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December 29, 2011

Ms. Patricia Van Gerpen, Executive Director
South Dakota Public Utilities Commission
State Capitol Building
500 East Capitol Avenue
Pierre, South Dakota 57501-5070

Re: Annual Report
Consideration of the new PURPA standards
Docket No. EL08-028

Dear Ms. Van Gerpen:
Northern States Power Company, a Minnesota Corporation operating in South Dakota, respectfully submits this annual report to the South Dakota Public Utilities Commission pursuant to the Commission's December 18, 2009 Order issued in this Docket ("Order").

This Report addresses the requirements of the Order which directed the following:

> *Each electric utility shall file an annual report with the Commission that sets forth (1) smart grid deployment opportunities, (2) why or why not deployment was made, (3) the extent of the deployment, (4) possible deployments that could be made in the forthcoming year, and (5) what considerations will determine whether or not smart grid applications will be deployed, including costs and potential cost savings of deployment. The first report is due December 31, 2010 and the last report is due December 31, 2012.*

SMART GRID ANNUAL REPORT

Smart Grid is the integration of a communications network with electrical equipment, resulting in overall improved management capabilities for the distribution system, and potentially the transmission system. Our approach to Smart Grid is to learn from the current deployments both internal to the Company and within the industry, and implement Smart Grid initiatives at the "pace of value" to our customers and operations.

We provide our response to the Order items below.

1) Smart Grid deployment opportunities.

The Company highlights the following four Smart Grid technologies for implementation:

- *Intelliteam Switches.* The Company is rolling out switches that automatically sectionalize portions of distribution feeders. When an Intelliteam device senses a fault on the system, it quickly determines whether the fault persists, and if so, sends signals to other Intelliteam switches in order to reroute and restore service to the customers on the feeder. This reduces the numbers of customers interrupted and the duration of the interruption. Ultimately this technology may allow us to develop a "self healing" grid where excess capacity from an adjacent section of the power system or any alternate conventional, renewable, distributed energy source or energy storage device could be used to rapidly restore service to sections of the power system.
- *Remote Fault Indicators.* These indicators sense fault current and report this information to our dispatch center using cell phone technology. This knowledge increases our efficiency in dispatching repair crews and ultimately helps reduce the length of the outage. This technology is being implemented as needed on feeders in South Dakota where we have had difficult outage diagnoses.
- *SmartVAR.* Our SmartVAR program provides two-way control technology for managing distribution system capacitors. Capacitors help us to manage the voltage levels on the power system, and are generally operated locally by field crews. In 2010 we conducted a pilot project in Minnesota that "automated" the controls, allowing for remote monitoring and adjustment. This technology allows more rapid adjustment of power system voltage, using a more efficient work practice. We have not yet utilized this technology in South Dakota.
- *Outage Management System ("OMS").* The Company will be performing an upgrade to its OMS in 2012. This upgrade will apply to all equipment throughout the NSP integrated service territory including equipment in South Dakota. The upgrade will implement the following two functional enhancements that support Smart Grid capabilities:
    - The ability to "ping" Cellnet-equipped electric meters to verify line-side service, and receive "last gasp" messages, which Cellnet-equipped electric meters send out when the power supply is disrupted. This data will give us a more complete picture of an outage event's impact, furthering our ability to understand the scope and scale of outage events.

This will aid in prioritizing outage events, making more informed work assignments based on the prioritization, and reducing the number of "okay on arrival" service calls by first verifying line-side power.

- Enhanced integration to the Energy Management/Supervisory Control and Data Acquisition ("EMS" or "SCADA") system to perform monitoring of breakers. This will allow the Company to detect outages prior to getting customer notification, and to positively determine that an outage has occurred, resulting in quicker outage response time.

2) Why or why not deployment was made.

Xcel Energy's Smart Grid strategy is to deploy technologies as they deliver cost effective value to our customers, and in the case of fault detection, on an as-needed basis. Each of the four technologies identified above have demonstrated both operational and customer value in portions of the Xcel Energy system, and we will expand their deployment as appropriate.

3) The extent of the deployment.

The Company currently has seven Intelliteam automated switches and four remote fault indicators installed on our 34.5 kV distribution system in South Dakota. In addition, aside from the few meters of our largest commercial customers which are read via a hand held probe system, 100 percent of our South Dakota meters have been automated, transmitting customer electric usage information through a fixed, wireless communications technology. Further, following the upgrade described the OMS system will be able to provide information from nearly all of our meters in South Dakota.

4) Possible deployments that could be made in the forthcoming year.

The Company continues to review the feasibility of installing additional Intelliteam switch locations in South Dakota, but we do not yet have a firm 2012 implementation plan. We continue to evaluate deployment of other Smart Grid technologies, but do not anticipate additional deployment of those technologies in 2012. However, the Company will be replacing the Remote Terminal Units (RTU's) and communication devices on the Intelliteam switches in 2012.[1] This will provide the latest software and upgrade the hardware. In addition, as described in section (1) above we also intend to upgrade the OMS system.

[1] The RTU is the part of the Intelliteam device that controls the switch and communicates with the other switches.

5) **What considerations will determine whether or not smart grid applications will be deployed, including costs and potential cost savings of deployment?**

As noted above, each application of Smart Grid technology must prove that it provides a positive cost/benefit ratio. We intend to continue to maintain our awareness of new products and technologies, and to continually study the possible application and benefits of new technologies.

Xcel Energy appreciates the opportunity to provide this Smart Grid report. Please let me know of any additional information that we can provide.

Thank you.

Sincerely,

Jim Wilcox