

Vehicle Charging Infrastructure Incentives / Advanced Vehicle Charging Rates

Description:

As greenhouse gas (GHG) emissions from electricity generation are declining, the transportation sector has surpassed the electric sector as the greatest source of GHG emissions in the U.S. There is some debate regarding the impact of electric vehicles (EVs) on GHG emissions. In many cases, it depends on the state. EVs move the emissions profile from mobile sources (individual vehicles) to the stationary source emissions of the power plants providing the electricity. As these emissions get cleaner, the associated emissions of vehicles will also get cleaner. Thus, low GHG emissions associated with the electric sector will result in corresponding low vehicle emissions, and the GHG savings in such states will be significant; in other states, the savings will not be as great.

The relationship between the increased adoption of EVs and the availability of EV charging stations is complicated. On the one hand, consumer range anxiety creates a barrier to increased adoption. On the other hand, while greater availability of charging stations would ease this anxiety, the relatively low numbers of vehicles on the road provides little incentive to install and make these stations available to the public. The good news is that both supportive policies for developing charging infrastructure and advancements in technology have eased range anxiety. Bloomberg New Energy Finance [estimates](#) that 57% of all new passenger vehicle sales will be electric by 2040.

Discussion of the Policy:

1. **Utility Investment in “Make-Ready” Infrastructure** - “Make-ready” means building and upgrading the infrastructure necessary to install a charging station. The Rocky Mountain Institute [recommends](#) that incentives for utilities to invest in make-ready infrastructure or charging infrastructure itself be performance-based and encourage investments in locations that are unlikely to be targeted by the private sector, like low-income and multi-unit dwellings.
2. **Utility-Run Programs** - Charging rate incentives and time of use rates can reduce the cost of electricity used for charging. Eligibility for a charging rate incentive may be limited to users with separate or advanced metering systems. Some utilities also offer financial incentives for the purchase of EVs or EV supply equipment (EVSE). In some states, enabling legislation may be required to direct or authorize a public utilities commission to allow regulated utilities to recover the costs of providing these incentives.
3. **Charging Infrastructure Plan** - Locating charging infrastructure is different from locating conventional fueling stations. While some drivers will need to charge more quickly, others will refuel when they are parked for a longer period, for example when going shopping, going to a restaurant, or going to work. Charging infrastructure plans should attempt to pair the appropriate level of charging (level 2 or direct current fast charging) with a reasonable amount of time a person will be at that location. Legislation could direct a state agency to develop an infrastructure plan through a stakeholder process. States with existing registration fees for EVs could use a portion of these fees to help fund planning and charging infrastructure development efforts, as [Washington](#) has done.
4. **Parking Infrastructure Requirements** - In tandem with the development of a statewide plan, legislation could set requirements for EV parking infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least one EV charging space. Many states and local governments are updating building standards and codes to provide for the installation of charging equipment. Building codes might also be updated to require either higher voltage pre-wiring or the installation of charging infrastructure.

5. **Rental Properties and HOAs** - Legislation can also make it easier for lessees, renters, and members of a homeowners' association (HOA) to install charging equipment. Typically, lessors are directed to allow lessees, at their own cost, to install charging systems. In some cases, lessees are required to maintain additional insurance for the system. Legislation related to HOAs typically directs them to avoid restrictions that would inhibit the installation of charging equipment.
6. **Financing and Financial Incentives** - Providing financial incentives and innovative financing options can support the installation of EVSE. Sales, property, and income tax credits are some of the simplest methods for addressing the up-front costs of EVSE. Some states have adopted other financial incentives including low-interest loans, grants, and rebates. A handful of states qualify EVSE under their property assessed clean energy (PACE) programs. States could increase and expand existing tax credits to incentivize commercial, publicly available charging stations.
7. **The Volkswagen (VW) Settlement** - In October 2016, the VW settlement for violating vehicle emissions rules was finalized. In addition to the \$10 billion in direct customer rebates, \$2.7 billion was allocated to states to reduce emissions. Of these funds, 15% can be earmarked for EV infrastructure investments (the rest are targeted at nitrogen oxides emissions reductions in the medium- and large-duty vehicle fleet markets).

Another [\\$2 billion will be distributed nationally by VW](#), with \$800 million going directly to California. The first investment category includes planning, installation, operation, and maintenance of the following types of EV infrastructure, which must be available to all vehicles, utilizing non-proprietary connectors:

- Level 2 charging at multi-unit dwellings, workplaces, and public sites;
- Direct current fast charging facilities;
- Later generations of charging infrastructure; and
- Hydrogen fueling stations.

There are also federal funds and programs that can be leveraged to support the deployment of EV charging infrastructure.

8. **Federal Congestion Mitigation and Air Quality (CMAQ) Funds** - [CMAQ funds](#) are available to states and can be used to deploy EVSE. There may be a unique opportunity to pair a request for CMAQ funds with the VW Settlement money and a commitment from utilities to invest in charging infrastructure as a public/private partnership that would leverage the federal investment.
9. **Alternative Fuel Corridors** - In 2016, the U.S. Department of Transportation established the [Alternative Fuel Corridors](#) network. Designated corridors are priority areas for EV and natural gas infrastructure under the CMAQ program. The Alternative Fuel Corridors program is intended to:
 - Provide the opportunity for formal corridor designations on an annual basis;
 - Ensure that corridor designations are selected based on criteria that promote the build-out of a national network;
 - Develop national signage and branding to help catalyze applicant and public interest;
 - Encourage multi-state and regional cooperation and collaboration; and,
 - Bring together a consortium of stakeholders including state agencies, utilities, alternative fuel providers, and car manufacturers to promote and advance alternative fuel corridor designations in conjunction with the Department of Energy.

Example State & Utility Programs:

States, local governments, and electric utilities offer a variety of incentives to support the installation of EV charging stations.

- Electric Drive Washington:
<http://www.commerce.wa.gov/growing-the-economy/energy/electric-vehicles/>

- EV Connecticut:
http://www.ct.gov/deep/cwp/view.asp?a=2684&q=527866&deepNav_GID=1619
- Hawaii's EV Parking Infrastructure Requirements:
http://www.capitol.hawaii.gov/session2012/bills/GM1190_.PDF
- Nevada's Electric Vehicle Supply Equipment (EVSE) Demonstration Program Requirements:
<https://afdc.energy.gov/laws/11856>
- Otter Tail Power Company's EV Incentives:
<https://www.otpc.com/ways-to-save/electric-vehicles/>

Key Components:

- Coordination with electric utilities is key. Programs to provide access to EV registration data by service territory can assist utility planning for shifting demand.
- Authorize utilities to earn a rate of return on their investments in EV charging infrastructure.
- Programs can be targeted to one, some, or all of the following: single-family homes, multi-family dwellings, businesses, or units of government.
- Eligibility for incentives can be limited to systems that comply with state codes or federal standards.
- Loan, grant, and rebate programs should have a dedicated funding source.

More Information:

- Alternative Fuels Data Center (AFDC), Hybrid and Plug-In Electric Vehicles:
<https://www.afdc.energy.gov/vehicles/electric.html>
- The GridWise Alliance, EVs - Driving Adoption, Capturing Benefits:
<http://gridwise.org/evs-driving-adoption-capturing-benefits/>
- M.J. Bradley and Associates and the Georgetown Climate Center: Utility Investment in Electric Vehicle Charging Infrastructure: Key Regulatory Considerations:
https://www.georgetownclimate.org/files/report/GCC-MJBA_Utility-Investment-in-EV-Charging-Infrastructure.pdf
- National Association of State Energy Officials (NASEO) and the National Association of Clean Air Agencies (NACAA): VW Settlement Clearinghouse:
<https://vwclearinghouse.org/>
- Plug-In America:
<https://pluginamerica.org/>
- The Rocky Mountain Institute (RMI): From Gas to Grid - Building Charging Infrastructure to Power Electric Vehicle Demand:
https://rmi.org/insight/from_gas_to_grid/
- RMI: Electric Vehicles as Distributed Energy Resources:
<https://rmi.org/insight/electric-vehicles-distributed-energy-resources/>
- Southwest Energy Efficiency Project (SWEET), Policies to Promote Electric Vehicles in the Southwest: <http://www.swenergy.org/transportation/electric-vehicles>