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Rocky Mountain Power

Docket No. 20-035-34

Witness: James A. Campbell

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

REDACTED

Direct Testimony of James A. Campbell

August 2021

1 **Q. Please state your name, business address, and present position with PacifiCorp d/b/a**
2 **Rocky Mountain Power (“PacifiCorp” or “Company”).**

3 A. My name is James Campbell. My business address is 1407 West North Temple, Salt Lake
4 City, Utah, 84116. My present position is the Director of Innovation and Sustainability
5 Policy.

6 **Qualifications**

7 **Q. Please describe your education and professional background.**

8 A. I have a Bachelor of Science in Materials Science and Engineering, a Master of
9 Engineering in Environmental Engineering, and a Master of Business Administration all
10 from the University of Utah. I have previously worked as an engineer with Foster Wheeler
11 Corporation, Boston Scientific, and the Utah Division of Air Quality. In November 2007,
12 I joined the Company as a Senior Environmental Policy Analyst, and I have also worked
13 as a Legislative Policy Adviser in the Government Affairs group.

14 **Q. What are your responsibilities?**

15 A. My primary responsibilities include evaluating and implementing new innovative
16 technologies, policies, and programs. I also lead the Company’s strategic efforts with
17 electric vehicles.

18 **Q. Have you testified in previous regulatory proceedings?**

19 A. Yes. I have previously filed testimony on behalf of the Company in regulatory proceedings
20 in Utah.

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

22 A. The purpose of my testimony is to present the Company’s proposed Electric Vehicle
23 Infrastructure Program (“EVIP”), as authorized in section 54-4-41 of the Utah Code.

24 **Q. Please provide an overview of the EVIP.**

25 A. Under the 2020 Utah House Bill (HB) 396, Electric Vehicle Charging Infrastructure
26 Amendments, now codified in section 54-4-41 of the Utah Code, the Utah Legislature
27 authorized the Company to create an EVIP, with a maximum funding from electric utility
28 customers of \$50 million for all costs and expenses. The EVIP funding is for the
29 deployment of utility-owned vehicle charging infrastructure and vehicle charging service
30 provided by the Company. A more detailed overview of the EVIP is included in the
31 Company's Transportation Plan provided in Exhibit RMP ___ (JAC-1).

32 **Q. When will the EVIP begin and how long will it last?**

33 A. The Company intends to develop and administer the EVIP over a 10-year period, starting
34 in 2022 and operating through the end of 2031. It is expected that after the initial 10-year
35 period, there will be sufficient consumer demand for vehicle charging services to transition
36 the program from its special status under section 54-4-41 to a traditional utility program.
37 After the initial 10-year period, the Company is expected to provide vehicle charging
38 services at the utility's cost of service and be able to provide net benefits to customers.

39 **Q. What are the Company's goals for the EVIP?**

40 A. There are two primary goals for the program: increase electric vehicle ("EV") adoption in
41 the state and provide revenue to offset some of the costs and expenses of the program.
42 Deploying infrastructure will increase EV adoption. The infrastructure must be located
43 throughout the entire state to support intrastate travel and there must be sufficient charging
44 infrastructure capacity to support increases in demand. Therefore, the focus will be on
45 filling corridor gaps across the state in rural areas and increasing capacity, accessibility,
46 and convenience in populated areas. To optimize revenue from the Company's vehicle

47 charging service, utilization of charging stations is paramount. To achieve high utilization,
48 the emphasis will be on high volume EV users, which includes fleets (rideshare services,
49 delivery vehicles, medium and heavy-duty trucks) and passenger vehicles that do not have
50 charging access at their primary residence and rely on public charging to fuel their vehicles.

51 **Q. How will the EVIP achieve its goals?**

52 A. There are four core program elements that support achievement of the program goals:
53 1) Company-owned chargers, 2) make-ready infrastructure, 3) incentives, and
54 4) innovative projects and partnerships. For more information on the goals and program
55 elements see the Exhibit RMP ___ (JAC-1).

56 **Q. Briefly describe the Company-owned chargers.**

57 A. Since most Level 2 chargers are deployed at workplaces and residences, the Company-
58 owned chargers will be focused primarily on publicly available direct current (“DC”) fast
59 chargers. Although there could be special circumstances where Company-owned chargers
60 include Level 2, it is expected that Level 2 chargers will be deployed through the make-
61 ready infrastructure and incentives program elements. To ensure future-proofing, the fast
62 chargers will be designed to charge at 150 kilowatts (“KW”) and 350 KW or a similar
63 configuration so they can charge new vehicles at the fastest charge rate possible. The
64 chargers will utilize the Combined Charging System (“CCS”) standard for charging but
65 may include a few 50 KW CHAdeMO¹ connection ports so that legacy vehicles can have
66 access to the chargers. The typical Company-owned charging location will have between
67 two to six chargers comprised of a mix of 50 KW, 150 KW and 350 KW with an expected

¹ CHAdeMO is a rapid-charging DC standard, established by Toyota, Nissan, Mitsubishi and other Japanese companies in 2010. It’s an abbreviation of the words Charge de Move. The idea was to create a fast-charging DC standard that would be adopted across the automotive industry, as well as other sectors relying on electrical DC charging.

68 capacity of around 700 KW at each location. The Company will conduct a Request for
69 Proposals (“RFP”) to select the chargers, network operator, and operations and
70 maintenance contractor. The Company expects to deploy chargers at 20-25 locations.

71 **Q. Briefly describe “make-ready” infrastructure.**

72 A. “Make-ready” infrastructure programs for EV chargers are becoming more commonplace
73 with utilities across the country. Broadly speaking, “make-ready” refers to all necessary
74 electrical infrastructure between the utility grid interconnection and the chargers, including
75 stepdown transformers, electric service panels, conduit, conductors (wire), switchgear and
76 power conditioning units, mounting pads or brackets, trenching, boring, and other such
77 elements. The EV charger itself is not part of the “make-ready” infrastructure. The
78 Company will utilize an application process for interested customers to determine where
79 to provide make-ready infrastructure investments, consistent with the program goals and
80 sections 54-4-41(4) and 54-4-41(7). Non-Company EV charging operators are eligible for
81 make-ready infrastructure investments.

82 **Q. Please provide a brief description of the incentives.**

83 A. The Company’s Sustainable Transportation and Energy Plan (“STEP”) program has
84 provided incentives through Electric Service Schedule No. 120 - Plug-In Electric Vehicle
85 Incentive Pilot Program (“Schedule 120”), to customers to install EV chargers since 2017.
86 These incentives have covered a portion of the cost of the equipment and have been popular
87 and effective. The incentives are scheduled to end on December 31, 2021, as the STEP
88 pilot program will be completed. As part of the EVIP, the Company is proposing to provide
89 EV infrastructure incentives to customers by continuing to offer Schedule 120 as presented
90 in the proposed tariffs by Mr. Meredith in Exhibit RMP___(RMM-1). To date, Schedule

91 120 has incentivized the installation of over 70 DC fast chargers and 2,300 Level 2 chargers
92 in the service territory, so it should be an effective mechanism to ensure EV charging access
93 and choice for customers. The Company will utilize the same process that is currently in
94 place for EV infrastructure incentives.² Non-Company EV charging operators will
95 continue to be eligible for incentives.

96 **Q. Briefly describe the innovative projects and partnerships.**

97 A. As EV charging technology continues to progress, it will be imperative that the Company
98 stays current with the latest advances in vehicle and charging technologies. In addition to
99 monitoring changes in technology, as mentioned previously, the Company will continue to
100 explore technology developed from the Intermodal Hub project, a STEP-funded project
101 with Utah State University (“USU”), studying the potential for a power balance and control
102 system at Utah Transit Authority’s (“UTA”) Central Station. The Company will also
103 continue to partner with research institutions like universities and the U.S. Department of
104 Energy and participate on innovative projects to ensure that the Company is engaged with
105 changes in EV technology.

106 Additionally, the Company will participate in the Freight Logistics Electrification
107 Demonstration (“F-LED”) project,³ a collaboration with USU, Utah Department of
108 Transportation (“UDOT”) and the Utah Inland Port Authority (“UIPA”) to electrify heavy-
109 duty freight and hauling operations within the Inland Port. The project will incorporate
110 innovative charging systems with 5G communications including plug-in, static and
111 dynamic wireless charging. The project will utilize advanced intelligent control systems to

² See <https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/utah-incentives.html>

³ See Exhibit RMP_(JAC-3) for USU presentation to the Utah Legislature’s Infrastructure and General Government Appropriations Subcommittee

112 optimize its operation and energy use. During the 2021 legislative session, the Utah
113 Legislature appropriated funds to USU to enable the project. The Company has committed
114 to partner with UIPA and USU on the project and provide some matching funds as part of
115 the EVIP.

116 The Company also intends to partner with the Point of the Mountain Commission
117 (“The Point”). The Company is signing a Cooperation Agreement with The Point to
118 coordinate and collaborate on the development of EV charging infrastructure. Although
119 The Point is a few years away from beginning its development, the Company has met with
120 staff and provided input on the potential of transportation electrification within the
121 development.

122 Further, the Company meets regularly with UDOT to coordinate plans for the
123 deployment of EV chargers throughout the state.⁴ The Company’s on-going partnership
124 with UDOT will continue to be a priority throughout the EVIP as the Company works to
125 address the charging infrastructure needs for the state. As part of the on-going
126 coordination, the Company and UDOT will share information on charging station
127 locations, advancements in infrastructure technologies, changes in federal policies, and
128 general transportation issues.

129 **Q. Is the Company proposing new energy rates for public chargers?**

130 A. Yes. Mr. Meredith discusses the proposed rates for public chargers under the new Schedule
131 60, which are summarized in Table 1 below.

⁴ The Company provided informal input on the UDOT’s EV Plan; see Exhibit RMP___(JAC-4).

132

Table 1. Proposed Schedule 60 Prices

Energy Charge		
	Non-RMP Customer	RMP Customer
DC Fast Charging:	\$0.40 per kWh	\$0.15 per kWh
Level 2 Charging:	\$0.08 per kWh	\$0.08 per kWh
Off-Peak Credit:	-\$0.05 per kWh	-\$0.05 per kWh
Session Fee		
	\$1.00	

133

134 **Q. Do the proposed energy charges under Schedule 60 represent a reasonable range to**
135 **recover the cost of service of direct current (“DC”) fast chargers?**

136 **A.** Yes. The proposed rates result in an average rate of \$0.15 per kilowatt-hour (“kWh”) for
137 DC fast charging, based on the Company’s assumption that 90 percent of the users will be
138 RMP customers (10 percent non-RMP customers) and that charging events will occur off-
139 peak 55 percent of the time and on-peak 45 percent (see Campbell workpapers for the
140 calculation).

141 The Company conducted a breakeven analysis for a typical Company-owned
142 charging location with four chargers comprised of a mix of 50 KW, 150 KW and 350 KW
143 and an expected capacity of around 700 KW—see Confidential Exhibit RMP___(JAC-2).
144 In the analysis, revenues at different price and utilization levels were calculated and
145 compared against the costs and expenses of the location over a 10-year period—see
146 Table 2.

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153 **Q. Does the Company distinguish between residential and commercial customers? Is**
154 **there a potential for commercial fleets “hogging” the chargers?**

155 A. Currently, the Company will not distinguish between residential and commercial users.
156 Since both customer classes are contributing to the program, both will have access. In
157 terms of the potential for “hogging,” the Company notes that, as long as the customer is
158 plugged in and receiving energy, that would indicate high utilization and be a good
159 indicator of viability of the program. If the chargers are constantly in use, whether by
160 commercial or residential customers, then there is high utilization, which will help to bring
161 the program closer to its cost of service. If high utilization is interfering with access, then
162 the Company will install additional chargers to meet the demand.

163 **Q. Does the Company intend to discern between RMP and non-RMP customers?**

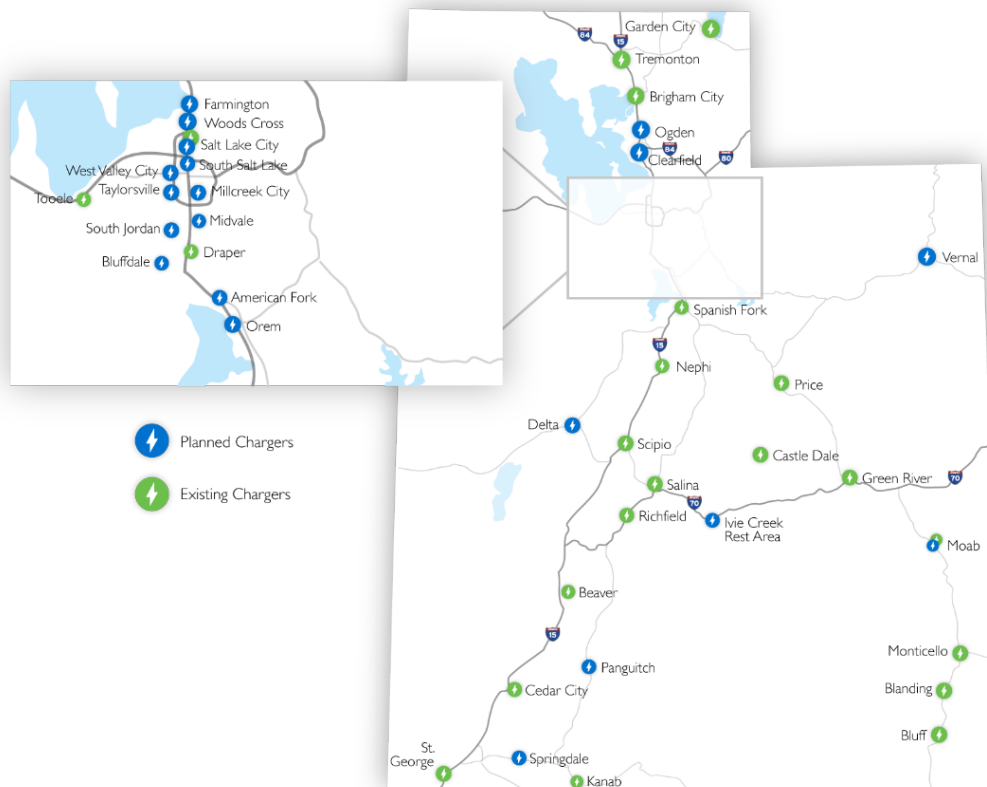
164 A. Yes. Consistent with section 54-4-41(2)(b)(iii) of Utah Code, the Company proposes a
165 discount for charging service under Schedule 60 for RMP customers. For customers to
166 realize that discount, a verification process will be created to ensure they qualify as a

167 customer. The Company will work with software and network vendors to create the
168 verification process, with the expectation that it will be quick, convenient, and cost
169 effective.

170 **Q. Where does the Company intend to deploy Company-owned chargers?**

171 A. The Company coordinated with key partners like UDOT and USU to identify statewide
172 EV charging needs⁵ along with potential locations for high volume EV users. The
173 evaluation considered existing charging infrastructure⁶ along with current Company
174 system infrastructure and expected consumer needs and uses to ensure the creation of a
175 robust state-wide network.

176 **Figure 1. Map of Existing and Planned Charging Locations**



⁵ See Exhibit RMP___(JAC-4).

⁶ The existing locations in Figure 1 only include sites with chargers of 100 KW or greater.

177 The Company locations will have between two to six chargers with a mix of 50 KW,
178 150 KW, and 350 KW chargers with an average capacity of 700 KW and be located within
179 the Company’s service territory. This preliminary list of sites achieves the goals of filling
180 gaps in rural areas and serving high volume users in populated areas. This list is not
181 exhaustive, and the final locations will be selected after detailed engineering site and
182 marketplace evaluations are conducted. The Company expects to eventually select
183 between 20 and 25 locations during its initial deployment of EVIP.

184 **Q. What criteria were used in selecting the potential locations?**

185 A. The potential sites were analyzed using eight factors, and each potential location needed to
186 at least meet four of the eight factors. A ninth factor, which was not part of the selection
187 criteria, was used to validate that the deployment of Company-owned chargers included
188 some traditionally under-represented communities. For a complete description of the
189 criteria and location evaluation see Exhibit RMP___(JAC-1), page 13.

190 **Q. What are the expected expenditures for the EVIP?**

191 A. The Company will make initial investments over the first five years. After the initial five-
192 year period, the Company will re-evaluate the EVIP to ascertain the effectiveness of the
193 overall program and the effectiveness of the initial investments in Company-owned
194 chargers, “make-ready” infrastructure, and incentives. As part of that evaluation, the
195 Company will assess the state of the EV market, both nationally and in Utah, advances in
196 EV charging technologies, the performance of the installed chargers, including the network
197 operators and their locations, the effectiveness of the “make-ready” infrastructure and
198 incentives, and the status of the innovation efforts.⁷ Based on that evaluation, the Company

⁷ Innovation expenditures are captured in Company-owned, “make-ready”, and incentives expenditures.

199 will make any necessary modifications to the EVIP including adding or removing chargers
200 or charger locations.

201 The Company will conduct a thorough RFP process to select vendors to procure
202 EV charging equipment, permit and install equipment, operate an EV network and ensure
203 that the chargers are well-maintained and in working order. The actual cost of the EV
204 chargers, network operations and maintenance will not be known until after the competitive
205 bid process is completed. Further, the biggest cost variables are the installation and
206 construction costs which will vary from site to site and will not be known until thorough
207 engineering site assessments are conducted. The Company compiled high level estimates
208 for spending on equipment, infrastructure, incentives, and expenses during the initial five-
209 year period in Table 3 below:

210



211 The expenses include operation, maintenance, administrative, and general
212 (“OMAG”) expenditures, which include the Company’s program management, planning,
213 marketing and administrative costs. The Company anticipates higher OMAG at the
214 beginning of the program as it identifies and constructs sites, hires vendors, markets the
215 program to customers, and then lower OMAG as the program is underway. The Company
216 also expects to hire a third party to operate the network of Company-owned chargers
217 including the maintenance and software services. This expenditure is anticipated to be
218 lower at the beginning of the program and will increase as more sites become operational,
219 and repairs and part replacements are required. Lastly, the incentive amount is an estimate
220 that anticipates customer demand based on previous experiences from the STEP program
221 but may change from year to year. The Company may increase or decrease the amounts
222 based on actual customer demand.

223 The capital spend includes three primary categories: (1) Company-owned chargers
224 (and warranty), (2) Company-owned infrastructure (this is the infrastructure that supports
225 Company-owned chargers), and (3) “make-ready” infrastructure (this is the infrastructure
226 that supports customer chargers). The costs may change from year to year and are
227 dependent on equipment prices and deliveries, construction schedules, and vendor
228 availability. The “make-ready” infrastructure expenditures assume a 1/3 ratio to the capital
229 spend for Company-owned chargers and infrastructure. The actual amount may change
230 based on customer demand.

231 For a detailed review of the expected expenditures for the entire 10 years, see
232 Confidential Exhibit RMP___(JAC-2).

233 **Q. Does the Company intend to apply for additional funding from other sources?**

234 A. Yes. The Company will look for additional resources to compliment and enhance the
235 program, from the state and federal governments, or other opportunities.

236 **Q. What will happen with funds if the program is not successful?**

237 A. In the unfortunate event the program is deemed unsuccessful, the Company will cancel the
238 program. If the program is cancelled any surplus funds remaining in the balancing account
239 will be returned to customers after all accrued costs and expenses are covered.

240 **Q. Is the proposed EVIP in the public interest?**

241 A. Yes. Section 54-4-41(4) of the Utah Code identifies five specific criteria that must be met
242 to determine the Company's program is in the public interest. The Commission must find
243 that the charging infrastructure program:

- 244 *a)* increases the availability of electric vehicle battery charging service in the state;
- 245 *b)* enables the significant deployment of infrastructure that supports electric vehicle
- 246 battery charging service and utility-owned vehicle charging infrastructure in a
- 247 manner reasonably expected to increase electric vehicle adoption;
- 248 *c)* includes an evaluation of investments in the Inland Port and the Point of the
- 249 Mountain;
- 250 *d)* enables competition, innovation, and customer choice in electric vehicle battery
- 251 charging services, while promoting low-cost services for electric vehicle battery
- 252 charging customers; and
- 253 *e)* provides for ongoing coordination with UDOT.

254 The Company's plan meets criteria (a) through its proposal to initially install chargers at
255 between 20-25 locations as part of the EVIP. These locations include sites in northern
256 Utah in Weber, Davis, Salt Lake and Utah Counties. In addition, the Company is proposing
257 sites in Millard County in western Utah, Sevier County in central Utah, Uintah County in
258 eastern Utah, Washington and Garfield counties in southern Utah, and Grand County in
259 southeast Utah. The proposed sites and installed capacity will increase the availability of
260 charging throughout the state.

261 The Company expects that the EVIP will enable the significant deployment of
 262 infrastructure, consistent with criteria (b), through the Company-owned chargers, the
 263 “make-ready” investments, and customer incentives in a manner that is reasonably
 264 expected to increase EV adoption. EV adoption is highly dependent on certain variables,
 265 including gasoline price fluctuations, financial incentives, user socio-economic factors, and
 266 infrastructure availability. The significant deployment of infrastructure as the result of
 267 utility programs is an important variable that can increase EV adoption. Researchers at
 268 USU calculated a forecasted estimate⁸ of EV adoption in Utah as the result of the
 269 Company’s EVIP. USU evaluated three growth scenarios for EV adoption: low, medium,
 270 and high. The model illustrates that the presence of significant utility EV charging
 271 infrastructure is a critical component for EV adoption. Assuming the medium growth
 272 scenario, the predicted number of EVs in the state of Utah for years 2026 and 2031 are
 273 presented in Table 4. The numbers reflect the total number of EVs on the road in that year.

274 **Table 4. Comparison of EV Adoption with and without RMP Programs in Utah**

Year	W/out RMP Programs (# vehicles)	W/RMP Programs (# vehicles)	Increase Due to RMP Programs (# vehicles)
2026	32,000	63,000	31,000
2031	80,000	230,000	150,000

278 According to the USU model, EV adoption in Utah without utility programs is expected to
 279 be around 32,000 vehicles in 2026 and 80,000 vehicles in 2031. It is then expected that the

⁸ See Exhibit RMP_(JAC-5)

280 Company's proposed EVIP would increase EV adoption in Utah by an additional 31,000
281 vehicles in 2026 and 150,000 vehicles by 2031.

282 For criteria (c), the Company is evaluating potential investments at the Utah Inland
283 Port and Point of the Mountain developments as part of the EVIP. The Company has begun
284 this process by working towards Cooperation Agreements with both UIPA and The Point.
285 In the Cooperation Agreements, all parties agree to coordinate and cooperate on developing
286 EV infrastructure within the development areas. The Company proposes to make
287 investments within UIPA as part of the F-LED project, a state funded collaboration with
288 UIPA and USU to electrify freight hauling operations. The Point is not far enough along
289 in its planning process to identify specific investments, but the Company will continue to
290 work with that agency, and it expects to be able to identify investments in the next several
291 years.

292 Consistent with criteria (d), the EVIP enables competition, innovation, and
293 customer choice for EV charging services while promoting low-cost services to customers.
294 By expanding the availability of charging stations throughout the state as outlined in the
295 plan, the EVIP will help provide additional access and competition for charging services.
296 The Company is also committed to promoting low-cost services, particularly for the
297 Company's customers that use the charging services by offering different rates to reflect
298 the customers' contributions to the investments. To enable expanded competition and
299 customer choice, non-Company EV charging operators are eligible for incentives and
300 "make-ready" infrastructure investments.

301 To enable innovation, the Company will continue to partner and engage with
302 leading experts in EV technology like USU, the University of Utah, U.S. Department of

303 Energy, UTA, the Utah Governor’s Office of Energy Development, and others. The
304 Company will also continue participating on innovative EV projects like the
305 WestSmartEV@Scale, and F-LED. This combination of partnerships and projects will
306 assist the Company to stay at the forefront of EV innovations and advancements.

307 Since the conclusion of the 2020 Utah legislative session, the Company has met
308 criteria (e) through ongoing engagement with UDOT to coordinate on the development of
309 a state-wide EV charging network plan.⁹ During these regular informal meetings, UDOT
310 provided input and feedback into the development of the EVIP. The meetings included
311 discussions on state traffic patterns, rights-of-way, federal rules regarding rest stops on
312 interstates, federal designations of Alternative Fuel Corridors, EV technology, utility
313 service territory boundaries, and potential site locations. The Company and UDOT have
314 agreed to continue to meet and coordinate on the planning and deployment of an EV
315 charging network.

316 **Q. Are the proposed investments in the EVIP prudent?**

317 A. Yes. Section 54-4-41(7) of the Utah Code states that the Company’s investments in utility-
318 owned vehicle charging infrastructure are prudently made if the Company demonstrates
319 that the investments can reasonably be anticipated to: (a) result in one or more projects that
320 reduce transportation sector emissions over a reasonable time period; (b) provide the
321 Company’s customers significant benefits that may include revenue from utility vehicle
322 charging service that offsets the Company’s costs and expenses; and (c) facilitate any other
323 measure determined by the Commission.

⁹ See Exhibit RMP_(JAC-4)

324 Regarding (a), the proposed EVIP investments will result in multiple projects that
 325 will reduce transportation sector emissions over a reasonable time period. As discussed
 326 previously, the Company anticipates installing Company-owned chargers at 20-25
 327 locations, in addition to facilitating multiple projects through make-ready infrastructure
 328 investments and incentives to customers. The Company predicts measurable reductions in
 329 transportation sector emissions resulting from these projects.

330 To calculate the projected transportation sector emission reductions from the EVIP,
 331 the Company estimated net carbon reductions using the following approach: estimate the
 332 annual carbon emissions from a representative or proxy vehicle and multiply those
 333 emissions by the total number of EVs on the road as a result of the EVIP; then subtract the
 334 associated system emissions used to serve the electrical needs of the vehicles. The
 335 investments are expected to reduce transportation sector emissions as shown in Table 5.
 336 For additional detail of this analysis see Exhibit RMP ___(JAC-1), page 26.

337 **Table 5. Annual Transportation Sector GHG Emissions Reductions**

Year	Additional EVs (#)	CO2 Reduction Per Year (MT)	MWh used by EVs	CO2 System Emissions by EVs (MT)	Net CO2 Reduction Per Year (MT)	Net CO2 Reduction Per Year (lbs)
2026	31,000	143,000	107,000	46,000	97,000	213,000,000
2031	150,000	690,000	518,000	223,000	467,000	1,029,000,000

338 Switching an additional 31,000 and 150,000 vehicles to EVs by the years 2026 and 2031
 339 results in an estimated annual reduction of 213 million pounds of carbon dioxide (“CO2”)
 340 and 1.029 billion pounds of CO2, respectively. The Company believes the EVIP meets the

341 transportation sector emissions reduction requirement as outlined in section 54-4-41(7)(a)
342 of the Utah Code.

343 Regarding (b), the EVIP is expected to provide customers significant benefits through
344 revenue that offsets the expenses of the program. By investing in infrastructure and
345 programs outlined in the EVIP, USU predicts that EV adoption will significantly increase
346 in the state of Utah and that there will be consumer demand for company-owned public
347 DC fast chargers. In USU's analysis,¹⁰ revenue was estimated at a representative location
348 of Company-owned chargers with varying levels of utilization. The representative location
349 contains a combination of 50 KW, 150 KW, and 350 KW chargers with an average
350 combined capacity of 700 KW. Using rates outlined in Table 1, proposed Schedule 60
351 prices, USU estimated revenue for a representative Company-owned charger location.

352 The projected annual revenue at typical Company-owned charger locations, is expected to
353 range between \$78,000 at 10 percent utilization and \$309,000 at 40 percent utilization. It
354 is anticipated that by 2027 there will be between 20-25 locations operating. The combined
355 annual revenue at all Company locations is estimated to range between \$1,560,000/year
356 (20 locations at 10 percent utilization) and \$7,725,000/year (25 locations at 40 percent
357 utilization). These potential benefits may be conservative because the analysis only
358 includes revenue from Company-owned public DC fast chargers. A study from McKinsey
359 & Company predicts that public DC fast chargers will account for only 20 percent of all
360 charging needs,¹¹ which means the remaining 80 percent will come from charging at home
361 or the workplace (predominately Level 1 and Level 2 charging that, in most cases, do not

¹⁰ Exhibit RMP_(JAC-5)

¹¹ Engel, et al (October 2018) *Charging Ahead: Electric Vehicle Infrastructure Demand*, McKinsey Center for Future Mobility Report

362 require additional system infrastructure). Charging at home and work will provide
363 additional revenue through traditional schedules and tariffs contributing to fixed system
364 costs and potentially benefitting all customers. Nevertheless, the Company-owned DC fast
365 chargers should contribute significant revenue on their own. The Company believes that
366 the proposed EVIP investments are reasonably anticipated to provide significant benefits
367 to customers and will offset some of the costs and expenses of the program as required in
368 section 54-4-41(7)(b) of the Utah Code.

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

370 **A. Yes.**