

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

**Northern States Power Company
Advanced Determination of Prudence –
201 MW Nobles Wind Project
Application**

Case No. PU-08-907

**Northern States Power Company
Advanced Determination of Prudence –
150 MW Merricourt Wind Project
Application**

Case No. PU-08-908

**STAFF RESPONSE TO NORTHERN STATES POWER COMPANY'S
APPLICATION FOR ADVANCED DETERMINATION OF PRUDENCE**

Background Information

On December 3, 2008, Northern States Power Company (NSP), filed applications for advanced determination of prudence for its Nobles and Merricourt projects totaling 351 MW of wind capacity.

On May 15, 2008, staff distributed an email and attachment indicating that it could not overcome the state law of presumed prudence (NDCC section 49-05-16) for the Merricourt generation facilities located in North Dakota and therefore recommended that the commission declare the proposed investment prudent. Staff was unable to make the same recommendation with regard to the Nobles wind farm because of concern over NSP's least cost planning process and the absence of presumption of prudence for wind farms located outside North Dakota. The concern was expressed as a lack of understanding and lack of adequate time on staff's part to sufficiently review

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sufficiently review the Company's Integrated Resource Plan (IRP) before making a recommendation. The May 15, 2009 email and attachment are attached for documentation purposes and support of staff's position in this proceeding.

NSP's IRP is a culmination of economic modeling and management decision making. The process begins by projecting future energy and capacity needs and then planning for those needs in the most efficient and economical manner possible. The decision to deploy assets involves more than a mathematical or econometric calculation and requires the well thought out and disciplined approach by management to assess various risks and costs associated with choosing one solution over another.

NSP files its official IRP with the Minnesota Public Utility Commission every two or three years and provides the commission with a copy. The IRP is done on a company-wide basis rather than a state-by-state basis which generally makes good sense--all things being equal. As the commission is aware, Minnesota's renewable portfolio standard is 30% by 2020; whereas the rest of the states' standards and objectives served by NSP are similar to North Dakota's 10% objective. This significant difference remains a concern despite NSP's movement to ascribe some sort of financial recognition or value to North Dakota ratepayers for renewable energy credits which go beyond North Dakota's 10% objective. In fairness to the Minnesota standard, the 30% renewable portfolio standard provides off-ramps in the event that the development of renewable energy becomes cost prohibitive. What that exactly means is likely quite different in the eyes of North Dakota compared to Minnesota given the propensity of

Minnesota policy makers to assign an externality cost to the emissions of carbon dioxide.

On June 9-10, 2009, staff was able to conduct an on-site review of NSP's IRP including its various assumptions and inputs. The discussions that took place were open and useful to staff's analysis. After the meeting, staff made several requests for additional information and clarification and NSP responded quickly. The process has provided staff with the necessary information and understanding to make a recommendation in these cases.

Staff Review

Staff believes NSP's proposals to build the Nobles and Merricourt wind farms are within a zone of reasonableness to satisfy future energy needs. The words "zone of reasonableness" is used to indicate that while staff recommends approval, there are still many concerns that remain. Unfortunately, the best resource choice at any given moment really won't be known with any certainty until 5, 10 or perhaps 25 years from now. In the end, NSP's IRP includes assumptions and inputs that will likely be off the mark as will management's risk analysis. But that reality does not change NSP's goal and desire to make the best decision based on the best information available at the time.

After reviewing NSP's energy and capacity needs, it was apparent that NSP's immediate needs require additional intermediate and peaking resources more than base load resources. For the most part, intermediate and peaking needs are best met with a combination of wind and natural gas rather than coal or nuclear facilities. This is so

primarily because of the operating characteristics and relatively low capital cost and infrastructure requirements of natural gas turbines as well as the very low variable cost of wind (no fuel). However, this common understanding or natural order of things is beginning to be challenged as more and more wind generation is developed without adequate transmission lines eastward; especially when combined with the volatility of natural gas prices in recent years.

Without adequate transmission lines to transport energy eastward, wind generation contributes to events where the regional supply exceeds the energy requirement needs of the region during off-peak times requiring coal plants to be throttled back to minimum generation levels. The addition of still more wind may result in the curtailment of wind generation which would make wind generation more expensive. For example, in the case of Nobles and Merricourt, a one percentage point reduction in the assumed capacity factor increases the present value of system revenue requirements by \$21 million over the 25 year life of the plants.

Therefore, the curtailment possibilities of wind combined with the additional cost of maintenance and shorter coal plant lives due to cycling of coal plants up and down is not without concern. NSP shares these concerns and is working with the Midwest ISO to address transmission shortages and minimum generation events. NSP is also investigating the costs associated with the cycling of coal plants to accommodate wind energy. It is not possible to predict with a lot of certainty how these issues may be resolved in the future but it is important to be aware of the struggles that are occurring.

NSP contends that one potential outcome is that as more wind generation becomes available; the Midwest ISO may not commit as much base load generation when enough wind is expected in real time. This will require coordination and confidence with wind forecasts as well as rule changes to give incentives for wind generation to be offered in the day ahead market. NSP contends that such a result may lead to higher cost coal units becoming uneconomic to run and cycle. NSP also acknowledges that another possible outcome is that wind is simply curtailed; but that the optimum solution may be some combination of curtailment and bidding wind into the day ahead market.

Staff is concerned with this direction in that, generally speaking, the cheapest electric generating plant is the one you own--much like the adage that the cheapest car to drive is the one you own. This is so unless you have a plant that can no longer be economically maintained or you have a duplication of generation facilities. Duplication of facilities would certainly be an expensive proposition but it would indeed enable the choosing of wind over coal generation given winds lower variable cost to operate. Because of our concerns, staff recommends adding reporting requirements to NSP's annual reporting requirements so that the commission can monitor the use and change of use amongst its generation fleet. NSP should be very careful in the building of facilities that may lead to the shutting down of other useful plants already owned or paid for.

Where the Rubber Meets the Road

NSP's IRP concluded that the Nobles and Merricourt projects would result in saving \$104 million in present value revenue requirements over the life of the wind farms compared to the option of building additional natural gas generation. The calculation however included a \$17 per ton cost to reflect the expected costs of regulating carbon dioxide emissions. When the assumed cost of CO₂ was removed from the IRP, the model chooses natural gas generation rather than the Merricourt and Nobles wind projects as the least cost resource. Without including the cost of CO₂, the wind projects cost an additional \$36 million in present value revenue requirements over the lives of the projects compared to natural gas generation. Staff requested a sensitivity analysis for carbon cost and the IRP model calculated a breakeven cost of \$2.10 per ton for CO₂ to eliminate the cost advantage of natural gas over the Merricourt and Nobles wind projects.

Because the price of natural gas is a key factor in calculating the long run cost of natural gas generation, a sensitivity analysis was done to determine the impact of natural gas price changes. Increasing the price of natural gas by 1% adds \$6 million to the present value revenue requirements calculation for a natural gas facility. NSP uses several vendors for determining its natural gas price assumptions including Chartered Enterprise Risk Analyst (CERA), PIRA Energy Group and others. Updating gas prices to current projections reduces the original wind cost deficit from \$36 million to \$18 million in present value revenue requirements over the life of the plants.

Because capacity factors for wind facilities is another key element in determining which energy resource to deploy, sensitivity runs were also ran to determine the impact of varying wind production. As mentioned earlier, a 1 percentage point change in the wind projects' capacity factors changes the present value revenue requirements of wind by \$21 million over the life of the properties.

The following table is included to help encapsulate the above discussed sensitivities:

Merricourt and Nobles Wind Farms	
Vs	
Natural Gas Generation	
	PVRR (Millions)
Additional Cost of M&N	\$ 36
Additional Cost of M&N - Updated Cost of Gas	\$ 18
1 Percent Change in the Cost of Gas	\$ 6
\$1 Change per Ton for CO ₂	\$ 8
1 Percentage Point Change in Wind Capacity	\$ 21

As you can see from the above table, if we accept NSP's updated cost of gas forecasts, a 3 percent increase in natural gas prices will offset the \$18 million higher cost of Merricourt and Nobles (using the updated Cost of Gas scenario).

Similarly, an assumed \$2.10 cost per ton of CO₂ also offsets the higher cost of Merricourt and Nobles. Staff is aware of North Dakota's law (NDCC 49-02-23) prohibiting the use of environmental externality values for costs assigned to CO₂ for the

alleged costs of complying with future environmental laws or regulations that have not yet been enacted. While the law prohibits the use of externality values in planning resource deployment, staff has included it here to help describe how NSP's management arrived at its conclusion to build Nobles and Merricourt.

There are certainly other factors that would play into management's decision making prerogative but staff believes these are the most critical ones. NSP's management has determined that the additional cost of wind is insignificant when compared to the hedge wind provides against natural gas price hikes and possible CO₂ legislation. In the end, time will tell whether that decision was right or wrong.

Staff believes that NSP's concerns are legitimate but to what degree is difficult to judge. Staff also believes that NSP's decision making process is somewhat tilted towards wind generation when it assumes capacity factors of 40% for the Merricourt and Nobles projects given the concerns expressed earlier; possible curtailments due to limited transmission capabilities to the east and the minimum generation events already occurring within the Midwest ISO western region. Since most of NSP's energy is sold in Minnesota, political and economical pressures exist to build more wind farms to achieve Minnesota's 30% RPS.

Staff believes the pros and cons associated with the comparison of natural gas to wind are still close enough to grant NSP some leeway in management's decision making process and therefore recommends approval of NSP's requested determination of prudence for its Merricourt and Nobles wind projects.

Staff will prepare an Order and Motion for the commission's consideration on its July 8, 2009 agenda.

Dated July 1, 2009

A handwritten signature in black ink, appearing to read "Mike Diller", written over a horizontal line.

Mike Diller
Director of Economic Regulation

Attachment

Diller, Michael R.

From: Diller, Michael R.
Sent: Friday, May 15, 2009 5:20 PM
To: Nitschke, Darrell D.
Cc: 'Sederquist, Dave'; Judy Poferl (judy.m.poferl@xcelenergy.com); -Grp-PSC Public Utilities; -Grp-PSC Legal; -Grp-PSC Commissioners
Subject: Merricourt
Attachments: Staff Memo for Informal Hearinig.docx

Attached is a memo from staff recommending the commission grant advanced prudence for the Merricourt Wind Project. It is late on Friday and no one is left to look over my shoulder so sorry for any typos or inaccuracies but we can sort that out at the Informal on Monday.

I am not going to write another memo for the Noble's Wind Project. The Merricourt and Noble projects are quite similar and I would draw no distinction between the two other than the absence of a rebuttable presumption of prudence for the Minnesota project. The absence of that presumption leads me to a different determination for the Noble's project. Without a better understanding of NSP's IRP process and inputs, I am unable to recommend approval at this time. I do not know what the law requires here--a denial by the commission to avoid approval in absentia (hope that is the right use of the word) because the specified time to review the case is up or what. Illona has been thinking about this. Dave and I have talked about extending the case as we have done in rate case proceedings to allow time for more time to review the IRP but we can sort that out on Monday as well.

Sorry for the lateness of this. See you on Monday.

Dave, please forward to necessary people as discussed.
Thanks.

I have people staying over the weekend and will likely not be in right away on Monday so feel free to call me this weekend

or Monday morning if you have questions before the Informal.
My cell phone number is 701-391-5622. Mike

North Dakota Public Service Commission
INFORMAL HEARING
May 18, 2009

Northern States Power Company
Advanced Determination of Prudence
Application

Case No. PU-08-908

Summary of Proposal

Northern States Power Company (NSP) requests the commission determine its proposed investment in its **Merricourt Wind Project** is prudent. The purpose of advanced determination of prudence (ADP) is to provide an upfront regulatory review and some assurance of cost recovery when the project is complete.

The Merricourt Wind Project is located in the counties of McIntosh and Dickey, North Dakota. The application indicates that the 150 MW wind project will be built by enXco Development Corp. When completed, ownership of the project will be transferred to NSP. The project is expected to be completed by the end of 2011.

The application also requests a Certificate of Public Convenience and Necessity (PCN) which has been docketed in Case No. PU-08-910.

A Notice of Opportunity for Hearing was issued for both the ADP and the PCN application. No requests for hearing were received.

Overview and Background Information

The commission has some experience in reviewing wind farm applications for the determination of advanced prudence. In Case No. PU-06-466, the commission determined that Otter Tail Power Company's Langdon Wind Energy Center was prudent. The commission has also received a similar application from Otter Tail for its Ashtabula Wind Energy Center, Case No. PU-08-742, which has been combined with Otter Tail's pending rate increase application, Case No. PU-08-862. While the commission has not acted on the Ashtabula ADP request, staff has recommended approval. These cases are useful for general information and cost comparisons in this case.

North Dakota state law gives preference and a rebuttable presumption that generation facilities built in North Dakota are prudent. The rebuttable presumption does not impact how we review the prudence application but does require stronger evidence before staff can argue that a particular wind farm is not prudent.

As stated in previous cases, there is a financial disincentive to owning wind, absent a generation rider, because purchased power costs are automatically

passed through to North Dakota consumers via the monthly cost of energy adjustment whereas dollars invested in a wind farm are not automatically recoverable until the next rate case.

During an informal hearing on April 23, 2008, Otter Tail disclosed that owning wind generation is cheaper than purchasing energy from a wind developer. Otter Tail claimed that an ownership position in the Langdon Center saves customers about 10% in energy costs compared to simply buying from the wind developer. NSP's filing suggests customers will be better off owning than buying as well. In the past, NSP has purchased its wind energy. NSP's decision to own and operate wind farms rather than purchasing is viewed favorably by staff and will save customers money.

The explosion of wind farm development in the states has been driven primarily by the Federal Production Tax Credit. The American Wind Energy Association maintains statistics on the nation's annual capacity of install wind by year. The Production Tax Credit was allowed to expire in 2000, 2002 and 2004. Very little wind capacity was brought online in those years compared to 1999, 2001, 2003 and 2005 and beyond. Without the PTC, very few wind farms would exist in the United States.

As long as these significant tax benefits exist, it would be difficult for staff to overcome the rebuttable presumption that generation facilities located in North Dakota are prudent. This is not to say that the addition of wind in perpetuity will always be the best course of action or prudent. Even with the tax incentives to encourage the build out of wind generation, wind remains an intermittent resource which does little to address base load needs.

There is an additional level of complexity that arises when trying to determine what the proper amount of renewable energy is for a utility's generation portfolio. Absent greater study and analysis, staff believes that the state's renewable energy objective of 10% is a reasonable level. According to its application, NSP has already achieved this level in 2008 (10.3%).

Determination of Prudence for Ashtabula Center

Since the commission has already determined that OTP's Langdon Center was a prudent investment and because staff has recommended approval of its Ashtabula facilities, staff compared the projected costs of NSP's Merricourt Wind Project with Otter Tail's wind projects.

The Merricourt Wind Project cost projections are very comparable to Otter Tail's two wind farm projections as well as reported actual costs to date. NSP's application explains the extensive process it used in determining to invest in Merricourt and staff has no reason to dispute the outcome of that decision making process.

Staff believes the Merricourt Wind Project is a prudent investment when comparing it to other wind farm cases it is familiar with.

While I would prefer to stop here, but I cannot draw a conclusion without first admitting that I have some doubt as to NSP's least cost planning process accomplished through its Integrated Resource Plan. I would be wrong to not state my preference to spend more time reviewing the IRP process and its assumptions prior to making a recommendation on the prudence of such a large investment.

My concern is also raised because NSP has already achieved the renewable objective of 10% set by the North Dakota legislature. I am concerned with the projected cost of coal used in modeling which assumes a low capacity factor and a new site as opposed to a brown field site and a more reasonable capacity factor. NSP is aware of my struggle here and has offered to spend whatever time is needed to accomplish a comfort level with the IRP but time has not permitted it. To add to my frustration, it is my understanding that this project may be put in jeopardy without approval from the commission by June 1, 2009.

Recommendation to Approve

This is a significant investment to North Dakota and a large commitment by NSP to our state. This application represents NSP's response to the concerns expressed by the commission over the years as to NSP's lack of generation facilities within our state. It would not seem plausible to deny this application especially when considering past proceedings and discussions combined with North Dakota's rebuttable presumption law.

Despite my concerns, I cannot overcome the presumption of law and recommend the commission determine that the Merricourt Wind Project is a prudent investment.

Prepared by: Mike Diller