

# Addendum to Puget Sound Energy 2021 Transportation Electrification Plan

## Introduction

To enable the Commission's review and consideration of issuing an acknowledgment of Puget Sound Energy's ("PSE") 2021 Transportation Electrification Plan ("TEP") more fully per RCW 80.28.365(3), PSE is providing this addendum to its TEP as filed in Docket UE-210191 to incorporate new learnings and to clarify certain areas of the TEP with additional details. Since PSE submitted its TEP on March 19, 2021, consistent with RCW 80.28.365(1), the Company has continued to engage with Commission Staff, customers, stakeholders, and industry partners to further refine its approach to addressing the rapidly evolving transportation electrification sector. That work has resulted in some refinement to the plan as originally submitted. This addendum is meant to provide further clarity with regards to how PSE intends to address the statutory requirements communicated under subsection (1) of RCW 80.28.365.

Specifically, the addendum will provide additional details about (1) stakeholder engagement, (2) the Company's filing strategy, (3) initial program concepts, (4) load management and alternative rate design options, (5) system planning and optimization, (6) data management and analysis, and finally (7) reporting.

## Stakeholder Engagement

To promote equity in our Diversity, Equity, and Inclusion ("DEI") Transportation Electrification products, it is critical to give future customers of those products -- the highly impacted communities and vulnerable populations themselves and their service providers -- a seat at the design table. To achieve this goal, PSE has created a Community Engagement Plan for DEI TE products that follows a three-step process:

1. PSE will work with a third-party facilitator to collect and assess different forms of community feedback. This includes work to identify future customers of the DEI products, test learnings from its current pilots, understand how the landscape of benefits and barriers has changed since current pilots were designed and determine how to more effectively deliver these products to improve engagement and utilization.
2. PSE will then apply the community engagement outcomes towards product design with the goal of maximizing benefits of and minimizing barriers to accessing the products.
3. Lastly, PSE will determine how to engage with and acquire customers for these DEI products. It will be critical to consider customized engagement, education, and outreach tactics as well as methods to ensure the products serve a diverse set of customers, both demographically and geographically.

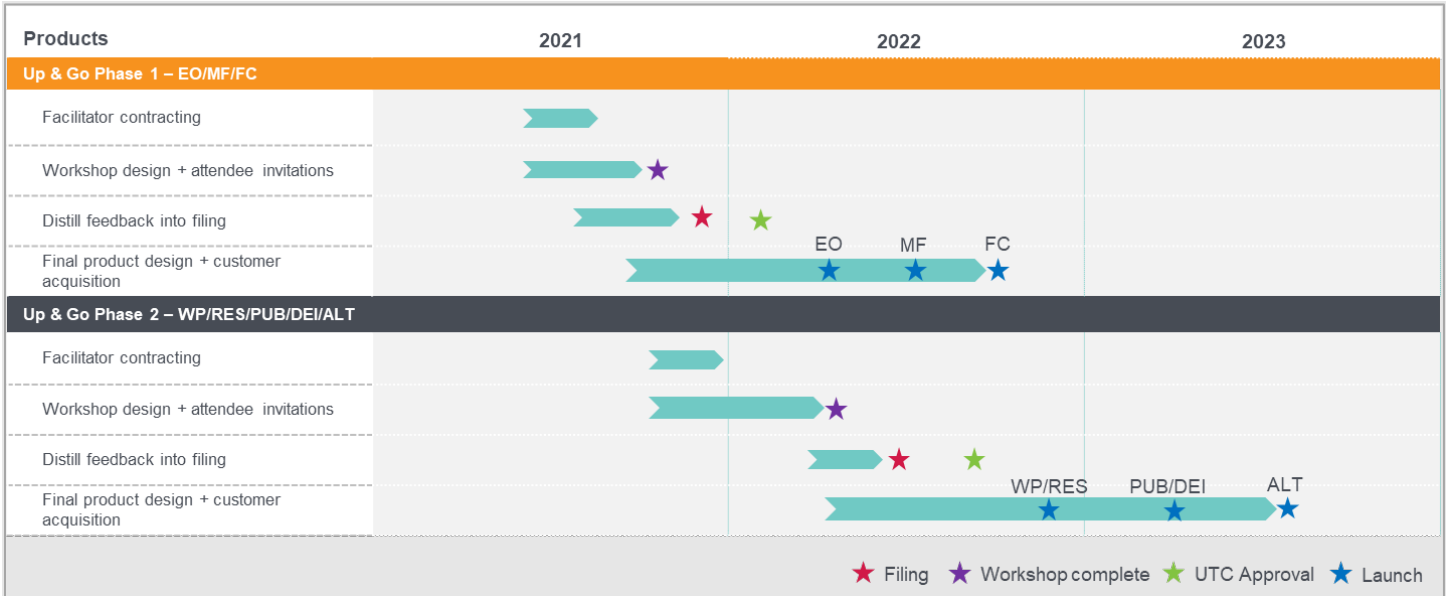
For areas in which current pilot learnings exist (multifamily, low-income service provider fleets, workplace, residential and public), PSE plans to use product-focused sessions that mirror a focus group or concept testing approach to gather community feedback. This will allow PSE to collect future customer feedback directly from the highly impacted communities, vulnerable populations, and their service providers. For the DEI-specific product, PSE plans to follow a process like the one utilized in the development of the current Low-income Electric Vehicle (“EV”) Pilot Projects (Schedule 554). Using this process will allow PSE to explore additional electric mobility use cases not addressed in the current pilots that would be desired by or beneficial to the communities. To achieve this understanding, PSE plans to convene an electric mobility ideation workshop similar in nature to its 2019 event with Hopelink, but with a broader geographic reach. Stakeholders and communities will identify new electric mobility use cases from which PSE will subsequently create product focused sessions with potential customers to formulate product frameworks and design.

### Community Engagement Plan for DEI TE Products

	Phase 1			Phase 2				
	Education + Outreach	Multifamily	Fleet + Commercial	DEI-specific	Workplace	Residential	Public	Alternate technologies
Engagement strategy	Utilize learnings from other ideation or product sessions	Product-focused	Product-focused	Ideation + product focused	Product-focused	Product-focused	Product-focused	TBD
Potential partner or project types <small>(not comprehensive or final list)</small>	<ul style="list-style-type: none"> <li>Expand marketing to low-income and disadvantaged communities, make it multi-lingual</li> <li>Ambassador programs</li> <li>Reduce product utilization barriers through concierge services</li> </ul>	<ul style="list-style-type: none"> <li>Car share projects at affordable housing units</li> <li>Bike shares</li> <li>Rideshare drivers</li> </ul>	<ul style="list-style-type: none"> <li>Low-income service providers (e.g. NEMT, food banks)</li> <li>BIPOC-owned small to medium businesses</li> <li>School buses</li> <li>Tribes</li> <li>Transportation agencies with mobility equity projects</li> </ul>	<ul style="list-style-type: none"> <li>Agricultural (e.g. BIPOC-owned or managed farms)</li> <li>First/last mile projects (e.g. bike shares)</li> <li>Shift-worker transportation (e.g. airport, janitorial services)</li> <li>Workforce development and training</li> </ul>	<ul style="list-style-type: none"> <li>BIPOC-owned small to medium businesses</li> <li>Educational orgs/ community colleges</li> </ul>	<ul style="list-style-type: none"> <li>Low-income or BIPOC EV owners or intenders</li> <li>Rideshare drivers</li> </ul>	<ul style="list-style-type: none"> <li>Low-income or BIPOC EV owners or intenders</li> <li>Low-income or underserved communities who may wish to host a charger (e.g. Tribes)</li> </ul>	<ul style="list-style-type: none"> <li>V2G</li> </ul>
PSE Support	Support EV education, awareness, and adoption within these communities	Make-ready + EV charger rebate + EV rebate (where applicable)						TBD

PSE has structured a Community Engagement Timeline for DEI TE Products (pictured below) based on the following steps: contracting, workshop design, attendee identification and invitation, distillation of feedback into the tariff filing and final product design and customer enrollment. At the time of this filing, PSE is in the workshop design segment for community feedback related to Phase 1 products and in the contracting segment for community feedback related to Phase 2 products.

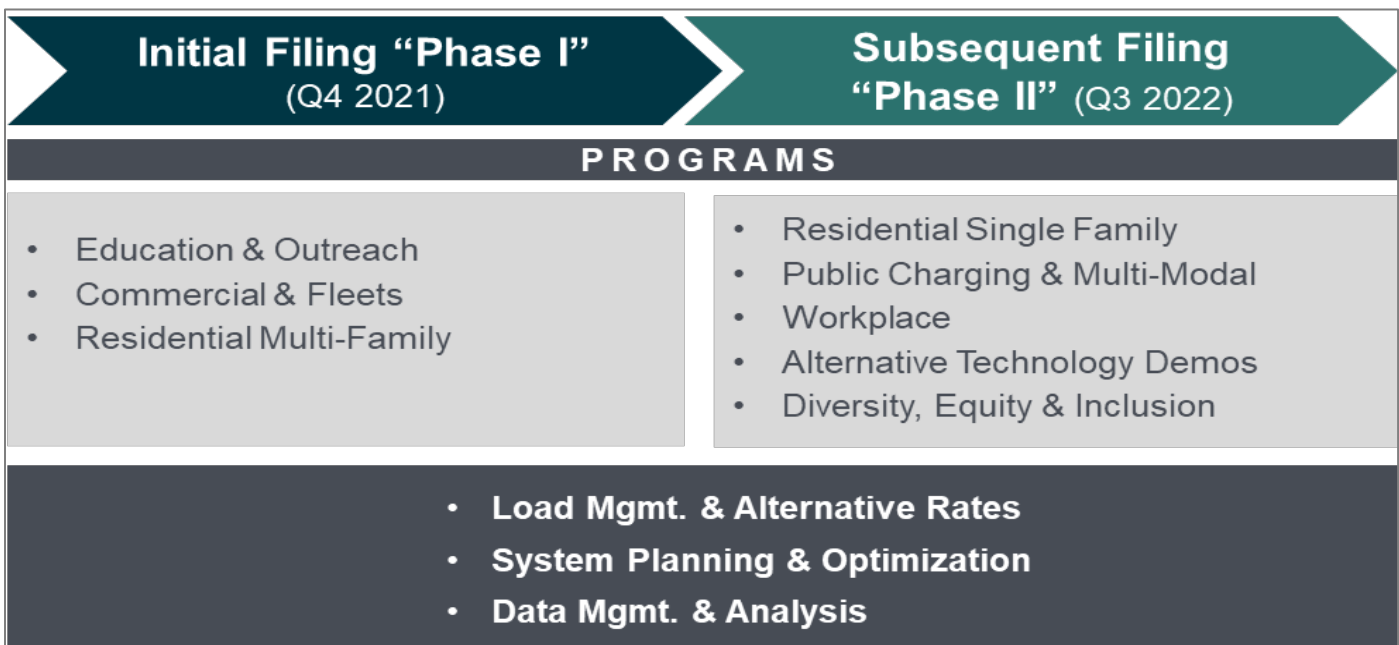
## Community Engagement Timeline for DEI TE Products



## Tariff Filing Strategy

To account for evolving public policy, market and stakeholder inputs realized since the Company initially filed its TEP in March 2021, PSE has modified its tariff filing strategy to better reflect the current transportation electrification environment. The graphic below provides an update to Figure 14 of the TEP outlining PSE’s anticipated product and service suite and initial tariff filing timelines. The associated product concepts PSE will be including in its tariff filings are outlined more broadly below. PSE will continue to monitor those inputs to inform its development and deployment strategy and may modify the timing of its future filings as appropriate.

## PSE Planned Timing for EV Program Filings



## Program Concepts

The following provides high-level strategy for the program concepts that PSE is developing in support of its TEP. It is important to note that details about how PSE may integrate load management, system optimization, and data management and analysis are more broadly outlined in separate sections below. As concepts are evolving quickly, and because PSE wants to ensure it garners feedback on its draft tariff schedules from critical stakeholder groups, more specific information about final rate or product designs will be detailed in the subsequent future tariff filings.

## Customer Education & Outreach

PSE will continue to expand its education and outreach activities including website resources, EV events, and partnerships (e.g., dealerships, original equipment manufacturers (“OEMs”), DEI customers, and more). PSE will incorporate education about the importance of charging in off peak periods and the benefits of doing so.

PSE will also expand our Schedule 553 education and outreach programs to include information tailored for all fleet customers to learn about the benefits and total cost of ownership of fleet electrification. This expansion will include access to commercial vehicle availability and provide fleet customers with opportunities to attend vehicle demonstration events as new commercial models become available. The Company will also provide customers with access to calculator tools and tailored consultation services.

Additionally, PSE will continue to offer customers access to resources to help them make informed purchase decisions, such as our online EV Guide, which provides an easy and interactive way to browse and compare the most current vehicles available in the state of Washington and learn about available financial incentives for purchasing an EV. PSE will continue hosting virtual events for customers to learn about the latest EV models and information about current state and federal incentives for purchasing an EV, including incentives available for used vehicles.

PSE will continue to use our monthly EV newsletter and social media channels to share information and news articles that show how customers can save thousands of dollars after just a few years of EV ownership despite the higher upfront cost to purchase. Customers will be able to calculate overall savings with an EV through our online EV Guide. PSE will also continue to address the topics of total cost of ownership and expected savings in our virtual event programming and other digital assets, such as videos.

PSE will expand current efforts through our education and outreach services to develop strategic partnerships with local automotive dealerships for continued collaboration on in-person Ride and Drive events for vehicle availability and other engagement opportunities at the dealer point of purchase to help consumers make purchase decisions.

## Commercial, Public and Private Fleets

PSE’s current Up & Go pilots have primarily focused on electric vehicle supply equipment (“EVSE”) for light duty electric vehicles and therefore have not addressed the needs of fleet customers. In our engagement with our commercial, public, and small to medium business customers, including municipal fleet owners, transportation authorities, and OEMs we have learned that medium and heavy-duty electric vehicles now have a lower cost of ownership versus traditional internal combustion engine vehicles.

Additionally, our fleet customers have reported that they are actively pursuing electrification of their commercial and fleet vehicles as manufacturers bring new vehicle models to the market by the end of 2021 and beyond.

This is supported by the comments submitted in this Docket UE-210191 by the City of Lacey, the Whatcom Transportation Authority, the Bloedel Reserve, the Mount Vernon Chamber of Commerce, the Kitsap County Board of Commissioners, the City of Olympia, the City of Tumwater, and The Reijnen Company.

Given the complexity of siting and supplying fleet EVSE so that customers can effectively deploy their newly acquired assets, PSE believes there is an immediate need to address this gap in the market.

To do so PSE will offer a new Fleet EV product to support the growing needs of this unique customer group by building on some of the lessons learned from PSE EVSE pilot work with low-income service provider fleets. This may include utility and customer side products and services and incentives, technical advisory services, and expanded support for highly impacted communities, vulnerable populations, and their service providers. Future customers of this DEI product (outlined above in Community Engagement Plan for DEI TE Products) may include but are not limited to low-income service providers such as non-emergency medical transportation or food banks, school buses serving highly impacted communities and vulnerable populations and tribal-owned transportation programs. The potential to address both fleets owned by, operated in and serving highly impacted communities and vulnerable populations in this product are broad and PSE will look to the outcomes of its community engagement work for further refinement of its understanding and prioritization of projects.

To meet the differing needs of these customers PSE is exploring two separate service opportunities. One option contemplates a PSE owned service in which PSE would own the EVSE and provide any necessary meter and make ready work for the customer, including maintaining the charger for the customer. An additional option allows for the customer to own the EVSE and leverage incentives from PSE to rebate a capped percentage of costs for the EVSE, meter upgrades, and any necessary make-ready work. These products will be designed to cater to fleets of all types including light, medium, and heavy-duty vehicles and may include non-automobile vehicles (e.g., forklifts, planes, bicycles, and more).

To ensure broad accessibility within these products and services, PSE is exploring methods of making rebates available for both EVSE and the electric vehicle to benefit highly impacted communities, vulnerable populations, and their service providers under our DEI programs.

To mitigate demand charges to its EV customers, PSE is exploring the option of reducing or removing demand charges for EV load and instead recovering the associated costs through a time varying rate. Additionally, PSE will explore and promote technologies combined with potential rate options to help these customers more effectively manage their charging.

## Residential Multi-Family

Through its existing Up & Go Electric Multifamily Pilot the Company has seen increasing interest and need for providing simple EVSE solutions for this customer sector. To continue to meet the demand of site host and tenants PSE intends to expand on our current Up & Go Electric Multifamily program and own, operate and maintain all EVSE to support deployment of charging infrastructure at multi-family locations including the potential of exploring multi-model options for electric bicycles and other future options.

This program caters to multi-unit residential or mix-use dwellings whether they are billed under PSE's residential Schedule 7. To ensure accessibility within these products and services, PSE is also exploring methods of making rebates available for both EVSE and potentially electric vehicles to benefit highly impacted communities, vulnerable populations, and their service providers under our DEI programs.

## Residential Single Family

PSE will explore a continuation of its Up & Go Electric Residential Program, building on the lessons learned from its existing residential EV pilots. PSE is exploring different utility/customer EVSE ownership models (e.g., lease/rental) to provide flexibility and financing options to customers. Through PSE's existing Up & Go Electric Residential Program, PSE has determined that financial incentives are an effective means of incentivizing single-family customers to adjust their charging behavior and so PSE intends to rely heavily on time varying rates to manage this load. These time varying rates are currently being developed and are anticipated to be included as part of the Company's next general rate case filing. As with other programs, PSE will also leverage non-rate-based load management options.

## Public Charging

PSE again expects to expand upon its Up & Go Electric Public Charging Program by continuing to deploy public charging infrastructure to support market needs, while adding new make-ready options for private sector EVSE investments. To serve customers who may not be able to install dedicated EVSE due to accessibility issues, i.e., no driveway or garage, or electrical panel limitations, PSE is exploring a use case in which Level 2 ("L2") EVSE could be installed on PSE owned streetlights to satisfy the single unit dwelling ("SUD - Shared") segment of EVSE in our forecast. This segment of public charging is meant to satisfy the charging needs of a neighborhood rather than commuters on the go. PSE also recognizes the cost disparity for customers that must rely upon L2 public charging and will engage with stakeholders to identify potential solutions that may solve this issue.

PSE may also expand public chargers to serve multi-modal customers (e.g., ride-share, shuttles, etc.). Within this product, PSE will install and operate public charging stations with both DCFC and L2 chargers, provide make ready support for third party-owned stations, and offer EVSE rebates for DEI eligible customers who are members of highly impacted communities and vulnerable populations (see examples in Community Engagement Plan for DEI TE Products).

Recognizing that demand charges are a significant cost barrier for providing abundant public charging access, PSE is exploring the option of reducing or removing demand charges for public EV charging and instead applying time varying rates with significant differential to achieve a similar outcome of discouraging high usage at peak times.

## Workplace

A key learning of the current Up & Go Workplace Program was that some employers may already have invested in a charging network and participating in PSE's EVSE program would introduce a separate system to manage. While PSE will continue to offer a PSE-owned, operated, and maintained service, PSE will also explore a product or service where employers can choose to continue with their existing charging network but still participate in the PSE service.

## 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.



## Diversity, Equity & Inclusion

PSE's current Up & Go Electric pilots include eight fleet and/or car share services in which PSE has partnered with low-income service providers to increase equity in transportation electrification and the distribution of resulting benefits. PSE acknowledges the importance of not leaving highly impacted communities and vulnerable populations behind in the transportation electrification transformation and plans to continually elevate community voices and participation in product design (see Stakeholder Engagement section above for more detail).

"Highly impacted community" means a community designated by the department of health based on the cumulative impact analysis required by RCW 19.405.140 or a community located in census tracts that are fully or partially on "Indian country," as defined in 18 U.S.C. Sec. 1151 (WAC 480-100-605).

"Vulnerable populations" means communities that experience a dis-proportionate cumulative risk from environmental burdens due to: adverse socioeconomic factors, including unemployment, high housing and transportation costs relative to income, access to food and health care, and linguistic isolation; and sensitivity factors, such as low birth weight and higher rates of hospitalization.

Through the Clean Energy Implementation Plan process, PSE worked with the Equity Advisory Group to include additional factors to identify vulnerable populations. These factors will be provided in PSE's first Clean Energy Implementation Plan, of which the draft plan is expected to be filed with the Commission on Aug. 15, 2021, and the final filed on Oct. 1, 2021.

As we design and scale our DEI transportation electrification products to meet the needs of highly impacted communities, vulnerable populations and their service providers, DEI funding and projects will not be represented exclusively in their own specific track, but will be woven into all TE products, in addition to having their own dedicated product line. PSE will target approximately 30% of spend towards these specific DEI products.

While the DEI portion of each product will be customized based on community feedback, PSE is expecting to either own, operate and fund meters, make-ready and EVSE for these products (at no cost to the DEI customer); or to provide rebates for DEI customer-owned installations. PSE has heard resoundingly that the incremental cost of the EV itself, particularly for medium to heavy duty vehicles, is a critical barrier to gaining product participation from highly impacted communities, vulnerable populations, and their service providers. To alleviate this barrier and to ensure equitable participation in its transportation electrification products, PSE is exploring the potential of providing EV rebates to these customers as well. PSE also plans to expand its Education and Outreach product as it pertains to increasing engagement and access to TE products for this important customer segment.

## Modeling System Load Impacts

The future EV adoption, EVSE implementation, and EV load impacts discussed in Section 4: *Planning for Transportation Electrification* were developed by Guidehouse Consulting as part of a *2021 EV Market Analysis* performed on PSE's behalf. Guidehouse leveraged its proprietary VAST™ model to forecast adoption of Plug-In Electric Vehicles at the census tract level using inputs specific to PSE's service territory. The model is driven primarily by a Total Cost of Ownership ("TCO") analysis that adjust market potential of a particular vehicle technology (*i.e.*, power train, duty, and class) based on its availability, consumer eligibility, and consumer awareness. The model leverages market (fuel prices, regulations, and incentives), vehicle (component costs, range, efficiency, and availability), and consumer attributes (uses, preferences, and economics) to determine

the TCO. The resulting adoption forecast is then used to forecast EVSE implementation across PSE's service territory and the load associated with charging the forecasted vehicles at the forecasted EVSE.

The EV Market Analysis is refreshed annually and included within PSE's System Load Forecasting. When refreshed, the forecast is updated to reflect the most recent data including the most recent Transportation Electrification policies. The PSE 2021 EV Market Analysis (used for this TEP) was completed in Q1 of 2021 and so includes the anticipated impacts of policies passed by the end of 2020 (including SB 5811: Washington's ZEV mandate) but does not include policies passed in Washington's 2021 legislative session (such as HB 1091: Low Carbon Fuel Standard, and SB 5192: Supporting access to EVSE). The impacts of policies passed in 2021 and later will be reflected in the EV Market Analysis when it is next refreshed in 2022.

## Load Management and Alternative Rates

For all of PSE's EV products, PSE is exploring methods of sub-metering the EV load through telematics, smart chargers, additional AMI meters, current transformer meters, or other means. Sub-metering the EV load will allow PSE to develop a robust understanding of the load shapes of the many charging use cases and will enable PSE to better forecast load impacts that result from those use cases. Further, by sub-metering the EV load, PSE will be able to leverage alternative rate design and more direct load management options to mitigate load impacts to both the customer and PSE's electric distribution system.

PSE intends to leverage alternative rate design and direct load control options to mitigate costly impacts to both PSE and the individual EV charging customers. Alternative rate design would apply directly to EV load and could include time varying rate components such as a time-of-use rate combined with critical peak pricing, super off-peak rates, or other components. The specifics of these rate designs are being developed in part through PSE's development of time-varying rates pilot and through engagement with stakeholders.

PSE recognizes that price signals alone may not be sufficient in mitigating EV charging impacts on PSE's electric distribution system and intends to explore direct load management options and vehicle-to-grid programs. These direct load management options are likely to rely on sub-metered EV load and potentially an optimized charging model to ensure that only EV load is disturbed by an interruption and to minimize any inconvenience the customer faces from the load management.

PSE is considering requiring customers enrolling in its products to be enrolled in these load management services and will explore pre-programmed PSE EVSE. However, PSE recognizes that its EVSE products will not capture the entirety of the rapidly growing population of EVs and associated EVSE in its service territory. Therefore, PSE is exploring the ability to open its load management products to customers that are otherwise not participating in PSE EVSE products on an incentivized or non-incentivized opt-in basis. Doing so would require PSE to develop a system of confirming that the load is attached to an EV charger and is only being used for EV charging purposes.

To encourage product non-participants to enroll in the load management products, PSE is designing its load management systems in a way that benefits both the customer and the system alike. Doing so will significantly improve PSE's ability to mitigate system impacts from EV load. If future capabilities allow PSE to accurately identify EV loads at a premise PSE may explore potential opt-out programs as a means to enhance participation and customer engagement.



## System Planning and Optimization

PSE understands that system reliability and distribution system efficiencies are integral to planning for and addressing the forecasted load impacts associated with its TEP. The Company's grid modernization strategy is focused on developing the technology, infrastructure and processes that will result in scalable programs to support customer choice, affordability, reliability, resiliency, and clean energy targets. Through the deployment of innovative technologies, including the Advanced Distribution Management System ("ADMS"), Advanced Metering Infrastructure ("AMI"), and Conservation Voltage Reduction ("CVR"), PSE has been building toward a much more resilient, smart, and flexible grid. Further, PSE's ongoing system planning and improvement efforts are investing in targeted reliability and capacity upgrades, substation Supervisory Control and Data Acquisition ("SCADA"), pole replacement, transmission automation and other enhancements to our transmission and distribution system. This will remain a critical focus for PSE to ensure we plan for and manage the impact of this new load without compromising reliability.

More precisely, the Company is implementing the below specific circuit enablement capabilities that have been scaled to address the EV loads as detailed in the TEP:

- implementing geospatial forecasting tool anticipated by Q2 of 2022 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

## Data Management and Analysis

Both EVs and EVSE provide a continued opportunity and challenge for PSE to safeguard customer data privacy and security in all data management and analytics work it performs. Customer privacy is paramount to PSE. PSE intends to continue expanding its understanding of the emerging EV market through engagement with key policy and industry stakeholders, maintaining connections with OEMs and EVSE providers, robust engagement with national market research, and expansion of surveys, focus groups, and other forms of direct customer engagement. Further, PSE's exploration into sub-metering all EVSE load within its programs will give PSE innovative insight into customer charging behavior and needs within its service territory.

PSE intends to leverage the vast amount of data provided by EVSE to develop models that are critical to the optimization of PSE's smart grid as well as developing customer facing data science solutions.

## Grid Optimization

PSE will continue to leverage the enhanced data from existing pilots and future programs about customer demographics and charging behavior to significantly improve its forecasts of EV adoption, EVSE implementation, and EV charging load. PSE can leverage circuit level forecasting to evaluate and optimize the system to ensure it can handle the added load of electric vehicles before they ever present a threat to the grid. Robust access to charging load data will give PSE the ability to build load disaggregation models that help the company identify EV customers outside of its products and services and understand where EV charging will impact the grid.

Further, PSE can leverage this data to optimize its installation of EVSE across its service territory in a more efficient method to maximize the benefit to customers. These data sources will provide PSE with a significantly improved ability to model the marginal cost of serving EV load and so be better able to ensure that no customer is unfairly burdened with rates meant to recover EV revenue.

## Customer Facing Solutions

PSE can provide data science driven customer facing solutions, which promote an attractive customer experience for driving EV. With this big data opportunity, PSE can explore many options such as customer facing dashboards that help a customer understand how their EV load relates to their premise load or bill and specifically catered product opportunities to help the customer go greener faster or enjoy additional savings. PSE can leverage the EVSE load data to design optimized charging models that allow PSE to implement a direct load control program over customer charging, which will allow customers to maximize savings while minimizing the effort required from them.

## Reporting

PSE will release periodic reports to TEP stakeholders focusing on major program progress or changes, expenses, and revenues, with the first report released in Q4 2022. A more detailed report will be released in mid-2024 and may include updates on EV adoption and forecasts by type, updates on load and grid impacts, product activities and progress, lessons learned, expenses to date, and relevant results of societal cost test(s). PSE may also choose to include small case studies on customers utilizing EVSE in unique or innovative ways.

In addition to the above information, PSE will monitor and report on key metrics for each approved product to measure success. These metrics will include, but are not limited to:

- Customer satisfaction, engagement, and awareness of product(s)
- Avoided CO2 emissions (estimated) and customer cost savings.
- Average total cost of EVSE ownership by product
- EV load profiles by participant type (residential, multifamily, public, etc.)
- Electric consumption (kWh) and peak load (kW)
- EVSE installation timelines and costs by product
- Utilization information, including total number of charging sessions, kWh used per session, and EVSE uptime percentage
- Revenue from PSE-owned and operated public EVSE and operating expenses
- Population served due to expansion of electric mobility services to highly impacted communities, vulnerable populations, and their service providers
- Awareness and/or adoption levels of EVs due to increased EV education and outreach to highly impacted communities, vulnerable populations, and their service providers
- EVs served in highly impacted communities
- Additional non-quantifiable benefits for highly impacted communities, vulnerable populations, and their service providers

The reports will follow this approximate timeline:

- Q4 2022: Summary Report
- Q2/Q3 2024: Detailed Report
- Q4 2025: Summary Report
- A final detailed report will be included in the 2026 TEP revision.