REV WEST

Electric Vehicle Policy Baseline for the Intermountain States

October 2018

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Acknowledgements

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Introduction

The Governors of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming signed a Memorandum of Understanding (MOU) in October 2017 to create an Intermountain West Electric Vehicle Corridor that will make it possible to seamlessly drive an EV across the western states' major transportation corridors. The MOU outlines several substantive and procedural activities that the Signatory States will undertake as a region to support the goals of the REV West Plan, in addition to the ongoing actions to support EV adoption within each western state. Examples of such activities include creating best practices and procedures that will enhance EV adoption; coordinating on EV charging station locations; creating voluntary minimum standards for EV charging stations; and identifying and developing opportunities to incorporate EV charging station infrastructure into planning and development processes.

This analysis is designed to help the REV West states take a first step toward achieving the goals outlined above by gathering baseline data and developing an inventory of policies across the region. The following pages will:

- Present data on charging station availability in the intermountain west;
- Highlight policy and program trends in the REV West region, touching on EV and EVSE incentives, state-level procurement and deployment targets, electricity rates and regulations, education and outreach initiatives, relevant building codes, and other policies; and
- Present individual state profiles detailing state-level policies and spending priorities under the Volkswagen Settlement's Environmental Mitigation Trust.

This inventory will serve as the basis from which states can create best practices, coordinate infrastructure investment, develop voluntary standards, identify opportunities to incorporate infrastructure into planning and development processes, and measure progress.

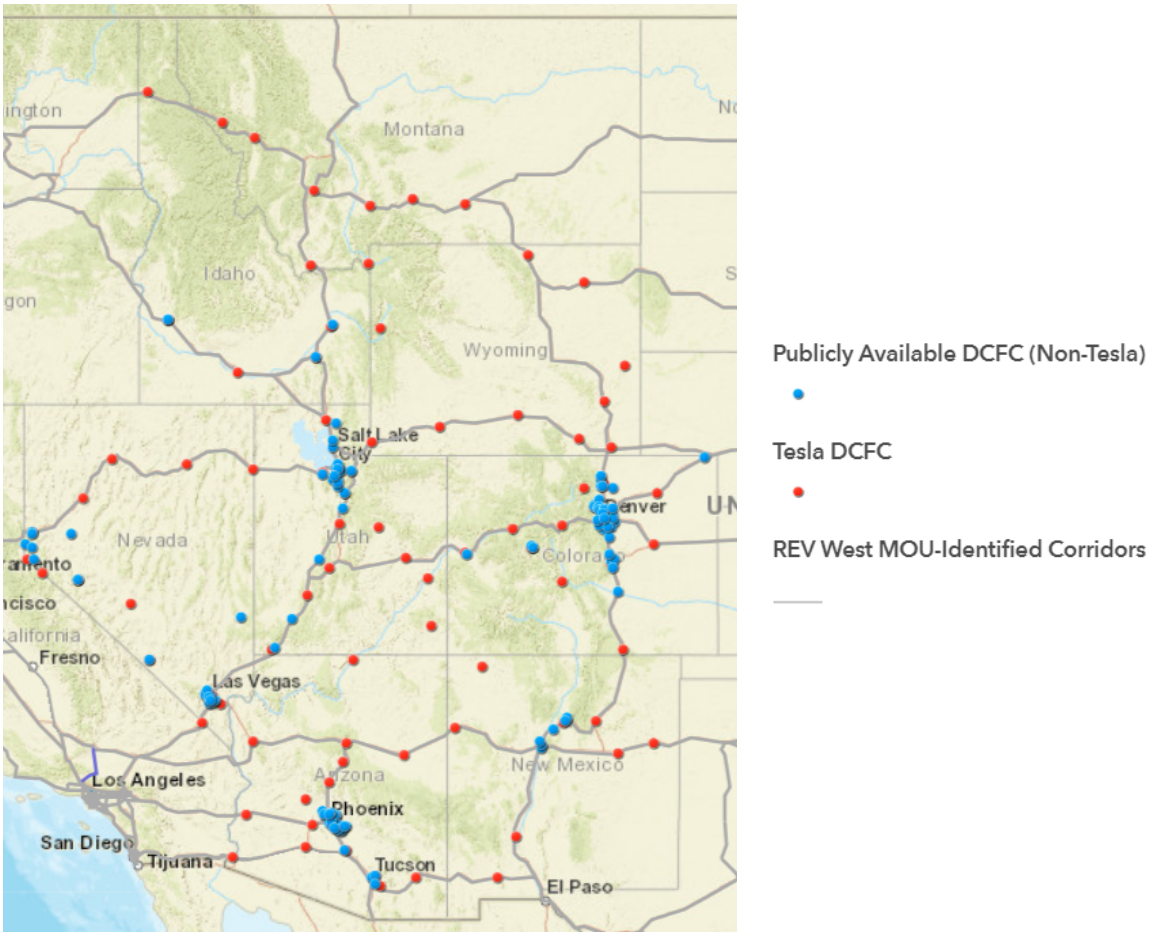
EV Infrastructure in the Intermountain West

There are 233 DC fast charging locations in the REV West states, containing 911 ports. Of those, 89 locations host Tesla Superchargers and 649 Supercharger ports. DC fast charging stations in the intermountain west are primarily located along major corridors, with community chargers in select metropolitan areas. As can be seen in Figure 1 below, significant infrastructure gaps exist among major highways in the REV West region, including many identified as key corridors in the REV West MOU.

DC Fast Chargers in the REV West Region[1]

State	Public Station Locations	Public Ports	Tesla Station Locations	Tesla Ports	Total Station Locations	Total Ports
Arizona	34	59	18	168	**52**	**227**
Colorado	47	87	14	107	**61**	**194**
Idaho	4	4	5	38	**9**	**42**
Montana	0	0	8	44	**8**	**44**
New Mexico	8	15	9	56	**17**	**71**
Nevada	24	46	14	108	**38**	**154**
Utah	27	51	11	64	**38**	**115**
Wyoming	0	0	10	64	**10**	**64**
Total	**144**	**262**	**89**	**649**	**233**	**911**

Figure 1: DC Fast Charging Stations in the REV West States[2]



In addition, there are 1,456 Level 2 charging station locations in the REV West states with a total of 3,376 ports. These stations, particularly along major transportation corridors, have laid the groundwork for interstate travel in the western states, although there is room to "fill the gaps" across the region.

Level 2 Chargers in the REV West Region[3]

State	Station Locations	Ports
Arizona	378	898
Colorado	594	1364
Idaho	51	93
Montana	24	41
New Mexico	44	75
Nevada	182	455
Utah	155	399
Wyoming	28	51
Total	**1456**	**3376**

Several mapping applications exist for tracking and visualizing EV infrastructure installations that may be of interest to states and municipalities when inventorying chargers and planning for EV infrastructure investment. Two of the more prominent databases are the U.S. Department of Energy's Alternative Fuels Data Center (AFDC), and Plugshare.

The AFDC is a fairly comprehensive database of existing and planned alternative fuel stations nationwide. Users can sort by fuel type, and within the EV database can sort by level of charger (Level 1, Level 2, and each DC Fast Charger standard), search for public, private, or planned stations, and can zoom to see stations at the zip-code and jurisdiction level. The database is populated by Clean Cities Coordinators (funded by the U.S. Department of Energy's Clean Cities program), and station locations can be uploaded by other users and are posted after vetting by the U.S. DOE. Users can also download station location data into a CVS or excel file and upload the information to their own mapping applications.

Plugshare is a privately-owned, publicly-accessible mapping application for EV charging stations. Users can sort for stations by region (North America, Europe, United Kingdom, Japan, Oceania, and World), search by level of charger (J-1772, CHAdeMO, CCS/SAE, Supercharger/Tesla/Roadster, Wall, and NEMA 14-50), filter by network, search by station characteristics (payment required, restricted locations, residential locations, and currently in-use locations), and search by amenities. Unlike AFDC, Plugshare also shows residential locations, allowing EV users to upload station data from and about their home. While there are numerous network-specific databases and general EV station smartphone apps, AFDC and Plugshare are the most comprehensive databases with customizable searches that allow users to locate stations.

EV Mapping Applications
AFDC Station Locator: https://www.afdc.energy.gov/stations/
Plugshare: https://www.plugshare.com/

Policies and Programs in the Intermountain Region

The REV West states have implemented a variety of policies and programs to support EV adoption in their jurisdictions, ranging from vehicle purchase incentives to EVSE installation programs to education and outreach activities. These programs are often supported by a combination of federal- and state-level funds, including support from the U.S. State Energy Program, the Congestion Mitigation and Air Quality Program, the U.S. Clean Cities Program, state general funds, and most recently, the Volkswagen Settlement's Environmental Mitigation Trust. The following section identifies EV policy adoption trends in the intermountain states, with a focus on policy and program implementation at the state- and utility-level. A full inventory of policies and programs in the REV West states can be found in the Appendix.

Electric Vehicle Purchase Incentives

The high up-front cost of electric vehicles is considered a significant barrier to widespread EV adoption, both for passenger and vehicle fleets. To help close this incremental cost gap and bolster EV uptake, states, utilities, and localities are increasingly offering EV purchase incentives to decrease the price of a plug-in electric vehicle. Vehicle purchase incentives for individuals include on-the-hood incentives (such as a point-of-sale rebate), or after-sale incentives (such as a mail-in rebate or tax credit), and these incentives can be offered at the federal, state, or local level, or offered by a third party (such as a utility). The federal EV tax credit is one example of an after-sale incentive. Under this incentive, a tax credit is available in the amount of $2,500 - $7,500, depending on the size of the vehicle's battery and gross weight rating. The credit will begin to be phased out for each manufacturer in the second quarter following the calendar quarter in which a minimum of 200,000 qualified EVs have been sold.[4] Vehicle purchase incentives may also be offered to light-, medium-, or heavy-duty fleets, and often take the form of grants and financing incentives.

There are a variety of EV purchase incentives available in the intermountain region. Colorado's Plug-In Electric Vehicle Tax Credit is one notable example. The credit – up to $5,000 for a new light-duty EV or PHEV – is available to taxpayers that purchase or lease a qualified vehicle for not less than two years. The credit applies to light-duty EVs, PHEVs, or electric trucks, as well as medium- and heavy-duty electric trucks.

Colorado Plug-In Electric Vehicle Tax Credit

Category	2017-2019	2020	2021
Light-duty EV or PHEV	$5,000 for purchase or conversion; $2,500 for lease	$4,000 for purchase or conversion; $2,000 for lease	$2,500 for purchase or conversion $1,500 for lease
Light-duty electric truck	$7,000 for purchase or conversion; $3,500 for lease	$5,500 for purchase or conversion; $2,750 for lease	$3,500 for purchase or conversion; $1,750 for lease
Medium-duty electric truck	$10,000 for purchase or conversion; $5,000 for lease	$8,000 for purchase or conversion; $4,000 for lease	$5,000 for purchase or conversion; $2,500 for lease
Heavy-duty electric truck	$20,000 for purchase or conversion; $10,000 for lease	$16,000 for purchase or conversion; $8,000 for lease	$10,000 for purchase or conversion; $5,000 for lease

Other states in the region offer grant and financing programs for public and private fleets. The New Mexico Environment Department offers funding for heavy-duty on-road and limited off-road diesel emission reduction projects, which include funding for medium- and heavy-duty electric vehicles.[5] Colorado's Impact Assistance Program for Public Fleets offers competitive funding for the incremental cost of alternative fuel vehicles for public fleets,[6] and through Charge Ahead Colorado, government and non-profit fleets are eligible for EV grants in the seven-county metro area. A similar program, the Conversion to Alternative Fuel Grant Program, allows businesses in Utah that convert vehicles to electricity or another alternative fuel to apply for a grant of up to $2,500 per conversion.[7]

Group buy – or cooperative procurement – is another program option for states when considering EV purchase incentives for fleets. This option allows government agencies to pool resources by purchasing equipment under another government entity's contract. Offering multiple contracts with a variety of lead agencies for a variety of vendors can help keep costs low and enable early technology adoption. Some municipalities in the REV West region – such as Boulder, Colorado and Salt Lake City, Utah – have developed group buy programs for EVs, though few examples exist at the state-level.[8]

Vehicle purchase incentive programs – particularly for medium- and heavy-duty fleets – are likely to become more prevalent in the intermountain region in the coming years. The Volkswagen Settlement has provided states in the region with funding – ranging from $8 million to $68 million in the REV West states – to put toward projects that reduce nitrous oxide (NOx) emissions in the transportation sector. States have the discretion to spend these funds on a variety of projects, including replacing or retrofitting medium- and heavy-duty diesel fleets with electric and other alternative fuel vehicles. While few of the REV West states have committed to specific fuel types, all have dedicated a portion of funding to truck and bus replacement and retrofit projects, and have the option of investing in medium- and heavy-duty vehicle electrification over the life of the trust. For example, Nevada's Department of Environmental Protection is providing funding through the Volkswagen Settlement's Environmental Mitigation Trust to replace or retrofit highway-certified medium- and large-trucks and buses with electric or alternative-fuel engines.[9] See Appendix A for breakdown of Environmental Mitigation Trust planned expenditures by state.

Volkswagen Settlement –
Environmental Mitigation Trust Allocations in REV West States

State	EMT Allocation
Arizona	$56,660,078
Colorado	$68,739,918
Idaho	$17,349,037
Montana	$12,602,425
Nevada	$24,874,024
New Mexico	$17,982,661
Utah	$35,177,506
Wyoming	$8,125,000
Total	**$241,510,649**

EVSE Installation Incentives

One of the most significant impediments to potential EV drivers purchasing an EV is the fear that they will run out of charge before arriving at their destination. To address this "range anxiety," states, localities, utilities, and others are either directly installing or offering programs to support the installation of EV charging stations at public and private locations. These programs come in the form of grants, loans, or other incentives for third-parties to install DC fast chargers or Level 2 EVSE at public and private locations, including at sites along major highway corridors, at civic or cultural centers, or at retail locations, as well as at workplaces and multi-family dwellings.

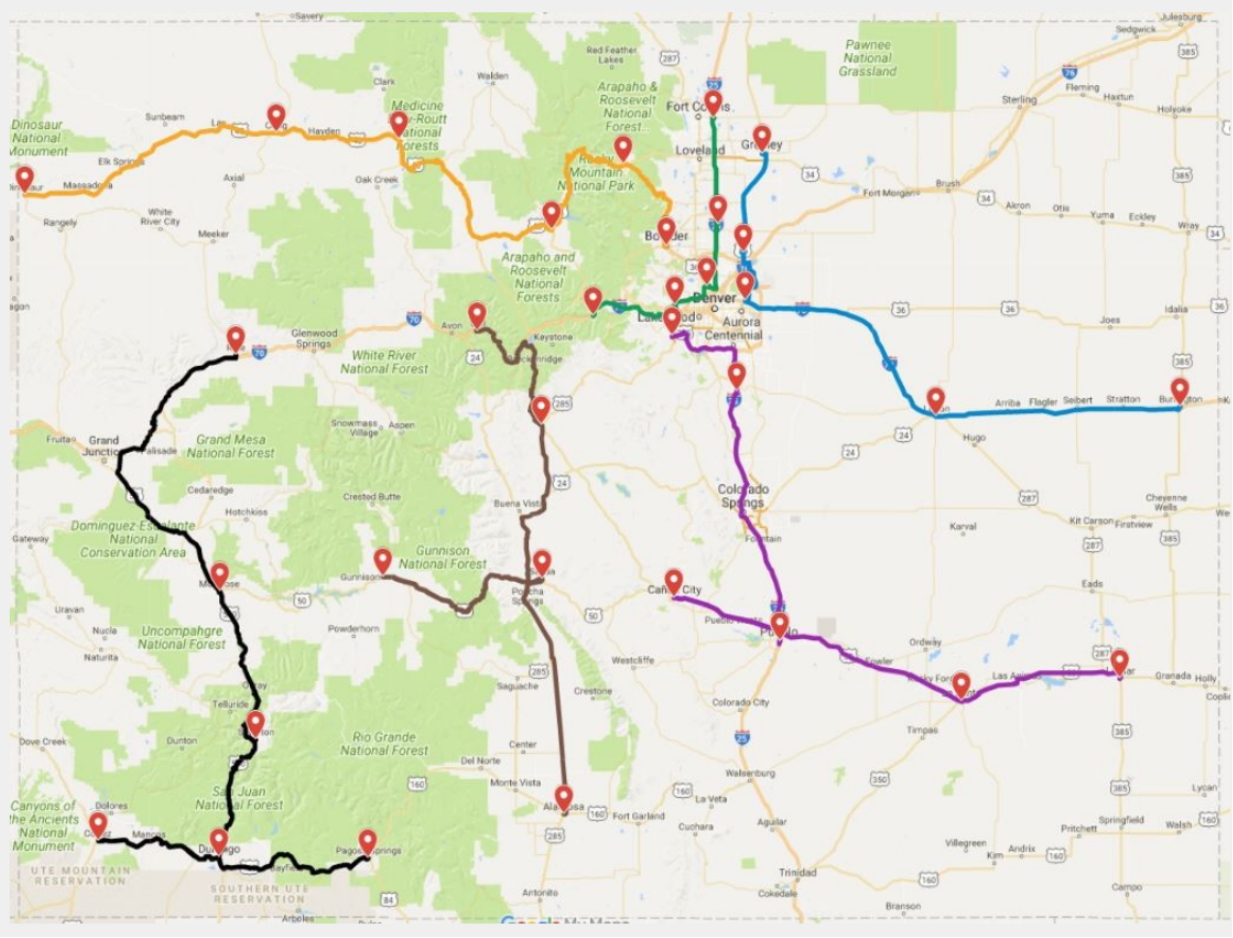
In general, states and utilities within the intermountain region offer incentives that target four categories of charging: highway corridor and community charging; residential charging; workplace charging; and multi-family charging.

Corridor and Community Charging. Corridor charging programs are designed to incentivize EVSE placement at locations that will provide a charge during long-distance trips and help to increase range confidence. States are working independently and with others in their region to electrify major highways. An early example is the West Coast Electric Highway, a collaboration between Washington, Oregon, and California to electrify major corridors in the pacific northwest. The stations are located every 25 to 50 miles along I-5, and also extend to connecting arterials. The network was originally supported with funds from the U.S. Department of Energy and the U.S. Department of Transportation's TIGER program, and continues to receive funding through other mechanisms.

States that are working collaboratively through the REV West MOU have also launched independent programs to support DC fast charger investment along major corridors. The Colorado Energy Office recently released a Request for Applications for the ALT Fuels Colorado Electric Vehicle Direct Current Fast-Charging Corridors Grant Program.[10] Under the program, the Colorado Energy Office identified six corridors where DC fast-charging stations will be sited. Station sites designated as Tier

1 are eligible for up to 80 percent of equipment and non-labor project costs, or up to $380,000, to install at least four DC fast chargers. Station sites designated as Tier 2 are eligible for up to 90 percent of equipment and non-labor project costs, or up to $250,000, to install at least 2 DC fast chargers. The RFA identifies specific communities along major corridors where funding will be preferred, and also includes minimum station specifications.

Figure 2: Corridors for Bidding, Colorado EV Fast-Charging Corridor Grant Program



Nevada has also launched an ambitious corridor charging program, the Nevada Electric Highway (NEH). NEH began as a partnership between the Governor's Office of Energy, NV Energy, and Valley Electric Association to build a complete "electric highway" system serving the entire state by 2020. Phase I included placing two Level 2 chargers and one DC fast charger and strategic locations along U.S. 95 between Reno and Las Vegas. Phase II incentivizes the placement of at least one DC fast charger at each location, and will expand infrastructure deployment to the state's remaining major interstate and highway corridors, including I-15, I-80, U.S. 93, and U.S. 50.[11]

In addition to corridor charging, some states and organizations in the intermountain west offer incentives to install EVSE at publicly-accessible community charging locations. Level 1, Level 2, and DC fast chargers are found at community locations, although incentives are typically restricted to

Level 2 or DC fast chargers. One example in the REV West region is offered by Yellowstone-Teton Clean Cities (YTCC). YTCC offers a rebate of $5,000 toward the purchase of publicly accessible EVSE, and eligible entities include businesses and municipalities in the communities surrounding Grand Teton National Park and Yellowstone National Park.[12] Other entities offer grants to fleets and municipalities to install publicly-accessible EV chargers. For example, through Charge Ahead Colorado, the Regional Air Quality Council and Colorado Energy Office will fund 80 percent of the cost of a charging station, up to $9,000 for a dual port Level 2 station, and up to $30,000 for a multiple connection DC fast charger station.[13]

While community charging programs were a primary focus following the American Recovery and Reinvestment Act, states are increasingly turning their attention to investing in corridor charging, as well as workplace and multifamily charging. Seven of eight states in the REV West region plan to use a portion of the Environmental Mitigation Trust funds from the Volkswagen Settlement to support light-duty EV infrastructure investment, and the majority of those funds will be used to support DC fast chargers along major corridors. These programs, coupled with Electrify America's planned corridor charging infrastructure and other third-party investments, will significantly grow EV infrastructure availability in the years ahead.

Residential Charging. Residential charging programs offer a financial incentive to decrease the cost of installing EV chargers at homes. Because residential charging is convenient and inexpensive, most EV drivers charge at home more than 80 percent of the time.[14] While Level 1 charging is often used in a residential setting, states and utilities offer modest financial incentives for EV drivers to purchase and install Level 2 chargers.

There are several examples of residential charging programs in the REV West region, offered by both states and utilities. Arizona offers a residential EVSE tax credit of up to $75 for individuals who install an EV charger in a house or housing unit.[15] Similarly, the Gunnison County Electric Association provides rebates to residential customers toward the purchase of Level 2 EVSE, up to $250, and customers who purchase the EVSE directly through GCEA may receive a 5 percent discount on the equipment.[16]

Workplace Charging. Workplace charging also helps to build range confidence among EV drivers, giving employees the ability to double their vehicles' all-electric daily commuting range. This is a particularly important factor for EV drivers who are unable to charge at home. In addition, non-EV drivers working at locations with EV chargers can learn about the benefits of EVs from their colleagues and may be more likely to consider buying an EV. According to the U.S. Department of Energy's Workplace Charging Challenge, which provides technical assistance to businesses that pledge to install EVSE at the workplace, Challenge partners that have installed chargers and developed a robust workplace charging program are six times more likely to drive an EV than the average worker.[17]

States, utilities, and others are launching programs designed to encourage employers to install charging stations for employee's use. On the east coast, the Massachusetts Electric Vehicle Incentive

Program (MassEVIP) offers a financial incentive for companies with 15 or more employees to install EV chargers. MassEVIP provides 50 percent of the funding (up to $25,000) for hardware costs to employers installing Level 1 and Level 2 stations capable of charging EVs produced by multiple manufacturers.[18] In the REV West region, Colorado has a program to recognize employers who install and support workplace charging, and the state's EV plan requires Colorado to develop a workplace charging policy for state agencies. Charge Ahead Colorado also specifically supports applications by workplaces and requires a survey to be conducted as part of the application to support successful implementation.

In addition, some utilities and other organizations in the intermountain west encourage workplace charging. For example, Avista will provide a Level 2 charging station for the first 175 workplace and 60 port connections installed, and applicants will receive a reimbursement of 50 percent of installation costs, up to a maximum of $1,000 and $2,000 per port connection. Similarly, Salt River Project offers a rebate to business customers who purchase and install Level 2 EVSE for use by their employees, up to $500 per Level 2 charging port installed, limited to 12 per business. In Utah, the non-profit organization "Leaders for Clean Air" will provide a Level 2 charger to interested businesses and commercial building owners.[19]

Workplace charging is expected to increase in the near future, due to planned investments through the Volkswagen Settlement. States may spend a portion of their Environmental Mitigation Trust funds on publicly-available EVSE installations at workplaces. Electrify America, while focusing on corridor charging, also intends to spend a portion of their ZEV Investment Plan dollars on Level 2 chargers at workplaces. This funding, combined with increased investments from utilities, the private sectors, and others, is likely to increase EVSE and EV deployment in the REV West region.

Multi-Family Charging. While the majority of EV charging occurs at home, drivers living in multi-family dwellings may not have access to an EV charger. Multi-family dwellings also present unique challenges that may prevent a resident from installing or accessing a charger. Some of these challenges include: lack of parking at the property; lack of dedicated parking; shared meters; and homeowners association policies preventing equipment installations.

To address these challenges, some states are passing laws to ensure that residents in multi-family dwellings can install EV chargers at their own expense. In the REV West region, a Colorado statute allows a residential tenant to install Level 1 or Level 2 EVSE at their own expense on or in leased premises. The law states that common interest communities must provide residents with an opportunity to charge plug-in electric vehicles, and may not create restrictions around EV chargers.[20] The state also supports multifamily charging through Charge Ahead Colorado, and requires recipients to complete a survey to demonstrate a successful installation. Other groups in the intermountain west offer targeted incentives to multi-family residents to install EVSE. For example, Rocky Mountain Power provides rebates to non-residential and multi-family customers in Utah to install Level 2 and DC Fast Chargers. Through this program, customers installing Level 2 chargers may receive a rebate of 75 percent of equipment costs, up to $2,500 for single port station and $3,500 for multi-port stations.[21] Similarly, NV Energy provides a financial incentive of up to $3,000

per Level 2 charging port (or 75 percent of project cost, whatever is less), and up to $15,000 per DC fast charger for multi-family dwellings, workplaces, and fleets.[22]

As more consumers purchase EVs, demand will increase for residences that can accommodate these vehicles. While many of the challenges are site-specific and must be dealt with by the property or municipality, states may elect to pass laws to ease homeowner association restrictions, mandate pre-wiring in new multi-family dwellings, or offer guidance to multi-family dwelling managers to assist with EVSE installation, operation, and maintenance.

EV Procurement and Deployment Targets

States and cities have long set procurement targets for alternative fuel vehicles within state or public fleets. Procurement targets typically involve setting a minimum threshold to be achieved by a certain date, or when new vehicles are purchased. While procurement targets are not always tied to financial incentives, some states offer loans, grants, or other financing options to assist public agencies as they transition to EVs and other alternative fuels. For example, New Mexico requires a minimum of 75 percent of state government and educational institution fleet light-duty vehicle purchases to be hybrid electric vehicles, bi-fuel, or dedicated AFVs (including EVs), and has authorized up to $5 million for a revolving loan fund for AFV acquisitions by state agencies, political subdivisions, and educational institutions.[23]

Five states in the intermountain west have set EV or AFV procurement targets, which are listed in the table below. While none of the procurement policies within the REV West states are specific to EVs, they all allow EVs as one option for compliance. Not all states have set a minimum target. For example, while Arizona requires at least 75 percent of light-duty state fleet vehicles to be capable of running on alternative fuels, Colorado states that the Department of Personnel and Administration must purchase AFVs, without setting a minimum threshold. Similarly, some states set procurement targets that only apply to metropolitan areas of a certain size. For example, in Nevada, fleets containing 50 or more vehicles that are owned, leased, or operated by the state, a state agency, or a political subdivision of the state in a county with a population of 100,000 or more must acquire AFVs or U.S. EPA certified ULEVs. There is no procurement requirement for smaller metropolitan areas.

EV Procurement Targets in the REV West States

State	Policy	Description
Arizona	State Vehicle Acquisition and Fuel Use Requirements	State agencies, boards, and commissions must purchase HEVs, AFVs, or vehicles that meet greenhouse gas emissions standards or use alternative fuels. At least 75% of light-duty state fleet vehicles operating in counties with a population of more than 250,000 people must be capable of operating on alternative fuels.
	Municipal AFV Acquisition Requirements	Local governments in Maricopa, Pinal, and Yavapai counties with a population of more than 1.2 million people must develop and implement vehicle fleet plans to encourage and increase the use of alternative fuels in municipal fleets. At least 75% of the total

		municipal fleet must operate on alternative fuels, and local governments in counties with populations of more than 500,000 people with bus fleets must purchase or convert buses to operate on alternative fuels.
	Federal Fleet Operation Regulations	Federal fleets based in Arizona that operate primarily in counties with a population of more than 1.2 million people must be comprised of at least 90% AFVs. Federal fleets may meet acquisition requirements through alternative fuel use or apply for waivers.
Colorado	State Agency Alternative Fuel Use and Vehicle Acquisition Requirement	Colorado Department of Personnel and Administration (DPA) must purchase motor vehicles that operate on CNG, PHEVs, or vehicles that operate on other alternative fuels, subject to the availability of vehicles and adequate fueling infrastructure and assuming the incremental base or life cycle cost of the vehicle is not more than 10% over the cost of a comparable dedicated conventional vehicle. In addition, Colorado's Electric Vehicle Plan has established a goal of 200 EVs in the state fleet by 2020.
Montana	Fuel-Efficient Vehicle Acquisition Requirements	All vehicles purchased for state agency use must meet or exceed the current federal Corporate Average Fuel Economy standards, and agencies must develop and implement programs to reduce fuel consumption in agency vehicles. Certain state vehicles are exempt.
Nevada	AFV Acquisition Requirement	Fleets containing 50 or more vehicles that are owned, leased, or operated by the state, a state agency, or a political subdivision of the state in a county with a population of 100,000 or more must acquire AFVs or U.S. EPA certified ULEVs. A fleet may meet the acquisition requirements by converting existing or newly acquired vehicles to operate on alternative fuels. An AFV acquired in compliance with this mandate must operate solely on the alternative fuel except when operating in an area where the alternative fuel is unavailable.
New Mexico	AFV and HEV Acquisition Requirements	A minimum of 75% of state government and educational institution fleet light-duty vehicles purchased must be HEVs or bi-fuel or dedicated AFVs. Vehicles must meet or exceed the federal corporate average fuel economy standards. Up to $5 million is authorized for a revolving loan fund for AFV acquisitions by state agencies, political subdivisions, and educational institutions.
Utah	Provision for Establishment of Alternative Fuel Use Mandate	Utah Air Quality Board may require fleets that own 10 or more vehicles capable of being fueled at a central location to use clean fuels if such a mandate is necessary to meet national air quality standards.
	Alternative Fuel Use and Vehicle Acquisition Requirement	At least 50% of new or replacement light-duty state agency vehicles must meet Bin 2 emissions standards established in Title 40 of the U.S. Code of Federal Regulations, or be propelled to a significant extent by electricity, natural gas, propane, hydrogen, or biodiesel.

Unlike procurement targets, EV deployment targets are high-level EV purchase or sales goals that apply to all vehicles, or classes of vehicles, within a state. Typically set by statute or executive order, EV deployment targets can be binding or non-binding. An example of a binding target is California's Zero Emission Vehicle Program, which requires automakers to sell zero-emission cars and trucks in California. The ZEV Program will result in 1.5 million zero-emission vehicles on California roadways by 2025.

Non-binding targets are also a valuable policy tool that send a signal to the market and often act as a foundation for other supportive policies, such as EV or EVSE financial incentives. While there are no binding EV deployment targets in the intermountain region, the REV West Memorandum of Understanding is a prime example of a non-binding EV deployment target. The MOU acts as a high-level policy directive for Signatory States to work with one another to create an Intermountain West Electric Vehicle Corridor and make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. In addition to setting a goal, the MOU also outlines concrete steps the states intend to take, such as creating voluntary minimum standards for EV charging stations.

EV Rates and Regulations

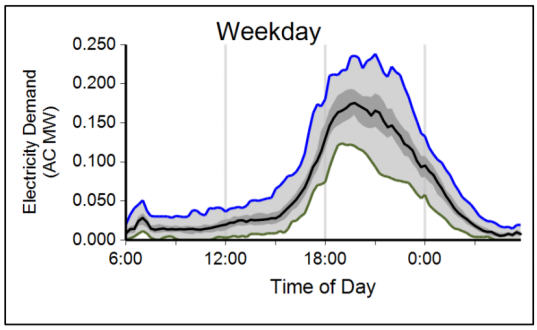
There are a number of regulatory and policy issues that govern how electricity is bought and sold, how utilities can incentivize or manage EV charging, and whether utilities can directly own or operate EV charging stations. The regulation of EV charging generally prompts several considerations. Does electric vehicle charging constitute the sale of electricity, or the sale of a charging service? Should electric vehicle charging be regulated by the PUC, or by some other entity? If not regulated by the PUC, what entity is accountable for consumer interests?[24]

Several states in the REV West region have made a regulatory decision around whether EV charging constitutes the sale of electricity, with three states having issued decisions that entities that sell electricity for the purpose of EV charging should not be regulated as utilities. Idaho passed a statute stating that individuals, corporations, or other legal entities that sell electricity for the purposes of EV charging are not under the jurisdiction of the Idaho Public Utility Commission.[25] Colorado has decided that a corporation or individual that resells electricity supplied by a public utility, or that generates and sells electricity on-site from a renewable resource for use in an alternative fuel vehicle is not subject to regulation as a public utility.[26] Similarly, Utah's code states that an entity that provides EV charging is not defined as a public utility, unless the entity conducts another activity in the state that subjects it to the regulation and jurisdiction of the Utah Public Service Commission.[27]

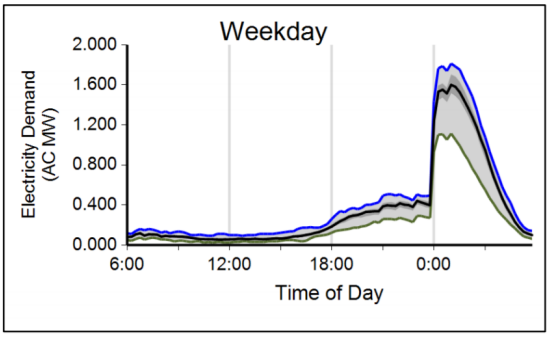
While grappling with regulatory issues, utilities across the country are also proposing special rates to either incentivize or help manage EV charging. The goal is to encourage charging behavior that makes efficient use of the power grid. To achieve this goal, many utilities are issuing time-of-use (TOU) rates to help manage charging and balance cost and effectiveness. This mechanism offers discounted rates to residential customers that delay charging until off-peak hours, thereby helping the utility manage peak demand. The figure below compares charging behavior in two service territories: Nashville Electric Service (NES) and Pacific Gas & Electric (PG&E). Drivers in both service territories tend to plug-in their

EVs at the same time; however, drivers in the PG&E service territory typically delay their EV charging until midnight, which is when the off-peak PG&E rates kick-in.[28]

Figure 3: Comparison of Charging Patterns Between NES and PG&E Customers



Weekday Residential Charging Demand in NES Territory, Q1, 2013

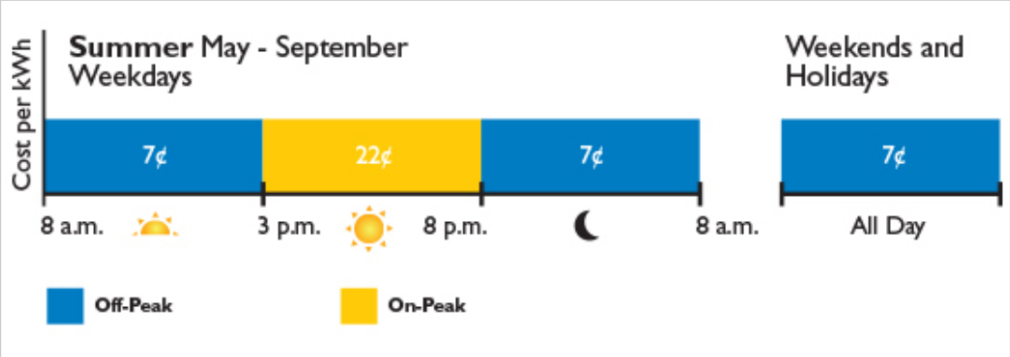


Weekday Residential Charging Demand in PG&E Territory, Q1, 2013

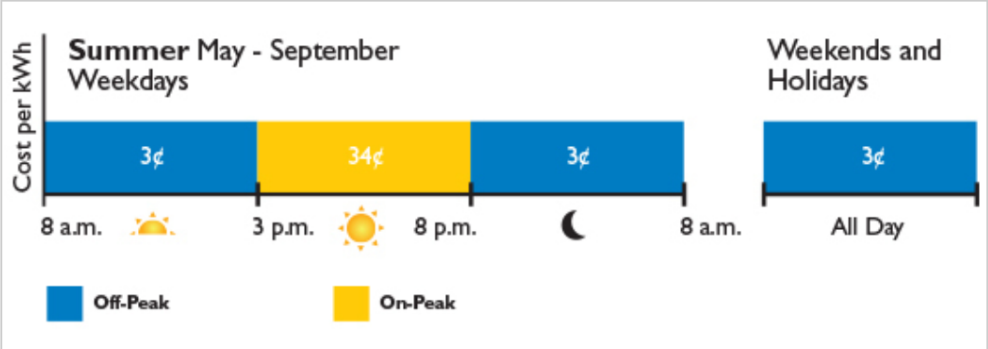
Source: Idaho National Laboratory

Several utilities in the intermountain west offer TOU rates within their service territory, though all programs are structured differently. Rocky Mountain Power offers residential customers in Utah with EVs a $200 incentive to enroll in a TOU rate pilot, in addition to discounted TOU rates. Customers can choose to participate in one of two plans, which are structured to accommodate different charging patterns (see figure below).[29] Other utilities offer similar programs: Salt River Project offers an experimental TOU rate between 11pm and 5am daily for the first 10,000 customers with EVs; Tucson Electric Power offers a 5 percent reduction to applicable charges during the off-peak period to customers; Arizona Public Service offers an off-peak rate for customers who have purchased an EV within 90 days of enrollment; and NV Energy offers a discounted off-peak rate to residential customers that allow NV Energy access to their electric meters. While each of these programs has different elements, they all offer a financial incentive to residential customers to shift their charging patterns to off-peak hours.

Figure 4: Rocky Mountain Power Time of Use Rate Options for EV Drivers



Rate Option 1: 22.3 cents per kWh on-peak at 6.8 cents per kWh off-peak



Rate Option 2: 34.4 cents per kWh on-peak at 3.4 cents per kWh off-peak
Source: Rocky Mountain Power

In addition to incentivizing off-peak charging, utilities, public utility commissions, EV infrastructure providers, and others are grappling with whether and how to manage high power charging. The most frequently cited concern is that utilization of high-power DC fast chargers will spike electric load to a specific location for a short period of time, thereby triggering a demand charge. Demand charges are an important tool that utilities use to recoup the cost of infrastructure investments and upgrades that are necessary to ensure electricity reliability and delivery to high-volume customers, such as industrial parks and commercial complexes. However, demand charges are calculated differently by each utility, thereby creating inconsistencies from market to market, and were not designed to apply to individuals or small-load customers. The potential of triggering expensive demand charges when plugging-in an EV can act as a deterrent to site hosts that wish to invest in EV chargers. If that cost is passed along to the consumer, it will act as a deterrent to EV adoption. Some utilities are offering experimental rates to deal with the demand charge issue. For example, NV Energy has proposed a "Demand Rate Discount," which would ratchet down ten percent annually from a 100 percent discount, starting in 2019, to a zero percent discount at the end of the ten year transition period.[30]

A third regulatory and policy consideration is what role utilities should play in EV infrastructure deployment. Edison Electric Institute presents four options for utilities in the maintenance, management, and ownership of EV infrastructure:

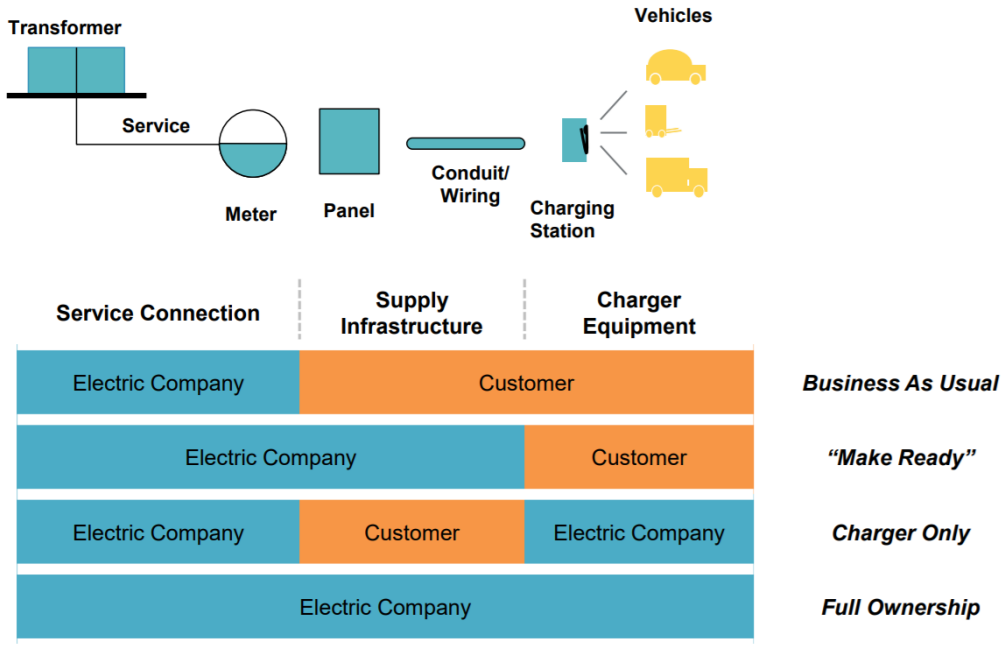
1) "Business as usual," where the electric company owns the service connection, while the customer owns the supply infrastructure and charger equipment;

2) "Make-ready," where the electric company owns the service connection and supply infrastructure, while the customer owns the charger equipment;

3) "Charger only," where the electric company owns the service connection and charger equipment, while the customer owns the supply infrastructure

4) "Full ownership," which allows the electric company to own all elements in front of- and behind-the meter.

Figure 5: Infrastructure Deployment Models for Electric Companies



Source: Edison Electric Institute

Public Utility Commissions across the country are grappling with the question of whether and how electric utilities should be involved in EV infrastructure deployment. In the REV West region, the Nevada Public Utilities Commission issued a ruling that will allow NV Energy to own and operate charging stations and include them in its rate base.[31] Justification for this ruling was based on Senate Bill 145, signed by Governor Sandoval in 2017. It authorizes the creation of an Electric Vehicle Infrastructure Demonstration Program.[32] The same ruling supported investment in the Demonstration Program, and directs the utility to set aside $15 million to develop electric vehicle charging programs, including supporting the Nevada Electric Highway.[33] The order includes several stipulations, including that stations owned and operated by NV Energy will be reviewed for prudence in a future rate filing. Nevada is one of the first states in the country to allow a major utility to own and operate EV charging stations.

Education and Outreach

A key barrier to widespread EV adoption is that the majority of consumers are unfamiliar with electric drive technology, and are unaware of the quantity and variety of EV models available for purchase. There are a number of private-sector initiatives underway to raise awareness of EVs generally. For example, Electrify America launched a nationwide, brand-neutral advertising campaign intended to broaden consumer interest and awareness in EVs.[34] Auto manufacturers have teamed up with Northeast states to advance consumer awareness of EVs through the "Drive Change. Drive Electric." campaign. The Campaign launched a website and is hosting events throughout the region that will showcase driver stories, share information about how EVs work and EV models available, and offer test drives to consumers. While these initiatives are far reaching, few widespread education campaigns have been launched to date, which has put the onus on consumers to learn about and become interested in EVs. This has resulted in relatively few EV sales.

To help fill the information gap, states in the REV West region and elsewhere have launched programs and policies designed to educate consumers and advance EV adoption. For example, Arizona has issued an AFV Dealer Information Dissemination Requirement, which requires new motor vehicle dealers to make information about AFVs (including EVs) and Arizona-based incentives for purchasing and leasing AFVs available to the public.[35] This initiative addresses one of the often-cited, major barriers to EV purchase—that auto dealers are unable or unwilling to provide basic information about electric models to prospective buyers, thus decreasing EV sales. Other states like Connecticut and Vermont have also experimented with dealership education programs and incentives, though these programs are uncommon.

Other intermountain states offer EV education and outreach programs. Refuel Colorado provides one-on-one technical assistance to various stakeholder fleets to help identify monetary savings and other advantages from converting to electric vehicles and other alternative fuels.[36] These technicians are free-of-charge, and work with fleets, communities, fuel providers, dealerships, advocacy groups, and others to raise awareness of AFV technology and find solutions to help stakeholders purchase and drive AFVs. Other campaigns require third-parties to provide information on EVs. For example, Nevada's EVSE Demonstration Program requires Nevada utilities to promote and incentivize the deployment of EV chargers. Utilities must submit an annual plan for implementing the program in their service territories to the Public Utilities Commission.[37] While introducing new technologies to market has traditionally been led by the private sector, state and local governments are playing an increasingly important role in raising EV awareness and bringing the emerging tech to scale.

Electric Vehicle-Ready Building Codes

As interest in EVs increases, communities are beginning to incorporate planning for EVSE into building codes. At present, only a small number of jurisdictions have adopted "EV ready" building codes or ordinances. A review of a limited number of examples of ordinances or building code amendments adopted shows two approaches to EVSE planning. The most common is "EV Ready" which requires that

a newly constructed building or a building undergoing significant reconstruction include raceways for cables/wiring, installation of an electric panel with sufficient capacity for charging loads, and clear labeling of the components to indicate where EVSE can be installed in the future, should the building owner choose to do so. In addition, a minimum number of charging-ready spaces are required based on the total number of parking spaces. The second, less common approach is to require the installation of EVSE at the time of construction. Of the ordinances and building code changes reviewed, only the City of Boulder, Colorado required this. In addition to all of the EV Ready components, the builder must also install the EVSE.

In the intermountain west, several jurisdictions have adopted ordinances or code amendments addressing EVSE. They are: Aspen, the City of Boulder, Boulder County, and Denver, Colorado, along with Salt Lake City, Utah.[38, 39] In Boulder County, the EV-ready amendments are housed in the building code. In Denver, the amendment is housed in the amendments to the Denver Amendments to International Residential Code. Aspen includes EV ready amendments in both the International Residential Code and the International Building Code. In Salt Lake City, the ordinance is not in the building code at all, but rather in an ordinance amending land use provisions. In the City of Boulder, the EV charging requirements are in the International Energy Conservation Code.

Of the above jurisdictions, only the City of Boulder requires the installation of EVSE in both commercial and residential new construction.[40, 41] Salt Lake City requires construction of EVSE at buildings larger than 5,000 square feet or undergoing major renovation (increasing square footage by 25 percent or 5,000 feet, whichever is less).[42] The other two jurisdictions simply require that the building be EV ready by providing receptacles and raceways to allow for future installation of EV chargers. Other cities in the United States that have adopted EV related ordinances or code amendments include: Kansas City, MO; San Francisco, CA; Atlanta, GA; Palo Alto, CA; Freemont, CA; Los Angeles, CA; New York City, NY; Portland, OR; Boston, MA. California has also adopted EVSE ready code requirements in its building code- Title 24, Part 11 (CalGreen).

EV Readiness Plans, HOV Access, and Other Policies and Programs

A bundle of other policies and programs are offered in the REV West region to spur EV adoption**. EV readiness plans** identify strategies that states or communities can implement to remove barriers to EV adoption. A series of readiness plans were undertaken by communities nationwide in 2011 with funding from the U.S. Department of Energy's Clean Cities program, and since then, states and localities have released readiness plans that set goals for the jurisdiction, identify barriers, and propose solutions for addressing those barriers. In the REV West region, the Colorado Electric Vehicle Plan was developed in support of the Governor's Executive Order, "Supporting Colorado's Clean Energy Transition." The plan calls for Colorado to be a leader in the EV market and accelerate the adoption of EVs through a series of actions to support infrastructure development along the state's corridors. Specific actions in the plan include creating strategies and partnerships to create EV fast-charging corridors, coordinating with Regional Electric Vehicle West memorandum of understanding states, and developing strategic partnerships.[43]

Policies favoring **EV and AFV parking** are increasingly available in the intermountain states. Some states have set policies that expand parking access for EV drivers. For example, Arizona's AFV Parking Incentive allows an AFV (including EVs) to park without penalty in parking areas that are designated for carpool operators.[44] Similarly, Nevada's AFV Parking Fee Exemption requires local authorities with public metered parking areas within their jurisdiction to establish a program for AFVs to park in these areas without paying a fee. Under this program, each local authority must create an application process and issue a decal for AFVs, the cost of which must not exceed $10 per year.[45] Other policies are structured in such a way that protect preferred parking for EV drivers, thus disincentivizing internal-combustion engine use. Arizona's EV Parking Space Regulation states that an individual cannot park a motor vehicle in a parking space that has been designated for parking and charging EVs unless the vehicle is an EV and has been issued an alternative fuel vehicle special plate or sticker. Individuals who violate this policy are subject to a civil penalty of at least $350.[46]

High-occupancy vehicle (HOV) lane access is a popular incentive in metropolitan areas and is available in three REV West states. Arizona and Utah allow EVs and other AFVs to use HOV lanes, regardless of the number of passengers, and require qualified vehicles to display either a special decal or license plate. Nevada has authorized the state's DOT to establish a program allowing AFVs to operate in an HOV lane, although a program has not been established.

A number of other policies aim to reduce barriers to EV adoption throughout the intermountain west. Arizona, Colorado, Idaho, and Nevada exempt EVs from **emissions testing requirements**. Utah exempts electricity and other "special fuels" from existing state fuel taxes, but subjects the fuels to a separate, special fuel tax at the rate of three-nineteenths of the conventional motor fuel tax. A Nevada statute states that a vehicle manufacturer is not required to sell its vehicles through **franchised dealers** if the manufacturer only produces passenger EVs, only sells cars that it manufactures, and was selling passenger cars in Nevada prior to January 1, 2016. In Montana, businesses and individuals are eligible for an income tax credit of up to 50 percent of the equipment and labor costs for converting vehicles to EVs or an AFV. In Colorado, electricity and other alternative fuels are authorized to be sold by **gasoline gallon equivalent** or diesel gallon equivalent as long as the dispenser clearly displays the applicable conversion factor. Arizona requires a state agency or political subdivision that operates an alternative fueling station **to allow vehicles from other agencies or political subdivisions to own or operate fuel at the stations**. Arizona also requires an EV or AFV to display a **special license plate**.

In addition to EV incentives, Colorado, Idaho, Utah, and Wyoming require EV owners to pay an **EV fee.** Since EV drivers do not purchase gasoline and therefore do not pay gasoline tax – the primary roadway revenue in many states – these fees are levied to ensure that EV drivers "pay their fair share." In Idaho, EV owners must pay an annual fee of $140, while in Wyoming, EV owners must pay a one-time decal fee of $50, and in Utah, EV drivers must pay $60 (this amount is set to increase over time to $120, starting in 2021). In Colorado, EV drivers pay an annual fee of $50, and fees contribute to both the Highway Users Tax Fund and the Electric Vehicle Grant Fund, which provides grants for the build-out of EVSE.

Conclusion

The REV West states have implemented a variety of policies and programs to support EV adoption and EV infrastructure development in the intermountain west. While progress has been made, significant infrastructure investment will be needed in the years ahead to create a seamless driving experience across major corridors in the eight-state region. The REV West states are poised to make substantial investments in EV infrastructure through the Volkswagen Settlement, though additional state-level policies, combined with significant private-sector support, will be needed to create a robust EV infrastructure network.

Appendix: State Profiles

Arizona

EV Policies in Arizona

Policy Category	Policy Name	Policy Description	Authorizing Authority
Education and outreach	AFV Dealer Information Dissemination Requirement	New motor vehicle dealers must make information about AFVs and Arizona-based incentives for purchasing or leasing AFVs available to the public.	Arizona Revised Statues 28-4414
EV sales tax exemption	Reduced AFV License Tax	The vehicle license tax for an AFV is $4 for every $100 in assessed value. During the first year after initial registration, the AFV's assessed value is 1% of the manufacturer's suggested retail price (MSRP) compared to 60% for conventional vehicles, and with each year after, the original value of the AFV is reduced by 15%. Beginning January 1, 2020, the vehicle license tax for a previously registered AFV will be a percentage of the MSRP set by Arizona Department of Transportation (ADOT), and the value of the AFV will still go down by 15% every year after.	House Bill 2166; Arizona Revised Statutes 28-5801
EV/EVSE deployment targets	Regional Electric Vehicle (REV) West Plan	Arizona joined Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming (Signatory States) in signing the REV West memorandum of understanding to create an Intermountain West Electric Vehicle Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Various EV-oriented commitments in each state make it possible.	Memorandum of Understanding
EV/EVSE procurement targets	State Vehicle Acquisition and Fuel Use Requirements	Arizona state agencies, boards, and commissions must purchase hybrid electric vehicles (HEVs), alternative fuel vehicles (AFVs), or vehicles that meet set greenhouse gas emissions standards; or use alternative fuels. At least 75% of light-duty state fleet vehicles operating in counties with a population of more than 250,000 people must be capable of operating on alternative fuels.	Arizona Revised Statutes 41-803

EV/EVSE procurement targets	Municipal AFV Acquisition Requirements	Local governments in Maricopa, Pinal, and Yavapai counties with a population of more than 1.2 million people must develop and implement vehicle fleet plans to encourage and increase the use of alternative fuels in municipal fleets. At least 75% of the total municipal fleet must operate on alternative fuels. Local governments in counties with populations of more than 500,000 people with bus fleets must purchase or convert buses to operate on alternative fuels.	Arizona Revised Statutes 9-500.04; 49-474.01; 49-541; and 49-571
EV/EVSE procurement targets	Federal Fleet Operation Regulations	Federal fleets based in Arizona that operate primarily in counties with a population of more than 1.2 million people must be comprised of at least 90% alternative fuel vehicles. Federal fleets may meet acquisition requirements through alternative fuel use or apply for waivers.	Arizona Revised Statute 49-573
EVSE purchase incentive	Credit for Solar Hot Water Heating Plumbing Stub Outs and Electric Vehicle Recharge Outlets	A residential electric vehicle supply equipment (EVSE) tax credit of up to $75 is available for individuals who install EVSE in a house or unit.	Arizona Tax Credit Form 319
HOV lanes	High Occupancy Vehicle (HOV) Lane Exemption	Vehicles with an Alternative Fuel Vehicle (AFV) or Energy Efficient license plate are permitted to use HOV lanes, regardless of the number of passengers. Qualified vehicles must display the required license plate.	Arizona Revised Statutes 28-2416; 28-2416.01
Other	AFV and Energy Efficient Plate Programs	AFVs can get a special license plate, and there is no limit to the number of plates that can be issued. Some plug-in hybrid EVs can get an Energy Efficient plate, but only 10,000 cars can be registered for this.	Arizona Revised Statutes 28-2416; 28-2416.01
Other	AFV Special License Plate	A registered AFV must display an AFV license plate. State or agency directors who conduct activities of a confidential nature and use AFVs are exempt from the requirement to display an AFV special license plate.	Arizona Revised Statutes 28-2416; 28-2511
Other	Joint Use of Government Fueling Infrastructure	An Arizona state agency or political subdivision that operates an alternative fueling station must allow vehicles from other state agencies or political subdivisions to own or operate fuel at the station.	Arizona Revised Statutes 49-572

Parking Incentives	AFV Parking Incentive	An AFV may park without penalty in parking areas that are designated for carpool operators, provided the vehicle is using alternative fuel.	Arizona Revised Statutes 28-877
Parking incentives	EV Parking Space Regulation	An individual is not allowed to stop, stand, or park a motor vehicle within any parking space specifically designated for parking and charging EVs unless the motor vehicle is an EV and has been issued an alternative fuel vehicle special plate or sticker. A person who is found responsible for a violation may be subject to a civil penalty of at least $350.	Arizona Revised Statute 28-876
Testing exemption	AFV Emissions Test Exemption	All-electric vehicles, hydrogen powered vehicles, and current model year propane and natural gas vehicles (NGVs) registered for the first time in Arizona are not required to complete emissions testing. This exemption does not apply after the first registration year.	Arizona Revised Statutes 49-542

Utility EV Programs in Arizona

Utility	Program Name	Description	Authorizing Authority
Salt River Project	Workplace EVSE Rebate - Salt River Project (SRP)	SRP offers a rebate to business customers who purchase and install Level 2 EVSE for use by their employees. The rebate is $500 per Level 2 EVSE charging port installed, limited to 12 per business.	SRP Rebates Programs
Salt River Project	EV Charging Rate Incentive - Salt River Project (SRP)	SRP offers an experimental time-of-use (TOU) electricity rate for the first 10,000 customers with a qualified PEV. The TOU rate is for the super off-peak hours between 11pm and 5am daily.	SRP EV Pricing Plan
Tuscon Electric Power	EV Charging Rate Incentive - Tucson Electric Power (TEP)	TEP offers a discounted residential service time-of-use (TOU) rate during off-peak periods to customers who own and operate a PEV. The discount is a 5% reduction to applicable charges during the off-peak period. Eligible customers must provide documentation for a highway-approved PEV and submit a copy of the PEV's registration annually.	TEP Time-of-Use Plan
Arizona Public Service Company	Saver Choice Tech Rate	APS offers an on-peak/off-peak optional rate for customers who have purchased an EV within 90 days of enrollment.	APS Saver Tech Choice Program

Environmental Mitigation Trust – Planned Allocations in Arizona[47]

Eligible Action Area	Planned Percent Allocation
On-road state fleet projects	24%
School bus replacements	67%
Administrative fees	9%

Colorado

EV Policies in Colorado

Policy Category	Policy Name	Policy Description	Authorizing Authority
Education and outreach	AFV Fleet Technical Assistance	Local technicians from Refuel Colorado help various stakeholder fleets identify monetary savings and other advantages from converting to alternative fuels. Technicians are available statewide and free-of-charge.	Refuel Colorado Program
EV purchase incentive	EV Tax Credit	Qualified all-electric vehicles (EVs) and plug-in hybrid electric vehicles (PHEVs), titled and registered in Colorado are eligible for a tax credit. (Credits listed here based on vehicle and time purchased.) Eligible purchased vehicles must be new, and eligible leased vehicles must have a lease with a term of not less than two years.	Colorado Revised Statutes 39-22-516.7; 39-22-517.8
EV purchase incentive	Impact Assistance Program for Public Fleets	Colorado Department of Local Affairs (DOLA) offers competitive funding for the incremental cost of alternative fuel vehicles (AFVs) for public fleets. Eligible entities include municipalities, counties, and special districts. Additionally, eligible fleets may apply for DOLA funding to cover the matching funds required through the Regional Air Quality Council (RAQC) ALT Fuels Colorado program	DOLA Energy and Mineral Impact Assistance Fund Program Grant Application – pages 17-18
EV Readiness Planning	Colorado EV Plan	The Plan calls for Colorado to be a leader in the EV market and accelerate the adoption of EVs through a series of actions to support EV infrastructure along Colorado's corridors. Actions include creating strategies and partnerships to create EV fast-charging corridors, coordinating with Regional Electric Vehicle West memorandum of understanding states, developing strategic partnerships, etc.	Executive Order D2017-15 from July 2017 provides background on EV plan development.
EV registration fee	EV Fee	PEV owners must pay an annual fee of $50, in addition to other registration fees, for a PEV decal. Fees contribute to the Highway Users Tax Fund and the Electric Vehicle Grant Fund, which provides grants for EVSE.	Colorado Revised Statutes 42-3-304

EV sales tax exemption	Low Emission Vehicle (LEV) Sales Tax Exemption	Vehicles, vehicle power sources, or parts used for converting a vehicle power source to reduce emissions are exempt from state sales and use tax. Exempt vehicles include vehicles certified to federal LEV standards that have a gross vehicle weight rating (GVWR) of over 26,000 pounds. Other exemptions also apply.	Colorado Revised Statutes 39-26-719
EV/EVSE financing	Vehicle Fleet Maintenance and Fuel Cost-Savings Contracts	Government fleets may finance the lease or purchase cost of alternative fuel vehicles and alternative fueling infrastructure through energy performance contracts where vehicle operational and fuel cost savings pay for the capital investment. Energy performance contracts must show that the annual cost savings associated with the fueling and maintenance of vehicles with higher efficiency ratings or alternative fueling methods is equal to or higher than the annual contract payments.	Colorado Revised Statutes 24-30-2001; 24-30-2002; 24-30-2003; 29-12.5-101; 29-12.5-102; 29-12.5-103; 29-12.5-104
EV/EVSE procurement targets	Regional Electric Vehicle (REV) West Plan	Colorado joined Arizona, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming (Signatory States) in signing the REV West memorandum of understanding to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Signatory States are committed to a number of EV-promoting goals.	Memorandum of Understanding
EV/EVSE procurement targets	State Agency Alternative Fuel Use and Vehicle Acquisition Requirement	Colorado Department of Personnel and Administration (DPA) requires all state-owned diesel vehicles and equipment to be fueled with a fuel blend of 20% biodiesel (B20), subject to the availability of the fuel and so long as the price differential is not greater than $0.10 more per gallon as compared to conventional diesel. DPA must purchase motor vehicles that operate on compressed natural gas (CNG), plug-in hybrid electric vehicles, or vehicles that operate on other alternative fuels, subject to the availability of vehicles and adequate fueling infrastructure and assuming the incremental base or life cycle cost of the vehicle is not more than 10% over the cost of a comparable dedicated conventional vehicle. Each year, DPA must submit a report to the general assembly	Executive Order D 2015-013; Colorado Revised Statutes 24-30-1104

		outlining a number of things related to AVF availability and policy.	
EVSE purchase incentive	AFV and Infrastructure Grant Program	This provides grants through the ALT Fuels Colorado program for new, publicly accessible compressed natural gas (CNG) fueling equipment; and CNG, propane, and electric vehicles. CEO will administer the station grants to advance infrastructure development along major state-wide transportation corridors. RAQC will administer the vehicle grants for fleets operating within counties with air quality nonattainment and maintenance areas, and will also administer a new statewide program will fund freight switchers, airport ground support equipment along with CNG, LPG, electric, and certain diesel vehicles for public and private fleets throughout the state.	ALT Fuels Colorado Grant Program Application Guide
EVSE purchase incentive	EV and EVSE Grants	Grants are provided through the Charge Ahead Colorado program to support PEV and EVSE adoption by individual drivers and fleets. Both CEO and RAQC grants will fund 80% of the cost of EVSE, up to $9,000 for a dual port Level 2 station and up to $30,000 for a DC fast charging station. RAQC also provides funding for 80% of the incremental cost for qualified PEVs, up to $8,260, in the 7-county metro area. Statewide funding for electric vehicle corridor DC fast-charging stations is also available through ALT Fuels Colorado at up to $380,000 per location.	Colorado Revised Statutes 24-38.5-103
Multiunit Dwelling	EVSE Multi-Unit Dwelling Installations and Access	A residential tenant may install Level 1 or Level 2 EVSE at their own expense on or in leased premises. The landlord may seek a fee or reimbursement for the actual cost of electricity as well as the cost of installation or upgrades to existing equipment. Common interest communities must also provide residents with an opportunity to charge plug-in electric vehicles and may not create restrictions around EVSE.	Colorado Revised Statutes 38-12-601; 38-33.3-106.8

Other	Gasoline and Diesel Gallon Equivalent Definition	Motor fuels, including alternative fuels, may be sold by gasoline gallon equivalent (GGE) or diesel gallon equivalent (DGE) as long as the dispenser used for the sale of motor fuel in GGEs or DGEs clearly displays the applicable conversion factor and other required information.	Colorado Revised Statutes 8-20-232.5
Rates/regulation	AFV and Generation Regulations	A corporation or individual that resells alternative fuel supplied by a public utility for use in an alternative fuel vehicle (AFV) is not subject to regulation as a public utility. Additionally, a corporation or individual that owns, controls, operates, or manages a facility that generates electricity exclusively for use in AFV charging or fueling facilities is not subject to regulation as a public utility provided that the electricity is generated on the property where the charging or fueling facilities are located and the electricity is generated from a renewable resource.	Colorado Revised Statutes 41-1-103.3
Testing exemption	EV Emissions Inspection Exemption	Vehicles powered exclusively by electricity are exempt from state motor vehicle emissions inspections.	Code of Colorado Regulations 204-11 Rule 2
Workplace charging	Workplace Charging Evaluation	Colorado state agencies and departments must evaluate opportunities to improve commuting options for employees, including the installation of workplace charging for plug-in electric vehicles. Agencies and departments may coordinate with the Colorado Energy Office as needed for technical support.	Executive Order D 2015-013

Utility EV Programs in Colorado

Utility	Program Name	Description	Authorizing Authority
Gunnison County Electric Assn	EVSE Rebate - Gunnison County Electric Association (GCEA)	GCEA provides rebates to residential customers toward the purchase of Level 2 EVSE. Eligible customers who purchase and install EVSE can receive a rebate of 35% of the cost of the EVSE, up to $250. Customers who purchase the EVSE directly through GCEA may receive a 5% discount on the equipment.	GCEA EV Charger Rebate Program

Environmental Mitigation Trust – Planned Allocations in Colorado[48]

Eligible Action Area	Planned Percent Allocation
Flex Funds	17%
Alt Fuel Trucks/Buses	26.2%
Transit Buses	26.2%
Light-Duty Zero Emission Supply Equipment	15%
DERA	7.2%
Administrative costs	8.3%

Idaho

EV Policies in Idaho

Policy Category	Policy Name	Policy Description	Authorizing Authority
Testing exemption	Plug-In and Hybrid Electric Vehicle Exemption from Vehicle Testing Requirements	Electric vehicles, plug-in hybrid electric vehicles, and hybrid electric vehicles are exempt from state motor vehicle inspection and maintenance programs.	Idaho Statutes 39-116B
EV/EVSE deployment targets	Regional Electric Vehicle (REV) West Plan	Idaho joined Arizona, Colorado, Montana, Nevada, New Mexico, Utah, and Wyoming (Signatory States) in signing the REV West memorandum of understanding (PDF) (MOU) to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Signatory states are committed to protocols that enhance EV adoption.	Memorandum of Understanding
Rates/Regulation	EVSE Regulation Exemption	Individuals, corporations, or other legal entities that sell electricity for the purpose of charging plug-in electric vehicles are not under the jurisdiction of the Idaho Public Utility Commission.	Idaho Statue 61-119
EV registration fee	PEV Fee	In addition to standard registration fees, PEV owners must pay an annual fee of $140 and plug-in hybrid electric vehicle owners must pay an annual fee of $75. Neighborhood electric vehicles are exempt from the fee.	Idaho Statutes 49-402; 49-457

Other EV Programs in Idaho

Organization	Program	Description	Authorizing Authority
Yellowstone-Teton Clean Cities (YTCC)	EVSE Rebate - Yellowstone-Teton Clean Cities (YTCC)	YTCC offers a rebate of $5,000 toward the purchase of publicly accessible EVSE. Eligible entities include businesses and municipalities in the communities surrounding Grand Teton National Park and Yellowstone National Park. Rebates are offered on a first-come, first-served basis.	YTCC Rebate Program Details
Avista	Commercial Electric Vehicle Charging Program	Avista will provide an AC Level 2 charging station for the first 175 workplace and 60 port connections installed. Applicants receive a reimbursement of 50% of installation costs up to a maximum of $1,000 and $2,000 per port connection.	Avista Electric Transportation Program Page

Environmental Mitigation Trust – Planned Allocations in Idaho[49]

Eligible Action Area	Planned Percent Allocation
Light-duty zero emission vehicle supply equipment	15%
Large trucks, medium trucks, school bus, shuttle bus, transit bus	35%
Freight switchers, airport ground support equipment, forklifts and port cargo handling equipment	20%
DERA	15%
Administrative costs	15%

Montana

EV Policies in Montana

Policy Category	Policy Name	Policy Description	Authorizing Authority
Other	AFV Conversion Tax Credit	Businesses and individuals are eligible for an income tax credit of up to 50% of the equipment and labor costs for converting vehicles to operate using alternative fuels. The maximum credit is $500 for the conversion of vehicles with a gross vehicle weight rating (GVWR) of 10,000 pounds (lbs.) or less and $1,000 for vehicles with a GVWR of more than 10,000 lbs.	Montana Code Annotated 15-30-2320
EV/EVSE deployment targets	Regional Electric Vehicle (REV) West Plan	Montana joined Arizona, Colorado, Idaho, Nevada, New Mexico, Utah, and Wyoming (Signatory States) in signing the REV West memorandum of understanding to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Signatory States are committed to a series of goals pushing for EV adoption across states.	Memorandum of Understanding
EV/EVSE procurement targets	Fuel-Efficient Vehicle Acquisition Requirements	All vehicles purchased for state agency use must meet or exceed the current federal Corporate Average Fuel Economy standard and agencies must develop and implement programs to reduce fuel consumption in agency vehicles. Certain state vehicles are exempt.	Montana Code Annotated 2-17-416; 2-17-417

Environmental Mitigation Trust – Planned Allocations in Montana[50]

Eligible Action Area	Planned Percent Allocation
Light-duty zero emission vehicle supply equipment	15%
Onroad heavy duty diesel vehicles	55%
Funding for projects based on demand	10%
DERA	5%
Administrative costs	15%

Nevada

EV Policies in Nevada

Policy Category	Policy Name	Policy Description	Authorizing Authority
EV purchase incentive	AFV and Infrastructure Grants	Nevada Office of Energy will establish the Nevada Clean Energy Fund to fund qualified clean energy projects, including any program, technology, product, or service that supports the deployment of AFVs and related infrastructure. Technologies that involve the combustion of fossil fuels are not eligible for funding.	Nevada Senate Bill 407
Parking incentives	AFV Parking Fee Exemption	All local authorities with public metered parking areas within their jurisdiction must establish a program for AFVs to park in these areas without paying a fee. Each local authority is responsible for creating an application process and issuing a distinctive decal for AFVs. The fee for the decal may not exceed $10 per year.	Nevada Revised Statutes 484A.468
Testing exemption	AFV and Hybrid Electric Vehicle Emissions Inspection Exemption	AFVs are exempt from Nevada's emissions testing requirements. A new HEV is exempt from emissions inspection testing for the first five model years, after which the vehicle must comply with emissions inspection testing requirements on an annual basis.	Nevada Revised Statutes 445B.770 through 445B.825
Education and Outreach	EVSE Demonstration Program Requirements	This requires Nevada utilities to promote and incentivize the deployment of EVSE. Utilities must submit an annual plan for implementing the Program in their service areas to the Public Utilities Commission of Nevada (PUCN). Suggested points of the plan are outlined.	Nevada Revised Statutes 701B and 704.110
EV/EVSE procurement targets	Regional Electric Vehicle (REV) West Plan	Nevada joined Arizona, Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming (Signatory States) in signing the REV West memorandum of understanding to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Signatory states are committed to taking measures to increase EV access and infrastructure.	Memorandum of Understanding
Other	Electric Vehicle Manufacturer Franchise Exemption	A vehicle manufacturer is not required to sell its vehicles through franchised dealers if the manufacturer: only produces passenger cars powered solely by one or more electric motors; only sells new or used passenger cars that it manufactures; and was selling such passenger cars in Nevada on or before January 1, 2016.	Nevada Revised Statutes 482.36311 through 482.36425, 482.078, and

			482.322
HOV Lanes	Authorization for High Occupancy Vehicle (HOV) Lane Exemption	Nevada Department of Transportation may establish, in consultation with the Federal Highway Administration and U.S. Environmental Protection Agency, a program allowing federally certified low emission, energy-efficient, and alternative fuel vehicles to operate in HOV lanes regardless of the number of passengers.	Nevada Revised Statutes 484A.463
EV/EVSE procurement targets	AFV Acquisition Requirement	Fleets containing 50 or more vehicles that are owned, leased, or operated by the state, a state agency, or a political subdivision of the state in a county with a population of 100,000 or more must acquire AFVs or U.S. Environmental Protection Agency certified Ultra Low Emission Vehicles (ULEVs). A fleet may meet the acquisition requirements by converting existing or newly acquired vehicles to operate on alternative fuels. An AFV acquired in compliance with this mandate must operate solely on the alternative fuel except when operating in an area where the appropriate alternative fuel is unavailable.	Nevada Administrative Code 486A.010 through 486A.250, and Nevada Revised Statutes 486A.010 through 486A.180

Utility EV Programs in Nevada

Utility	Program	Description	Authorizing Authority
NV Energy	PEV Charging Rate Incentive	NV Energy offers discounted electricity rates to residential customers in their Northern and Southern Service Territories who charge PEVs during off-peak hours. The discounted rate applies to all electricity use on the premises during off-peak hours. To participate, customers must allow NV Energy access to their electric meters.	NV Energy Electric Vehicle Rate Program
NV Energy	Electric Vehicle Charging Station Incentives	NV Energy provides a financial incentive of up to $3,000 per Level 2 charging port (or 75% of project cost, whatever is less), and up to $15,000 per DC fast charger for employers, multi-family dwellings, and fleets. Projects that do not fit within these categories may be considered as part of the EV Custom Grant program.	Electric Vehicle Charging Station Incentives Program Handbook

Environmental Mitigation Trust – Planned Allocations in Nevada[51]

Eligible Action Area	Planned Percent Allocation
Light-duty zero emission vehicle supply equipment	15%
Class 8 local freight trucks and port drayage trucks; Class 4-8 school bus, shuttle bus, or transit bus; Class 4-7 local freight trucks (medium trucks); Airport ground support equipment	80%
DERA	5%

New Mexico

EV Policies in New Mexico

Policy Category	Policy Name	Policy Description	Authorizing Authority
EV purchase incentives	Diesel Emission Reduction Project Funding	New Mexico Energy Department (NMED) is accepting applications for funding of heavy-duty on-road and limited off-road diesel emission reduction projects through September 14, 2018. Note that funding for light-duty electric vehicle supply equipment is not an eligible project for this round of funding.	New Mexico Environment Department, Beneficiary Mitigation Plan (in regards to the VW Settlement Agreement)
EV/EVSE procurement targets	Regional Electric Vehicle (REV) West Plan	New Mexico joined Arizona, Colorado, Idaho, Montana, Nevada, Utah, and Wyoming (Signatory States) in signing the REV West memorandum of understanding to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Signatory states are committed to taking measures to increase EV access and infrastructure.	Memorandum of Understanding
EV/EVSE procurement targets	AFV and Hybrid Electric Vehicle Acquisition Requirements	A minimum of 75% of state government and educational institution fleet light-duty vehicles purchased must be HEVs or bi-fuel or dedicated AFVs. Vehicles must meet or exceed the federal corporate average fuel economy standards. Up to $5 million is authorized for a revolving loan fund for AFV acquisitions by state agencies, political subdivisions, and educational institutions, effective July 1, 2018.	New Mexico House Bill 165, 2018; New Mexico Statutes 13-1B-1 through 13-1B-7

Environmental Mitigation Trust – Planned Allocations in New Mexico[52]

Eligible Action Area	Planned Percent Allocation
Light-duty zero emission vehicle supply equipment	15%
On-road fleet projects	70%
Non-road fleet projects	7%
DERA	3%
Administrative fees	5%

Utah

EV Policies in Utah

Policy Category	Policy Name	Policy Description	Authorizing Authority
Education and outreach	Support for Consideration of Vehicle Environmental Impacts	Utah Legislature encourages the citizens of Utah to consider the U.S. Environmental Protection Agency vehicle smog rating and other environmental impacts when purchasing a vehicle. The Utah Legislature suggests that auto dealers make vehicle smog ratings known to customers and that customers purchase vehicles with a smog rating of eight or higher.	Utah House Concurrent Resolution 18, 2017
EV purchase incentive	AFV Conversion Grants for Businesses	Utah Conversion to Alternate Fuel Grant Program provides grants to businesses that install conversion equipment on eligible vehicles. Businesses are required to pass these savings along to the individual who purchases the converted vehicle. Grants are available for 50% of the cost of conversion, up to $2,500.	Utah Code 19-1-401, 19-1-402, 19-1-403.3, and 19-1-405
EV/EVSE procurement targets	Regional Electric Vehicle (REV) West Plan	Utah joined Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, and Wyoming (Signatory States) in signing the REV West memorandum of understanding to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Signatory states are committed to taking measures to increase EV access and infrastructure.	Memorandum of Understanding
EV/EVSE procurement targets	Provision for Establishment of Alternative Fuel Use Mandate	Utah Air Quality Board may require fleets that own 10 or more vehicles capable of being fueled at a central location to use clean fuels if such a mandate is necessary to meet national air quality standards.	Utah Code 19-2-105.3 and 63I-1-219
EV/EVSE procurement targets	Alternative Fuel Use and Vehicle Acquisition Requirement	By August 30, 2018, at least 50% of new or replacement light-duty state agency vehicles must meet Bin 2 emissions standards established in Title 40 of the U.S. Code of Federal Regulations, or be propelled to a significant extent by electricity, natural gas, propane, hydrogen, or biodiesel.	Utah Code 63A-9-401 and 63A-9-403
EVSE purchase incentive	EV Infrastructure Bond Authorization	Interlocal entities, such as counties, local districts, and military installations, are authorized to issue bonds for PEV charging infrastructure.	Utah Code 11-42-102 and 11-13-218

HOV Lanes	AFV Decal and High Occupancy Vehicle (HOV) Lane Exemption	Vehicles operating on propane, natural gas, or electricity are permitted to use HOV lanes, regardless of the number of passengers. Qualified vehicles must display the special clean fuel decal issued by the Utah Department of Transportation (UDOT); a limited number of decals are available.	Utah Code 41-1A-416, 41-1A-418, 41-6A-702, 59-13-102, and 72-6-121
Other	Alternative Fuel Tax Exemptions and Reductions	Propane and electricity, also known as special fuel, used to operate motor vehicles are exempt from state fuel taxes. A reduction in special fuel tax is permissible if the fuel is already taxed by the Navajo Nation. Retailers, wholesalers, and suppliers of special fuel are eligible for a refund of the special fuel tax if dyed diesel fuel is mixed with special fuel and the mixed special fuel is returned to the refinery.	Utah Code 59-13-102, 59-13-201, 59-13-301, and 59-13-322
Other	AFV Inspection and Permit	Utah State Tax Commission (Commission) may require vehicles operating on clean fuels to be inspected for safe operation. In addition, clean fuel vehicles that have a gross vehicle weight rating of more than 26,000 pounds or have more than three axels are required to obtain a special fuel user permit from the Commission.	Utah Code 59-13-102, 59-13-303, and 59-13-304
Rates/regulation	Public Utility Definition	An entity that provides electric vehicle battery charging services is not defined as a public utility, unless the entity conducts another activity in the state that subjects it to the regulation and jurisdiction of the Utah Public Service Commission.	Utah Code 54-2-1

Utility EV Programs in Utah

Utility	Program	Description	Authorizing Authority
Rocky Mountain Power	EVSE Rebate	Rocky Mountain Power provides rebates to non-residential and multi-family customers toward the purchase of Level 2 and DC Fast EVSE. Customers installing Level 2 EVSE may receive a rebate of 75% of equipment cost, up to $2,500 for single port stations and $3,500 for multi-port stations. Customers installing DC fast charging EVSE may receive a rebate of 75% of equipment and installation cost, up to $30,000 for single port stations and $42,000 for multi-port stations.	Rocky Mountain Power – Utah EV Incentive Program
Rocky Mountain Power	EV Credit and Charging Rate Reduction Pilot	Rocky Mountain Power offers residential customers with PEVs $200 to enroll in a time-of-use (TOU) rate pilot. Participants may choose between two rate plans. The TOU rate will apply to all household energy use.	Rocky Mountain Power – Utah EV Time-of-Use Pilot

Environmental Mitigation Trust – Planned Allocations in Utah

Eligible Mitigation Action	Percent Allocation
Class 8 Local Freight Trucks	73.5%
Class 4-7 Local Freight Trucks	
Class 4-8 School, Shuttle, or Transit Buses	
Light-Duty ZEV Supply Equipment	11%
DERA Option	7%
Administrative Costs	8.5%

Wyoming

EV Policies in Wyoming

Policy Category	Policy Name	Policy Description	Authorizing Authority
EV Registration Fee	EV Decal Fee	Owners of PEVs, which are vehicles capable of charging from an external source of electricity and containing a rechargeable battery used to propel the vehicle, must pay a one-time decal fee of $50.	Wyoming Statutes 39-17-301(a) and 31-3-102(a)
EV/EVSE procurement targets	Regional Electric Vehicle (REV) West Plan	Wyoming joined Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, and Utah (Signatory States) in signing the REV West memorandum of understanding to create an Intermountain West Electric Vehicle (EV) Corridor that will make it possible to seamlessly drive an EV across the Signatory States' major transportation corridors. Signatory states are committed to taking measures to increase EV access and infrastructure.	Memorandum of Understanding
Other	Alternative Fuel Export Tax Exemption	Alternative fuel sold for use in motor vehicles and intended for export from the state by a licensed alternative fuel exporter is exempt from the alternative fuel license tax. Any person exporting alternative fuel for which the license tax has been paid is eligible for a refund of the license tax paid.	Wyoming Statutes 39-17-301, 39-17-305, and 39-17-309(c)
Other	Alternative Fuel Tax Rate	A license tax of $0.24 per gasoline gallon equivalent (GGE) or diesel gallon equivalent (DGE) is collected on all alternative fuel used, sold, or distributed for sale or use in Wyoming.	Wyoming Statutes 39-17-104, 39-17-204, 39-17-303, and 39-17-304

Environmental Mitigation Trust – Planned Allocations in Wyoming[53]

Eligible Action Area	Planned Percent Allocation
Light-duty zero emission vehicle supply equipment	N/A
Class 8 local freight trucks (large trucks)	N/A
Class 4-8 school bus, shuttle bus, or transit bus	N/A
Class 4-7 local freight trucks (medium trucks)	N/A
Airport ground support equipment	N/A
DERA	N/A

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