

PSE Up & Go Electric

Transportation Electrification Plan (TEP)

Docket UE-210191

Malcolm McCulloch, Manager New Products & Services

Agenda

- An Evolving Ecosystem
- Guiding Principles
- Strategic Objectives
- PSE Up & Go Pilot Program Update
- Tariff Filing Strategy & Regulatory Timelines
- Program Concepts
- Alternative Technology Demonstrations
- Load Management
- System Planning & Optimization
- Costs & Benefits
- Reporting



An Evolving Ecosystem



PSE Up & Go Electric's EV charging network



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Guiding Principles for the Electrification of Transportation

- Advancing Clean Mobility
- Customer Focused
- Creating a Resilient and Modern Grid
- Social Equity and Environmental Justice
- Contributing to Statewide Carbon Goals
- Collaboration and Partnership



Strategic Objective

PSE is committed to carbon reduction and supporting the growth of electric transportation in our region by making it easier for drivers to charge their EVs at home, at work and in public. The TEP provides a 5-year strategic framework for electric vehicle products and services that builds on current programs.



Drive market transformation and support the transition to a cleaner energy future



Remove barriers & create TE benefits for underserved customers



Fill charging infrastructure gaps



Plan for and manage electric loads



PSE Up & Go Pilot Program Update



EDUCATION & OUTREACH

Raise awareness of benefits of EV ownership

Achievements:

- 8 virtual events with 1,880 participants
- + 120,000 unique views of Electric Vehicle Guide



RESIDENTIAL CHARGING

Install level 2 chargers in 500 homes and test off-peak load shifting methods

Achievements:

- Completed 500 installations
- 1,156,650 kWh consumed
- 64% charging off peak hours



MULTIFAMILY CHARGING

Install level 2 chargers at 35 Multifamily properties

Achievements:

- Completed 26 installations
- 2,633 charging sessions
- 47,885 kWh consumed



WORKPLACE & FLEET CHARGING

Install level 2 chargers at 40 Workplace and/or Fleet sites

Achievements:

- Completed 28 installations
- 4,102 charging sessions
- 61,684 kWh consumed



PUBLIC CHARGING

Deploy 8 public charging sites with high-powered DCFCs and Level 2 charging stations

Achievements:

- 1 station launched; 2 in construction
- 732 charging sessions
- 10,340 kWh consumed



DIVERSITY, EQUITY, & INCLUSION PILOTS

Promote equity through projects with community-based service providers

Achievements:

- 5 projects launched, 1 in construction
- Grant received for project with Senior Housing Assistance Group

Tariff Filing Strategy & Regulatory Timelines

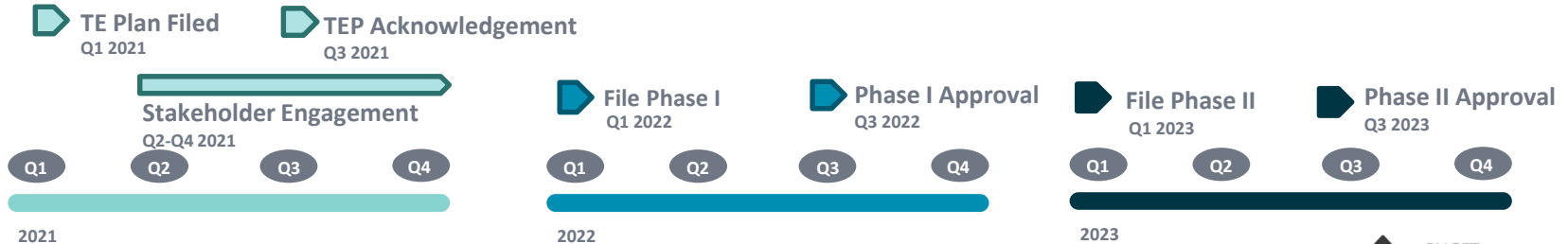
Initial Filing
“Phase I”

- Education & Outreach
- Commercial, Public & Private Fleets
- Residential Multi-Family

Subsequent Filing
“Phase II”

- Residential Single Family
- Public Charging & Multi-Modal
- Workplace
- Alternative Technology Demos
- Diversity, Equity & Inclusion*

Regulatory Timelines



*Please note: While DEI is listed as its own specific concept in Phase II, there will be DEI elements represented within each product concept in all filings.



Engaging Highly Impacted Communities, Vulnerable Populations and their service providers

PSE will exercise procedural equity in our Diversity, Equity and Inclusion (DEI) Transportation Electrification products. It is critical to give future customers of these products -- the highly impacted communities and vulnerable populations themselves and their service providers -- a seat at the design table. To achieve this goal, we will follow a three-step process:



 We are here

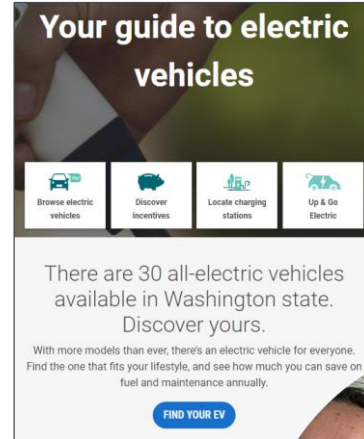
Customer Education & Outreach

Expand current activities:

- Web resources & enhanced tools
- Events & webinars
- Test drive opportunities
- Dealers & OEMs partnerships to access latest EV models for events
- Focus on education about pre-owned vehicles and incentives to save on purchase

Create commercial fleet engagement:

- Web resources & tools
- Technical advisory & consultation
- Total Cost of Ownership (TCO) calculator
- Dealers & OEMs partnerships to access latest MD & HD vehicles for demos/events
- Pipeline to build interest list for future programs & offers



Your guide to electric vehicles

Browse electric vehicles | Discover incentives | Locate charging stations | Up & Go Electric

There are 30 all-electric vehicles available in Washington state. Discover yours.

With more models than ever, there's an electric vehicle for everyone. Find the one that fits your lifestyle, and see how much you can save on fuel and maintenance annually.

[FIND YOUR EV](#)



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Commercial, Public & Private Fleets



- Marketing, Education & Outreach
- Fleet Advisory Services
- Install and operate DCFC and Level 2 EVSE
- Make-Ready Infrastructure
- EVSE Rebates (Customer Owned)
- Off-peak Charging Incentives
- Time varying rate (TVR) with Reduced Demand Charge
- Vehicle Incentives (limited to customer segments such as low income and schools)

Commercial Pilot Opportunities



Electric Ferry Pilot

PSE's service territory is home to one of the largest ferry networks in the World. Making an investment in ferries would be a great opportunity to **extend transportation electrification goals to aquatic vehicles.**



Vehicle to Grid Research (School Buses Only)

EV school bus batteries can be considered for purchase where the utility owns the battery and the school district owns the vehicle



Rideshare Charging Stations

Establish relationships with Rideshare companies to support identifying locations for key charging hubs



Multi-Modal Charging

Engage with private & commercial customers to support mobility services and alternative transportation sectors

Multi-Unit, Workplace, Residential & Public Charging



Multi-Unit Dwelling
& Workplace

- Install and maintain Level 2 EVSE
- Multi-Modal (e.g. electric bicycles)
- EVSE rebates for DEI customers
- Direct load control and/or incentives



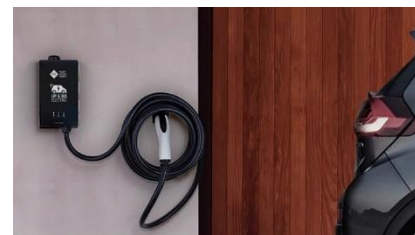
Residential

- EVSE rebates
- EVSE rental
- Time Varying Rates “TVR”
- Installation incentive for DEI customers



Public & Multi-
Modal

- Install and operate DCFC and Level 2 EVSE
- Make-ready support
- EVSE rebates for DEI customers
- Evaluate new pricing structures (e.g. demand charge reduction)



Diversity, Equity and Inclusion (DEI) Products

Phase 1			Phase 2				
Education + Outreach	Multifamily	Fleet + Commercial	DEI-specific	Workplace	Residential	Public	Alternate technologies
Design phase			Contracting phase				
<ul style="list-style-type: none"> Expand marketing, make it multi-lingual Ambassador programs Reduce product utilization barriers through concierge services 	<ul style="list-style-type: none"> Car share projects at affordable housing units Bike shares Rideshare drivers 	<ul style="list-style-type: none"> Low-income service providers (e.g. NEMT, food banks) BIPOC-owned small to medium businesses School buses Tribes Transportation agencies with mobility equity projects 	<ul style="list-style-type: none"> Agricultural (e.g. BIPOC-owned or managed farms) First/last mile projects (e.g. bike shares) Shift-worker transportation (e.g. airport, janitorial services) Workforce development and training 	<ul style="list-style-type: none"> BIPOC-owned small to medium businesses Educational orgs/ community colleges 	<ul style="list-style-type: none"> Income-eligible or BIPOC EV owners or intenders Rideshare drivers 	<ul style="list-style-type: none"> Income-eligible or BIPOC EV owners or intenders Applicable communities who may wish to host a charger (e.g. Tribes) 	<ul style="list-style-type: none"> V2G (e.g. school bus)
<p>PSE Support</p> <p>Support EV education, awareness, and adoption within these communities</p>	<p>Make-ready + EV charger rebate + EV rebate (where applicable)</p>					<p>TBD</p>	

Engagement status

Potential partner or project types

(not comprehensive or final list)

Please note: While DEI projects will have their own specific concept, they will also be represented within each product area



Alternative Technology Demonstrations



PSE is exploring demonstrations that will act as an opportunity for research and development of innovative EV supporting technology including vehicles, charging infrastructure, data management, and vehicle-to-grid capabilities.

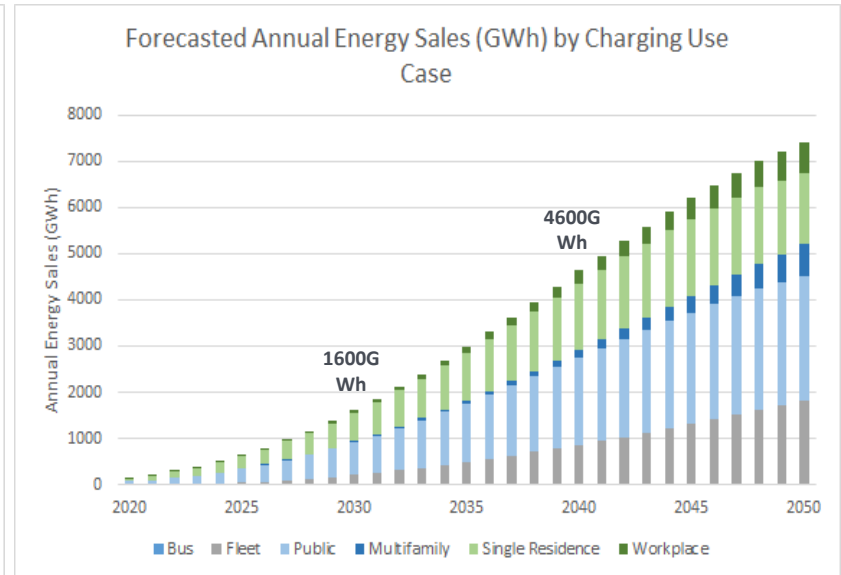
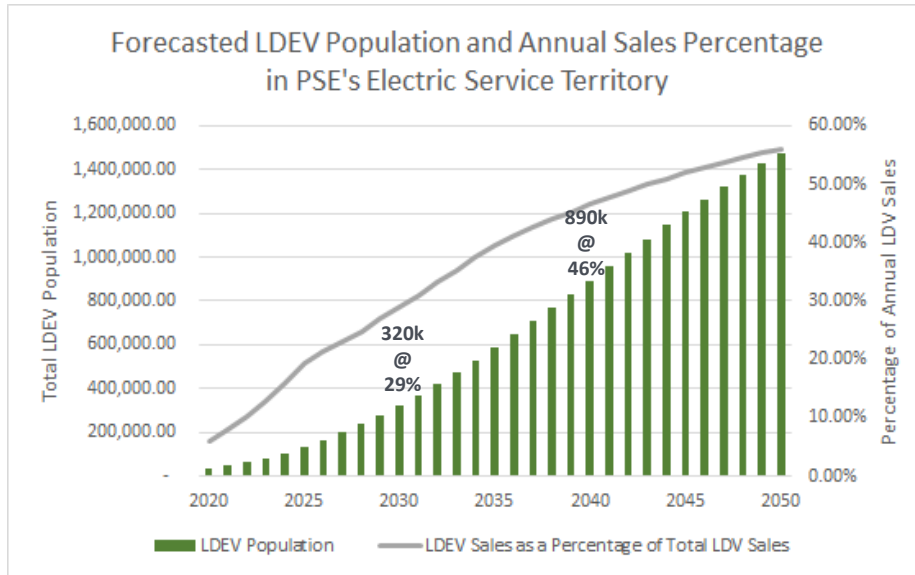


PSE will continue to design services and test technologies as they come to market.



Each of these technology demonstrations will be designed with load impact mitigation as a priority.

Light Duty EV Sales & Load Forecast



Source: PSE 2021 EV Market Analysis, performed by Guidehouse Consulting on PSE's behalf

Load Management

Objective

- Mitigate load impacts to both the customer and PSE's electric distribution system
- Develop robust load shapes and improve forecasting abilities



What load will be managed?

- All EV charging use cases
- Customers with EVSE provided through new PSE programs are **Required** to participate
- Customers without PSE owned EVSE can **Opt-in** through a **BYOD** program or by being separately metered.

How will it be managed?

- **Metered** through Smart Chargers, additional AMI meters, current transformer meters, telematics, or other means.
- **Time Varying Rates** being developed as a piece of PSE's ongoing TVR project
- **Opt-in Direct Load Management** options

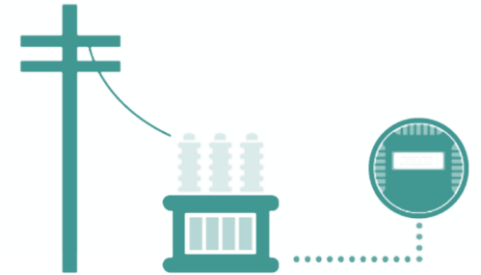
System Planning & Optimization

Objective:

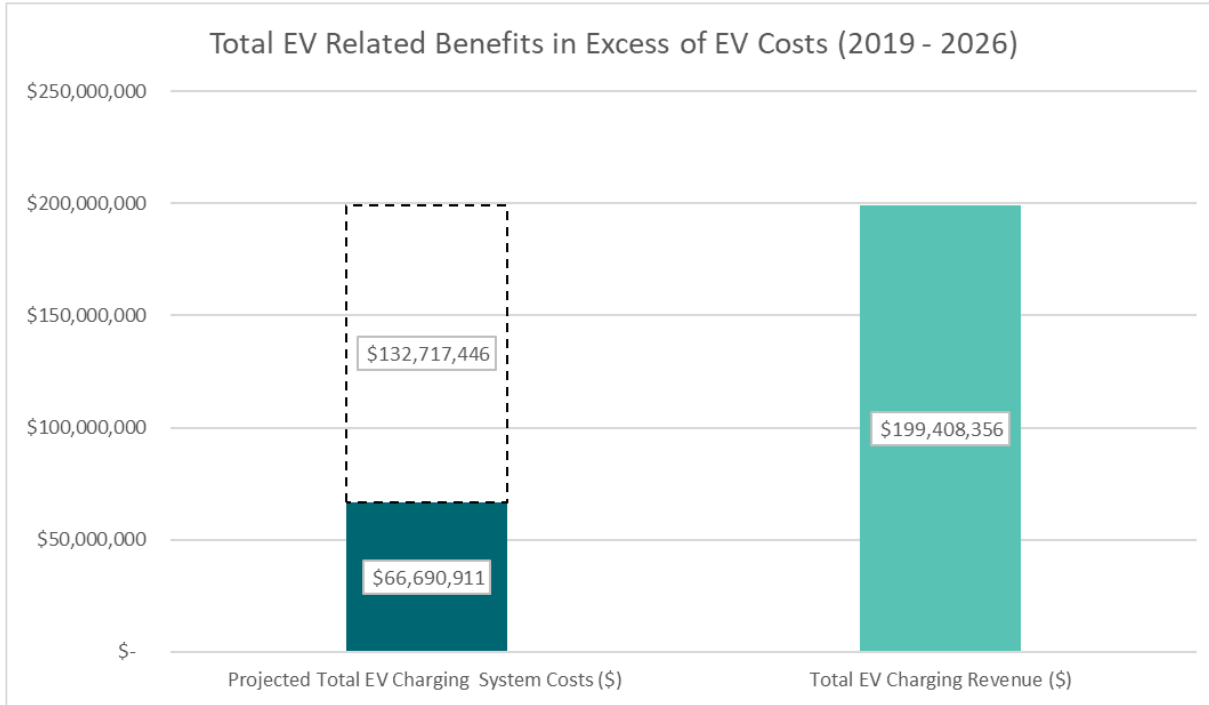
Develop the technology, infrastructure and processes that will result in scalable programs to support customer choice, affordability, reliability, resiliency, and clean energy targets.

Circuit Enablement Strategy

- Geospatial forecasting tool to better map EV and other load impacts at the circuit level
- Planned transformer upgrades for impacted circuits
- Updating transformer kW Standards to proactively address future residential EV loads



Costs & Benefits



Program Spend & Recovery	
Capex Spend (2019-2026)	\$72 M
Opex Spend (2019-2026)	\$47 M
Recovery less Offsetting Revenue (2019 - 2026)	\$74 M
Recovery less Offsetting Revenue (Depreciable Life)	\$164 M

Reporting

Summary Report

- Program progress
- Expenses/revenues
- Key metrics
 - Utilization information
 - Installation timelines & costs by product
 - Non-quantifiable benefits

Q1 Q2 Q3 Q4

2022

Detailed Report

- EV adoption & load forecast update
- Grid and load impact
- Product activities/progress
- Expenses/revenues to date
- Lessons learned
- Test results and case studies

Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4

2023

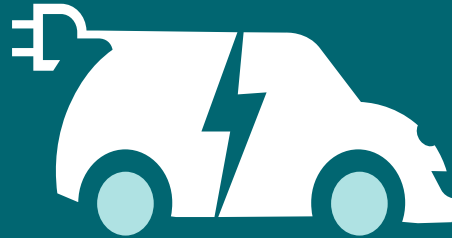
2024

Summary Report

- Program progress
- Expenses/revenues
- Key metrics
 - Utilization information
 - Installation timelines & costs by product
 - Non-quantifiable benefits

Q1 Q2 Q3 Q4

2025



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