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DEPARTMENT OF COMMERCE
Office of Consumer Services

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Date: September 10, 2013

Subject: Docket No. 13-035-119 (08-999-05) – Smart Grid Monitoring Report

Background

On July 12, 2013, Rocky Mountain Power (Company) filed its 2013 Annual Smart Grid Monitoring Report (2013 Report) and appendices as ordered by the Utah Public Service Commission (Commission) on November 30, 2011, in Docket No. 08-999-05.

On August 21, 2013, the Commission issued a notice of filing and comment period allowing interested parties to submit comments on the Report on or before Tuesday, September, 10, 2013. Reply comments may be submitted on or before September 25, 2013.

Following are the comments and recommendations of the Office of Consumer Services (Office) regarding the 2013 Smart Grid Monitoring Report.

Discussion

This is the second Smart Grid Report to be filed by the Company following the Commission's 2011 Order.[1] Understandably much of the content of the 2013 Report is similar to the 2012 report. However, from the Office's perspective the layout of the 2013

[1] On August 17, 2011 the Company filed a report on Smart Grid Technologies. This report and parties comments led to the Commission's November 11, 2011 order.

Report as well as the inclusion of the location of Commission requirements within the Report are enhancements.

Overall the Report is informative in providing a basic understanding of the general elements of Smart Grid as well as the potential benefits to be obtained and the associated costs. For purposes of the 2013 Report the Company considers Smart Grid in general terms as "a system of communications networks coupled with automated control of the power grid and end-use devices, along with enhanced customer awareness of their electricity use and its impact". While this may seem a broad definition the Office recognizes that Smart Grid does not have a specific definition that has widespread agreement among utilities, regulators, consumer advocates and others.[2] As a more precise definition gains wide acceptance the Company's focus should narrow or be revised accordingly.

2013 Report Overview

As in the 2012 report, the Company again focuses on technologies that do not require major electrical system changes and can be readily integrated with the existing infrastructure. The study includes fully redundant (self-healing) distribution systems, distributed energy systems (including electric vehicles) and direct load control programs although these elements were not considered in the financial analysis.

The components examined in the study have quantifiable costs and benefits which the Company used in order to estimate the potential of investing in those technologies. However, the Company notes that many of the benefits are variable and depend on external factors. Some of the more important factors include: changes in consumer behavior, values of the forward capacity and energy markets, percent of customer base participating in dynamic pricing programs and overall energy conservation.

While there is still a great deal of uncertainty with technology, costs and customer acceptance, based on the Company's analysis, the net present value of implementing a comprehensive smart grid throughout its territory is negative at this time.[3]

Commission Requirements from the 2011 Order

A list of seven requirements for inclusion in future smart grid reports are identified at page 10 of the Commission's November 30, 2011 Order. As noted above the Company's cover letter identifies these seven requirements. However, the Commission's Report actually specifies three additional requirements:

1) "All future smart grid annual reports should be included as a discussion item at the next DSM advisory group meeting following submittal of the report."

[2] Although the Smart Grid concept is becoming more defined "Smart Grid" is still subject to various interpretations.

[3] Supporting documentation such as confidential workpapers, cost effectiveness analysis and inputs supporting the analysis were provided by the Company.

2) "Therefore, in future filings we direct the Company to provide the worksheets and assumptions supporting the Financial Summary or other such analyses validating its results."

3) "We also direct the Company to explain the relationship between the analysis provided in the Financial Summary and the demand side resource performance standards approved by the Commission in Docket No. 09-035-27,…"[4]

Following are the Office's comments on all ten requirements.

1) All future smart grid annual reports should be included as a discussion item at the next DSM advisory group meeting following submittal of the report.

   Office Response:

   The 2013 Report was filed on July 12, 2013. The next DSM advisory group meeting was held on August 21, 2013. At that meeting an update was provided regarding the Energy Storage Pilot Project (described below) that the Company had been supporting. No other information regarding the Smart Grid Report was shared. The Office recognizes that there was a full agenda for that meeting however the Commission's order is specific about inclusion of a smart grid report discussion. The Office recommends that the Company institute better coordination between the Company's Smart Grid group and the DSM group so that this requirement will be met in the future.

2) Worksheets and assumptions supporting the Financial Summary or other such analyses validating its results in future filings.

   Office Response:

   As required the Company provided confidential worksheets, input assumption and benefit/cost results supporting its financial summary.

3) An explanation of the relationship between the analyses provided in the Financial Summary and the demand side resource performance standards approved by the Commission in Docket 09-035-27.

   Office Response:

   As in its 2012 report the Company provided an economic analysis that demonstrates the Smart Grid elements it selected are not currently cost effective. Although demand side management programs are mentioned in the 2013 Report, there is no explanation of the relationship between the analysis provided in the Financial Summary and DSM performance standards.

   Based on a discussion with the Company the Office understands that the Company intends to compile and provide this information within a few weeks.

4) A discussion (including project/activity description, cost, status, results and pertinent cost/benefit information) of all smart-grid related projects and activities

[4] Docket No. 08-999-05, Report and Order, November 30, 2011 pages 9 – 10.

the Company is actually engaged in throughout its system (e.g., tests of transmission synchrophasors, energy storage projects, voltage support projects).

Office Response:

The 2013 Report identifies several smart-grid related projects that the Company is currently evaluating on a pilot basis. The status and results, where currently available are provided. However, complete cost and cost/benefit information is not provided for all projects.[5]

- Conservation Voltage Reduction (CVR) pilot project in Washington. Four circuits were selected for a 2012 CVR pilot project. It was estimated that 0.09 aMW could be acquired through these circuits, however less than 0.01 aMW was achieved. Furthermore, all four circuits failed to meet the protocol required for rigorous measurement and verification and the energy savings could not be verified by the approved method. For one of the projects the Company estimated the cost of energy savings was $112.49/MWh, which is 23% higher than the avoided purchase energy rate used in Washington.

  The Company concludes that its existing voltage management and system improvement practices are better than assumed in some regional and national estimates and likely diminish any potential financial benefits from CVR.

- Transmission Synchrophasor Demonstration Project (TSP). In conjunction with the Western Electricity Coordinating Council (WECC) PacifiCorp has committed funding to engage in planning, design, engineering and operation activities to identify and deploy synchrophasor technology at the most effective locations on PacifiCorp's system to benefit customers and the WECC region. Installations have come in under budget, permitting installations of phasor measurement units (PMU) at three additional substations. The Company describes how information will be fed to WECC and how the Company will be able to see the real time data provided at the participating PMU sites in the Western Interconnection.

  In the 2012 report the Company indicated $800,000 had been committed to this project. In this Report the current status of the project and the scheduled completion date are provide; however no costs or benefit/cost information is included.

- Dynamic Line Ratings (DLR) Projects. The Company describes two DLR equipment installations one of which received approval from WECC in early 2013. The second project is currently under construction and

[5] Confidential cost and cost/benefit information is provided for the Dynamic Line Ratings Project (DLR). Estimated cost of energy savings is provided for one of the Conservation Voltage Reduction projects in Washington.

expected to be operational in spring 2014. The Company indicates that it is currently collecting data to analyze the benefits of the first DLR system. Cost information for each project is provided in Confidential Attachment B as well as a comparison of the cost of alternative approaches considered by the Company.

5) A discussion of any smart grid-like activities the Company is either considering or has implemented which accrue some of the benefits of smart grid.

   Office Response:

   The Company is in the process of implementing a pilot project in the Rocky Mountain Power area to fully ascertain the costs and benefits of Communicating Faulted Circuit Indicators (CFCI). CFCIs can send alerts to operations centers and mobile troubleshooters and enable the ability to log data for engineering, planning and analysis. Less than 60 circuits in the Rocky Mountain territory had a positive cost/benefit ratio in the preliminary analyses. The Company states it will provide updates in future Smart Grid reports.

6) A discussion of upgrades or changes the Company is making relative to potential smart grid implementation and the related benefit-cost analyses.

   Office Response:

   See number 3 above.

7) A list and description of smart grid pilot projects across the country being monitored by the Company.

   Office Response:

   The Company states that the Smart Grid department researches projects around the country to assess technologies that may benefit the Company and its customers. Appendix B provides a summary of what the Company considers to be the most relevant projects from four western utility companies. Descriptions of the smart grid technologies/projects are provided as well as associated costs for some of those projects.

8) A description of smart grid-related activities and requirements in the Company's other jurisdictions.

   Office Response:

   The Company identified two activities/requirements in this category:

   - The Washington conservation voltage reduction (CVR) project is described under number 3 above.
   - The Company is required to provide Smart Grid Reports in Washington, Oregon and Wyoming.

   The Office notes a third item listed in the 2013 Report which, based on the Company's description, may also qualify as a smart-grid related activity.

- At page 5 of the Report the Company identifies several short-term objectives one of which is to "draft an advanced meter solution for Oregon by the end of 2014". In a meeting with the Company it was explained that the issue relates to a concern that installation of AMR may be a barrier to Smart Grid development.

Although the Company did not include this item in the category of smart grid-related activities the Office recommends that requirements of this nature should continue to be included in future reports. Additionally the Company should include a short description of the issue so that the reader has some idea of what the project is and the reason for the project if appropriate.

9) An explanation of the interaction of smart grid, possible rate structures, and consumer behavior.

Office Response:

The Company asserts that an important variable in achieving the benefits of smart grid is changes in consumer behavior. Further, the Company states that "without specific and mandatory time-of-use (TOU) [rates] coupled with critical peak pricing structures consumers are unlikely to have the incentive to make the behavioral changes required to realize the benefits of a smart grid". The Company describes three scenarios but all begin with mandatory TOU rates.

In our comments on the 2012 report we expressed concern that mandatory participation in TOU rates or critical peak pricing should not become a foregone conclusion without additional analysis if/when the Company makes an actual demand response proposal. We continue to have those concerns.

The 2013 Report stresses the importance of changes in consumer behavior and points to what the Company considers a successful consumer education program in Texas. An estimate of the cost to conduct a similar effort in PacifiCorp's service territory is provided.

10) A discussion of vehicle to grid applications in the Plug-In Electric Vehicle section of the Report.

Office Response:

The 2013 Report describes near term expectations for plug-in electric vehicles as well as longer term prospects for electric vehicle penetration and vehicle-to-grid applications. The Company asserts that in order to avoid adverse impacts development of interoperability standards will be required as well as changes to electric price tariffs, electric service schedules and building codes.

The Company identifies valid concerns however the Office encourages the Company to take a more proactive approach regarding preparation for wider spread use of electric vehicles. There is clearly a push toward the use of more

clean energy vehicles[6] and early preparation may avoid future problems that could arise with filling a sudden need or requirements.[7]

11) Worksheets and assumptions supporting the Financial Summary or other such analyses validating its results in future filings.

Office Response:

As required the Company provided confidential worksheets, input assumption and benefit/cost results supporting its financial summary.

Additional Information

In the category of smart-grid related projects and activities the Company is actually engaged in (# 3 above) the 2012 report included a discussion of a Utah Energy Storage Demonstration Project conducted in collaboration with EMB Energy Inc. The 2013 Report includes a section on centralized energy storage (CES). As part of that discussion the Company explains that due to issues with EMB Energy, Inc's., financing and delays in providing results PacifiCorp has decided to terminate its involvement in the Energy Storage Demonstration Project. The Company does not explain how much of the proposed budget has been spent although from the DSM Advisory Group meeting slides the Office understands it is a small portion of the projected budget.

Conclusion

It is clear that the Company has put substantial effort into creating a document to fulfill the Commission's order and provide useful information to the reader. For the most part the 2013 Report meets the Commission's requirements but the Office has identified several place were the requirements are not fully met.

1) not all costs and cost/benefits are provided for current smart-grid related activities;

2) the 2013 Report was not discussed at the DSM advisory group meeting; and

3) there is no explanation of the relationship between the analyses provided in the Financial Summary and demand side resource performance standards;

In our comments on the 2012 report we recommended that the Company include an index or other means of identifying the location within the report of compliance with Commission ordered requirements. We appreciate the Company's efforts to incorporate this suggestion by including that information in the cover letter and found it to be helpful in our review. For future reports we suggest the Company go one step further and also include that information in the report or as an appendix or attachment since the cover

[6] As evidenced by S.B. 275 which enacts provisions relating to facilitating the conversion to alternative fuel vehicles and the provision of facilities for alternative fuel vehicles. Although focused on natural gas vehicles and infrastructure public comment was broadly supportive of electric vehicles.

[7] The Office notes that on September 6, 2013 the Company filed with the Commission a request to add language to Electric Service Regulation No. 4 related to Electric Vehicle Charging, which is a good first step in proactively addressing electric vehicle issues.

letter is presented as a separate document and may not always accompany the report. As noted above three of the Commission's requirements for smart grid reports were not provided in the list and all requirements were not fully met in the document. The Office asserts that including a complete list of requirements will be beneficial not only to the reader but will assist the Company in ensuring it is in full compliance with Commission requirements.

The Office expects that future reports will continue to contain a certain amount of redundancy coupled with updated and new information. The Company has produced a well written document and should continue to build on that effort.

Recommendations

The Office recommends that for future smart grid reports the Commission require the Company to:

1) Include an index or other means of identifying the location within the report of compliance with all Commission ordered requirements.
2) Fully comply with Commission orders or provide an explanation in each area of non-compliance.
3) Institute better coordination between the Company's Smart Grid group and the DSM group regarding the discussion of the annual Smart Grid Report at the DSM advisory group.