PGE Clean Fuels Program

2023 Annual Report

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Introduction

Portland General Electric Company (PGE, or the Company) is pleased to submit its 2023 Clean Fuels Program (CFP) report to the Oregon Department of Environmental Quality (DEQ) as required by OAR 340-253-0640(11). This report covers PGE's programs and expenditures for the 2023 calendar year for its activities funded by the sale of Clean Fuels Program credits generated through residential electric vehicle (EV) charging in PGE's service area.[1]

PGE plans CFP-funded programs through an iterative approach with stakeholders in consultation with DEQ and the Oregon Public Utility Commission (OPUC) staff. This iterative approach is facilitated by OPUC staff as part of Order No. 18-376 in Docket No. UM 1826 and Order No. 22-314 in docket No. UM 2165. These orders established five program design principles that investor-owned utilities must follow when planning CFP-funded programs as shown in figure 1.

Figure 1. OPUC Clean Fuels Program Design Principles

As part of part of Order No. 22-314, starting with the 2023 CFP program year the program planning process is now part of investor owned utilities' Transportation Electrification (TE) Plans.[2] Since PGE's draft TE plan was not scheduled to be filed until June 2023, PGE filed the 2023 CFP plan separately in February of 2023. Plans for 2024-2025 were included in PGE's 2023-2025 TE Plan, which was accepted by the OPUC on October 20, 2023.

Starting in 2020, PGE proposed a portfolio approach to residential clean fuels funded programs. PGE consulted with stakeholders to consider what types of programs to support through a portfolio approach. Based on stakeholder input, market research, and CFP participation, PGE developed a portfolio method to plan for the CFP going forward. These programs are organized in the following categories:

Grants and Infrastructure to accelerate equitable deployment of vehicles and charging across Oregon;

Education and Outreach to increase awareness of transportation electrification, dispel existing misconceptions, and help create an ecosystem of support roles (e.g., EV/Charger maintenance job training, re-training) that promote a dependable customer experience; and

[1] This report encompasses actives funded through PGE's participation in the Oregon Clean Fuels program not ratepayer funded transportation electrification activities.

[2] On August 26, 2022 the OPUC adopted Order No. 22-314, which amended Order No. 18-376 to eliminate CFP Design Principle of "Programs are designed to be independent from ratepayer support" revised the process for stakeholder review and input into PGE's CFP-funded activities within the TE Plan process.

Emerging Technology to test new concepts that have an EV nexus and the ability to scale to larger utility programs.

Additionally, administrative costs are tracked and expected to remain below ten percent of total annual expenditures. While funding amounts vary from year to year based on residential CFP revenue, PGE plans for the approximate budget breakdown and percentages below for the Clean Fuels portfolio submissions:

Table 1-CFP Program Percentage Targets

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

PGE's 2023 Clean Fuels Program Plan was presented to stakeholders and the OPUC[3] in March 2023 as follows:

Table 2-2023 Clean Fuels Program Plan

Program Category	Total Cost	Portfolio Estimate %
Grants and Infrastructure	$9,054,000	77%
Education and Outreach	$1,176,000	10%
Emerging Technology	$588,000	5%
Administrative Costs	$941,000	8%
PORTFOLIO TOTAL	**$11,758,800**	**-**

Total Revenue from the Sale of Base and Incremental Credits

PGE's 2023 programs were funded through the sale of credits in 2022 generated from residential EV charging in 2021. DEQ's 2021 CFP rulemaking introduced the concept of base and incremental credits. Base credits are generated through use of a fuel with carbon intensity (CI) lower than that of gasoline or diesel. Incremental credits are generated when a registered entity claims a lower carbon intensity of electricity by retiring RECs alongside claiming CFP credits for EV charging. PGE did claim incremental credits in 2022 for residential CFP 2023 programs: the DEQ assigned 46,752 incremental credits to PGE, resulting in approximately

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3 https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAH&FileName=um2033hah162744.pdf&DocketID=22127&numSequence=53

$5,394,400 in incremental revenue. [4] In 2023 PGE purchased RECs to claim incremental credits for 2022 to fund 2024 programs. PGE purchased $763,576.65 of RECs which resulted in approximately $8,825,609 in incremental credit revenue to be utilized for the 2024 program year.

PGE began 2023 with 22,306 credits in its account. On March 24, 2023, DEQ deposited 29,298 base residential credits and on May 5, 2023, DEQ deposited 65,976 residential incremental credits into PGE's account in the CFP system. On October 31, 2023, DEQ deposited 43,844 residential base credits for the EV count for the first six months of 2023. PGE ended the year with 39,522 credits in the account. Between January 1, 2023, and December 31, 2023, PGE executed 15 separate sales of CFP credits at an average price of $133.77 per credit, with proceeds of residential credits totaling $17,832,993. The 2023 residential credit revenue from 2022 residential EVs will fund 2024 CFP Programs.

2023 Residential Clean Fuels Program Expenditures

Following the portfolio approach PGE's 2023 CFP expenditures break down as follows:

Table 3- 2023 Clean Fuels Program Expenditures

Program Category	Amount spent by close of 2023	Percentage of Overall Expenditure
Grants and Infrastructure	$6,847,600	82%
Education and Outreach	$320,294	4%
Emerging Technology	$86,849	1%
Administrative costs	$378,150	5%
REC costs	$766,095	9%
Total	**$8,398,989**	**100%**

The vast majority of expenditures (82%) fell into the category of grants and infrastructure, which reflected both the Drive Change Fund (DCF) and the Electric School Bus (ESB) fund, as well as the public charging infrastructure upgrades. For both the DCF and ESB, 25% of the grant fund is retained until the projects are successfully closed. As a grant program, these expenditures are not designed to equate an annual forecast due to reserving payment for a portion of the grant award until the grant work is completed. The next highest cost category was the procurement of RECs. Since this was a significant expenditure (9%) it is included as an individual line item. As outlined above, the purchase and retirement of these RECs facilitated an additional 65,976 incremental CFP credits for 2022 residential EVs, which will fund 2024 CFP programs (just as the 2022 REC purchases supported incremental credits revenue sales that supported the 2023 CFP programs). Education and Outreach represented four percent

[4] Note that there is a two-year delay between CFP credit generation and the programmatic year, so the 2023 program year was funded by incremental credits generated in 2021.

of CFP program expenditure, followed by CFP administrative costs at five percent and Emerging Technology at one percent.

In recognition that the Company underspent in Education and Outreach and Emerging Technology categories, PGE dedicated a program manager to these areas. In October 2023, PGE expanded its capacity to drive these program initiatives forward by bringing on this new CFP resource. The company expects more activity expenditures in these areas in 2024. Additionally, $1.5M of these unspent funds were redirected to increase the 2024 ESB fund and swiftly deploy these reserves to the benefit of residential customers.

Program Descriptions

The following section provides further detail on PGE's CFP-funded programs.

INFRASTRUCTURE AND GRANTS

Drive Change Fund

The Drive Change Fund is a competitive grant available to non-residential customers for transportation electrification projects that prioritize underserved communities, advance transportation electrification, and benefit residential customers.[5] Table 4 details eligibility, grant scopes which can be considered, and other elements of the program.

Table 4- Drive Change Fund Program Criteria

Applicant Eligibility	• Applicants may be nonprofit, for-profit or government entities, with a preference for nonprofit and government; • Applicants need not be PGE customers; however, projects must provide a community benefit in areas PGE serves.
Grant Scope	• Projects must advance TE and provide a benefit to residential customers, with priority given to projects that address the needs of underserved communities; • Applicants should demonstrate efforts to obtain all other available funding sources, incentives, federal grants, and tax credits; • Any charging stations that are funded must be part of the PGE qualified product list; • Where appropriate, PGE claims Clean Fuels credits to continue to fund the DCF.
Other Assistance	• Financial assistance is offered to compensate qualifying nonprofit applicants for staff time required to prepare an application; • Where possible, PGE may direct applicants to other complementary funding streams and synchronize application processes.
Process	• A third-party evaluator evaluates the applications, with an internal PGE selection committee making final funding decisions.

[5] In Oregon Communities underserved by Transportation Electrification are defined in HB 2165 as residents of rental or multifamily housing, communities of color, communities experiencing lower incomes, tribal communities, rural communities, frontier communities, coastal communities, other communities adversely harmed by environmental and health hazards, communities with a low density of public charging stations and the deployment of electric school and transit buses.

Since 2019, PGE has managed the DCF as described above and awarded over $12.59 million in grant funding to 74 projects. PGE ran the fifth cycle of DCF in 2023, awarding $3.67 million to 20 community transportation electrification projects. Table 5 provides a breakdown of the projects awarded and Appendix A details project summaries.

Table 5- 2023 Drive Change Awardees

Organization Name	Org Type	Project Type	# of EVs	# of Other Vehicles	# of Ports	Approx. Final Award Amount
Bird Alliance of Oregon (formerly Audubon Society of Portland)	Nonprofit	EVs, Chargers	3		6	$410,310
Catholic Community Services Foundation	Nonprofit	EVs, Chargers	1		2	$82,240
City of Salem Public Works Department	Government	EVs		1 compact street sweeper		$225,000
Columbia Slough Watershed Council	Nonprofit	EVs	1			$59,770
The Community Services Network	Nonprofit	EVs, Chargers	1		4	$144,590
Constructing Hope Pre-Apprenticeship Program	Nonprofit	EVs, Chargers	2		4	$218,170
Corbett SD 39	School District	EVs, Chargers	2		2	$216,450
Ethiopian and Eritrean Cultural Resource Center	Nonprofit	EVs	2			$156,750
Family Building Blocks	Nonprofit	EVs, Chargers	1		1	$296,390
Friends of Noise	Nonprofit	EVs, Chargers	1		2	$64,380
Friends of Trees	Nonprofit	EVs, Chargers	3		4	$245,980
Growing Gardens	Nonprofit	EVs, Chargers	3		6	$226,670
Habitat for Humanity Portland Region	Nonprofit	EVs, Chargers	1	4 forklifts	8	$204,900
Latino Network	Nonprofit	EVs, Chargers	1		8	$199,640
Northwest Pilot Project	Nonprofit	EVs	1			$83,400
OHSU	Nonprofit	EVs, Chargers	3		3	$262,490
SOLVE	Nonprofit	EVs, Chargers	1		2	$71,260
The Street Trust	Nonprofit	EVs		75 e-bikes		$266,725

Organization Name	Org Type	Project Type	# of EVs	# of Other Vehicles	# of Ports	Approx. Final Award Amount
United Way of Mid-Willamette Valley	Nonprofit	EVs		1 EV switch kit[6]		$65,000
Virginia Garcia Memorial Foundation	Nonprofit	EVs	1			$52,000
Totals			**28**	**81**	**52**	**$3,552,115**

Awardees receive 75% of the grant award at the beginning of the project and up-to the remaining 25% after projects are completed (based on actual project costs). Prior year awardees continued to implement and complete projects in 2023. A few notable milestones include the arrival of Oregon's first electric garbage truck (City of Roses Recycling), 25 ebikes (Portland State University), and an electric tractor (Working Theory Farm).

Image 2-Prior year (2020) DCF awardee Portland State University with two of the twenty five electric bikes they lend to students as a part of their bike hub program.

[6] An EV switch kit is a package designed to convert a gasoline-powered vehicle into an electric vehicle.

PGE continues to seek feedback from stakeholders, applicants, recipients, and transportation electrification organizations to strategies to fully achieve OPUC's program design principles, with the goal of creating an equitable application, evaluation process, and funding deployment structure. PGE updates and refines the DCF annually with an aim of improving the process for applicants, particularly for smaller community organizations. In 2023, PGE enlisted Opinion Dynamics to conduct an external evaluation of the grant. This evaluation focused on the 2021 cohort of DCF awardees who had competed or were nearing project completion. PGE has since implemented many of the recommended changes. The full evaluation can be found in Attachment B. Table 6 presents some of the changes PGE made in 2023 based on this feedback.

Table 6. Incorporation of Feedback and Program Enhancements in the Drive Change Fund

Outreach and Education

- Hosted a first-time awardee Connection and Celebration event to honor the impact of five years of the Drive Change Fund
- Awardees from all five years attended, as well as PGE staff and key stakeholders, with breakout groups for discussion and knowledge sharing

Timeline

- Shortened the evalution period of the grant cycle to improve response timeline
- Initial award check cut in the year of award to reduce overall cycle time of grant, improve reporting, and improve budget tranparency

Program Management

- Full migration to a grants management platform (Cybergrants) to streamline the process for applicants, awardees, and admin
- Improved tracking for installed charging/ports

Program Improvements

- New third-party grant evaluator brought improvements to grant selection and evaluation processes
- Toolkits/media guides for DCF and ESB awardees - increased storytelling and awareness of TE
- Ensured alignment across applicant materials and award agreement terms
- Held two photo shoots to acquire media assets with DCF awardees

Electric School Bus Fund

The Electric School Bus Fund is a competitive grant available to public school districts located in PGE's service area to help fund the incremental costs of purchasing electric school buses, with a focus on school districts that serve underserved communities. Since 2020, PGE has awarded over $7.9 million in grant funding to school districts resulting in 30 electric school buses. In 2023, PGE allocated approximately $3 million to help school districts and school bus fleet operators acquire electric buses and charging infrastructure. PGE awarded grants to five districts to fund a total of eleven buses. These buses are in addition to the nineteen now operating or on-order from prior year grant awards. In 2023 PGE wrote a report on the findings from the first three years of the ESB fund.

Table 7- 2023 Electric School Bus Fund Awardees

School District	Project County	# of Buses	Total amount awarded for electric school bus and charging infrastructure[7]
Beaverton School District	Washington	1	$220,326
Molalla River School District	Clackamas	1	$391,344
North Marion School District	Marion	2	$632,688
Salem-Keizer Public School District	Marion/ Polk	1	$280,842
Tigard-Tualatin School District	Washington	2	$521,424
Portland Public Schools	Multnomah	2	$301,110
Willamina School District	Yamhill	2	$632,688
Total	**-**	**11**	**$2,980,422**

As of March 2024, all school districts awarded ESB funds in 2023 have placed their orders for electric school buses. The lead time for delivery of electric school buses ranges from 12-18 months, so most are not expected to be in service until late 2024 / early 2025. Three new school districts were first-time awardees in 2023: Molalla River, North Marion, and Willamina. For the 2023 award year, Molalla River, North Marion, Tigard-Tualatin, and Willamina School Districts all received funding for charging infrastructure. Beaverton, Salem-Keizer, and Portland School Districts did not receive additional funding for infrastructure from the 2023 ESB fund, as they had sufficient infrastructure from prior grant years or through participation in in PGE's Fleet partner Program.[8]

[7] Final total award amount varies based on actual infrastructure costs.
[8] More information on PGE's Fleet Partner program can be found here: https://portlandgeneral.com/energy-choices/electric-vehicles-charging/business-charging-fleets/fleet-partner

Image 3- A driver of one of Beaverton School District's electric school buses

Matching External Funds

In 2023, PGE reserved up to $543,000 to provide matching funds to public agencies, community-based organizations, nonprofits, educational institutions, and other partnerships applying for external funding. A total of six applications were submitted; three of which were approved for matching funds, with two having already received funding. Details on the two funded projects are included in the table below. The third was not awarded the external grant and therefore matching funds were not issued. The remaining funding will be put toward the 2024 DCF and ESB totals.

Table 8 – Successful Awarded 2023 Matching External Funds

Organization Name	External Grant Source	Amount Requested from PGE	Brief Description
Portland Bureau of Transportation	U.S. Department of Energy	$100,000	To fund community engagement workshops to educate on TE and gain opinion on the location of pole-mounted chargers
Bonneville Environmental Foundation and Forth	Supplemental Environmental Project, Oregon Department of Environmental Quality	$40,000	To fund two (2) chargers and EV maintenance utilized in Portland for a "carshare" program among community-based organizations

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

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

PGE uses the following program parameters when deploying matching funds:

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

Public Charging Infrastructure

Upgrades to outdated public charging infrastructure continued as part of the Infrastructure and Grant portfolio in 2023. To date, this project focused on updating legacy charging equipment which had been installed and operated by other entities dating back to 2012 (often referred to as the Oregon Electric Byways (OEB). Upgrading and updating these sites proved to be a greater challenge than originally anticipated, as detailed in the 2022 PGE Clean Fuels Program Report.[9]

In 2023, PGE completed upgrades at locations where upgrades were possible. A total of nine public charging ports were installed and are now serving EV drivers. Additional improvements at these sites include:

- Improved charging speed (from 50 kW to up to 125 kW for certain EVs)
- Improved ADA accessibility
- Improved visibility (closer to main thoroughfares)
- Additional payment methods
- Improved overall driver experience through PlugShare score

Remaining allocated-but-unspent funds will continue to support the upgrade of public charging sites operated by PGE to address underperforming charging equipment or other poor charging experience for drivers that rely on public charging. PGE expects this work to continue through 2024.

[9] See https://www.oregon.gov/deq/ghgp/cfp/Pages/utility.aspx

Table 9- Status of PGE CFP-funded Upgrades for Oregon Electric Byways

Electric Byway Site	Location	Charging Capacity	Details
Roth's Fresh Markets	918 N 1st St Silverton, OR 97381	Four ports: two 62.5 kW DCFC (up to 125 kW) and two 7.2 kW Level 2 ports	New chargers online October 2022
IBEW 48 Union Hall	15937 NE Airport Way Portland, OR 97230	One port: 62.5 kW DCFC	New charger online April 2023
Lincoln Center (Shorenstein)	10200 SW Greenburg Rd. Tigard, OR 97223	Four ports: two 62.5 kW DCFC (up to 125 kW) and two 7.2 kW Level 2 ports	New chargers online December 2023

OUTREACH AND EDUCATION

Outreach and Education activities are intended to support customers in the transition to transportation electrification by increasing awareness and building confidence in electric vehicles.

Underserved Community Engagement

In 2023, PGE began a long-term (3-year) Underserved Community Engagement Process to engage members of underserved communities in developing and building upon its Transportation Electrification portfolio. PGE contracted with a minority-owned firm (Thuy Tu Consulting) to lead the work, including recruitment for and implementation of both working groups and focus groups, with the following goals:

- To better understand the perceptions, attitudes, and needs of needs of underserved communities in relation to transportation electrification
- Integrate learnings into the design, implementation, and improvement of TE programs; and
- To build and strengthen relationships between PGE and underserved communities.

The first year of engagement does not align with the calendar year with the outreach work starting in 2023 and continuing through 2024. Through the facilitator, PGE convened a community-centered working group of individuals from the underserved communities demographic outlined in the House Bill 2165 definition.[10] PGE also convened nine unique focus groups of individuals that identify with a specific racial or cultural group. This strategy was recommended for participants' comfort, the necessity of conducting some sessions in Spanish, and because affinity groups often have deeper, more robust discussions. This approach also allows facilitators to identify themes and requests for specific community groups that PGE can use to implement equitable community engagement according to their unique interests and needs. The first of the 13 planned working and focus group sessions took place

[10] See footnote 5

in October 2023. To maximize accessibility for participants across our service area, all sessions were held over video conference through May 2024 (the first year of engagement).

Looking ahead, PGE will incorporate information learned from this process to both inform future engagement strategies and inform and modify its TE program portfolio. The table below provides the dates and subject matter for the meetings held to date.

Table 10- Summary of Working Groups and Focus Groups in Year 1 of Underserved Community Engagement

Session	Topic	Participants
Working Group #1: 10/24/2023	TE and Community Engagement Overview	10
Working Group #2: 11/4/2023	Municipal Pole Charging Program	11
Focus Group #1: 1/4/2024	Overview of TE and Community Transitions to TE	10
Focus Group #2: 1/17/2024	Overview of TE and Community Transitions to TE	12
Focus Group #3: 1/25/2024	Overview of TE and Community Transitions to TE	12
Focus Group #4: 1/31/2024	Overview of TE and Community Transitions to TE	11
Working Group #3: 2/1/2024	Residential Smart Charge Pilot Program, Barriers for renters	8
Focus Group #5: 2/7/2024	Overview of TE and Community Transitions to TE	12
Focus Group #6: 2/15/2024	Overview of TE and Community Transitions to TE	10
Working Group #4: 3/7/2024	Schedule 50 Updates and Clean Fuels Portfolio	9
Focus Group # 7: 3/26/2024	Overview of TE and Community Transitions to TE	9
Focus Group #8: 3/28/2024	Overview of TE and Community Transitions to TE	7
Focus Group #9: 4/2/2024	Overview of TE and Community Transitions to TE	8

This work has already impacted programmatic changes and considerations for future program elements. For example, based on feedback on the Municipal Pole Charging Program, PGE has implemented additional communications strategies to customers to increase awareness of the program. Additionally, in response to hearing from participants

about the Residential Smart Charge Pilot Program, PGE is exploring creating a toolkit for renters and landlords to help navigate EV charging installations at rental properties.

Oregoin' Electric

In 2023, PGE continued to host the redesigned Oregoin' Electric campaign website in partnership with design partner For Good & Co[11]. PGE added analytics on the website including the enablement of tracking of unique visits, "click through" activity, content engagement, referrals, and common keywords. This data will be used to refine the web experience. As the residential EV market expands and engagement increases, elements will be added/adapted to reflect evolving needs and target underserved communities.

Due to limited staffing capacity for the majority of 2023, PGE did not initiate any new campaign activities in 2023. This resulted in only 1,751 total visits to the website throughout the year. PGE added staff in late 2023 to develop a strategy for EV education and outreach for residential customers, including what the future of PGE's role in the campaign will be beyond 2024.

In 2024, PGE will work with Pacific Power and For Good & Co. to update the content on the website to ensure the information remains relevant and reflective of the current EV landscape with content including, but not limited to, EV incentives and rebates included in the Inflation Reduction Act, Oregon's Clean Vehicle Rebate, Utility EV Rebates, and EV benefits. PGE and Pacific Power will also collaborate to inform campaign activities to take place in 2024. Finally, PGE will engage additional external stakeholders, as well as the Oregon Department of Transportation, Oregon Department of Energy, and DEQ to discuss options for EV education and outreach in the market, and what the campaign has provided to-date. Additionally, PGE plans to discuss whether the value of the campaign would benefit from different support models in the future, or if the campaign is not producing in the desired outcomes desired and other options should be explored to support clearer outreach and education for residential customers.

Electric Vehicle Costs and Savings Calculator

In 2022, PGE launched the EV Costs and Savings Calculator on the Company's website, which was continuously updated and promoted in 2023.[12] The calculator uses data from PGE's electricity rates and available state and federal financial incentives to help inform a customer on what owning an EV could look like for their budget and charging accessibility. This interactive tool has a comprehensive, updated inventory of currently available electric vehicles, and their respective available financial incentives. The search page allows users to filter for their vehicle needs, including vehicle type, minimum range, price. After selecting a vehicle, users see vehicle details on one page. Users can change settings based on their vehicle usage, including average miles driven, years of ownership, eligibility for financial incentives, and charging strategy.

[11] https://oregoinelectric.com/

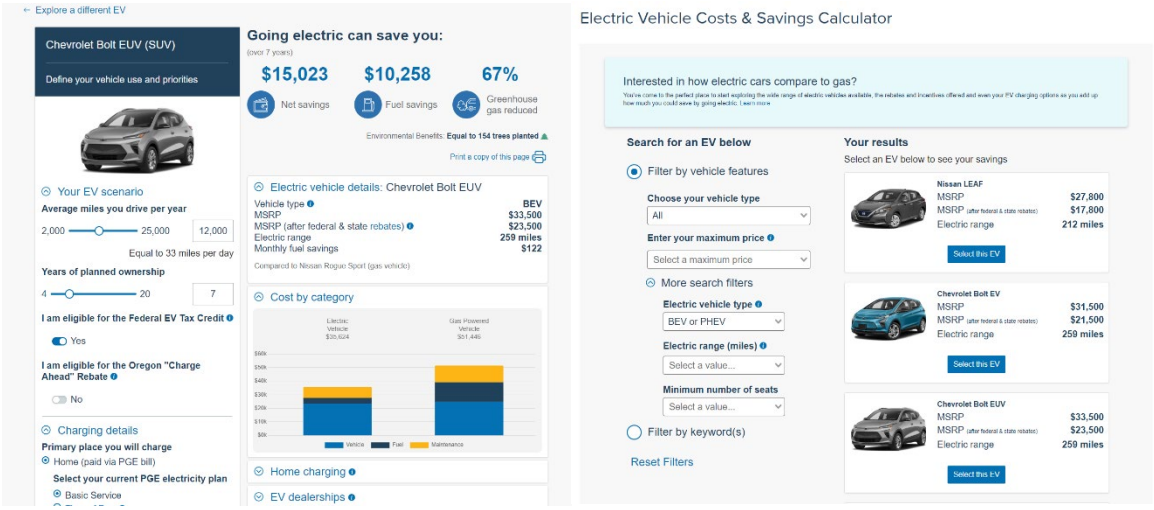
[12] https://portlandgeneral.com/energy-choices/electric-vehicles-charging/ready-to-buy-an-ev/electric-vehicle-costs-and-savings-calculator

After toggling to their usage, users can see estimated net savings, fuel savings, and greenhouse gas emissions reduced.

The tool also includes details such as: electric vehicle specifications, cost by category, home charging options, EV dealerships, and a public charging map. In 2023, there were 13,956 visitors. In surveys taken by site users, 61.9% of users rated the tool 5 out of 5 in ease of use and 70% would recommend the calculator to others.[13] Our evaluations have shown that once people are aware of the savings, incentives, and benefits of electric transportation, they are significantly more likely to consider purchasing an EV.[14] In an ongoing survey of users post calculator use, 55% are more likely to purchase an EV and 45% planned to purchase an EV.

In 2023 PGE engaged our technology partner and a transcreation partner to completely translate the tool into Spanish.[15] This work was completed in early 2024.

Image 4- PGE EV Costs and Savings Calculator



Ride and Drive

In 2023, PGE worked with Electric Car Insider to host five "Ride and Drive" events. PGE leveraged customer feedback therefrom (listed as primary concerns) to update education and outreach materials for 2024 events. We provide a summary of these events below:

[13] Data captured from survey results of 82 users that utilized the EV Costs & Savings Calculator from June-December 2022.
[14] Opinion Dynamics, Evaluation of PGE's Transportation Electrification Pilots, 2020
[15] Transcreation is an intricate form of translating that preserves the original intent, context, emotion and, tone. It differs from translation in that it goes beyond accurate translating words from one language to another to preserve meaning in a culturally specific manner.
16- PGE 2023 Oregon CFP Report

Table 10- 2023 Ride and Drive Events

Ride and Drive Event	Atten-dees	Test drives	Additional Information
June 3, 2023 ***Portland Community College, Sylvania Campus***	334	357	• 13 cars (Ford F-150 Lightning, Rivian R1T, Kia EV6, and Ford Mustang Mach-E were most popular for test drives) • 109 of the 168 attendees asked said they were "very likely" to purchase an EV for their next car, and 43 said they were "probably likely" • 25 attendees already owned an EV • The primary concern of attendees for purchasing or leasing an EV was battery life
June 4, 2023 ***Portland Community College, Sylvania Campus***	292	359	• 14 cars (Ford F-150 Lightning, Rivian R1T, Tesla Model 3, & Ford Mustang Mach-E were most popular for test drives) • 90 of the 149 attendees asked said they were "very likely" to purchase an EV for their next car, and 32 said they were "probably likely" • 16 attendees already owned an EV • The primary concern of attendees for purchasing or leasing an EV is charging
July 29, 2023 ***Bush's Pasture Park, Salem, OR***	210	304	• 12 cars (Kia EV6, Rivian R1T, Ford Mustang Mach-E, and Ford F-150 Lightning were most popular for test drives) • 75 of the 114 attendees asked said they were "very likely" to purchase an EV for their next car, and 24 said they were "probably likely" • 20 attendees already owned an EV • The primary concern of attendees for purchasing or leasing an EV are tax credits/incentives
September 30, 2023 ***Portland Community College Sylvania Campus***	195	252	• 10 cars (Kia EV6, Tesla Model 3, and Polestar 2 were most popular for test drives) • 50 of the 69 attendees asked said they were "very likely" to purchase an EV for their next car, and 8 said they were "probably likely" • 26 attendees already owned an EV
October 1, 2023 ***(Portland Community College, Sylvania Campus)***	205	276	• 11 cars (Volkswagen ID.4, Kia EV6, and Polestar 2 were most popular for test drives) • 38 of the 53 attendees asked said they were "very likely" to purchase an EV for their next car, and 10 said they were "probably likely" • 28 attendees already owned an EV • The primary concerns of attendees for purchasing or leasing an EV were battery life and range

In addition to the opportunity to test drive EVs, attendees were able to ask questions of EV owners and PGE subject matter experts about topics such as charging at home or "on-the-go". Attendees will also receive follow-up surveys for 12 months following the event they attended. The survey will track the number of attendees who purchased EVs, were still in process of purchasing an EV, or if they encountered barriers to purchase.

Image 5- 2023 Ride and Drive at Portland Community College Sylvania

EMERGING TECHNOLOGY

Vehicle-to-Grid

In 2023, PGE continued to partner with First Student (a school bus contractor) on the vehicle-to-grid (V2G) demonstration project. The project uses a 60 kW Nuvve DCFC unit installed on property leased by First Student for its Wilsonville-West Linn School District operations. This unit charges a V2G-capable Bluebird Type-C bus with a 155 kWh battery.

In 2022-2023, the project successfully demonstrated the technical ability to discharge power from the bus's battery onto the grid, using manual controls by Nuvve. Originally

PGE set out to understand whether the V2G charger could be directly controlled by PGE using IEEE 2030.5, a standard communication protocol intended to enable utility management of the end user environment, including demand response, load control, time of day pricing, management of distributed generation, and electric vehicles. This functionality would allow PGE to dispatch the V2G charger and bus in real-time, providing value to PGE operations. However, by the end of 2023, PGE learned that Nuvve would not be capable of supporting the IEEE 2030.5 communication protocol within the expected timeframe of the project.

Therefore, in 2024, PGE developed a scope for Phase 2 of the project using proven methods of control to evaluate the school bus use cases to deliver grid services. As an interim measure, PGE plans to send email notifications to First Student and Nuvve to instruct them to manually dispatch the V2G charger for grid services during scheduled Demand Response events throughout the summer/early fall of 2024. If successful, it will serve as the foundation for future phases of the project to add additional layers of more advanced controls, moving the company closer to a future program that can incorporate electric school buses as a flexible grid resource.

Other Emerging Technology activities

In 2023, PGE began conducting a study of the micromobility market (e.g., electric bikes and scooters) to explore whether and how the company should engage in this space using Clean Fuels funds. Following a December 2023 request for proposals, PGE selected a vendor to implement a study of the micromobility market in early 2024. The results of this study will inform if and how the Company should support customer adoption of micromobility devices beyond the scope of current DCF grant support. The study is now taking place with results expected by the end of 2024.

Conclusion

In 2023, the portfolio program approach spanning Grants and Infrastructure, Education and Outreach, and Emerging Technology continued to provide a consistent structure of program implementation. PGE is pleased to have successfully executed new rounds of the Drive Change Fund and Electric School Bus grants, five ride and drive events, the kickoff of the underserved working groups, micromobility studies and continued V2G research. The company looks forward to continuing its CFP work in collaboration with DEQ, stakeholders, and other utilities to support electric transportation in Oregon.

Appendix A

2023 Drive Change Fund Grant Recipients

Grant recipients as of November 2023

Bird Alliance of Portland (previously Audubon Society of Portland)

Audubon Society of Portland is a nonprofit environmental organization dedicated to wildlife conservancy. Their DCF project includes the purchase of three electric vehicles which will transport Green Leaders participants, conduct facilities maintenance activities, transport injured animals to the Wildlife Care Center, transport plants for the Backyard Habitat Certification Program, and support program staff. They will also install public charging infrastructure at their Cornell campus in NW Portland.

Catholic Community Services Foundation

Catholic Community Services Foundation is a non-profit that is dedicated to serving the community through programs such as affordable housing, mental health clinic, foster care support, and more. Their DCF project includes a public charger and an electric truck that will be used by the Certified Community Health Workers for their Fostering Hope Initiative to create strong families and healthy neighborhoods. The public EV charger will be located at the Bishop Steiner Building in Salem.

City of Salem Public Works Department

The City of Salem's public works department is supporting the City's Climate Action Plan goal of increasing the size of their electrified vehicle fleet. Their DCF project is for the acquisition of a compact electric street sweeper and a transport trailer. This will help clean pedestrian plazas, public spaces, bike lanes and narrow spaces in the city that could not be accessed without this street sweeper.

Columbia Slough Watershed Council

Columbia Slough Watershed Council is a non-profit dedicated to protecting the Columbia Slough and making it more accessible through community engagement, education, and restoration. Their DCF project is for an electric truck, which will haul a canoe trailer to launch sites to provide free paddle experiences for Title I schools, BIPOC-led partner organizations and a wide array of other community members of the watershed. Savings from the switch to an electric truck will be redirected to help ensure CSWC programming remains free to all.

Constructing Hope Pre-Apprenticeship Program

Constructing Hope is a non-profit organization based in Portland, Oregon, that provides pre-apprenticeship training and job placement services to individuals with diverse backgrounds who are interested in pursuing a career in the construction industry. Their DCF project includes two electric passenger vans to transport program participants and two chargers. Constructing Hope trainees will be trained on EV and charger maintenance and skills needed for careers with EVs.

Corbett SD 39

Corbett School District 39 is a public district in PGE's service area serving over 1,000 students. Their DCF project includes installing public charging infrastructure and purchasing

two electric vehicles to begin their district's electrification journey. Savings from the switch to electric vehicles will be diverted to other forms of support for students and families in the community.

Ethiopian and Eritrean Cultural Resource Center

Ethiopian and Eritrean Cultural Resource Center is a non-profit that empowers Ethiopians, Eritreans, and other African refugees and immigrants by providing culturally appropriate services and resources that promote self-sufficiency, integration, and success. Their DCF project includes the purchase of two electric vehicles to support their senior outing activities, youth mentoring and tutoring, and children's activities. Their project will also include outreach to their community about the benefits of electrification and environmental sustainability.

Family Building Blocks

Family Building Blocks is a non-profit certified Relief Nursery committed to keeping children safe and families together. Their DCF project includes a charger and an electric bus to provide vulnerable children and families with transportation to impactful services. This will allow for more children and families to be transported to vital programs.

Friends of Noise

Friends of Noise is a nonprofit that supports culturally specific youth music enrichment with programming services that are directed toward communities that have been historically underserved. Their DCF project includes a charger and an electric vehicle to increase services and offer more programming in new neighborhoods and serve more youth.

Friends of Trees

Friends of Trees is a nonprofit with a mission to inspire community stewardship of our urban forest by bringing people together to plant and care for urban trees and natural areas. Health impacts related to rising temperatures are worsening, disproportionately impacting lower-income communities. Friends of Trees increases access to shade, which lowers temperatures, as well as provides cleaner air and other benefits. Their DCF project will purchase chargers and an electric vehicle to continue their services of planting and watering trees with community volunteers.

Growing Gardens

Growing Gardens is a nonprofit that supports low income and BIPOC individuals, families, and communities in neighborhoods with food insecurity, lack of access to fresh foods, and lack of access to culturally preferred foods. Their DCF project includes chargers and three electric vehicles to transport staff and materials to continue their horticultural education, backyard garden program and other workforce development surrounding horticulture.

Habitat for Humanity Portland Region

Habitat for Humanity is a nonprofit organization that helps families build strength, stability, and independence through affordable homeownership. Their DCF project includes four chargers and five electric vehicles (including four electric forklifts), to continue their services of transporting Habitat families and staff, as well as improving the air quality in their warehouse. The public charger will provide much needed charging infrastructure in a dense, low-income residential area.

Latino Network

Latino Network is a nonprofit organization that provides culturally-specific education that lifts their youth and families to reach their full potential through programs and services. Their DCF project includes an electric vehicle and chargers at their new La Plaza Esperanza community center and preschool in the Rockwood neighborhood. The electric vehicle will support the onsite preschool students, provide educational services, and other culturally-specific wrap-around services for their community.

NW Pilot Project

Northwest Pilot Project provides services to low-income, disabled, and disenfranchised seniors in Multnomah County. Their DCF project includes an electric vehicle to transport clients into housing, deliver supplies and furniture, and transport staff to check in-person visits. NW Pilot Project staff and clients want to provide heathy housing and transportation, considering that low-income citizens are vulnerable to the negative effects of climate change.

Oregon Health & Science University

Oregon Health and Science University's Doernbecher Children's Hospital offers the region's most comprehensive and advanced pediatric health care services to meet the needs of children from before they are born through transition to adult care. Their DCF project includes three electric vehicles and charging stations that will be used to transport staff, patients, and families for their Doernbecher Outreach and Novel Interventions in Children's Healthcare (NICH) programs. Their grant also includes the purchase of a mini-EV for their pediatric patients within the hospital to bring joy and share information about electric transportation.

SOLVE

SOLVE is a non-profit organization that restores and preserves Oregon's environment through litter cleanups. Their DCF project is the acquisition of a charger and electric vehicle. The vehicle will be used to transport debris, larger items, and tools for cleanup events, as well as expand the impact of this organization across the state. This electric vehicle will help serve unhoused and low-income areas, waterways, greenspaces, and neighborhoods in a more sustainable way.

The Community Services Network

The Community Services Network is a non-profit that facilitates a network of nonprofits, community members, government agencies, and companies that provide wraparound services to communities. Their DCF project includes electric vehicle education, an electric vehicle, and chargers. This project will help the organization's growing need for transporting necessities such as clothing, equipment, donations, and materials for educational fairs in underserved communities.

The Street Trust

The Street Trust is a non-profit that advocates for multimodal transportation centered around safety, accessibility, equity, and climate justice. Their DCF project will provide 75 electric bicycles in a ride-to-own program in underserved communities. This program will enable participants to travel from their home to work, school, and other essential daily

destinations. This project will serve 75 low-income community members, with 75% of the electric bicycles are committed to members of the BIPOC community.

United Way of Mid-Willamette Valley

United Way of Mid-Willamette Valley is a non-profit that convenes and mobilizes local businesses, community leaders, public officials, and community members to provide opportunities for success. Their DCF project is an EV Switch Vehicle and Build Kit for the Career Technical Education Center (CTEC), a technical career high school program for high school juniors and seniors specializing in Autobody Paint and Repair services. This project will empower students in the Salem-Keizer School District to pursue EV car maintenance and repair training in high school while also giving them the opportunity to obtain a tech job at an autobody shop after graduation. This also helps small automotive shops in the area that can't afford to send their staff out of state for expensive EV training to service these vehicles.

Virginia Garcia Memorial Foundation

Virginia Garcia Memorial Foundation is a non-profit that provides comprehensive and culturally appropriate primary health care to the communities of Washington and Yamhill counties, with a special emphasis on migrant and seasonal farmworkers and others with barriers to receiving health care. Their DCF project is for the acquisition of an electric vehicle to deliver prescriptions to patients who are unable to visit the Cornelius Wellness Clinic pharmacy due to long working hours, lack of transportation, mobility issues, etc. This project will allow the clinic staff to provide critical prescriptions, while promoting clean energy and reducing pollution for patients with asthma and other chronic health issues.

Appendix B

See PDF Attachment B; Drive Change Fund Evaluation

Appendix C

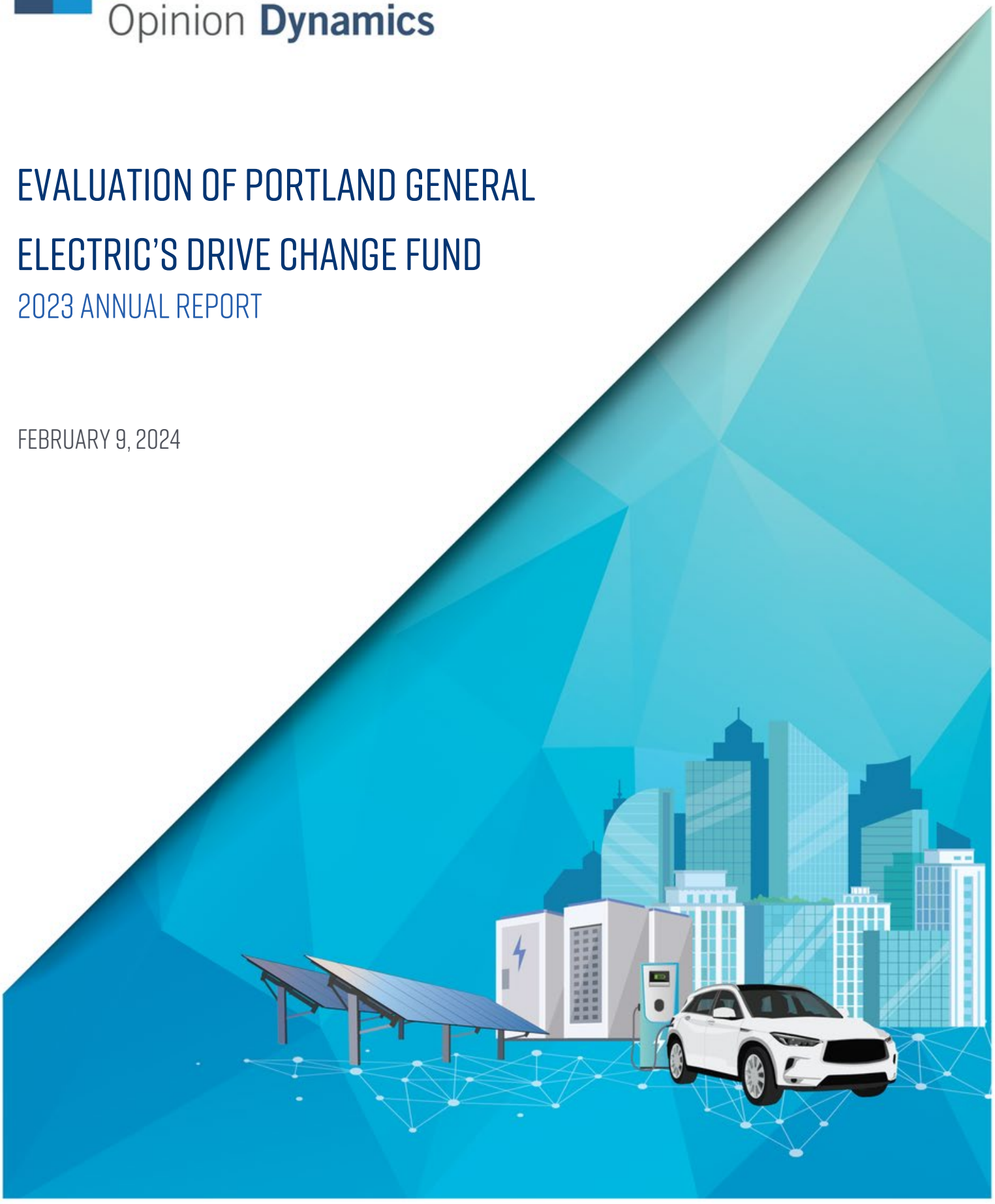
See PDF Attachment C; Electric School Bus Report

Opinion Dynamics

EVALUATION OF PORTLAND GENERAL ELECTRIC'S DRIVE CHANGE FUND

2023 ANNUAL REPORT

FEBRUARY 9, 2024



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I.1 DRIVE CHANGE FUND SUMMARY AND EVALUATION ACTIVITIES

Portland General Electric (PGE) launched the Drive Change Fund (DCF) in 2019, which is a grant-based program that provides funding to nonprofits, public agencies, and for-profit organizations to help underserved communities equitably benefit from new transportation electrification (TE) technologies. The DCF is funded by the Oregon Clean Fuels Program, with revenue generated from selling clean fuel credits. The funds support TE programs benefiting residential customers, with a focus on underserved communities. Stakeholder engagement, including engagement with partner organizations[1], is crucial in determining how the funds are utilized. The DCF offers funding for organizations to acquire electric vehicles (EVs) and EV charging equipment, as well as to conduct marketing, education, and outreach (ME&O) campaigns to educate underserved communities about the benefits of EVs.

In 2021, the fund provided $2.25 million to 10 grantees in the PGE service area.[2] Opinion Dynamics conducted an evaluation of the 2021 program year to assess the effectiveness of the program and identify areas of improvement. Our evaluation activities included interviews with program staff, grant reviewer staff, and participants in PGE's DCF from the 2021 program year.[3] The objectives of these interviews were to collect feedback from grantees regarding their participation experience, understand the avenues by which PGE is marketing and generating awareness about the DCF, and understand the program's impact on underserved communities. The PGE team and third party grant evaluator also conduct their own process improvement review annually. Some of the recommendations mentioned in this report have been implemented since the 2021 grant cycle.

I.2 KEY FINDINGS AND RECOMMENDATIONS

- **Expanding the DCF's Reach:** The DCF is reaching diverse organizations that serve various communities, including small and women/minority-owned businesses, low-income households, those experiencing homelessness, black, indigenous, people of color (BIPOC), and indigenous and migrant farmworkers. The majority of grantees are large nonprofits located in the Portland Metropolitan Area.
  - **Recommendation:** The DCF should continue to expand funding opportunities to more diverse nonprofits, including smaller nonprofits and more diverse priority communities, by conducting directed outreach through community-based organizations (CBOs) and previous grantees. The DCF should also continue to utilize previous grantees as messengers for the DCF.
- **Opportunities for Knowledge Sharing:** Program partners suggested that previous grantees provide testimonials about their experience in the DCF so new applicants and grantees can learn about their experiences, to avoid past mistakes and adopt successful application or project-implementation strategies that have worked in the past. All interviewed grantees said they would participate in such a knowledge-sharing network.
  - **Recommendation:** Utilize the network of previous grantees to provide testimonials to potential applicants. These testimonials could be a valuable resource for new applicants and existing grantees, offering insights into past experiences, lessons learned, and successful strategies. This collaborative platform could facilitate the dissemination of best practices, enable a proactive exchange of ideas, share lessons learned, and foster a

[1]Stakeholders and partners of the DCF include the Department of Environmental Quality (DEQ), Climate Solutions, the City of Portland Bureau of Planning and Sustainability, and NW Energy Coalition (NWEC).

[2] There were originally 11 grantees in the 2021 cycle; however, one organization returned the funds they received and withdrew from the program, which released $289,560 in funding back to the DCF.

[3] Due to the DCF funding cycle, this evaluation focuses on projects that were funded in 2021, however, organizations have since received funding in 2022 and 2023. The team plans to interview 2022 grantees in 2024 and conduct a charging utilization analysis, using charging data from participants whose projects included a charging component.

community of past grantees.[4] This knowledge-sharing initiative also aligns with the collective goal of leveraging successful DCF projects to enhance the impact and effectiveness of PGE's broader TE initiatives.

- **Challenges with the Application Process:** Grantees who had previously applied to the DCF had an easier time with the application since they had gone through the application process before. While all grantees were generally satisfied with the application process, there were some reservations about its length and technical complexity, which sometimes required third-party party expertise to complete.
  - **Recommendation 1:** The DCF could implement a voluntary intermediate application review step that provides feedback to applicants before they formally submit. This review would allow applicants to improve their application and increase the likelihood of submitting a successful application the first time instead of having to reapply. This step may make the application process more efficient and provide technical support to applicants without access to a third-party consultant.
  - **Recommendation 2:** Provide applicants with detailed technical information regarding proposed project elements, such as charging requirements or information about EVs early in the application process. Technical assistance provided at this stage could help applicants more fully understand the technical components required in the application and support their project planning process more effectively.
- **Opportunities for Cross-Participation with Other TE Programs:** Program partners believe there is potential to scale successful DCF projects, possibly through supplementary funding opportunities.
  - **Recommendation:** Provide more opportunities for current and previous grantees to engage with other funding opportunities. When opportunities arise, connect grantees with other TE-focused funding opportunities such as federal, state, or other local funding sources to expand grantees' TE efforts and broaden impacts on underserved communities. PGE could consider sending out quarterly or bi-annual newsletters that inform past and potential grantees of additional funding opportunities.
- **Formalizing Technical Assistance:** Most grantees were unaware that technical assistance was available or did not seek technical assistance from PGE. More commonly, applicants and grantees with charging and/or EV project components utilized a third-party organization for technical assistance.. At the same time, the DCF team helped ease technical difficulties by extending project deadlines and providing additional funding.
  - **Recommendation:** Consider implementing a standardized approach to technical assistance by formally integrating it into the DCF program. Integrating technical assistance into the process ensures that grantees are aware of and can access support directly through the DCF whenever needed. Alternatively, consider forming partnerships with third-party organizations and actively encourage grantees to collaborate with them. To streamline this process, consider:
    - Developing a trusted list of consultants endorsed by the DCF;
    - Encouraging applicants to engage these third-party organizations to navigate technical challenges; and
    - Enhancing internal technical assistance within PGE by establishing a dedicated DCF team that provides comprehensive technical support to applicants and grantees throughout the entire application or project lifecycle. This could include offering a standardized list of services for applicants with limited knowledge of TE technology covering technical aspects of charging and electric vehicle projects in addition to existing guides provided by PGE.

    By adopting these measures, PGE would fortify the technical assistance framework, ensuring a more robust and accessible support system for all stakeholders.

[4] Depending on PGE's administrative resources and capabilities, possible considerations could include: a monitored virtual community board for idea sharing, virtual networking meetings (occasionally in-person), and/or a pairing system that connects current and past applicant or grantee organizations with similar goals or projects.

- **Expanding Grantee Technical Assistance:** Grantees with EV charging elements often struggled with the application's technical components and the chargers installations.
  - **Recommendation:** Provide additional technical assistance for grantees with charging projects, including assistance identifying where to install the charger(s) and additional education about how to utilize the charger(s). One grantee mentioned that it would be helpful if the DCF could conduct site visits to identify the best installation location and help navigate any technical issues that may arise with the chosen location.
- **Documenting Impact on Communities:** DCF grants enable grantees to expand their impact on the communities they serve. Grantees appreciated how the DCF enabled their organization to learn about and experience TE technology, which has enabled them to better serve their priority communities with the additional funds provided by the DCF grant. Grantees also appreciated being able to serve their communities better without contributing to greenhouse gas emissions.
  - **Recommendation:** Consider obtaining impact statements from both grantees and community members served by the organization, which will help document and communicate the DCF's impact effectively. This qualitative approach provides a holistic understanding of the program's influence on priority communities.

2. INTRODUCTION

Portland General Electric (PGE) launched the Drive Change Fund (DCF) in 2019, which is a grant-based program that provides funding to nonprofits, public agencies, and for-profit organizations to help underserved communities equitably benefit from new transportation electrification (TE) technologies. The DCF is funded by the Department of Environmental Quality's Oregon Clean Fuels Program, with revenue generated from selling clean fuel credits. The funds support TE programs benefiting residential customers, with a focus on underserved communities. Stakeholder engagement, including engagement with partner organizations, is crucial in determining how the funds are utilized. The DCF offers funding for organizations to acquire electric vehicles (EVs) and EV charging equipment, as well as to conduct marketing, education, and outreach (ME&O) campaigns to educate underserved communities about the benefits of EVs.

The DCF continuously revises the application evaluation criteria to ensure projects are high-quality and equitably deployed. The DCF seeks to support not only EVs but also alternative forms of transportation, including e-bikes and micro-mobility; additionally, equitable deployment of electric transportation projects in underserved communities was a key consideration when developing applicant evaluation criteria.

The DCF has actively made changes to its program implementation team since 2021. The DCF has added a position focused on grant awardee experience and assistance from selection to completion. Program staff reported that adding this role helps ensure the timely completion of grantee projects and the distribution of funds. Before 2021, the DCF experienced delays in fund distribution and grantee project completion, which led to the addition of this role.

2.1 EVALUATION OBJECTIVES AND ACTIVITIES

For the 2023 evaluation, the team interviewed program staff, partner organizations, third-party grant reviewers, and grantees from the 2021 award year. This evaluation also covers the application and awards process for projects funded in 2021 and 2022. We conducted one round of staff interviews in the second quarter of 2023 that covered the 2021 and 2022 selection processes. Due to the timing of DCF project completion, we will conduct another round of interviews with grantees in 2024, covering 2022 projects after completion. We did not conduct charger pattern analysis as part of the 2023 evaluation due to the lack of charging data from 2021 grantees. We plan to conduct a charger pattern analysis of 2021 and 2022 grantees as part of the 2024 evaluation (Table 1).

Table 1. Summary of Evaluation Activities and Reporting

Evaluation Activities	2023 Annual Report	2024 Annual Report
PGE Staff Interviews and Program Enrollment Data Review	✓	✓
Partner Organization Interviews	✓	✓
2021 Grantee Interviews	✓	
2022 Grantee Interviews		✓
2021 Grantee Charging Pattern Analysis		✓
2022 Grantee Charging Pattern Analysis		✓

Table 2 summarizes interviews conducted as part of the 2023 evaluation. The team completed 12 in-depth interviews between May and September 2023.

Table 2. Disposition Summary for 2023 DCF Evaluation Interviews

	Contacted	Completed
DCF Staff	3	3
Partner Organizations	4	3
Third-Party Application Reviewer	1	1
2021 Grantees	10	5
Total	**18**	**12**

DCF STAFF INTERVIEWS

The team interviewed DCF staff involved with the implementation of grantee awards and management of the grantee experience. These interviews aimed to familiarize us with the DCF management structure and involved stakeholders and help us better understand program goals, challenges, and priorities. The interviews also supported the development of data collection instruments and data requests. The key objectives of the program staff interviews were to understand:

- Historical information about the DCF;
- Activities conducted to promote the DCF;
- The application review and selection process;
- The types of technical support provided to applicants and grantees; and
- The typical number of applicants and quality of the applications, the types of applicants and projects funded, lessons learned, and changes made to the process.

PROGRAM PARTNER INTERVIEWS

The team conducted in-depth interviews with three partner organizations involved in the early decision-making and operations of the DCF. These organizations included the Northwest Energy Coalition (NWC), the Oregon Clean Fuels Program (OCFP), and the Portland Clean Energy Fund (PCEF). All three organizations helped create the DCF, and their input formed the broad schema of what the DCF looks like today. The key objectives of the partner organizations interviews were to understand:

- The partner organization's role with the DCF, and to gather information regarding the program application process in 2021;
- The barriers that organizations face in applying to the DCF;
- How the DCF can more effectively provide resources to potential and current applicants; and
- The impact of the DCF on underserved communities and the goals of program partners for future iterations of the DCF.

GRANT APPLICATION REVIEWER INTERVIEW

The team interviewed Spark Northwest, the third-party grant application reviewer that PGE subcontracted to review grant applications to the DCF from 2020 to 2022. PGE now uses Resource Innovations as the third-party reviewer for grantee applications. Applications are scored according to the following criteria: project design and benefits, feasibility of timeline, and costs and financing. The third-party reviewer evaluates criteria holistically and considers each

organization's history and previous contributions to underserved communities. The key objectives of the application reviewer interviews were to understand:

- The application reviewer's role within the DCF, and to gather information regarding the program application process in 2021;
- The application and selection processes, including criteria for application selection, recourse for erroneous applications, and monitoring of accepted applicants (within the application process); and
- The types of application assistance and funding assistance that the DCF provides.

GRANTEE INTERVIEWS

The team interviewed five of the ten 2021 grantees in August and September of 2023. At the time of the interviews, none of the 2021 grantees had reached project completion due to various delays caused by internal and external factors (At the end of Q4 2023, six of the ten 2021 projects had been completed as shown in Table 4). We still completed interviews with these grantees to understand their application process and project execution experiences, and reasons for delays in project completion. The key objectives of the grantee interviews were to understand:

- Grantee satisfaction with the support that applicants received to complete the DCF application;
- The challenges applicants faced in filling out the application;
- The effectiveness of the assistance provided by the DCF, electric vehicle supply equipment vendors, and other involved contractor parties;
- Challenges grantees have faced procuring, installing, and maintaining their chargers or EVs; and
- The impact of organizations funded by the DCF on underserved communities.

3. DRIVE CHANGE FUND FINDINGS

This section presents detailed findings from our data tracking review and interviews with DCF staff, partner organizations, third-party application reviewers, and 2021 grantees.

3.1 GRANTEE CHARACTERISTICS

Grantees could receive funding for four types of projects:

- EV acquisition to support their operations;
- Installing charging infrastructure;
- Education and awareness campaigns to educate underserved communities about the benefits of TE technology; and/or
- Other innovative projects.

The DCF received 23 applications and funded ten grantees in 2021 (Table 3). Most 2021 grantees received funding for EV procurement, followed by ME&O campaigns and charging infrastructure projects. In 2021, the DCF funded the procurement of 16 EVs, three other vehicle types (e-bikes, e-tractors, ADA-accessible carts), and 25 charging ports. Of the five interviewed grantees, two completed projects involved all three components (EV procurement, ME&O, and charging), one implemented a charging and EV procurement project, one implemented an EV procurement project, and one conducted a TE educational campaign.

Table 3. Types of Projects Proposed and Awarded to 2021 Grantees

Type of Project	2021 Applicants (Proposed Projects)	2021 Grantees (Awarded Projects)	Interviewed 2021 Grantees (Awarded Projects)
EV Procurement	16	9	4
ME&O	13	7	3
Charging Infrastructure	20	6	3
Total Projects	**23[a]**	**10[a]**	**5[a]**

[a] Applications and projects may include multiple elements/components (i.e. EV procurement, ME&O, charging infrastructure)

All 2021 grantees are nonprofit organizations or public entities serving one or more underserved communities, primarily in the urban Portland Metropolitan Area. The grantee organizations that were funded in 2021 had various missions that support low-income populations, economic empowerment of priority communities, seniors and people with disabilities, community-based organizing, tribal communities, unhoused and veteran populations, and farm workers as shown in Table 4. Most interviewees reported having an operating budget of more than $2 million. Only one interviewed grantee reported having an operating budget of less than $2 million.[5]

[5] The Evaluation team reached out to grantees up to 5 times by email and phone in addition to outreach conducted by PGE on the evaluation team's behalf. Program staff noted that some grantees who did not respond to interview requests may have smaller operating budgets and may have had less time or resources available to respond to an interview request.

Table 4. 2021 DCF Grantee Organization Characteristics

Project Name	Grant Amount	Project Type	Populations Served	Project Status[6]
Camp Fire Columbia	$232,781	Chargers, EV, ME&O	Community youth	Ongoing
Clackamas County Social Services	$212,500	EV	Seniors and people with disabilities	Ongoing
Metropolitan Family Service	$136,278	ME&O	Low-income populations	Completed
Mt. Hood Community College	$300,000	Chargers, EV, ME&O	Local and regional workforce	Completed
Oregon Environmental Council	$240,881	Chargers, EV, ME&O	BIPOC- and female-owned businesses	Completed
PDX Diaper Bank	$59,970	EV	Underserved / Low-income families	Completed
Portland Community Reinvestment Initiatives	$64,963	Chargers, EV, ME&O	Low-income, with a focus on African-American populations	Completed
Sustainable Northwest	$277,966	EV, ME&O	Farms, low-income tribal communities	Ongoing
Transition Projects	$309,721	Chargers, EV	Unhoused and veteran populations	Ongoing
Willamette Valley Law Project	$131,941	Chargers, EV, ME&O	Farm workers	Completed

3.2 MARKETING AND AWARENESS

The DCF aims to reach a diverse range of applicants, including smaller organizations and culturally specific entities. To accomplish this, program staff proactively market the DCF to potential applicants through social media channels, email outreach, word-of-mouth, and storytelling through news articles and press releases. Program staff also actively engage with organizations throughout the year and make themselves available for one-on-one conversations with potential applicants to encourage qualified candidates to apply. Technical assistance from PGE engineers is also available to educate potential applicants about the DCF's specific TE requirements. Finally, DCF staff host applicant webinars. These webinars are open to all potential applicant organizations and cover application requirements, the application process, and awardee experience.

In line with program outreach efforts, interviewed grantees learned about the DCF through a previous grantee or PGE directly. Three out of five grantees reported hearing about the DCF through a previous grantee or a third-party organization. The two remaining grantees had previously worked with PGE and learned of the DCF through that experience.

Partner organizations agreed that the DCF has successfully reached community-based and nonprofit organizations that promote or implement TE projects in underserved communities; however, they would like to see more education and outreach to encourage the adoption of TE technologies. All partner organizations emphasized the importance of prioritizing underserved communities during the initial planning stages of the DCF. One partner noted that the applicant support processes are structured to provide equal opportunities for CBOs and nonprofit organizations, which usually operate with limited resources, staffing, and budgets. This is particularly helpful for organizations that may not have a dedicated grant writer on staff. All program partners highlighted the potential for the DCF to expand in future years. Two partners noted that the new influx of federal funding for energy projects – through the Inflation Reduction Act (IRA)[7] -

[6] As of Q4 of 2023, 60% of the 2021 DCF projects had been completed, and the remaining grantees reported that they were preparing to complete their projects.

[7] The DCF is not eligible to receive IRA funding directly, however applicants to the DCF and grantees could apply independently.

could help the DCF to enhance its impacts if it were to relay information about these additional funding opportunities to grantees.

Additionally, program partners noted that one of the main barriers to TE adoption in underserved communities is a lack of knowledge of how TE can benefit them. One partner believes that TE is now firmly established in public policy, although convincing customers to adopt EVs is still challenging for utilities, policymakers, and CBOs.

> *"Every single conversation that I hop into, there's so much fear, so much misinformation, so much confusion about what it is and what it's not, you know? On the regulatory/policy side, we know what the future is, but trying to get you to buy your next car to make it electric is a huge undertaking."*

Another program partner mentioned that some priority communities are concerned how investments in EV infrastructure could contribute to gentrification. Program partners want to ensure that community investments are thoughtful and do not lead to harmful, unintended consequences for priority communities. Two program partners recommended utilizing trusted community members to communicate the benefits of TE to priority communities and assuage concerns about the potential ramifications of additional TE investment. By fostering collaborative relationships with these key stakeholders, the DCF can work with grantees to ensure that investments are aligned with the unique needs and aspirations of each community.

3.3 APPLICATION PROCESS

In 2021, the DCF grant application process involved applicants accessing and downloading a PDF form from the website, filling it out, and submitting it with necessary attachments to PGE via email.[8] The PGE DCF grants manager reviewed applications for eligibility, completeness, and program fit. Subsequently, they were forwarded to the third-party application reviewer for evaluation based on a rubric covering project design and benefits, feasibility of timeline, and costs and financing. Interviews were then conducted by the third-party reviewer with organizations that met the initial qualifications of the DCF. The third-party reviewer synthesized these data into one-page summaries for each applicant, which were sent to PGE for review by a selection committee comprising various PGE team representatives and stakeholders. The third-party reviewer then presented the project summaries to the committee, and projects were voted on for funding based on scores and qualitative considerations. Funding decisions were then executed through award agreements, including budget adjustments for project(s) eligibility or feasibility. Geographic diversity and broader benefits were also considered during the selection process.

The DCF allows organizations to reapply after receiving an initial award or after a declined application. Notably, there is no inherent advantage or disadvantage in scoring for past grantees. Declined applicants receive a feedback letter that includes specific strengths and opportunities to improve their project, serving as a valuable resource for future applications. Past grantees are considered based on their potential to contribute added value or innovative aspects beyond their initial award. Some applicants may initially seek modest funding and subsequently apply for increased support as their projects mature, provided they are completed before reapplying. The attainment of milestones and the submission of final reports are required before past grantees can be considered for repeat funding.

According to the reviewer's feedback, the application process is equitable. This sentiment is primarily attributed to the process being divided into a written application and an interview. The interview component allows applicants who may

[8] The DCF has since transitioned its application to an online portal as of the 2022 program year.

have faced challenges in the written section to provide a deeper understanding of their organization's administrative capacities and capabilities. This holistic perspective aids the reviewer in assessing applications more comprehensively.

Financial aid to compensate applicants for the time it takes to fill out their applications is accessible for certain applicants with limited financial resources; however, none of the interviewed grantees were aware of this support.[9] Among the interviewed grantees, only one would have qualified for this assistance. According to the application reviewer, only a small number (four applicants) sought financial application assistance in 2021. Furthermore, the reviewer pointed out that while this funding addresses a "financial gap" among applicants, it does not address the more critical "knowledge-capacity-experience gap." In their view, technical or other forms of application assistance might prove more effective.

> *"Sometimes giving an organization that amount of money isn't as effective as actually providing them that support. When you're an organization without a lot of resources, just getting funds doesn't necessarily give you the capacity to do it, or the knowledge of who to ask to give you that input."*

Most of the interviewed grantees had applied to the DCF in 2020 but were not awarded funding. The DCF team encouraged these applicants to reapply in 2021 and use the feedback provided in 2020 to enhance their applications and improve their chances of securing funding. Grantees were generally satisfied with the application; however, they sometimes struggled with the technical portion. All grantees reported that the application process, including the application form and interview, was relatively uncomplicated to complete. Despite finding the application straightforward, all grantees who had prior experience with grant applications noted its considerable length and the required technical details. Three organizations required third-party assistance from a TE-focused electrical contractor for more complex elements like technical feasibility or specific information about other TE components.

Among the suggestions for improvement, two grantees proposed introducing an initial letter of inquiry step, a concise two-page document preceding the application form, to assess if applicants meet basic program requirements before diving into the full application.

Interviewed grantees recommended establishing standardized technical support, including offering predefined service lists tailored to different project types, aiming to facilitate accessibility for applicants with limited knowledge of TE technologies. For example, for applicants with charging project components, the DCF could provide a list of technical assistance that PGE provides, such as site assessments, building power capacity, network connectivity, installation costs, and maintenance costs. For applicants with an EV project component, this list could include topics such as operational requirements (i.e., daily driving needs, patterns of use), range and battery capacity, total cost of ownership, charging solutions/options (if no accompanying charger is installed), and vehicle performance. Both lists of services could also include options to assist applicants with the technical components of the DCF application and would be in addition to the charging guides and EV purchasing guides that PGE already provides to applicants.

Most grantees we spoke with lacked awareness of the technical assistance provided by the DCF. While the DCF team underscores the importance of providing technical assistance to support projects throughout the application and TE project lifecycle, few applicants were aware of this available support. Particularly, applicants unfamiliar with TE technology may not be informed about technical feasibility requirements, anticipated costs, or the potential need to engage third-party TE-focused contractors for their projects. Consequently, projects without a robust understanding of technical and financial feasibility may receive lower scores than those well-versed in these areas.

[9] Applicant organizations with an operating budget of less than $2 million qualify for this assistance.

A specific technical challenge reported by applicants with charging projects is the mandatory electrical diagram of their building. Numerous submissions were deemed unsatisfactory, as applicants lacked guidance and clarity. There may be an opportunity for the DCF to enhance education and training for applicants, ensuring they receive all essential technical information for a successful application without relying on them to request it explicitly. Based on insights gathered from discussions with grantees, the DCF could provide applicants with supplementary documentation that offers essential technical information. The current qualified chargers list lacks technical details needed by applicants. The recommended supplemental technical documentation should address three key components:

- A detailed overview of how charging infrastructure operates;
- Information on crucial aspects of the electrical diagram that applicants can effectively communicate to contractors; and
- Topics that the PGE team considers in their assessment of the application, such as the connection of chargers to pre-existing electrical panels and site suitability.

By incorporating these elements into the supplemental document, applicants will be better equipped to comprehend and fulfill the technical requirements of the application.

3.4 PARTICIPATION PROCESS

Grantees did not report any issues filling out the quarterly reports required by the DCF. After receipt of funding, the DCF team requires grantees to submit quarterly progress reports throughout their project's lifecycle to ensure the DCF-funded projects adhere to the anticipated timeline. Program staff reported that quarterly reports from 2021 grantees have been submitted intermittently, however, the cadence of grantee submittal has improved with the addition of a grant manager role on PGE's DCF team. None of the grantees we spoke with reported that the quarterly report process was burdensome to their organization.

Projects with an EV purchasing component faced minor difficulties that were overcome with the help of the DCF team. All grantees reported time delays due to the COVID-19 pandemic, where supply-chain issues impacted their timeline, and the rising cost of vehicles impacted their budget. In both cases, the DCF team accommodated the difficulties by providing additional funding and extending the project deadline where necessary.

Almost all grantees with a charging project component worked with the same contractor to assist in installing, operating, and maintaining their chargers. This contractor provided grantees with the technical expertise to complete the charging-related component of their application and/or help with the installation of their charging infrastructure.

All interviewed grantees with a charging project component faced difficulties with installation, operations, or maintenance. All three projects with a charging component had issues installing or maintaining their chargers. One grantee reported they had problems working with their building owner to identify an alternative site for their charger after their initial location was determined to not be feasible. This grantee recommended that PGE offer siting assistance to projects to help identify potential locations for chargers. Additionally, once they decided on a new location, they underwent a "slow and lengthy" approval process with the City of Portland to install their chargers. Another grantee had IT issues when operating the chargers, which they solved with the help of the third-party contractor who originally helped install the chargers. The last grantee with a charging project reported that one of the installed chargers was vandalized, which led them to make their chargers private.

3.5 COMMUNITY IMPACT

All grantees have equity-focused operations that directly support their target priority communities, and all reported that DCF funding has helped them expand these operations. Although grantees did not have specific metrics that they track

to measure the impact of their projects on priority communities, they noted that they had the ability to serve their communities more frequently and at a greater capacity because of DCF funding.

- One grantee mentioned that they have supported the development of car repair businesses by helping them develop EV charging and repair capabilities. One of the repair shops even created a novel position called "EV concierge" because of the grantee's efforts.
- A ME&O-focused grantee noted that since the conclusion of their project, they have seen an increase in the number of low- and moderate-income customers interested in EVs.
- One grantee mentioned that since they installed chargers in their area, more community members, including low-to-moderate-income people, indigenous communities, and communities of color, have been exposed to EVs and charging technology. This grantee also mentioned that community members see EV ownership as being a more attainable goal due to the increased technology in the neighborhood.

> *"I think for the DCF grant specifically, the things that we hear is just mostly gratitude, that we're actually fulfilling what we're saying that we want to happen, that when we're talking about climate change and climate justice and making things better, that we're actually able to as an organization and subsequently as a community take these steps forward…. People see that [purchasing an EV] is not as far off or as unobtainable, but they're seeing like, "Oh, okay. There are tangible, actual changes and solutions that we can participate in very actively."*

- Two grantees reported that adding an EV to their operations enabled ease of transportation without using an employee vehicle. Additionally, it allowed one grantee to expand the number of households it was able to serve due to the increased vehicle capacity. Both grantees felt that it was an added benefit that the vehicle was an EV and did not contribute to increased greenhouse gas emissions.

> *"The more [resources] we can get out and the faster we can get them out, the more agencies we serve, the more families we serve. So really just simply having the capacity and the space to do our job better and make those processes also easier on our staff. It just increases our services overall…"*

All grantees indicated they would not have pursued their respective projects without DCF grants. A few of these grantees reported that they were unaware of other Portland-based programs that provided funding for TE-focused projects and were grateful that the DCF could provide them with the funding to complete their TE project. All grantees reported that their organizations did not have the means to pursue their projects without funding from the DCF.

Integrating successful grantees into PGE's other TE initiatives could be a promising avenue for advancement for both TE adoption and to have additional impact on priority communities. Two program partners shared their belief in the potential to scale successful DCF projects and seamlessly integrate them with PGE's other TE initiatives.

All interviewed grantees expressed a willingness to participate in a knowledge-sharing network after participating in the DCF. One program partner agreed that leveraging the experiences of previous grantees by encouraging them to share testimonials about their DCF journey would be a good strategy to encourage other organizations to apply.

Opinion **Dynamics**

CONTACT:

Sam Lamos
Managing Consultant
slamos@opiniondynamics.com

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Portland General Electric

Electric School Bus Fund Report

Q4 2023

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1. Abstract

The Electric School Bus Fund (ESB Fund) is positively impacting Oregon school districts. This program provides a helping hand as school districts take their first step toward school bus fleet electrification and provides valuable insights to PGE and the broader industry. Some of the goals of PGE's ESB Fund are bus electrification, long-term savings for districts, improved air quality, and more environmentally sustainable school districts. These districts and the community continue to share positive feedback and appreciation, illustrating the importance and impact of the ESB Fund. The program has evolved since its inception and this report shares district experiences based on feedback and lessons learned along the way.

2. Key Takeaways

A summary of key takeaways is highlighted here with additional details later in the report.

- PGE's Electric School Bus Fund can help school districts meet climate goals as they transition their fleets by providing financial and technical assistance. These and additional benefits for child safety and health are promising, though not quantified at this stage.
- The early cycles of the fund illuminated challenges with the program's initial design and barriers faced by applicants and interested school districts. As a result of district feedback:
    - PGE shifted the application timeline and moved to an online platform.
    - Ongoing programmatic changes resulting in shortened project timelines and leading PGE to collect better data on implementation and bus performance.
    - PGE began conducting proactive outreach to every district across its service area, leading to an increase in applications from small and rural districts.
- The ESB Fund has and will continue to evolve as bus technology and district needs change.

3. Introduction

PGE's Electric School Bus Fund helps provide electric school buses to public school districts wholly or partially within PGE's service area. PGE's Electric School Bus Fund is made possible by the sale of Clean Fuels Credits via the Oregon Department of Environmental Quality's Clean Fuels Program.[1] This program enabled many of the first electric school buses in Oregon.[2] These electric buses provide a cleaner, quieter and safer ride for students while releasing zero tail-pipe emissions, which directly benefits student health as well as the environment.[3] In the first three years of the program, PGE awarded funding to support 19 school bus purchases across nine districts, providing the incremental cost of a new electric school bus over a new diesel bus. In addition to funding the incremental cost of an electric school bus, recipients can also receive funding for charging infrastructure. As the ESB Fund evolves, PGE and its partners encounter and overcome challenges. PGE plans to capture the lessons learned and share them with other implementers of this work. This report takes a deeper look into the successes, obstacles, and key takeaways, and looks toward the future of the ESB fund.

The following sections provide an overview of PGE's ESB fund to date as well as learnings and recommendations captured from interviewing two participating school districts and two PGE staff in summer 2023 who worked on this program.

4. Background

The Electric School Bus Fund is made possible by the sale of Clean Fuels Credits via the Oregon Department of Environmental Quality's (DEQ) Clean Fuels Program (CFP). Therefore, the ESB Fund and its recipients must meet the CFP guiding principles:

1. Support the goal of electrifying Oregon's transportation sectors.
2. Provide majority of benefits to residential customers.
3. Provide benefits to traditionally underserved communities.
4. Programs are developed collaboratively and transparently.
5. Maximization of funds for implementation of programs.

For projects where PGE helps fund the cost of charging infrastructure and installation, PGE acts as an aggregator of the Clean Fuels Credits produced by those chargers. The ESB Fund first began awarding grants to school districts in 2020 and continues to do so on an annual basis. All applicants must complete a thorough application to demonstrate project eligibility and competitiveness with other applicants. The amount of charging infrastructure funding has varied since the creation of the ESB Fund and will continue to adapt and change to equitably benefit all recipients.

Preference is given to projects that:

- Have interest in exploring school bus fleet electrification.
- Have commitment to engaging community, school, and/or other stakeholders in the project.
- Have interest in using the electric bus in curriculum development around STEM, climate and/or sustainability.
- Have district commitment to diversity, equity and inclusion and will use the bus to support underserved communities.
- Have taken advantage of other funding mechanisms.

Applicants are encouraged to apply for other funding sources, including PGE's Fleet Partner program to maximize the funds available for school bus fleet electrification. Several school districts are repeat awardees, with larger fleets and more frequent bus replacement. As the program continues it must evolve so rural and tribal districts as well as those districts with smaller fleets are receiving support to electrify their fleets as well.

Expectations for Awardees

The ESB Fund provides awardees with funding to execute their projects from PGE. PGE has an identified staff member to support grant completion and work with districts to troubleshoot any challenges that arise. It is the awardee's responsibility to:

- Select and procure the electric school bus(es).
- Select, procure and install electric vehicle charging equipment for the bus.
    - This charging equipment must be qualified by PGE and capable of charging data collection and demand response.
- Provide maintenance and operations to the bus and its charging equipment throughout the life of the project.
- Provide quarterly updates, a final project report and annual reports for three years following the completion of the project.

Expectations of PGE

In addition to the grant project manager to support districts throughout the process PGE provides:

- Provision of funding to recipient, 75% at the beginning of the project period and the remaining 25% upon project completion and approval of the final project report.
    - This funding covers the incremental cost of the purchase of an electric school bus (cost beyond that of a traditional bus), associated charger and infrastructure costs (optional).
- Provide technical support through PGE's Fleet Partner program to guide recipients through infrastructure planning and implementation.
- Provide additional technical assistance throughout the process, as needed, including site assessments and guidance on bus and charger selection.

5. Program Impacts + Improvements

5.1 Community Benefits of Electric School Buses

As more electric school buses come into operation, PGE will continue to collect data to better understand the benefits and impact associated with an electrified fleet. Though the ESB Fund is still relatively new PGE has received anecdotal feedback suggesting support in pursuit of these benefits.

Long Term Savings

Electricity provides long-term savings compared to diesel. Furthermore, electric vehicles (EVs) require less maintenance than internal combustion engine (ICE) vehicles, lowering the total cost of bus ownership for school districts. Craig Beaver, Administrator for Transportation at Beaverton School District, states that one of the positive impacts he has seen from ESB Fund aiding their fleet electrification journey has been reduced operating and maintenance costs.

Safety & Sound

Electric school buses are quieter than their diesel counterparts, reduce noise pollution in neighborhoods and allow students and drivers to communicate more effectively and safely. When asked how the drivers have adjusted to driving the electric buses, Beaver said, "the people that drive them, love them…they just can't believe how powerful and quiet they are."

Climate Benefit

Electric school buses have zero tailpipe emissions, which helps with air quality and contributes to both PGE and school districts achieving their climate goals. "Electric school buses reduce greenhouse gas emissions by more than half compared to their diesel counterparts," said John Farmer, PGE spokesperson.[4] This notable reduction improves the air quality for not only the students and communities surrounding the electric bus routes but all of Oregon. This is important to many students.

"In our district, we had a student group working to make our school district greener, and there were a lot of questions about how we would do that," said Jarvis Gomes, operations administrator at Tigard-Tualatin School District. "Then in the midst of that conversation, the ESB Fund became available. Given our desire to reduce our carbon footprint, we looked into it and our community thought this is a good way to do it."

"Communities have voiced support for this program. I've heard nothing but positive feedback," said Beaver. "Elementary students are excited to ride the electric buses and high school students appreciate the switch to electric buses for a better climate. Our electric school bus fleet primarily serves our historically underserved communities and students eligible for the Federal Free & Reduced Lunch Program."

Health Benefit

A significant factor in the selection process is the impact of the project on underserved communities, including environmental justice communities, which are disproportionately affected by environmental factors, including poor air quality. Electric buses reduce exposure to harmful pollutants found in diesel exhaust, which can lead to increased risk of cancer, asthma and heart disease.[3]

5.2 First Electrification Guidance

School bus fleet electrification is new to school districts and resource have only recently become available. The ESB Fund has put many of the state's first electric school buses on the road. Luke Whittemore, a PGE Grid Edge engineer, said one of ESB Fund's greatest successes is the guidance and instructions provided to districts on how to electrify their first school bus. "The ESB Fund helps school districts get over that initial hurdle of trying out electric school buses," said Whittemore. "That first project is when they need the most help and have the greatest opportunity to learn. Once they try it, they want more, and that's what gets them on this electrification journey."

5.3 Ongoing Technical and Project Support

PGE offers technical assistance throughout the electrification process for these school buses, something few other funding sources provide. This innovative portion of the ESB Fund allows for both PGE and the district to ensure "their project is a success and they're learning about EV chargers and electric school buses," said Whittemore.

Jarvis Gomes greatly appreciates this level of support. "PGE has been so easy to work with and the communication has been really good."

In the first two years of the ESB Fund, technical assistance for school districts was provided directly through PGE Grid Edge Engineers as part of the grant award process. When PGE's Fleet Partner program launched, it proved to be a more robust and preferable way to provide technical assistance. PGE now encourages awardees to participate in Fleet Partner, which provides infrastructure planning and potentially additional financial support.

"I am grateful for PGE's efforts to offer the ESB Fund and their support through the Fleet Partner Program," said Beaver. "There are a lot of challenges that come with getting charging infrastructure installed and for school districts who are new to this or may not have a lot of staff, the support is truly needed. When it comes to installing charging infrastructure, PGE has that process clearly defined within Fleet Partner. We would not be as successful today without these two programs."

5.4 Charging Data

The ESB Fund provides a unique opportunity for PGE to learn more about electric school bus charging patterns. The chargers used for these buses supply data about the interaction between vehicle charging and the grid. This provides insight that can help further the development surrounding managed charging and create a better understanding of how to pursue vehicle to grid technology and implementation. Data reporting was not fully available in earlier iterations of the ESB Fund but improvements to the reporting process for applicants now allow PGE and school districts to better understand the impacts of these deployments.

5.5 Creation of the Clean Fuels Program Grants Coordinator Position

As the grants funded by Clean Fuels Program credits have continued to grow, PGE needed additional resources to support the increasing number of awardees. PGE dedicated a Clean Fuels Program Grants Coordinator position to provide a centralized point of contact for both this grant and the Drive Change Fund awardees. This support improves awardee experience and shortens project timelines by providing guidance throughout the entire length of the projects funded by these grants. This specialized role also implements continuous process improvements to improve the ESB Fund.

6. Challenges

PGE staff are taking an iterative approach to improving the ESB Fund based on the challenges faced by internal and external stakeholders.

6.1 Application Phase

Application Process

In the first three years of the ESB Fund, applicants filled out their applications as PDFs and submitted via email. This approach proved to be complex for both districts and PGE, so the application was revised, and PGE now leverages online grant management software. By moving the application and reporting to an online system, it became easier to track documents, deadlines, and other important information about the grant. Repeat awardee districts voiced appreciation for the transition from PDF applications to a virtual platform.

Applicant Pool

The ESB Fund historically struggled to receive applications from small and rural districts. This was due to multiple reasons:

- They tend to have less staff capacity to spend on researching and writing grant applications.

- They tend to have fewer buses in their fleet, which leads to a lower replacement rate.
- PGE historically conducted limited outreach to school districts.

Beginning in 2023 PGE reached out to all 39 school district in its service area, sharing information about the grant as well as resources such as grant writing support. This led to a record number of applicants, including multiple small and rural districts.

Timeline

For grants awarded through 2023, the application's project timeline allows for an 18-month award period, which is meant to address current issues with vehicle and equipment supply chains. However, the notification of awards from PGE comes at the end of each calendar year, meaning that when schools order buses, they arrive around March, which is in the middle of the academic year. The arrival of a bus mid-year is difficult for school districts to manage. These mid-year arrivals often mean the routes the electric buses serve are not optimized and districts must scramble to put these buses to use upon receiving them. Districts shared that the current timeline for award application and award announcements did not align with their purchase cycles. With this feedback, PGE shifted the timeline for the 2024 cycle to better align with academic calendars and district budget planning processes. Applications now open in the fall so awarded districts can receive buses by the following school year. This new timeline aligns more with the school districts' fiscal year and budget planning.

6.2 Executing the Grant

The ESB Fund has evolved in many ways based on the learnings of another CFP grant program offered by PGE, the Drive Change Fund. The improvements below represent changes to the ESB Fund that now align it closer with Drive Change Fund requirements. Additionally, as both grant programs have grown in recent years and PGE hired a grants coordinator, it has been easier to establish consistent lines of communication and expectations with recipients, supporting their overall success.

Mitigating Long Lead Times

Long lead times for buses and charging infrastructure has been the primary reason for delays on ESB Fund projects. Though long lead times from manufacturers are outside of the control of both awardees and PGE, there are ways to mitigate these long lead times reduce the risk of project delays. Awardees must now order the vehicle in the first quarter of the award being made, which has shown to keep projects on track in the Drive Change Fund.

Juliae Riva, Clean Fuels Program Grants Coordinator shares her experience on mitigating delays, stating that "ordering the school buses as soon as possible makes things run much smoother, and we work with districts to have a charging plan to ensure chargers are operational by the time the school buses arrive."

Additionally, seeking approval from school boards ahead of time can help mitigate delays in the approval process once districts are awarded. "Everyone is supportive of our electric school bus deployment efforts. The school board just approved the purchase of up to $14 million worth of electric school buses over the next five years," said Beaver. This type of pre-approval has simplified the procurement process and can help minimize frustration with delays.

Reporting

For the first three years of the ESB Fund, certain reporting requirements weren't necessary as PGE staff were providing direct assistance and regular communication. To standardize the experience for all awardees, starting with the 2023 award year, recipients are required to submit quarterly reports and a final report upon project completion via a grants management platform called Cybergrants. By creating a standard list of questions for all districts to answer, PGE staff made it easier to monitor projects, which in turn made it easier for all projects to receive equal attention. This also relieves the strain of monthly meetings from school districts, especially as they wait for buses to be delivered and fewer updates occur. This reporting ensures all districts can share what is happening in their electrification process.

Funding Breakdown

Starting with the 2023 round, ESB Fund awards 75% of funds upfront and the final 25% upon project completion. This encourages participation in quarterly reporting, regular communication and mirrors PGE's Drive Change Fund.

Qualified Chargers

At the beginning of the ESB Fund, there was not yet a published list of qualified chargers for PGE's grant programs, which caused delays in the ability to order chargers when school districts were ready. Since then, PGE has established a continually updated list of qualified Level 2 and DC Fast Chargers, that is accessible on PGE's website.[5]

7. Looking Forward

The ESB Fund will evolve to meet the growing needs of its applicants as PGE receives more ESB Fund applicants each year and electric vehicle technology moves forward. To support this evolution, PGE staff will consider incorporating changes to the ESB Fund based on input from awardees and other stakeholders. A few examples are below.

7.1 Peer Mentor Program

PGE believes it is important to provide opportunities for continuous learning for grant awardees. Connecting awardees at various project stages can help districts learn from one another's successes and mistakes, especially as more districts apply. Larger districts have voiced encouragement for this, offering to be mentors for interested applicants and first-time awardees. Semi-annual connections between awardees can provide a space for districts to share information, tips, tricks, and lessons learned.

7.2 Vehicle to Grid

Vehicle to grid, also known as V2G or V2X, is an emerging technology that aims to put large batteries (such as those found in electric school buses) to use when they are sitting idle. The idea is that in times of need, an electric vehicle could provide power back to a building (V2B) or the grid, instead of the other way around. This could be used as a resiliency source during outages to provide power to community resource centers, or more regularly to support the grid during peak use times. This technology is new

and is still far from being widely available and ready for use. Districts are interested in its future potential. "I could definitely see us in a situation where we need to use our buses as a power source," said Gomes. PGE is testing V2G through a previous ESB Fund award at West-Linn Wilsonville School District's bus depot. This demonstration will provide valuable information on how this technology might benefit school districts and the grid.

7.3 Retrofitting and Repowering Buses

As electric school bus technology develops and demand for these buses increases, retrofitting diesel buses to electric buses has become a potential cost-effective option that can also help address long lead times associated with new electric buses. The most frustrating part of the electrification process for many districts is how long it takes for them to receive their buses. Though this is out of PGE's control, it is still a difficulty faced by districts and can be a deterring factor from the program for districts that may not be able afford to wait that long for a bus. Beaverton School District is currently partnering with Forth, a nonprofit focused on making transportation electrification more accessible and equitable, to pilot the repowering of one of their older buses. "We received a federal grant to replace the diesel motor with an electric motor and they came to us because of what we're doing," said Beaver. "I'm giving them a 2008 diesel plus, which would otherwise have to be scrapped and they're converting it to an electric platform." Additionally, lower costs for refurbished buses means more buses could be electrified for less than the cost of a new electric bus.

7.4 Changing Requirements Depending on District Size and Experience

To better aid smaller districts and first-time applicants, PGE has discussed potentially limiting the number of buses or successive rounds of awards districts can receive. This can help new districts receive buses. Additionally, changing the requirements for larger districts and repeat awardees by requiring things like managed charging could improve the program. "We are excited to support the rural areas of our service area and help smaller school districts who haven't started their electrification journey," said Riva.

8. Conclusion

PGE's Electric School Bus Fund led to the first of many electric school buses in Oregon and has increased the momentum of electric school bus adoption in the region. As climate goals grow more ambitious and demand for electric school buses increase, it is critical this program evolves to suit the ever-changing needs of the communities served by both the districts and PGE. By sharing the early wins, lessons learned, and opportunities for the future in this report, PGE aims ro help more districts and partners successfully electrify school buses in Oregon.

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PGE Corporate Headquarters
121 S.W. Salmon Street | Portland, Oregon 97204
portlandgeneral.com