

CASE NOS. PU-06-481 & PU-06-482
BEFORE THE NORTH DAKOTA PUBLIC SERVICE COMMISSION
IN THE MATTER OF THE APPLICATION BY OTTER TAIL POWER CORPORATION D/B/A
OTTER TAIL POWER COMPANY
AND
MONTANA-DAKOTA UTILITIES CO., A DIVISION OF MDU RESOURCES GROUP, INC.
FOR AN ADVANCED DETERMINATION OF PRUDENCE
FOR THE BIG STONE II GENERATING PLANT

PREFILED REBUTTAL TESTIMONY

OF

WARD UGGERUD

SENIOR VICE PRESIDENT

OTTER TAIL POWER COMPANY

APRIL 23, 2008



PREFILED REBUTTAL TESTIMONY OF WARD UGGERUD

TABLE OF CONTENTS

I. INTRODUCTION 1

II. PURPOSE AND SUMMARY OF TESTIMONY 1

III. REGIONAL CAPACITY DEFICITS..... 3

IV. REGIONAL RELIANCE ON NATURAL GAS 5

V. CONSIDERATION OF RISKS 10

VI. PLANNING VALUES FOR CARBON DIOXIDE 13

VII. FUTURE CONSERVATION PROGRAM IMPACTS..... 18

VIII. SUMMARY OF ADVOCACY STAFF ISSUES..... 19

1 **BEFORE THE NORTH DAKOTA PUBLIC SERVICE COMMISSION**

2 **PREFILED REBUTTAL TESTIMONY OF WARD UGGERUD**

3 **I. INTRODUCTION**

4 **Q: Please state your name and business address.**

5 A: Ward Uggerud. My business address is 215 South Cascade Street, Fergus Falls,
6 Minnesota 56538-0496. I am Senior Vice President, Otter Tail Power Company.

7 **Q: Did you previously submit testimony in this proceeding?**

8 A: Yes. I submitted testimony on March 10, 2008 as OTP Exhibit 112. I also previously
9 submitted written testimony prior to my appearance on June 26, 2007 in this matter.

10 **II. PURPOSE AND SUMMARY OF TESTIMONY**

11 **Q: What is the purpose of your rebuttal testimony?**

12 A: I respond to various criticisms and issues raised by Dakota Resource Council's (DRC)
13 witness David Schlissel in his April 9, 2008 testimony. I summarize Otter Tail's responses to the
14 testimony of Commission Advocacy Staff witness Terry Deason. I also summarize the
15 testimony of some of the other key witnesses filing testimony today on behalf of the Applicants.

16 **Q: Please summarize your testimony.**

17 A: While Mr. Schlissel attempts to downplay the significance of impending regional
18 capacity deficits, they should be of great concern to the Commission. Unless addressed, the
19 capacity deficits will lead to higher electric prices for North Dakota consumers, as utilities will
20 either be unable to rely on purchasing energy from the pool, or what purchases they do make will
21 continue to get more expensive as demand outstrips supply. Big Stone II addresses this need by
22 providing both reliable and low-cost capacity and energy for many years to come.

1 In addition to its participation in Big Stone II, Otter Tail intends to implement significant
 2 amounts of renewable energy and energy conservation in the coming years. Our resource
 3 planning analysis has been undertaken assuming that to be true, despite the hurdles that such
 4 implementation will entail. Otter Tail will be aggressively pursuing renewable energy and
 5 conservation mandates/goals in its entire three-state footprint. But even with an aggressive push
 6 on both renewables and conservation, our resource planning continues to demonstrate that Big
 7 Stone II is a part of Otter Tail’s (and the other Co-owners’) overall least-cost portfolio of
 8 resources.

9 The wind/gas combination scenario, identified by Mr. Schlissel and the Dakota Resource
 10 Council in only the most general way, requires the construction of a natural gas power plant. I
 11 provide some additional evidence as to why Otter Tail continues to be concerned about relying
 12 on natural gas as an alternative to a new coal plant. Applicants’ witness Dan Klein provides
 13 additional commentary on why the Commission should be very cautious about the use of more
 14 natural gas as a fuel source for electrical power generation. Because Otter Tail and the other Co-
 15 owners plan significant amounts of renewables and conservation in addition to Big Stone II, the
 16 choice here boils down to either Big Stone II or, in the alternative, significant additional
 17 quantities of natural gas for the purpose of producing electricity.

18 Although North Dakota law restricts the use of environmental externalities in resource
 19 planning and we have restricted our presentation of such analyses in this proceeding accordingly,
 20 Otter Tail has performed in other jurisdictions a reasonable assessment of the possible impact
 21 that future carbon dioxide regulation may have on decisions regarding the selection of future
 22 resources. This assessment conforms to recent actions in Minnesota regarding ranges of possible

1 future carbon dioxide regulatory costs, and is consistent with how carbon dioxide regulation is
 2 likely to be implemented by the federal government or any regional multi-state program. Even
 3 after taking the possibility of future carbon dioxide regulation into account, Big Stone II remains
 4 a necessary part of our least-cost energy mix. Intervenors’ claims in this proceeding that we
 5 have not considered or inadequately considered the carbon dioxide issue are simply incorrect.

6 **III. REGIONAL CAPACITY DEFICITS**

7 **Q: Beginning at page 4 of his supplemental direct testimony, Mr. Schlissel questions the**
 8 **relevance of your discussion of regional capacity needs in your March 10, 2008 direct**
 9 **testimony. While he admits that capacity is needed in this region, he says the North**
 10 **American Electric Reliability Council (NERC) assessment to which you refer doesn’t state**
 11 **whether that needed capacity is for peaking, intermediate, or baseload capacity. How do**
 12 **you respond?**

13 A: Otter Tail has never stated that it is participating in a new baseload project only to satisfy
 14 energy needs or only to satisfy capacity needs. Otter Tail needs both energy *and* capacity.

15 Otter Tail’s decision to participate in Big Stone II is the result of its overall resource
 16 planning, which includes consideration of projected regional capacity deficits, but the Company
 17 is also guided by its capacity expansion analysis. The purpose of that expansion analysis is to
 18 evaluate simultaneously not only energy needs but also demand (i.e., capacity) needs so as to
 19 develop the overall portfolio of least- cost resources.¹

¹ “A capacity expansion model (for example, Northern States Power Company d/b/a Xcel Energy’s use of the Strategist model or Otter Tail Power Company’s use of the IRP-Manager model) uses as inputs a given set of existing supply-side resources, a forecast of demand, a forecast of energy requirements, and – most critically – a set of potential resource additions. The model then attempts to expand the utility’s supply-side resources so as to meet the utility’s *demand and energy* needs in a least-cost manner. It does so by performing countless iterations of

1 Second, Mr. Schlissel seems to dismiss the seriousness of the regional capacity shortfall
 2 by suggesting that perhaps further development of the MISO energy market may provide
 3 opportunities for finding low-cost energy in the years ahead. We don't share Mr. Schlissel's
 4 wishful thinking regarding the ability of the market to provide reliable, low cost energy for our
 5 customers in the years ahead.

6 In a power pool with declining reserves and a predicted deficit as early as 2011, the trend
 7 clearly is that energy available from the pool is decreasing, and likely will continue to decrease
 8 as demand increases. So, the projected impending generation capacity deficits are not only a
 9 representation of a capacity situation, as Mr. Schlissel's testimony would lead one to believe.
 10 Instead, they also represent an underlying evaporation of previously available low-cost energy
 11 sources in the region over time, increasingly tilting the regional energy mix toward higher-cost
 12 natural gas resources. The result, through the forces of supply and demand, will be higher
 13 energy prices for consumers unless new baseload resources such as Big Stone II are added to the
 14 mix.

15 **Q: Do you have recent evidence that these regional trends are occurring already?**

16 A: Yes, we do. This Commission is already familiar with what can happen when utilities are
 17 unable to rely on their existing baseload coal facilities. From October 24 to December 24, 2007,
 18 Big Stone I was off-line for scheduled maintenance. While that scheduled maintenance did go
 19 slightly longer than originally planned (both because of issues surrounding a contractor's

varying the introduction of the potential resources to meet new needs, trying out hundreds of combinations of which new resources that will be added, and when they will be added. . . . Thus, *a capacity expansion model will inform a utility, for example, how much peak versus baseload capacity should be added in the future.* See, e.g., Comments of the Department of Commerce, November 8, 2005, MPUC Docket No. ET10/RP-05-1102, at 11-12. Emphasis added.

1 inability to timely perform and because we found additional maintenance was necessary once we
 2 opened up the unit), the duration of the plant’s outage was not particularly unusual for a major
 3 planned outage, especially in light of the amount of work that was scheduled.

4 During the outage, Otter Tail was required to purchase replacement energy to serve its
 5 load obligation through MISO energy purchases. Since the prices of MISO energy prices are
 6 largely set by the price of energy produced from natural gas plants in the region, Otter Tail’s
 7 customers ended up paying a substantial premium over the cost of its Big Stone I resources. The
 8 point here is that it is important to realize that we are already starting to see a connection
 9 between the shortage of capacity currently existing in the market and the cost of energy available
 10 in such a market. Until we are able to add additional capacity, and, importantly, baseload
 11 capacity, energy pricing will continue to increase.

12 I agree with Mr. Schlissel that the Commission should not be “panicked” into approving
 13 Otter Tail’s and Montana-Dakota’s choice of Big Stone II because of the serious and impending
 14 regional capacity deficit. Of course, we have never suggested that the Commission be panicked
 15 into anything. But Otter Tail does not share Mr. Schlissel’s apparent ambivalence about the need
 16 to do something. The deficits are real and are getting worse. Our analysis shows that these
 17 deficits are best addressed with a baseload resource – one that provides both needed capacity and
 18 energy over the long-term.

19 **IV. REGIONAL RELIANCE ON NATURAL GAS**

20 **Q: DRC witness Schlissel talks about the regional generation capacity mix, and**
 21 **concludes at page 8 that “...there is no real danger of over-reliance on natural gas in the**
 22 **Upper Midwest.” Do you agree with his assessment?**

1 A: Not at all. First, Mr. Schlissel is attempting to use figures for the entire MRO (that
 2 consists of six states and two Canadian provinces and more than 50,000 MW of total generation)
 3 which obfuscates what would really happen for the Applicants specifically. Obviously, you can
 4 make any number (such as the MWs of Big Stone II at issue in this docket) look smaller and less
 5 significant if you merely divide it by a large enough number as Mr. Schlissel's does in utilizing
 6 the entire MRO generation base. The real issue here, the one Mr. Schlissel does not reveal, is
 7 that the end result of his testimony would be that no new coal plants would be built and natural
 8 gas plants would be built instead. For the reasons discussed by Applicants' witness Daniel Klein
 9 in his April 23, 2008 testimony, just because a utility's resource mix isn't heavily dependent on
 10 natural gas doesn't mean that one shouldn't be concerned about natural gas.

11 Second, Mr. Schlissel is using MRO *capacity* charts (Figures 1 and 2 on page 9 of his
 12 rebuttal testimony) to erroneously make a comparison, when the real story is *energy*. Without
 13 additional new baseload coal units such as Big Stone II, the existing natural gas-fired capacity
 14 shown on these same Figures would have to run more hours, producing more annual energy at
 15 higher costs. Thus, the real story here (and the one Mr. Schlissel is silent about) is what the
 16 charts would look like on an energy and cost basis.

17 As Mr. Klein points out, the region's dependence on natural gas as a source of electric
 18 power generation, particularly as a result of trends in Minnesota, has increased significantly over
 19 the last eight years or so, and is on course to dramatically increase in the years ahead. In moving
 20 toward greater dependence on natural gas for baseload energy production, we need to be mindful
 21 of U.S. Department of Energy Secretary Samuel Bodman's recent comment that "using gas to

1 create baseload electricity is like washing dishes with good Scotch."² As Mr. Klein explains,
 2 greater dependence on natural gas cannot only be viewed in the narrow scope of simply Otter
 3 Tail's or Montana-Dakota's reliance on natural gas, though such a trend obviously poses
 4 significant risk to our customers. Instead, the issue needs to be considered based on the regional
 5 market in which Otter Tail and Montana-Dakota conduct business.

6 **Q: At page 7 of his rebuttal testimony, Mr. Schlissel states that, in addition to**
 7 **renewables and energy conservation, the Applicants should use new natural gas-fired**
 8 **capacity only "...to the most limited extent necessary." Can you comment?**

9 A: In my professional opinion, the potential for large quantities of natural gas consumption
 10 is real if natural gas is used to replace coal for even a portion of our baseload electricity
 11 production as Mr. Schlissel is advocating. We have demonstrated, at length, that our baseload
 12 resource options are relatively narrow. There is no hydro option within the planning horizon.
 13 Minnesota, where half of Otter Tail's load is located, has banned nuclear as an option. We have
 14 no geothermal option. There are currently no utility-scale biomass or solar options, nor are there
 15 expected to be in the foreseeable planning horizon. Wind is not a baseload option. What we are
 16 left with is natural gas and coal.

17 But the Commission doesn't have to take our word alone for it. Just look at what Mr.
 18 Schlissel, on behalf of DRC in this docket and on behalf of other environmental organizations
 19 before the Minnesota and South Dakota Commissions has continually put forth as a hypothetical,
 20 alternative "scenario" for Big Stone II – wind, backed up by a natural gas baseload plant, which
 21 even under best case scenarios, would have to run up to 50-65% of the time. Thus, if the

² <http://www.restructuringtoday.com/public/12979.cfm>

1 Commission finds that Otter Tail’s pursuit of an efficient, supercritical pulverized coal plant is
 2 not prudent (even after the addition of significant amounts of planned renewables and
 3 conservation in the planning period), it is inevitable that, until we span the bridge to a non-
 4 carbon emission future, large quantities of natural gas consumption (which also produces carbon
 5 dioxide emissions) for electric energy generation will be needed. Mr. Klein’s conclusions on
 6 this issue cannot reasonably be doubted.

7 **Q: Why is the discussion of natural gas even relevant to the issues in this case?**

8 A: The statute controlling this matter, N.D.C.C. § 49-05-16, requires an evaluation of
 9 alternatives against the preferred resource selection.

10 But as we have consistently shown, natural gas, as a stand-alone resource, is not a least-
 11 cost alternative to Big Stone II. If it was, we would surely be pursuing that option. We have
 12 also shown, and nobody seriously disagrees with us on this, that Big Stone II is less expensive on
 13 a stand-alone basis than the best renewable resource, i.e., wind energy. It is only when Mr.
 14 Schlissel advances a hypothetical, generalized “wind plus gas” resource does the comparison to
 15 Big Stone II economics even comes close. And even then, only without any scrutiny of the real
 16 and likely costs for the wind or the gas.

17 **Q: What specific concerns do you have about the DRC’s contention that Big Stone II**
 18 **must be more cost effective than a hypothetical wind/gas alternative?**

19 A: For more than two years now, Mr. Schlissel has suggested first before the South Dakota
 20 Public Utilities Commission, then the Minnesota Public Utilities Commission, and now this
 21 Commission, that a “wind/gas” alternative is a less expensive resource option than Big Stone II.
 22 Yet not once has Mr. Schlissel provided any meaningful, real alternative, and the DRC does not

1 do so here. While Mr. Schlissel and DRC suggest that a wind/gas scenario is less expensive,
 2 they fail, here as in other dockets, to provide any specifics on a real alternative. Many questions
 3 are left unanswered: Where would the wind facilities be built? At what location would the
 4 natural gas facilities be built, and what gas transportation facilities would be necessary to
 5 accommodate the quantities of the necessary natural gas? Would such a large amount of wind
 6 power be cost effective if the PTC were discontinued? What would happen if natural gas
 7 supplies were curtailed, or if natural gas prices skyrocketed? Whose load would these new
 8 gas/wind facilities serve?

9 In addition, there is the whole question of electric transmission, which DRC ignores.
 10 And yet if one actually considers the cost of transmission as part of a wind and gas scenario,
 11 which of course as utilities with an obligation to actually provide service we must, such an
 12 alternative becomes even more uneconomic compared to BSII, even with conservative
 13 assumptions that would otherwise favor such a wind/gas alternative.

14 **Q: Isn't it reasonable to expect Applicants to compare their baseload resource choice –**
 15 **Big Stone II – against all other resources, either on a stand-alone basis or in combination**
 16 **with others?**

17 A: Absolutely. I require that of myself, and our respective Boards of Directors require that
 18 of us as officers and managers. And the critical point is that we have, in fact, done exactly that,
 19 consistently. The simple fact is that the next best alternative to Big Stone II requires a significant
 20 amount of natural gas. We have determined, based on a wide range of different analyses,
 21 combined with hundreds of years of collective experience in this business, to pursue a super-
 22 critical pulverized coal plant as part of an overall least-cost resource portfolio. We will continue

1 to invest heavily in renewables, in energy conservation, and likely more gas for peaking
 2 purposes. But we have determined that investing in a natural gas option for baseload resources is
 3 not a prudent option for our customers at this time. It may be for other utilities, but it is not for
 4 Otter Tail.

5 **V. CONSIDERATION OF RISKS**

6 **Q: Mr. Schlissel points to a potential for capital cost increases and in-service date**
 7 **delays for the Big Stone II project. Have you considered the risks associated with increased**
 8 **costs due to delays in the project?**

9 A: We are fully cognizant of recent cost escalations in capital costs for all large energy
 10 production facilities, and we have factored these cost increases into our analysis. Importantly,
 11 we know that the largest single cause of additional costs for the project is further delay. We have
 12 estimated a 6% escalation each year in capital costs, which translates to over \$6 million a month.
 13 In addition, the cost of replacement power, which will be necessary if Big Stone II is not online
 14 in 2013 to meet the increased need, could exceed \$10 million a month. Costs are going to go up
 15 for every month a decision on attaining the needed new generation is delayed.

16 **Q: In his testimony, Mr. Schlissel claims the Applicants have focused on uncertainties**
 17 **and risks associated with various alternatives, but have not given proper attention to risks**
 18 **and uncertainties associated with Big Stone II. How do you respond?**

19 A: Contrary to Mr. Schlissel's assertions, the Applicants have made many assumptions that
 20 would *benefit* the alternatives to Big Stone II. As detailed in the testimony of Applicants' other
 21 witnesses, including Bryan Morlock, Jeff Greig, and Tom Hewson, some of these assumptions
 22 include:

- 1 • Extension of the federal Production Tax Credit (PTC) for wind energy;
- 2 • CO₂ costs applied to every ton of CO₂;
- 3 • Low wind power prices;
- 4 • Conservative natural gas prices;
- 5 • Lower escalation rates for natural gas prices than for coal prices;
- 6 • Conservative gas transportation costs; and
- 7 • No transmission costs associated with wind.

8 As Messrs. Morlock, Hewson, and Greig make plain, we are well aware of the risks associated
 9 with pursuing a pulverized coal plant. And, to be sure, we are well aware of the risks associated
 10 with not attaining additional capacity and energy if we do not go forward with the project.

11 **Q: At page 38-39, Mr. Schlissel suggests that Otter Tail’s shareholders alone ought to**
 12 **take the risk for its current estimates associated with the project. How do you respond?**

13 A: North Dakota Century Code § 49-05-16 provides that a public utility proposing to
 14 construct a new power plant and transmission lines can apply to the Public Service Commission
 15 for an advance determination of prudence regarding the proposal. The Commission may issue an
 16 order approving the prudence of an electric resource addition if, among other things, the
 17 Commission determines the resource addition is “reasonable and prudent.”

18 The purpose of the statute appears to be straightforward. It provides public utilities such
 19 as Otter Tail (whose rates are regulated by this Commission and who have a legal obligation to
 20 serve customers both reasonably and reliably) that find themselves needing to invest significant
 21 sums of capital in new energy infrastructure facilities an opportunity to obtain a decision from

1 the Commission that the expenditures are reasonable, *in advance of that investment*. Upon such
 2 a finding, the public utility is provided some measure of certainty that it will be entitled to
 3 include in its future rates expenditures that are consistent with those presented in the advanced
 4 determination hearing. Considering the amount of money required to build large energy
 5 facilities, and the importance such facilities play to the quality and economic health of a state and
 6 region, proceeding otherwise would be almost impossible.

7 The Applicants submit that it is in ratepayers' interest that utilities such as Montana-
 8 Dakota and Otter Tail, with an obligation to serve, engage in this complicated and public
 9 planning effort as a way of selecting resources that are reasonable and prudent. The Applicants,
 10 along with their co-owners, have been in the permitting process for Big Stone Unit II since the
 11 end of 2005. The Applicants' decisions have been questioned every step of the way by the DRC
 12 and other similarly situated groups. In today's environment, that is perhaps inevitable and in
 13 any event is the result of a democratic process. But there should be no question that it could
 14 have been far easier, as Staff's expert Terry Deason pointed out last time, for the Applicants to
 15 have proposed, instead for instance, a natural gas plant, as it would have been presumably much
 16 easier to navigate the permitting process. Instead, the Applicants have engaged in an exhaustive
 17 and almost endless process of justifying their decision to proceed with this project, a project
 18 which their studies have continually demonstrated is in the best interests of their customers,
 19 without regard to their shareholders' interests. Unless state utility commissions want the public
 20 utilities whose rates they regulate to seek only the path of least resistance in building additional
 21 critical energy resources or only to purchase power from the market to meet their customers'
 22 future energy needs, they should encourage, not discourage, utilities from seeking at least some

1 hedge against the uncertainty of future cost recovery. This is consistent with what former
 2 Commissioner Deason meant when he referred to the project as “commendable,” and possibly
 3 “contrary to natural inclinations.” TR. Vol. III, p. 724, lines 22 – p. 25, lines 1-15. Thus, we
 4 believe that the Applicants have demonstrated that the facility is reasonable when compared to
 5 other feasible alternatives.

6 Rather than pitting shareholders against customers by trying to allocate risks out of
 7 proportion, we believe that the intent of this process is to ensure that both customers and
 8 shareholders share proportionately in the risk and benefits of critical infrastructure facilities that
 9 are affected with the public interest.

10 **Q: In your March 10, 2008 testimony, you indicated that Otter Tail had recently asked**
 11 **the BNSF to provide Otter Tail a proposal for a long-term contract for the Big Stone plant.**
 12 **Do you have any update?**

13 A: Yes. Attached are OTP Exhibits 120 and 121 which are letters between Otter Tail and the
 14 BNSF (marked as trade secret) in which the BNSF once again offers to enter into a long-term
 15 contract based on a normal rail inflation adjustor along with a fuel surcharge. Otter Tail and the
 16 other co-owners are currently considering this issue.

17 **VI. PLANNING VALUES FOR CARBON DIOXIDE**

18 **Q: DRC’s Mr. Schlissel criticizes the Applicants’ use of a \$9/ton of carbon dioxide**
 19 **emissions in their resource planning models, arguing that it is too low. Do you have any**
 20 **comment?**

1 A: Mr. Schlissel is referring to analyses we presented before the Minnesota Public Utilities
 2 Commission in the proceeding involving a certificate of need for the Big Stone II transmission
 3 facilities.

4 Because North Dakota law precludes the same type of analysis in resource planning,
 5 Otter Tail did not initially present the results of this analysis in our direct testimony. However,
 6 as Mr. Morlock and Mr. Greig explain in their rebuttal testimony, because both Mr. Schlissel and
 7 Mr. Deason have raised questions about the impact of future carbon regulation on the cost
 8 effectiveness of Big Stone II, we do present those results now to the extent necessary to address
 9 these questions.

10 It is not my intention to repeat the testimony of other witnesses, but I do want to provide
 11 a brief summary and overview of the work we have done to consider the potential for carbon
 12 regulation.

13 **Q: Can you describe the type of analysis Otter Tail performed before the Minnesota**
 14 **Commission?**

15 A: We essentially applied a \$9/ton tax against every ton of CO₂ emission from the Big Stone
 16 II plant. We used \$9/ton because at the time we were before the Minnesota Commission
 17 beginning last fall, the Minnesota Department of Commerce had proposed that the state adopt a
 18 \$9/ton “regulatory risk” value on an interim basis until the state could undertake a more formal
 19 process to adopt a more permanent range of environmental cost values.

20 But we also believed that \$9/ton represented a reasonable value for assessing the risk of
 21 future carbon regulation. This is particularly true when we applied the \$9/ton as a tax, instead of

1 trying to model the \$9/ton under a cap and trade regime, the most likely greenhouse gas
 2 regulatory regime.

3 Because we modeled the CO₂ cost as a tax, and applied the \$9 to every ton of CO₂
 4 emissions (as opposed to applying it to the subset of CO₂ emissions correlating to purchased
 5 allowances necessary to stay under a cap and trade regime), we believe that we have approached
 6 this issue conservatively and in a manner that actually tends to bias the results against Big Stone
 7 II, rather than in favor of it.

8 **Q: You state that a cap and trade program will apply CO₂ regulatory costs in a manner**
 9 **that is different than a tax. But in both the Applicants’ resource planning analysis and in**
 10 **Mr. Greig’s analysis assessing the impacts of a range of CO₂ prices, Otter Tail applies it as**
 11 **a tax. Why?**

12 A: Quite simply, it is very difficult if not impossible to model a cap and trade program under
 13 existing capacity expansion model protocols, stemming in large part because nobody has actually
 14 attempted to do that yet. So to keep it as simple as possible, and to be conservative, we modeled
 15 it as a tax.

16 **Q: Why do you say the assumptions are conservative?**

17 A: Because, as Applicants’ witness Mr. Tom Hewson explains with respect to CO₂ in his
 18 April 23, 2008 testimony, and as Mr. Schlissel himself acknowledges, the leading Congressional
 19 carbon dioxide regulatory programs are not tax programs but instead cap and trade programs,
 20 which operate very differently with respect to how they apply carbon dioxide prices to
 21 emissions. As Mr. Hewson points out, under the leading cap and trade program being considered
 22 in Congress – the Lieberman-Warner Climate Security Act of 2007 (S. 2191) – Big Stone Unit II

1 would be allocated a significant number of free allowances that would cover roughly half of the
 2 station emissions during the first half of its book life. The Applicants would also be authorized to
 3 cover an additional fifteen percent of its allowance needs with potentially lower-cost domestic
 4 offsets.

5 In other words, effectively Big Stone II would initially need to purchase allowances at
 6 open market value for only 35-50 percent of its CO₂ emissions. Thus, when Otter Tail's
 7 modeling utilized a \$9/ton CO₂ compliance cost value applied to all CO₂ emitted by the unit (or
 8 in the case of the \$4/ton - \$30/ton analyzed by Mr. Greig), in effect what Otter Tail modeled was
 9 an allowance purchase price (under a cap and trade program) of \$18-22/ton (or approximately
 10 \$8/ton - \$60/ton under Mr. Greig's analysis). Similarly, a modeled value of \$30/ton for every
 11 ton is essentially the same as \$60/ton cost for half of the emissions. When Mr. Schlissel's
 12 testimony provides a chart of ranges of potential future CO₂ values based on cap and trade
 13 proposals, and then criticizes the Applicants for using a \$9/ton carbon tax in its Minnesota
 14 analysis, he is comparing apples to oranges.

15 **Q: On page 16 of his April 9, 2008 supplemental direct testimony, Commission**
 16 **Advocacy Staff witness Terry Deason discusses the potential for carbon dioxide regulation**
 17 **further increasing the price of natural gas. Do you agree?**

18 A: Yes. Mr. Deason is correct that our base natural gas price forecasts do not explicitly
 19 include such effects. He is also correct, as Daniel Klein discusses in his rebuttal testimony, that
 20 the price of natural gas will be likely be adversely affected by carbon regulation to the extent
 21 such regulation makes it a favored fuel from the perspective of carbon emissions. We believe
 22 this will further increase the upward pressures on natural gas prices above and beyond the effects

1 of increased natural gas consumption volumes alone. In his March 10, 2008 direct testimony,
 2 Applicants' Mr. Greig of Burns and McDonnell described a sensitivity analysis he conducted in
 3 which he increased the cost of natural gas by \$0.50/and \$1.00/MMBtu. That analysis showed
 4 that the busbar cost of the natural gas alternative went from \$88.55 to \$91.04 with a fifty cent
 5 rise in natural gas prices and to \$93.55 with a \$1.00 increase. See OTP/MDU Ex. 326, pp. 9-10.

6 **Q: At pages 48 to 49 of his supplemental direct testimony, Mr. Schlissel discusses how**
 7 **certain banks may view financing for coal plants given the potential for future carbon**
 8 **dioxide regulation. Mr. Deason also references the banks' announced "carbon principles."**
 9 **Can you comment?**

10 A: Yes. Otter Tail has reviewed and is familiar with the "carbon principles" announced by
 11 certain banks, including one of Otter Tail's investment banks, JP Morgan. These principles
 12 address energy efficiency, renewable energy, and conventional energy technologies. Otter Tail
 13 agrees with these principles as they espouse ideals that Otter Tail is already committed to
 14 achieving. In addition, the third of these principles addressing conventional energy technologies
 15 states: "In addition to cost effective energy efficiency, renewables and low carbon generation,
 16 we believe investments in other generating technologies likely will be needed to supply reliable
 17 electric power to the US market." We agree with this too. Indeed Otter Tail has never presented
 18 its participation in Big Stone II as a replacement for its commitment to conservation or
 19 renewable energy. It is *in addition* to these commitments. Even given uncertainties regarding
 20 potential climate change legislation, Otter Tail believes financing for Big Stone II will be
 21 available because the Big Stone II participants have evaluated the cost effectiveness of Big Stone
 22 II under a wide range of potential scenarios. We have thoroughly evaluated Big Stone II within

1 the fairly stringent projected cost range of future carbon dioxide regulation on electricity
 2 generation recently adopted by the Minnesota Public Utilities Commission, and have further
 3 evaluated the economics of Big Stone II to determine sensitivity to an even wider range of
 4 variables. The banks' carbon principles do not present an obstacle to Big Stone II.

5 **VII. FUTURE CONSERVATION PROGRAM IMPACTS**

6 **Q: DRC witness David Schlissel testified that additional energy conservation should be**
 7 **used to offset the need for Big Stone II. How do you respond?**

8 A: We agree that energy conservation is a critically important element of a least-cost
 9 resource plan. Accordingly, Otter Tail is already planning to enact very aggressive levels of
 10 energy conservation. For example, the Minnesota legislature in 2007 set an annual energy
 11 savings goal for utilities of 1.5%/year. Otter Tail, for purposes of its planning for Big Stone II,
 12 assumed that it will achieve this goal even though actually achieving the goal will be difficult.
 13 We have included more aggressive conservation efforts for our North Dakota load. In other
 14 words, in our planning we have assumed very aggressive conservation penetration levels.
 15 Despite this, our modeling continues to pick significant amounts of a supercritical pulverized
 16 coal baseload unit as represented by Big Stone II. To the extent the conservation goals prove to
 17 be unattainable in the future (due to unavailability of necessary technologies, lack of customer
 18 response in the marketplace, etc.), and it will take years to determine whether that is the case or
 19 not, we will continue to also need additional resources above and beyond what we propose for
 20 Big Stone II today.

1 In summary, the choice here is not conservation *or* Big Stone II as Mr. Schlissel seems to
 2 suggest. Otter Tail is committed to energy conservation throughout our service territory. But
 3 even with our strong commitment, we continue to have a need for baseload resources.

4 **VIII. SUMMARY OF ADVOCACY STAFF ISSUES**

5 **Q: On pages 26 to 27 of his supplemental direct testimony, Advocacy Staff witness**
 6 **Terry Deason provided a summary of areas that needed additional clarification by the**
 7 **Applicants. Please provide a summary of Otter Tail’s responses to those areas.**

8 A: Bryan Morlock and Jeff Greig address Mr. Deason’s questions about the Production Tax
 9 Credit in their rebuttal testimony. They also address Mr. Deason’s question regarding
 10 Allowance for Funds Used During Construction (AFUDC).

11 Project Manager Mark Rolfes addresses the question about the Applicants’ use of the
 12 Electric Power Research Institute (EPRI) equation for calculating the cost of a different size unit
 13 in his rebuttal testimony. Mr. Rolfes also addresses Mr. Deason’s question regarding mercury
 14 removal costs at the Big Stone site.

15 **Q: On page 27 of his supplemental direct testimony, Mr. Deason reiterates that the five**
 16 **conditions he previously recommended the Commission adopt before granting an advance**
 17 **determination for Big Stone II still apply. Do you have any comments on that?**

18 A: As we indicated last summer, we agree with and are committed to addressing each of
 19 these five conditions.

20 **Q: On page 28 of his supplemental direct testimony, Mr. Deason further recommends**
 21 **an additional condition that the Applicants provide the Commission an updated**

1 **confirmation of Big Stone II's cost-effectiveness prior to the commencement of**
2 **construction. How do you respond?**

3 A: Otter Tail can agree to that. As a matter of prudent utility planning, Otter Tail itself
4 expects to ensure its decision to commence construction is based on sound economic premises.
5 That the regulatory body with jurisdiction over a significant portion of our rate base may expect
6 likewise is not a significant additional burden.

7 **Q: Does this conclude your testimony?**

8 A: Yes.