REDACTED
Rocky Mountain Power
Exhibit RMP___(JAC-1)
Docket No. 20-035-34
Witness: James A. Campbell

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF UTAH

ROCKY MOUNTAIN POWER

REDACTED
Exhibit Accompanying Direct Testimony of James A. Campbell

Electric Vehicle Infrastructure Program Plan

August 2021

Transportation Plan

ELECTRIC VEHICLE CHARGING INFRASTRUCTURE PROGRAM

Date: August 16, 2021

Revision by: James Campbell

Under the 2020 Utah House Bill (HB) 396, Electric Vehicle Charging Infrastructure Amendments, now codified in section 54-4-41 of the Utah Code, the Utah Legislature authorized Rocky Mountain Power (the Company) to create an Electrical Vehicle Infrastructure Program (EVIP), with a maximum funding from customers of $50 million for all costs and expenses. The EVIP funding is for the deployment of utility-owned vehicle charging infrastructure and utility vehicle charging service provided by the Company, as defined in section 54-2-1(36) & (37) of the Utah Code.[1] The Company intends to develop and administer the EVIP over a 10-year period, starting in 2022 and operating through the end of 2031. The Company expects that after the initial 10-year period, there will be sufficient consumer demand for vehicle charging services to transition the program from its special status under HB 396 to a traditional utility program. After the initial 10-year period, the Company expects to provide vehicle charging services at the utility's cost of service and provide net benefits to customers.

In this plan, we discuss the program's goals, the elements of the program, the rate structure for the new customer class created by the program and public charging service prices, the planned investments and locations, and the expenditures and budget. This plan also describes the public interest elements of the program and provides an explanation of the prudency of the Company's proposed investments.

[1] "Utility-owned vehicle charging infrastructure" is defined as all facilities, equipment, and electrical systems owned and installed by a large-scale electric utility, either on the customer's side or the utility's side of the electricity metering equipment and are used to facility utility vehicle charging service or other electric vehicle batter charging service. *See* Utah Code Ann. § 54-4-41(36). "Utility vehicle charging service" means the furnishing of electricity to an electric vehicle battery charging station by the public utility in whose service are the charging station is located and pursuant to a duly established tariff for rates, charges, and other conditions of service. *See id*. § 54-4-41(37).

1.0 Program Goals

The Company is proposing to develop an innovative and impactful infrastructure program that will have two primary goals: first, increase electrical vehicle (EV) adoption in the state of Utah, and second, operate an efficient and low-cost infrastructure program that adds revenue to the system

1.1 Increase EV Adoption

The EVIP will prioritize the deployment of EV chargers to create a robust EV charging network throughout the entire state. The EVIP will also work to ensure that there is sufficient EV charging capacity in high population areas. To assist in determining that the deployment is consistent with the needs for the state, the Company has worked with and will continue work with partners, including the Utah Department of Transportation (UDOT), the Utah Department of Environmental Quality, and the Governor's Office of Energy Development, to identify the optimum locations for investment in charging stations so that EV adoption is increased.

Studies have shown that two of the biggest barriers to EV adoption are low battery range (the distance a vehicle can travel on a single charge) and insufficient charging infrastructure. The combination of limited battery range and lack of charging infrastructure creates what is known as range anxiety. Range anxiety is the fear that a vehicle has insufficient range to reach its destination and would thus strand the vehicle's occupants. A study from Cox Automotive[2] found that the vehicle's battery range is becoming less of a concern as newer vehicles have battery ranges of over 200 miles but that the "priority is infrastructure" and that "there is a clear need for more charging stations". This is consistent with a poll conducted by Volvo/Harris as part of Volvo Reports[3] on

[2] Petusky, R (August 2019) *Evolution of Mobility: The Path to Electric Vehicle Adoption*, Cox Automotive Study
[3] Volvo Car USA and The Harris Poll, *The State of Electric Vehicles in America,* Volvo Reports No 7, February 2019

the "State of Electric Vehicles in America" which set out to explore drivers' perceptions of electric vehicles. The Volvo/Harris poll found that "the number one factor that would increase most drivers' likelihood to purchase an EV was more charging stations". By deploying utility-owned charging infrastructure and creating a robust charging network, the EVIP can be expected to increase electrical vehicle adoption.

1.2 Operate an Efficient and Low-Cost Program that Results in Additional Revenue

To ensure that low-cost services are available for customers, an objective is to operate the program efficiently while reducing operating costs as much as possible. The Company will look to the marketplace to find an EV network provider to assist in managing the operation and maintenance of the EV charger network so that the Company can provide services to customers that are reliable, efficient, and low cost. To find that network operator, the Company will conduct a competitive request for proposal (RFP). Further, the Company is committed to providing customers with low-cost EV charging services to reflect customers' contributions to infrastructure investments.

Although it is expected that some of the EV infrastructure investments will be "loss leaders" and will not generate significant revenue, particularly in remote areas, the EV infrastructure investments are still needed to ensure a robust network throughout the state. Despite certain charging stations being unlikely to generate significant revenue, a program objective is to deploy other infrastructure that is expected to generate revenue so that a portion of the overall program costs and expenses can be recouped. By focusing some of the investments on infrastructure that will cater to high volume users (vehicles that purchase large amounts of electricity from public charging stations), it is anticipated that additional revenue will be collected. High volume users are expected to come from fleets (including medium and heavy-duty vehicles) and passenger vehicles that do not have charging access at the primary residence and rely on public charging to

fuel their vehicles. Therefore, the Company will place charging infrastructure at locations that optimize usage for high volume vehicles, along with locations that support a state-wide network.

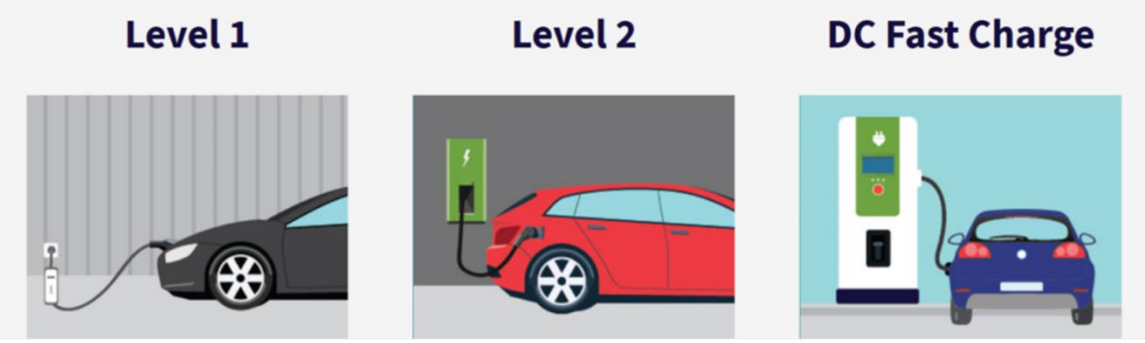
2.0 EVIP Program Elements

There are four core program elements which will be the mechanism by which the EVIP achieves the program goals outlined in Section 1.1. The four core program elements are: 1) Company-owned chargers, 2) make-ready infrastructure, 3) incentives, and 4) innovative projects and partnerships.

2.1 Company-owned chargers

A primary element of the EVIP is the investment and deployment of Company-owned chargers. Charging equipment for EVs is classified by the rate at which the batteries are charged. Charging times vary based on how depleted the battery is, how much energy it holds, the type of battery, and the type of charging equipment (e.g., charging level and power output). The charging time can range from five minutes to 20 hours or more, depending on these factors. There are three different levels of charging equipment, see Figure 1. Level 1 equipment provides charging through a 120 volt alternating current (AC) plug. Most, if not all, EVs will come with a Level 1 cordset, so no additional charging equipment is required. AC Level 2 equipment offers charging through 240 V (typical in residential applications) or 208 V (typical in commercial applications) electrical service. Both Level 1 and 2 charging equipment uses the Society of Automotive Engineers (SAE) J1772 connector. Direct-current (DC) fast charging equipment typically uses 208/480 V AC three-phase input that enables rapid charging. There are three types of DC fast charging systems, depending on the type of charge port on the vehicle: SAE Combined Charging System (CCS), CHAdeMO, and Tesla.

Figure 1. Description of Charging Levels[4]



Level 1	Level 2	DC Fast Charge
VOLTAGE; 120V 1-Phase AC	**VOLTAGE;** 208V or 240 V 1-Phase AC	**VOLTAGE;** 208V or 480V 3-Phase AC
AMPS: 12-16 Amps	**AMPS:** 12-80 Amps	**AMPS:** >100 Amps
CHARGING LOAD: 1.4-1.9 kW	**CHARGING LOAD:** 2.5-19.2 kW (Typ. 6.6 kW)	**CHARGING LOAD:** 50-350 kW
CHARGING TIME: 3-5 Miles per Hour	**CHARGING TIME:** 12-60 Miles per Hour	**CHARGING TIME:** 100 Miles in 40 min (50 kW) 100 Miles in 12 min (150 kW) 100 Miles in 5 min (350 kW)

The Company-owned chargers will be comprised primarily of DC fast chargers but may include Level 2 chargers for specific circumstances. Since most Level 2 chargers are deployed at workplaces and residences, the Company-owned chargers will be focused primarily on publicly available DC fast chargers. Although there could be special circumstances where Company-owned chargers include Level 2, it is expected that Level 2 chargers will be deployed as part of the EVIP through make-ready infrastructure and incentives. To ensure future proofing, the DC fast chargers will be designed to charge at 150 KW and 350 KW or a similar configuration so they can charge new vehicles at the fastest charge rate possible. The chargers will utilize the Combined Charging System (CCS) standard for charging but may include a few 50 KW CHAdeMO connection ports so that legacy vehicles can have access to the chargers. The typical Company-owned charging location will have between two to six chargers comprised of a mix of 50 KW, 150 KW and 350 KW with an expected capacity of around 700 KW at each location. The Company

[4] Source: https://www.advancedenergy.org/2020/11/01/an-overview-of-electric-vehicles-and-charging-stations/

will conduct a thorough RFP to select the chargers, network operator, and operations and maintenance contractor. The Company expects to deploy chargers at 20-25 locations. The goals in deploying the chargers are to create both a state-wide network and to establish locations that serve high-volume users.

2.2 Make-Ready Infrastructure

"Make-ready" infrastructure programs for EV chargers are becoming more commonplace with utilities across the country. Broadly speaking, "make-ready" refers to all necessary electrical infrastructure between the utility grid interconnection and the chargers, including stepdown transformers, electric service panels, conduit, conductors (wire), switchgear and power conditioning units, mounting pads or brackets, trenching, boring, and other such elements. The EV charger is not part of the "make-ready" infrastructure. The Company will include "make-ready" infrastructure as part of the EVIP and may in some circumstances include investments on the customer side of the meter as allowed under sections 54-2-1(36) and 54-4-41 of the Utah Code.

The Company will utilize an application process for interested customers to determine where to provide "make-ready" infrastructure investments. Applications will be evaluated and prioritized based on satisfaction of program goals discussed in Section 1.1, and which are determined to be in the public interest as outlined in section 54-4-41(4) of the Utah Code, and which are prudent investments as outlined in section 54-4-41(7) of the Utah Code. Non-Company EV charging operators are eligible for make-ready infrastructure investments.

2.3 Incentives

The Company's Sustainable Transportation and Energy Plan or STEP program has provided incentives through Schedule 120 to customers to install EV chargers since 2017. These incentives have covered a portion of the cost of the equipment and have been popular and effective. The incentives are scheduled to end on December 31, 2021, as the STEP program will be completed and closed. As part of the EVIP, the Company is proposing to provide EV infrastructure incentives to customers by continuing to offer Schedule 120. Because Schedule 120 was successful in getting charging infrastructure in the service territory, it should be an effective mechanism to ensure EV charging access and choice for customers. The Company will utilize the same process that is currently in place for EV infrastructure incentives[5]. Non-Company EV charging operators will continue to be eligible for incentives.

2.4 Innovative Projects and Partnerships

As EV charging technology continues to progress, it will be imperative that the Company stays current with the latest advances in vehicle and charging technologies. Some of the areas that the program will monitor include: mega-watt high-powered charging, static and dynamic inductive wireless charging, energy storage coupled with charging, smart charging, vehicle to grid (V2G) and vehicle to infrastructure (V2I), autonomous vehicles, drone and flying vehicles.

In addition to monitoring changes in technology, as mentioned previously, the Company will continue to explore technology developed from the Intermodal Hub project, a STEP-funded project with Utah State University (USU), studying the potential for a power balance and control system at Utah Transit Authority's (UTA) Central Station. The Company will also continue to partner

[5] See https://www.rockymountainpower.net/savings-energy-choices/electric-vehicles/utah-incentives.html

with research institutions like universities and the U.S. Department of Energy and participate on innovative projects like the WestSmatEV@Scale and eMosiac projects to ensure that the Company is at the forefront of EV technology.

Additionally, the Company will participate on the Freight Logistics Electrification Demonstration (F-LED) project[6], a collaboration with USU, UDOT and the Utah Inland Port Authority (UIPA) to electrify heavy-duty freight and hauling operations within the Inland Port. The project will incorporate innovative charging systems with 5G communications including plug-in, static and dynamic wireless charging. The project will utilize advanced intelligent control systems to optimize its operation and energy use. During the 2021 legislative session, the Utah Legislature appropriated funds to USU to enable the project. The Company has committed to partner with UIPA and USU on the project and provide some matching funds as part of the EVIP.

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

Further, the Company meets regularly with UDOT to coordinate plans for the deployment of EV chargers throughout the state[7]. The Company's on-going partnership with UDOT will continue to be a priority throughout the EVIP as the Company works to address the charging infrastructure needs for the state. As part of the on-going coordination, the Company and UDOT will share

[6] See Exhibit RMP_(JAC-3) for USU presentation to the Utah Legislature's Infrastructure and General Government Appropriations Subcommittee
[7] The Company provided feedback on the UDOT's EV Plan see Exhibit RMP_(JAC-4)

information on charging station locations, advancements in infrastructure technologies, changes in federal policies, and general transportation issues.

3.0 Rate Structure

Section 54-4-41(2)(b) of the Utah Code directs the Company to create a new customer class with an EV charging service rate structure that is in the public interest and has a transitional structure that will allow the Company to recover its full cost of service for charging infrastructure and charging service over a reasonable period of time. The following outlines the Company's approach to creating a new customer class, the proposed transition period for the rate structure and the proposed public charging service rate structure for Company-owned EV charging stations.

3.1 New Customer Class and Transition Rate Period

The Company proposes for the pricing to transition to cost-based pricing over a reasonable time frame. 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-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 for 2022.

The Company proposes a 10-year time frame for the transition, with greater pricing stability in the first five years, subject to the same percentage adjustments for any base rate price change and other modifications, as 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.

3.2 Public Charging Service Rates

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. The session fee is a charge that is assessed every time a user plugs in and transacts with the Company at one of its stations.

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 calculated 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, 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 as allowed in section 54-4-41(2)(b)(iii) of the Utah Code. Using the 6.4233 cents per kWh marginal cost of service value for Schedule 6 from the Company's most recent General Rate Case[8], the Company calculated a 15 cents per kWh charge for DC fast charging by Rocky Mountain Power customers.

[8] See Schedule 6 marginal cost, excluding retail costs in Docket 20-035-04 on page 4 of Exhibit RMP___(RMM-15)

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.[9] 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.

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

TIME PERIODS:

On-Peak: October through May inclusive

[9] 36 months ended September 30, 2020.

8:00 a.m. to 10:00 a.m., and 3:00 p.m. to 8:00 p.m., Monday through Friday, except holidays.

June through September inclusive

3:00 p.m. to 8:00 p.m., Monday through Friday, except holidays.

Off-Peak: All other times.

The Company believes the proposed session fees and energy charges in Table 1 reflect current market rates for public charging service in Utah, while at the same time sending price signals that encourage individuals to use the charging stations in a way that represent the Company's cost to provide this service.

4.0 Planned Investments

The Company will make investments in Company-owned chargers, make-ready infrastructure, and incentives as part of the EVIP. The Company will determine the locations for Company-owned chargers based on whether the investments are expected to achieve the program goals outlined in Section 1.1. Specifically, the Company will focus the charging station deployment at locations that contribute to completing gaps throughout the state and locations that support increased access and capacity for high-volume users, such as fleets and vehicles without charging at their residence, which can provide revenue to offset program costs. The selection of "make-ready" infrastructure and incentive investments will be made to interested customers and non-customers whose projects meet the public interest requirements in section 54-4-41(4) of the Utah Code and that are prudent investments as required in section 54-4-41(7) of the Utah Code. The investments in innovative projects and partnerships will be captured through the Company-owned chargers, make-ready infrastructure and incentives. For example, contributions to the F-LED project at the Inland Port will be captured through the "make-ready" infrastructure investments.

4.1 Approach

The Company intends to develop and administer the EVIP over a 10-year period starting in 2022 and operating through 2031. The Company will make initial investments over the first five years. After the initial five-year period, the Company will re-evaluate the EVIP to ascertain the effectiveness of the overall program and the effectiveness of the initial investments in Company-owned chargers, "make-ready" infrastructure, and incentives. As part of that evaluation, the Company will assess the state of the EV market both nationally and in Utah, advances in EV charging technologies, the performance of the installed chargers, including the network operators and their locations, the effectiveness of the "make-ready" infrastructure and incentives, and the status of the innovation efforts. Based on that evaluation, the Company will make any necessary modifications to the EVIP, including adding or removing chargers or charger locations.

4.2 Potential Locations for Company-Owned Chargers

The Company coordinated with key partners like UDOT and USU to identify statewide EV charging needs,[10] along with potential locations for high volume EV users. The evaluation considered existing charging infrastructure, as well as current Company-owned electrical infrastructure and expected consumer needs and uses to ensure the creation of a robust state-wide network. To select locations, the Company utilized eight primary criteria to determine if the proposed communities were appropriate for the deployment of EV infrastructure. The Company also used a ninth factor to review the proposed locations to check that the selected locations included under-represented communities. The criteria factors used were:

1) High-powered charging infrastructure is not present-Although there are many 50 KW chargers that are publicly available, to properly serve the next generation of electric vehicles charging speeds need to be a minimum of 100KW or greater. In the initial selection of locations,

[10] See Exhibit RMP_(JAC-4)

this criterion prioritized communities without access to 100KW or greater DC fast chargers. The presence of high-powered charging was checked using the Plugshare website[11].

2) Interstate highway is within 2 miles-Access and proximity to Interstates will increase the potential use of the chargers; this is particularly true for fleets and long-distance travelers. It also increases convenience for consumers. Google maps[12] was checked to measure the communities' distance from Interstates.

3) Mass transit center is in the community-There is a natural synergy between mass transit and electric vehicles. There is the potential for shared infrastructure between electric light rail, electric buses and public DC fast chargers as envisioned in the Intermodal Hub STEP project. Further, there is the potential to leverage park and ride facilities. UTA's transit centers were reviewed.[13]

4) Large multi-family unit apartments have been recently constructed-Multi-family units represent a significant opportunity for public DC fast chargers since many residents will not have access to charging at home. Further, new multi-family units tend to be constructed in clusters so deploying DC fast chargers near recent construction could benefit from future builds. The CBRE Salt Lake area multi-family market outlook report was reviewed.[14]

5) Owner occupied housing is below state average-In addition to apartments, many potential EV owners live in rented housing that is comprised of single-family homes, duplexes, basements, or individual rooms. Since these potential EV owners do not control their access to charging at home, there will be a higher demand for public charging in communities with lower owner-occupied housing. This criterion compared the communities' owner-occupied housing rate with the state average. The occupancy rates in Utah were compiled by the U.S. Census.[15]

6) Gaps in corridors are filled-Assist in filling corridors or routes with needed charging infrastructure to enable drivers to travel throughout the entire state. Coordinated with UDOT to identify gaps.

7) Destination or special use areas-Prioritized communities that are either a destination or a key pathway for a destination and special use areas. Destinations include national parks, national monuments, state parks, or recreation areas. Further, this criterion includes special use areas, which are areas that attract many people to a single location or area. Special use areas include universities and colleges, military installations, or development districts (e.g., UIPA and The Point).

8) Rural Area-Priority is given to rural areas to ensure the entire state has access to charging infrastructure. According to the U.S. Census,[16] rural areas are defined as areas that are not urban. There are two urban classifications: "Urbanized Areas" have a population of 50,000 or more, and "Urban Clusters" have a population of at least 2,500 and less than 50,000. Utah has five metropolitan areas (Logan, Ogden, Salt Lake, Provo, and St. George) that meet the "Urbanized Areas" definition. For this analysis rural areas are outside of the five "Urbanized Areas" of the state.

9) Traditionally Under-Represented Community-This factor compares the non-white population of the community with the average non-white population of the state[17]. If the

[11] www.plugshare.com
[12] www.google.com/maps
[13] https://www.rideuta.com/Rider-Tools/Schedules-and-Maps
[14] https://www.cbre.us/research-and-reports/Salt-Lake-City-Multifamily-2020-Review-2021-Outlook
[15] https://www.census.gov/quickfacts/UT (Based on July 2019 Data)
[16] https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html
[17] https://www.census.gov/quickfacts/UT (Based on July 2019 Data)

community had a greater amount of non-white population, then it was included as traditionally under-represented community. This factor is not determinative, and it was not included in selecting communities, rather it was used as a check to validate that traditionally underserved communities are included in the deployment of chargers.

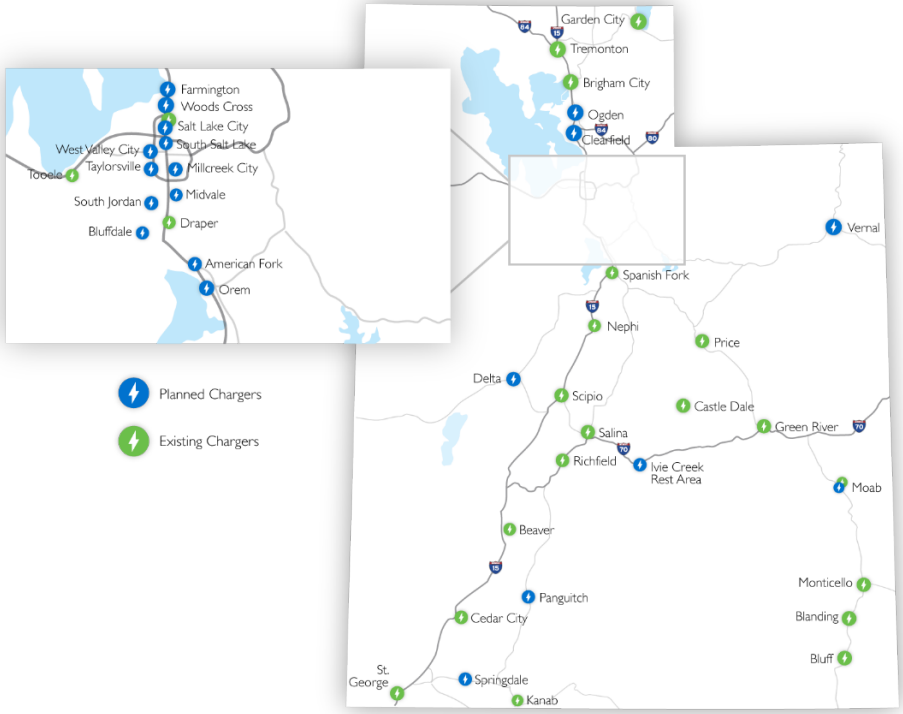
Table 2. Location Selection Criteria

Cities	Does Not Have Existing High Powered Chargers	Less than 2 mi from an Interstate	Host to Mass Transit Center	Multiple New Large Apartments	Owner Occupied Housing Below State Avg	Fills Corridor Gaps	Destination, or special use	Rural	Traditionally Under-respresented Community
Ogden	x	x	x	x	x		x		x
Clearfield	x	x	x	x	x		x		x
Farmington	x	x	x	x					
Woods Cross	x	x	x	x					
Salt Lake City		x	x	x	x		x		x
South Salt Lake	x	x	x	x	x				x
West Valley City	x	x	x	x	x				x
Millcreek City	x	x		x	x				
Taylorsville	x	x			x		x		x
Midvale	x	x	x	x	x				x
South Jordan	x	x	x	x					
Bluffdale	x	x		x			x		
Vernal	x				x	x	x	x	
American Fork	x	x	x	x					
Orem	x	x	x	x	x		x		x
Delta	x					x	x	x	
Ivie Creek I-70	x	x				x	x	x	
Moab					x	x	x	x	x
Panguitch	x					x	x	x	
Springdale	x		x				x	x	

The potential sites were analyzed using eight criteria factors, and each potential location needed to at least meet four of the eight factors to be selected, see Table 2. A ninth factor, which was not part of the selection criteria, was used to validate that the deployment of Company-owned chargers included traditionally under-represented communities. The Company identified 20 communities as potential sites for its initial deployment of Company-owned chargers, see the map in Figure 2.

The map contains existing charging sites and planned locations. The existing sites[18] include locations throughout the entire state and only with chargers of over 100KW.

Figure 2. Map of Existing and Planned Charging Locations



The Company locations will have between two and six chargers with a mix of 50 KW, 150 KW, and 350 KW chargers with an average total installed capacity of 700 KW and be located within the service territory. This list is not exhaustive, and the final locations will be selected after detailed engineering site and marketplace evaluations are conducted. The Company expects to

[18] The existing sites may include multiple operators, but the Tremonton, Tooele, Draper, and Nephi the sites are Tesla Superchargers only. Although Tesla chargers are currently limited to Tesla vehicles, Tesla has recently announced their intention to allow other vehicles to use their chargers.

REDACTED

eventually select between 20-25 locations during its initial deployment of EV chargers as part of the EVIP.

4.3 Expenditures

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

The expenses include operation, maintenance, administrative, and general (OMAG) expenditures which includes the Company's program management, planning, marketing and administrative costs. The Company anticipates higher OMAG at the beginning of the program as it identifies and constructs sites, hires vendors, markets the program to customers and then lower OMAG as the program is underway. The Company also expects to hire a third party to operate the network of Company-owned chargers including the maintenance and software services. This expenditure will be lower at the beginning of the program but then increase as more sites become operational, and repairs and part replacements are required. The final operational expense listed in Table 3 is for Incentives. The Incentive amount is an estimate anticipating customer demand based on previous experiences from the STEP program but may change from year to year. The Company may increase or decrease the amounts based on actual customer demand.

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

4.4 Revenue from Company-owned Chargers

The Company-owned chargers are expected to provide revenue to help offset some of the costs of the program. Section 3.2 outlines the proposed prices for the DC fast chargers, for which there are two different rates: one for RMP customers ($0.15 kWh) and another for non-RMP customers ($0.40 kWh), with an off-peak discount of $0.05 kWh for both types of users. The Company estimates that 90% of the users will be RMP customers and 10% non-RMP customers and that charging sessions will occur off-peak 55% of the time and on-peak 45%. The average kWh price collected during charging sessions using these ratios is $0.15 kWh, see Campbell workpapers for the calculation.

In USU's analysis on EV Adoption and Charger Utilization, see Exhibit RMP_(JAC-5), revenue was estimated at a representative location of Company-owned chargers with varying levels of utilization. The representative location contains a combination of 50 KW, 150KW, 350 KW chargers with an average combined capacity of 700KW.

4.5 Cost Recovery

The Company anticipates spending up to $50 million for all investments, costs, and expenses for the program over the 10-year period. The Company proposes to recover $5 million per year for 10 years from customers for these expenditures. The Company is proposing collecting the same amount per year so the EVIP has a predictable impact on customers' bills and there are no fluctuations in the billing rate over the life of the program.

4.6 Risks

It should be noted that there are risks in achieving the timelines and estimated expenditures. Among the risks are potential supply chain issues resulting from COVID disruptions, tariffs, inflation, and semiconductor shortages. Another risk is potential demand for chargers, particularly if the Federal government rolls out an aggressive EV infrastructure program which could put pressure on current EV charger equipment supply and prices. Lastly, there could be a shortage of construction crews, as there is strong demand for construction workers in the state of Utah.

5.0 Public Interest

In HB 396, the Utah Legislature identified criteria for the Commission to determine if the Company's charging infrastructure program is in the public interest. Section 54-4-41(4) of the Utah Code identifies five specific criteria that must be met for the Commission to determine the Company's program is in the public interest. The Commission must find that the charging infrastructure program: a) increases the availability of electric vehicle battery charging service in the state; b) enables significant deployment of infrastructure that supports electric vehicle battery charging service and utility-owned vehicle charging infrastructure in a manner reasonably expected to increase electric vehicle adoption; c) includes an evaluation of investments in the Inland Port and the Point of the Mountain state lands; d) enables competition, innovation, and customer choice in electric vehicle battery charging services, while promoting low-cost services for electric vehicle battery charging customers; and e) provides for ongoing coordination with UDOT. The proposed EVIP is in the public interest and meets the criteria established by the Utah Legislature.

5.1 Increases Availability of Charging Throughout the State

The Company proposes to initially install chargers at between 20-25 locations as part of the EVIP. These locations include sites in northern Utah in Weber, Davis, Salt Lake and Utah Counties. In addition, the Company is proposing sites in Millard County in western Utah, Sevier County in central Utah, Uintah County in eastern Utah, Washington and Garfield counties in southern Utah, and Grand County in southeastern Utah. The proposed sites and average installed capacity will increase the availability of charging throughout the state.

5.2 Enables Significant Deployment of Infrastructure Expected to Increase EV Adoption

The Company expects that the EVIP will enable the significant deployment of infrastructure through the Company-owned chargers, the "make-ready" investments, and customer incentives in a manner that is reasonably expected to increase EV adoption. EV adoption is highly dependent on certain variables, including gasoline price fluctuations, financial incentives, user socio-economic factors, and infrastructure availability. The significant deployment of infrastructure as the result of utility programs is an important variable that can increase EV adoption. Researchers at USU calculated a forecasted estimate[19] of EV adoption in Utah as the result of the Company's EVIP. The forecast includes light and heavy-duty vehicles, (LDV and HDV) in Utah. The forecast used a Bass model defined as:

$$F(t) = M\frac{1 - e^{-(p+q)t}}{1 + (q/p)e^{-(p+q)t}}$$

Where:

$F(t)$: cumulative adoption by time t

[19] See Exhibit RMP_(JAC-5)

M: market potential, need to be estimated in advance

p: coefficient of innovation

q: coefficient of imitation

The coefficients p and q were calibrated by the historical EV adoption data collected from the Alliance of Automobile Manufacturers (AAM) and Utah Department of Motor Vehicles for passenger vehicles, and similar adoption patterns were assumed for light-duty trucks and Sport Utility Vehicles. USU originally developed the model as part of the WestSmartEV project and updated the model in 2020 for the EVIP analysis. USU researchers calculated the adoption model with the utility programs and without the utility programs, see Figure 3. USU evaluated three growth scenarios for EV adoption, low, medium, and high. The model illustrates that the presence of significant EV charging infrastructure is a critical component for EV adoption.

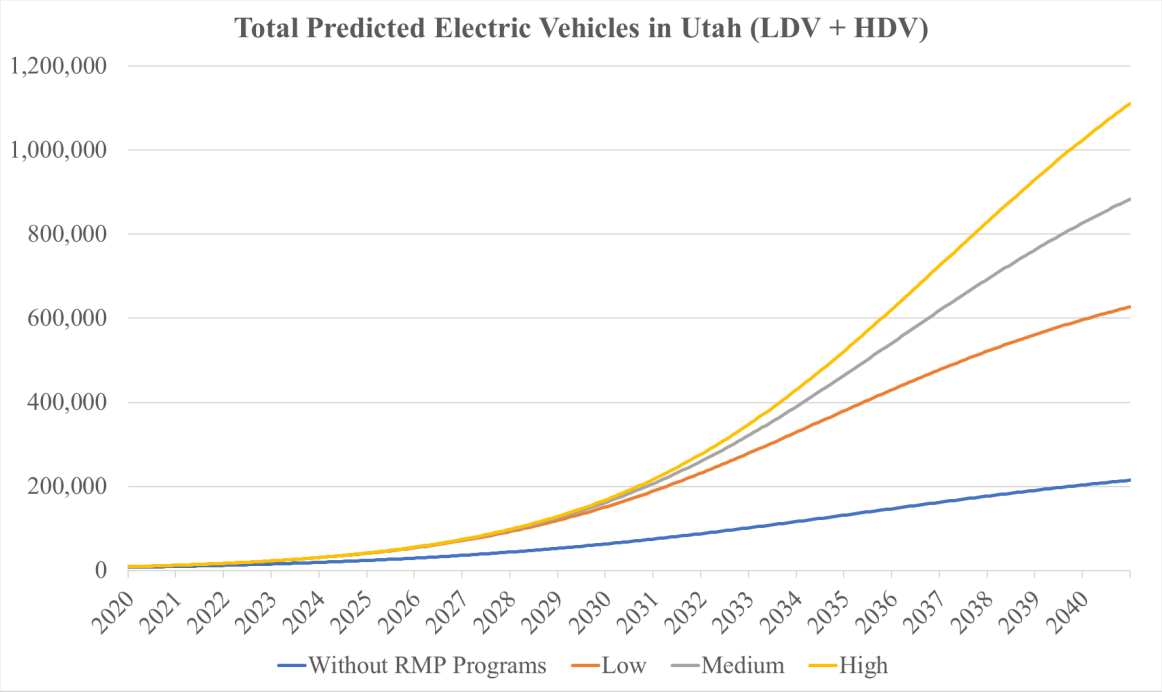


Figure 3. Predicted EV Adoption in Utah from Utility Programs

Assuming the medium growth scenario, the predicted number of EVs in the state of Utah for years 2026 and 2031 are presented in Table 5. The numbers reflect the total number of EVs on the road in that year.

Table 5. 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

According to the USU model, EV adoption in Utah without utility programs is expected to be around 32,000 vehicles in 2026 and 80,000 vehicles in 2031. It is then expected that the Company's proposed EVIP would increase EV adoption in Utah by an additional 31,000 vehicles in 2026 and 150,000 vehicles by 2031.

5.3 Evaluation of Inland Port and Point of the Mountain Developments

The Company is evaluating potential investments at the Utah Inland Port and Point of the Mountain developments as part of the EVIP. The Company has begun this process by signing Cooperation Agreements with both UIPA and The Point. In the Cooperation Agreements, all parties agree to coordinate and cooperate on developing EV infrastructure within the development areas. The Company proposes to make investments within UIPA as part of the F-LED project, a state funded collaboration with UIPA and USU, to electrify freight hauling operations. The Point is not far enough along in their planning process to identify specific investments, but the Company will continue to work with that agency, and it expects to be able to identify investments in the next couple of years.

5.4 Enables Competition, Innovation, Customer Choice, and Low-Cost Services

The EVIP enables competition, innovation, and customer choice for EV charging services while promoting low-cost services to customers. By expanding the availability of charging stations throughout the state as outlined in the plan, the Company will help provide additional access and competition for charging services. The Company is also committed to promoting low-cost services, particularly for Company customers that use the charging services, by offering different rates to reflect the customers' contributions to the investments. To enable expanded competition and customer choice, non-Company EV charging operators are eligible for incentives and "make-ready" infrastructure investments. The Company expects that these additional investments will enable other EV charging providers to enter the market, which will lead to increased customer choice and competition.

To enable innovation, the Company will continue to partner and engage with leading experts in EV technology like USU, the University of Utah, U.S. Department of Energy, UTA, the Utah Governor's Office of Energy Development, and others. The Company will also continue participating on innovative EV projects like the WestSmartEV@Scale, and F-LED. This combination of partnerships and projects will assist the Company to stay at the forefront of EV innovations and advancements.

5.5 Ongoing Coordination with UDOT

Since the conclusion of the 2020 Utah legislative session, the Company has met continuously with UDOT to coordinate on the development of a state-wide EV charging network plan[20]. During these regular informal meetings, UDOT provided input and feedback into the development of the

[20] See Exhibit RMP_(JAC-4)

EVIP. The meetings included discussions on state traffic patterns, rights-of-way, federal rules regarding rest stops on interstates, federal designations of Alternative Fuel Corridors, EV technology, utility service territory boundaries, and potential site locations. The Company and UDOT have agreed to continue to meet and coordinate on the planning and deployment of an EV charging network.

6.0 Prudent Investments

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

The Company believes that the proposed EVIP investments in Company-owned chargers, make-ready infrastructure, and incentives are prudent and are reasonably anticipated to meet the requirements outlined by the Legislature.

6.1 Reduction in Transportation Sector Emissions

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

To calculate the projected transportation sector emission reductions from the EVIP, the Company estimated net carbon reductions using the following approach: estimate the annual carbon emissions from a representative or proxy vehicle and multiply those emissions by the total number of EVs on the road as a result of the EVIP; then subtract the associated system emissions used to serve the electrical needs of the vehicles:

$$Total\ CO2\ Emission\ Reductions = Proxy\ vehicle\ annual\ CO2\ emissions \times \#\ of\ vehicles - System\ Emissions\ from\ EVs$$

The proxy vehicle selected is a typical light duty passenger vehicle.

According to the United States Environmental Protection Agency (EPA)[21],

> "a typical passenger vehicle emits about 4.6 metric tons (MT) of carbon dioxide per year. This number can vary based on a vehicle's fuel, fuel economy, and the number of miles driven per year. The average gasoline vehicle on the road today has a fuel economy of about 22.0 miles per gallon and drives around 11,500 miles per year. Every gallon of gasoline burned creates about 8,887 grams of CO_2, and there are one million grams per metric ton."

Using the EPA estimate for light duty passenger vehicles is conservative because it does not include light duty trucks, delivery vans, or medium and heavy-duty trucks which all have greater emissions per mile driven and typically have more vehicle miles travelled per year, thus the risk of overestimating the emissions benefits from the EVIP is small.

To determine the number of EVs on the road as a result of the EVIP, the Company used the USU analysis (see Section 5.2) on EV adoption. According to the USU projection, EV adoption in Utah is estimated to increase by 31.000 vehicles in 2026 and 152,000 vehicles in 2031 due to the implementation of the EVIP.

[21] U.S. EPA Office of Transportation and Air Quality, *Greenhouse Gas Emission from Typical Passenger Vehicle*, EPA-420-F-18-008, March 2018

The system emissions associated with providing electricity to EVs are calculated and subtracted from forecasted emission reductions. To calculate the associated system emissions, the Company's system emissions factor is estimated for 2026 and 2031, using 2019 Integrated Resource Plan (IRP), see Exhibit RMP_(JAC-6) for a description of the factor calculation. The electricity consumed by the vehicles is estimated by multiplying an average kWh per mile by total miles driven in a year. The kWh per mile can vary from vehicle to vehicle and driver to driver depending on driving conditions (mountains/temperature) and habits (fast versus efficient). According to JD Power,[22] the 2021 Tesla Model 3 gets 0.24 kWh per mile and Ford Mustang Mach E gets 0.34 kWh per mile. The Company used an average value of 0.3 kWh per mile. Further, the Company used EPA's estimate that a typical passenger car drives 11,500 miles per year.

The EVIP is expected to reduce transportation sector emissions as shown in Table 6.

Table 6. 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

Switching an additional 31,000 and 150,000 vehicles to EVs by the years 2026 and 2031 results in estimated annual reductions of 213 million pounds of carbon dioxide and 1.029 billion pounds of carbon dioxide (CO2), respectively. The Company believes the EVIP meets the transportation sector emissions reduction requirement as outlined in section 54-4-41(7)(a) of the Utah Code.

[22] https://www.jdpower.com/cars/shopping-guides/what-is-kwh-per-100-miles

6.2 Significant Benefits

The EVIP is expected to provide customers significant benefits through revenue that offsets the costs and expenses of the program. By investing in infrastructure and programs outlined in the EVIP, USU predicted that EV adoption will significantly increase in the state of Utah. Consumer demand for public EV chargers will come after investments are made due to the increased EV adoption that their presence enabled. A study from McKinsey & Company[23] estimates that DC fast charging will supply up to 20% of the charging needs in the US by 2030. The study showed significant growth in need for public fast charging at higher adoption levels, particularly in more urbanized regions, to accommodate vehicle owners without private parking at home or work and scenarios where vehicles are operated more continuously throughout the day (e.g., fleets and ride-sharing vehicles). Therefore, if 20% of vehicles' energy is delivered to consumers via public fast charging then there should eventually be sufficient consumer demand for 20-25 Company-owned charging locations throughout the state as proposed in the EVIP.

In USU's analysis, revenue was estimated at a representative location of Company-owned chargers with varying levels of utilization. The representative location contains a combination of 50 KW, 150KW, 350 KW chargers with an average combined capacity of 700KW. Using rates outlined in Section 3.2, the estimated revenue for a representative Company-owned charger is expected to range between $78,000 at 10% utilization and $309,000 at 40% utilization. It is anticipated that by 2027 there will be between 20-25 locations operating. The combined annual revenue at all Company locations is estimated to range between $1,560,000/year (20 locations at 10% utilization) and $7,725,000/year (25 locations at 40% utilization). These potential benefits may be

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

conservative because the analysis only includes revenue from Company-owned public DC fast chargers. As mentioned above, McKinsey & Company predicts that public DC fast chargers will account for only 20% of all charging needs, so the remaining 80% will come from charging at home or the workplace (which are predominately Level 1 and Level 2 charging and, in most cases, do not require additional system infrastructure). The charging at home and work will provide additional revenue through traditional schedules and tariffs contributing to fixed system costs and potentially benefitting all customers. Nevertheless, the Company-owned DC fast chargers should contribute significant revenue on their own. The Company believes that the proposed EVIP investments are reasonably anticipated to provide significant benefits to customers and will offset some of the costs and expenses of the program as required in section 54-4-41(7)(b) of the Utah Code.