Rocky Mountain Power
Docket No. 20-035-34
Witness: Robert M. Meredith

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

Direct Testimony of Robert M. Meredith

August 2021

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

A. My name is Robert M. Meredith. My business address is 825 NE Multnomah Street, Suite 2000, Portland, Oregon 97232. My present position is Director, Pricing and Cost of Service.

Qualifications

Q. Please describe your education and professional background.

A. I have a Bachelor of Science degree in Business Administration and a minor in Economics from Oregon State University. In addition to my formal education, I have attended various industry-related seminars. I have worked for the Company for 17 years in various roles of increasing responsibility in the Customer Service, Regulation, and Integrated Resource Planning departments. I have over 11 years of experience preparing cost of service and pricing analyses for all six states that PacifiCorp serves. In March 2016, I became Manager, Pricing and Cost of Service. In June 2019, I was promoted to my current position.

Q. What are your responsibilities?

A. I am responsible for regulated retail rates and cost of service analysis in the Company's six state service territory.

Q. Have you testified in previous regulatory proceedings?

A. Yes. I have previously filed testimony on behalf of the Company in regulatory proceedings in Utah, Oregon, Wyoming, Washington, Idaho, and California.

Purpose and Summary of Testimony

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

A. The purpose of my testimony is to present the tariff and pricing for the Company's proposed Electric Service Schedule No. 60 – Company Operated Electric Vehicle Charging Station Service ("Schedule 60"). I also present the tariff and bill impacts from the Company's proposed Electric Service Schedule No. 198 –Electric Vehicle Infrastructure Program ("EVIP") Cost Adjustment ("Schedule 198"). Finally, I recommend a six-month extension of Electric Service Schedule No. 2E – Residential Service – Electric Vehicle Time-of-Use Pilot Option – Temporary ("Schedule 2E") and a ten-year extension of Electric Service Schedule No. 120 – Plug-in Electric Vehicle Incentive Program ("Schedule 120"), which will allow the incentives to continue for the duration of the EVIP. Proposed new and revised Schedules 60, 198, 2E and 120 are provided in Exhibit RMP___(RMM-1).

Q. Why is the Company proposing Schedules 60 and 198?

A. As described in Company witness Mr. James A. Campbell's direct testimony, Utah Code section 54-4-41 authorizes the Company to own and operate electric vehicle charging stations and to charge users for this service. Proposed Schedule 60 lists the prices and details for this service. Utah Code section 54-4-41 also authorizes the Company to recover from customers investments in electric vehicle charging infrastructure, which the Company proposes to accomplish through Schedule 198.

Schedule 60 – Company Operated Electric Vehicle Charging Station Service

Q. Please provide an overview of Schedule 60.

A. The Company designed Schedule 60 to provide service to any individual who uses Company operated electric vehicle charging stations for the purpose of recharging the battery of an electric vehicle ("EV"). The tariff provisions specify the Company's responsibility to keep its stations in good operating condition and to make any repairs as soon as reasonably possible. The tariff also provides the pricing the Company will charge for the use of its stations.

Q. What is the Company's goal for the pricing of its charging stations?

A. The Company's goal is to reflect current market prices for comparable charging while sending price signals that encourage individuals to use the stations in a way that reflects the Company's costs to provide this service. To achieve this goal, the Company based the pricing on the cost of similar charging service in Utah, but with a credit to reward off-peak charging and a per session fee to recover some of the fixed costs of providing this service.

Q. How did the Company base its pricing on the rates of other charging service providers?

A. Of all the publicly available charging stations in Utah, those currently owned and operated by Electrify America are most like those the Company plans to own and operate, and so the Company created tariff prices that are based upon Electrify America's current market cost.

Q. What are the pricing elements the Company proposes for the tariff?

A. The Company proposes that individuals be charged an Energy Charge, a Session Fee,

and be credited for off-peak usage. The Energy Charge will vary based on the power level for the session and whether the individual is a retail customer of the Company in Utah. The off-peak energy credit will use the same time periods as Schedule 2E, which will ensure that the experience for individuals utilizing the Company's charging stations and residential customers participating in the time-of-use program is consistent, particularly for EV owners who charge under the Company's time-of-use rates at home. Exhibit RMP___(RMM-2) shows the calculations supporting the values of the Company's proposed prices.

Q. What prices does the Company propose for Schedule 60?

A. The Company proposes $0.40 per kWh for charging from direct current ("DC") fast chargers by non-Rocky Mountain Power customers, $0.15 per kWh for charging from DC fast chargers by Rocky Mountain Power customers, $0.08 per kWh for level 2 charging by any user, a $0.05 per kWh credit for off-peak charging, and a $1.00 per Session Fee.

Q. What is the Session Fee?

A. The Session Fee is a charge that is assessed every time a user plugs in and transacts with the Company for charging services at one of its stations.

Q. Why is the Company proposing a Session Fee?

A. A very significant component of providing charging services is fixed and does not vary with incremental usage. The Company therefore believes that establishing this pricing component, even at a relatively low initial level, as part of the rate structure from the onset of this program, is important. The Company also anticipates that, depending upon the vendor ultimately selected, there may be transaction fees associated with credit card

payments. Under such a circumstance, a Session Fee sends an important price signal to users about the direct cost to transact for the service irrespective of the level of energy delivered.

Q. Why is the Company proposing the Session Fee be set at $1.00?

A. While sending appropriate price signals is important, this must be balanced with the goal of customer acceptance and ease of use. For an EV driver who is considering the cost to get the charge needed to complete the next leg of travel, a per kWh charge is the most comprehensible. The Company therefore believes that setting the preponderance of the cost to use its charging services as volumetric energy charges serves to make its pricing easy to understand and accessible. For most people, one dollar is a small nominal fee to pay which will not greatly impede the simplicity of the rate structure, while still serving as an important price signal.

Q. How did the Company calculate Schedule 60's proposed energy charges?

A. For DC fast charging, the Company wanted to set its price for non-Rocky Mountain Power customers at a level that was comparable to similar services offered in the marketplace. Electrify America, who has charging stations that are the most like the ones the Company plans to deploy, presently charges $0.43 per kWh. Assuming a 100 kWh charge, which would be the same as using a 150 kW charger for 40 minutes, and the $1.00 Session Fee, the Company estimates that a $0.40 per kWh charge would be equivalent after rounding to the nearest ten cents. The Company proposes this price would be assessed to non-Rocky Mountain Power customers.

Since the Company's Utah customers pay for EVIP as part of their monthly bills through Schedule 198, the Company proposes that its Utah customers would

receive a 75 percent discount on the proportion of the cost for DC fast charging service that is above the utility's marginal cost of service. Using the 6.4233 cents per kWh marginal cost of service value for Electric Service Schedule No. 6 – General Service – Distribution Voltage ("Schedule 6") from the Company's most recent general rate case,[1] the Company calculated a 15 cents per kWh charge for DC fast charging by Rocky Mountain Power customers.

For level 2 charging, the Company calculated a rate that approximated the 6.4233 cents per kWh marginal cost of service for Schedule 6 after incorporating a time-varying element and accounting for the $1.00 Session Fee. First, the Company calculated an off-peak price of $0.03 per kWh based off of the average Energy Imbalance Market ("EIM") prices during off-peak times in a three-year period.[2] Average EIM prices are a reasonable approximation for the cost to the Company to procure energy at different times of the day, which makes them useful for developing a time-of-use price signal. Next, the Company determined that assuming a 42 kWh charging session, which is the same as 6 hours of charging at 7 kW, an on-peak price of $0.08 per kWh would yield the average Schedule 6 marginal cost of service price. Instead of using on- and off-peak prices, the Company used an energy charge for all usage of $0.08 per kWh and an off-peak credit of -$0.05 per kWh. Since a time varying element can encourage an efficient use of the system for all charging levels, the Company proposes that the same -$0.05 per kWh off-peak energy credit would apply to DC fast charging as well. Table 1 below shows the proposed prices for Schedule 60.

[1] See Schedule 6 marginal cost, excluding retail costs in Docket No. 20-035-04 on page 4 of Exhibit RMP___(RMM-15).
[2] 36 months ended September 30, 2020.

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

Exhibit RMP___(RMM-2) shows the calculation of proposed Schedule 60 rates.

Q. How does the Company's proposed pricing compare to the cost of gasoline?

A. A rule of thumb is that every cent per kWh is the same as 10 cents per gallon gasoline equivalency.[3] Assuming this, DC fast charging for Rocky Mountain Power customers at 15 cents per kWh would be the same as paying $1.50 per gallon for gasoline which compares favorably to gasoline, which presently costs about $3.16 per gallon in Utah.[4]

Q. Will there be an incentive for individuals to make charging stations available to others once their session has completed?

A. Yes. The Company proposes to include a provision in the tariff that allows for the imposition of a penalty on any individual that does not make a charging station available to others upon session completion.

[3] This holds true if a conventional internal combustion vehicle gets 30 miles to the gallon and an electric vehicle gets 3 miles to the kWh.

[4] $3.159 was the average price for a gallon of gasoline in Utah on July 22, 2021, per the American Automobile Association's website. See https://gasprices.aaa.com/?state=UT.

Q. With the export credit price in Electric Service Schedule No. 137 – Net Billing Service currently set at around 5.5 to 5.8 cents per kWh, depending on season, is the Company concerned that an arbitrage opportunity may exist, since proposed Schedule 60's off-peak level 2 charging rate is just 3.0 cents per kWh?

A. Not at this time. If a customer were to charge their car with 100 kWh in the summer season during off-peak from a level 2 charger, the cost of that charge would be $4—$1 for the Session Fee and $3 for the energy. If the car had the vehicle-to-grid ability to export onto the grid, it could then, in theory, sell that energy back to the Company for close to $6 producing a $2 surplus for that customer. The Company believes, however, that such an arbitrage would be very challenging for two reasons. First, level 2 charging takes several hours to complete and a customer with an EV may not want to tie up his or her car for a large portion of the day to make $2. Second, there are efficiency losses associated with charging an electric vehicle and then discharging to the grid. One study estimated that the roundtrip efficiency for vehicle-to-grid is only between 53 to 62 percent.[5] Incurring such losses would wipe out any potential upside from potential vehicle-to-grid arbitrage.

Q. Does the Company have a plan to ensure prices remain reflective of costs as the electric vehicle industry continues to change?

A. Yes. As authorized in Utah Code section 54-4-41, the Company proposes that the pricing to transition to cost of service over a reasonable time frame.[6] The transition will be based on the Company's annual informational cost-of-service studies, which inform how well the revenue from a customer class recovers its corresponding cost-of-

[5] See https://www.sciencedirect.com/science/article/abs/pii/S0360544217317863?via%3Dihub.
[6] See H.B. 396, 54-4-41. Recovery of investment in utility-owned vehicle charging infrastructure. (2) (b) (ii).

service. To isolate the Company's charging stations in the studies, the Company will include them as a separate customer class beginning with the study the Company will file on June 15, 2023 for calendar year 2022.

Q. What does the Company consider a reasonable time frame, and how does it propose to transition the pricing over this time frame?

A. The Company currently anticipates a 10-year time frame for the transition, with greater pricing stability in the first 5 years, subject to limited adjustments or modifications if warranted. After this initial period, the transition would then follow a prescribed glide path to cost-of-service over the next five years. This glide path would include annual pricing adjustments that move the pricing 20 percent toward cost-of-service in the sixth year, 40 percent in the seventh year, 60 percent in the eighth year, 80 percent in the ninth year, and 100 percent in the tenth year. After the tenth year, the Company plans to continue to isolate the Company's charging stations in its annual studies and adjust the pricing as-needed to account for the stations' cost-of-service and the evolving needs of the electric vehicle industry. During the transition to cost of service, the Company may request the discount for Rocky Mountain Power customers be reduced or that specific elements of the overall rate structure have greater or lesser changes in their price. If the revenue from charging stations were to exceed cost of service, the Company would make a request with the Commission proposing what to do with the excess funds which could include refunding it back to all customers, lowering the Schedule 60 price, investing in additional electric vehicle infrastructure, or some combination of those actions.

Q. How would the prices in Schedule 60 potentially change during the first five years of the program?

A. The Company proposes that Schedule 60 rates would change by the same percentage as any base price change for all of its Utah customers rounded to the nearest cent. In this way, its rates would rise or fall commensurate with price changes for its regular retail customers, including other providers of charging services within the Company's service area. Adjusting the prices periodically will also serve as a reminder to users of the Company's charging service that its pricing is subject to change. If conditions warrant further changes within the first five years to respond to dramatic changes to the circumstances in the market or in the cost of providing charging services, the Company proposes that it be able to make a filing with the Commission requesting such a change. The first five years of price stability with limited adjustments and the glide path to cost of service for the second five-year period are described in the Special Conditions of Schedule 60.

Q. Would the time of use hours for the off-peak credit on Schedule 60 be subject to change?

A. Yes. If the Company implements a successor time-of-use program for residential customers, it would propose aligning Schedule 60 with the hours from such a program.

Electric Vehicle Infrastructure Program Cost Recovery

Q. Please describe proposed Schedule 198.

A. Proposed Schedule 198 – Electric Vehicle Infrastructure Program Cost Adjustment, shown on Exhibit RMP___(RMM-1) provides the prices customers would pay to recover the cost associated with the EVIP described by Company witness Mr.

Campbell. Utah Code section 54-4-41 authorizes the Company to collect up to $50 million from Utah retail customers to fund EVIP. The Company therefore proposes to collect from customers $5 million per year for ten years. The Company would periodically review its collection to ensure that it does not collect more than the authorized $50 million amount.

Q. How were Schedule 198 prices determined?

A. The costs of the program were spread to customer classes as an equal percentage of total base revenue and rates were designed as percentage adjustments to be applied to the Power Charge, Energy Charge, Facilities Charge, Back-Up Power Charge, Excess Power Charge, Daily Power Charge and Voltage Discount.

Q. What is the rate impact of proposed Schedule 198?

A. The rate impact to customers of proposed Schedule 198 is a 0.2 percent increase effective January 1, 2022. This increase will be offset by the expiration of Electric Service Schedule No. 196 – Sustainable Transportation and Energy Plan ("STEP") Cost Adjustment ("Schedule 196"), which is set to expire on December 31, 2021[7]. Taken together, the net impact of Schedule 198 and expiring Schedule 196 is a 0.2 percent decrease for customers. Page one of Exhibit RMP___(RMM-3) shows the effect of the Company's proposed Schedule 198 by class net of the expiration of Schedule 196. Page two of Exhibit RMP___(RMM-3) shows the proposed rate spread for Schedule 198. Pages three through 21 of Exhibit RMP___(RMM-3) show the billing determinants, and proposed rates for Schedule 198. Implementation of the

[7] *See* Utah Code 54-20-102 and 54-20-105(3)(d).

Schedule 198 adjustment and expiration of Schedule 196 will result in a $0.21 monthly decrease for the typical residential customer using 775 kWh.

Q. How does the Company propose to reconcile revenues from the charging stations to the costs of electric vehicle charging?

A. As described in Mr. Campbell's direct testimony, revenue from the charging stations will be credited to the balancing account for EVIP. Surplus revenue over what was planned could then be used to lower the price on Schedule 198 or could be re-invested into additional electric vehicle infrastructure.

Extension of Schedule 2E Residential Electric Vehicle Time of Use Pilot

Q. Please briefly describe Schedule 2E.

A. Schedule 2E is an optional time of use pilot for residential customers that can provide proof of electric vehicle registration and was created to comply with a provision in STEP. Schedule 2E took effect in 2017 and was closed to new participants at the end of 2020. At the end of this year, the Company will submit a report on Schedule 2E that will discuss the costs and benefits of the program. Unless modified by the Commission, Schedule 2E is set to terminate on December 31, 2021.

Q. What does the Company recommend for Schedule 2E in this filing?

A. The Company recommends that the Commission extend Schedule 2E for another six months, so that it will not automatically terminate until June 30, 2022.

Q. Why is the Company proposing a six-month extension for Schedule 2E?

A. The Company believes that it would be better to terminate the program after it has had an opportunity to file its report on the electric vehicle time of use pilot and interested parties have had a chance to provide comments. If the report shows that the benefits

outweigh the costs of the program, then it may appropriate to continue Schedule 2E in some form. If the benefits do not outweigh the cost, then Schedule 2E could then be terminated.

Extension of Schedule 120 Plug-in Electric Vehicle Incentive Program

Q. Please describe Schedule 120 and the Company's purpose in seeking an extension.

A. Schedule 120 provides incentives to customers to cover a portion of the costs of installing EV chargers. Schedule 120 was originally created pursuant to the STEP program, and it is scheduled to terminate January 1, 2022. As discussed in the direct testimony of Mr. Campbell, one of the elements of the EVIP are incentives and the Company plans to continue providing the incentives throughout the duration of the EVIP. Accordingly, the Company proposes to extend Schedule 120 through January 1, 2032.

Q. Does this conclude your direct testimony?

A. Yes.