December 14, 2015

UTAH PUBLIC SERVICE COMMISSION
Heber M. Wells Building
160 East 300 South, 4th Floor
Salt Lake City, UT 84111

RE: Docket No. 15-035-63 – In the Matter of Rocky Mountain Power's Smart Grid Monitoring Report
Docket No. 08-999-05 – In the Matter of the Consideration of the Amendment of Title 16 U.S.C. 2621(d) and the Addition of Title 42 U.S.C. 6344 by the U.S. Energy Independence and Security Act of 2007

Background

Western Resource Advocates (WRA) appreciates this opportunity to provide comments in support of Utah Clean Energy's comments submitted in the above referenced matter.[1] WRA is a regional non-profit conservation organization with programs and staff spanning the Intermountain West, including Utah. WRA's mission is to protect the land, air and water of the western region – using law, science, economics, advocacy, education, and action. To this end, WRA works to improve air quality, curb climate change and achieve environmentally sustainable management of energy, land, and water resources.

Comments

Specifically, WRA recommends that the Commission decline to eliminate the Company's[2] smart grid monitoring and reporting requirements. In addition, WRA supports Utah Clean Energy's recommendations related to the need for grid modernization workshops and transparent distribution system planning. Indeed, through a more transparent process that encourages conversations with the utility, stakeholders and technical experts, all parties can become better

[1] Specifically, WRA submits these comments in support of the comments provided to the Utah Public Service Commission by Utah Clean Energy on November 23, 2015. Those comments provided a detailed description of the procedural history in this matter and are incorporated by reference herein.
[2] "The Company" refers to PacifiCorp. PacifiCorp delivers power to Utah consumers through its subsidiary in Utah, Rocky Mountain Power.

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informed of existing and future technologies that can produce a more robust and reliable electric system in Utah.

Distribution grid modernization should be an important aspect of every utility's investment plan. The "smart" (or flexible) grid is a term that has been used to represent a distribution grid that is more automated, more adaptable, more resilient, and more manageable than current distribution grids. These characteristics enable the distribution grid to provide customers with improved reliability, better disaster recovery, easier incorporation of new technology and distributed resources (including renewables and electric vehicles), and lower energy bills. Smart grid technology is evolving quickly and it is therefore prudent for the Company to continue studying and evaluating new technology, new applications and better economics as they evolve. While the Company has not yet made the leap to invest in AMI "smart" meters,[3] there is no doubt that when their current metering technology is outdated, AMI meters will be the only sensible path forward. At that time, it will be critical for the Commission to understand the advantages of the smart grid and the many improvements to the grid that can be implemented after AMI meters are installed at every customer location. The requirement for the Company to provide the Commission with a yearly report makes ultimate sense in this environment of changing technology, changing customer needs and changing economics.

In addition to the inevitable future adoption of AMI infrastructure, the Company has recently proposed to significantly increase its investment in distributed energy resources, which necessarily implicates the need for smart grid technology.[4] The table on the following page summarizes a sampling of the Company's current or planned activities in Utah (activities that should be updated in future smart grid reports) related to distributed energy resources.

[3] "AMI" stands for Advanced Metering Infrastructure. Advanced metering systems enable measurement of detailed, time-based information and frequent collection and transmittal of this information to various parties. AMI typically refers to the full measurement and collection system that includes meters at the customer site, communication networks between the customer and utility, and data reception and management systems that make the information available to the utility. ELECTRIC POWER RESEARCH INSTITUTE, ADVANCED METERING INFRASTRUCTURE 1 (2007).
[4] As penetration levels of distributed generation increase, concerns about the stability and operation of the electricity system could create barriers to further development. Rather than discourage further development, by enhancing existing distribution systems so that they are truly "smart" grids, many of these barriers can be removed (or at least reduced). This will in turn encourage further deployment of renewable energy on the customer side without sacrificing reliability. LISA SCHWARTZ & PAUL SHEAFFER, IS IT SMART IF IT'S NOT CLEAN?: SMART GRID, CONSUMER ENERGY EFFICIENCY, AND DISTRIBUTED GENERATION (PART TWO) 8 (2011).

Program	Summary
Utah Sustainable Transportation and Energy Plan (STEP)[5]	(1) Electric Vehicles (EVs): Proposes to add at least 20,000 EVs to Utah's highways through EV incentives and EV charging infrastructure. (2) Time of Use (TOU) Pricing: TOU pricing signals will be offered to reduce adverse impacts from increased demand placed on the grid by additional EVs. (3) Solar: Solar programs, including the Subscriber Solar Program, will be offered in order to increase customer access to rooftop solar.
Rate Schedule 32	Implemented before the Subscriber Solar Program, Rate Schedule 32 is designed to enable large energy customers to buy power directly from Utah renewable energy developers.[6]
CAISO/PacifiCorp Market	Already a participant in the Energy Imbalance Market, on April 14, 2015, PacifiCorp (and the CAISO) released an MOU announcing their joint decision to explore the feasibility, costs and benefits of PacifiCorp fully joining the CAISO as a participating transmission owner.[7] Joining the CAISO market will enable PacifiCorp to access CAISO's renewable energy resources.

One example supporting the value of upholding the utility's ongoing smart grid reporting requirements is Rocky Mountain Power's STEP proposal in Utah. In the utility's most recent smart grid report, it discussed TOU rates and focused on the results of a two-year TOU rate pilot program in Oregon.[8] With Rocky Mountain Power now planning to implement TOU pricing specifically in support of additional EVs and EV-related infrastructure through its STEP proposal, the timing is ripe for increased smart grid reporting – not less.

Another example supporting the value of regular smart grid reporting is the possibility of PacifiCorp joining the CAISO. Participation in CAISO's market will involve not only a larger operational footprint, but greater access to additional distributed energy resources.[9] Participation

[5] Rocky Mountain Power formally announced the launch of its STEP initiative at the October 27, 2015 Utah Air & Energy Symposium, hosted by the Governor's Office of Energy Development. Because STEP is currently under development, many issues remain unclear, including how the utility plans to fund the many initiatives under STEP.
[6] Although Rate Schedule 32 was only approved recently, in May 2015, many customers have found it to not be a viable option for procuring renewable energy. A number of concerns have been raised with Rate Schedule 32, most often related to contract limitations (related to power demand) and high daily demand charges. The Subscriber Solar Program was developed as an alternative to Rate Schedule 32.
[7] Initial study results revealed that a regional ISO could net an annual gross cost savings between $153 million and $355 million in 2024 for PacifiCorp and CAISO customers. Those savings increase to a range of $402 million and $1.2 billion in 2030. ENERGY AND ENVIRONMENTAL ECONOMICS, REGIONAL COORDINATION IN THE WEST: BENEFITS OF PACIFICORP AND CALIFORNIA ISO INTEGRATION (2015), http://www.caiso.com/Documents/StudyBenefits-PacifiCorp-ISOIntegration.pdf.
[8] PACIFICORP, SMART GRID ANNUAL REPORT 25 (2015).
[9] It is worth noting that as part of the Company's current smart grid reporting requirements to the Commission, it is charged with reporting not only on distributed energy resources and distribution grid enhancements, but on

in a larger market will likely result in increased operational efficiencies and possibly lower implementation costs for smart grid technologies. With such important operational changes potentially on the horizon (that may ultimately lead to increased adoption of smart grid technologies by the utility), timely, accurate and transparent smart grid reporting is more critical than ever.

Case Study: Conservation Voltage Reduction/Distribution Voltage Optimization

A case study on important flexible grid technology can be particularly illustrative of the benefits of smart grid reporting, as this type of reporting is not only important for sharing information regarding the utility's *current* initiatives, but is also important for analyzing the potential for *new* initiatives that may benefit the distribution system in Utah.

Utilities and utility commissions across the country are becoming interested in the benefits of Conservation Voltage Reduction (CVR) – also called Distribution Voltage Optimization (DVO) – and Integrated Volt VAR Optimization (IVVO). The National Association of Regulatory Commissions (NARUC) has recommended that commissions adopt CVR/IVVO as an energy efficiency strategy and to encourage utilities to invest in the technology.[10]

For purposes of background, utilities typically operate their distribution grids at voltages that are higher than necessary, as national standards allow a wide range of voltage at the customer's location. Before smart grids, utilities had no way to know in real time what the voltages actually were at the customer location. Rather, they typically set voltages high to avoid potentially low voltages.[11] This wastes energy and raises customer bills unnecessarily. With smart grid technology, utilities can monitor voltages at customer locations and set voltages to lower ranges that conserve energy. Studies and pilots in multiple states have predicted and confirmed that between 2% and 3% of all energy use can be avoided by lowering voltages with CVR.[12]

transmission network and operations enhancements, as well. Therefore, PacifiCorp's consideration to join the CAISO is relevant to the Company's ongoing smart grid reporting requirements.

[10] NARUC, RESOLUTION SUPPORTING THE RAPID DEPLOYMENT OF VOLTAGE OPTIMIZATION TECHNOLOGIES (2012), http://www.naruc.org/policy/Resolutions.cfm.

[11] Thor Skov, *Trending Toward Distributed Voltage Optimization: A Simple Solution Overlooked*, TRANSMISSION & DISTRIBUTION WORLD (June 4, 2013, 11:12 a.m.), http://www.microplanet.com/content/2013/10/Trending-Toward-Distributed-Voltage-Optimization.pdf.

[12] KP SCHNEIDER ET AL., EVALUATION OF CONSERVATION VOLTAGE REDUCTION (CVR) ON A NATIONAL LEVEL (2010), http://www.pnl.gov/main/publications/external/technical_reports/PNNL-19596.pdf.

Colorado, Nevada and Arizona

In 2014, Xcel Energy announced a five-year plan to increase energy savings through use of non-traditional products, including voltage control.[13] Xcel has proposed implementing DVO system-wide during 2015-2020. The cost is estimated to be $92M with projected energy savings of 506 GWh per year (1.8% of total electricity consumption) and peak demand reduction of 56 MW at the end of the five-year period.[14] Xcel is proposing to implement DVO as part of its DSM program because the vast majority of the benefits are the energy savings experienced by customers, even though the investment is made in the utility's distribution system.[15] Adding DVO as a DSM program would increase energy savings during 2015-2020 by 21% relative to the energy savings goals for Xcel's traditional DSM programs during this period.[16] The Colorado PUC approved including DVO in the utility's 2015-2016 DSM Programs Plan.

In 2015, NV Energy instituted a large CVR pilot project in six substations and affecting about 50,000 customers. The Nevada PUC authorized this pilot project and results should be released in Q1 2016.[17] Additionally, Arizona utilities Arizona Public Service and Tucson Electric Power have CVR pilot projects currently underway on 17 feeders and four feeders, respectively.[18]

Utah

In 2011 and 2012, the Company completed a CVR Study and Assessment. The first set of results, focused on four circuits in rural Washington, found relatively low energy savings.[19] The second set of results, focused on all circuits in Oregon, Idaho, Wyoming and Utah, concluded that CVR would not provide significant energy savings in a cost-effective manner in any of these states.[20] Comments filed by the Southwest Energy Efficiency Project (SWEEP) and WRA on

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[13] Mark Jaffe, *Xcel Tries to Generate Efficiency Among Customers*, THE DENVER POST, Feb. 2, 2014, http://www.denverpost.com/business/ci_25039028/xcel-tries-generate-efficiency-among-customers.
[14] HOWARD GELLER ET AL., MAINTAINING HIGH LEVELS OF ENERGY SAVINGS FROM UTILITY ENERGY EFFICIENCY PROGRAMS: STRATEGIES FROM THE SOUTHWEST (2014), http://aceee.org/files/proceedings/2014/data/papers/5-936.pdf.
[15] *Id.*
[16] *Id.*
[17] Ken Wilson, Western Resource Advocates, Distribution Voltage Optimization: Energy Savings for All Customers through Investment in Grid Technology (Nov. 12, 2015).
[18] *Id.*
[19] Ken Wilson and Howard Geller, COMMENTS ON PACIFICORP'S CONSERVATION VOLTAGE REDUCTION STUDY AND ASSESSMENT (May 23, 2014), http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2015IRP/2015Comments/Comment_UT_UCE_CVRStudy-8-12-14.pdf
[20] PACIFICORP, 2013 INTEGRATED RESOURCE PLAN (VOL. 2) 67-70 (2013).

May 23, 2014 as part of PacifiCorp's 2015 IRP, encouraged the utility to reconsider the value of CVR and DVO in light of recent technological advancements and positive case study results from the Department of Energy and Xcel Energy.[21]

To date, the Company has not indicated whether it will conduct a follow-up study to evaluate the value of CVR and/or DVO on its system.[22] As this case study demonstrates, technology is constantly changing (particularly in the world of smart grid), and regular reporting by the utility is therefore crucial to ensure that interested parties stay informed on the latest smart grid technologies and, perhaps more importantly, the Company's progress with adopting these important distribution system upgrades.

Conclusion

Western Resource Advocates appreciates the opportunity to submit these comments in response to the Commission's Notice of Comment Period on this issue.

Respectfully submitted this 14th day of December, 2015.

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[21] Ken Wilson and Howard Geller, *supra* note 19.
[22] In PacifiCorp's 2015 Smart Grid Report, under its CVR discussion, the Company indicated that it would examine a new circuit analysis application known as "Cyme." Cyme is described as a technology that can allow better customer load modeling and time series analysis. However, it remains unclear whether the Company will further examine the benefits of CVR or DVO implementation, specifically. PACIFICORP, SMART GRID ANNUAL REPORT 18-19 (2015).