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December 31, 2010

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, (“Xcel Energy” or the “Company”) respectfully submits this annual report to the South Dakota Public Utilities Commission (“Commission”) pursuant to the Commission’s December 18, 2009 Order issued in this Docket (“Order”).

Over the past decade, the Company has taken action to understand how emerging technologies may impact our business and industry. We have also been involved with a number of projects to test and evaluate smart grid technologies.

On December 18, 2009 the Commission issued its order in this matter. That order reads as follows: Each electric utility shall file an annual report with the Commission that sets forth smart grid deployment opportunities, why or why not deployment was made, the extent of the deployment, possible deployments that could be made in the forthcoming year, and 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.

Following are our responses to the specific questions posed in this order:

## 1) Smart grid deployment opportunities.

The Company has identified what we believe to be four of the most promising smart grid technologies for implementation, as follows:

- *Switches that automatically sectionalize portions of distribution feeders.* The Company has implemented a technology termed “Intelliteam,” which is based on the use of automated switching devices. We are evaluating additional, cost-effective deployment opportunities of this technology. When an Intelliteam device senses a fault on the system, it quickly determines whether the fault persists, and if so, it can send 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;
- *Fault detection technology, “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 reduces the length of the outage. This technology will be implemented as needed on feeders in South Dakota where we have had difficult outage diagnoses.
- *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 the Minneapolis/St. Paul area 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 are expecting to complete our evaluation of this pilot project in February 2011.
- *Automated Meter Reading (“AMR”).* Except for a few poor radio signal areas, we completed our roll-out of AMR technology in South Dakota in 2010. We now automatically read almost 100 percent of our 83,000 South Dakota meters with AMR technology.

## 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 six automated switches installed on our 34.5 kV distribution system in South Dakota. In addition, nearly 100 percent of our South Dakota meters have been automated, transmitting customer electric usage information through a fixed, wireless communications technology.

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

The Company is reviewing the feasibility of installing additional automated switch locations in South Dakota, but we do not yet have a firm 2011 implementation plan. We continue to evaluate deployment of other smart grid technologies, but do not anticipate additional deployments of those technologies in 2011.

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

As noted in Item 2) above, each application of smart grid technology must stand on its own, and 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 report of smart grid activities. Please let me know of any additional questions or information that we can provide.

Thank you.

Sincerely,



Jim Wilcox