNSF Reply Narr. III-F-123.

<sup>248</sup> Otter Tail Reb. Narr. III-F-102 & n.242.

parties, however, disagree on the cost of transporting ballast to the construction locations. Otter Tail would have the ballast transported over the OTRR lines to be constructed. BNSF contends that the ballast would have to be transported over BNSF's main lines at a higher cost.<sup>249</sup> Otter Tail argues, on rebuttal, that the residual BNSF lines could be used to transport ballast.<sup>250</sup>

We agree with BNSF that the OTRR would not be able to ship ballast over either BNSF's residual lines or the OTRR lines under construction. See Xcel Recons. at 17-18. Rather, the OTRR would incur the higher transportation costs of shipping the ballast over BNSF's main lines, and we include this cost in our analysis.

BNSF argues that a cost should be included for equipment and operators to remove ice from ballast during construction occurring in cold weather.<sup>251</sup> Because BNSF has supported this cost,<sup>252</sup> its cold weather ballast treatment is included.

The parties dispute the unit cost of the sub-ballast. Otter Tail proposes a unit cost of \$7.50 per cubic yard, based on a BNSF authorization for financial expenditure (AFE).<sup>253</sup> BNSF argues that Otter Tail has chosen BNSF's lowest AFE, which, it claims, is not representative of BNSF's actual sub-ballast costs. BNSF proposes a unit cost based on an average of its AFEs, excluding the highest and lowest ones.<sup>254</sup>

Most of the AFEs reflected in BNSF's average figure are from sources located in southwestern states far from the OTRR. Because it is more likely that the OTRR would obtain sub-ballast from closer sources, those AFEs are not instructive here. Rather, the only AFE from a source located near the OTRR is the one that Otter Tail relied on to determine its unit cost. For these reasons, Otter Tail's unit cost for sub-ballast is used.

## 2. Geotextile Fabric

The parties agree on the unit cost of geotextile fabric, but disagree on the extent of its use on the OTRR. In addition to arguing that Otter Tail should have included geotextile fabric under crossings and at bridge approaches, BNSF argues that Otter Tail should have included geotextile fabric along 5% of the OTRR's Bismarck, ND, to Big Stone, SD segment, because of the combination of poor soil material and extremely poor drainage due to the flat terrain.<sup>255</sup> BNSF also argues that Otter Tail has not provided enough square footage of fabric at certain turnouts to accommodate the transition ties and

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<sup>249</sup> See BNSF Reply Narr. III-F-164-66.

<sup>250</sup> See Otter Tail Reb. Narr. III-F-121.

<sup>251</sup> See BNSF Reply Narr. III-F-167-68.

<sup>252</sup> Id. at III-F-167; BNSF Reply WP. III-F-0601-02.

<sup>253</sup> See Otter Tail Open. WP. 4489.

<sup>254</sup> See BNSF Reply Narr. III-F-138.

<sup>255</sup> Id. at III-F-133.

to account for overlap of the fabric where the rolls are not wide enough to cover the area.<sup>256</sup>

On rebuttal, Otter Tail claims that geotextile fabric would not be needed under crossings because BNSF has provided no evidence that it has installed geotextiles under crossings on the lines the OTRR would replicate. Otter Tail disputes BNSF's inclusion of geotextile fabric for 5% of the Bismarck to Big Stone segment, because inclusion would result in a double-count of the costs required to address the drainage issues for this portion of the OTRR.<sup>257</sup> Otter Tail contends that it could use less geotextile fabric at turnouts than BNSF proposes, by employing a "cut to fit" technique.<sup>258</sup> Finally, Otter Tail contends that BNSF's additional transition ties would be unnecessary, and consequently, geotextile fabric under these ties would also be unnecessary.

The installation of geotextile fabric under all turnouts and crossings is now a standard practice, and as such, these costs are properly included in the SAC analysis. See Duke/CSXT at 89. We also agree with BNSF that additional geotextile material would be required to accommodate the transition ties required at every turnout (see **Section C.3.**, below), as well as the overlap of fabric where the rolls are not wide enough, as Otter Tail did not adequately support its "cut to fit" concept. Also, Otter Tail has failed to refute BNSF's claim that geotextile fabric is needed under bridge approaches, and thus, we include this cost as well. However, we reject BNSF's claim that geotextile fabric would be required on the Bismarck to Big Stone line, because it failed to provide sufficient evidence supporting that claim.

### 3. Ties

The parties agree that AREMA Grade 5 (7" x 9" x 8'6") wooden ties could be used for "high-density" lines and Grade 3 (6" x 8" x 8'6") wooden ties could be used for the "light-density" lines except between Fargo and Benson. They agree to quantities of 3,250 ties per mile where 19.5-inch spacing is used, and 3,017 ties per mile where 21-inch spacing is used. (The line between Fargo and Benson would have Grade 5 ties with 21-inch spacing.) However, BNSF would add costs for 10-foot transition ties under road crossings and turnouts,<sup>259</sup> while Otter Tail argues that standard-size ties could be used at those locations.<sup>260</sup> The parties also agree to the unit cost for both the Grade 5 ties (\$29.18 per tie) and Grade 3 ties (\$16.80 per tie), but BNSF claims that a cost for transporting the ties must be included in the overall unit cost.

We find that BNSF has not shown that transition ties at at-grade crossings would be required, as neither source listed by BNSF in support of this cost covered road

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<sup>256</sup> Id. at III-F-130-31.

<sup>257</sup> See Otter Tail Reb. Narr. III-F-101.

<sup>258</sup> Id. at III-F-100.

<sup>259</sup> See BNSF Reply Narr. III-F-142.

<sup>260</sup> See Otter Tail Reb. Narr. III-F-107.

crossings.<sup>261</sup> However, we will use transition ties adjacent to turnouts, as BNSF's specifications show that transition ties are used in such locations and Otter Tail's claim that the nearby WRPI line does not use transition ties near turnouts is unsupported. However, we reject BNSF's addition of transportation costs. As Otter Tail correctly notes, costs for transporting ties from the staging locations to the installation locations are included in the work train costs that are part of the track labor and equipment costs<sup>262</sup> to which the parties have agreed (other than with regard to configuration differences).

#### **4. Rail**

The parties differ on the rail quantities based on their respective network configurations. The remaining disputes are discussed below.

##### **a. New Rail**

The parties agree to specifications for new rail, including the weight and strength of the rail to be used on the various OTRR lines. They would use both premium and standard 136-pound, and premium and standard 132-pound continuous welded rail throughout the system. They also agree on the unit cost of the 136-pound rail, but they disagree on the unit cost of the 132-pound rail (both standard and premium). Otter Tail based its unit costs for standard and premium 132-pound rail on a price list provided by BNSF on discovery.<sup>263</sup> BNSF claims, however, that it no longer purchases 132-pound rail, and accordingly, this price list should not be used as a basis for unit cost. Instead, BNSF submitted a unit cost based on a third-party price quote.<sup>264</sup>

Otter Tail's unit cost figure is used here, because Otter Tail reasonably relied on the information received from BNSF in discovery and BNSF has not impeached that information.

##### **b. Second-Hand (Relay) Rail**

The parties agree on the materials cost for second-hand rail. However, BNSF states that costs for loading and offloading the rail at the welding plant need to be included within the overall unit cost.<sup>265</sup> Otter Tail argues that the cost of loading and offloading the rail is already included in track labor costs, as the Board found in past cases.<sup>266</sup>

We agree with Otter Tail that the contractor being paid to lay the track would be responsible for all handling of the rail, and thus the cost for handling the second-hand rail

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<sup>261</sup> Cf. Xcel at 104 (transition ties included because evidence supported that they were part of "BNSF's current track specifications.").

<sup>262</sup> See Otter Tail Open. e-WP. "OTRR Transportation.xls"; Otter Tail Reb. e-WP. "OTRR Transportation Rebuttal.xls." See also Otter Tail Open. WP. 4502.

<sup>263</sup> See Otter Tail Open. WP. 4480.

<sup>264</sup> See BNSF Reply Narr. III-F-144.

<sup>265</sup> Id. at III-F-144-45.

<sup>266</sup> See Otter Tail Reb. Narr. III-F-110.

would already be included in the track labor costs. See Duke/CSXT at 91; Duke/NS at 106. We therefore use Otter Tail's unit cost here.

### **c. Plant Welds**

The parties agree on the quantity of plant welds used, but differ on the unit cost per weld. Otter Tail developed its unit cost based on a price list provided by BNSF in discovery, but the parties disagree on whether this price is for materials only or also includes the cost of labor.

We find that Otter Tail's unit cost includes the cost of labor.<sup>267</sup> As Otter Tail notes, if labor costs were added to BNSF's price, the total unit cost for the plant welds would make this the most expensive rail on the OTRR.<sup>268</sup> If that were the case, Otter Tail would not have proposed any 132-pound second-hand rail, but would have proposed all new rail, as the sole purpose of using second-hand rail is to reduce the investment costs where appropriate. Otter Tail's figures are therefore used as the best evidence of record.

### **d. Set-out Track**

The parties disagree on the quantity of set-out track due to differences in their proposed configurations. Because Otter Tail's configuration is used, its quantities are used as well.

### **e. Field Welds & Compromise Joints**

Otter Tail included a cost for field welds, based on a price obtained from BNSF in discovery.<sup>269</sup> As with plant welds, BNSF argues that this price does not include the cost of labor. Otter Tail did not include compromise joints in its track construction, pointing to the fact that these joints are not used between 132-pound and 136-pound rail on the former Chicago and North Western Transportation Company or the Belt Railway of Chicago.

For the same reason we used Otter Tail's plant weld cost in **Section C.4.c.**, we also use Otter Tail's field weld cost. We also exclude the cost of compromise joints, as Otter Tail has demonstrated that other railroads do not use compromise joints and BNSF has failed to provide any evidence that these joints would be needed.

### **f. Scrap Rail**

The parties agree that the OTRR would receive a credit for selling scrap rail cropped from the 39-foot sections of second-hand 132-pound rail, but disagree over how much credit the OTRR would receive. Otter Tail claims that the OTRR would receive \$85 per ton, based on a figure it obtained from an Internet website called RecycleNet Scrap Metals Index.<sup>270</sup> BNSF challenges the validity of the figure from the website

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<sup>267</sup> See Otter Tail Open. WP. at 4476.

<sup>268</sup> See Otter Tail Reb. Narr. III-F-111.

<sup>269</sup> See Otter Tail Open. WP. 4476.

<sup>270</sup> See Otter Tail Open. WP. 4482.

because the index did not fluctuate between May and August 2003. BNSF contacted Pacific Recycling, a scrap dealer located in Billings, MT (near the site of the proposed rail-welding yard), and obtained a quote of \$54 per ton.<sup>271</sup>

Otter Tail's figure is used because it is reasonable, it is adequately supported, and BNSF has not discredited it. BNSF's argument that the index price has not fluctuated for 2-3 months does not give rise to a presumption that it is faulty simply because it remained constant during this period. While BNSF's single price quote represents just one purchaser's proposed price, Otter Tail's figure is index-based and thus more representative of prices for the steel industry on the whole.

## **5. Other Track Materials**

The parties agree on the unit cost of tie plates, Pandrol plates, 6-inch spikes, and wheel stops, but they differ on the quantities, based on their respective network configurations. The quantities for each of these components are restated here, based on Otter Tail's network configuration used in our analysis. The remaining disputes over the need for additional rail anchors and the inclusion of derails are discussed below.

### **a. Rail Anchors**

The parties agree on the unit cost of rail anchors, but, according to BNSF, Otter Tail included anchors on only two of the three 200-foot track sections adjacent to turnouts, even though all three 200-foot sections would need rail anchors.<sup>272</sup> Accordingly, BNSF asserts that anchors for an additional 200 feet of track per turnout need to be added to the total quantity. Because BNSF provides no documentation or support for its claim, we use the quantity of rail anchors provided by Otter Tail.

### **b. Derail Devices**

Derail devices are typically used any place where there is a possibility that a rail car or locomotive could move from one track to another in an uncontrolled manner. Otter Tail did not include any derail devices. BNSF argues that such devices should be included on the OTRR's side tracks and set-out tracks, as well as on tracks along routes where physical separation of operations would be desirable.<sup>273</sup> Otter Tail disagrees, noting that, contrary to BNSF's assertion, FRA's safety regulation at 49 CFR 213.205 does not specify that derail devices are required for operational separation.<sup>274</sup> Because BNSF has not shown that derail devices would be essential for safe operation or that FRA specifications require their installation, we do not include them.

## **6. Turnouts**

Turnouts (or switches) allow trains to move from one track to another. The parties agree on the unit costs for most of the turnout materials, but they disagree on the quantities needed, based on their differing proposed system configurations.

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<sup>271</sup> See BNSF Reply WP. III-F-0564.

<sup>272</sup> See BNSF Reply Narr. III-F-159-60.

<sup>273</sup> *Id.* at III-F-161.

<sup>274</sup> See Otter Tail Reb. Narr. III-F-119-20.

#### **a. Installation Cost**

Otter Tail and BNSF agree to the specifications of the turnouts, but disagree over whether installation is included in the unit costs. Otter Tail argues that the cost of installing the turnouts is already included in track construction costs. Specifically, Otter Tail asserts that panelized turnouts (turnouts constructed as modules) would substitute for rail and ties at turnout locations. Thus, including a turnout installation cost without deducting the installation cost from overall track construction costs would result in a double-count for the construction of these portions of the OTRR line.<sup>275</sup> Because Otter Tail has successfully demonstrated that a double-count would occur, no additional cost for turnout installation is included here.

#### **b. Switch Heaters and Propane Tanks**

Otter Tail bases its costs for switch heaters on data from a BNSF AFE,<sup>276</sup> while BNSF provides no support for its proposed costs (its workpapers reference a document that is omitted from the record). In contrast, Otter Tail's proposed cost for propane tanks is unsupported, while BNSF's proposed cost is supported by a workpaper. Thus, we use Otter Tail's cost for switch heaters, and BNSF's cost for propane tanks.

#### **c. Switch Stands**

BNSF included a cost for low-target switch stands on all single switch point derail devices. As previously discussed in **Section C.5.b.** above, we do not include BNSF's proposed derail devices. Therefore, we use Otter Tail's quantity of switch stands here, as well as the unit cost agreed to by the parties.

#### **d. Insulated Joints and Electric Locks**

The parties agree on the unit costs for insulated joints and electric locks, but they differ on the quantities, based on their differing proposed network configurations. We use Otter Tail's quantities because its network configuration is used in our analysis.

#### **e. Diamond Crossings**

The parties agree that two diamond crossings would be required, at a cost of \$67,731 per crossing. Although BNSF argues that the cost should be increased to include the cost of installation, it never stated what the installation costs would be. Thus, the agreed-upon cost per crossing is used without additional installation costs.

#### **f. Rail Lubricators**

The parties agree to the overall costs of rail lubricators, but BNSF argues that a cost should be included for disposable environmental mats, which are used underneath the lubricators to collect excess grease and to protect underlying ballast. Otter Tail argues that environmental mats would not be necessary and points out that BNSF has not shown that it uses these mats on its own system. Because BNSF failed to support the need for these mats, we do not include them.

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<sup>275</sup> Id. at III-F-116.

<sup>276</sup> Otter Tail Reb. WP. 6244-49.

## 7. Transportation

The parties agree on the unit cost of transporting track materials for the OTRR's construction. However, they disagree as to the mileage those materials would travel. Most of the dispute centers around the previously discussed issue of Otter Tail's proposal to use the OTRR's lines to transport materials. See Section C.1. above. We have found that it would not be proper to assume that a SARR could transport materials over the very lines that the SARR would need to build. See Xcel Recons. at 17-18. Because Otter Tail's construction plans wrongly assume that some of the track materials would be shipped over OTRR lines that would not yet have been built, we use BNSF's mileages as the best evidence of record.

### D. Tunnels

There would be no tunnels on the OTRR.

### E. Bridges

#### 1. Bridge Inventory

BNSF claims that there are errors in Otter Tail's worksheets regarding the number of bridges. BNSF includes the cost of 34 bridges that traverse roads on the OTRR's main line between Donkey Creek and Big Stone. Otter Tail asserts that the Board should exclude these bridges, in accordance with precedent, because they were built to accommodate highway traffic that developed after BNSF's rail lines were originally constructed, and thus were not paid for by BNSF.<sup>277</sup> BNSF argues that, even assuming it did not pay to construct these bridges, it nonetheless incurs costs to maintain and replace these bridges.<sup>278</sup> BNSF claims that failure to include any cost for these bridges—either as capital investment or as a MOW expense—would result in an understatement of the OTRR's costs.

While BNSF did not pay to construct bridges over those highways, BNSF has shown that it incurs MOW costs for these bridges. See TMPA at 140. Therefore, BNSF's cost to maintain these bridges will be included in the SAC analysis, but as part of MOW costs rather than road property investment. See Appendix C—Operating Expenses, Section K.

BNSF also argues that Otter Tail improperly excluded a bridge that crosses a natural obstacle at Huntley, MT. However, based on the Board's decision in PPL Montana, LLC v. The Burlington Northern and Santa Fe Railway Company, STB Docket No. 42054, slip op. at 2 (STB served Aug. 31, 2004), and the evidence submitted in that case,<sup>279</sup> it appears that Huntley is west of Moran Junction, and that the Huntley Bridge is therefore properly excluded from the OTRR bridge inventory.

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<sup>277</sup> See Otter Tail Reb. Narr. III-F-124.

<sup>278</sup> See BNSF Reply Narr. III-F-174-75.

<sup>279</sup> PPL Open. WP. 025098 (V.S. McDonald).

## 2. Bridge Classification

The parties categorize their proposed bridges by the materials that make up the bridge span. Class 1 bridge spans would be composed of wood trestles, concrete trestles, and box beams, and would have beam spans 40 feet or less. Class 2 bridge spans would be composed of deck plate girders and concrete slabs, and would have beam spans greater than 40 feet. Class 3 bridge spans would be composed of through-plate girders and trusses.

Otter Tail developed a cost per linear feet (LF) for each bridge class based on a simple average of characteristics for each class.<sup>280</sup> BNSF claims that Otter Tail's costs are skewed because its costs are based on single-track bridges only, rather than including multiple-track bridges in its averages,<sup>281</sup> and because Otter Tail failed to account for the adjustments needed for "mixed-span" bridges (bridges comprised of more than one class of structures). BNSF argues that a more appropriate way to determine bridge costs is to develop designs based on a weighted average of characteristics for each class.<sup>282</sup>

Otter Tail counters that its calculations of multi-track and mixed-span bridges, if skewed at all, are overstated. While Otter Tail's average cost is based on the cost to construct a single-track bridge, it doubled the average cost per LF for double-track bridges, in effect including the cost to build two separate bridges, even though double-track bridges do not usually cost twice as much as single-track bridges to construct.<sup>283</sup> Otter Tail similarly calculated its costs for triple-track bridges by tripling the average cost of a single-track bridge. And Otter Tail applied a similar cost multiplier to mixed-span bridges, even though the cost of abutments is included within the LF cost for each class, and thus costs for mixed-span bridges would include a double-count for abutments.<sup>284</sup>

We agree with Otter Tail that its bridge cost calculations are conservative. Because it is feasible and BNSF has not shown that it is unreasonable, Otter Tail's costing methodology is used here.

### a. Lengths

Otter Tail included 37,226 LF of bridges along the OTRR, based on a review of the BNSF bridge inventory provided in discovery and publicly available track charts for the lines in Minnesota that would be replicated by the OTRR.<sup>285</sup> BNSF claims that there are errors in Otter Tail's bridge lengths. BNSF would include 53,769 LF of bridges.<sup>286</sup>

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<sup>280</sup> See Otter Tail Open. e-WP. "Otter Tail Bridge Unit Costs.xls."

<sup>281</sup> See BNSF Reply Narr. III-F-178-80.

<sup>282</sup> Id. at III-F-183.

<sup>283</sup> See Otter Tail Reb. Narr. III-F-129-30.

<sup>284</sup> Id. at III-F-131.

<sup>285</sup> See Otter Tail Supp. Narr. e-WP. "OTRR Bridges Rebuttal XGF.xls."

<sup>286</sup> See BNSF Supp. Reply e-WP. "III F 5 Bridge\_Supplemental Reply.xls."

Otter Tail's spreadsheets contain numerous examples of its reporting two different bridge lengths for a particular bridge.<sup>287</sup> Although Otter Tail uses only one set of bridge lengths in its calculations (the total span lengths), its supporting track charts do not document bridge locations or lengths, and we are unable to verify its calculations. Because Otter Tail has failed to meet its burden of proof to support its assertions, we use BNSF's bridge lengths for the bridges used in our analysis, for a total of 37,858 LF of bridges.

#### **b. Track**

BNSF identified seven instances in which Otter Tail's bridge inventory did not match Otter Tail's track schematics, resulting in an understatement of its total number of tracks for the OTRR. Although Otter Tail agreed on rebuttal to make the track count corrections pointed out by BNSF, Otter Tail made only two of the seven corrections consistent with BNSF's reply.<sup>288</sup> Because Otter Tail, without explanation, failed to make the other necessary corrections agreed upon in both its narrative and schematics, we use BNSF's track count for those bridges.

#### **c. Unique Structures**

BNSF argues that two bridges on the OTRR system—the Valley City Bridge in Valley City, ND, and the Bismarck Bridge in Bismarck, ND—would pose unique construction challenges and that the costs for these bridges should be developed separately. However, there is no need to assign individual costs to these bridges. Otter Tail included the height of the Valley City Bridge in its averaging of heights for Class 2 bridges, and included the length of the Bismarck Bridge in its averaging of length calculations.<sup>289</sup> BNSF's concern that the Valley City Bridge is an outlier that would skew the height average to its disadvantage is without merit. As Otter Tail correctly notes, inclusion of this bridge height in the height average would only increase the average,<sup>290</sup> and thereby increase Otter Tail's cost calculations. BNSF also treated the Bismarck Bridge as a special structure with unique costs because of its length and the need to design the bridge as a through-plate girder bridge.<sup>291</sup> While BNSF included through-plate girders for this bridge, it failed to show that Otter Tail's girders would be infeasible. Because Otter Tail has accounted for the costs of these bridges and BNSF has not discredited those calculations, Otter Tail's costs for these bridges are used.

### **3. Bridge Design**

The parties disagree on the design of the components that would make up the bridges. Otter Tail submitted various types of evidence in support of its bridge designs. BNSF submitted a 484-page document containing bridge calculations, which it claims

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<sup>287</sup> See Otter Tail Reply to Supp. Narr. e-WP. "OTP Bridge Unit Cost Rebuttal XGF.xls."

<sup>288</sup> See Otter Tail Reply to Supp. Narr. e-WP. "OTRR Bridge Rebuttal XGF.xls."

<sup>289</sup> See Otter Tail Reb. Narr. III-F-133.

<sup>290</sup> Id.

<sup>291</sup> See BNSF Reply Narr. III-F-184-85.

demonstrates that Otter Tail's bridge designs are inadequate and that its own designs should be used. However, as discussed below, with the exception of steel strength for Class 3 bridges and the inclusion of certain structural components, BNSF has not discredited Otter Tail's bridge designs. Because Otter Tail's designs are shown to be feasible, they are used here with the two exceptions noted.

**a. Steel Strength**

Although the parties' figures for "miscellaneous" steel are the same in their spreadsheets, BNSF claims that Otter Tail understated the weight of this steel for Class 3 bridges by excluding certain components.<sup>292</sup> Otter Tail attempted to correct its evidence on rebuttal by including most of these steel components,<sup>293</sup> but it failed to include girder web, as required by AREMA standards,<sup>294</sup> or to provide an explanation as to why this component was not included. Because girder web is required by AREMA, and because bridges must meet current AREMA design standards, TMPA at 140, Otter Tail's Class 3 bridge steel components would be inadequate and BNSF's Class 3 bridge steel is used.

**b. Structural Components**

BNSF criticizes Otter Tail for omitting certain structural components from its designs, specifically, deck expansion joints, deck drains, and pier protection.<sup>295</sup> On rebuttal, Otter Tail agreed with BNSF that all three of these items should be included in bridge costs. However, Otter Tail argues that BNSF uses more expensive versions of each item than would be required, and Otter Tail proposes using less costly models instead. Yet, Otter Tail has failed to provide evidence demonstrating that its proposed substitute components would be sufficient replacements. BNSF's costs for these items are thus used as the more reliable evidence.

**c. Piers**

BNSF argues that Otter Tail's piers would be structurally inadequate.<sup>296</sup> Otter Tail counters with workpapers<sup>297</sup> which it claims demonstrate errors in BNSF's own bridge calculations. Given those errors and Otter Tail's demonstration that its pier designs meet industry construction standards, we are satisfied that Otter Tail's pier designs are feasible and they are used here.

**d. Abutments**

The parties submitted different abutment designs: Otter Tail used spill-through abutments, while BNSF used backwall and wing wall abutments. Otter Tail provided evidence from AREMA that spill-through abutments can be substituted for backwall and

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<sup>292</sup> Id. at III-F-187-88.

<sup>293</sup> See Otter Tail Reb. Narr. III-F-137.

<sup>294</sup> AREMA Manual, Chapter 15, Article 1.7.7 & 1.7.8.

<sup>295</sup> See BNSF Reply Narr. III-F-192-95.

<sup>296</sup> Id. at III-F-190.

<sup>297</sup> See Otter Tail Reb. WP. 6297-6313.

wing wall abutments.<sup>298</sup> BNSF has thus failed to show that Otter Tail's design is inadequate, and Otter Tail's abutment design is used.

#### **e. Piles**

BNSF argued that Otter Tail did not include a sufficient number of piles to support the OTRR bridges. BNSF proposed a higher pile count, but without support for its number. On rebuttal, Otter Tail increased its pile count for Class 3 bridges from 8 to 12 piles, but not to the level that BNSF proposed. BNSF, however, did not provide workpapers fully supporting its pile counts, and it overstated the wind forces used in its argument by 27%, as Otter Tail points out. Because BNSF did not support its higher pile count, Otter Tail's rebuttal pile count is used.

#### **f. Concrete Deck Slabs**

BNSF objects that Otter Tail omitted the cost for pre-stressed concrete deck slabs for Class 1 bridges. Otter Tail's evidence shows that it included a cast-in-place slab, but BNSF claims, without support, that such a slab would not provide enough strength. Because BNSF accepted Otter Tail's Class 1 bridge definition and failed to show that cast-in-place slabs would be inadequate, we use Otter Tail's cast-in-place slabs.

#### **g. Walkways**

The parties agree that walkways should be included on bridges over 50 feet long, and they agree on the specifications and unit cost for the walkways. However, the parties dispute whether walkways for bridges over highways should be included in the investment costs. Otter Tail argues that, because BNSF did not incur the cost to build these bridges and thus the cost for the bridges is excluded from the SAC analysis (see Section E.1., above), the SAC analysis should not include the cost of walkways for these bridges either.<sup>299</sup> Because BNSF has not shown that it paid for the walkways, we exclude the cost of walkways for these bridges.

#### **h. Pedestrian Bridge**

BNSF would have us include a cost for a pedestrian overpass in Gillette, WY. Otter Tail argues that this type of structure is similar to a highway overpass, in that it was not built when the rail line passing through Gillette was originally constructed and thus was not initially paid for by BNSF.<sup>300</sup> Because BNSF has not shown that it incurred the cost to construct this structure, we exclude this cost from our analysis.

### **4. Bridge Construction**

#### **a. Structural Excavation**

BNSF included a cost for structural excavation. On rebuttal, Otter Tail claimed that most of the excavation for the OTRR bridges is accounted for in the earthwork costs, but it agreed to add some costs to account for the minor amount of excavation

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<sup>298</sup> See Otter Tail Reb. WP. 6307-08.

<sup>299</sup> See Otter Tail Reb. Narr. III-F-147.

<sup>300</sup> Id. at III-F-146.

specifically related to bridge construction.<sup>301</sup> Otter Tail's evidence is used here because it has successfully rebutted the higher cost used by BNSF. We also use Otter Tail's excavation quantities, based on our use of Otter Tail's common earthwork quantities (see **Section B.2**).

#### **b. Cofferdams**

Cofferdams are watertight enclosures from which water is pumped out to expose the bottom of a body of water to permit construction of a pier. Although Otter Tail did not originally include a cost for cofferdams in its opening evidence, it did provide for this cost on rebuttal. However, the parties dispute the number of cofferdams that the OTRR would need to employ. BNSF would include cofferdams for every pier on every OTRR bridge that crosses water, including those that cross over small creeks. Otter Tail maintains that cofferdams would be needed only for bridges that are over 200 feet long and cross rivers (17 bridges), and then only on half of the piers of these bridges (128 cofferdams),<sup>302</sup> because it assumes that one pier at either end of the bridge is either on land or not in the navigable portion of the waterway. Otter Tail claims that, if more cofferdams were needed, the additional costs could be drawn from contingency funds.

Otter Tail provided no evidence to support its assumptions about cofferdam use. We reject its proposal to use contingency funds to pay for extra cofferdams, as a contingency is used to cover unforeseen costs that may arise during construction, and cofferdams are not an unexpected expense. Therefore, we use BNSF's cofferdam quantities.

#### **c. Winter Concrete**

The parties disagree on whether a cost for winter concrete should be included. BNSF would use winter concrete, but Otter Tail argues that winter concrete would be unnecessary because even the longest bridge on the OTRR could be constructed in 12 months, including a 4-month interval during the winter when no concrete would be poured.<sup>303</sup> Otter Tail argues that, should the need to use winter concrete arise, the cost would be covered by contingency funds. We are not persuaded by Otter Tail's contingency fund argument. But because BNSF has not presented sufficient evidence to show that winter concrete would be needed, we do not include this cost in the analysis here.

#### **d. Pile Points**

BNSF would also include a cost for pile points for every pile used in abutments and piers. Otter Tail states in its evidence that inclusion of pile points is unnecessary because, according to AREMA Manual, Chapter 8, Section 4.4.3.7,<sup>304</sup> pile point reinforcement is recommended only in very special situations, such as driving piles

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<sup>301</sup> See Otter Tail Reb. e-WP. "OTP Bridge unit costs Rebuttal.xls."

<sup>302</sup> See Otter Tail Reb. Narr. III-F-143-44.

<sup>303</sup> *Id.* at III-F-144.

<sup>304</sup> See Otter Tail Reb. WP. 6309.

through heavy gravel, boulders, or formations known to contain obstructions.<sup>305</sup> Because BNSF has not shown that any of these special situations would apply to the OTRR, no additional cost for pile points is included here.

### F. Signals & Communications

As shown in **Table D-6**, the costs for providing a signaling and communication system for the OTRR are in dispute. We discuss each element below.

**Table D-6**  
**Communication and Signals Systems**  
**(\$ millions)**

|                                    | <b>Otter Tail</b> | <b>BNSF</b>    | <b>STB</b>     |
|------------------------------------|-------------------|----------------|----------------|
| <b>Centralized Traffic Control</b> | \$187.5           | \$187.5        | \$187.5        |
| <b>Failed Equipment Detectors</b>  | 2.2               | 2.1            | 2.2            |
| <b>Communications</b>              | 12.1              | 59.8           | 12.1           |
| <b>Electric Locks</b>              | 2.0               | 2.9            | 2.0            |
| <b>TOTAL</b>                       | <b>\$203.8</b>    | <b>\$252.3</b> | <b>\$203.8</b> |

#### 1. Centralized Traffic Control

The parties agree on the unit costs for a centralized traffic control (CTC) system, but not on the appropriate configuration. BNSF adjusted CTC costs to reflect its proposed greater track miles. Because we use Otter Tail's configuration (see Appendix A—OTRR Configuration), we use Otter Tail's CTC costs here.

#### 2. Electric Locks

The parties agree on the inclusion of electric locks for manual turnouts connected to the main line and passing sidings (the locks act as failsafe devices), and they agree on the unit costs. They do not agree on the number of manual turnouts that would need to be placed on the OTRR system, due to BNSF's proposed yard tracks and its proposed reconfiguration of OTRR's set-out tracks. Because we use Otter Tail's system configuration, we use its costs for electric locks.

#### 3. Communications

Otter Tail proposes a microwave communications system for the OTRR that would be all digital, all wireless, with a 6 GHz microwave backbone network spanning 44 sites along the OTRR ROW and an 800 MHz Land Mobile Radio (LMR) that would provide communications access via mobile and portable radios. The cost for Otter Tail's proposed microwave system is based upon publicly available unit-cost information from the State of Colorado Department of Transportation.

BNSF presented both a detailed critique of Otter Tail's proposed system and its own proposal for OTRR's communications system.<sup>306</sup> First, BNSF argues that Otter Tail's microwave communications system is an amalgamation of information from the

<sup>305</sup> See Otter Tail Reb. Narr. III-F-145.

<sup>306</sup> See BNSF Reply Narr. III-F-211-20.

Internet with no relevance to railroads.<sup>307</sup> Specifically, BNSF argues that Otter Tail’s system is based on Intelligent Transportation Systems (ITS)—a developmental communications and information dissemination system for highways and mass transit based on new technologies—which is generally limited in geographical scope and does not involve the rapid two-way communications required over an entire railroad system.<sup>308</sup> Otter Tail responds that ITS has been endorsed by the FRA and that the backbone of the OTRR’s network is fundamentally the same as BNSF’s own network.<sup>309</sup>

Second, BNSF claims that Otter Tail’s proposed UHF system would not provide either the coverage or interoperability that is necessary for major rail operations and would ultimately be unreliable.<sup>310</sup> On rebuttal, Otter Tail switched to a VHF system, and it claimed that this change would not alter its costs (although in its spreadsheets in its reply to BNSF’s supplemental evidence, Otter Tail added \$484,000 to account for the change to a VHF system).<sup>311</sup> BNSF also argues that Otter Tail’s proposed use of 6 GHz microwave radio equipment would be insufficient because it has capacity for only 48 voice frequency channels, which would be insufficient for the OTRR’s operations. Instead, BNSF proposes using two-way radio communications with rapid response, which would allow for over 672 voice frequency channels.<sup>312</sup> On rebuttal, Otter Tail asserted that BNSF had examined the wrong microwave radio model, and that what Otter Tail would have the OTRR use is a 6 GHz system that would support 192 voice frequency channels.<sup>313</sup>

Third, BNSF claims that Otter Tail’s proposed microwave system does not take into consideration the terrain of the OTRR ROW, particularly microwave tower spacing and tower heights.<sup>314</sup> The parties disagree on the number, location and unit cost of microwave towers. Otter Tail would place 44 towers along the OTRR,<sup>315</sup> while BNSF would place 58.<sup>316</sup> On rebuttal, Otter Tail claimed that BNSF had failed to show that Otter Tail’s proposed tower spacing and heights would not provide adequate coverage. Otter Tail argues that its use of line-of-sight averages in determining tower locations is

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<sup>307</sup> Id. at III-F-203.

<sup>308</sup> Id. at III-F-203-04.

<sup>309</sup> See Otter Tail Reb. Narr. III-F-151-52.

<sup>310</sup> See BNSF Reply Narr. III-F-206-08.

<sup>311</sup> Compare Otter Tail Reb. Narr. III-F-157, with Otter Tail Reply to Supp. Narr. e-WP. “Otter Tail Microwave and LMR Backbone Network Cost Rebuttal XGF.xls.”

<sup>312</sup> See BNSF Reply Narr. III-F-208.

<sup>313</sup> See Otter Tail Reb. Narr. III-F-158.

<sup>314</sup> See BNSF Reply Narr. III-F-208-10.

<sup>315</sup> See Otter Tail Supp. Narr. e-WP. “II-F-1 OTRR Land Rebuttal XGF.xls,” worksheet “Microwave”; Otter Tail Reb. Narr. III-F-154 n.419 (stating 45 towers, one of which was removed when the northern rerouted traffic was removed).

<sup>316</sup> See BNSF Reply Narr. III-F-38 (Table III-F-2).

proper, especially because BNSF applied the same methodology in setting up its own microwave system.<sup>317</sup>

Otter Tail has sufficiently refuted BNSF's various challenges. We use Otter Tail's number of towers because BNSF has failed to discredit the feasibility of Otter Tail's proposal. We also use Otter Tail's tower placement (see **Section A.5.**). Because Otter Tail's microwave communications system is feasible and supported, we use it in our SAC analysis. And because we use Otter Tail's communication system, we use its unit costs and quantities associated with that system.

#### 4. Failed Equipment Detectors

The parties agree on the unit cost of failed equipment detectors (FEDs), but they use slightly different quantities due to their different system configurations. We use the parties' agreed-upon unit cost and Otter Tail's quantity of FEDs, based on our use of Otter Tail's system configuration.

### G. Buildings & Facilities

**Table D-7**  
**Buildings and Facilities**  
**(\$ millions)**

|                              | <b>Otter Tail</b> | <b>BNSF</b>   | <b>STB</b>    |
|------------------------------|-------------------|---------------|---------------|
| <b>Fueling Facilities</b>    | \$13.5            | \$53.0        | \$26.6        |
| <b>Locomotive Repair</b>     | 8.9               | 12.3          | 12.3          |
| <b>Car Repair</b>            | 0                 | 7.7           | 0             |
| <b>Headquarters Building</b> | 1.9               | 2.7           | 2.6           |
| <b>MOW/Roadway Buildings</b> | 6.6               | 18.7          | 12.4          |
| <b>TOTAL</b>                 | <b>\$30.9</b>     | <b>\$94.4</b> | <b>\$53.9</b> |

#### 1. Fueling Facilities

Otter Tail proposed two locomotive servicing and fueling facilities, located at the Donkey Creek and Glendive yards. The Donkey Creek facility would have two fueling platforms, while the Glendive facility would have three fueling platforms.<sup>318</sup> Otter Tail explains that it used the publicly available cost information for fueling facilities in TMPA at 146 to model its fueling facilities<sup>319</sup> because BNSF did not provide Otter Tail with the necessary cost and quantity information requested in discovery.

BNSF contends that Otter Tail's proposed facilities would be too few and too small. BNSF based its three proposed servicing and fueling facilities on the design of its locomotive fueling facility at Hauser, ID, constructed in 2002.<sup>320</sup> In addition to fueling

<sup>317</sup> See Otter Tail Reb. Narr. III-159-60.

<sup>318</sup> See Otter Tail Open. e-WP "LocoFuel\_facility.xls."

<sup>319</sup> See Otter Tail Open. Narr. III-F-43-44; Otter Tail Open. e-WP. "LocoFuel\_facility.xls."

<sup>320</sup> See BNSF Reply Narr. III-F-226.

facilities at Donkey Creek and Glendive Yards, BNSF would add servicing and fueling facilities at the Mandan yard, tank truck fueling facilities at Converse yard and at Dutch, WY, and a third fueling platform at the Donkey Creek yard.<sup>321</sup> BNSF also contends that wastewater treatment facilities would be needed at the Donkey Creek, Glendive and Mandan yards,<sup>322</sup> although Otter Tail did not provide for such facilities.

BNSF's narrative and workpapers fail to support the addition of a servicing and fueling facility at Mandan or tank truck fueling facilities at Converse and Dutch.<sup>323</sup> BNSF did not show why these additional fueling points would be necessary for the typical locomotive operations along the OTRR. For this reason, only the Donkey Creek and Glendive facilities proposed by Otter Tail are used here.

Additionally, BNSF's justification for the addition of a third fueling platform at the Donkey Creek yard is based on the existing three fueling platforms at Glendive yard, which (like Donkey Creek) has five locomotive service tracks.<sup>324</sup> Otter Tail, however, explains that the number of fueling platforms is based on traffic level, not the number of locomotive service tracks, and that there would be less traffic at the Donkey Creek yard than at the Glendive yard. Otter Tail's explanation is reasonable, and, therefore, we use only the two fueling platforms at Donkey Creek proposed by Otter Tail.<sup>325</sup>

For the remainder of costs for the Donkey Creek and Glendive locomotive fueling plants, Otter Tail failed to provide detailed information concerning its own design, equipment and unit costs.<sup>326</sup> It also failed to show that the facilities proposed in TMPA would work for the OTRR. Therefore, we use BNSF's proposed equipment and unit costs for those two locomotive fueling facilities.

Finally, regarding the need for wastewater treatment facilities, BNSF did not explain why these facilities would be necessary or demonstrate that such facilities are required by local, state or federal agencies.<sup>327</sup> Although such facilities have been included in past SAC cases, see, e.g., Duke/NS at 116, BNSF failed to support the inclusion of wastewater treatment facilities here. Thus, they are not included.

## 2. Locomotive Repair Facility

Otter Tail relies on the information used in TMPA at 144-46 to develop its locomotive repair facility costs.<sup>328</sup> Otter Tail would replicate the locomotive repair

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<sup>321</sup> Id. at III-F-236-37.

<sup>322</sup> Id. at III-F-237.

<sup>323</sup> See BNSF Reply WP. III-F-859-1049.

<sup>324</sup> See BNSF Reply Narr. III-F-236.

<sup>325</sup> See Otter Tail Reb. Narr. III-F-169.

<sup>326</sup> Id. at III-F-169-70.

<sup>327</sup> BNSF Reply Narr. III-F-227, 237.

<sup>328</sup> See Otter Tail Open. e-WP. "LocoFuel\_facility.xls"; Otter Tail Open. WP. 4733; Otter Tail Reb. Narr. III-F-171-73.

facility from TMPA at Donkey Creek. Otter Tail contends that this facility would be able to repair 16 locomotives at one time and thereby handle the 10 locomotives that Otter Tail claims would be in the OTRR's repair shop at any one time. Under Otter Tail's proposal, the locomotive shop would contain five tracks, including two short tracks to accommodate heavy repairs and three long tracks for periodic inspections and light repairs. Otter Tail would construct a 47,000-square foot building,<sup>329</sup> which would partially cover the maintenance tracks.

BNSF designed a proposed locomotive maintenance shop at Donkey Creek that would be sufficient to handle 16 locomotives per day.<sup>330</sup> Its design was based on the service track lengths provided by Otter Tail and the general arrangement of similar locomotive maintenance facilities designed for BNSF at North Kansas City, MO, Chicago, IL, Topeka, KS, and Barstow, CA, and for UP at Hermiston, OR.<sup>331</sup> BNSF developed construction costs for the OTRR locomotive maintenance shop using a combination of unit prices from the cost estimates prepared at the time each of the similar facilities was designed, current budget quotations from equipment manufacturers, and Means unit prices.<sup>332</sup> To service its proposed fleet, BNSF would have the OTRR build a 61,400-square foot building,<sup>333</sup> which would cover all of the maintenance tracks.

As discussed in **Section G.1.** above, Otter Tail did not provide spreadsheets or other evidence supporting its reliance on the locomotive repair facility specifications used in TMPA or showing how it adjusted the TMPA figures to reflect the SARR proposed in this case. BNSF, on the other hand, has supported its proposed locomotive repair facilities with actual equipment supplier and construction costs based on the design of similar locomotive facilities, including working spreadsheets that document unit costs and quantities.<sup>334</sup> It also showed that its proposed facilities would meet AREMA standards, while Otter Tail did not.<sup>335</sup> Thus, BNSF's unit costs are used.

Concerning the difference in how much of a facility's track should be covered, Otter Tail failed to explain its deviation from the general industry practice of covering all of a facility's tracks or to show that a partial covering would be reasonable. Moreover, Otter Tail failed to correct the square foot cost calculation error (identified by BNSF) in its opening workpapers.<sup>336</sup> Thus, BNSF's square footage for the locomotive repair shop

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<sup>329</sup> Otter Tail Reb. Narr. III-F-171-72.

<sup>330</sup> BNSF Reply Narr. III-F-227.

<sup>331</sup> Id. at III-F-226.

<sup>332</sup> See BNSF Reply WP. III-F-0860-0925.

<sup>333</sup> See BNSF Reply to Supp. Narr. e-WP. "III F 7 Facilities \_Supp Evidence.xls."

<sup>334</sup> See BNSF Reply WP. III-F-0859-0927; BNSF Reply to Supp. Narr. e-WP. "III F 7 Facilities \_Supp Evidence.xls."

<sup>335</sup> See BNSF Reply Narr. III-F-238-39; BNSF Reply WP. III-F-0964-85.

<sup>336</sup> BNSF Reply Narr. III-F-225; Otter Tail Open. Narr. III-F-43; Otter Tail Open. e-WP. "LocoFuel\_facility.xls."

is used here, as supplied by BNSF in its supplemental reply, incorporating Otter Tail's track configuration.

### 3. Car Repair Facilities

Otter Tail did not include any costs for car repair facilities, arguing that the OTRR's full-service lease would include car repair costs and that those repairs would be made by third-party contractors at the contractors' facilities.<sup>337</sup> Otter Tail identified three independent facilities located on or near the OTRR (at Bill, WY, Miles City, MT, and Fargo, ND) that could provide railcar repair service for the OTRR's cars, as well as any private cars accepted for interchange by OTRR.<sup>338</sup> BNSF, in contrast, included costs for car repair facilities. 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 at 102; Duke/NS at 118, and Otter Tail's proposal here is feasible. We therefore do not include a separate cost for this item.

### 4. Headquarters Building

Based on its proposed personnel requirements for the OTRR,<sup>339</sup> Otter Tail proposes a two-story, 24,216-square foot headquarters building at Donkey Creek,<sup>340</sup> which would also house the OTRR's dispatch center. Otter Tail determined the costs for this building by taking two different exterior wall and frame construction techniques from Means, calculating the average square foot costs of these two techniques, and then applying a location factor. BNSF accepts Otter Tail's use of Means and the use of the location factor,<sup>341</sup> but BNSF contends that the use of two different exterior wall and frame construction techniques is inappropriate. BNSF also argues that Otter Tail's proposed building would violate the maximum allowable floor area under Uniform Building Code (1997 ed.). However, BNSF mistakenly used the sections pertaining to one-story buildings, which do not apply to Otter Tail's proposed two-story building. Under the correct section of the Code,<sup>342</sup> Otter Tail's proposed two-story building is within the allowable floor area for a multiple-story building.

Otter Tail indicates that it averaged the two exterior wall and frame construction costs because the OTRR could choose either technique in the design phase.<sup>343</sup> However, there would be no future design phase, and Otter Tail should have selected a single exterior wall and frame and justified its use. Because Otter Tail has failed to meet its burden of proof on the unit costs, and because BNSF has provided an acceptable design

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<sup>337</sup> See Otter Tail Reb. Narr. III-F-174-75.

<sup>338</sup> See Otter Tail Reb. WP. 6355-63.

<sup>339</sup> See Otter Tail Reb. Narr. at III-F-176.

<sup>340</sup> See Otter Tail Open. e-WP. "OTRR\_bldgs.xls," worksheet "Buildings."

<sup>341</sup> See BNSF Reply Narr. III-F-228-29.

<sup>342</sup> See BNSF Reply WP. III-F-0944-0960.

<sup>343</sup> See Otter Tail Reb. Narr. III-F-176-77.

and unit costs, BNSF's design and unit costs are used. However, because we use Otter Tail's G&A staffing levels, we use its building square footage to calculate total costs.

Finally, BNSF proposes additional lighting and higher fencing than does Otter Tail.<sup>344</sup> However, BNSF failed to show that additional lighting or fencing would be necessary at the headquarters building. We therefore exclude the cost of such enhancements.

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

Otter Tail proposed 9 crew change facilities and 14 MOW facilities.<sup>345</sup> Otter Tail based crew change building unit costs on three different types of buildings (a 10,000-square foot warehouse, a 6,000-square foot garage, and a 2,000-square foot garage) and averaged them together to develop an average unit price.<sup>346</sup> BNSF accepted Otter Tail's crew change locations, but criticized Otter Tail's unit cost averaging. BNSF argues that the methodology used by Otter Tail improperly groups buildings of different functional types into one category.<sup>347</sup> BNSF notes this is problematic because construction techniques for each type of building are different and because unit costs for warehouses and garages are listed separately in Means. We agree with BNSF and therefore rely on BNSF's costs for crew change facilities.

For MOW buildings, Otter Tail used the average of different exterior wall and frame construction costs.<sup>348</sup> Because we reject this costing methodology (see **Section G.4.** above) and because we use BNSF's proposed MOW staffing levels, BNSF's MOW building costs are used here, with one exception. Because BNSF failed to show that additional lighting or fencing would be necessary at these facilities, we exclude the cost of such enhancements.

## H. Public Improvements

**Table D-8** lists the type of public improvements and associated costs that the parties estimate would be necessary along the OTRR ROW.

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<sup>344</sup> See BNSF Reply e-WP. "WP.III-F-0961-0962."

<sup>345</sup> See Otter Tail Open. Narr. III-F-42-43; Otter Tail Open. Errata e-WP. "OTRR\_bldgs.xls."

<sup>346</sup> See Otter Tail Reb. Narr. III-F-179; Otter Tail Reb. Errata e-WP. "OTRR\_Bldgs Rebuttal.xls," worksheet "Unit Costs"; Otter Tail Open. WP. 4702.

<sup>347</sup> See BNSF Reply Narr. III-F-233-34.

<sup>348</sup> See Otter Tail Reb. Narr. III-F-176-77.

**Table D-8**  
**Public Improvements**  
**(\$ millions)**

|                             | <b>Otter Tail</b> | <b>BNSF</b>   | <b>STB</b>    |
|-----------------------------|-------------------|---------------|---------------|
| <b>Fencing</b>              | \$17.1            | \$20.3        | \$17.1        |
| <b>Roadway Signs</b>        | 0.4               | 0.6           | 0.4           |
| <b>At-Grade Crossings</b>   | 1.6               | 8.5           | 8.5           |
| <b>Crossings Protection</b> | 2.4               | 3.5           | 3.4           |
| <b>Grade Separation</b>     | 9.6               | 14.6          | 9.6           |
| <b>TOTAL</b>                | <b>\$31.1</b>     | <b>\$47.5</b> | <b>\$39.0</b> |

### 1. Fencing

The parties agree on the percentage of ROW that would require cattle fencing and snow fencing. BNSF accepts Otter Tail's method of calculating the quantities of gates, panels, brace panels, and cattle guards. BNSF also accepts Otter Tail's unit cost for all fencing except for snow fencing. BNSF argues that Otter Tail's unit cost for snow fencing is unsupported, but Otter Tail's workpaper showed a specific cite to Means,<sup>349</sup> an acceptable source for unit costs. We therefore use Otter Tail's cost for snow fencing. The unit costs and quantities for each remaining fencing component used are Otter Tail's, based on our use of Otter Tail's network configuration.

### 2. Roadway Signs

Although the parties agree on the unit cost for roadway signs, BNSF claims that a larger quantity of signs should be included on the OTRR system than the quantity Otter Tail proposed. In particular, the parties disagree on the quantity of milepost signs, based on the differences in their system configurations, and on the inclusion of derail signs, based on Otter Tail's exclusion of derail devices. Also, BNSF asserts that flanger signs (which warn snowplow operators to raise the plow to avoid damaging track or track equipment) should be placed at the at-grade crossings, turnouts, bridges with inner guard rails, FEDs, and rail lubricators.<sup>350</sup> Otter Tail agrees that flanger signs should be placed at all rail lubricators and FEDs, but asserts that signs would not be necessary at crossings, turnouts, and bridges with inner guardrails because snowplow operators would be able to see these. Otter Tail notes that the Board excluded signs at these additional locations in PPL at 28.<sup>351</sup> Otter Tail argues that other miscellaneous signs proposed by BNSF would be paid for by local, state, or federal government agencies.<sup>352</sup> Based on the Board's decisions in PPL at 28 and Xcel at 115, and BNSF's failure to provide evidence that OTRR would have to pay for miscellaneous signs, we use Otter Tail's sign count to calculate total costs.

<sup>349</sup> See Otter Tail Open. e-WP. "OTRR Fencing.xls", worksheet "Unit Costs."

<sup>350</sup> See BNSF Reply Narr. III-F-246-47.

<sup>351</sup> See Otter Tail Reb. Narr. III-F-183, 183 n.502.

<sup>352</sup> Id. at III-F-182 n.501.

### 3. At-Grade Crossings

Otter Tail included costs for at-grade crossings for the segments of the OTRR south of Donkey Creek and the five coal mine branches, because these segments of BNSF's lines were constructed after the establishment of roads. Otter Tail excluded crossings for other portions of the OTRR line as a barrier-to-entry cost. BNSF claims, however, that the number of crossings for which it incurred an expense is higher than Otter Tail states. BNSF claims that Engrg Rpts shows that there were more at-grade crossings in place when Engrg Rpts were developed than exist today and that the railroad did in fact incur costs associated with those crossings.<sup>353</sup> Otter Tail counters that Engrg Rpts are not proof that BNSF or its predecessors paid for these crossings,<sup>354</sup> and Otter Tail points out that the Board rejected at-grade crossing costs in WPL and PPL.

There was no evidence in the WPL and PPL cases, such as the Engrg Rpts that were relied upon in Xcel (at 116) and TMPA (at 154) and submitted here, to support inclusion of those costs in those cases. Because we consider Engrg Rpts to be adequate support for a railroad's claim that it incurred some investment for crossings, we include BNSF's costs for the crossings here as well.

### 4. Crossing Protection

The parties agree on the unit cost for signs and active warning devices for OTRR segments replicating BNSF lines constructed after the Engrg Rpts were conducted, except the OTRR segments west and north of Donkey Creek, for which BNSF includes 5% of the cost for flashers and gates, and 10% for crossbucks. BNSF states that 5% is consistent with its average level of initial investment for crossing warning devices, but it offers no support for the 10% cost for crossbucks. For the segments built prior to the Engrg Rpts, Otter Tail would not include a crossing protection cost, arguing that Engrg Rpts does not show that a carrier paid for the investment. Without explanation, in its supplemental evidence, Otter Tail includes an unidentified \$265,132 for additional crossing protection.<sup>355</sup> Based on the Engrg Rpts, BNSF includes crossing protection costs for all crossings on the segments built prior to the Engrg Rpts.

We include 5% of the costs for flashers and gates for the post-Engrg Rpts segments, having previously held that a portion of these costs is a reasonable assessment for the railroad. See Xcel at 116; TMPA at 154. However, because BNSF has not supported its proposed 10% for crossbucks, that cost is not included for the post-Engrg Rpts segments. Because we find that BNSF incurred the cost for the crossings of the lines catalogued in the Engrg Rpts (see **Section B.10.**), we also include costs for crossbucks and signs at these crossings. We do not include Otter Tail's miscellaneous charge for additional crossing protection because of the possibility that including it may be a double count against the 5% costs for flashers and gates.

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<sup>353</sup> See BNSF Reply Narr. III-F-249-50.

<sup>354</sup> See Otter Tail Reb. Narr. III-F-184-86.

<sup>355</sup> See Otter Tail Reply to Supp. Narr. e-WP. "OTRR FRA Crossing Reb.XGF.xls/Summary."

## 5. Grade Separations

The parties agree on the cost for 17 overpasses. However, BNSF would include 100% of the cost of an additional nine overpasses, on the ground that the overpasses being replicated are owned and/or maintained by BNSF. Otter Tail claims that OTRR should not be responsible for any portion of the costs for these nine overpasses because BNSF has not demonstrated that it incurred an investment cost for them.

Unlike the at-grade crossings and crossing protection items, BNSF provided no evidence to support the cost of the nine additional overpasses, and inclusion of 100% investment cost for these additional overpasses would be a departure from our past decisions. See Xcel at 116; Duke/CSXT at 105; TMPA at 155. Thus, the cost of the additional nine overpasses is not included.

### I. Mobilization

Mobilization involves the marshaling and movement of people, equipment, and supplies to the various construction sites. The parties agree upon a 3.5% mobilization cost, covering initial mobilization, demobilization, and performance bonds.

### J. Engineering

Otter Tail has proposed an overall engineering factor of 8.5%,<sup>356</sup> while BNSF has proposed a factor of approximately 10.5%.<sup>357</sup> As the Board found in Xcel at 118, a 10% estimate is appropriate in SAC cases for the aggregate of all engineering cost components. Neither party has justified a departure from that precedent, and, therefore, we use the same factor here.

### K. Contingencies

The parties agree upon a 10% contingency factor.

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<sup>356</sup> See Otter Tail Reb. Narr. III-F-197.

<sup>357</sup> See generally BNSF Reply Narr. III-F-252-67.

## **APPENDIX E—DISCOUNTED CASH FLOW ANALYSIS**

The DCF analysis first estimates the revenue stream that a SARR would need to cover operating costs and provide a reasonable return on capital. It then compares the revenue requirements of the SARR to the revenue the defendant railroad earns to determine if the revenues produced by the traffic in the group (based on existing rate levels) would be greater or less than the amount required by the SARR. See generally Nevada Power, 10 I.C.C.2d at 274-77. This procedure is discussed in more detail below.

### **A. OTRR Revenue Requirements**

The estimated revenue requirements of the OTRR must be sufficient to cover expected operating expenses and provide a reasonable return on the capital investment the OTRR would make if it entered the marketplace to serve the selected traffic group. Entry is not instantaneous, so the revenue requirements must also cover the estimated interest on debt during the construction period of the OTRR. Finally, the revenue requirements must include the estimated programmed maintenance needed to maintain the rail network once constructed.

The need to deal with taxes complicates the estimation of the OTRR's revenue requirements, because taxes are a function of the flow of revenue over the analysis period, and not just the present value of revenue. This means that we must determine the flow of capital recovery that, after taxes and operating expenses, would have a present value equal to the present value of the initial road-property investment, plus interest during construction, together with the present value of scheduled programmed maintenance of the railroad. It is the necessity of dealing with taxes that makes the DCF model complicated and precludes the use of a simpler model that would directly compute the SAC constraint without reference to the pattern of capital recovery over time.

The DCF model uses an iterative approach to determine the pattern of capital recovery that would attract entry in a contestable marketplace. The first step is to assume an amount of capital recovery in the first year. This annual capital recovery is then indexed for inflation over the SAC analysis period, typically 20 years. Indexes for the various components of the road-property investment (such as land, grading, rail) are used in the analysis.

The second step is to estimate the value of the SARR at the end of the SAC analysis period. Because the assets the SARR would construct would have a longer useful life, the assets would have residual economic value, and the SARR would not need to recover the full investment in rail assets (here \$2.5 billion) in the first 20 years. The Board must therefore estimate the economic value of the assets at the end of the 20-year analysis period. This "terminal value" of the SARR equals the capital recovery in the 20th year divided by the estimated real cost of capital. This calculation yields the value (at year 20) of a perpetual income stream held constant (in real terms) at the capital return projected for the 20th year. In effect, the DCF model is an in-perpetuity analysis, although it is referred to as a 20-year DCF analysis.

The third step is to estimate the taxes the SARR would pay. The starting point is the capital recovery in a particular year, which conceptually is the net revenue (total revenues less operating expenses) for tax purposes. The parties submit a complex tax

analysis that estimates the taxes, which are a function of interest on debt, depreciation of assets, and the applicable state and federal taxes. Because the SARR could take advantage of various tax loss provisions, the SARR would often pay no taxes for the first few years of operation.

The DCF model then calculates the present value of the projected capital recovery over the 20-year analysis period, together with the present value of the terminal value, minus the present value of taxes. If this total is less than the initial capital investment, plus interest, adjusted for depreciation and programmed maintenance, then the projected capital recovery is too low to provide a reasonable return on investment and would not entice a SARR to enter. In that case, the initial capital recovery in the first year is adjusted upwards (or downwards if the flow of capital recovery is too low) and the steps described above are repeated. This iterative process continues until the model finds the point at which the flow of capital recovery would, after taxes, provide a reasonable return on the initial capital investment. Once the necessary amount of capital recovery has been determined using this iterative process, the total revenue requirements of the SARR can be determined by combining the capital recovery plus the projected operating expenses.

There are several inputs needed to perform this analysis, and the parties largely agree as to most of them. The areas of disagreement are described below.

### **1. Cost of Equity**

We use our annual cost of capital findings for 1999 through 2004 to determine the cost of equity that would be experienced by the OTRR. The 2004 railroad-industry cost of equity was determined after the close of the record. Nevertheless, to reflect the most current data available, and consistent with our practice in prior SAC cases, we update the analysis to include the 2004 figure. BNSF also argues that the OTRR would incur a 4% financing fee to raise the equity capital needed to construct the railroad. As discussed in **Appendix C**, we have rejected this argument in prior cases and BNSF has failed to justify a departure from that precedent.

### **2. Cost of Debt**

BNSF accepted Otter Tail's opening submission on the cost of debt for the OTRR. Unlike the cost of equity, which changes from year to year as investors demand more or less of a return on their investment, the cost of debt is generally fixed at the time the debt is incurred. On rebuttal, however, Otter Tail argues that the OTRR would refinance all its debt at the lower interest rates available in the first quarter of 2003. This was inappropriate rebuttal testimony. Accordingly, we use the previously agreed-upon cost of debt in our analysis.

### **3. Inflation Indices**

#### **a. Road Property**

Otter Tail and BNSF agree on how to index the OTRR's land values, but not road property assets. To forecast road property assets, Otter Tail relied on an inflation forecast for capital assets produced by DRI-WEFA (now Global Insight). BNSF, on the other hand, relied on AAR's 5-year historical average of inflation in road property assets. To forecast the OTRR's operating expenses, both parties used inflation forecasts from DRI-WEFA.

Relying on the same provider for forecasts of inflation in operating expenses and road property assets is preferable, as it provides a consistent data source for inflation indexes. Also, the Board prefers impartial forecasts of future inflation over reliance on historical inflation rates. See, e.g., Xcel at 34. 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. For these reasons, we use Otter Tail's evidence of future inflation in capital assets.

#### **b. Operating Expenses**

As discussed in the body of the decision, we use a forecast of RCAF-U to index operating expenses over the 20-year analysis period.

### **4. Indexing Operating Expenses For Traffic Volume**

Base-year operating expenses are comprised of the costs associated with train operations and the overhead costs of operating the OTRR. Although not required by our precedent, the parties develop the base-year operating statistics associated with train operations (number of crews, locomotives, railcars) from peak-year operations. These peak-year statistics are converted to the base year based on the ratio of peak-year to base-year tonnage. The train operating statistics are then multiplied by their unit cost (e.g., cost per locomotive) to develop base-year train operating expense. For subsequent years, train operating expenses are increased or decreased in proportion to changes in traffic group tonnage. These expenses are also indexed for inflation.

In contrast, in prior cases the parties have generally only indexed the overhead costs for inflation, despite forecasts of increases in traffic. Based on this agreement between the parties, the Board has accepted this approach. In this case, however, both parties advocated a departure from that approach. Otter Tail would scale MOW expenses with tonnage, but has provided no accompanying explanation for the escalation factor. BNSF faults Otter Tail for not also indexing the material & supplies expenses, but BNSF's analysis suffers from the same deficiencies.

Neither party has justified a departure from precedent. Absent a coherent explanation that lays out how all overhead operating expenses should, or should not, be indexed to account for increasing traffic volumes, we adhere to our precedent on this issue.

### **5. Results**

Our calculation of the OTRR's total revenue requirements over the 20-year analysis period is shown below. We find that the initial road property investment of the SARR in the first quarter of 2002 would be \$2,464,698,509; interest during construction would be \$241,356,456; the present value of roadway property replacement would be \$145,060,013; and the resulting total road property investment would be \$2,851,114,978.

**Table E-1** shows the results of the iterative methodology described above. As it shows, the net present value of the capital recovery, less taxes, plus the present value of the terminal value would be \$2,851,114,978. This flow of capital recovery would provide the OTRR a reasonable return on its capital investment, and it would therefore be sufficient to attract entry to serve the selected traffic group.

**Table E-1**  
**OTRR Capital Recovery**  
**(\$ millions)**

| <b>Year</b>           | <b>RPI Capital Recovery<br/>(1)</b> | <b>Taxes<br/>(2)</b> | <b>Cash Flow<br/>(3) = (1) – (2)</b> | <b>Present Value<br/>(4)</b> |
|-----------------------|-------------------------------------|----------------------|--------------------------------------|------------------------------|
| 2002                  | \$251,307,681                       | \$0                  | \$251,307,681                        | \$239,506,229                |
| 2003                  | 255,463,565                         | 0                    | 255,463,565                          | 460,224,004                  |
| 2004                  | 269,364,088                         | 0                    | 269,364,088                          | 671,072,222                  |
| 2005                  | 278,542,101                         | 0                    | 278,542,101                          | 868,464,111                  |
| 2006                  | 285,045,971                         | 0                    | 285,045,971                          | 1,051,375,450                |
| 2007                  | 291,846,820                         | 0                    | 291,846,820                          | 1,220,955,401                |
| 2008                  | 298,797,852                         | 0                    | 298,797,852                          | 1,378,168,896                |
| 2009                  | 306,240,059                         | 0                    | 306,240,059                          | 1,524,071,086                |
| 2010                  | 314,323,807                         | 32,121,248           | 282,202,559                          | 1,646,219,458                |
| 2011                  | 322,791,627                         | 91,318,005           | 231,473,622                          | 1,736,650,600                |
| 2012                  | 331,505,440                         | 96,287,371           | 235,218,068                          | 1,819,861,553                |
| 2013                  | 340,472,788                         | 101,445,535          | 239,027,253                          | 1,896,430,133                |
| 2014                  | 349,701,458                         | 106,852,656          | 242,848,802                          | 1,966,872,274                |
| 2015                  | 359,199,485                         | 112,472,385          | 246,727,100                          | 2,031,677,033                |
| 2016                  | 368,975,162                         | 118,366,406          | 250,608,756                          | 2,091,281,639                |
| 2017                  | 379,037,052                         | 130,784,457          | 248,252,594                          | 2,144,746,649                |
| 2018                  | 389,393,990                         | 138,108,415          | 251,285,575                          | 2,193,751,257                |
| 2019                  | 400,055,100                         | 144,827,320          | 255,227,780                          | 2,238,821,623                |
| 2020                  | 411,029,799                         | 151,857,494          | 259,172,305                          | 2,280,264,089                |
| 2021                  | 422,327,810                         | 159,216,854          | 263,110,957                          | 2,318,361,010                |
| <b>Terminal Value</b> |                                     |                      | <b>***</b>                           | <b>\$532,753,968</b>         |
| <b>TOTAL</b>          |                                     |                      |                                      | <b>\$2,851,114,978</b>       |

The total revenue requirements of the OTRR over the 20-year analysis period, shown in **Table E-2**, are the sum of the capital return and the projected operating expense.

**Table E-2**  
**OTRR Total Revenue Requirements**  
**(\$ millions)**

| <b>Year</b> | <b>RPI Capital Recovery</b> | <b>Operating Expenses</b> | <b>OTRR Revenue Requirements</b> |
|-------------|-----------------------------|---------------------------|----------------------------------|
| 2002        | \$251,307,681               | \$286,112,393             | \$537,420,074                    |
| 2003        | 255,463,565                 | 270,659,101               | 526,122,665                      |
| 2004        | 269,364,088                 | 291,615,671               | 560,979,760                      |
| 2005        | 278,542,101                 | 321,170,056               | 599,712,157                      |
| 2006        | 285,045,971                 | 331,517,896               | 616,563,867                      |
| 2007        | 291,846,820                 | 341,888,415               | 633,735,235                      |
| 2008        | 298,797,852                 | 350,652,450               | 649,450,303                      |
| 2009        | 306,240,059                 | 358,985,574               | 665,225,633                      |
| 2010        | 314,323,807                 | 368,743,253               | 683,067,060                      |
| 2011        | 322,791,627                 | 378,239,115               | 701,030,742                      |
| 2012        | 331,505,440                 | 387,800,244               | 719,305,684                      |
| 2013        | 340,472,788                 | 397,765,295               | 738,238,083                      |
| 2014        | 349,701,458                 | 407,952,271               | 757,653,729                      |
| 2015        | 359,199,485                 | 418,449,002               | 777,648,487                      |
| 2016        | 368,975,162                 | 429,060,963               | 798,036,125                      |
| 2017        | 379,037,052                 | 439,995,012               | 819,032,063                      |
| 2018        | 389,393,990                 | 451,416,588               | 840,810,578                      |
| 2019        | 400,055,100                 | 463,332,570               | 863,387,670                      |
| 2020        | 411,029,799                 | 475,093,440               | 886,123,239                      |
| 2021        | 422,327,810                 | 487,376,721               | 909,704,531                      |

### **B. Overall Comparison Analysis**

The second part of the DCF analysis compares the revenues the defendant is expected to earn from the traffic group against what the SARR would need to serve the same traffic. In general, if the present value of the revenue stream is less than the SARR's revenue requirements, then the analysis has not demonstrated that the challenged rate is unreasonable. If the opposite is true, then the Board must decide what relief to provide to the complainant by allocating the revenue requirements of the SARR among the traffic group and over time. Here, **Table E-3** reveals that BNSF is earning more from the entire traffic group than the OTRR would require to serve the same traffic.

**Table E-3**  
**Discounted Cash Flow Analysis**  
**(\$ millions)**

| <b>Year</b> | <b>OTRR<br/>Revenue<br/>Requirements</b> | <b>BNSF<br/>Forecast<br/>Revenues</b> | <b>Difference</b> | <b>Present<br/>Value</b> | <b>Cumulative<br/>Difference</b> |
|-------------|------------------------------------------|---------------------------------------|-------------------|--------------------------|----------------------------------|
| 2002        | \$537,420,074                            | \$581,723,726                         | \$44,303,652      | \$43,828,222             | \$43,828,222                     |
| 2003        | 526,122,665                              | 581,047,980                           | 54,925,315        | 49,404,383               | 93,232,605                       |
| 2004        | 560,979,760                              | 619,448,542                           | 58,468,782        | 47,819,044               | 141,051,649                      |
| 2005        | 599,712,157                              | 666,104,933                           | 66,392,776        | 48,303,557               | 189,355,206                      |
| 2006        | 616,563,867                              | 678,131,443                           | 61,567,576        | 39,748,269               | 229,103,475                      |
| 2007        | 633,735,235                              | 694,046,417                           | 60,311,182        | 35,329,237               | 264,432,712                      |
| 2008        | 649,450,303                              | 698,860,637                           | 49,410,334        | 26,261,799               | 290,694,511                      |
| 2009        | 665,225,633                              | 700,974,232                           | 35,748,599        | 17,239,949               | 307,934,459                      |
| 2010        | 683,067,060                              | 715,874,161                           | 32,807,101        | 14,355,392               | 322,289,851                      |
| 2011        | 701,030,742                              | 729,011,853                           | 27,981,111        | 11,109,190               | 333,399,042                      |
| 2012        | 719,305,684                              | 742,232,436                           | 22,926,752        | 8,259,053                | 341,658,094                      |
| 2013        | 738,238,083                              | 755,540,144                           | 17,302,061        | 5,655,302                | 347,313,397                      |
| 2014        | 757,653,729                              | 768,300,146                           | 10,646,417        | 3,157,415                | 350,470,812                      |
| 2015        | 777,648,487                              | 781,732,058                           | 4,083,571         | 1,098,851                | 351,569,662                      |
| 2016        | 798,036,125                              | 794,396,655                           | (3,639,470)       | (888,601)                | 350,681,061                      |
| 2017        | 819,032,063                              | 807,599,773                           | (11,432,290)      | (2,532,633)              | 348,148,428                      |
| 2018        | 840,810,578                              | 821,985,494                           | (18,825,084)      | (3,783,957)              | 344,364,471                      |
| 2019        | 863,387,670                              | 838,500,909                           | (24,886,761)      | (4,538,872)              | 339,825,600                      |
| 2020        | 886,123,239                              | 854,708,738                           | (31,414,501)      | (5,198,523)              | 334,627,077                      |
| 2021        | 909,704,531                              | 872,921,277                           | (36,783,254)      | (5,522,938)              | 329,104,139                      |

However, as discussed in the body of the decision, the revenue from traffic using the east-west part of the OTRR would be insufficient to cover the costs attributable to serving that traffic. Thus, Otter Tail has failed to demonstrate that the challenged rate is unreasonable, as its SAC analysis depends on an impermissible cross-subsidy of the traffic that would use the east-west part by traffic that would not use that part.