Sophie Hayes (12546)
Western Resource Advocates
307 West 200 South, Ste 2000
Salt Lake City, Utah 84101
Telephone No. (801) 212-9419
Email: sophie.hayes@westernresources.org

Attorney for Western Resource Advocates

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of Rocky Mountain Power for Approval of Electrical Vehicle Infrastructure Program	Docket No. 20-035-34

PREFILED REBUTTAL TESTIMONY OF

DEBORAH KAPILOFF

ON BEHALF OF

WESTERN RESOURCE ADVOCATES

November 4, 2021

Q: Please state your name, position, and business address.

A: My name is Deborah Kapiloff. I am employed by Western Resource Advocates ("WRA") in its Clean Energy Program as a Transportation Electrification Policy Analyst. My business address is 2260 Baseline Rd Suite 200, Boulder, CO 80302.

Q: Are you the same Deborah Kapiloff who provided direct testimony on behalf of Western Resource Advocates?

A: Yes.

Q: Please summarize your rebuttal testimony.

A: The purpose of this rebuttal testimony is to address claims made by other parties in their direct testimonies related to residential rebates, competition and customer choice for charging services, the glide-path to cost-of-service rates at Company-owned charging stations, and the Program's emissions reductions benefits.

RESIDENTIAL INCENTIVES

Q: What is ChargePoint's recommendation related to the Schedule 120 residential rebates?

A: On behalf of ChargePoint, Justin Wilson recommends that the Commission direct the Company to increase the residential rebate amount from two hundred to five hundred dollars and to make it a requirement that the rebate only be eligible for "smart" or

networked Level 2 chargers. Additionally, Mr. Wilson advocates for allowing the rebate to be used for all aspects of charger installation, including necessary panel upgrades.[1]

Q: Do you agree with ChargePoint's recommendation that the Schedule 120 residential rebate should be allowed to be used for panel upgrades necessary for the installation of an EV charger?

A: Yes. ChargePoint's recommendation concerning panel upgrades improves the residential rebate program by addressing costs borne by customers who need panel upgrades for EV charger installation. When panel upgrades are necessary for the installation of EV charging equipment, it is reasonable to allow for funds intended for EV charging equipment to be used for panel upgrades. Permitting rebate funds to be used for panel upgrades lessens a financial barrier for Company customers installing EV charging infrastructure and should not be treated as separate from other costs related to installing an EV charger.

Q: Do you agree with ChargePoint's recommendation that the Company should require that Schedule 120 residential Level 2 charger rebates only be used for the purchase of a "smart" or networked charger?

A: Yes. "Smart" or networked Level 2 chargers allow for increased management of charging in residential use cases. Managed charging enabled by networked Level 2 chargers allows for EV charging to be shifted into off-peak periods, which offers benefits not only to EV owners, but to all utility customers. Since the majority of EV charging happens in the

[1] Wilson Direct Testimony, lines 553-558.

residential context, putting technology in place now which is capable of shifting EV charging into low-cost periods is critical to ensuring that widespread EV adoption creates benefits for all utility ratepayers. As such, the Company should be requiring the purchase of smart/networked chargers as a condition of receiving a rebate.

Q: What are the benefits of "smart" or networked Level 2 chargers, especially in residential use cases?

A: "Smart" or networked Level 2 chargers can be programmed to begin charging in off-peak hours. For example, a residential user could set default charging times so that their EV could begin charging when the grid is least utilized, say at midnight. By pre-programming this charging, the user could avoid having to physically plug their EV into its charger at this hour. Instead, they could plug in their EV when they get home, while avoiding charging during on-peak hours. Conversely, non-networked Level 2 chargers do not have the capability, and will begin drawing power whenever a driver plugs their vehicle in, which usually coincides with periods of peak electricity demand in the late afternoon or early evening. As such, "smart" or networked chargers are essential to enabling charging behaviors that do not add load to the grid at times when it is already highly utilized. Even though RMP has not yet developed default residential time of use rates or customer education materials designed to encourage smart charging, requiring networked chargers now will help "future-proof" EVIP.

Q: Do you agree with the Office of Consumer Services' recommendation that Schedule 120 residential rebates be removed?

A: No.

Q: Why do you disagree with the Office of Consumer Services' recommendation that Schedule 120 residential rebates be removed?

A: The Office takes the position that residential rebates are not in the public interest because they may increase costs for all Company customers by heightening system peaks. In lines 295-297 of his direct testimony, Mr. Ware argues that "incentives, by increasing the number of residential EV chargers, could impact system peaks and lead to additional costs for all customers, especially non-participating customers." However, the number of EV charger rebates supported by Schedule 120 is negligible in terms of its potential to impact system peaks. Furthermore, by requiring the rebates be eligible only for the purchase of "smart" or networked chargers, the Company can incentivize responsible charging behavior. Concerns about the effects of EV charging on the grid should not result in the removal of residential rebates from EVIP, as the residential rebate program offers the Company a unique opportunity to cultivate smart charging behaviors prior to widespread adoption of EVs.

Q: Do you agree with the Office's recommendation to develop educational materials on EV charging as a component of EVIP?

A: Yes. The Office recommends that the Commission require "an educational component" in this docket, explaining that "[e]ncouraging appropriate charging behavior is essential to minimize system peaks and avoid the need for costly grid upgrades."[2] Specifically, the Office recommends stakeholder-informed customer educational resources related to the impacts of different charging behaviors on the grid and rates, including recommendations

[2] Ware Direct Testimony, lines 221-22, 233-34.

for the best charging times.[3] I agree that educational resources would complement EVIP, especially in the near term before RMP is able to provide actionable price signals through residential time of use rates. As an electric utility, RMP is in a unique position to provide credible information about EV charging and grid impacts and to make EV charging recommendations. I recommend that RMP provide this information on its website and whenever it references rebates for residential charging infrastructure. I also recommend that this information be made public in time to be included in the first annual EVIP report.

ENABLING COMPETITION AND CUSTOMER CHOICE

Q: Do you have comments regarding ChargePoint's and the Division of Public Utilities' recommendations[4] on re-allocating funding for make-ready infrastructure and Company-owned charging stations?

A: Yes. I agree with the Division's recommendation that funding to make-ready infrastructure and Company-owned charging stations should be allocated with 2/3 of capital spending for make-ready infrastructure and 1/3 of capital spending for Company-owned charging stations.

Q: Please explain why you agree with this recommendation.

A: Shifting the ratio will enable customer choice and competition over the near- and longer-term. The Division, ChargePoint, and EVgo all filed testimony about the potential for the

[3] Ware Direct Testimony, lines 238-45.
[4] Wilson Direct Testimony, lines 710-12 (ChargePoint) and Williams Direct Testimony, lines 215-16, 236-37 (DPU).

Company's proposed EVIP to undermine one of the public interest criteria in the EVIP statute, namely enabling competition and customer choice. They argue, generally, that the discount for RMP customers will make it difficult for the private market to compete with the Company for charging services and that the 2/3 allocation of funds for Company-owned infrastructure will establish an uneven playing field in favor of Company-owned stations.[5]

Both Company-owned and make-ready investments are appropriate components of EVIP, in the interests of developing charging infrastructure at strategic locations quickly and cost-efficiently. The utility has an important role in EV market development, and charging station revenues have the potential to benefit all customers; however, in order to support a robust EV charging marketplace over the long term, it is necessary that the parameters of EVIP don't undermine the ability of the private charging market to compete on a level playing field. That is why I support the Division's recommendation to change the allocated funding for make-ready vs. company-owned infrastructure (to 2/3 and 1/3 respectively).

[5] *See, e.g.* Williams Direct Testimony, lines 36-42 (summarizing conclusions on the effect of proposed EVIP on competition in the charging market); Wilson Direct Testimony, lines 631-56 (discussing RMP's competitive advantages); Rafalson Direct Testimony, page 13 (discussing balancing utility and private market activities).

GLIDE-PATH TO COST OF SERVICE

Q: Do you agree with the Division's proposed glide-path to cost-of-service should the Commission approve the Schedule 60 rates as presented in the Company's application?

A: No. In Abdinasir Abdulle's direct testimony on behalf of the Division, Mr. Abdulle proposes a glide-path that transitions to a cost-of-service rate quickly over a two-year period. Having static rates for five years followed by a rapid two-year transition to cost-of service creates an unnecessarily abrupt transition and does not mitigate the Division's concerns about the anti-competitiveness of the Company's proposed rate for Company customers since that rate will still be offered for five years. Furthermore, having the same rate in place for five years may create customer entitlement to that rate. My proposed glide-path[6] is a better alternative as it takes place soon after cost-of-service information is available for Company-owned charging stations. My proposal begins the glide-path earlier and avoids a long period of unchanging low rates followed by a rapid transition to cost-of-service rates, instead slowly transitioning to cost-of-service rates.

EMISSIONS REDUCTIONS OF THE EVIP PROGRAM

Q: Do you have comments on the emissions reductions calculations presented in Robert Davis' testimony for the Division of Public Utilities?

A: Yes. In Mr. Davis' testimony, he identifies a trend where the emissions from EVs increase as mileage increases, negating emissions reductions benefits from EVs. It did not

[6] Kapiloff Direct Testimony, lines 589-617.

seem intuitive that EVs would emit more CO2 emissions per mile as overall mileage increased, so I conducted my own analysis of the net CO2 reductions of having 31,000 and 150,000 additional EVs, mirroring the tables in lines 203 and 204 of Mr. Davis' direct testimony. I present my analysis and findings below and in the attached workpapers.

To perform my analysis, I calculated the emissions associated with internal combustion engine (ICE) vehicles and EVs at given mileages and used the following formula to calculate net emissions reductions associated with increased EV adoption:

ICE vehicle CO2 emissions – EV CO2 emissions = net emissions reductions benefits

To calculate the emissions associated with internal combustion engine vehicles, I utilized the EPA figures used in James Campbell's emissions reductions calculations, presented on page 27 of RMP__(JAC-1), that the average gasoline vehicle on the road today has a fuel economy of about 22.0 miles per gallon and every gallon of gasoline burned creates about 8,887 grams of CO2 (there are one million grams per metric ton). Using these figures, I calculated the emissions of ICE vehicles at given mileage amounts. These calculations are represented by the "ICE CO2 emissions" tab of my spreadsheet.

For modeling EV CO2 emissions, I used the Division's numbers based on the Company's most recent IRP to ensure an accurate overview of the EV emission profile and to maintain consistency with Mr. Davis' modeling. I modeled the same 31,000 and 150,000 additional EV scenarios as the Division did in Mr. Davis' testimony.

To calculate net emissions reductions benefits, I multiplied the given number of emissions per ICE vehicle by the number of vehicles in the adoption scenarios modeled by the Company and the Division, and from this number subtracted the EV emissions. These calculations make up the "31,000 additional EVs" and "150,000 additional EVs" tabs of my spreadsheet.

My findings indicate that Mr. Davis' claim that emissions reductions decrease as EV mileage increases may be the result of a mathematical mistake or incorrect modeling assumptions. In scenarios in which both ICE vehicles' and EVs' mileages were greater, EV adoption showed larger emissions reductions benefits. That is, swapping an internal combustion vehicle with an annual mileage of 25,000 for an EV with an annual mileage of 25,000 yields greater emissions reductions benefits than the same swap with two vehicles with annual mileages of 5,000. As such, I believe that Mr. Davis may have held the annual mileage of internal combustion vehicles constant in his analysis, while nonetheless increasing the annual mileage of the substituted EV. Given this, Mr. Davis may have concluded that emissions reductions benefits would decrease as EV mileage increased. However, this is the result of increased emissions from more mileage, and not because the increased mileage was in an EV. It is intuitive that switching from driving 5,000 miles annually in an internal combustion engine vehicle to driving 20,000 miles a year in an EV may not produce emissions reductions benefits due to the scope of the increased mileage.

Table 1. Emissions reductions benefits of 31,000 additional EVs

Mileage	MWh used by EVs	CO2 system emissions by EVs (metric tons)	Net CO2 emissions reductions benefits (metric tons)
5,000	46,500	15,903	46,709
10,000	93,000	31,806	93,419
11,500	106,950	36,577	107,432
15,000	139,500	47,709	140,129
20,000	186,000	63,612	186,839
25,000	232,500	79,515	233,549

Table 2. Emissions reductions benefits of 150,000 additional EVs

Mileage	MWh used by EVs	CO2 system emissions by EVs (metric tons)	Net CO2 emissions reductions benefits (metric tons)
5,000	225,000	44,325	258,640
10,000	450,000	88,650	517,281
11,500	517,500	101,948	594,873
15,000	675,000	132,975	775,922
20,000	900,000	177,300	1,034,563
25,000	1,125,000	221,625	1,293,204

Q: Given the above explanation of emissions reductions net benefits, does EVIP deliver significant emissions reductions benefits?

A: Yes.

Q: Does this conclude your rebuttal testimony?

A: Yes, it does.