

1 **Q. Please state your name, business address, and present position with Rocky**
2 **Mountain Power (the Company), a division of PacifiCorp.**

3 A. My name is Kenneth M. Shortt. My business address is 70 North 200 East,
4 American Fork, Utah 84003. I am the Director of Capital Investment for Rocky
5 Mountain Power.

6 **Qualifications**

7 **Q. Please briefly describe your education and business experience.**

8 A. I received a Bachelor of Science Degree in Electrical Engineering from the
9 University of Utah, and a Masters in Business Administration from Brigham
10 Young University. In addition to formal education, I have attended various
11 educational, professional and electric industry seminars. I joined the Company in
12 1979, and during the 30 years since then I have held various engineering positions
13 of increasing responsibility providing extensive experience working across the
14 Company's service territory prior to assuming my current position.

15 **Q. Please describe your present duties.**

16 A. I am responsible for Rocky Mountain Power's transmission and distribution
17 (T&D) network investment planning which assists the Company in providing safe,
18 economic, and reliable energy delivery to our customers. This includes
19 prioritizing investments to manage risk and planning future T&D investments to
20 meet customer energy needs while maintaining industry reliability and operation
21 standards.

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

23 A. The purpose of my testimony is to explain and support the T&D capital

24 expenditures included in the Company's application for a general rate increase.

25 Specifically, my testimony includes an explanation of the following issues:

- 26 • The Company's T&D capital investment plan and plant additions;
- 27 • Cost drivers that have caused T&D costs to increase;
- 28 • Company actions to minimize the impact of rising costs during a robust
29 construction period.

30 **Q. Please describe Rocky Mountain Power's T&D assets in Utah.**

31 A. The Company owns and operates over 372 substations in Utah plus over 6,658
32 miles of transmission lines and 20,905 miles of distribution lines. About 55 percent
33 of the T&D lines are overhead conductors. The overhead transmission lines in
34 Utah are supported by approximately 89,000 transmission poles or structures, and
35 the distribution lines are supported by over 363,000 distribution poles. Over 1000
36 distribution feeder lines originate from Utah substations that serve
37 approximately 780,000 Utah customers with about 108,800 overhead distribution
38 transformers and 75,200 pad-mount distribution transformers

39 **Q. Please describe the major T&D investments that the Company is adding to**
40 **rate base in this filing.**

41 A. As reflected by Mr. Steven R. McDougal's Exhibit RMP___(SRM-2), between
42 January 1, 2009 and June 30, 2010 the Company will place into service \$378
43 million of transmission investment and \$178 million of Utah distribution projects.
44 More than half of the projects funded by Rocky Mountain Power fall under the \$5
45 million limit. A few of the more significant projects (over \$5 million) include:

- 46 • \$49 million for the Three Peaks 345 to 138 kilovolt 450 megavolt ampere
47 substation project. This project will provide a 345 kilovolt source to Iron
48 County. When the load in Iron County reaches 167 megavolt amperes the

49 voltage sags to a level where customer load and equipment is put at risk.
50 The project also prevents the need to shed load during several outage
51 scenarios. This transmission project will be placed in-service June 2010.

52 • \$6.5 million for the Tamarisk 138 to 12.5 kilovolt, 22.4 megavolt ampere
53 substation project. This project will replace the existing Green River 46 to
54 12.5 kilovolt 5 megavolt ampere substation. Both the 46 kilovolt system in
55 the Green River area and the transformers in the Green River substation are
56 reaching their capacity. This project will be in-service in May 2010.

57 • \$7.6 million for the second Saratoga 138 to 12.5 kilovolt, 30 mega-volt-
58 ampere transformer in Saratoga Springs, Utah. The project will provide
59 additional capacity to Saratoga Springs and rebuild a portion of the existing
60 Saratoga to Pelican Point 46 kilovolt line to 138 kilovolt construction. This
61 line will be energized at 138 kilovolts at a later date. The project is
62 scheduled for completion in May 2010.

63 **Q. What benefits will Utah customers derive from the \$556 million of T&D**
64 **capital projects, including the four new capital investment projects described**
65 **above?**

66 A. The Company's capital investments in T&D have the common customer benefit of
67 improving service quality, reliability, and the delivery of power to meet customer
68 load requirements. As defined by FERC, transmission facilities 46 kilovolt and
69 greater are considered part of the integrated network, and therefore provide
70 benefits to the Company's six-state retail service territory, including Utah. In the
71 past, transmission interruptions in certain locations, times and other circumstances
72 have disrupted power delivery several states away. It is, therefore, important that
73 the Company complete the transmission projects included in this filing in order to
74 provide adequate and reliable service to all of our customers. Additionally,
75 distribution capital investments result in a direct benefit to our Utah customers,
76 whether it is to connect new customers, reinforce, repair or upgrade the existing
77 system, or meet mandated compliance requirements.

78 **T&D Access**

79 **Q. Please provide additional details on the capital investment plan in the areas of**
80 **T&D access.**

81 A. Rocky Mountain Power must invest in transmission assets to move Company-
82 owned generation to substations and load centers. The Company must also build
83 facilities that interconnect with other transmission and generation providers as it
84 enters into contracts with customers, generators, and shippers that require
85 transmission access. Transmission interconnections with other utilities and
86 generators are essential to enhance efficiencies and to take advantage of other
87 resource opportunities as daily and seasonal loads fluctuate.

88 **System Reinforcement and Replacement**

89 **Q. Please describe the system reinforcement and replacement portion of the**
90 **capital investment plan.**

91 A. System reinforcement invests in assets to serve load growth. Upgrading or
92 replacing transformers and distribution feeders is required when thermal loading is
93 projected to exceed 100 percent or when voltages are projected to fall outside of
94 American National Standards Institute (ANSI) planning criteria. There are several
95 locations where commercial and industrial requests in the state of Utah are
96 occurring. These projects are expected to add 350 megawatts of load to the
97 transmission system through 2011 and, when connected, will either cause circuit or
98 transformer loading to exceed 100 percent of thermal rating or voltage limits to be
99 outside ANSI guidelines.

100 Utah is seeing a moderation of the high growth rates at levels lower than it

101 has experienced the past several years. The five year average annual system peak
102 growth rate (from 2004 to 2008) decreased to 4.4 percent from 5.1 percent (2003 –
103 2007). Weather patterns also influence the system peak. For example: different
104 combinations of the high temperature, the night time low temperature, day of week,
105 and number of consecutive days with high temperatures will influence the summer
106 peak differently. The 2008 summer season experienced an unusual weather pattern
107 for the Wasatch Front where all of the high temperature days in July occurred on
108 either weekends or holidays. This weather activity combined with the moderation
109 of new customer growth contributed to a lower than expected summer
110 peak. Irrespective of the lower than expected summer peak, system reinforcement
111 is still required.

112 Another necessary area of capital investment is replacing aging assets prior
113 to failure and upgrading the system in specific areas in order to sustain or improve
114 existing reliability levels. Due to normal aging processes, some assets are nearing
115 the point of replacement, which may be preceded by increased failures and higher
116 maintenance costs. Examples of assets targeted for replacement include obsolete
117 substation class equipment, sub-transmission lines, distribution lines, poles and
118 cross-arms, switchgear, and underground cable. As Rocky Mountain Power's
119 system ages and demand increases, additional stress is placed on the Company's
120 assets.

121 **System Compliance**

122 **Q. Please describe the system compliance portion of the capital investment plan.**

123 A. T&D compliance investments are those required by city, state or federal laws.

124 Customers may also request and fund projects in the compliance portion of the
125 capital investment plan. Examples include:

- 126 • Environmental programs to mitigate bird and raptor mortality;
- 127 • Overhead relocations or overhead to underground conversions for road
128 construction, public works projects, or customer requests;
- 129 • Federal Communications Commission wideband mobile radio conversion
130 to narrow band operation by 2012; and
- 131 • Federal Energy Regulatory Commission substation security initiatives.

132 **New Connects**

133 **Q. Please describe the new connection portion of the capital investment plan.**

134 A. New customer connections include residential, commercial, industrial, irrigation,
135 other utilities, and street lighting. Residential and commercial customers typically
136 account for the majority of the new connection costs. The residential market (new
137 housing starts) has dropped off from historic highs. The commercial and industrial
138 sectors have also dropped off from historic highs. Even though new connects have
139 slowed, a single commercial or industrial customer load can put pressure on the
140 transmission investments of the Company. The challenge for the Company in
141 making large commercial and industrial new connections is the sheer magnitude of
142 the projects. For example, depending on the size of the new load and its proximity
143 to existing transmission system facilities, adding just one substantial new
144 commercial or industrial customer may exceed the operating limitations of the
145 Company's local area transmission system or substation capacity. Significant
146 planning, engineering and construction of transmission lines, substations,
147 switching stations and other facilities will still be necessary.

148 During 2008, Rocky Mountain Power connected about 16,800 new
149 customers, 12,600 of which were in Utah. This is down 36 percent from the record
150 set in 2006 and is expected to decline further this year before the numbers begin
151 increasing again. Though new connects have slowed investment is still required to
152 provide service to the new customers

153 **Q. Please explain how load growth on the T&D system has been modified by the**
154 **large reduction of new connects.**

155 A. Each year the Company completes an analysis of its system performance to
156 understand the impacts load growth has had on the transmission and distribution
157 system. To illustrate, an important feature of the Wasatch Front is the impact that
158 temperature has on the peak demand. Area planning forecast studies suggest
159 extreme temperatures for extended days can cause a 200 megawatt increase in peak
160 demand along the Wasatch Front in Utah.

161 Most recently, between the summer of 2005 and 2008, the Wasatch Front
162 peak load increased 395 megawatts over a three year period. As a comparison the
163 peak load on the Wasatch Front between 2004 and 2007 increased 710 megawatts.

164 The reduced number of new connects combined with the fortuitous weather pattern
165 explained earlier generated a lower Wasatch Front peak in 2008 (4,296 megawatts)
166 than in 2007 (4,407 megawatts) and also impacted the three year average growth
167 rate. If the weather pattern had been different, such as several hot days combined
168 with warm evenings covering a weekend to weekday transition, the 2008 Wasatch
169 Front system peak would have exceeded the 2007 Wasatch Front system peak.
170 Thus, the reduced number of new connects means utilization of assets continues to

171 increase, although at a slower rate. Substation transformer and distribution feeder
172 loading continues to approach thermal rating. Although the number of new
173 connects has declined continued investment in system reinforcement is still
174 necessary to accommodate load growth.

175 **Reliability**

176 **Q. Please describe the reliability portion of the capital investment plan.**

177 A. The Company reliability investment program is designed to reduce the number
178 and impact of power interruptions to its customers. Investments in this area
179 support the Company's merger commitments including Performance Standards
180 one through four.

181 In recent years the Company has taken advantage of industry best
182 practices, better outage data and improved reliability tools. Since 2002 the
183 Company has been able to collect better customer outage data with our Outage
184 Management System. As a result, Rocky Mountain Power has changed the
185 processes to allow the Company to better target budget dollars towards the
186 portions of the distribution system with lower reliability performance. The
187 past three years have shown that the Company should continue to:

188 (i) Focus on reducing the impact of reliability issues that can be
189 controlled with preventative programs, such as deteriorating
190 equipment and tree trimming

191 (ii) Promptly and safely address reliability events that are difficult to
192 predict or avoid with preventative programs (such as vehicles
193 hitting power poles and contractor dig-ins).

194 This approach allows the Company to be more efficient as it continuously
195 seeks to improve electric service reliability.

196 **Q. Please explain how Rocky Mountain Power determines the amount and**
197 **timing of T&D capital investments.**

198 A. The Company begins with customer service requests and load growth projections
199 to prepare budgets for T&D investments. Reliability initiatives and asset
200 replacement programs are prioritized in the capital investment plan. Initial project
201 estimates are created using block estimates to approximate project costs. Once the
202 project budget is approved, the Company initiates a process to complete detail
203 planning, detail design engineering, and detail project scheduling, resulting in a
204 better cost estimate and a more refined in-service date. When a project moves to
205 the delivery (i.e. construction) phase, the Company uses internal business controls
206 to measure and monitor the progress to ensure projects are delivered within scope
207 and budget. The Company uses these activities to provide quality at the lowest
208 long-term cost required to meet industry service standards and the needs of our
209 customers.

210 **Q. Please summarize your testimony.**

211 A. The T&D capital expenditures included in this case are essential to meeting
212 customers' needs and maintaining system reliability standards. In particular, they
213 are required in order to: (a) serve new customers (i.e. industrial, commercial, and
214 residential) that require an extension of the Company's existing infrastructure; (b)
215 serve existing customers through system reinforcement (expansion or increase in
216 capacity) of existing infrastructure; (c) serve general load growth to maintain

217 acceptable reliability and service; and (d) comply with orders issued by regulatory,
218 state or local governmental entities. The transmission and generation projects are
219 part of an integrated, system-wide, high voltage system that provides the
220 foundation to move resources through-out the western United States thus
221 providing service and reliability benefits to Utah customers. Additionally, these
222 investments also contribute to meeting the performance standards program to
223 which the Company is committed through 2011.

224 **Q. Does this complete your testimony?**

225 A. Yes.