



Proposal for Using Volkswagen Mitigation Funds for Light Duty EV Charging Infrastructure

Contact: Kevin Downing, DEQ

700 NE Multnomah Street, Suite 600, Portland, OR 97232

Date of release: June 5, 2018

DEQ, in partnership with the Oregon Department of Transportation, the Oregon Department of Energy and the Oregon Health Authority's Public Health Division, is requesting public comment on a proposal to consider using a portion of the Volkswagen (VW) diesel settlement allotted to Oregon to support the state's policy of electrifying the transportation sector. The proposal complements and extends current efforts in Oregon for Electric Vehicle (EV) charging infrastructure in Oregon. The VW Settlement decree allows up to 15 percent of each state's allocation – in Oregon this is approximately \$10.9 million - to be used to develop and maintain EV charging stations. The Oregon Legislature must act to approve future uses of VW Settlement funds in Oregon. This process will inform further consideration by the Legislature of future project activity.

Electrifying the transportation sector is a critical strategy for Oregon to achieve its climate and air quality goals. Governor Kate Brown issued Executive Order No. 17-21 that established an aggressive goal to have 50,000 or more registered EVs in Oregon by 2020. This goal will be achieved by:

- 1) Having Oregon state agencies lead by example with increased use of EVs;
- 2) Increasing Oregonians' access to EVs;
- 3) Increasing Oregonians' access to EV charging infrastructure;
- 4) Providing partners with information on EV use and functionality; and
- 5) Celebrating achievements by recognizing businesses and organizations that lead Oregon in EV adoption.

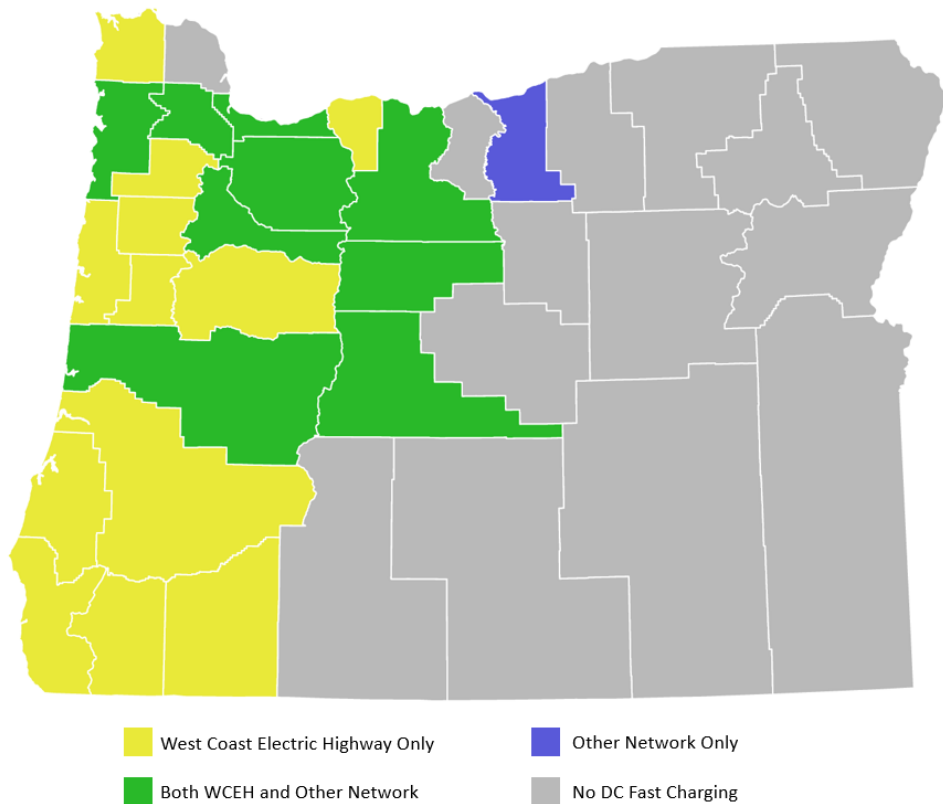
Task 5A of the executive order directs the Oregon Department of Environmental Quality, in cooperation with the Oregon Department of Transportation, the Oregon Department of Energy, and the Oregon Health Authority's Public Health Division, to engage in a stakeholder process to inform the development of a VW EV Infrastructure Proposal. This proposal consists of three action areas: updating the West Coast Electric Highway to extend usage; increase equity access to charging at multi-unit dwellings; and filling gaps in the charging network with DC fast chargers.

All comments will be taken into consideration as DEQ, ODOT, ODOE and OHA further develop this proposal for legislative consideration. This stakeholder outreach process is not intended to address the broader question of how Oregon will invest the remainder of the VW Mitigation funds (after the initial school bus replacement and upgrade projects are completed).

Early Successes

Oregon has been a leader in EV adoption, boasting the third highest market share in the nation for EVs. There are currently more than 17,000 EVs registered in the state, which makes the 2020 goal of 50,000 EVs within reach. Much of this is due to early adoption of EV-forcing regulations, notably the Zero-Emission Vehicle mandate on automakers. Oregon also participated in the early development of the West Coast Electric Highway (WCEH) that consisted of 44 DC fast-chargers on travel corridors around the state.

Access to 50 kW DC Fast Charging in Oregon (SAE Combo + CHAdeMO)



Auto manufacturers are offering more models of increasingly affordable EVs and the national market continues to grow. The Volkswagen Investment Fund, otherwise known as Electrify America, will fund additional fast charging in the Portland metro area and along interstate highways I-5 and I-84. Many other charger providers have invested in nearly 500 Level 2 and DC fast-chargers¹ to support charging in public places, at businesses for their customers, at workplaces for their employees and fleets, and at destinations to promote tourism. Still, there remains a concern that there will not be enough charging infrastructure to meet the need for charging in the near future.

Current and Future Needs

Multiple Standards

When the WCEH was established it only offered the CHAdeMO standard's plugs, which are used by Japanese and Korean auto manufacturers. More recently, the Combined Charging System has become popular with American and European auto manufacturers. While the new Electrify

¹ Charging Levels Explained

AC Level 1: The cord that comes standard with an electric vehicle, plugs into a regular 120-volt outlet, and adds about 4 miles for every hour the car is plugged in.

AC Level 2: A box manufactured for this purpose is mounted on a wall or post, supplies 240-volt power, and adds 12 to 24 miles for every hour the car is plugged in.

DC Fast Charge: A station supplying 50 kW or more of DC power, and adds as many as 4 miles for every *minute* the car is plugged in.

America investments will incorporate the new Combined Charging System, the existing WCEH locations need to be updated in order to accommodate all types of EVs. The lack of CCS charging limits the potential market for BEVs in many parts of the state where only CHAdeMO infrastructure is in place, and therefore reduces vehicle deployments necessary to meet the goals of the Zero Emission Vehicle (ZEV) program and Executive Order No. 17-21.

The West Coast Electric Highway remains the only DC fast charging network for many Oregonians outside of these areas. Currently, there are more than 1,000 battery electric vehicle (BEV) drivers in counties where the West Coast Electric Highway is the only 50 kW DC fast charging network available. Even after the first phase of Electrify America installations is complete, nearly all EV drivers who live or travel along the Coast will still have no alternative charging option besides the WCEH. As such, a pronounced equity gap is emerging between access to charging in the Portland area and the I-5 corridor, and access to charging in other parts of the state.

Multi-Unit Dwellings

The Portland metro area has a high number of chargers overall, but there are areas within the region that are significantly underserved. Most current EV drivers charge at home overnight either by plugging into a wall outlet at their single family home or have a higher-voltage and faster-charging Level 2 charger installed. Lower-income individuals, who in cities are more likely to live in multi-unit dwellings, may not have a dedicated parking spot or may have few resources to spend on electrical upgrades and charging units. Limited access to charging can be a barrier that may prevent lower-income individuals from purchasing an EV.

Underserved Communities

Access to charging infrastructure is especially problematic in lower-income households and is a significant barrier to purchasing an EV. As the state increases its efforts to promote EV adoption by Oregonians of all income levels, it will be important to address both the vehicle cost and charging infrastructure issues. EVs offer many benefits such as lower fuel and maintenance costs, and the elimination of tailpipe emissions. The Charge Ahead EV Rebate Program administered by DEQ will provide an additional incentive – in addition to the main EV rebate program – towards the purchase of a new or used EV by an individual who meets the income criteria. However, since the state currently offers no incentives for chargers, these individuals face uncertainty about access to charging that can be a barrier to participation.

Other Potential Sources of Funding

Adequate and available charging infrastructure is a critical factor limiting the widespread adoption of EVs in the future. While several private companies are making large investments in charging systems, public agencies and public-private partnerships need to expand to accommodate the growth in EVs. In addition to the potential to use up to 15 percent of the VW Mitigation funds, here are some other efforts underway to expand access to EV charging.

Electrify America

The Volkswagen Investment Fund (Appendix C), otherwise known as Electrify America, is perhaps the highest-profile source of new investments in EV chargers, totaling \$1.2 billion to be spent nationally over the next 10 years. The critical issue with the Electrify America investments is that they are allowed to select locations using their own criteria, which are not necessarily Oregon's criteria. Electrify America's strategy has been to target the most profitable locations, not those that are needed in underserved areas like rural, coastal and lower-income areas.

Electrify America also acknowledges that its Cycle 1 investments alone will be insufficient to meet demand.

SB 1547 Transportation Electrification Plans

With the adoption of Senate Bill 1547 in 2016, the state required Oregon’s investor-owned utilities to submit plans to the Public Utility Commission to promote transportation electrification. These plans detail how the utilities will fund investments in transportation electrification within their service territory. These plans will provide modest charging infrastructure – initially no more than 13 locations total – and only in the service areas of Portland General Electric and Pacific Power. This excludes many areas in Oregon that face the greatest insecurity for near-term access to EV charging, particularly communities along the Oregon Coast. The PUC is considering longer-term transportation electrification plans including the utilization of Clean Fuels Program credit revenue but cannot consider investments that are outside of utility’s system or that are not required by law.

Oregon Clean Fuels Program

The goal of the Oregon Clean Fuels Program is to lower the carbon intensity of Oregon’s transportation fuels. Electricity is a clean fuel and can generate valuable credits when used for transportation. Owners of chargers that are used in public settings, at workplaces, for fleets or multi-use dwellings can generate credits for non-residential EV charging, which makes installing and maintaining chargers in Oregon more financially feasible. Electric utilities can generate credits on behalf of their EV-owning customers when they charge at home. As noted above, the investor-owned utilities will need to present plans to be reviewed and approved by the Public Utility Commission for spending revenue from credit sales. An additional 12 smaller utilities have also opted into the program and will generate credits. These utilities are governed independently and it is up to them how much of the revenue will go towards charging infrastructure. Unclaimed credits are given to a DEQ-appointed Backstop Aggregator whose work is guided by an annual work plan and may include incentives for chargers.

Components of the Proposal

This proposal presents three plans for using the Volkswagen Mitigation (Appendix D) funds allowed by the settlement agreement to fund EV charging infrastructure projects.

Part A: Upgrading the West Coast Electric Highway

The first part would provide funding to upgrade the existing WCEH to allow all EVs to use its chargers. The cost assumptions for the upgrades are shown in the table below. Cost assumptions are provided for single and dual charger installations, at existing and new sites, as well as annual operations costs.

Cost Assumptions – DC Fast Chargers	
Upgrade - Single Charger	\$61,607
Upgrade - Dual Chargers	\$174,800
New Installation - Single Charger	\$126,500
New Installation - Dual Chargers	\$207,000
Annual Operations Cost - Single Charger	\$5,227
Annual Operations Cost - Dual Chargers	\$7,841

Part A of the proposal would upgrade the DC fast charging equipment at all 44 WCEH locations. Because the current units only support the CHAdeMO standard, they will be upgraded to include the Combined Charging System. The proposal also includes an additional DC fast-charger at 12 of the network's highest-utilization locations. The cost of Part A is approximately \$6.2 million. The consent decree specifies that mitigation funds could cover up to 80 percent of the project cost, which means the remaining 20 percent must be supplemented with matching funds. The cost breakdown is shown in the table below.

Upgrades to the WCEH		Capital & Installation	8 Years Operation & Maintenance
Upgrades - Single Charger	32	\$1,971,000	\$1,338,000
Upgrades - Dual Chargers	12	\$2,098,000	\$753,000
Subtotal		\$4,069,000	\$2,091,000
Appendix D Funds (80%)			\$4,928,000
Matching Funds (20%)			\$1,232,000
Total Project Cost			\$6,160,000

Part B: Installing Level 2 Chargers at Multi-Unit Dwellings

Part B proposes funding for Level 2 charging installations at multi-unit dwellings (MUDs) in support of the Charge Ahead Rebate program. The funding would focus on lower-income communities and supply chargers for those who otherwise may not be able to afford one at home. The estimated installation cost of a Level 2 charger is \$5,000. The consent decree specifies that mitigation funds could cover up to 60% of the project cost of installing chargers at MUDs, which means that the remaining 40% must be provided either by the individual or entity requesting the installation, or by a private-sector partner, which may include an investor-owned utility as part of a transportation electrification plan. The proposal funds 800 installations at MUDs. The cost breakdown is shown in the table below.

Level 2 Charging for Multi-Unit Dwellings	Capital & Installation
Total Cost of each Level 2 Installation	\$5,000
Amount covered by Appendix D funds	\$3,000
Amount covered by Matching funds	\$2,000
Number of Installations	800
Appendix D Funds (60%)	\$2,400,000
Matching Funds (40%)	\$1,600,000
Total Project Cost	\$4,000,000

Part C: Filling in Gaps in the Charging Network with new DC Fast Chargers

Part C would provide funding for new DC fast chargers in areas that are currently underserved. Projects would be evaluated based on equity criteria identified in the Executive Order. Proposals for new DC fast chargers will be compared to investments made by Electrify America, utilities,

and private charging companies to ensure that the installations complement, rather than duplicate, efforts to increase access to charging.

This proposal is to fund 35 new DC fast-charging locations with an estimated installation cost of \$126,500 per unit. However, installation costs could vary greatly by location and the total number of installations may vary based on the actual costs. The consent decree specifies that mitigation funds could cover up to 80 percent of the cost of a charger, which means that the remaining 20 percent must be supplemented with matching funds. The cost breakdown is shown in the table below.

DC Fast-Charging Network Expansion		Capital & Installation	8 Years Operation & Maintenance
New Installation - Single Charger	35	\$4,427,500	\$41,816
Appendix D Funds (80%)			\$3,575,453
Matching Funds (20%)			\$893,863
Total Project Cost			\$4,469,316

Public Involvement Process

The State of Oregon seeks feedback from stakeholders on this specific proposal for the use of Volkswagen Settlement funds allocated to Oregon to support access to light-duty electric vehicle charging. The State of Oregon is most interested in strategies that address the emerging equity gap in access to EV charging, including strategies that increase access in rural, coastal, and lower-income parts of the state.

Considerations for comment on the proposal:

Key Question 1: How would you allocate the money among the three parts? Are there other projects or categories of projects not listed that would be a better use of these limited funds?

Key Question 2: Do you have an alternative to Part A of the proposal for upgrading the West Coast Electric Highway?

Key Question 3: Do you have an alternative to Part B of the proposal for providing Level 2 chargers at multi-use dwellings?

Key Question 4: Do you have an alternative to Part C of the proposal for establishing new DC fast-chargers in underserved areas?

Key Question 5: What criteria, data or other information should be used to help identify underserved areas, low-income populations and areas of the state disproportionately impacted by air pollution for which relief could be provided by electric charging infrastructure?

Schedule for Review

June 5 – The proposal is released for comment.

June 26 – An informational meeting to discuss the proposal will be held at 10 a.m. at the Portland State Office Building, Conference Room 1-D, 800 NE Oregon Street, Portland, OR 97232. Access via weblink at <https://www.connectmeeting.att.com>, Meeting number 636-651-3141, Access code 3360031

July 11 – Comments are due by 5 p.m. and must be sent to: ORVWMP@deq.state.or.us

July 30 – Post revised proposal on this DEQ website

For information about the Oregon Zero Emission Vehicle Rebate Program, visit <http://www.oregon.gov/deq/aq/programs/Pages/ZEV-Rebate.aspx>

For information about Oregon Low Emission Vehicle Regulations, visit <http://www.oregon.gov/deq/aq/programs/Pages/ORLEV.aspx>