

215 South Cascade Street  
PO Box 496  
Fergus Falls, Minnesota 56538-0496  
218 739-8200  
[www.otpc.com](http://www.otpc.com) (web site)

December 28, 2012



Ms. Patricia Van Gerpen  
Executive Director  
South Dakota Public Utilities Commission  
Capitol Building, 1st floor  
500 East Capitol Avenue  
Pierre, SD 57501-5070

**Re: 2012 Annual Report Consideration of New PURPA Standards  
Docket No. EL08-028**

Dear Ms. Van Gerpen:

Otter Tail Power Company (“Otter Tail” or “Company”) makes the following filing, pursuant to the South Dakota Public Utilities Commission’s (“Commission’s”) December 18, 2009 Order in Docket EL08-028, its Annual Report regarding smart grid deployment opportunities.

On December 18, 2009, the Commission issued its Order that instructed utilities to file annual reports with the Commission on smart grid deployment opportunities. Reports are due by December 31 each year through 2012. This is the final compliance report.

To summarize our 2012 report, Otter Tail is providing updates to the previous smart grid opportunities listed in last year’s 2011 report. Otter Tail continues to improve on current Smart Grid deployments and identify any new opportunities.

The five questions and Otter Tail’s responses for the 2012 report are shown below.

**1) Smart grid deployment opportunities.**

- MISO Reliability Project – SynchroPhasors: In 2012, Otter Tail installed an additional 8 Phasor Measurement Units (“PMUs”), bringing Otter Tail’s total PMUs installed to 11, located at 8 different substations.

As reported last year, PMU measurements are taken at high speed - typically 30 observations per second compared to 1 every 4 seconds using conventional technology. Each measurement is time-stamped according to a common time reference. Time-stamping allows SynchroPhasors from different utilities to be time-aligned (or “synchronized”) and combined together, providing a precise and comprehensive view of the entire interconnection. SynchroPhasors enable a better indication of grid stress, and can be used to trigger corrective actions to maintain reliability.

- Distribution Automation: Otter Tail continues to work on this project, but at this time there are no significant updates to report.
- Conservation Voltage Reduction: Otter Tail has begun exploration of opportunities with a consultant performing a study looking at the efficiencies of installing a system on the feeders in Fergus Falls. These systems would enable communication between devices on the distribution system to manage voltage levels. Energy savings have been demonstrated through reduction in line losses by employing conservation voltage reduction.
- “Smart” Information: In 2012, Otter Tail continued to utilize Bill Analyzer, Opower<sup>[1]</sup> home energy reports, and Power Profiler, to present energy usage information, analysis, and benchmarking to customers. Otter Tail continues to examine other opportunities to link “Smart” Information to “how and when” customers utilize energy.
- Web Services: Otter Tail continues to work on this project, but at this time there are no significant updates to report.
- Mobile Data Project: In 2012, Otter Tail expanded its use of mobile computers from the service representatives to the work crew vehicles. Similar benefits gained in the previous project are expected – especially in the areas of mapping and outage restoration.
- Interruption Reporting Availability to Customers: Otter Tail continues to provide real time feeder level interruption information to all customers via the Otter Tail company web site. This is handled with our web based Interruption Monitoring System (“IMS”). Data from the IMS is extracted and integrated with Google Maps, providing a graphical output of interruptions within our service territory. The Company continues to expand alarm and notification capabilities with individual customers, placing voltage monitors on customer’s sites, capable of monitoring voltage interruptions or voltage level disturbances. When these voltage events occur, devices send out alarms to both internal staff and external customers, notifying them of the voltage events taking place. Currently, the system is set up for Ms. Deb Gregg, Consumer Affairs Manager, South Dakota Public Utilities Commission, to receive an email alarm notification, anytime there is a momentary or sustained interruption in the city of Milbank, SD.

---

<sup>[1]</sup> Opower home energy reports are provided to Minnesota customers only at this time. See <http://opower.com/what-is-opower> for more information on the home energy reports.

- Load Management System Infrastructure Improvements: Otter Tail implemented change-outs of our mobile radio devices throughout 2011 and 2012 in preparation for the Federal Communications Commission (“FCC”) radio frequency 12.5KHz efficiency technology (narrowbanding) regulations, which will go into effect January 1, 2013. The mobile radio devices utilize an FCC license for voice as primary use and data as secondary use. This communications system is the backbone of our load management system. Radio receivers installed at customer premises receive data control signals from Otter Tail using this FCC license.
- Automated Meter Reading (“AMR”) or Advanced Meter Infrastructure (“AMI”): In 2012, Otter Tail did not expand any of their existing AMR capability or add any AMI technology. However, Otter Tail continues to evaluate opportunities to employ AMI and/or AMR technology throughout our service territory. The Company continues to meet with vendors and other utilities to assess costs, learn from the lessons of others, and assess the fit with the Company’s existing infrastructure.

Otter Tail is evaluating whether to include a demand-side alternative in the next resource plan that would use AMR/AMI as a way to improve the measurement and verification of the Load Management System. Interval data obtained by an AMR or AMI system would be analyzed to identify non-participating, controllable loads. This analysis would allow the Company to correct installation, equipment, or communication errors and improve the overall effectiveness of the Load Management System. Benefits of AMI include customer service enhancements, remote disconnects, voltage optimization, remote meter reading, and outage management.

- Geographic Information System (“GIS”): Otter Tail continues development of a GIS that will enhance communication with employees and customers, leverage existing technologies to track and manage the Company’s assets more efficiently, and provide geo-spatial information of the Company’s assets along with related attributes and detail. The GIS will ultimately provide a single source for asset information thereby eliminating inefficiencies related to having information in disparate locations. Spatial business intelligence through the GIS is expected to provide a platform for data management, strategic planning and analysis, and workforce automation. In addition, the GIS will provide engineering and operational support and can be leveraged to improve outage management and enhance situational awareness.
- Fleet Tracking Services: In November 2012, Otter Tail selected the vendor NexTraq to provide fleet tracking services for a pilot of 27 vehicles located throughout the Company’s service territory and used for a variety of purposes. The fleet tracking service provides a global positioning system (“GPS”) device installed in Company vehicles and allows for tracking vehicle use, location, performance, idle time, and driver compliance with state laws. Data is available on the web and should eventually overlay a GIS base map. The service is expected to assist in providing more efficient customer service, reduce costs, and provide employee location information which could be leveraged in times of outages.

**2) Why or why not deployment was made.**

As discussed in previous filings, deployments were made either as an investigation to determine potential benefits or they were proven on a cost/benefit basis. If they were not made, the costs outweighed the benefits.

**3) The extent of the deployment.**

Generally, deployments will initially occur where cost/benefits are maximized and expanded to include, if possible, all of Otter Tail's territory.

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

In 2013, Otter Tail will continue to evaluate adding additional PMU's, distribution automation, conservation voltage reduction, AMR/AMI technologies, and opportunities to leverage existing systems that are described above. No other specific investment for new smart grid deployments are identified for 2013 at this time.

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

As Otter Tail previously offered in EL08-028, we support reasonable, cost-effective investments that produce net societal benefits. We continue to seek flexible and reasonable legislation that produces meaningful benefits to our customers. We are also open to discussions on the most appropriate methods to advance useful and cost-effective measures regarding the smart grid and other industry-related issues.

Otter Tail will continue to monitor and consider other smart grid type installations at other utilities and regional independent system operating areas.

If you have any questions regarding this filing, please contact me at 218-739-8595 or [dprazak@otpc.com](mailto:dprazak@otpc.com).

Sincerely,

*/s/ DAVID G. PRAZAK*

David G. Prazak

Supervisor, Pricing & Load Research

wao

By electronic filing