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November 19, 2021

Public Utility Commission of Oregon
Attention: Filing Center
P.O. Box 1088
Salem, OR 97308-1088

RE: UM 1826 – Staff Investigation into Electric Utility Participation in Clean Fuel Programs

Dear Filing Center,

Portland General Electric Company (PGE) submits this filing pursuant to Public Utility Commission of Oregon (Commission) Order No. 18-376 in Docket No. UM 1826.

In October 2018, the Commission issued Order No. 18-376 providing broad guidance on how utilities should spend Clean Fuel Program funds and establishing a process for utilities to develop and file annual Clean Fuels Program Plans. This filing marks the fourth year PGE is participating as a residential credit generator on behalf of our customers.

For the 2022 program year, following formal workshops as well as informal consultation with stakeholders, PGE plans a portfolio of programs (the Portfolio) in the following categories, which continue the successful programmatic structure adopted with stakeholder input in 2021:

- **Infrastructure & Grants:** Programs that increase access to transportation electrification.
- **Education and Outreach:** Increase awareness of transportation electrification options across the state.
- **Emerging Technology:** Test and demonstrate emerging technologies that have an electric vehicle (EV) nexus and could scale to larger utility programs.

Included in this filing, as Exhibit A, is PGE's 2022 Clean Fuels Program Plan which provides more details on the planned programs.

Should you have any questions or comments regarding this filing, please contact Steve Corson at (503) 464-8444.

Please direct your communications related to this filing to the following email address:
pge.opuc.filings@pgn.com

Sincerely,

/s/ Robert Macfarlane

Robert Macfarlane
Manager, Pricing & Tariffs

UM 1826

Exhibit A

PGE's 2022 Clean Fuels Program Plan



2022 PGE Clean Fuels Plan



Contents

Executive Summary.....	4
Introduction.....	5
Clean Fuels Program Moving Forward.....	5
Infrastructure & Grants.....	6
Education & Outreach.....	6
Emerging Technology.....	7
Approximate Budget Percentages.....	7
2022 Plan.....	8
Budget.....	8
Infrastructure & Grants.....	8
Drive Change Fund.....	9
Grant Matching.....	10
Public Charging Infrastructure.....	11
Education & Outreach.....	13
Continuation of Statewide Campaign.....	13
Student Engagement.....	13
Emerging Technology.....	14
Right of Way Demonstration.....	14
Smart Charging Pilot – Year 3.....	14
Vehicle to Grid Demonstration Projects.....	15
Administration.....	16
Conclusion.....	16
Principle Alignment.....	17

Executive Summary

Portland General Electric Company (PGE or company) appreciates this opportunity to submit its 2022 Clean Fuels Plan and appreciates the stakeholder support for the draft Plan we shared in the Staff-held workshops. PGE will continue the programmatic structure adopted in 2021 with stakeholder input for the 2022 Clean Fuels Program Portfolio. In 2022 PGE will fund programs in the following categories:

- Infrastructure & Grants: Programs that increase access to transportation electrification.
- Education and Outreach: Increase awareness of transportation electrification options across the state.
- Emerging Technology: Test and demonstrate emerging technologies that have an electric vehicle (EV) nexus and could scale to larger utility programs.

While funding amounts will vary from year to year, stakeholders may expect the approximate budget breakdown and percentages below for the 2021-2023 Clean Fuels portfolio submissions:

Category	% Portfolio per Year
Infrastructure & Grants	70% - 80%
Education & Outreach	5% - 15%
Emerging Technology	5% - 15%
Est. Administrative Costs	5% - 10%

The estimated 2022 budget will total approximately \$7 million. PGE proposes funding the programs at the amounts allocated below:

Program	Est Program Cost	Portfolio %
Grants and Infrastructure	\$5,510,000	79%
Drive Change Fund	\$2,300,000	33%
Electric School Bus Fund	\$1,500,000	21%
Public Infrastructure	\$1,450,000	20%
Grant Matching	\$400,000	5%
Education & Outreach	\$540,000	8%
Statewide Campaign	\$380,000	5%
Residential Outreach	\$110,000	2%
School Engagement	\$50,000	1%
Emerging Technology	\$350,000	5%
Vehicle to Grid	\$100,000	1%
ROW Charging	\$250,000	4%
Smart Charging Year 3	\$0	0%
Administrative Costs	\$600,000	8%
PORTFOLIO TOTAL	\$ 7,000,000	100%

Introduction

In 2009, the Oregon Legislature passed House Bill 2186, requiring a reduction in the average carbon intensity of Oregon's transportation fuels by 10 percent over a 10-year period.¹ In 2015, Senate Bill 324 allowed the Department of Environmental Quality (DEQ) to fully implement the Clean Fuels Program (CFP or Program) beginning in 2016.² In March 2020, Governor Brown increased the CFP to 20 percent reduction in carbon intensity by 2030 and a 25% reduction by 2035.

The DEQ rules implementing the Program³ identified electric utilities as the first-choice entity to aggregate credits for all residentially-charged EVs registered in the utility's service territory. In July 2017, the Public Utility Commission of Oregon (OPUC or Commission) deemed that it was in the public interest that electric utilities aggregate CFP credits on behalf of residential customers who drive EVs, and required PGE and PacifiCorp to register with the DEQ as aggregators of CFP credits under the program.⁴ In October 2018, the OPUC issued Order No. 18-376, providing six broad design principals to guide utility CFP expenditures, shown in Figure 1.

Through the Clean Fuels Program and specifically the Drive Change Fund, PGE has awarded \$4.5 Million in grants to 25 different organizations. Most, if not all of these organizations focus on serving underserved populations inside and outside PGE's service territory. The Drive Change Fund has put 65 additional EVs on the road, 28 additional e-bikes and added 83 charging ports. PGE's Clean Fuels Dollars have also helped fund the incremental cost of 13 electric school buses in 8 school districts in PGE's service territory.



Clean Fuels Program Moving Forward

This portfolio marks the fourth year PGE is participating as a residential credit aggregator on behalf of our customers. PGE pursued a diverse selection of projects during the initial two CFP cycles, creating strong programs benefiting underserved communities throughout our territory. We developed institutional capacity to monetize large quantities of CFP credits, complied with CFP reporting requirements, and actively engaged stakeholders along the way. At the same time, we learned how our role as a utility positions us to create partnerships that benefit Oregon and attract additional local, state, and federal funding.⁵ The company

¹ 75th Oregon Legislative Assembly, 2009 Regular Session. Chapter 724, 2009 Oregon Laws. Retrieved from https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2009orLaw0754.html

² 78th Oregon Legislative Assembly, 2015 Regular Session. Chapter 4, 2015 Oregon Laws. Retrieved from https://www.oregonlegislature.gov/bills_laws/lawsstatutes/2015orLaw0004.pdf

³ Oregon Administrative Rules. Ch. 340 Div. 253. Retrieved from <https://secure.sos.state.or.us/oard/view.action?ruleNumber=340-253-0330>

⁴ OPUC (2017). Order No. 17-250 Public Utility Commission of Oregon Investigation into Utility Participation in Oregon Clean Fuel Programs. Retrieved from <https://apps.puc.state.or.us/orders/2017ords/17-250.pdf>

⁵ DOE Grant with PacifiCorp

has also gathered crucial insights into obstacles associated with EV adoption, with special attention paid to historically underserved communities and communities of color.⁶ In 2020, with two program years behind us, PGE consulted with stakeholders to consider what worked well and where we could improve. Based on that input, market research, and CFP participation to date, PGE then developed a portfolio approach to plan for the CFP going forward, with three areas of focus:

1. **Infrastructure & grants** to accelerate deployment of vehicles and charging across Oregon;
2. **Education & outreach** to increase awareness of TE, dispel existing misconceptions, and help create an ecosystem of support roles (EV/Charger maintenance job training, re-training, etc.) that promote a dependable customer experience; and
3. **Emerging technology** to test new concepts that have an EV nexus and the ability to scale to larger utility programs.

PGE proposes to continue this portfolio approach for CFP program year 2022. This approach allows PGE to scale programs, decrease administrative costs by streamlining annual planning and reporting, and allows for consistent stakeholder expectations from year to year. Additionally, building flexibility within this portfolio design allows PGE to consider changing market conditions, such as the availability of federal, state, or local grant funding. A transparent structure around the programs, along with clear expectations around percentage of portfolio spend, allows PGE to leverage the CFP to quickly respond to these opportunities to benefit residential customers and all Oregonians.

Infrastructure & Grants

As we considered this structure, we spoke with a range of stakeholders, and heard clearly that investments in infrastructure and continuation of TE grants benefitting underserved communities and communities of color are a high priority. For that reason, this segment encompasses the majority of PGE's CFP spending, making up approximately 70-80 percent of the portfolio through 2023.

These funds support programs that **increase access to electric transportation**. Funding awards grants for programs that apply a strong equity lens, like the Drive Change Fund and Electric School Bus Fund which both prioritize traditionally underserved communities. New in 2022, PGE will set aside matching funds for grants from other sources that support CFP goals. This effort will utilize Clean Fuels funding in an effort to bring external grant opportunities to Oregon. Infrastructure investments will include support for initiatives like charging site upgrades that improve user experience, give customers' peace of mind, and make EV ownership easier for Oregonians. In all cases, funding will target underserved communities and efforts that provide access to infrastructure in those communities.

Education & Outreach

Research illustrates that we must continue to build awareness around TE if we are going to transform Oregon's transportation sector for all Oregonians. Data show that one in four utility customers is completely unfamiliar with EVs, and only one in five people know how affordable it is to operate an electric vehicle. Data also show that once people gain awareness of the savings, incentives, and benefits of electric vehicles, they are significantly more likely to consider purchasing an EV. In conversations with representatives of

⁶ Underserved defined as: Less than 60% of Oregon Median Income (@ \$40,000); A broad cross-section of race, ethnic background, language, employment & housing; Urban, suburban, and rural customers; Customers with significant transportation barriers or physical disabilities.

underserved communities, we learned that misconceptions around product availability and EV infrastructure, and an association of EVs with privilege, are significant barriers to adoption. Education and outreach funds support programs that help **dispel myths and educate all Oregonians that transportation electrification is here today and works for everyone**. This effort will encourage and support an equitable transformation of the transportation sector.

Emerging Technology

There are many exciting technologies on the horizon in TE. We know EVs and charging infrastructure technology will enhance value for customers, improve grid resilience, and promote interactivity. PGE plans to use emerging technology funds to **test and demonstrate emerging transportation electrification technologies that could scale to larger programs**.

Approximate Budget Percentages

While funding will vary from year to year, Table 1 shows the approximate budget breakdown and percentages stakeholders may expect for the 2021-2023 Clean Fuels portfolio submissions.

Table 1. 2021-2023 CFP budget categories and approximate percentage of spend per year.

Category	% Portfolio per Year
Infrastructure & Grants	70% - 80%
Education & Outreach	5% - 15%
Emerging Technology	5% - 15%
Est. Administrative Costs	5% - 10%

2022 Plan

Budget

The estimated 2022 budget is \$7 million. PGE proposes funding programs at the amounts allocated below in Table 2.

Table 2. Proposed Clean Fuels Program 2022 Program Budget.

Program	Est Program Cost	Portfolio %
Grants and Infrastructure	\$5,510,000	79%
Drive Change Fund	\$2,300,000	33%
Electric School Bus Fund	\$1,500,000	21%
Public Infrastructure	\$1,450,000	20%
Grant Matching	\$400,000	5%
Education & Outreach	\$540,000	8%
Statewide Campaign	\$380,000	5%
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Smart Charging Year 3	\$0	0%
Administrative Costs	\$600,000	8%
PORTFOLIO TOTAL	\$7,000,000	100%

Infrastructure & Grants

Below is PGE's proposed 2022 plan for deployment of approximately \$5,510,000 within the Infrastructure and Grants Category.

Drive Change Fund

PGE is excited to offer the Drive Change Fund (DCF) for a fourth year in 2022. This is the competitive grant fund for non-residential customers that prioritizes underserved communities, advances transportation electrification projects, and provides a benefit to residential customers. Since 2019 DCF has awarded \$4.5 million in grant funding to 28 organizations. The 2021 DCF grant cycle has closed and project applications are in the evaluation phase with the 3rd party grant evaluator. PGE plans to award an additional \$2.25 million in DCF awards in 2021.

The DCF continues to seek feedback from stakeholders and transportation electrification organizations to expand upon the OPUC’s program design principles, with the goal of creating an equitable application, evaluation process, and fund deployment structure. Figure 2 highlights some examples of the ways PGE took this feedback into consideration in structuring the DCF.

In 2022, PGE will continue following the program design elements outlined in Table 3.⁷

Figure 2. Equity Considerations within the Drive Change Fund.

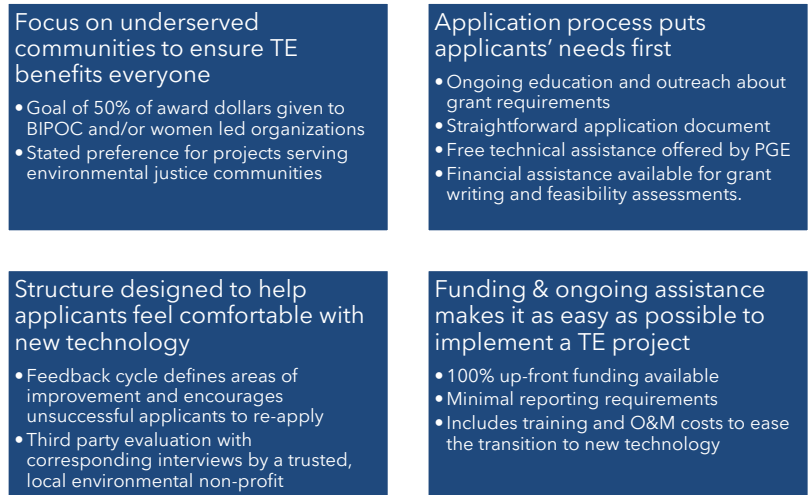


Table 3. Drive Change Fund Program Design Elements.

Applicant Eligibility	<ol style="list-style-type: none"> 1. Applicants may be nonprofit, for-profit or government entities, with a preference for nonprofit and government; 2. Applicants need not be PGE customers; however, projects must provide a community benefit in areas PGE serves.
Grant Scope	<ol style="list-style-type: none"> 3. Projects must advance TE and provide a benefit to residential customers, with priority given to projects that address the needs of underserved communities; 4. Funds may not cover projects that may be implemented through other PGE programs; 5. Any charging stations that are funded will be demand response enabled; 6. Where appropriate, PGE will claim Clean Fuels credits to continue to fund the DCF.
Other Assistance	<ol style="list-style-type: none"> 7. Technical assistance will be offered to help applicants connect with vendors, assess project budgets and scope, navigate technical requirements, and prepare compelling applications; 8. Financial assistance will be offered to compensate qualifying applicants for staff time required to prepare an application; 9. Where possible, PGE will highlight other complementary funding streams for applicants and synchronize application processes as much as possible.
Process	<ol style="list-style-type: none"> 10. A third-party evaluator will evaluate and grade applications, with an internal PGE selection committee making final funding decisions.

⁷ These design elements draw on the Program Design Principles and guidance from the Trust-Based Philanthropy Project: <https://trustbasedphilanthropy.org/>

Electric School Bus Fund

PGE funded the first cycle of electric school bus grants in 2020, awarding 5 school districts funding for 6 electric school buses total. In 2021 PGE plans to award 6 school districts with funding for 7 buses. The 2021 recipients include Beaverton, Centennial, Gresham-Barlow, Hillsboro, Portland and Salem-Keizer School Districts.

Figure 3. Reynolds School District Electric Bus



In 2022 PGE will reserve up to \$1,500,000 of DCF dollars to help school districts and/or school bus fleet operators acquire electric buses and demand response-enabled charging infrastructure. School districts may apply through the DCF process. PGE will provide technical assistance to the schools including site assessments, financial estimates, and vehicle and charger selection and procurement support. Where appropriate, PGE will leverage other funding sources, such as its Fleet Partner Program (Schedule 56), to bring additional value for school districts and make CFP funds go as far as possible.

Grant Matching

New to the 2022 CFP plan, PGE proposes reserving up to \$500,000 to provide matching funds to public agencies, community-based organizations, nonprofits, educational institutions, and other partnerships applying to external funding opportunities. This type of quickly deployable funding is an approach that PacifiCorp has used in the CFP since 2020 and that has enabled additional electric school bus funding. The need for grant matching was identified from feedback from communities and from the increase in federal funding opportunities for electric transportation.

PGE proposes using the following criteria to evaluate eligibility for grant matching opportunities, based on the principles for use of CFP funds established by Commission Order 18-376 in UM 1826:

1. Will the proposed project support electrifying Oregon's transportation sector?
2. Will the proposed project benefit residential customers?
3. Will the proposed project benefit traditionally underserved communities?
4. Is the proposed project eligible for external funding?

In deployment of matching funds for 2022 PGE proposes the following program parameters:

- If a proposed project awarded matching funds by PGE does not receive the external funds on which the project depends, the CFP funds will revert to the overall DCF funding pool.
- If any matching funds remain uncommitted when annual DCF awards decisions are being made, that uncommitted matching fund amount will revert to the overall DCF funding pool.

Public Charging Infrastructure

EV drivers must have confidence they will be able to charge their vehicles when and where they need it. EV drivers want to know:

- *"There will be there enough charging options available to get me to my destination."*
- *"The chargers will be in working order when I need them."*
- *"How fast will the charger charge my vehicle?"*
- *"The charger will work for my vehicle's port."*
- *Is there a charging station near my apartment or area I frequent (ie. work, shopping center, grocery store, gym)?*

Unfortunately, many of Oregon's charging sites do not inspire EV driver confidence, and this concern must be fixed. Many sites must be developed or upgraded to ensure the availability of dedicated and dependable charging, and a positive user experience. Sites must be widely available and have:

- High equipment up-time (equipment should not be down for maintenance or out-of-order)
- Appropriate number and speed of charging stations
- Additional charging ports at sites that see high utilization to minimize driver wait time to charge their vehicles
- Prominent or accessible locations that are easily located and utilized
- Upgrades related to visibility, customer experience, payments, safety, and security

Program Design Elements

Each EVSE host site is unique with respect to equipment, ownership, branding, site host agreement terms, stakeholders, and configuration. PGE, therefore, aims to keep the program design flexible and rely on the use of signed agreements with electric vehicle service providers (EVSPs), site hosts, or customers to codify requirements. PGE plans to finish the upgrades to the Oregon Electric Byways sites, install additional right of way chargers, and support stations funded by CFP with ongoing maintenance to assure reliability. Broadly, PGE intends to adhere to the following design elements articulated in the 2021 plan:

- Ensuring there is adequate public charging for our customers who own EVs.

- Requiring each site to meet technical requirements that support safety, reliability, interoperability, grid connectedness, and payment accessibility.⁸
- Encouraging collaboration by partnering with other utilities when appropriate to provide all customers with a seamless and positive user experience, given that people do not limit their travel within a utility's territory.
- Working with current owner or site host to upgrade the equipment to best-in-class standards or to evaluate ownership of electric vehicle service equipment (EVSE).⁹
- To the extent available, PGE may pursue grant dollars to reduce the cost of public infrastructure.
- PGE's customers drive across the state, and as such, in certain applications we may look to deploy infrastructure beyond our traditional service area if it supports a better driver experience for our customers.¹⁰

The table below is an example of how previous sites have been evaluated using Clean Fuels Program Design Principles 1 - 3 and PGE's Transportation Electrification Plan.

Table 4. Site Evaluation Criteria

Criteria	Criteria (ranking)	Sort order
<i>PUC Principle 1: Support electrifying Oregon's transportation (bring sites up to current standards/customer expectations)</i>	CHADeMO only DCFC ("yes" upgrade, "no" don't upgrade)	1
	Lack of credit card reader ("yes" upgrade, "no" don't upgrade)	2
	Existing equipment requires service (priority order "all the time," "sometimes," "rarely")	3
<i>PUC Principle 2: Benefits residential customers</i>	Current usage (prioritize higher usage)	4
	Amenities nearby (prioritize "yes")	5
<i>PUC Principle 3: Benefits traditionally underserved communities</i>	Proximity to low-income communities (prioritize # of premise within 5 miles radius)	6
	Proximity to multi-family housing (prioritize # of premise within 5 miles radius)	7
	Limited public charging nearby (prioritize low #units, high miles)	8
<i>Insufficient available public charging</i>	In high-need zip code defined in Navigant study (prioritize high number of needed DCFC ports)	9

⁸ PGE intends to use the technical requirements for public charging established for the Drive Change Fund as guidance. This will include PGE's claim of the Clean Fuels Credits from new/upgraded sites and direction of the proceeds back to the pool of funding governed by Docket No. UM 1826.

⁹ In applications where PGE is the operator of the charging infrastructure, PGE will tariff energy sales (i.e. Schedule 50). CFP will cover O&M; new CFP credits generated will go back to UM1826.

¹⁰ For example, of visitors to Central Oregon, 31% of trips started in Portland.

<https://industry.traveloregon.com/wp-content/uploads/2018/10/OR-2017-Central-Region-Visitor-Report.pdf>

Education & Outreach

Below is PGE's tentative 2022 plan for deployment of \$540,000 within the Education & Outreach category.

Continuation of Statewide Campaign

PGE will continue working with PacifiCorp to build upon Oregon's Electric, the brand-neutral statewide transportation electrification campaign kicked off as part of the 2020 portfolio.

The goals of the campaign are to engage and educate all Oregonians on transportation electrification and accelerate transportation electrification in the state, in line with the Oregon Electric Vehicle Collaborative's (OEVC) recommendations. Additionally, in 2022 the statewide campaign will support OEVC's vision of a digital central hub for information on TE in Oregon.

The 2021 campaign developed messaging focused on reaching underserved communities, including non-English speaking, rural, and BIPOC communities. This messaging showcases real stories, quotes, and members of the community, sharing their reasons for choosing electric.

Funds will cover purchased media, earned media outreach, narrative development, storytelling, creative assets, social media management, and dealership engagement. The campaign will continue to deliver the following messages:

- Electric transportation options are here today
- Electric Transportation is available today (in multi-modal applications that meet a variety of transportation needs including rural, urban, on-farm, on-road, off-road, micromobility and public transit applications)
- Transportation electrification is a critical piece of meeting the state's environmental and climate goals

Where possible, we will continue to work with industry, dealerships, advocacy groups, state agencies and other utilities to add to the overall budget and extend reach of the campaign.

Student Engagement

For the 2020 CFP Plan, PGE partnered with PacifiCorp and TriMet to engage middle schoolers across the state in a design/build challenge to develop solutions toward a low-carbon transportation future for the next generation. Six middle schools from across the state spent several months learning about the opportunities and challenges around transportation electrification in Oregon. Students interviewed local elected officials, car dealerships, subject matter experts, and myriad other individuals to develop a deep understanding of the landscape. Then, participants created prototypes for creative

Figure 4. Sample 2021 Oregon's



Figure 5. 2021 Future of Electric Transportation



solutions and presented in front of industry leaders. The partnership and challenge were considered a huge success and students gained significant knowledge about and appreciation for TE.

To build upon the success, in 2021 PGE's CFP funds supported the development of a digital toolkit available to educators across the state, further democratizing this information and enabling teachers to engage students within a virtual learning environment. In 2022 PGE proposes to continue supporting K-12 student engagement throughout the state. Additionally, it may be possible to leverage Oregon's Electric campaign materials to support this work.

Emerging Technology

Below is PGE's 2022 plan for deployment of \$350,000 within the Emerging Technology Category.

Right of Way Demonstration

In PGE's general population study, it was found that EV/PHEV considerers and intenders were significantly more likely to report that charging availability in PGE's territory was a major reason for purchasing an EV compared to EV/PHEV owners (32% and 37% vs. 17%, respectively)¹¹. This statistic suggests there is a greater need for public charging for these customers, as they are less likely to reside in single family homes with driveways where charging could be installed compared to EV/PHEV owners.

PGE plans to build on the SE Portland Pole Charging Pilot to further explore right of way (ROW) EV charging. PGE will partner with the Cities of Portland, Salem and Milwaukie to install ten (10) level 2 chargers on existing utility poles/in the public right-of-way as a way to provide charging access to traditionally underserved communities (i.e. multi-family buildings, renters, or people who lack driveways).

This project seeks to test new technologies, mounting practices, and software with an eye toward safety, reliability and scalability. PGE would also like to explore options and understand learnings with various other installation methods. As more Oregonians adopt EVs, charging options are needed to support those without access to home charging. Installing chargers on utility poles could offer a cost-effective way to increase access to chargers in traditionally underserved areas or in areas with limited access to off-street parking.

Smart Charging Pilot – Year 3

This three-year program - approved as part of the 2020 portfolio - leverages vehicle telematics tools to track EV driver habits in the PGE Smart Grid Test Bed to understand how pricing signals can shift EV charging behavior.¹² This knowledge is crucial in order to bring the full cost benefits of EV ownership back to the EV owner, as well as the grid benefits of EVs to all customers across the PGE system.

Driving and charging data is collected via a customer-installed device in the On-Board Diagnostic port or through integration with auto manufacturers. EV data collected includes

¹¹ PGE Wave 2 General Population and EV Owner Survey Key Findings. Opinion Dynamics, September 2021

¹² PGE's Smart Grid Test Bed is a first-of-its-kind-project that integrates smart grid technology at scale. The Test Bed spans three distinct neighborhoods within PGE's service area, in Hillsboro, Milwaukie and North Portland. Through the Test Bed, the company works with 20,000 customers to take advantage of special demand-response signals as well as incentives for using smart-home technologies, giving them greater control over their energy use and carbon footprint.

charging time, location, and consumption, as well as travel distances and times. Data will be available to PGE for tracking and analysis in near real-time frequency via a dashboard. Additionally, we will track monthly cumulative data/participant rewards. Customers also have access to a dashboard with charging/vehicle information.

The pilot is scoped for up-to 400 EVs, though final numbers will depend on interest from targeted groups. If these targets are not reached, we may explore different ways to engage customers toward similar outcomes. Enrollees are sorted into four groups. All participants received a \$100 enrollment reward, and a \$10 monthly participation bonus. See Table 5 for the incentive structures being tested.

Table 5. Smart Charge Incentive Structures.

Test Group	Incentive Structure	Details
Control Group		
Time of Use	Off-Peak Rewards, Mid-Peak/On-Peak Penalties	Debits and credits to the \$10 monthly base, up to \$25
Flex Time of Use	Off-Peak Rewards, On-Peak Penalties	Debits and credits to the \$10 monthly base, up to \$25
Renewable EV Rate	Off-Peak Rewards	Debits and credits to the \$10 monthly base, up to \$25

Customer registration for the first phase began in 2020 and resulted in 191 EVs under management in 2021. Contracting is underway to test an additional telematics software to expand the number of participants and type of EVs that can participate. Additionally, the program began collection and analysis of EV charging and driving data, build out an analytics framework, and begin reporting. For the 2022 Portfolio, the Smart Charge pilot will continue as planned.

The goals of the program are to gain insight into the EV driver’s charging habits, and test messaging and incentive structures, in order to encourage shifting EV charging to specific locations and times to support demand response. This data will help inform transportation electrification planning, including customer load shapes, geographic charging requirements, and smart charging opportunities. We expect that more informed program design, will enable us to fully realize system-wide benefits for all customers.

Vehicle to Grid Demonstration Projects

PGE seeks to continue examining Vehicle-to-Grid (V2G) technology that can not only charge an EV but also utilize the EV’s battery to supply power back to the home and/or the grid. This technology is promising because the EV can provide similar benefits to a stationary storage device without incurring a separate cost to the customer. As vehicles are typically parked 95% of the time,¹³ EVs could be available to charge or discharge at a similar rate as stationary energy storage devices.

PGE appreciates the value that a V2G-capable vehicle and charger could provide to both our residential and commercial customers in the form of: (1) reducing a customer’s total cost of vehicle ownership and (2) enabling enhanced resiliency solutions.

In 2021 PGE installed a single 240V AC input, 7.4kW V2G charger at a PGE testing facility in order to validate the behavior of the device from a technical, user interface, and safety perspective. The charger successfully sent power from the vehicle battery to the grid in

¹³ <https://usa.streetsblog.org/2016/03/10/its-true-the-typical-car-is-parked-95-percent-of-the-time/>

October 2021, and additional testing is ongoing. More V2G vendor options are anticipated by early 2022, at which point PGE plans to procure and install additional Level 2 chargers to test.

PGE also worked with Newberg School District and First Student, a bus transportation firm, to install a commercial V2G charger for an electric school bus in Newberg. This site is expected to be energized in November 2021, and once complete, should provide additional insight into how V2G technology operates at higher power levels, and what benefits and drawbacks it presents to our customers.

Additional V2G demonstrations and pilot programs are possible as part of the expanded PGE Smart Grid Testbed initiative. The program team will assess the reliability, system flexibility, ease of use, cost effectiveness, safety considerations, and applicable standards surrounding this technology. These learnings will eventually inform a potential full product rollout of V2G tariffs and incentive programs.

Administration

In 2022, PGE will continue to uphold the sixth program principle of maximizing funds for programs by minimizing administrative expenses. The 2022 CFP program budget comes from monetized residential CFP credits based on 2020 EV counts. DEQ assigns CFP credits to utilities in Oregon based on the number of EVs registered in their service area for the previous year. PGE monetizes these residential CFP credits in accordance with OPUC Order No. 17-512.

After a robust rulemaking process at DEQ in 2020, the CFP rules were amended by the Environmental Quality Commission on March 26, 2021 to include several new provisions that will impact utility residential CFP programs. These new rules allow the generation of incremental credits to represent the difference between the current carbon intensity (CI) of the statewide electric grid and a CI of zero. Incremental credits are generated by demonstrating to DEQ the retirement of renewable electricity certificates (RECs) paired with electric vehicle charging.

Incremental credits can be generated through DEQ-approved utility voluntary renewables programs and through retiring qualifying RECs. PGE plans to claim these credits because they will add additional value to CFP programs that benefit PGE's residential customers. PGE submitted an application to DEQ to qualify our customer voluntary renewable programs to generate incremental credits based on the RECs included in the program. To ensure that all available incremental residential CFP credits are generated to benefit residential customers, PGE may purchase additional qualifying renewable energy certificates using Clean Fuels program funds. The programs funded by incremental residential CFP credits will begin to be expended through CFP programs starting in 2023.

Conclusion

PGE is excited to continue working with the Clean Fuels Program on behalf of residential customers. We hope our continued work within this portfolio structure continues to provide stakeholders with clarity from year to year about PGE's approach to managing this program, and the role it can play in accelerating Oregon's transition to electric vehicles. We look forward to continuing our partnership with PacifiCorp in our joint communication effort to pursue this effort in a consistent, equitable, and statewide manner. Finally, we remain committed to prioritizing equity and ensuring underserved communities' benefit from transportation electrification through program design and implementation.

Principle Alignment

The PUC's first three principles are addressed individually in Table 6 below. The remaining three principles - (Independent from ratepayer support; Programs developed collaboratively and transparently; Funds maximized for program use) - are addressed across the entire portfolio and within the stakeholder process.

Table 6. PUC Principle Alignment

	Support the goal electrifying Oregon's transportation sector	Provide majority of benefits to residential customers	Provide benefits to traditionally underserved communities
Drive Change Fund	Provides funds to groups that would be traditionally unable to access TE vehicles, infrastructure and training	Organizations receiving funds must serve residential customers	<ul style="list-style-type: none"> - Goal of 50% of award dollars given to BIPOC and/or women led organizations; Stated preference for projects serving environmental justice communities - Equity Structures in place within application & grant process (Education and outreach, Free technical assistance, Financial assistance, Third party evaluation, 100% up-front funding, Minimal reporting requirements, training and O&M)
Public Charging Infrastructure	Public charging must be prevalent, accessible, and dependable in order for Oregonians to consider electrifying their vehicles	Many customers rely solely on non-home charging units; PGE's customers travel around the state and rely on public charging	Preference given to sites in areas underserved by public charging
Statewide Campaign Continuation	Data show many people lack knowledge about TE or have unhelpful misconceptions.	Focuses on residential customers	Goal of campaign is to demonstrate the TE works for everyone. It includes public transit, micromobility, power wheelchairs, and EVs.
Student Engagement	PGE's market research shows many people lack knowledge about TE or have unhelpful misconceptions. Starting education with a younger audience ensures more Oregonians are aware of transportation electrification and likely to adopt EV's when they come of age and/or push their parents to do the same.	Focuses on students, who are residential customers	Program focuses on educating youth statewide, including those who are traditionally underserved.
Smart Charging Pilot	Better understanding of this technology has the potential to enhance customer value proposition of getting an EV by reducing operating costs.	Pilot targets residential customers and enhancing the value proposition of EVs to that group. Data gathered will inform distributed energy program creation for residential EV owners	At scale, this program could put downward pressure on rates by decreasing utility operating costs. This is good for all customers, but especially underserved and low income communities.
V2G Pilot	Better understanding of this technology has the potential to enhance customer value proposition of getting an EV by reducing operating costs and increasing value stream to the customers (e.g. enhanced home reliability).	Though this technology could be used on the fleet or residential side, this pilot will only test technology that would be deployed on the residential side.	At scale, this program could put downward pressure on rates by decreasing generation and utility operating costs. This is good for all customers, but especially underserved communities.