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DEPARTMENT OF COMMERCE  
Office of Consumer Services

MICHELE BECK  
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To: Public Service Commission of Utah

From: Office of Consumer Services  
Michele Beck, Director  
Cheryl Murray, Utility Analyst

Date: September 15, 2017

Subject: In the Matter of the Application of Rocky Mountain Power to Implement Programs Authorized by the Sustainable Transportation and Energy Plan Act. Docket No. 16-035-36.

## Background

On August 15, 2017, Rocky Mountain Power (Company) filed a request with the Public Service Commission of Utah (Commission) for authorization to implement two innovative utility programs pursuant to Senate Bill 115—Sustainable Transportation and Energy Act (STEP).<sup>1</sup>

On August 18, 2017, the Commission issued a Notice of Filing and Comment Period which set a deadline of September 15, 2017 for parties to file comments and a deadline of September 29, 2017 for parties to file reply comments.

## Discussion

### *Smart Inverter Program*

The Company seeks authorization to spend up to \$450,000 on the Smart Inverter Program to conduct a study in collaboration with Utah State University (USU) and the Electric Power Research Institute (EPRI)<sup>2</sup>. The Company describes the Smart Inverter Program, including areas of study, and provides support for its request in Exhibit A, “Investment Justification for Smart Inverter Project” attached to its application. The Smart Inverter Program “will investigate the capabilities of smart inverters and their impact on and benefit to the Company’s distribution system”.<sup>3</sup>

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<sup>1</sup> This is the fourth tranche of Rocky Mountain Power’s proposed programs pursuant to STEP.

<sup>2</sup> “This project is fundamentally an educational project...” Application, Exhibit A, page 13.

<sup>3</sup> Application at 5, page 3.

### 1. *Potential Benefits*

The Company states that currently, performance measurement factors and best practices for deploying and operating smart inverters on the distribution system are not well known. This study should help ascertain if there are benefits to be gained from smart inverters.

The Office of Consumer Services (Office) recognizes that there has been substantial growth in the number of customers installing distributed energy resources in recent years and growth is expected to continue. In conjunction with this growth the use of smart inverters could become more common place just as the amount of distributed energy on the Company's system has increased in a relatively short period of time. Understanding the implications, including costs and benefits, of smart inverter usage for distribution systems prior to any widespread application should be advantageous in helping avoid potential complications.

### 2. *Interconnection Policy*

The Company adheres to Institute of Electrical and Electronics Engineers (IEEE) 1547 interconnection standards, which are currently being revised and expected to be issued in early 2018. The Company expects to be able to utilize information from the smart inverter study to develop guidelines for smart inverter settings for various penetration levels of distributed energy resources, rather than adopting the default inverter settings from IEEE 1547. The Company notes that "incorrect settings could produce a sizeable negative impact on voltage levels, variability, and regulating equipment operations."<sup>4</sup>

The Office asserts that having appropriate interconnection policies in place, to the extent possible, is in the public interest and will likely decrease potential future problems. Obtaining pertinent information to develop those policies should be a positive outcome of the Smart Inverter Program. Further, developing inverter settings based on the Company's system should help prevent problems as the use of smart inverters increases.

### 3. *Company Reporting*

The Company intends to report back to the Commission in January 2019 "regarding the actual expenditures made for the project and provide a report summarizing the overall study objectives, work performed, findings and results, lessons learned, recommendations as well as tools and research reports purchased. If it is necessary to report more often to comply with the STEP statute or other reporting requirement, the Company will comply with those requirements."<sup>5</sup>

The Office recommends that the Company should not only provide the January 2019 report but also be required to follow all reporting requirements previously ordered in this docket.

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<sup>4</sup> Application Exhibit A, Investment Justification for Smart Inverter Project. Date: May 24, 2017, page 12.

<sup>5</sup> Ibid, page 13.

### *Microgrid Program*

The second innovative utility project in the Company's request is a microgrid demonstration project at the Utah State University Electric Vehicle Roadway (USU EVR) research facility and test track. Included with its application the Company provides Exhibit B, "Investment Justification for Microgrid Project". As with Exhibit A for the Smart Inverter Project this document describes the program and provides the Company's support for the Microgrid Project.

As distributed energy resources interconnected to the grid increase the Company anticipates that light industrial and commercial customers may choose to operate as microgrids in order to improve their energy costs and reliability. Operating as a microgrid provides customers the ability to isolate their facility from the grid during power disturbances and/or outage situations.

The Microgrid Program will examine a number of issues related to microgrids but two areas of study deal with issues similar to the Smart Inverter Program, potential system benefits of microgrids and interconnection issues.

#### *1. Potential Benefits*

The Company indicates that the Microgrid Program will help determine the feasibility of microgrids providing ancillary services.

The Office asserts that determining if microgrids can provide ancillary services or other benefits is a worthwhile aspect of this project. However, it is important to consider not just the benefits but any costs associated with obtaining those benefits and any negative impacts that may be created by microgrids. We believe that this will be part of the Company's undertaking.

#### *2. Interconnection*

Through the Microgrid Program the Company expects to gain an understanding of the impacts on the Company's distribution system to inform interconnection policy and standards for integrating microgrids.

As stated above the Office believes that gaining knowledge to develop appropriate interconnection policies and standards is a beneficial undertaking and could be an important outcome of the Microgrid Program.

#### *3. Company Reporting*

The Company intends to report back to the Commission in 2021 but states "If it is necessary to report more often to comply with the STEP statute or other reporting requirement, the Company will comply with those requirements."<sup>6</sup>

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<sup>6</sup> Application Exhibit B, Investment Justification for Microgrid Project. Date: May 10, 2017, page 6.

The Office recommends that for the Microgrid Program the Commission require the Company to follow all reporting requirements previously ordered in this docket and to provide annual updates to the Office and Division of Public Utilities and other interested parties.

*Conclusion*

The Office believes that the information that can be obtained from the two programs will be useful for establishing appropriate interconnection policies and guidelines as well as providing relevant information regarding potential system benefits and costs of smart inverters and microgrids. Thus, in the Office's judgement these programs are in the public interest.

**Recommendations**

The Office recommends that the Commission:

- 1) Authorize the Company to Implement the Smart Inverter Project and the Microgrid Project up to a maximum project cost of \$450,000 and \$250,000, respectively.
- 2) Require the Company to follow all reporting requirements previously ordered in this docket.
- 3) Require the Company to quickly inform the Commission and interested parties of any significant changes or delays to the projects and the rectifying actions the Company intends to take.