

Rocky Mountain Power
Docket No. 16-035-36
Witness: Rohit P. Nair

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

Direct Testimony of Rohit P. Nair

March 2019

1 **Q. Please state your name, business address, and position with PacifiCorp dba**
2 **Rocky Mountain Power (“the Company”).**

3 A. My name is Rohit P. Nair. My business address is 1407 West North Temple, Suite 290,
4 Salt Lake City, Utah 84116. I am a Grid Solutions Manager in the Transmission &
5 Distribution Operations group, supporting both of the Company’s Rocky Mountain
6 Power and Pacific Power Divisions.

7 **QUALIFICATIONS**

8 **Q. Briefly describe your educational and professional background.**

9 A. I received a Bachelor of Science degree in electrical engineering from University of
10 Poona, India and a Master of Science degree in electrical engineering from Oklahoma
11 State University. I also have a Master’s degree in Business Administration from
12 Sullivan University, Kentucky. In addition to my formal education, I have attended
13 various educational, professional, and electric industry seminars to remain current on
14 industry issues. I am currently the Secretary of IEEE Renewable Technologies Sub-
15 Committee and have been an active member of multiple IEEE working groups on
16 distributed energy resource interconnection standards. I am a registered professional
17 engineer in the state of Arizona.

18 **Q. What are your responsibilities as Senior Engineer of Engineering Standards and**
19 **Technical Support?**

20 A. Since joining the Company in June 2011, I have worked on several renewable energy
21 and innovative technology focused engineering initiatives and projects at the Company.
22 I work on a wide array of grid modernization efforts including studies and projects
23 related to renewable resources, smart inverters for solar photovoltaic systems, energy

24 storage, distribution automation and electric vehicles. I am currently the engineering
25 lead on all technology projects approved under the STEP Utah Innovative Technologies
26 Program. I also represent the Company on a number of issues related to energy.

27 **Q. Have you previously appeared as a witness for the Company?**

28 A. Yes. I have presented testimony in regulatory proceedings for Rocky Mountain Power
29 in Utah. Most recently, I provided testimony in support of the increased funding for the
30 Solar and Storage Technology Project in this docket.

31 **PURPOSE OF TESTIMONY**

32 **Q. What is the purpose of your testimony in this proceeding?**

33 A. The purpose of my testimony is to support the Advanced Resiliency Management
34 System (“ARMS”) described in the Application and the exhibit accompanying my
35 testimony, Exhibit RMP____(RPN-1). The ARMS project will include acquiring the
36 ability to receive outage notifications from existing ERT¹ electric meters, installing
37 communication radios on distribution line equipment and deploy line sensor
38 technology on distribution circuits connecting critical customers to enable real-time
39 information exchange with the Company’s control center. The Company will also study
40 if the benefits of deploying this technology on distribution circuits that have poor
41 reliability. The Company respectfully requests the Commission approve the
42 Company’s proposal to utilize STEP funding in the amount of \$16.52 million to
43 implement the Advanced Resiliency Management System project pursuant to U.C.A.

¹ An encoder receiver transmitter (ERT) is a technology that allowed manual meter reading to be replaced by a human driving an automobile equipped with a special computer and radio receiver capable of receiving each meter’s consumption data transmitted through a simple digital radio protocol. This general technique has come to be known as automated meter reading, or AMR.

44 § 54-20-107 (other programs), as an electric grid related project that is cost-effective
45 and in the interest of the Company's utility customers.

46 **Advanced Resiliency Management System (ARMS)**

47 **Q. Please summarize the ARMS project.**

48 A. The Company is requesting authorization to spend up to \$16.52 million in STEP
49 funding by the end of 2021 to deploy the ERT Gateway system and the advanced line
50 sensor hardware on the distribution system serving customers in Utah. Based on a
51 detailed analysis, the Company will identify optimal locations for installing the ERT
52 Gateway systems that will enable the Company to collect information from all existing
53 residential Automated Meter Reading ("AMR") meter installations. The Company will
54 also evaluate available information on outage data, number of critical customers on a
55 circuit, distribution circuit configurations (radial or looped), type of distribution
56 equipment installed and other similar information to determine the distribution circuits
57 requiring installation of advanced line sensors and other hardware to improve outage
58 management.

59 The Company consistently implements reliability and power quality
60 enhancements on its transmission and distribution system to improve safety, reliability
61 and customer service. The ARMS project enables the Company to explore, develop
62 and enhance new outage management capabilities to restore power faster to critical
63 customers such as hospitals, trauma centers, police and fire dispatch centers etc., as
64 well all other customers in the state of Utah. Deploying innovative technologies to
65 improve system reliability will further provide the Company an understanding of the
66 opportunities and challenges of utilizing emerging technology on the distribution

67 system. In addition to improving reliability and enhancing outage management
68 capabilities, customers will be able to access automated, timely, and accurate bills,
69 regardless of weather conditions or property access limitations, which traditionally
70 hamper collection of meter information. This project will also provide customers the
71 ability to access interval usage data.

72 **Q. What benefits will the ARMS project provide?**

73 A. The ARMS project enables a progressive advancement of the grid and will provide the
74 following benefits:

- 75 1) Enable residential customers with AMR meters to receive interval usage
76 data;
- 77 2) Allow communication-enabled devices to provide outage information
78 to control center operators, which enables restoration to emergency
79 facilities responsible for public safety and emergency response;
- 80 3) Improves the Company's ability to detect meter tampering and prevent
81 theft;
- 82 4) Improves outage response operations by leveraging real-time
83 information from distribution line devices;
- 84 5) Aids in determining safe switching procedures and cost effective capital
85 improvement and maintenance plans;
- 86 6) Reduction in employee exposure to safety hazards and customer
87 property visits; and,
- 88 7) Reduction in CO2 emissions through fewer Company vehicles on the
89 road.

90 This project also creates a significant opportunity for the Company to enable
91 technologies that can be leveraged for future grid modernization applications including
92 distribution automation, outage management, data analytics and demand-response
93 programs. Additional information on the customer benefits is provided in Exhibit
94 RMP___(RPN-1).

95 **Q. Can you explain in greater detail what types of equipment the Company is**
96 **proposing to install, and how the Company will use the information collected?**

97 A. Working with Itron, the Company plans to develop and deploy a communications
98 device, the ERT gateway mesh (“EGM”), which will interface with the AMI
99 communications system and receive and translate the Radio Frequency pulse data from
100 existing AMR meters without the need to replace the meters. With this technology,
101 Company personnel would no longer be required to drive to the customer location for
102 data collection. The existing AMR meters provide the current meter register reads in
103 each pulse and also have the capability to send a power outage notification as well as a
104 power restoration notice. The outage notification message cannot be used without the
105 EGM. Using this new technology to receive and transmit the meter pulse data will help
106 detect meter outages, enabling faster response times, and enable the Company to
107 provide those customers with interval energy usage information through a web portal.

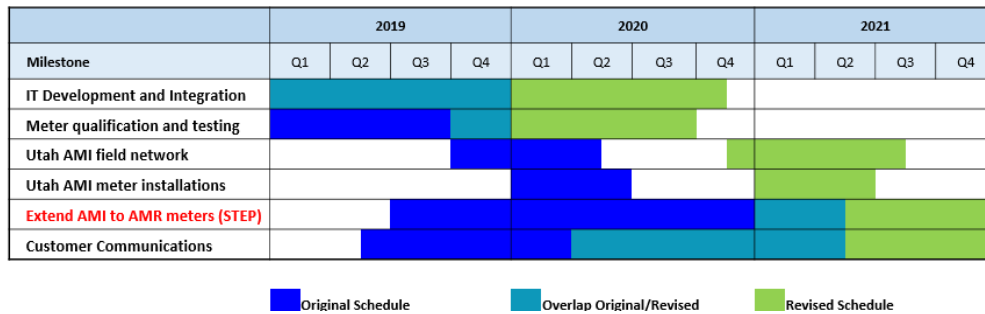
108 To improve outage response time to critical customers, the Company also plans
109 to install communication-based faulted circuit indicators (“CFCI”) on distribution
110 circuits and further integrate the outage information collected by these devices into the
111 Company’s IT system. This will help the Company’s dispatch operators identify fault
112 locations and expeditiously send field crew to the assigned area for outage restoration.

113 The Company also plans to install communication radios on existing field equipment
 114 to allow dispatch operators with increased visibility of equipment status and, if needed,
 115 remotely execute control operation of these devices.

116 **Q. How does the timing of the ARMS project interface with the timing of the AMI**
 117 **project?**

118 A. The ARMS project is part of the overall AMI project. The overall timeline for the
 119 projects is shown below. AMI was originally planned to begin in 2019, but has been
 120 delayed as indicated in the timeline to allow for additional implementation and testing
 121 of cybersecurity controls. The ARMS project is scheduled to begin in early 2021.

AMI Project Timeline



122 **CONCLUSION**

123 **Q. In your opinion, is the Company's ARMS Project cost effective and in the public**
 124 **interest?**

125 A. Yes. Details of the project costs and benefits are provided in Exhibit RMP____(RPN-
 126 1).

127 **Q. Does this conclude your direct testimony?**

128 A. Yes.