SPECIFIC ACTIONS
CHAPTER FIVE

Contents

1. Introduction

This chapter updates the specific actions contained in Puget Sound Energy's (PSE) first Clean Energy Implementation Plan (the 2021 CEIP) with more details regarding the actions PSE has taken, or plans to take, over the 2022-2025 compliance period, consistent with WAC 480-100-640(5) and Washington Utilities and Transportation Commission's (the Commission) Order 08 and Condition 16 of such order. This chapter covers programs and product offerings in the areas of energy efficiency, demand response, time-varying rates, Distributed Energy Resources (DER) solar, DER storage, DER enablement, and energy assistance. It also discusses grid modernization efforts and provides an update on the 2021 All-Source RFP process.

2. Energy efficiency

2.1. Purpose

Energy efficiency programs and actions reduce the amount of electricity used by customers to meet their energy needs, which reduces customers' carbon footprints, lowers bills, and reduces the overall electric supply needed. This load reduction results in a lower need for new renewable and non-emitting resources and brings PSE closer to meeting the CETA standard of serving 100 percent of retail electric load with renewable and non-emitting electric generation resources by 2045.

As PSE was drafting this 2023 Biennial CEIP Update (this Biennial Update), PSE was also drafting the 2024 – 2025 Biennial Conservation Plan (BCP), which PSE will publish on November 1, 2023. For detailed information about energy efficiency targets, budgets, and program specifics please see the BCP.

➔ For more information on the updated energy efficiency target and methodology, see Chapter 2: Updating the Clean Energy Targets.

The section below highlights several of PSE's specific actions that further the equitable distribution of energy and non-energy benefits and reduction of burdens to vulnerable populations and highly impacted communities within PSE's energy efficiency programs.

➔ To review equity considerations at the program-by-program level for energy efficiency, please see the 2024 – 2025 Biennial Conservation Plan filed on November 1, 2023, the same day as this filing, in a new docket at the Commission.

Most of the energy efficiency programs contribute to the following targets in Table 5.1 and are broken down further by the 30 percent named communities energy benefit target and the 2.5 percent deepest need minimum designation.

Table 5.1: Energy efficiency target and named communities designation

Year	Energy efficiency total conservation savings target (MWh)	30% named communities energy benefit target (MWh)	2.5% deepest need minimum designation (MWh)
2024 - 2025	397,620 MWh	104,987 MWh	3,727 MWh

2.1.1. Named communities two-year savings designation

Table 5.2 shows the minimum amount of energy benefits that will be delivered to named communities and customers in the deepest need by the energy efficiency tranche of resources. The calculated named communities' distributional equity target number meets the 30 percent energy benefit minimum designation requirement in Condition 20 of Order 08.[18]

The named communities minimum designation is calculated by taking the total utility conservation goal (the same as the CEIP energy efficiency goal), and subtracting program savings from two programs that cannot be directed toward named communities from the total to derive an applicable total savings number by which the 30 percent can be multiplied. One of these programs is the Northwest Energy Efficiency Alliance (NEEA) savings. These savings are distributed regionally, with no customer location attached. The other program is PSE's Schedule 258, which is a four-year "self-directed" program for large customers. PSE cannot target these funds toward named communities.

Through the summer of 2023, PSE discussed the concept of subtracting Schedule 258 and NEEA savings from the total with the joint advisory group[1] as well as defining energy benefits as the MWhs saved for purposes of the named communities and deepest need calculations.

Table 5.2: Named communities distributional equity two-year target calculation

Description	Savings	Notes
PSE energy efficiency total utility conservation goal	397,620 MWh	
Subtract Schedule 258 – Large Power User Self-Direct Savings	11,965 MWh	Sch. 258 is only for large self-directed customers and cannot be directed toward named communities by PSE
Subtract Northwest Energy Efficiency Alliance Savings	35,698 MWh	Savings distributed region-wide with no location attached
Named communities applicable Total Savings	349,957 MWh	-

1. The joint advisory group included the Low-Income Advisory Group, the Conservation Resource Advisory Group, and the Equity Advisory Group.

Description	Savings	Notes
Named communities distributional equity target	**104,987 MWh**	Named communities applicable total savings x 30 percent

2.1.2. Deepest need two-year savings designation

Table 5.3 calculates the deepest need minimum designation of energy benefits for the energy efficiency tranche. The deepest need minimum designation is calculated using only residential program savings because customers in the deepest need do not experience energy burden reduction from commercial and industrial projects. New construction program savings are then subtracted from the two-year residential savings goal. These are subtracted because the definition of deepest need refers to customers in existing housing stock, not new construction. The applicable residential savings number is then multiplied by 2.5 percent to arrive at the deepest need minimum designation.

Table 5.3: Deepest need distributional equity two-year target calculation

Description	Savings	Notes
Residential energy efficiency goal	158,100 MWh	-
Subtract residential multi-family new construction	8,015 MWh	New construction does not meet the definition of “Deepest Need”
Subtract Residential single-family new construction	1,002 MWh	New construction does not meet the definition of “Deepest Need”
Deepest need applicable Total savings	149,083 MWh	-
Deepest need distributional equity target	**3,727 MWh**	Deepest need applicable total savings x 2.5 percent

2.2. Equity-focused program updates

The following equity-focused program highlights aim to demonstrate specific actions within Customer Energy Management programs that will deploy innovative and human-centered approaches that — in the 2024-2025 biennium — will benefit customers ranging from single- and multifamily residential, renters, small-to-medium sized businesses, and commercial customers.

2.2.1. Single family existing — Space Heat

The Space Heat program accounts for a significant amount of anticipated electric and natural gas savings. This program manages incentives and installations of natural gas and electric home heating systems. The Space Heat program focuses on addressing high customer energy burden and increasing accessibility within named communities. To that end, the program is pursuing the following concrete actions:

1. Increasing in-person outreach through trade allies. PSE will identify these customers by Census blocks. To increase accessibility, the Space Heat program is utilizing all existing transcreated materials to reach customers in Spanish. These outreach materials will be distributed at events, and via social media, email, and mail

2. Educating customers about the program's offerings through the development of relationships with community partners that reach senior citizens, refugees, and people accessing food banks, employment resources, and language resources. PSE will prioritize regions most in need as identified through customer mapping tools.

Additionally, the Space Heat program will continue to cultivate innovation in the following key initiatives:

- Directly offering higher incentives to manufactured home residents and to moderate-income customers through the Efficiency Boost program
- Directly offering higher incentives to income-qualified customers; and
- Simplifying program offerings to improve customer experience and increase participation

2.2.2. Single family existing — Home Appliances

The Home Appliances program incentivizes residential customers to upgrade to ENERGY STAR appliances. Major program revisions for the 2024-2025 biennium include the inclusion of ENERGY STAR heat pump dryer rebates.

In the 2024-2025 biennium, the Home Appliances program will continue to address barriers to participation with a heightened focus on the areas listed below.

Higher energy burden

The Home Appliances program is part of the Efficiency Boost program, which is designed to reduce the financial burden of purchasing energy efficiency equipment and to provide low-to-moderate income customers with increased access to PSE's programs. Additionally, the Efficiency Boost program offers limited-time offer rebates at an increased level, including for low-to-moderate income customers. These will be timed with store- and manufacturer-based sales, allowing customers to take advantage of multiple savings opportunities.

Language

The Home Appliances program rebate forms and marketing materials are transcreated in Spanish, and other languages will become available in the next biennium. In addition, the Customer Outreach team has three Spanish-speaking staff to connect with customers in language at community events.

Education

The named communities dashboard indicates a high percentage of customers with General Education Development (GED) credentials. Customers with GEDs are more likely to reside in energy-burdened housing in highly impacted communities, while having lower-paying jobs or employment outside of normal working hours. PSE's field service team will ensure 50 percent of store events are within named communities, providing additional educational material and customized, accessible conversations to better reach these customers.

2.2.3. Multifamily Retrofit

The Multifamily Retrofit program provides comprehensive whole-building and property design assistance that aggregates both in-unit and common area opportunities. The program serves existing multifamily buildings with five or more attached residential dwelling units as well as multifamily campuses that have a mixture of building types including buildings with fewer than five units.

During the 2024-2025 biennium, the Multifamily Retrofit program expects to serve approximately 35,000 customers, and a key focus will be to ensure 40 percent of those customers are within highly impacted communities and high vulnerability census block areas. Program staff will direct most program marketing and outreach resources within these named communities. However, property managers, owners, or contractors are unfamiliar with the location of census blocks. Therefore, the program utilizes a simplified moderate-income definition so that property owners can easily determine if their site or premise qualifies for higher rebates.

Increased rebates are available if a site meets the following moderate-income definition:

- Buildings within Tribal communities, or
- Buildings built before 1986, or
- Buildings with tenants using rent assistance often characterized as “affordable” or “mixed (market/affordable)”, which includes military housing

Additionally, income-eligible (low-to-moderate income) individual condominium owners may submit an Efficiency Boost application even when their building does not meet the preceding qualifications. To amplify access to this program to seniors or retiree customers living on fixed incomes, PSE makes this incentive available to income-eligible individual condominium owners. Increased incentives for moderate-income properties place a strong emphasis on building envelope measures such as windows, insulation, and air sealing.

2.2.4. Commercial rebates — lodging

Lodging rebates are designed to help hotel and motel customers afford the significant cost associated with making changes to their greatest energy burden — heating and cooling. This program, which PSE reintroduced in 2021 with enhanced incentive amounts, is offered through a downstream model and rebates are set at an “up to” amount based on the individual cost of the equipment.

Lodging rebates are available to all hotel and motel customers utilizing PSE electricity for heating and cooling, and participation is not limited due to size. However, PSE’s small and medium-sized hotel and motel customers are the greatest focus. This design allows these customers to address multiple retrofits (ideally whole building) in their facilities and not be limited to installing one or two at a time as their tight budgets permit. This is why the incentive is strategically set at a high dollar value.

A key specific action in the 2024-2025 biennium will be a strong focus on reaching the remaining 30 percent of the hotels within PSE’s named communities that have not yet participated in the program.

Specifically, PSE will offer them direct and one-on-one outreach to help overcome any barriers that might inhibit their completing qualifying projects with PSE. The program will also utilize strategic marketing tactics for the sector, including search engine marketing, email, and social media campaigns, as well as direct mailers in-language to customers identified with a language need. In collaboration with the Washington Hospitality Association and their newly announced Latino Chapter, as well as other smaller local hotel associations, PSE intends to market the program and increase program awareness.

3. System wide demand response

3.1. Purpose

Demand response (DR) is a measure for reducing energy load in response to supply constraints, generally during periods of peak demand. DR provides an opportunity for consumers to play a significant role in the operation of the energy grid by reducing or shifting their energy usage during peak periods in response to time-based rates or other forms of financial incentives. By shifting load away from the grid-constrained peak usage period, DR helps manage and maintain system reliability.

In the 2021 CEIP, PSE committed to an overall 23 MW target for its demand response programs. After completing an RFP in 2022, PSE adjusted the target to 86 MW to reflect all cost-effective resources in compliance with Condition 4.

➔ See Chapter 2: Updating the Clean Energy Targets for write-up regarding the target update.

The demand response portfolio consists of Automated Demand Response (ADR), Behavioral Demand Response (BDR) and Business Demand Response (C&I DR). Within the portfolio PSE developed four programs with three vendors to serve its customers. See Table 5.4 for a high level overview of the programs and Section 3.3 for more details.

Table 5.4: Demand response overview

Resource	Description	Vendors	Counties	Launch Date
Flex Rewards	Incentivized residential behavioral demand response - rewards customers for adjusting their energy usage during a defined DR event, communicated via email and SMS (opt-in program)	AutoGrid	Territory wide	Winter 2023
Business Demand Response	Commercial and industrial program with a combination of ADR and BDR - customers will be incentivized and supported by vendors to develop a custom curtailment plan for peak system and emergency DR	AutoGrid Enel X	Territory wide	Winter 2023
Flex Smart	Incentivized automated residential demand response - Rewards customers to opt-in and enroll their eligible appliances (ex. smart thermostats, water heater, EV, etc.) to participate in DR events	AutoGrid	Territory wide	August 2023

Resource	Description	Vendors	Counties	Launch Date
Flex Events	Residential behavioral demand response - Customers receive notifications to be made aware of the event time and duration, and are given tips on how to reduce energy consumption during the event (opt-out, no incentive)	OPower	Territory wide	August 2023

These DR programs combine to account for the targets in Table 5.5 and are broken down further by the 30% target for named communities and the deepest need minimum designation.

Table 5.5: Demand response target and named communities designation

Year	Demand response cumulative capacity target (MW)	30% named communities energy benefit target (MW)	2.5% deepest need minimum designation (MW)
2025	86 MW	25.8 MW	1.15 MW

In this designation, PSE assumes that only residential programs are applicable in the calculation of energy benefits that could be attributed to customers in the deepest need. See Table 5.6 for a breakdown of how the energy benefits are calculated for demand response programs. Since deepest need is defined at the residential customer level, PSE separates the MWs attributed to residential customers only, to inform the calculation of energy benefits targeted towards customers in the deepest need.

Table 5.6: Demand Response calculation of energy benefits designated for residential customers in the deepest need

Description	Demand response cumulative capacity target (mw)	30% named communities energy benefit target (mw)	2.5% deepest need minimum designation (mw)
DR – Residential & Commercial	86 MW	25.8 MW	-
DR – Residential only	46 MW	-	1.15 MW

3.2. Engagement with named communities

Through the knowledge gained from program design experiences and lessons learned from various other initiatives, PSE aims to develop comprehensive engagement strategies for its DR programs. These strategies aim to 1) increase customer awareness of the value and purpose of DR, 2) inform customers about available programs that can address their needs, and 3) eliminate barriers hindering customer participation. Given the growing importance of these technologies and programs, it is essential to educate customers and dispel any misconceptions regarding their benefits. To ensure engagement with named communities, PSE will select program marketing and outreach tactics. These may include transcreation of materials, email, direct mail, advertising, leveraging owned and earned media, local events, partnerships with community-based organizations, workshops, and other locally appropriate approaches tailored to connect with customers where they are.

3.3. Program updates

This section provides a detailed breakdown of the four DR programs PSE is launching in 2023.

Flex Rewards is an opt-in, incentivized Behavioral Demand Response (IBDR) program that rewards customers for adjusting their energy usage during a defined DR event, communicated via email and texts. These events take place during summer and winter DR seasons. Within 72 hours after an event, customers may log into their customer account to review their event participation statistics and learn what incentives they earned for their participation. This program requires the customer to have an email to sign up with, and the ability to log into their MyPSE account. Flex Rewards is launching in the winter of 2023.

Business Demand Response will be offered through two products to business customers: 1) a year-round Peaking Demand product and 2) an Emergency Demand product. In both products customers will be supported by vendors to develop a custom curtailment plan and paid for their participation. Table 5.7 provides more details on the maximum number of events, duration, and notification prior to the event.

- **Peaking Demand** - This plan will look at historical usage data and assess where and how customers can effectively shed load during peak events. This plan will help customers understand the actions they should take during a Demand Response event and give them an idea of what they can earn as a participant in the program.
- **Emergency Demand** - If PSE deems conditions have been met to require immediate capacity available, an emergency event will be called giving customers 10-60 minutes of notification prior to the event. These types of events can be called at any time throughout the year and have a maximum of 12 events per year.

Table 5.7: Business Demand Response threshold events

Product	Season:	Months	Max number of events	Event duration	Event days and times	Notification time prior to event
Peaking Demand	Winter	November – March	8	1-4 hours	M-F, 6am - 10pm	Minimum 2 hours
Peaking Demand	Summer	May – September	8	1-4 hours	M-F, 6am - 10pm	Minimum 2 hours
Emergency	All	Year Round	12	1-4 hours	N/A	10-60 minutes

Flex Smart is PSE's opt-in, incentivized Direct Load Control DR program. Customers enroll and have their enrolled appliance (see Appendix K: Demand Response Additional Information for eligible devices) automatically controlled during periods of peak demand. Customers may enroll their eligible smart thermostats to participate in DR events during the summer and winter DR seasons. Within 72 hours (about 3 days) after a DR event, customers may log into their customer account to review what their participation performance results were and learn more about participation incentives they qualify for. Flex Smart launched August 1, 2023.

Flex Events is an opt-out, non-incentivized BDR (NIBDR) program that automatically enrolls customers in email and interactive voice response notifications to make customers aware of a system peak event. During an event, customers receive notifications to be made aware of the event time and duration and are given tips on how to reduce energy consumption during the event. Within 72 hours (about 3 days) after an event, customers may receive an email reviewing their event participation statistics and learn how their usage compares to neighbors with similar home-types and usage schemas. PSE's first Flex Event took place on August 15, 2023 (see Appendix K: Demand Response Additional Information for detailed overview of the first event).

All DR programs are managed by the Customer Energy Management Demand Response team and implemented by third party vendors to support the program. The Customer Energy Management Demand Response will be responsible for program design, program policies, reward-setting, management of third party vendor activity, and measurement and verification reporting.

Third-party vendors are responsible for implementing these programs including aggregating customers into DR programs, managing Distributed Energy Resources (DER) original equipment manufacturer relationships, issuing incentives, event notifications to customers, and customer support.

DR program costs will be recovered through rates as power costs in power purchase agreements, while DR development and administration costs will be funded through the Schedule 120 conservation rider (e.g., contracting and program management labor, program marketing, etc.). See Appendix K: Demand Response Additional Information for DR funding overview.

3.4. Equity

In 2023, PSE's DR programs will expand access for all PSE customers, helping to ensure an equitable distribution of benefits. Below are two ways that PSE will ensure equity is prioritized:

- Residential demand response programs are designed to dispatch events uniformly across the region to ensure no single customer gets over-utilized as a capacity savings resource. In some rare instances, PSE may dispatch DR events to specific localities in pilot areas or commercial and industrial customers with the intent of reducing localized capacity constraints which demonstrate a higher propensity for peak demand.
- We will develop channels to provide DR-enabled technology to named communities who may not have the means of acquiring devices themselves, with the intent of extending accessibility to PSE customer programs. Examples of support PSE customers may expect include, but are not limited to:
    - Device provisioning: At-cost to free devices that enable DR connectivity for their heating and/or cooling.
    - Enhanced incentives: Increased enrollment incentives for enrolling their already-owned device in a demand response program.

- Minimum designation: PSE will aim to direct 30 percent of the total MW capacity capabilities of the demand response platform to named communities, measured by Census tract, at the portfolio level.

3.5. Forecasted benefits

Residential customers may qualify for incentive rewards based on the type of program in which they enroll. Through the end of 2023, customers will qualify for additional enrollment incentives. Flex Smart and Flex Rewards customers are rewarded through an online redemption process utilizing Tango.[2] Once enrolled in the program, the third party vendor responsible for implementation issues a reward to the customer which may be claimed online in the form of retail gift cards, visa gift cards, or direct money transfer. These incentives support making smart devices more affordable for customers, particularly those in named communities, as well as layer in energy efficiency incentives for the devices, drastically reducing the upfront cost. These incentives also reduce energy burden for all participants in the Flex Rewards program by lowering their energy usage during an event and also providing a financial incentive for their participation, in the form of a financial, seasonal reward per kWh shed, as well as an enrollment reward.

➔ See Appendix K: Demand Response Additional Information for an overview of incentives available to residential customers who enroll in the Flex Smart and Flex Rewards program.

3.6. Program marketing

PSE will work closely with third party vendors responsible for implementation to ensure that vendor industry experience is combined with PSE's knowledge of its customer base to maximize recruitment results. Planned activities include leveraging many marketing channels, including traditional mailers, email, PSE.com program pages, social media, direct marketing, and community event outreach.

The core message of the demand response programs will be communicated to customers using PSE's brand voice, characterized by a personal, conversational, and accessible tone:

"With PSE's Flex Programs, you have the power to make a significant difference when energy demand is at its peak – benefiting you, your community, and the planet. Shifting energy usage moves us closer to a carbon-free future by matching usage to availability."

2. Tango is an incentive payment platform that allows customers to select their reward for enrolling and participating in DR programs. It provides customers with the ability to choose how they receive their incentives by allowing them to select from a wide variety of store or visa gift cards.

➔ See Appendix K: Demand Response Additional Information for detailed program marketing plan.

3.7. Future work

Starting in 2024, Flex Smart will include Mini-Split controls, EV Telematics, EV Chargers, Electric Vehicle Supply Equipment (EVSE), Water Heaters, and Water Heater Controls in the DR portfolio.

➔ See Appendix K: Demand Response Additional Information for eligible devices.

As PSE looks to expand its goals through 2025, PSE will assess additional incentivized measures for residential customers, increase commercial and industrial customer product offerings, consider how demand response can be layered with other PSE rates and programs, and find additional innovative services and partnerships to bring to customers.

3.8. Relevant Order 08 Condition summary

In Order 08, the Commission included the following Condition 4:

> **CONDITION 4:** PSE will increase its demand response target to include all cost-effective bids it received in response to its recent RFP. PSE will include expanded Direct Load Control offerings in this increased target.[1]

See Chapter 2: Updating the Clean Energy Targets for detailed explanation for changing DR targets to include all cost-effective DR bids received. The details on direct load control programs are discussed above in the Flex Smart program.

In Order 08, the Commission included the following Condition 20:

> **CONDITION 20**. Minimum Designations. PSE will file with the Commission an amendment to this CEIP to designate for Named Communities a minimum of 30% of the energy benefits of its DER solar, DER storage, DR, and EE programs, with benefits measured across each tranche of resources. PSE will commit to developing a targeting approach to identify the customers and communities with deepest need within the broader category of Named Communities in consultation with interested persons and advisory groups. By the

> 2023 Biennial CEIP Update, PSE will designate a minimum percentage of energy benefits that will flow to Named Communities with deepest need.[3]

To ensure a minimum threshold of 30 percent energy benefits is met across DR programs, PSE is working with its selected DR vendors to ensure named communities outreach, recruitment, and engagement is a priority and committed to in agreements with selected vendors.

In Order 08, the Commission included the following Condition 22:

> **CONDITION 22:** In the 2023 Biennial CEIP Update, PSE will include information regarding any planned DR programs for commercial and industrial customers as required by WAC 480-100-640(5) and (6) as well as information regarding the expected cost-effectiveness of these programs.

Information regarding PSE's planned business demand response program can be found in the discussion above. Cost-effectiveness is deemed based on the Societal Cost Test and an overview of how each bid scored is discussed in Chapter 2: Updating the Clean Energy Targets. Most of the commercial and industrial programming is provided by EnelX, which has a societal cost test score of 10.76.

In Order 08, the Commission included the following Condition 23:

> **CONDITION 23:** PSE must include a narrative in the 2023 Biennial CEIP update and 2025 CEIP describing anticipated impacts on customer benefits and burdens from DR programs.

Sections 3.4 and 3.5 describe the incentives and rewards from the programs.

4. Time-varying rates

4.1. Purpose

Time-varying rates are designed to lower system costs by providing customers with a price signal that encourages them to lower their monthly energy bills by reducing consumption during the peak period and building it in the off-peak period. Well designed and marketed time-varying rates represent a win-win opportunity for the utility and its customers. PSE is exploring time-varying and other outcome-based pricing mechanisms as tools to help manage system and local peaks, reduce customer costs, and help integrate variable renewable generation. Its time-varying-rates consultant, The Brattle Group, guides PSE to conduct a two-year pilot.

3. See Order 08, infra note 1, Appx. A at ¶ 22.

4.2. Program updates

In 2023, PSE is enrolling residential customers, residential bill discount customers, and small commercial customers in time-of-use (TOU) rates or a TOU rate with a peak time rebate (PTR). As Table 5.8 shows, the pilot will test six treatments and enroll approximately 7,500 customers. The Super Off-Peak rate is intended for residential customers with EVs. At least half of the low-income customers on bill discount rates will receive bill protection and at least half will receive free enabling technology (e.g. smart thermostat).

Table 5.8: TVR Pilot treatment groups[4]

Treatment	Minimum Statistically Significant Sample Size
Residential Service Time-of-Use	1,000 customers
Residential Service Time-of-Use Bill Discount Rate(s)	1,000 customers
Residential Service Time-of-Use with Peak Time Rebate	1,500 customers
Residential Service Time-of-Use with Peak Time Rebate Bill Discount Rate(s)	1,500 customers
General Service Time-of-Use with Peak Time Rebate	2,000 customers
Residential Service Time-of-Use with Super Off-Peak	500 customers
TOTAL	7,500 customers

Table 5.9 shows the design of the TOU and PTRs, including the number of pricing tiers and peak-to-off peak price ratios.

Table 5.9: TVR Pilot rate design

Rate Design(s)	Time-of-Use	Time-of-Use w/ Peak Time Rebate	Time-of-Use w/ Super-Off-Peak
Customers	Residential Sch. 307 + Bill Discount Rate levels 1-6	Residential Sch. 317 + Bill Discount Rate levels 1-6 General Service Sch. 324	Residential Sch. 327 + Bill Discount Rate levels 1-6
Pricing Tiers	2	2 Fixed + 1 Dispatchable	3
On-Peak : Off-Peak Ratio(s) (Winter)	4.9 : 1	2.2 : 1 | 2.3 : 1	6.7 : 1.7 : 1
On-Peak : Off-Peak Ratio(s) (Summer)	3.1 : 1	1.9 : 1 | 2.0 : 1	3.6 : 1.6 : 1
PTR : Off-Peak (Winter)	-	7.6 : 1 | 8.2 : 1	-
Seasons	2	2	2

4. Source: PSE General Rate Case Witness Testimony of Ahmad Faruqui, 2022

Rate Design(s)	Time-of-Use	Time-of-Use w/ Peak Time Rebate	Time-of-Use w/ Super-Off-Peak
Weekend/Holiday	Off-Peak	Off-Peak	Off-Peak, Super Off-Peak
Max Annual Callable Events		20 (15 winter & 5 summer)	
Enrollment	Opt-in	Opt-in	Opt-in

Program marketing and enrollment began for up to 175,000 pre-selected Schedule 7E residential customers in summer 2023. Program marketing and enrollment for Schedule 24E commercial customers will begin in late fall 2023. The pilot will run for two years (October 1, 2023-September 30, 2024, and October 1, 2024-September 30, 2025) and be evaluated at the end of each year.

To select pilot participants, PSE will use a unique approach. At a high level, PSE will offer the opportunity to participate in the pilot to customers who are selected randomly. Customers in a control group (no treatment) can be drawn from the customer population pool and matched with customers in the treatment group based on how similar they are to each other. The effects of TVR (e.g., amount of electricity that a customer reduces during peak hours) can be determined by comparing the performance of the customer in the treatment group against that of the customer in the control group. PSE's proposed "random sampling with a matched control group" approach preserves the random element in the "randomized controlled trial" approach.

For residential customers, PSE is targeting a minimum 3 percent opt-in rate. In alignment with the randomized controlled trial pilot design, PSE pre-selected 175,000 residential electric customers to recruit 5,500 residential electric customers into the pilot. Five customer groups ranging from 25,000-50,000 were targeted with a "Rate Education Report" and online tools allowing customers to compare a personalized estimate of TOU rate with their current Schedule 7 inclining block rate. The average opt-in rate to date is approximately 4%, which is in line with Brattle's estimate of 3-5%.

We plan for four distinct Evaluation, Measurement & Verification (EM&V) activities:

1. Load impact evaluation after the first year of the pilot;
2. Load impact evaluation after the second year of the pilot;
3. Process evaluation after the second year of the pilot, and
4. Customer feedback before, during, and at the conclusion of the pilot.

A comprehensive approach to EM&V allows PSE to maximize its experience from the pilot and use these learnings for a successful broader scale roll-out in the future.

4.3. Equity

4.3.1. Impacts to named communities

The TVR pilot demand, energy, and billing impacts will vary by customer characteristics such as education or income, the availability of enabling technology, home characteristics, and other observable

characteristics. PSE's independent evaluator, Cadmus, will estimate the TVR pilot impacts for different customer segments based on known attributes. Customers will be identified and verified as income eligible at 80 percent are median income (AMI) or 200 percent federal poverty level (whichever is greater) based on enrolled TVR customers qualifying for the Bill Discount Rate program and self-attesting their income. Once the Bill Discount Rate program is launched in October 2023, enrolled TVR customers will be invited to apply to receive a tiered discount rate on their time-of-use bill. Only customers enrolled in TVR and Bill Discount Rate will be evaluated separately as part of the income eligible treatment groups.

For income-eligible customers enrolled in both TVR and Bill Discount Rate, 50 percent will also be eligible to receive bill protection. PSE and Cadmus will estimate the difference between the counterfactual bill under the standard rate through a shadow bill comparison and the actual customer bill under the TOU rate for each enrollee. PSE will use this data to issue annual bill protection credits to the selected Bill Discount Rate customers, if they end up paying more on a TOU rate.

Furthermore, for income eligible customers enrolled in both TVR and Bill Discount Rate, 50 percent will also be eligible to receive free enabling technology. If income eligible customers have a compatible electric heating system, they will receive a free Nest smart thermostat with instructions on how to install, program, and optimize to align with the peak and off-peak periods.

4.4. Forecasted benefits

4.4.1. Tracking and measuring benefits and burdens

In collaboration with Cadmus, PSE will estimate the energy, demand, and billing impacts of the TOU rate for each treatment group and PTR for the applicable groups. PSE will estimate separate impacts for the summer, winter, and shoulder seasons and for the TOU rate on-peak, mid-peak, and off-peak periods.

Cadmus will estimate TVR bill impacts based upon actual weather conditions during the reporting period. Cadmus will estimate the average TVR bill impacts as a difference-in-differences by comparing the bills of participants and matched nonparticipants before and after enrollment as follows:

- Use ex ante regression models (of the pre-TVR pilot consumption) to predict the hourly electricity consumption for each participant and match nonparticipant under actual weather for the reporting (evaluation) period. This counterfactual prediction represents the customer's expected consumption for pilot Year 1 weather under the standard residential rate.
- Calculate each customer's counterfactual bill for the predicted consumption under the current standard residential rate. This is the amount each customer would have paid if their consumption during pilot Year 1 followed their consumption in the year preceding the pilot.
- For each participant, calculate the difference between the counterfactual bill under the standard rate and the actual customer bill under the TOU rate bill. For each nonparticipant, calculate the

difference in the counterfactual bill under the standard rate and the actual customer bill under the standard rate.

- Calculate the TOU rate bill impacts as a difference-in-difference.
- The second term captures how participants' bills would have evolved if they had not enrolled in a TOU rate.

Note that the TOU rate bill impacts reflect two factors: any behavioral response of participants to the new TOU rate (e.g., the shifting of load from peak to off-peak periods or changes in consumption) and changes in the hourly price customers pay for electricity.

The level of peak demand reduction corresponds with the peak to off-peak price ratio: the higher the price ratio, the higher the peak impact. However, the price responsiveness increases at a decreasing rate as the price ratio increases. Using The Brattle Group's Arcturus[5] database and the load impact model, PSE estimated the average customer response to the new rates. For a residential customer with Residential TOU rate, the peak impact on a winter day can be as high as 10.9 percent. The full results are shown below in Table 5.10. It is important to note that most of the data in the Arcturus database is from summer-peaking utilities as the winter-peaking utility experience with TVRs has been more limited.

Table 5.10: Expected peak reduction impacts for the proposed TVR programs

Rate	Season	Ratio (P:OP)	Estimated Peak Demand Reduction
Residential TOU	Winter	5.2:1	10.9%
	Non-winter	2.8:1	6.8%
Residential TOU+PTR	Winter	2.3:1	5.5%
	Non-winter	2.2:1	5.2%
Residential Three-Period TOU (EV)	Winter	7.5:1	12.6%
	Non-winter	3.6:1	11.9%
Small C&I TOU+PTR	Winter	2.3:1	5.5%
	Non-winter	8.9:1	11.3%

4.5. Program marketing

PSE will not conduct additional program marketing outside of the targeted recruitment campaign in summer and fall of 2023.

4.6. Future work

PSE is targeting General Service Schedule 324 "Time-of-Use with Peak Time Rebates" for release and subsequent study in the Pilot EM&V process starting in 2024.

5. PSE General Rate Case Witness Testimony of Ahmed Faruqui, 2022

4.7. Relevant Order 08 Condition summary

In Order 08, the Commission included the following Condition 24:

> **CONDITION 24:** PSE must include in its 2023 Biennial CEIP Update an explanation of the TVR pilot program and how the program will be structured to gather data about the program's impacts on benefits and burdens for Named Communities.[6]

The above discussion on the TVR pilot program addresses this condition. The program is structured with distinct treatment groups with specific rate designs and an evaluation, measurement, and verification plan that will allow PSE to gather data about impacts and benefits and burdens for named communities. This plan is outlined in Section 4.2. PSE has also partnered with Cadmus to conduct the impact evaluation as discussed in Section 4.4.1 above.

5. 2021 All-Source Request for Proposal

5.1. Purpose

In 2021, PSE issued the 2021 All-Source Request for Proposals (the 2021 All-Source RFP) to meet all or part of PSE's capacity and renewable energy needs. The 2021 All-Source RFP seeks bids from commercially proven and CETA-eligible resources five MW or larger to supply CETA-eligible resources by 2026. PSE analyzed resources through a qualitative and quantitative evaluation as described in Chapter 2: Updating the Clean Energy Targets. In 2022, PSE incorporated resource adequacy improvements to its analysis, including but not limited to, updating its load forecast to include temperature data reflective of climate change and updating its electric load carrying capability (ELCC) values to be consistent with the 2023 Electric Progress Report.

5.2. Program updates

As of November 1, 2023, PSE has signed and executed one (1) contract and has a shortlist of other resources, some of which PSE anticipates being signed under contract by the end of the first quarter of 2024. PSE has executed a 15-year power purchase agreement (PPA) with Invenergy for the Vantage Wind Energy Center in Ellensburg, Washington. The agreement enables PSE to acquire ninety (90) MW of clean energy per year, beginning in 2025.

Other projects on the shortlist are mostly outside the 2022 – 2025 compliance period.

5.2.1. Negotiations and contract executions

PSE completed its Phase 2 analysis for the 2021 All-Source RFP and identified a shortlist in the fourth quarter of 2022. PSE is currently in the negotiations phase of its 2021 All-Source RFP and, as such, the

6. See Order 08, infra note 1, Appx. A at ¶ 26.

resources, pricing and counterparties with whom PSE is actively engaged remain highly confidential. As required by WAC 480-107-145(2)(d), PSE will provide the median and average bid prices of its responses to the 2021 All-Source RFP, categorized by technology type in a close-out report within 90 days of concluding the RFP.

PSE is also evaluating and/or negotiating with other RFP and bilateral offer counterparties for additional resources to help meet PSE's clean energy and capacity needs consistent with the requirements of CETA. Among these resources, PSE has identified a number of projects that are currently in contract negotiations. Combined, these RFP and bilateral offers represent more than 1,000 MW of additional wind and solar energy that will help to meet PSE's CETA target in 2030, and more than 500 MW of additional CETA-compliant capacity resources. These resources are expected to be online after the 2022-2025 compliance period but would help PSE meet CETA requirements for 2030.

Bidders and interested parties can find more information about the 2021 All-Source RFP on PSE's RFP web site. New RFP resource acquisition announcements will be shared in the Updates and Notifications section of the site as they become available.

5.3. Future work

A variety of potential buyers and off-takers of renewable and storage projects are seeking resources to meet their organizations' energy and capacity targets. To stay on track to meet PSE's substantial CETA and capacity needs by 2030, PSE is also exploring and evaluating resource opportunities submitted on a bilateral basis outside the 2021 All-Source RFP. In general, these resource offers represent time-sensitive opportunities of unique value that not only supplement the resources PSE is pursuing through the 2021 All-Source RFP but also contribute to meeting CETA's clean energy and reliability goals. Additionally, PSE is evaluating a handful of projects on its shortlist that would contribute towards the 2026-2029 compliance period and the CETA goals for 2030. More details will be shared in the closeout report for the 2021 All-Source RFP.

PSE also anticipates filing a voluntary All-Source RFP in 2024 to continue to secure clean energy resources to meet its CETA and capacity needs over the next several years.

5.4. Relevant Order 08 Condition Summary

In Order 08, the Commission included the following Condition 3:

> **CONDITION 3**. In the 2023 Biennial CEIP Update, PSE must include an update regarding the impact of inflation, supply chain, and permitting issues, if any, on the estimated costs of and likelihood of attaining the accelerated target. PSE should also include an updated target if the 63 percent target is no longer viable by 2025.[7]

7. See Order 08, infra note 1, Appx. A at ¶ 5.

Nearly all of the proposals submitted in response to the 2021 All-Source RFP were early-stage development projects, which has resulted in ongoing updates that have affected negotiations due to material changes to project risks, including schedule delays and increased costs. Furthermore, at a macro level, the following risks and issues are ongoing:

- Supply chain constraints have extended lead times for major equipment such as main power transformers and other high voltage equipment
- High interest rates have put upward cost pressures on projects
- Congested regional interconnection and transmission queues are creating delays in the completion of system upgrade studies required to grant service – Bonneville Power Administration's generation interconnection queue has increased by eight times (8x) on a MW basis from 2016 to 2022
- The Inflation Reduction Act (IRA) has created longer term support for increased renewable development, but currently there is pricing uncertainty as specific rules for elements of the IRA such as domestic content bonus incentives are being studied and interpreted by developers and equipment manufacturers
- Clean energy targets for regional utilities and commercial entities are creating a competitive environment for resources and a challenging backdrop for new resource procurement

Nonetheless, PSE has identified several attractive projects that will make meaningful progress toward meeting CETA energy and capacity needs and is actively engaged in negotiating for these resources. PSE anticipates wrapping up any negotiations stemming from the 2021 All-Source RFP by the end of the first quarter of 2024. As discussed in Chapter 2: Updating the Clean Energy Targets, these challenges and other factors, including significant load growth since the original plan was filed, impact PSE's ability to meet its original annual goal of 63% in 2025 and lead PSE to update its 2025 annual goal to 60%. While the original annual goal of 63% in 2025 may still be viable, it may be difficult to achieve, as described in more detail in Chapter 2: Updating the Clean Energy Targets.

6. Distributed Energy Resources – Solar

6.1. Purpose

PSE is committed to delivering distributed solar programs for our customers that are affordable, safe, and accessible to all. PSE developed an initial DER preferred portfolio selection process in the 2021 CEIP to derive a selection of distributed solar program concepts that will help PSE achieve its goals. The Suite 6, illustrative DER portfolio and DER selection process outlined in the 2021 CEIP were a starting point only and are superseded by the programmatic details in this chapter. PSE will work with the EAG and an advisory group with sufficient expertise to develop a new or revised DER selection process consistent with the provisions in Condition 8 of Final Order 08.

Furthermore, through the filing of this Biennial Update, PSE is amending its CEIP to designate a minimum of 30 percent of the energy benefits for DER Solar to flow to named communities per

condition 20. DER program design will intentionally serve customers in named communities in each DER program per condition 21.

The 2021 CEIP preferred portfolio identified 80 MW of DER – Solar needed by 2025 and planned to establish final program designs based on the results of the 2022 DER RFP. As discussed in Chapter 2: Updating the Clean Energy Targets, PSE initiated a DER RFP in 2022 and an additional Distributed Solar and Storage RFP in 2023. Both RFP processes were used to assess projects to help meet the 80 MW target.

Table 5.11 provides an overview of the existing and future projects and programs underway and how they may contribute towards PSE's 80 MW DER – Solar target.

Table 5.11: DER Solar MW targets overview

Resource	Type	Description	Capacity (2025)	Commercial Operation Date (COD)	Number of projects	Counties
Community Solar	Existing	Customer subscription to shares in renewable energy benefits from local solar projects	50 MW	2023-25	~25	Kittitas, Thurston, King, Pierce, Whatcom, Skagit
Green power solar grants	Existing	Annual endeavor that funds solar arrays at nonprofits, public housing authorities and Tribal entities serving low-income and/or BIPOC community members.	1.5 MW	2023-2025	20 - 30	All
Net metering	Existing	Customer-owned, behind the meter, solar <100 kW that is installed AFTER PSE's net metered capacity reaches 179.2 MW (the threshold for required net metering per RCW 80.60.030).	59 MW	2024-2025	5500-7000	All
Distributed generation (solar and hybrid) [from DSS RFP]	Existing	Developer and PSE owned projects in the range of 200 kW – 5 MWs. Projects include solar, storage and hybrid (solar + storage).	Solar: 9 MWs; Hybrid: 8.9 MWs solar	2025	10-15	Whatcom, Skagit, South King, Pierce, Thurston, and Kitsap
Solar Export Rate	Future	Customer owned distributed solar energy credits. Qualified Equity-Focused projects can receive an interconnection	13.6 MW	various	30-60	Any

Resource	Type	Description	Capacity (2025)	Commercial Operation Date (COD)	Number of projects	Counties
		allowance and upfront incentive.				
Residential Rent-to-Own	Future	PSE developing rent-to-own options for rooftop solar and residential battery for named communities and other residential customers	2 MW	various	TBD	various
Total	**All**		**144 MW**			

The above DER Solar programs combine to account for the following targets in Table 5.12 and are broken down further by the 30% named communities targets and the 2.5 percent deepest need minimum designation.

Table 5.12: DER – Solar target and named communities designation

Year	DER Solar Capacity Target (MW)	30% named communities energy benefit target (MW)	2.5% deepest need minimum designation (MW)
2025	80 MW	24 MW	2.0 MW

6.2. Engagement with named communities

Following common feedback from the DER Community Engagement Report[8], PSE is committed to shape tariff design and planned product operations for named communities and their service providers, where possible.

As discussed in the DER community engagement process, cost was consistently highlighted by customers as the largest barrier throughout the community engagement process. Although a majority of the voluntary customer solar products are still in development, PSE filed Schedule 667 - Purchases from Distributed Solar Photovoltaic Systems Tariff, on October 6, 2023, in Docket UE-230827, which includes additional financial benefits for named \communities to offset the cost of installing customer-owned solar. Through this tariff schedule, incentives are issued in this way:

- All customers receive a credit for energy purchased by PSE, and
- Customers in named communities receive an upfront incentive and interconnection allowance

When the tariff was filed with the Commission so that they could offer public comment, PSE notified community engagement participants. Additionally, PSE will consider additional community engagement feedback during the go-to-market phase of the product. We will notify community engagement participants when the products they helped design are available to customers so they can apply

8. Puget Sound Energy, Community Engagement Summary: Distributed Energy Resources (DER) Batteries, Solar and Demand Response.

themselves or make other eligible customers in their communities aware of the offering. Additionally, PSE will apply the same methodology to future DER – Solar products that PSE develops.

6.3. Existing program updates

6.3.1. Community Solar

Community Solar allows customers to share the costs and benefits of local solar projects in PSE's service area. Customers subscribe to shares in a newly constructed, local solar energy site of their choice and receive bill credits for their energy produced from their interests in the project. This renewable energy replaces some or all regular electricity use for subscribing customers and helps drive a cleaner energy supply, which would not be possible without support from subscribers.

Originally intended to be a 20 MW product offering, Community Solar launched the first site for customer subscription in November 2021 with a 200-kW system located at Olympia High School. The first 136 shares were fully subscribed to in less than 24 hours and showed customer interest and support for the product.

In 2022, PSE worked to meet the demand of the Community Solar product by:

- Adding 5.625 MW of solar generation
    - 3,850 general shares
    - 1,139 income eligible shares
- Conducting education and outreach to fully subscribe the shares and improve customer understanding of the product and how solar works.
- Utilizing marketing and outreach tactics including email, direct mail, social media, earned media and local partnerships utilizing site-host owned channels.
- Subscribing 1,107 no-cost shares of Community Solar to income-eligible customers, which reduced customer bills by $181,807 that year.

When researching and developing the Community Solar product, customers expressed a 50/50 split for desired Community Solar locations. About half of the customers surveyed expressed interest in having Community Solar projects at the neighborhood level, like Olympia High School, Pine Lake Middle School, and the Bonney Lake Water Reservoir. The other half desired projects in eastern Washington where energy production can be higher. Thus, five MW of the 2022 added capacity is in Ellensburg, Washington, and secured via a third-party distributed solar power purchase agreement.

These five megawatts of capacity, along with another 9.98 MW added in 2023 (also through a PPA) have allowed PSE to meet demand for customers looking for the best return on their subscription cost, as well as work toward the installed capacity target of 50 MWs (see Table 5.13).

Table 5.13: Community Solar MW distribution 2023-25

Status	Type	2023	2024	2025
Existing	PSE owned CS	1 MW	-	-
Existing	non-PSE owned CS	10 MW	-	-
New	PSE owned CS		0.66 MW	1.3 MW
New	Non-PSE owned CS	5 MW		32 MW [from DSS RFP]
	Yearly Total	16 MW	0.66 MW	33.3MW
	TOTAL	**50 MW***		

* PSE will conduct a DEA Solar Pilot, as described below, on approximately 2 MWs of new community solar

In 2023, PSE issued a Phase 2 Request for Information for additional Community Solar resources located within PSE's service area. Counterparties have submitted offers, and PSE has evaluated bids in response to this Phase 2 Request for Information, and PSE is pursuing several proposals with site hosts.

Equity

In 2022, the Community Solar program enabled access to solar energy within PSE's highly impacted communities and vulnerable population customer base through both paid shares and "no-cost" shares to income-eligible customers. Table 5.14 describes customer participation.

Table 5.14: Breakdown of Community Solar participation by share-type (2022)

Participant type	All participants in PSE's electric service territory	Participants living in Highly impacted communities	Participants identified as highly vulnerable population
General - $20 per share	2,698	178	172
Income-Eligible $0/share	1,101	318	507

Effective October 1, 2023, with the Commission's approval of Schedule 134, the Community Solar program will broaden income eligibility requirements, increase the number of no-cost income eligible shares for which customers can subscribe, expand funding sources, and increase the value of the energy credit for all subscribers. These changes will expand access to the program and increase the value of participation. These changes also help further the requirement that all customers, and particularly those living in highly impacted communities and vulnerable populations, benefit from the clean energy transition.

Forecasted benefits

Table 5.15 shows the actual and forecasted financial benefits distributed to income-eligible Community Solar participants. The program will continue to build new capacity until it achieves 50 MW, with a minimum of 30 percent of the shares reserved for income-eligible customers at no cost.

Table 5.15: Financial benefits to income-eligible Community Solar participants

Year	Money saved on bills for IE participants	Number of shares allocated to IE participants
2022 (actuals)	$181,807.32	1107
2023 (actual + forecast)	$380,453.77	1,166
2024 (forecast)	$850,779.43	4,216
2025* (forecast)	$865,909.92	4,421

* Numbers for 2025 assume the balance of the capacity will come online at the end of 2025 – resulting in benefits showing on customer bills in 2026 and beyond.

Future work

With the changes enabled by Schedule 134, PSE will make more than 3,000 new, no-cost income-eligible shares available in the fourth quarter of 2023, bringing the percentage of income eligible shares to 39 percent of all those available. To ensure these available shares benefit qualified customers as soon as possible, PSE will conduct an extensive marketing and outreach campaign to reach customers at the neighborhood level through events and media as well as traditional marketing tactics like email and direct mail until fully subscribed.

As PSE works toward achieving 50 MW of Community Solar capacity, PSE will continue to identify opportunities to install projects throughout the service area, including:

- Constructing six additional solar projects throughout Whatcom, Skagit and King County Counties, identified through the early 2023 Request for Information
- Pursuing new locations to site solar through the "Host an Energy Project" portal where property owners can submit ideas to place new solar arrays.
- Evaluating responses from the 2023 DSS RFP for potential Community Solar locations
- Partnering with CBOs and tribal entities to host solar projects, which will provide an income stream to the participating organizations or Tribes through annual lease payments.

Distributional equity analysis pilot

Within the Community Solar program, PSE is testing a distributional equity analysis pilot program. Consistent with the conditions established in the Commission's Order in Dockets UE-220066, et al.[9]

In partnership with Lawrence Berkeley National Laboratory (LBNL), PSE will conduct a distributional equity analysis (DEA) pilot centered on at least one product in PSE's DER portfolio. The pilot's purpose is to develop a publicly available decision support tool and accompanying practical guide for enhancing traditional cost-effectiveness tests for DERs with recognition equity and distributional equity considerations. PSE initiated this work with LBNL in July 2023. For the first phase of the project, LBNL, working with PSE, started with data gathering and DEA design.

9. WUTC v. Puget Sound Energy, Dockets UE-220066, et al., Order 24 (Dec. 22, 2022).

Equity goals and metrics were developed for a demonstration project centered on PSE's Community Solar product – a key piece of PSE's 80 MW DER portfolio. We will apply preliminary components or tools to the solar pilot and will document methods used and initial results. The final phase of the 18-month pilot will include presenting the methodology and results in March 2024. An Advisory Board comprised of representatives, including regulatory agencies/utilities across the country, is being formed to peer review the tool and accompanying guide.

6.3.2. Green Power Solar Grants

Green Power Solar Grants is an annual program that funds solar arrays at nonprofits, public housing authorities, and Tribal entities serving low-income and/or BIPOC community members.

In 2021, PSE awarded $954,418 across thirteen eligible solar projects within its electric service area. Many projects started construction in 2022 and, once constructed and commissioned, will result in .513 MW of new solar capacity.

In 2022, PSE awarded another $753,620 across ten eligible projects within its electric service area. Once constructed and commissioned, the ten projects will result in 0.373 MW of new solar capacity.

Equity

Green Power Solar Grants provide customer benefits in burden reduction in named communities and environmental benefits through the deployment of renewable energy within PSE's service area. The installed solar offsets energy purchases, resulting in electric bill savings that reduce overheads for the recipients, which they can reinvest into providing more core services for community members. In addition to providing savings on their energy bills, these localized renewable energy projects support PSE's decarbonization goals and aspirations. The program also allows highly impacted communities and vulnerable populations to actively participate in clean energy.

Forecasted benefits

Table 5.16 describes the benefits for the Green Power Solar Grant program.

Table 5.16: Green Power Solar Grant program benefits by year

Targeted installation year	# of CBOs, public Housing authorities and Tribal entities awarded	Total $ awarded to offset upfront financial costs of installing solar *	Total kW (DC) planned for installation * **	Estimated total energy bill reduction for recipients for one year ***
2022	13	$954,418	513.13 kW	$59,173.64
2023	10	$753,620	373.47 kW	$43,068.19

* These figures represented the amounts requested or shared by applicants in their original application. Sometimes, during installation, these values change nominally.

** In some instances, PSE was one of multiple funders contributing to the planned system size

*** Assumes current average (summer & winter) per kWh under Schedule 24

Future work

In the 2022-2025 compliance period, PSE will provide two more rounds of grant funding (one round of grant funding in 2023-2024 and one round of grant funding in 2024-2025). We will have $750,000 to award for both rounds. PSE continues to fund the grants at the same level, through 2025. The solicitation for the 2023-2024 round will close in the third quarter of 2023; PSE will notify grant recipients in December 2023. Projects resulting from grant funding in the 2023-2024 round should be completed by the end of third quarter of 2024.

6.3.3. Net Metering

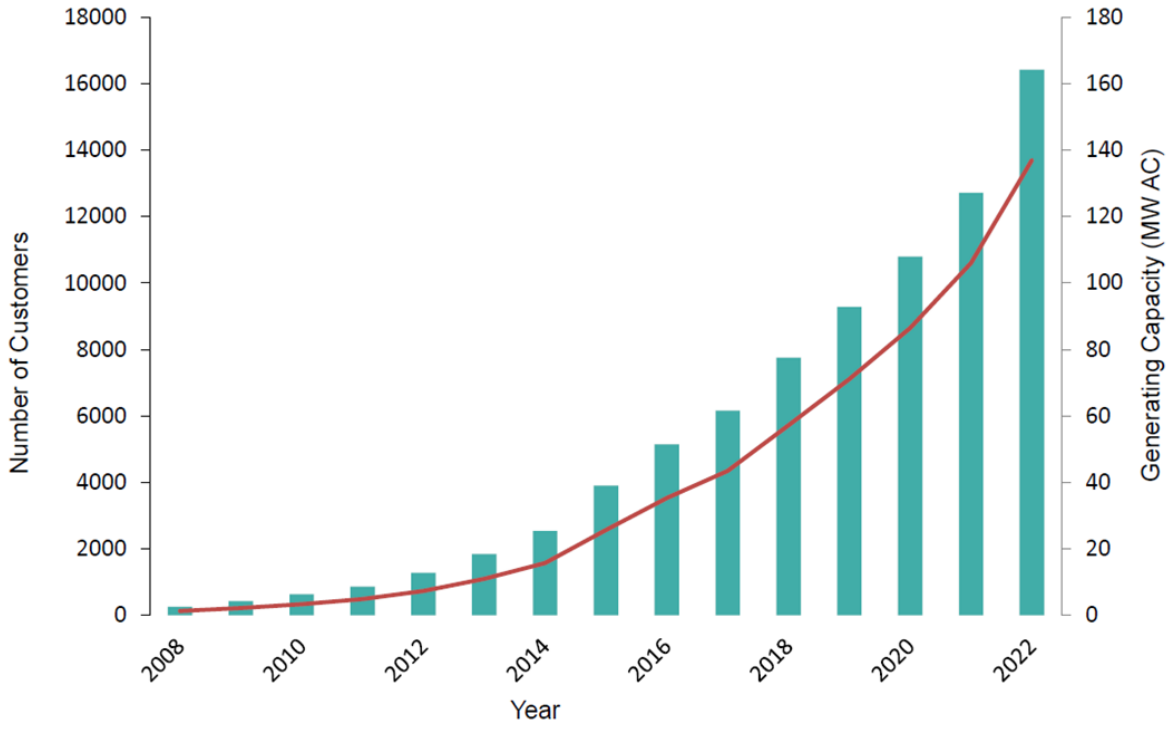
The Net Metering program allows for interconnection services for qualifying customer-generators. This program is based on a Washington State law enacted in 1999. Customers may connect fuel cells, hydroelectric, solar, wind, or animal waste gas generators as part of this program.

Energy produced by customer-generator systems directly reduces energy used from the grid. When the energy generated exceeds home or business electrical loads, the excess energy flowing to PSE is credited against the customer's consumption. PSE also allows net metered customers to aggregate net excess generation from the customers' net metered service to offset consumption at one other electric service meter on the same or contiguous property and in the same account holder's name.

The Net Metering program's year runs April 1 to March 31. Any excess credit each month is rolled forward to the following month. When the new program year ends on March 31, the credit is reset to zero with no compensation to the customer.

In net metering, PSE continues to see significant year-over-year growth. In 2022, PSE interconnected 3,745 customer projects under the Net Metering program, a 96.5 percent increase over 2021. In total, the 3,745 customer projects added in 2022 added 31 MWs of solar, bringing the total installed capacity to 136.8 MWs. As noted in the figure below, PSE's system count for customer-generators and its generating capacity has grown tremendously since 2008.

Figure 5.1: Net metering customer counts and generating capacity by year



We continue to assist customers in establishing systems that qualify for the Net Metering program. In 2022, PSE responded to 4,193 customer calls regarding solar and generated 1,162 solar referrals upon customer request.

Equity

The current net metering program, including customer interconnection, is a product/service PSE offers customers as required by state law. There are no goals, targets, or added incentives to increase the share of current net metering program benefits that go to named communities, historically underserved communities or vulnerable communities.

Additionally, PSE is participating in statewide efforts to study and evaluate the costs and benefits of the Net Metering program, including impacts to low income and vulnerable populations. PSE expects the findings of this work to help guide PSE in developing a more equitable successor tariff to Schedule 150, for new customer generators.

Forecasted benefits

Per RCW 80.60, PSE is required to offer the current terms of the Net Metering program (under Schedule 150) to customers on a first-come basis until PSE reaches 179.2 MW of net metered capacity on the PSE system. We expect to hit this threshold in early 2024. Once the threshold is reached, PSE plans to continue offering Schedule 150 until a successor tariff is in place for new systems. Under a new Net Metering program, PSE projects it will add 59 MW of added capacity between 2024 and 2025

from systems installed after PSE meets the threshold of 179.2 MW of net-metered capacity. This amounts to between 5,500-7,000 additional, customer-owned, and distributed solar systems able to generate approximately 65,000 MWh annually.

Future work

To broaden the Net Metering program opportunities for single occupancy homes and buildings to multi-family and multi-tenant properties, PSE is working to expand metering and billing system capabilities. This will support a business model for builders, owners, and property managers of multifamily buildings, to invest in solar energy and pass on the benefits to tenants through bill savings

6.3.4. Distributed Generation (solar and hybrid) [2023 DSS RFP]

In Order 08, the Commission included the following Condition 18:

> **CONDITION 18:** Community Solar. PSE will increase its community solar target from 25.4 MW to 50 MW by 2025.[10]

In 2023, PSE developed a Distributed Solar and Storage RFP (the 2023 DSS RFP) to procure DER – Solar and DER – Storage resources. All short-listed projects are currently in contract negotiations. To meet Condition 18, PSE will acquire 30 MW of DER – Solar proposals for PSE's Community Solar program, with the remaining projects used to support the entire system. These DER assets will still go through the same negotiation, development, and construction timeline as their counterparts in the Community Solar program; however, they will not be linked with the Community Solar tariff and customer enrollment program.

Equity

To encourage more energy benefits directed to named communities, PSE included evaluation criteria that ranked projects located in named communities higher during the 2023 DSS RFP evaluation process. Chapter 2: Updating the Clean Energy Targets provides further details on the 2023 DSS RFP evaluation process and its emphasis on equity focused project selection.

Of the shortlisted DER – Solar resources, including hybrid projects, about 80 percent of the MWs and 70 percent of the number of projects are in medium to high designated vulnerable populations, and about half of both MWs and the number of projects are in highly impacted communities. However, this value will change if any projects fail to achieve operation.

Forecasted benefits

The energy benefits for these projects can be broken up into two distinct categories; 1) those provided during the development phase and 2) those provided when the project is operational. During the

10. See Order 08, infra note 1, Appx. A at ¶ 20.

development phase, developers commit to complying with RCW 82.08.962 and 82.12.962 regarding clean energy labor standards, contracting a percentage of their overall bid to Small, Minority, Women-owned Business Enterprises, and additional benefits. For the operational phase of the projects, PSE is looking to convert some of the solar projects, where applicable, to Community Solar. This will allow additional benefits to be distributed to community members through enrollment in these Community Solar programs.

Benefits will also be provided to communities through the property taxes collected over the life of the projects. The main use case for shortlisted DER – Solar projects acquired through the 2023 DSS RFP is to provide more distributed renewable energy onto the grid. For projects acquired for the Community Solar program, they will also provide a large increase in capacity available for customer subscription.

Future work

For the projects shortlisted through the 2023 DSS RFP, PSE and developers will work on the following steps before commercial operation:

- Negotiating ownership and power purchase agreements to define commercial, operational, and pricing terms
- Interconnection studies and interconnection agreement execution
- Project development, which includes developer led community engagement, permitting, site control and additional duties
- Procurement and construction of generation and interconnection facilities
- Commissioning of facilities

While PSE was able to shortlist numerous projects to meet our short-term CEIP goals, more RFPs will be required to achieve our future distributed generation targets.

6.4. Future programs

6.4.1. Solar Export Rate

In 2023, PSE developed a ‘Purchases from Distributed Solar Photovoltaic Systems’ tariff to provide customer owned photovoltaic (PV) systems sized above the net metering threshold with financial compensation for energy returned to the grid. This program applies to customer owned PV systems with an alternating current (AC) capacity between 100 kW and 1000 kW. This program will address two specific actions proposed in the 2021 CEIP: multi-family and commercial and industrial (C&I) rooftop solar incentives.

This tariff aims to grow customer owned DER – Solar capacity and encourage the equitable installation of customer-owned DER – Solar systems throughout the PSE service territory. The rate improves the financial outlook for participating customers by reducing the payback period. Additional equity-focused incentives help named communities participate in the clean energy transformation.

PSE recognizes there are barriers to non-residential solar PV in the Pacific Northwest. PSE non-residential energy prices are low, and the available solar insolation is lower than many other regions of the United States. These factors make it difficult for non-residential customers to receive an overall reduction in energy bills after installing solar PV. To improve the financial return due to investment in solar PV, the Solar Export program increases the performance-based compensation for energy.

The Solar Export program's equity-focused design is for DER – Solar projects that are part of a named community or a customer that shares demographic characteristics with customers in named communities, and the community-based organizations (CBOs), government agencies and Tribal entities that serve them.

The equity-focused design elements also address barriers identified through community engagement. Specifically, this takes the form of an upfront incentive and interconnection cost allowance for new Equity-Focused solar PV projects. The benefits expected for equity focused projects are a further reduction of energy bills with the aim of an overall payback on the financial investment.

6.4.2. Residential Rent-to-Own [customer product]

In Order 08, the Commission included the following Condition 19:

> **CONDITION 19:** Eliminate Leasing. PSE will remove the residential rooftop solar leasing and residential battery leasing program concepts from consideration in its list of DER programs and will instead develop rent-to-own or other options for named communities and other residential customers.[11]

Per Condition 19, PSE will remove the residential rooftop solar and residential battery leasing program concepts from consideration and will instead assess the opportunity to offer rent-to-own or other options for named communities and other residential customers. This section includes specific actions for both solar and storage rent-to-own options, as PSE sees these as complementary rather than independent applications. Therefore, the DER – Storage section of this Chapter 5 will not cover rent-to-own details.

The specific actions that PSE has taken or plans to take related to rent-to-own options are listed below:

- In June of 2023, PSE initiated a modeling exercise to re-evaluate solar, storage, and solar + storage rent-to-own concepts for both residential and commercial applications, with the focus on creating pathways to ownership through a rent-to-own program.
- We included a rent-to-own residential solar concept in periodic customer surveys in January, April, and July of 2023 to gather customer interest in a service in which:

  PSE will size and install a solar system at your residence. You pay an installation down payment as well as a monthly fee on your electric bill for a contract period of 15 yrs. You

11. See Order 08, infra note 1, Appx. A at ¶ 21.

get the energy produced & anything you return to the grid will contribute to the clean energy transition. And at the end of the term, PSE will transfer the ownership of the system to you at no additional cost, to gather customer interest in the concept. Table 5.17 is a summary of customer interest expressed in the periodic customer surveys.

- In the fourth quarter of 2023, PSE will begin development of a combined analysis to further understand the key program components that will incentivize the greatest customer participation and benefit realization. Some items that will be tested include upfront payment amount, monthly rent, term of rental period, and customer benefits.
- We will also use the feedback from our community engagement to shape the program's design. One consistent theme we heard through community engagement is both overall and upfront costs are barriers to participation.
- We have also started an assessment of existing utility programs to inform program design, best practices, and lessons learned.

Table 5.17: Customer interest levels in residential rent-to-own solar

Customer interest	All respondents	Residential homeowners
Very interested	20%	22%
Somewhat interested	31%	35%
Not very interested	18%	19%
Not at all interested	30%	24%

After completion of the aforementioned customer research, modeling and benchmarking, PSE plans to finalize product design in 2024, which will culminate with a tariff schedule submittal to the Commission for consideration. Prior to that filing, PSE will engage with its Equity Advisory Group (EAG), the Conservation Resource Advisory Group (CRAG), and other interested parties to review product concepts and garner feedback and input. Beyond this, PSE will develop a go-to market plan in 2024 and launch a product in 2025.

6.5. Program marketing

PSE intends to incorporate learnings achieved through the community engagement process and lessons learned through other programs into the marketing and outreach plans for the program, and future DER - Solar programs. In addition to product specific marketing, there is a need to educate and raise customer awareness of the value of distributed solar, and to inform customers about available products that can address their needs and remove barriers for customers to participate.

PSE will provide education through mass-market commercial and residential channels such as online, bill inserts, and partnerships with market actors. To ensure engagement with named communities, PSE will consider the following tactics for marketing and outreach: transcreation of materials, email, direct mail, advertising, owned and earned media, local events, partnerships with community-based organizations, workshops, and other locally appropriate tactics to connect with customers where they are located.

6.6. Relevant Order 08 Condition summary

> **Condition 19:** Eliminate Leasing. PSE will remove the residential rooftop solar leasing and residential battery leasing program concepts from consideration in its list of DER programs and will instead develop rent-to-own or other options for Named Communities and other residential customers.

PSE has eliminated the residential solar leasing program concepts from consideration as part of its DER programs and will instead develop rent-to-own or other options.

> **Condition 20 and 21:** Minimum Designations. PSE will file with the Commission an amendment to this CEIP to designate for Named Communities a minimum of 30% of the energy benefits of its DER solar, DER storage, DR, and EE programs, with benefits measured across each tranche of resources. PSE will commit to developing a targeting approach to identify the customers and communities with deepest need within the broader category of Named Communities in consultation with interested persons and advisory groups. By the 2023 Biennial CEIP Update, PSE will designate a minimum percentage of energy benefits that will flow to Named Communities with deepest need.

➔ Please see the discussion in Chapter 3: Equity, Sections 6.1.4 and Chapter 4: Public Participation, Section 3.2.2 regarding minimum designation and deepest need.

7. Distributed Energy Resources – Storage

7.1. Purpose

Battery Energy Storage Systems (BESS) projects and customer products and programs are an important aspect of the clean energy transition that will help enable a reliable supply of electricity, despite the intermittent nature of the energy grid.

In 2021, PSE's CEIP preferred portfolio identified 25 MW of DER- Storage needed by 2025 and planned to establish final program designs based on the results of the 2022 DER RFP. Table 5.18 provides an overview of the storage resources and their expected contribution. The DER – Storage project resources listed in the first row of the table below represent projects that are PSE or developer owned that provide service to PSE's entire electric territory. These differ from Residential BESS Services listed on the second row of the table, which are customer facing resources that directly support those enrolled participants.

Table 5.18: Storage resources and expected contribution

Resource	Description	Commercial operation date (COD)	Location	BESS capacity (MW AC)
Distributed Storage Projects (BESS)	Standalone storage procured from the DSS RFP ranging from 1 – 5 MWs in size.	2025	Pierce, Thurston, King, and Whatcom counties	Up to 33.5 MWs*
Residential BESS Services	Voluntary residential program that makes BESS services available to certain customers	2025	Throughout PSE's service territory	5 MW**
Total				38.5 MW

* The BESS capacity amount represents the total amount of MWs on PSE's shortlist. The total amount could decrease some as projects go through negotiations, development, and construction.

** Estimate from AutoGrid proposal and Statement of Work provided in September 2023.

These DER – Storage programs combine to account for the following targets in Table 5.19 and are broken down further by the 30 percent named communities targets and 2.5 percent deepest need minimum designation.

Table 5.19: DER – Storage target and named communities designation

Year	DER Storage capacity target (MW)	30% named communities energy benefit target (MW)	2.5% deepest need minimum designation
2025	25 MW	7.5 MW	0.6 MW

7.2. Engagement with named communities

PSE is committed to using the common themes of feedback from the DER Community Engagement Summary to shape tariff design and planned product operations for named communities and their service providers, where possible.

As discussed previously, cost was consistently highlighted by customers as the largest barrier throughout the community engagement process. Our proposed new tariff schedule (see Residential BESS Services section below) includes financial incentives to offset the upfront costs and installation and maintenance support for vulnerable populations, as requested throughout the community engagement process.[12] Please see the DER Community Engagement Summary for additional information.

Additionally, PSE notified community engagement participants after submitting the tariff to the Commission on October 6, 2023, ensuring that they could offer public comment at the Commission's Open Meeting, if desired. We will consider additional community engagement feedback during the go-to-market phase of this product (see the Program Marketing section below for additional information).

12. 2023 Distributed Energy Resources Community Engagement Summary

Looking ahead, PSE will notify community engagement participants when the products they helped design are available to customers so they can apply themselves or make other eligible customers in their communities aware of the offering. The same methodology will apply to future storage products that PSE develops.

7.3. Program updates

Below is a detailed breakdown of the two storage resources/programs highlighted in the table above:

7.3.1. Distributed Storage projects

PSE issued the 2023 Distributed Solar and Storage RFP ("DSS RFP") in December 2022 and began accepting bids in 2023. PSE received nineteen DER – Solar bids, and PSE shortlisted six stand-alone storage bids based on the Societal Cost Test (SCT).

The six short-listed DER – Storage projects are starting the interconnection process. Table 5.20 provides a summary of the aggregated DER - Storage projects. Note: some projects could potentially fall through during the development and negotiation processes.

In the remainder of 2023, PSE expects to execute contracts with 2022 DER RFP bidders and shortlist bids from the 2023 DSS RFP.

Table 5.20: DER – Storage projects by type and location

Resource [Origination]	Description	COD	Counties	BESS Capacity (MW AC)
Distributed generation (solar and hybrid) [DSS RFP]	Hybrid projects 1, 2 and 3	2025		Hybrid: 3.5 MW BESS
BESS [DSS RFP]	BESS 1	2025	King	4.99 MW
BESS [DSS RFP]	BESS 2	2025	Pierce	4.99 MW
BESS [DSS RFP]	BESS 3	2025	Pierce	4.99 MW
BESS [DSS RFP]	BESS 4	2025	Pierce	4.99 MW
BESS [DSS RFP]	BESS 5	2025	Thurston	4.99 MW
BESS [DSS RFP]	BESS 6	2025	Thurston	4.99 MW
				Total: ~33.5 MW

Equity

To support more energy benefits going to named communities, during the RFP process, PSE included evaluation criteria that ranked projects in named communities higher. Most benefits come from these projects being located within the community and cannot be provided remotely.

Of the short-listed BESS resources, half the MWs and number of projects are in medium to high designated vulnerable populations, and a third in highly impacted communities. Of the hybrid resources, all MWs and projects are in medium to high designated vulnerable populations, and two thirds are in highly impacted communities.

Forecasted benefits

The energy benefits for these projects can be broken up into two distinct categories; 1) those provided during the development phase and 2) those provided when the project is operational. During the development phase, developers commit to complying with RCW 82.08.962 and RCW 82.12.962 regarding clean energy labor standards, contracting a percentage of their overall bid to Small, Minority, Women-owned Business Enterprises, and additional benefits. During operation, benefits such as property taxes provided to communities, income eligible enrollees into community solar programs and additional benefits may be provided. For BESS projects there may also be an additional benefit of greater local resiliency depending on the final use cases developed.

The main use case for short-listed DER – Storage projects through this RFP is system peak reduction. However, PSE recognizes there are numerous additional local and system wide benefits that could be realized with DER – Storage projects. As these resources are developed, PSE will look for opportunities to pursue additional benefits such as fast frequency response, energy arbitrage, voltage support, local feeder peak shaving, and any other benefits that can be supported by the project's capabilities.

Future work

For the DER – Solar projects short-listed through the 2023 DSS RFP, PSE and developers are working on the following steps before commercial operation:

- Negotiating ownership and power purchase agreements to define commercial, operational, and pricing terms
- Interconnection studies and interconnection agreement execution
- Project development, which includes developer led community engagement, permitting, site control and additional duties
- Procurement and construction of generation and interconnection facilities
- Commissioning of facilities

7.3.2. Residential BESS Services

Throughout 2023, PSE has been working to develop a 'Residential Battery Energy Storage System Services' program to make available electric residential BESS services to customers.

After working with interested parties[13] and prospective customers to help ensure the tariff schedule would include incentives that would encourage an equitable outcome, on October 6, 2023, PSE filed Schedule 611 - Residential Battery Energy Storage System Services Tariff Schedule with the Commission in Docket UE-230827.[14] This proposed tariff schedule makes several types of incentives available to residential customers who allow PSE to access their batteries during peak energy times, when there is the greatest power demand. Program participants contribute to peak demand reduction resulting in lower energy rates for everyone. The incentive amounts that customers qualify for is based on whether the customer can be identified as a vulnerable population, or a reliability-focused customer[15] as defined in the proposed tariff filing[16] and through verification during the application process.

To support the development of the residential DER – Solar product and tariff filing, PSE:

- Developed product concept brief for a residential storage program in 2022
- Received one bid for residential distributed batteries in the 2022 DER RFP. This bid was selected, and contracting is ongoing. Concurrently, PSE is updating internal standards and processes, and implementing a virtual power plant to prepare for the wide-scale deployment of distributed batteries
- Conducted community engagement on future DER products, including storage, from September 2022 through May 2023 Conducted benchmarking of residential battery programs and assessed secondary research across industry and academic publications. Peer utilities, vendors, and government agencies were contacted to shape and inform program design in 2023.
- Consulted with and presented community engagement feedback and program concepts to the Equity Advisory Group (EAG) and Conservation Resource Advisory Group (CRAG) in 2023.

Equity

As discussed in the engagement with named communities section above, PSE will provide a limited quantity of BESS purchase incentives to reduce the upfront cost of installing a BESS to assist with overcoming barriers toward adoption. BESS purchase incentives will be exclusively offered to vulnerable populations and reliability-focused customers taking service under the proposed schedule. Load management incentives (both participation and enrollment) will be available to all participating customers.[17]

13. PSE engaged with interested parties throughout the product and tariff development process. Those groups were comprised of representatives from highly impacted communities, Vulnerable Populations, and their service providers, as well as the Conservation Resources Advisory Group (“CRAG”), the Equity Advisory Group (“EAG”), and contractors and installers.
14. 230827-Advice-2023-47-PSE-CLtr-(10-06-23).pdf
15 Reliability-Focused Customer refers to a customer who is located in an area of greatest concern as reported by the Company per WAC 480-100-398, electric service reliability reports.
16. 230827-Advice-2023-47-PSE-CLtr-(10-06-23).pdf
17. 230827-Advice-2023-47-PSE-CLtr-(10-06-23).pdf

To address the specific conditions stipulated in Order 08, PSE has implemented several design components to further support vulnerable populations by incorporating findings from the equity-focused community engagement in these tariff filings. These design details are summarized in Table 5.21. In designing future programs for DER – Solar and DER – Storage, PSE will continue to look for opportunities to better ensure benefits flow to named communities.

Table 5.21: Design components in tariff related to Order 08

Condition	Description	Design component in tariff filing	Community engagement input
21	"developing targeting for Named Communities beyond using income as the sole criterion for program eligibility;	Expanded, flexible, eligibility criteria.	Upfront costs were consistently highlighted as the largest barrier to adoption; customers preferred upfront incentives and programs with low to no initial cost Participants highlighted the importance of energy independence and community or personal energy resilience Benefits should be available to all communities, including historically disadvantaged communities that have been left out of programs like these in the past.
21	"offering higher incentives for low-income customers and Named Communities;"	Higher incentives for customers that qualify as a Vulnerable Population customer, as defined in the tariff filing.	
21	"and targeting storage programs to Vulnerable Populations where increased reliability would reduce vulnerabilities."	Higher incentives for customers that qualify as a Reliability-Focused Customer, as defined in the tariff filing.	

Forecasted benefits

In Schedule 611 - Residential Battery Energy Storage System Services Tariff Schedule that PSE filed with the Commission in Docket UE-230827, PSE proposed making available several types of incentives to customers who enroll a qualifying BESS and allow PSE to access their battery during peak energy times. Participating customers will receive load management incentives (both for participation and enrollment). Customers who take part in the program will receive an incentive of up to $1,000 for enrolling their battery in the virtual power plant (VPP). Customers who take part in dispatch events via the virtual power plant will also receive participation incentives of up to $500 per year.

In addition, PSE proposed providing a limited quantity of BESS purchase incentives to reduce the upfront cost of installing a BESS for vulnerable population customers or reliability-focused customers. We have also proposed providing an incentive of up to 100 percent (up to $10,000) of eligible installation and equipment cost for a BESS for a customer identified as a member of a vulnerable population and an incentive of up to 100 percent (up to $5,000) of eligible installation and equipment cost for a BESS for a customer that is identified as a reliability-focused customer.

We will offer BESS exclusive purchase incentives exclusively for vulnerable population and reliability-focused customers taking service under this schedule. The available incentives are shown in Table 5.22.

Table 5.22: Residential BESS incentives

Incentive Type		Availability
Load management incentives	One-time Enrollment incentive	All qualified customers
	Annual Participation incentive	All qualified customers
BESS purchase incentive		Exclusively offered to vulnerable population customers and reliability-focused customers

Program marketing

The go-to-market strategy is under development for the residential battery product launch in 2024. That strategy will incorporate feedback received through PSE's community engagement process and lessons learned through other programs PSE will ensure that future marketing and outreach plans also incorporate those elements. In addition to product specific marketing, PSE needs to educate and raise customer awareness of the value of distributed storage, inform customers about available products that can address their needs, and remove barriers for customers to participate.

We will provide education through mass-market commercial and residential channels such as online, bill inserts, and partnerships with market actors. To ensure engagement with named communities, PSE will consider the following tactics for marketing and outreach: transcreation of materials, email, direct mail, advertising, owned and earned media, local events, partnerships with community-based organizations, workshops, and other locally appropriate tactics to meet customers where they are.

Future work

To create a successful program, PSE will complete the following actions over the next two years:

- Completing contracting with bidders for the 2022 DER RFP in 2023;
- Continuing to update internal standards and processes throughout 2024;
- Completing work related to the build out of the virtual power plant to prepare for the wide-scale deployment of distributed batteries in 2023 and 2024;
- Engaging in customer education and outreach in 2024;
- Engaging in contractor and installer education and outreach in 2024; and
- Building PSE internal processes, including billing, rebate processing, website updates, etc., in 2024.

7.4. Future programs

In addition to the residential battery product, PSE anticipates launching new distributed storage products in 2024 and 2025 for both residential and commercial and industrial customers, with varying ownership structures, informed by community engagement feedback.

In 2023, PSE conducted community engagement on future DER products, including batteries. PSE also began to conduct benchmarking of residential rent-to-own battery programs offered by other utilities

and assessed secondary research across industry and academic publications. Finally, PSE began to develop a product concept brief for a potential rent-to-own battery product.

Looking ahead, PSE plans to:

- Complete benchmarking and secondary research in 2024
- Complete product concept brief in 2024
- File a product tariff in 2024
- Develop a go-to-market plan in 2024
- Launch a product in 2025

The next round of customer facing battery storage program concepts to develop are discussed below.

7.4.1. Residential Rent-to-Own (behind the meter)

In compliance with Condition 19 in Order 08, PSE removed the residential rooftop solar and residential battery leasing program concepts from consideration and will instead assess the opportunity to offer rent-to-own or other options for named communities and other residential customers. These opportunities for storage and solar rent-to-own option are discussed in the DER – Solar section of this chapter.

7.4.2. C&I Battery Program

PSE is considering a program that leases space from commercial and industrial customers to deploy battery storage with an option to provide on-site backup power on site for customers at a small fee. PSE will also consider a commercial and industrial program that can build on the residential BESS program as a complement or alternative offering for commercial and industrial customers. The storage program will contribute to system peak energy management.

7.4.3. Commerce Solar and Storage Program

In 2022, the Washington State legislature allocated $37 million dollars to be dispersed by the Washington State Department of Commerce in 2023 as grants to "increase solar deployment and installation of battery storage in community buildings to enhance grid resiliency and provide backup power for critical needs, such as plug load and refrigeration for medication, during outages."[18] The Department of Commerce launched the Solar plus Storage for Resilient Communities grant program[19] to disperse the funds allocated by the State to fund:

> Solar and battery back-up power so community buildings can provide essential services when the power goes out. Grants support installation as well as planning work for solar plus storage systems at community buildings, including schools, community centers,

18. FY2023 Washington State Supplemental Operating Budget (section 128, subsection 227)
19. Solar plus Storage for Resilient Communities program – The Washington State Department of Commerce

libraries, and other buildings owned by local, state, tribal governments, and non-profits in Washington.[20]

Program projections

The intent of the Solar plus Storage for Resilient Communities grant program is to provide funding for two distinct tracks. Track 1 is for applicants needing additional technical assistance before applying for Track 2. Track 2 provides funding resulting in the completion of solar plus battery projects.

Track 1 provides funding for planning and predevelopment services for projects that:

- Complete community outreach and engagement to identify community needs and preferences for backup power provided by solar and battery storage
- Complete feasibility studies, cost estimates, specifications, or other design work
- Identify sites suitable for solar and battery storage equipment

Track 2 provides funding for projects that complete the installation of solar and battery storage systems including:

- Final design
- Purchase and installation of equipment
- Commissioning, development of operational plans, and workforce training for maintenance and operation of equipment
- Community outreach to increase the awareness of a facility funded under this grant

In early 2023, PSE announced an offer to partner with Track 2 grant recipients, whereby PSE would provide Track 2 awardees with the 30 percent minimum matching funds (or 10 percent for Tribal entities) as required by the Solar + Storage for Resilient Communities grant program. Track 2 awardees accepting PSE's offer would enter a contract with PSE, in which the awardees would provide PSE with ten years of grid services during peak periods or provide other grid services to PSE.

In 2023, PSE provided Track 2 applicants operating within PSE's service area with Letters of Intent indicating PSE's offer to partner with Solar + Storage for Resilient Communities grant program awardees. Three award recipients initiated discussions with PSE regarding a partnership since the Department of Commerce announced the first round of Track 2 funding recipients in the third quarter of 2023. Additionally, PSE has signaled its continued interest in partnering with future applicants for Track 2 funding.

Finally, while PSE intends to include partnered MWs of installed solar and storage as part of the Solar plus Storage for Resilient Communities grant program towards meeting PSE's 2025 CEIP DER targets, exact MWs will not be known until all projects awarded Track 2 grants in 2023 are installed and interconnected.

20. Solar plus Storage for Resilient Communities program – The Washington State Department of Commerce

8. DER Enablement

8.1. Purpose

The 2021 CEIP presents an initial layout of the DER enablement activities needed to design, launch, and manage a portfolio of DER pilots and programs efficiently and effectively. The following section provides an update on major work streams and the associated enablement activities. PSE also provides an action plan for each of the remaining years of the 2022-2025 compliance period.

In Order 08, the Commission included the following Condition 30:

> **CONDITION 30:** PSE must remove the following costs from the CETA portfolio: Hosting Capacity Analysis ($6.19m); Virtual Power Plant ($9.62m); Data Lake and Analytics ($3.65m); Substation SCADA – Accelerated ($41.36m); and Circuit Enablement-DER and Microgrid ($57.5m). The removal of these costs from the projected incremental cost of compliance with CETA in this Docket should not impact PSE's ability to request cost recovery for these investments in a future filing.[21]

Consistent with Condition 30, PSE will remove the following projects from the incremental cost calculation: Hosting Capacity Analysis; Virtual Power Plant; Data Lake and Analytics; Substation SCADA – Accelerated; and Circuit Enablement-DER and microgrid. We still provide an update on the projects above as the work will continue to enhance the grid for future DER development.

➔ Further details for all DER enablement work streams are provided in Appendix G: DER Enablement.

8.2. Program updates

8.2.1. Strategy & Portfolio Planning workstream

Innovation project and emerging technology process

Specific actions

In 2021, PSE issued an RFI for DERs, which enhanced PSE's understanding of DER options available in its service territory and informed the development of the 2022 DER RFP. PSE also developed a roadmap of DER demonstration projects through 2028 to test new technology and customer engagement strategies. Additionally, PSE has continued work on the Samish Island Community Microgrid demonstration project. The microgrid was installed in June 2023 with commissioning on-going as of November 1, 2023, and will test the ability of the microgrid to island during grid outages and load-

21. See Order 08, infra note 1, Appx. A at ¶ 32.

level a distribution circuit with a high penetration of solar. This project followed a New Technology Framework that facilitates incorporating the learnings from the development and operations of past projects and helps PSE to incorporate new technology with agility and high confidence.

Future work

Through the remainder of 2023, PSE will refine the demonstration project roadmap to prioritize the highest impact projects from customer, equity, and grid benefit lenses. In 2024, PSE plans to begin development of a grid-interactive efficient building and a community solar and battery microgrid demonstration projects, and in 2025 will begin vehicle-to-grid, smart electric panel, and consumer-scale battery demonstration projects.

Non-Wires Alternative (NWA) evaluation tool & methodology

Specific actions

Demonstration projects will be prioritized and evaluated using feedback from the DER Community Engagement summary and sites for future projects will be evaluated using the CETA Equity Plan scoring criteria used in the 2023 DSS RFP.

- Bainbridge Island
  - PSE has completed the RFP to select an Engineering, Procurement, and Construction battery vendor and has been working on completing the design for the full NWA solution.
  - Based on the current project timeline, PSE expects the project to be installed in 2027.
- Issaquah Area Distribution Capacity
  - PSE completed a non-wires analysis as part of the Issaquah area distribution capacity solutions assessment. Industry experts performed this assessment and concluded that a Non-Wires Alternative would not be cost competitive when compared with the proposed wires alternatives.
  - Although the Issaquah area distribution capacity solutions assessment did not result in the installation of a NWA solution, it helped PSE better understand NWA solutions and how they can be applied to needs on the system.
- Sumner Valley Area Distribution Capacity
  - PSE is currently in the evaluation of feasible NWAs that could meet the needs of the Sumner Valley area. PSE is completing this analysis in partnership with industry experts and will help to advance PSE's knowledge of NWAs and how they can be applied to meet the needs of the system.

Future work

- **Kitsap Transmission Capacity Upgrade project**

  PSE plans to issue a Non-Wires Alternatives Request for Proposal (the NWA RFP) for Kitsap County in late 2023 to investigate potential non-wires solutions for Kitsap County transmission

needs. This is consistent with the Commission requirement for PSE to evaluate non-wires solutions in its solutions development process. PSE will evaluate bid responses to the NWA RFP and integrate potential projects in developing potential transmission solutions to meet transmission needs in Kitsap County. PSE will compare potential solutions in terms of cost, benefits, and risks to determine a final solution that could be traditional wire upgrades, non-wires upgrades, or a hybrid solution (combination of wires and non-wires upgrades) to meet Kitsap County transmission needs.

- **Future NWA projects**

  PSE will continue to utilize the tools available to evaluate NWAs as part of the solution alternatives for major projects. These tools include NWA filter criteria, basic analysis, and detailed analysis. PSE will also continue to evaluate the effectiveness of RFP and other methods of soliciting NWAs to evaluate project solutions.

Relevant Order 08 Condition Summary

In Order 08, the Commission included the following Condition 25:

> **CONDITION 25:** In the 2023 Biennial CEIP Update, PSE must explain the selection process for NWA projects developed prior to preparing the CEIP and clarify how the Company views DERs as compared to NWAs. PSE must also describe the differences between the DER selection process and the NWA selection process and why they follow different evaluations and selection processes. PSE must also explain how it distinguishes between NWA projects that are necessary to meet CETA requirements and NWA projects that should be considered part of the Company's core business operations (i.e., reliability, etc.).[22]

Before preparing the 2021 CEIP, PSE evaluated NWA projects using established tools and processes developed in partnership with industry experts. These tools consider the system needs identified for a particular area and determine if NWA technologies would be an applicable alternative for that project. After identifying NWA opportunities in comparison with traditional solutions, NWA resources were identified based on local area needs without consideration of overall system-wide resource requirements. The benefits of these NWAs were localized to the specific area they served, and the needs identified within the project. NWA are cost-effective solutions for customers to provide reliable alternatives to traditional capital investment.

We identify the use case of a resource as the primary difference between DERs and NWAs. DERs are resources identified to meet system resource needs, whereas NWAs are installed to defer or eliminate the capital infrastructure investment and to meet specific needs identified on the grid. PSE evaluates NWAs on an individual project by project basis and are limited by technical criteria, project time, and economics, whereas PSE evaluates DERsas part of a system-wide evaluation. Once PSE identifies

22. [1] See Order 08, infra note 1, Appx. A at ¶ 27.

resources as feasible DERs, PSE evaluates whether these resources can solve local grid needs in addition to system-wide resource requirements. It is important to note that both DERs meant to provide system-wide resource and NWAs meant to the needs of local system are made up of the same technology and have secondary use cases serve as both system-wide DERs and local area NWAs.

Although all NWA installations are identified to meet specific needs and will operate as part of PSE's core business operations, there are opportunities for some of these resources to have an additional benefit of addressing CETA compliance requirements. These projects must be evaluated using PSE's NWA evaluation tools to ensure they can reliably contribute to CETA requirements while also meeting local grid needs.

In Order 08, the Commission included the following Condition 26:

> **CONDITION 26:** In the 2023 Biennial CEIP Update, PSE must explain why the NWAs evaluation tool and associated costs are included in the CEIP and explain why the tool is necessary for CETA compliance.

To ensure that PSE provides holistic, cost-effective solutions to customer needs, PSE's NWA evaluation tool is necessary for CETA compliance. By evaluating both the ability of installed DERs to meet identified local system needs and of NWAs to meet system-wide needs, PSE can increase the benefit of installed resources. We must utilize the NWA evaluation tool to identify how DERs can potentially have multiple use cases and can contribute to CETA compliance requirements. As mentioned previously, it is important to note that both DERs meant to provide system-wide resource and NWAs meant to the needs of local system are made up of the same technology and have the potential to serve as both system-wide DERs and local area NWAs. The cost of the NWAs evaluation tool was included in the CEIP because it is part of PSE's plans to meet its CETA obligations for compliance.

Data Lake and Data Analytics

Specific actions

The Data Lake and Data Analytics project includes implementation of a data repository capable of bringing together large, complex and isolated data sets and connecting them to analytics tools.

Actions completed or planned to be completed in 2023:

- Submitted a Request for Proposals (RFP) for a data lake and data analytics solution. PSE is currently negotiating contracts.
- Developing configuration, policy, test plan and training plan documents for solution implementation. Currently scheduled to begin installing and configuring the solution in 2023.
- Identified target data sources, interested parties and analytics use cases from electric operations groups. The use cases have been prioritized and requirements are being defined for the first two use cases.

Future Work

In 2024 and 2025 PSE will connect target data sources to the data lake, develop processes for managing data sets and analytics tools, implement data governance policies, training, and define requirements for and complete prioritized use cases.

Geospatial load forecasting

Specific actions

Through the LoadSEER program and the development of the DER Optimizer tool, PSE will continue to develop Geospatial Load Forecasting use to benefit DER installations.

Future work

As more DERs are installed on the system, PSE will continue to develop its knowledge regarding DER Optimizer.

Battery interconnection and standards strategy

Specific actions

Detailed below, PSE has broken the battery interconnection and standards strategy into three main categories:

1. The first category is strategy and alignment. PSE subject matter experts are synchronizing efforts between PSE's DER enablement strategy, other IT initiatives, such as complex billing, and regulatory impacts and policy hurdles.
2. The second category outlines the process and analysis methodology for safe and effective interconnection. PSE will develop processes and identify divergent steps for different battery types. Planning teams will also develop an analysis methodology for the current and future influx of battery interconnections. The last activity is to update the GIS mapping and billing setup processes for battery interconnections to reduce the time and effort required.
3. The third category of this strategy is standards. PSE will work to develop design and communication standards for all distribution-interconnected batteries. Additionally, the Schedule 152 Technical Specifications detailing the interconnection requirements will be updated.

Future work

The strategy team aims to identify, outline and finalize the standards and interconnection processes in the fourth quarter of 2023. Customer battery programs will start to enroll in the first quarter of 2024, and PSE must finalize all interconnection and standard processes before enrollment.

Hosting Capacity analysis

Specific actions

Hosting Capacity results estimate the amount of load or generation that can be accommodated by the electric distribution system at a given time and location without requiring infrastructure upgrades.

In 2021, PSE launched a "proof of concept" Hosting Capacity Heat Map to provide visibility and transparency into the solar generation capabilities of a given area. This was a successful first step to support PSE's DER resource planning goals. To continue this momentum, PSE kicked off a project in mid-2023 to expand the map's capabilities and improve the customer interconnection portal. This project focuses on developing additional hosting capacity capabilities and use cases, such as load-serving hosting capacity for large new customer load requests like fleet EV charging.

Future work

The Hosting Capacity enhancement project consists of three deliverables:

1. **The hosting capacity analysis tool**: This deliverable includes expanding the type of hosting capacity analysis to include both energy production (addition of generation) and consumption (addition of load). PSE will update the existing process for solar HCA, and establish new process for calculating load-serving capacity (referred to as EV charging capacity). The main hosting capacity analysis tool is Synergi, which takes in data from a variety of other sources including GIS, PI System data, SAP, etc. PSE will update these data streams and processes to increase the accuracy of the hosting capacity analysis results and streamline the refresh process.
2. **Hosting capacity map**: This deliverable focuses on expanding the usability of PSE's heat map application for both internal and external interested parties. PSE will expand the web portal to include maps for both photovoltaic generation and EV hosting capacity use cases. More relevant data points will be available to end users along with an enhanced user guide for interpreting the results of the map.
3. **Enhanced interconnection portal**: This deliverable focuses on streamlining the interconnection process by prescreening and prioritizing applications. The interconnection portal enhancement effort aims to build out additional functionality in PowerClerk to automatically screen incoming customer applications.

Through this project, PSE desires to produce a self-service portal for distribution system capacity information, primarily for photovoltaic generations and EV use cases. The hosting capacity will in turn be integrated with the customer interconnection portal and business processes at PSE to increase efficiency for project screening and prioritization. Estimated completion for these enhancements is by the end of 2024.

8.2.2. Operations workstream

Asset management strategy and planning

Specific actions

To build the foundation for our scaling DER portfolio, PSE defined roles and responsibilities as well as outlined DER assets prioritization. The first DER assets PSE prioritized and established roles and responsibilities for were Community Solar assets. The asset strategy, which PSE outlined in the second and third quarters of 2023, defined internal processes, while also outlining the scope PSE will contract to Engineering, Procure and Construct ("EPC") vendors. PSE's asset strategy team defined a maintenance plan and standard document which will be utilized for all internal and external (EPC) community solar assets moving forward.

Future work

Once PSE has finalized the Community Solar strategy, the team will work to outline roles and responsibilities of PSE's larger utility scale solar projects (connected to ADMS/SCADA) in the fourth quarter of 2023. The last phase of the strategy will be for the PSE asset management strategy team to outline roles and responsibilities for front of the meter (FTM) battery projects in the first quarter of 2024.

Dispatch operations strategy and planning

Specific actions

To manage controllable thermostats and water heaters for demand reduction for targeted demand side management resources in the winter season of 2022-23, PSE implemented a virtual power plant (VPP). The targeted customers were in specific geographic areas where a demand reduction program was identified as a non-wires alternative (NWA) to defer the need for a new substation. The winter 2022-23 dispatch strategy tested various preheat parameters and demand reduction periods through eight separate events to determine the optimal dispatch parameters for a reduction event.

Moving forward, PSE will monitor weather conditions, temperature, and event results to determine if changes to the optimal dispatch parameters are warranted.

Future work

In 2024 and 2025, PSE will build off the dispatch strategies established in the first biennium with the following projects:

- As discussed previously in this chapter, PSE will launch a residential BESS program in 2024 using the virtual power plant to dispatch events
- PSE will deploy Tenino and Bucoda microgrids in 2025 with resiliency as their primary use case.
- PSE will deploy the DER – Solar projects acquired through the DSS RFP in 2025, which will follow the same dispatch and communication structure as the Poulsbo battery.

ADMS Advanced Apps

Specific actions

In 2023, PSE defined business requirements and contracted external technical expertise to develop a feasible design as highlighted below:

- Began design phase for advanced applications and established contracts to leverage external technical expertise.
- Procured and lab-tested new field devices needed for advanced applications.
- Built-out communication infrastructure to support software and hardware integrations.

Future work

In early 2024, PSE will continue design work. In the second quarter of 2024, PSE will transition from design to execution with initial documentation of learnings and familiarizing business units with the new technology. The following activities highlights the execution tasks:

- Transition from design to execution phase to implement advanced applications.
- Build out distribution infrastructure.
- Integrate distribution infrastructure to advanced applications.
- Document processes (i.e., modifying existing processes and/or to-be processes).
- Document learnings from pilots to determine how best to operationalize and scale systems post-pilot.
- Determine next potential substations for deployment.

Virtual Power Plant

A virtual power plant (VPP) is a cloud-based scheduler and controller that aggregates DERs for system peak capacity management. This technology capability is focused on behind the meter resources. In 2021, PSE began working on a VPP to provide a centralized application for enrolling, forecasting, dispatching, and assessing the performance (measurement and verification) of individual and combined programs across PSE's portfolio. Included in the portfolio are programs that support residential demand response (thermostats, batteries, EV/EVSE, water heaters), flex events, commercial and industrial demand response, residential batteries, commercial and industrial batteries, and more.

Program timeline

In 2021 PSE selected AutoGrid as the VPP vendor. The following year, PSE and AutoGrid worked together to design and implement a functional VPP platform. The platform allowed the manual enrollment, monitoring, aggregation, forecasting, dispatch, reporting, and management of DERs. Utilizing the VPP, PSE executed a series of demand response events supporting a pilot program for Bainbridge Island and some selected areas in Duvall, Washington.

This year PSE has expanded the VPP platform and scaled to support the system peak demand response use case in alignment with PSE's Integrated Resource Plan. Customers will have the option to enroll in a variety of programs from anywhere in the PSE service area. The VPP will be enhanced to

provide automated enrollment, validation, aggregation monitoring, reporting, and management of customers for all participating programs.

Future work

To fully integrate a VPP, PSE will require additional platform development. Future efforts include the development and execution of programs that support additional capabilities beyond demand response, integration with the trade floor and supporting transportation electrification efforts. VPP enhancements will also extend automation capabilities to include the forecasting, scheduling, and dispatch of DERs. Given that VPPs are a trending technology in the industry, PSE is working to establish system peak capacity management as the primary use case. Additionally, PSE is tracking industry developments of VPPs to maintain awareness of potential future opportunities.

Benefits

Some utilities have encountered growing pains because they built disjointed DER and DR programs that were managed by a variety of internal teams, vendors, and applications. Conversely, PSE is building a common platform that will manage all the programs under one umbrella as one “power plant.” This approach results in significant operational efficiencies, maximization of participation and visibility of DER and DR programs. Over the next few years, PSE is expecting to manage up to 100 MW by this platform; equivalent to large scale traditional thermal power plant or wind farm providing a significant contribution to PSE’s CEIP.

8.2.3. Resource Acquisition workstream

Project and site selection

Specific actions

As part of PSE’s new site solicitation process, we will include a continuously rolling submission process. We collect information and evaluates sites, both rooftop and ground from an online “Host an Energy Project” portal, and determines feasibility including potential for energy production, cost effectiveness, and equity considerations. By using PSE’s resources and broad outreach abilities, we can mitigate one of the harder issues of project development, site identification.

Future work to be done

As PSE solidifies the internal processes for the site solicitation process and develops additional customer products, PSE will promote the portal and spur site owner activity to collect more sites for DER development.

8.2.4. Customer Care workstream

Market engagement and benchmarking

Specific actions

Since filing the 2021 CEIP, PSE has pursued secondary research and benchmarking to inform DER product development. The residential and non-residential market segmentation has been evaluated from a DER perspective. PSE has connected with federal, state, local, and utilities to assess programs and enablement. PSE continues to participate in key industry organizations and meet with vendors and emerging technology providers. Demonstration projects continue to inform standards, process, and technology enablement. PSE has also obtained benchmarking through the DER, DSS, and Community Solar RFPs.

Future work

In the next biennium, PSE will continue to assess and adjust plans according to the evolving DER market. PSE will continue to build on specific actions and include customer, environmental, regulatory, technology, commercial, and interested party engagement and benchmarking.

Digital Experience (formerly known as DER Customer Care & Experience Strategy)

Specific actions

By the end of 2023, the PSE Digital Experience program will enable a multi-channel customer experience by building:

1. A product/service landing page on the pse.com website that allows customers to search and/or browse products and services
2. Consistent detail pages on the pse.com website for access to product/service education information, eligibility criteria, enrollment, and management, and
3. Enhancements on the My Account and My Bill pages on the pse.com website that present products/services, including DERs, to customers.

Future work

In 2024, the PSE Digital Experience project will expand the work completed in 2023 by:

- Adding the ability to “personalize” DER product/service recommendations to customers on the pse.com website based on account data
- Enhancing the business/commercial customer experience to display DER product/service recommendations on the pse.com website
- Expanding the customer preference center to include additional communication consent categories

- Making it easier for returning customers to manage their communications and product/service enrollments by adding customer communication consent and program enrollment to the start service transaction flow
- Implementing role-based access to give customers more flexibility to manage their products/services through their online account or when contacting PSE customer care

Customer Relationship Management (CRM) platform

Specific actions

As part of the Customer Relationship Management project, PSE will implement an industry leading marketing platform to enable more data-driven program marketing tactics to support the DER program outreach, resulting in increased program participation per dollar spent.

Future work

In 2023, the Customer Relationship Management project team will complete the product selection, select an implementation partner, and define the business requirements. In 2024, PSE will complete the system build and launch, thereby providing PSE with the ability to better communicate with its customers. Scope will also include proper training of staff to ensure that customers receive the best possible service.

Complex Billing Functionality

Specific actions

To enable multiple DER programs with common billing functionality such as fixed monthly payments, event-based compensation, time-of-use periods, and interconnection billing/payments, PSE will use a coordinated approach to IT billing system upgrades. This project will incrementally deliver new functionality and services to support DER programs, as well as new products and services supporting CETA goals.

Future work

In 2023, the complex billing functionality project will deliver several billing products including: Fleet Charging Incentives, Time-of-Use Incentives, Bill Discount Rates, and Demand Response Incentives. In 2024, the project will deliver Peak-Time-Rebate Billing, Net Metering 2.0 Billing, and Community Solar Billing.

All new billing and incentive capabilities will enable benefits for named communities, including recently implemented tiered reductions through the Bill Discount Rate program. Community Solar will provide new, non-traditional solar opportunities for named communities.

8.2.5. Equity

Investment Decision Optimization Tool

The Investment Decision Optimization Tool ("iDOT") is PSE's terminology for its optimization software. The tool optimizes benefits and costs for a given financial portfolio and selects the best set of feasible projects against a set of constraints and dependencies.

In April 2023 PSE updated its iDOT with new benefits and costs related to equity in response to paragraph 26 of the Settlement Stipulation and Agreement on Revenue Requirement and All Other Issues Except Tacoma LNG and Green Direct in Dockets UE-220066, et al.,[23] which paragraph 26 states as follows:

> **26.** Investment decision optimization tool ("iDOT"). PSE will develop new benefits and costs (with associated weights) related to equity for use in the optimization step in its replacement software for iDOT.
>
> **a.** PSE must, at minimum, collaborate with its Equity Advisory Group, Integrated Resource Plan ("IRP") Advisory Group, and its customers, particularly in named communities. Engagement with these groups will occur at least at the "Collaboration" level on the International Association for Public Participation Spectrum.
>
> **b.** New benefits and costs in the iDOT should include, but are not limited to, societal impacts, non-energy benefits and burdens, and the Social Cost of Greenhouse Gases, as well as any other benefits and costs deemed appropriate after engagement with PSE's advisory groups.
>
> **c.** PSE will establish a process for including new iDOT benefits and costs within the Solutions Assessment of projects.
>
> **d.** Once PSE has completed its pilot distributional equity analysis, participated in the Commission Staff-led process, and has received approval from the Commission for its methods (and updated its analysis as necessary to reflect the approved methods), PSE will incorporate such analyses as a decision-making tool alongside the Benefit/Cost Analysis ("BCA"), which is currently performed in the Optimization step and the Alternatives and Solutions Analysis step.[24]

These requirements culminated in PSE's first effort of adding an additional equity benefit category for ability to consider distributional effects in the optimization step. All projects optimized in iDOT are evaluated for how customer equity is addressed in each alternative. To align with broader company objectives and programmatic analysis, PSE leverages Customer Benefit Indicators (CBIs) and information established as part of the Biennial Update to identify an equity framework to evaluate

23. WUTC v. Puget Sound Energy, Order 24, Appx. A (Settlement Stipulation and Agreement on Revenue Requirement and All Other Issues Except Tacoma LNG and Green Direct) (Aug. 26, 2022)
24. WUTC v. Puget Sound Energy, Order 24, Appx. A (Settlement Stipulation and Agreement on Revenue Requirement and All Other Issues Except Tacoma LNG and Green Direct) (Aug. 26, 2022) at 16.

system projects. As the process continues to mature, PSE will continue to adjust and refine equity consideration in specific projects when necessary.

9. Grid Mod

9.1. Purpose

The 2021 CEIP has helped to bring visibility to some of the fundamental capabilities needed for the electric grid in preparation for clean energy transformation. For years, PSE has been investing in the modernization of the grid; this reporting is going to focus specifically on the efforts driven by the CEIP. These efforts fall into the three categories below:

- Substation Supervisory Control and Data Acquisition (Sub SCADA)
- Resiliency Enhancement
- Circuit Enablement – DERs and Microgrids

The electric distribution system was not originally designed to accommodate reverse power flow, so system upgrades are often necessary as part of DER interconnection. The main goal of the Circuit Enablement – DERs and Microgrids, is to proactively address system constraints that limit DER penetration and microgrids. As a result, PSE will ideally encourage more customer DER adoption by reducing interconnection barriers.

Note**:** Substation Supervisory Control and Data Acquisition (Sub SCADA) and Resiliency Enhancement projects have been removed from this update in accordance with the GRC settlement, where these projects will be discussed and costs attributed. PSE also will remove Substation SCADA from the incremental cost calculation based on Condition 30 of Order 08.

With the removal of these other three projects, the subsequent sections only describe the Circuit Enablement – DERs and Microgrid project.

9.2. Project update

9.2.1. Circuit enablement – DERs and Microgrid

The 2021 CEIP outlined the targets for this project as described in Table 5.23.

Table 5.23: 2021 CEIP project targets

Year	# of Circuits Enabled	MWs of DERs
2023	7-8	5 MW
2024	8-9	5 MW
2025	12	5 MW

In 2023, PSE scoped ten different circuits, five of which are located in highly impacted communities, to add approximately 18 megawatts of DER hosting capacity.

The projects outlined in Table 5.23 targeted circuits in areas projected to have higher DER penetration. In the process of fine-tuning the scope of our projects, PSE found it was operationally more beneficial to prioritize increasing the number of megawatts of hosting capacity over the number of circuits enabled.

The strategy for this project's initial phase identified circuits that were most likely to install more DERs, both in front of and behind the meter. Initial assessment involved identifying circuits with existing DER connections, high net-metering (residential solar), high-solar production, and circuits identified as serving highly impacted communities. With this priority list, PSE conducted deeper studies to upsize small conductors that limit hosting capacity.

In the early stages of incorporating equity considerations into system planning efforts, PSE created the highly impacted communities circuits list by identifying circuits that intersected with a highly impacted communities' geography. As data capabilities evolve, PSE will revise this methodology as equity definitions, and strategies.

Equity considerations are performed within Investment iDOT, PSE's project portfolio optimization and multi-variable attribute value-based decision analysis tool.

9.3. Engagement

With our engagement strategy, PSE has opened and driven conversations to explore further developments between DER and equity, as the strategy team is actively looking into other partnerships with Community Solar, Community Resilience Hubs, Washington State Resiliency Grants, PSE's Distributed Solar, and Storage RFP. Three notable efforts are:

1. In collaboration with Community Solar, future partnerships with Community Resilience Hubs, creating circuit scorecards to apply more effective and strategic solutions (i.e., targeting DER in capacity-constrained areas, layering on equity analysis)
2. Integrated wildfire strategies for system improvements in wildfire-risk areas
3. Benefits increasing load hosting capacity as circuit enablement efforts improve expanded customer connections, whether generation or load

9.4. Future work

To continue upgrade implementation and system replacements in areas that PSE forecasts deficiencies in hosting capacity, PSE plans to increase hosting capacity for the enablement of DERs and microgrids. Depending on location and type of DER interconnection to the electric grid, some or all the following solutions are necessary:

- **Upsizing of assets such as conductors and service transformers:** Additional DERs typically exceed the rating of existing service transformers and conductors feeding smaller neighborhoods or areas near the end of a circuit. Investing in upgrades directly offsets DER interconnection costs.
- **Line capacitors/regulators or substation transformer upgrades for voltage regulation:** Proper voltage is necessary for the electrical equipment to operate correctly. Interconnecting new DERs can introduce voltage variation above PSE's standard service requirements; PSE's Schedule 80 dictates the allowed voltage at the customer services. Equipment to manage the voltage throughout the distribution circuit such as capacitors/regulators and/or substation transformer upgrades are required to prevent voltage variations during DER interconnections. These directly offset DER interconnection costs.
- **Additional reclosers and protective relays to form microgrids:** Microgrid creation requires isolating load and generation from the utility power grid. Additional reclosers and protective relays are needed to achieve proper microgrid isolation, inclusion, and protection. These do not offset DER interconnection costs but are needed to provide enhanced resiliency to customers once DERs are included in the system.
- **Substation upgrades such as smart circuit breakers, 115 kV circuit switchers, or communications to protect the system from higher fault currents:** Interconnecting DERs can introduce additional fault currents in case of equipment failure. Proper protection and prevention of catastrophic equipment failure require upgrades to existing high voltage circuit breakers, switches, or related communications. These upgrades directly offset DER interconnection costs.
- **Improving communication networks for granular loading data:** Knowledge of the existing load trends and real-time management of the circuit must be refined. Upgrades to the existing communication network to support real-time visibility are needed. These upgrades directly offset DER interconnection costs.

Additionally, PSE is assessing the usage of a DER optimizer tool to apply to our system assessments to strengthen strategy development.

9.5. Impacts from Conditions

In Order 08, the Commission included the following Condition 30:

> **CONDITION 30:** PSE must remove the following costs from the CETA portfolio: Hosting Capacity Analysis ($6.19m); Virtual Power Plant ($9.62m); Data Lake and Analytics ($3.65m); Substation SCADA – Accelerated ($41.36m); and Circuit Enablement-DER and Microgrid ($57.5m). The removal of these costs from the projected incremental cost of compliance with CETA in this Docket should not impact PSE's ability to request cost recovery for these investments in a future filing.[25]

25. See Order 08, infra note 1, Appx. A at ¶ 32.

In this Biennial Update, PSE removed two projects from the Grid Mod section of the incremental cost calculation: Substation SCADA and Circuit Enablement – DERs & Microgrid. This change is reflected in Appendix E: Biennial Cost Update.

10. Energy assistance

10.1. Purpose

One of PSE's current CBIs addresses Energy Security, which is measured through residential arrearages and disconnections for non-payment. On October 1, 2023, PSE implemented a new Bill Discount Rate program designed specifically to reduce energy burden for customers with the greatest need. PSE designed the program through a collaborative process with members of our Low-Income Advisory Committee over an intensive series of meetings and conversations. The Bill Discount Rate program includes improvements over previous energy assistance programs such as self-declaration of income and household size, simplified online forms, and automated applications for PSE Home Energy Lifeline Program.

10.2. Current and future work

To support the Bill Discount Rate program and ensure rapid customer adoption, PSE is implementing a focused effort to deliver over 150 outreach activities in support of the program launch to share information with customers and local service providers. The effort includes workshops at libraries, food banks, health clinics, senior centers, immigrant assistance centers, veteran resource centers and other community organizations in multiple languages to provide one-on-one assistance to customers in named communities.

Community organization staff trained by PSE have also been able to assist customers through the sign-up process, some indicating that it will be their top priority during the heating season.

➔ The program was also a focus of our Equity Forums discussed in Chapter 4: Public Participation.

This engagement work is ongoing as we work to enroll customers long-term.

11. Leveraging public funding

11.1. Funding

Through state and federal programs, PSE is working to leverage available funding opportunities that can accelerate our efforts to reduce carbon emissions, as well as reduce the costs associated with the transition to clean energy and improve affordability for our customers.

An overview of current funding sources:

- Infrastructure Investment and Jobs Act grant funding
- Inflation Reduction Act tax credits for consumers and businesses
- U.S. Department of Energy loan programs
- Washington state programs – state appropriated funds and federal allocations

When Congress passed the Infrastructure Investment and Jobs Act (IIJA) in November 2021, PSE hired external consulting support to evaluate funding opportunities that would provide benefits to customers and align with PSE's strategic needs. The consultant worked with a cross-section of PSE leaders to build an approach for the IIJA application process. From December 2021 to February 2022, PSE evaluated all grant opportunities where a utility could directly receive funding as well as opportunities where utilities could partner or be a sub-grantee; PSE projects and programs were assessed for readiness and impact against grant descriptions and scoring criteria released by the U.S. Department of Energy. Based on this scoring process, PSE decided to proceed with grant applications in three areas: Grid Flexibility, Grid Resilience, and Regional Clean Hydrogen Hub.

Grid Flexibility: On March 16, 2023, PSE submitted a Grid Flexibility grant application for the maximum possible award of $50 million.

Grid Resilience: On April 6, 2023, PSE submitted a Grid Resilience grant application for the maximum possible award of $100 million.

The competition for these grants was high, with over 700 applications received. On October 18, 2023, the U.S. Department of Energy released the list of 58 winning applications for the first round of Grid Flexibility and Grid Resilience grants. Unfortunately, PSE's projects were not among those selected. There are two additional rounds of funding expected for these grants and PSE intends to pursue these opportunities in the future.

Regional Clean Hydrogen Hub: PSE is a member of the Pacific Northwest Hydrogen Association (PNWH2), a consortium of public and private entities spanning Washington, Oregon and Montana working together to bring clean hydrogen power solutions that leverage the region's vast renewable energy resources, to market. On April 7, 2023, PNWH2 submitted a grant application to secure funding for a regional clean hydrogen hub. PSE is one of 17 companies that has projects proposed as part of

the hub. PSE's project is centered on using hydrogen for peak power generation to help maintain a clean, reliable grid.

On October 13, 2023, the U.S. Department of Energy selected PNWH2 for award negotiations following a competitive nationwide process. The PNWH2 Hub (Hub) is eligible to receive up to $1 billion in federal funding over four development phases spanning nine years. The Hub's projects will drive economic opportunity across all demographics, creating or supporting more than 10,000 good-paying jobs and stronger energy security to improve the lives and futures of people throughout the region. The Hub's vision and projects were developed with leadership from Tribes, unions, industry and many others and will help deliver a shared vision of clean and equitable energy systems in the Pacific Northwest.

11.2. Future work

PSE has established an internal program to track, evaluate and report on public funding opportunities (grants, tax credits, loans) as they become available. These opportunities fall into three main categories:

- Direct funding – Opportunities that directly enable PSE's clean energy strategy and goals and where PSE would be the main recipient of the funds
- Strategic partnerships – Opportunities where PSE is not the main recipient, but we can help drive funding to strategic partners (Tribes, municipalities, industry, academia, etc.) that complement or accelerate our clean energy strategy and goals
- Broad customer education and engagement – Funding that is available through state and federal programs that can help our customers decarbonize or lower their energy costs

Through this program, PSE hopes to create a transparent and efficient system for managing public funding opportunities within the organization.