Finding the Funds

Options for State Plug-In Electric Vehicle Programs



GEORGETOWN CLIMATE CENTERA Leading Resource for State and Federal Policy

Cassandra Powers

April 2015

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Glossary

PEV: Plug-in electric vehicle (both battery electric vehicles and plug-in hybrid electric vehicles)

BEV: Battery-electric vehicle (e.g., Nissan Leaf)

ZEV: Zero-emission vehicle

PHEV: Plug-in hybrid electric vehicle (e.g., Chevy Volt)

HEV: Hybrid electric vehicle (e.g., Toyota Prius)

AFV: Alternative fuel vehicle (any vehicle that runs on an alternative fuel)

EVSE: Electric vehicle supply equipment

V2G: Vehicle to grid

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Introduction

Plug-in electric vehicles (PEVs) have the potential to reduce greenhouse gas emissions and other pollutants from the transportation sector, enhance our nation's energy security, and save drivers money over the lifetime of the vehicle. To capture these benefits and meet greenhouse gas reduction goals, states are launching ambitious policies and programs that will address barriers to deployment and increase PEV sales. These include policies that set deployment targets or fleet composition requirements, buyer incentive programs to encourage sales and help offset the cost of the vehicle and infrastructure, and direct spending on PEVs and charging stations. While some of these policies and programs can be implemented at low cost, many require significant financial investment. At a time when resources are scarce, states have found creative ways to fund their PEV programs. This paper provides an overview of the types of PEV programs states are implementing and examines funding sources that support these programs.

Overview of State Electric Vehicle Programs

States are implementing a variety of programs to encourage PEV adoption and address barriers to PEV deployment. Some PEV programs do not require high levels of state funding. For example, Maryland, California, and other states offer high occupancy vehicle (HOV) lane access to PEV drivers. Connecticut launched a "REVolutionary Dealer" award that publicly recognizes the dealership that sells the most PEVs over a given time period. Oregon offers "Electric Byway" itineraries that identify destinations with PEV charging as well as DC fast chargers that drivers can use to recharge along the way.²

These programs are examples of ways that states can promote public acceptance of PEVs and encourage PEV adoption at a relatively low cost. However, states are also implementing higher-impact, higher-cost policies, such as programs that will ease range anxiety and offset the high cost of PEVs by offering financial support to consumers and organizations, directly purchasing PEVs or investing in PEV charging infrastructure, and funding research and demonstration programs.

Tax Credits and Rebates for Consumers

Several states have offered tax credits or rebates for consumers who purchase PEVs or PEV infrastructure. For example, in 2014 Massachusetts launched the Massachusetts Offers Rebates for Electric Vehicles program to provide consumer rebates of up to \$2,500 for purchase of a plug-in hybrid or electric vehicle registered in the state.³ Pennsylvania's Alternative Fuel Vehicle Rebate program assists eligible residents with the incremental cost of the purchase of new plug-in hybrid or electric vehicles by offering a rebate of up to \$2,000.⁴

Other states offer tax credits to help offset the purchase of a PEV. For example, Utah offers a Clean Fuel Vehicle Tax Credit of \$605 for the original purchase of new qualifying electric or hybrid vehicles. The state also provides an income tax credit for 50 percent of the cost of equipment for converting vehicles to run on electricity, up to \$2,500. These programs were designed to encourage PEV adoption by offsetting the high up-front costs of PEVs and PEV charging infrastructure.

Incentives for Businesses and Municipalities

Some incentive programs provide funding for municipalities and businesses to purchase PEVs and EVSE. Connecticut, Maryland, Vermont, Colorado, and others offer some form of monetary assistance to encourage PEV and EVSE purchase by organizations within their state. These programs sometimes attach guidelines that the award recipient must follow to receive funding. For example, states may make funding available to organizations to install EVSE at specific locations to encourage the development of a charging station network. Similarly, states may require that EVSE installed with funds from a grant program be made accessible to the public. Many states also enter into

public-private partnerships by offering grants that require a financial match from the business or municipality. Providing funds to municipalities and businesses is one way that states may be able to reach a large number of potential PEV drivers with a limited amount of resources.

Direct Spending

A number of states are also directly purchasing PEVs and PEV charging stations. Some states are purchasing PEVs for use in their fleets and installing charging stations at state-owned buildings. For example, Maryland has installed charging stations at the Maryland Department of Transportation Headquarters. Others are installing charging stations at strategic locations throughout the state. For example, Delaware is partnering with the University of Delaware to install a handful of publicly available PEV charging stations, and Oregon and Washington installed DC fast chargers along I-5 to support regional travel as part of the West Coast Electric Highway.⁶



Charging Station in Skykomish, Washington, supported with ARRA funds

Washington State Department of Transportation

Research and Development Projects

Some states are supporting PEV research, development, and pilot projects. For example, Massachusetts is working with communities around the state to pilot vehicle-to-grid (V2G) technology in school buses. The New York State Energy Research and Development Authority (NYSERDA) offers annual solicitations that support new product research, development and demonstration, and provides incentives to accelerate the market introduction of emerging technologies through its alternative fuel vehicle program.

Funding Mechanisms

Each of the programs highlighted in the previous chapter requires expenditures by the state. While some states dedicate a portion of the general budget towards PEV programs, the majority are using other sources to support PEV programs. These include funds from emissions budget trading programs, utility charges, legal agreements and settlements, vehicle inspection programs, vehicle registration fees, and federal funds. Below is a high-level overview of select funding sources, with examples of ways states are using these funds to support PEV programs.

Emissions Budget Trading Programs

Emissions budget trading is an environmental policy tool used by some states to reduce greenhouse gas emissions. Emissions budget trading sets a limit on emissions, which is lowered over time to reduce the amount of pollutants released into the atmosphere. Emitters are required to hold allowances, and may buy and sell these, encouraging companies to innovate to maintain emissions under the cap. Allowances may be distributed by auction, which results in proceeds that can then be reinvested in energy efficiency or other programs. There are currently two greenhouse gas emissions budget programs in the U.S. that result in proceeds that can be used to support sustainable transportation programs: the Regional Greenhouse Gas Initiative, and California's cap-and-trade program.

Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative (RGGI) is the first mandatory, market-based carbon dioxide (CO₂) emissions reduction program in the United States. RGGI is a cooperative effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont to limit and reduce power sector emissions. Through independent regulations, each state's CO₂ Budget Trading Program limits CO₂ emissions from electric power plants, issues CO₂ allowances, and distributes CO₂ allowances at auctions.⁸ The RGGI states have raised over \$2 billion in proceeds since 2008, reducing power sector carbon pollution over 40 percent since 2005.⁹ A significant share of the proceeds from regional auctions are used by states for consumer benefit programs, including energy efficiency, renewable energy, direct energy bill assistance and other greenhouse gas reduction programs.

Each state determines its own use of proceeds. Several states are currently using or plan to use RGGI proceeds to fund PEV programs. For example, Maryland and Massachusetts offer PEV programs that are supported by RGGI funds, including tax credits and rebates for PEVs and EVSE, and PEV infrastructure support for businesses and municipalities. New York is using RGGI proceeds to support PEV charging station installations through its Cleaner Greener Communities program, and also plans to invest more than \$3 million per year in Charge NY, which aims to put 3,000 charging stations and 40,000 PEVs on the road by 2018. Proceeds will fund PEV charging station installations at select locations, and will also support a statewide engagement campaign focusing on employers, car

dealers, retailers, and the general public to build support and awareness of PEVs.¹¹ Delaware is using \$81,000 of RGGI funds to support a statewide PEV charging station research and demonstration program.¹² RGGI proceeds have the potential to support future PEV programs and energy efficiency measures, so long as the proposed program conforms with the state's statute or regulation implementing RGGI.



Charging Station at Cape May Lewes Ferry, Delaware, supported with RGGI funds

Elpiniki Apostolaki, Cape May Lewes Ferry

California Cap-and-Trade Program

California's cap-and-trade program is one tool that the state is using to achieve the goals established in AB 32, the Global Warming Solutions Act of 2006, and the state has decided to dedicate a portion of the allowances from its auction proceeds to programs that reduce greenhouse gas emissions in the transportation sector. Like RGGI, a portion of the GHG emissions allowances established by California's cap-and-trade program are sold at auctions, and proceeds from those auctions are invested in the Greenhouse Gas Reduction Fund (GGRF). A variety of state agencies have received funding from the GGRF to support transportation programs; the California Air Resources Board (ARB) has received \$200 million since 2014 to support a variety of low carbon transportation programs, including advanced clean passenger vehicle rebates, incentive vouchers for heavy duty hybrid/ZEV trucks and buses, freight demonstration projects, and clean vehicle pilot programs in disadvantaged communities.

Utility Charges

In some states, charges levied on electric utilities or electric utility customers may be used for energy efficiency, renewable energy, and alternative fuel programs. A system benefits charge (SBC, also known as a "societal benefits charge") is levied through customers' utility bills to fund public benefits programs. Programs covered by an SBC may include energy efficiency, renewable energy, low-income assistance, environmental protection, and research and development. The decision to use an SBC for public policy programs is made by the state legislature or the public utilities commission, and some states now use SBC proceeds to fund PEV programs. The New York State Public Service Commission (PSC) established a SBC to fund public policy initiatives. The New York PSC has approved some PEV projects as eligible for funding under the SBC when the PEV projects support the state's energy efficiency goals outlined under the SBC's guidelines and provide benefits to ratepayers.

Another source of funds that may be used to support PEV programs is a gross receipt tax (GRT). A GRT is similar to a sales tax, but it is levied on the seller of goods or services in various industries, including utilities. Revenues from a GRT may be used for a variety of programs, and some states have elected to use GRT proceeds from electric generation and distribution companies to fund alternative fuel projects. For example, in Pennsylvania, a GRT is imposed on the gross revenue from the sale of electricity. Pennsylvania uses a portion of the revenue from the GRT annually to support the state's alternative fuels rebates program.

Legal Agreements and Settlements

A number of states have used money from legal agreements and settlements to fund PEV programs. For example, several programs in Connecticut were funded by the Northeast Utilities-NStar Electric Utility merger agreement.²¹ Under the merger agreement, Northeast Utilities is required to work with the Connecticut Department of Energy and Environmental Protection to develop a targeted plan to advance Connecticut's interests in a number of areas that are consistent with the Governor's energy policy goals. Northeast Utilities will provide \$15 million for implementation of the plan, and a portion of that money is being used to fund the Publicly-Accessible PEV Charging Infrastructure Funding Program, and installations of Level 2 and DC fast chargers throughout the state.²²

Several northeast states support PEV programs with funds from a settlement with the American Electric Power Service Corporation. In 2007, the United States, eight states, and thirteen citizen groups announced a settlement agreement with American Electric Power (AEP) relating to the Clean Air Act's New Source Review provisions. AEP will spend more than \$4.6 billion as part of the settlement, resolving government charges in 1999 that it violated the Clean Air Act.²³ The settlement requires the installation and continuous operation of pollution control technology, payment of a \$15 million penalty, and AEP's commitment to dedicate \$60 million to perform or finance federal and state environmental mitigation projects.²⁴ Of the \$60 million for mitigation projects, \$24 million was allocated for projects among the eight states that joined the settlement.²⁵ In 2013, the eight-state coalition and the U.S. EPA negotiated a revised settlement that provides an additional \$8.5 million for states to implement mitigation programs.²⁶

Several of these states are using a portion of their settlement funds to support PEV programs. For example, the Massachusetts Department of Energy Resources used \$300,000 of the settlement proceeds to launch a PEV infrastructure program in 2011 and offered a competitive solicitation for towns and cities to install EVSE. Maryland

is using \$1 million of the proceeds from the settlement for a public-private grant program to build a statewide network of DC fast charging stations for PEVs.²⁷ Vermont is also using \$200,000 of the settlement funds to offer grants for PEV charging stations to "designated downtowns" throughout the state.²⁸

Inspection Programs

Some states use proceeds from motor vehicle safety and emission inspection programs to support transportation programs, including programs to support PEVs. For example, Massachusetts uses a portion of the funds collected from motor vehicle safety and emissions inspections to support Clean Air Act programs.²⁹ In 2013, \$2.5 million of the safety and emissions inspection funds were set aside by the Department of Environmental Protection to establish the Massachusetts Electric Vehicle Incentive Program, which provides grants to municipalities to purchase PEVs and PEV charging stations.



Charging Station in Boston, Massachusetts, supported with vehicle inspection funds

Massachusetts Department of Environmental Protections

Vehicle Registration Fees

PEV-specific registration fees are levied on PEV owners in some states and may be used to support PEV programs and highway spending generally. Some state DOTs are concerned that the widespread adoption of PEVs and other fuel-efficient vehicles may have a significant negative effect on highway revenues, which are funded by taxes on gasoline. To address this issue, a number of states have levied additional fees on PEV drivers. For example, Virginia implemented an annual \$64 fee for electric vehicles, and Washington requires PEV owners to pay a \$100 annual fee, in addition to their annual vehicle registration fee. ^{30, 31}

While PEV registration fees primarily contribute to the state's highway trust fund, some states use these funds to support PEV programs. In 2014, Colorado passed a law requiring owners of PEVs to pay a \$50 annual fee at the time of registration. The state treasurer credits \$30 of each fee to the Highway Users Tax Fund, and \$20 of each fee to an electric vehicle grant fund. This grant fund is used to provide grants to local governments, landlords of multi-family apartment buildings, private, non-profit, or for-profit corporations, and the unit owners' associations of common interest communities to install charging stations for PEVs through the state's PEV infrastructure program, Charge Ahead Colorado. Under the Colorado statute, any vehicle that qualifies for the federal PEV tax credit is considered a PEV for the purposes of the registration fee. 33

State PEV Fund

While some states use specific, dedicated sources of funding for alternative fuel programs, other states have established funds that collect proceeds from one or more sources, and use the funds to support PEV projects. As mentioned above, Colorado has established an electric vehicle grant fund, which uses proceeds from PEV registration fees to provide grants for charging station installations, and the state also uses federal Congestion Mitigation and Air Quality program and State Energy Program funds for the Charge Ahead Colorado program (see Federal Programs below). California also created an Air Quality Improvement Fund, which supports the state-wide Air Quality Improvement Program. Funding is provided through a dedicated revenue stream of smog abatement, vehicle and vessel registration and equipment identification plate fees. These fees are used to support a variety of clean vehicle projects, and recently have been used to support the California Air Resources Board's Clean Vehicle Rebate Project (CVRP). CVRP is designed to promote the purchase of electric vehicles, and offers rebates of up to \$5,000 per light-duty vehicle for individuals, non-profits, government entities, and business owners who purchase or lease an eligible vehicle. Due to increased demand, funding for the project has been augmented with support from the California Energy Commission, and more recently, GGRF. CVRP was authorized under the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air and Carbon Reduction Act of 2007, and over \$200 million in rebates have been issued to date.

Similarly, Illinois has created an Alternative Fuels Fund to support alternative fuel projects. Fleets with 10 or more vehicles located in the Chicago-area must pay an annual user fee of \$20 per vehicle, and proceeds are deposited into the Alternate Fuels Fund.³⁵ The fleet user fee has generated \$1.7 million since 1997, which has supported various rebates and other alternative fuel programs.

Federal Programs

Congestion Mitigation and Air Quality Program

Some states are using Congestion Mitigation and Air Quality (CMAQ) funds to support PEV projects. CMAQ is a flexible funding source that state Departments of Transportation (DOTs) and other eligible entities may use for a variety of projects that contribute to air quality improvements and provide congestion relief. The CMAQ program was established in 1991 under the Intermodal Surface Transportation Efficiency Act, which established a more rigorous link between transportation and air quality planning. Jointly administered by the Federal Highway Administration and the Federal Transit Administration, the CMAQ program supports Clean Air Act goals by providing funding to areas in nonattainment or maintenance for ozone, carbon monoxide, and/or particulate matter, and typically requires a state or local match. States without nonattainment or maintenance areas still receive a

minimum amount of CMAQ funding that may be used for air quality projects or other elements of flexible spending. As of 2012, CMAQ has provided nearly \$30 billion for approximately 29,000 transportation-environmental projects to state DOTs and other transportation organizations across the country.³⁸

State DOTs often choose to use CMAQ money to fund projects that improve traffic flow and provide transit options; however, eligible activities under CMAQ also include "alternative fuel projects including participation in vehicle acquisitions, engine conversions, and refueling facilities." Several states have chosen to spend CMAO funds on PEV and EVSE programs. For example, Connecticut's Clean Fuel Program, which provides funding to government entities to offset the incremental cost of purchasing a PEV, is largely funded by CMAQ. 40 Colorado's Regional Air Quality Council uses CMAQ funds to support funding PEVs and EVSE under the state's Charge Ahead Colorado program, a partnership with the Colorado Energy Office. 41 NYSERDA's New York Truck-Voucher Incentive Program (NYT-VIP) is also supported with CMAQ funds. 42 NYT-VIP aims to promote clean air and energy independence by accelerating the adoption of clean vehicle technologies, and offers three types of vouchers for the purchase of alternative fuel vehicles and diesel emission control devices. 43 Because states with nonattainment zones may only use CMAQ money for projects within those zones, funding for the NYT-VIP is only available for vehicles that operate 70 percent of the time within New York's nonattainment zones (which includes New York City and 25 additional counties). A total of \$19 million in CMAO funds is being used for the NYT-VIP, and is available to both public and private fleets. While many federal funding sources are inconsistent from year to year, CMAQ funding has been made available to state governments in every federal transportation reauthorization since the 1990s, and has been a relatively stable source of funding for emissions-reducing transportation projects.

State Energy Program

States may use State Energy Program (SEP) funds from the U.S. Department of Energy (DOE) to support PEV programs. Congress created the SEP in 1996 by consolidating two formula grant programs and authorizing DOE to provide financial assistance for other state-oriented competitively awarded projects. ⁴⁴ The SEP provides funding and technical assistance for renewable energy and energy efficiency to state energy offices through a variety of activities. ⁴⁵ DOE awards State Energy Formula Grants to state energy offices throughout the U.S., U.S. territories, and the District of Columbia. The SEP also offers State Energy Competitive Financial Assistance, which allows states to compete for funding by submitting proposals that support DOE's areas of interest. In addition, the SEP provides information and resources to state energy offices through their State Energy Technical Assistance program. ⁴⁶ Some states are electing to use SEP funds to support PEV adoption. For example, under Charge Ahead Colorado, the Colorado Energy Office is using SEP funds and other sources to support charging station installations.



Charging Station at Carbondale, Colorado, supported with State Energy Program funds

Charge Ahead Colorado, Colorado Energy Office

From 2009-2012, the SEP played a central role in implementing the American Recovery and Reinvestment Act (ARRA).⁴⁸ ARRA was enacted to preserve and create jobs and promote economic recovery, and \$3.1 billion of ARRA funds were made available through SEP formula grants to state energy agencies to implement energy efficiency programs and install PEV infrastructure. For example, Rhode Island launched the "R.I. Top 50" PEV charging station project and installed charging stations throughout the state. Using \$760,000 in ARRA funds, the stations were placed at state beaches, parks, transit centers, and private locations throughout Rhode Island. ARRA grants, administered through the SEP and also though other agencies, were a significant source of funding for PEV infrastructure projects and helped launch many state-level PEV programs.



Rhode Island Office of Energy Resources

Federal Grant Programs

Periodically, federal funding opportunities are available to support state-level PEV programs. The Department of Energy's Clean Cities program regularly releases funding solicitations for projects that support alternative fuel vehicle research and deployment. ⁴⁹ In 2011, the Transportation and Climate Initiative, a collaboration of the energy, environment, and transportation agencies from 11 northeast and mid-Atlantic states and the District of Columbia, facilitated by the Georgetown Climate Center, was awarded a PEV Readiness Grant from the DOE's Clean Cities Program to support planning activities for PEVs. The U.S. Department of Transportation (DOT) also releases funding opportunities that may be used to support alternative fuel vehicle projects. For example, the U.S. DOT's Transportation Investment Generating Economic Recovery (TIGER) program may be used to support a variety of initiatives, including PEV infrastructure planning and installation. Oregon received two rounds of funding from the TIGER program to install up to 33 DC fast charge stations throughout the state. ⁵⁰

Conclusion

States have launched a number of PEV programs that require significant funding, ranging from consumer incentives to municipal grants to state-sponsored pilots. For many of these programs, support has come from federal government grants or an unexpected, one-time source of funds such as legal settlements. In some cases these sources are non-recurring and provide only a single influx of funds; however, they demonstrate how states have thought creatively about ways to use these opportunities to support PEV programs, and new, similar opportunities are likely to arise again in the future.

Other sources have the potential to provide recurring, stable funding for transportation programs. Proceeds from emissions budget trading programs, system benefit charges, gross receipts taxes, and vehicle or registration fees are relatively stable sources of funds that states may use to support PEV programs. States that are looking for new sources may wish to consider using these mechanisms to support projects that will decrease transportation sector emissions.

As the PEV market grows, states may also consider requiring payment for the use of publicly accessible EVSE, or using other financing mechanisms to leverage additional private investment. The PEV market may eventually become self-sustaining; until then, states have a number of options to help reduce barriers to PEV deployment and meet greenhouse gas reduction goals.

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- 35 Illinois Compiled Statutes, Chapter 415, Section 120/35, available at: http://www.ilga.gov/legislation/ilcs/fulltext.asp?DocName=041501200K35. Illinois Compiled Statutes, Chapter 625, Section 5/13C-10, available at: <a href="http://www.ilga.gov/legislation/ilcs/ilcs4.asp?DocName=062500050HCh.+13C&ActID=1815&ChapterID=49&SeqStart=150600000&SeqEnd=152100000.
- ³⁶ Congestion Mitigation and Air Quality Improvement Program, 23 U.S Code Sec. 149. U.S Department of Transportation, Federal Highway Administration, Congestion Mitigation and Air Quality Improvement Program (CMAQ), available at: http://www.fhwa.dot.gov/environment/air_quality/cmaq/.
- ³⁷ Id.
- ³⁸ Id.
- ³⁹ U.S. Department of Transportation, Federal Highway Administration, Congestion Mitigation and Air Quality (CMAQ) Program Interim Guidance, available at: http://www.fhwa.dot.gov/map21/guidance/guidecmaq.cfm. Certain projects are ineligible for CMAQ funding. For example, routine maintenance and rehabilitation projects, administrative costs of the CMAQ program, models and monitors-acquisition, and certain planning activities are ineligible. For more information, visit: http://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/2013_guidance/index.cfm.
- ⁴⁰ Connecticut Department of Transportation, Bus Capital Projects, Connecticut Clean Fuel Program, available at: http://www.ct.gov/dot/cwp/view.asp?a=1386&q=415022.
- ⁴¹ Clean Air Fleets, Charge Ahead Colorado Grant Application, available at: http://cleanairfleets.org/documents/electric/electric_vehicle_and_charging_station_grant_application.
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- ⁴⁴ Federal Register, Vol. 61, No. 131 (July 8, 1996), available at: http://www.gpo.gov/fdsys/pkg/FR-1996-07-08/
- ⁴⁵ U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, State Energy Program, available at: http://energy.gov/eere/wipo/state-energy-program.
- ⁴⁶ U.S. Department of Energy, Energy Efficiency and Renewable Energy, About the State Energy Program, available at: http://energy.gov/eere/wipo/about-state-energy-program
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- ⁴⁸ U.S. Department of Energy, Energy Efficiency and Renewable Energy, Weatherizatoin and Intergovernmental Program, available at: http://energy.gov/sites/prod/files/2014/01/f7/48100 weather sep fsr3 0.pdf.
- ⁴⁹ U.S. Department of Energy, Clean Cities, Financial Opportunities, available at: http://www1.eere.energy.gov/cleancities/financial_opps.html.
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