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

Legislation

Click to add text
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
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

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

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

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*

*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:

1. **Stakeholder and community feedback**
   - Collect and assess community feedback
   - Identify the needs and preferences of our communities.

2. **Product design**
   - Apply the community engagement outcomes towards product design
   - Maximize benefits of and minimize barriers to accessing the products.

3. **Customer acquisition**
   - Engage with and acquire customers for DEI products
   - Customize engagement, education, and outreach tactics ensure products serve a diverse set of customers, both demographically and geographically.

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
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

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

Multi-Unit Dwelling & Workplace

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

Residential

- 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)

Public & Multi-Modal
## Diversity, Equity and Inclusion (DEI) Products

<table>
<thead>
<tr>
<th>Engagement status</th>
<th>Phase 1</th>
<th>Phase 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education + Outreach</strong></td>
<td><strong>Multifamily</strong></td>
<td><strong>Fleet + Commercial</strong></td>
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<tr>
<td>Design phase</td>
<td></td>
<td></td>
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<tr>
<td>• Expand marketing, make it multi-lingual</td>
<td>• Car share projects at affordable housing units</td>
<td>• Low-income service providers (e.g. NEMT, food banks) BIPOC-owned small to medium businesses School buses Tribes Transportation agencies with mobility equity projects</td>
</tr>
<tr>
<td>• Ambassador programs</td>
<td>• Bike shares</td>
<td>• BIPOC-owned small to medium businesses</td>
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<tr>
<td>• Reduce product utilization barriers through concierge services</td>
<td>• Rideshare drivers</td>
<td></td>
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<tr>
<td>Potential partner or project types (not comprehensive or final list)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSE Support</td>
<td>Support EV education, awareness, and adoption within these communities</td>
<td></td>
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</tbody>
</table>

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

Total EV Related Benefits in Excess of EV Costs (2019 - 2026)

- Projected Total EV Charging System Costs ($): $66,690,911
- Total EV Charging Revenue ($): $132,717,446
- Total EV Related Benefits in Excess of EV Costs: $199,408,356

Program Spend & Recovery

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Capex Spend (2019–2026)</td>
<td>$72 M</td>
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<tr>
<td>Opex Spend (2019–2026)</td>
<td>$47 M</td>
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<tr>
<td>Recovery less Offsetting Revenue (2019 – 2026)</td>
<td>$74 M</td>
</tr>
<tr>
<td>Recovery less Offsetting Revenue (Depreciable Life)</td>
<td>$164 M</td>
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</tbody>
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Reporting

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

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

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