



UPDATING THE CLEAN ENERGY TARGETS

CHAPTER TWO

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1. Introduction

This chapter describes Puget Sound Energy's (PSE) progress in meeting the goals set forth in the 2021 CEIP and provides relevant updates affecting the 2021 Clean Energy Implementation Plan (the 2021 CEIP), including impacts of PSE's 2023 Biennial Conservation Plan and changes necessitated by information updated in the Electric Progress Report (April 2023).

For this 2023 Biennial CEIP Update (the Biennial Update), PSE seeks the Washington Utilities and Transportation Commission's (the Commission) approval for the following:

- **Interim Target:** An interim target of an average of 54.5 percent of retail electric load served by renewable and nonemitting electric generation resources during the four-year compliance period of the 2021 CEIP
- **Energy Efficiency Target:** An energy efficiency target of 934,337 MWh for the four-year compliance period of the 2021 CEIP (536,717 MWh in the 2022-2023 biennium and 397,620 MWh in the 2024-2025 biennium, based on PSE's 2024-2025 draft Biennial Conservation Plan)
- **Demand Response Target:** A demand response target of 86 MW by calendar year 2025
- **Renewable Energy Target:** A renewable energy target of 11 percent as a percent of **new** utility-scale renewable energy

Additionally, PSE reaffirms our commitment in the 2021 CEIP to a distributed energy resources (DER) — solar capacity target of 80 MW and a DER — storage capacity target of 25 MW. Table 2.1 summarizes these specific targets.

Table 2.1: Updated specific targets for the 2022-2025 biennium

Description	2021 CEIP	2023 Biennial Update
Energy Efficiency (MWh)	1,073,434 MWh	934,337 MWh
Demand Response (MW)	23.7 MW	86 MW
Renewable Energy (%)	10.5% as a percent of new utility-scale renewable energy (updated in 60-day compliance filing)	11% as a percent of new utility-scale renewable energy
DER – Solar (MW)	80 MW	80 MW
DER – Storage (MW)	25 MW	25 MW

2. Interim target update

Based on recent information and trends in retail electric load growth and the availability of clean energy resources, PSE proposes adjustments to its interim target to an average of 54.5 percent of retail electric load served by clean energy generation during the four-year compliance period. Furthermore, PSE proposes to adjust its annual goals for 2024 and 2025 to 60 percent of retail electric load served

by clean energy resources. These annual goals are achievable and demonstrate reasonable progress towards meeting the Clean Energy Transformation Act (CETA) obligation that all retail electric load be greenhouse gas neutral by 2030, and that by January 1, 2045 all retail electric load be supplied by clean energy, defined as either renewable³ or nonemitting electric generation⁴ resources. PSE's annual goals for 2022-2025 are listed in Table 2.2.

Table 2.2: Proposed interim target and annual goals

Description	2022 Annual Goal	2023 Annual Goal	2024 Annual Goal	2025 Annual Goal	2022 – 2025 Interim Target (4-year average)*
Proposed interim target and annual goals	45.4%	53%	60%	60%	54.5%

* The average may differ slightly based on rounding.

PSE will strive to achieve its original annual goal of serving 63 percent of retail electric load with renewable and non-emitting electric generation sources in calendar year 2025 if there are reasonable and prudent opportunities to acquire additional renewable and non-emitting electric generating resources in calendar years 2024 and 2025.

In achieving an average of 54.5 percent of retail electric load served by clean energy over the four-year compliance period, PSE expects that it will serve significantly more retail electric load with clean energy resources over the four-year period than PSE forecasted in the 2021 CEIP, as noted in Table 2.3.

Table 2.3: Comparison of electricity from clean energy generation forecasted to meet target (MWh)

Description	2022 (Actual)	2023 (Actual + forecast)	2024	2025	Total
2021 CEIP forecasted energy	8,104,783	9,762,017	10,821,995	11,381,593	40,070,388
Current forecasted energy	9,423,931	10,550,270	11,729,946	11,935,549	43,639,696

As discussed further below, several factors, including significantly more retail electric load growth on PSE's system than projected in the 2021 CEIP, may make it challenging for PSE to acquire sufficient electricity from clean energy resources to meet its original annual goal of 63 percent established in the 2021 CEIP for calendar year 2025. As seen in Table 2.4, current retail electric sales is forecasted to be higher than originally forecasted in the 2021 CEIP. In 2022, retail electric sales was about 1.6 million MWh higher than originally forecasted in the 2021 CEIP.

Table 2.4: Comparison of electric retail sales forecast within the compliance period, 2022-2025

Forecasted retail sales	2022	2023	2024	2025
2021 CEIP retail sales based on 2021 IRP demand forecast (MWh)	20,236,296 (forecasted)	20,378,670 (forecasted)	20,604,482 (forecasted)	20,722,203 (forecasted)
2023 retail sales based on 2023 Electric Progress report (MWh)	21,863,548 (actuals)	20,562,303 (actual + forecast)	21,229,856 (forecast)	21,481,788 (forecast)

Forecasted retail sales	2022	2023	2024	2025
Most recent forecasted retail sales based on most recent demand forecast (10/1/23) (MWh)	21,863,548(actuals)	21,374,656 (actual + forecast)	21,866,622 (forecast)	22,161,979 (forecast)

With much higher retail electric sales now forecasted for the remainder of the compliance period, it is appropriate for PSE revisit its original annual goals and determine what seems reasonably achievable while still meeting a lowest reasonable cost standard. Accordingly, PSE proposes adjustments to its 2024 and 2025 annual goals, which are shown in Table 2.5.

Table 2.5: Comparison of annual goals based on forecasted load and generation

Description	2022 (actual)	2023 (actual + forecasts)	2024 (forecasts)	2025 (forecasts)	Average*
2021 CEIP Targets (Table 2-2) – based on 2021 IRP Demand Forecast	43%	53%	59%	63%	54.5%
Proposed annual goals – based on most recent demand forecast (10/1/23)	45.4%	53%	60%	60%	54.5%

* The average may differ slightly based on rounding.

As demonstrated in Tables 2.4 and 2.5 above, PSE (1) exceeded its annual goal for 2022 on both an energy delivered and percentage basis and (2) projects that it will meet or exceed its original annual goals for 2023 and 2024 on both an energy delivered and percentage basis.

Although PSE projects that it may not meet its original annual goal of serving 63 percent of retail electric load with electricity from clean energy resources for 2025, PSE projects that (1) it will meet its updated annual goal of serving 60 percent of retail electric load with clean energy resources in 2025 and (2) it will deliver significantly more total megawatt-hours of electricity from clean energy resources over the four-year compliance period than projected in the 2021 CEIP.

2.1. Measuring compliance over the four-year implementation period

CETA measures compliance over a four-year period. CETA target requires electric meet retail electric loads with electricity from clean energy resources over multiyear compliance periods.¹ Measuring compliance over a multiyear compliance period is critical for the ability of electrical companies to comply with CETA, given the variability in factors that affect actual retail electric loads and generation from clean energy resources in any given year.

1. See, e.g., RCW 19.405.040(1)(a)(ii) (“use electricity from renewable resources and non-emitting electric generation in an amount equal to one hundred percent of the utility’s retail electric loads *over each multiyear compliance period*”) (emphasis added).

These factors include the impact of weather on retail electric load and generation from renewable resources, as well as the timing under which new renewable resources may come online. As a result of such variability, the percentage of retail electric load of an electrical company served by clean energy resources will not always be linear. Electrical companies may well exceed annual goals in some years of a four-year compliance period but fall short of in other years of the same four-year compliance period.

In the 2021 CEIP, PSE did not clearly identify the interim target for the four-year compliance period (calendar years 2022-2025). Instead, PSE expressed an interim target as a destination — achieving “63% by 2025.” This Biennial Update provides PSE with an opportunity to express the interim target as the average of retail electric load served by electricity from clean energy resources over the four-year compliance period. Table 2.6 shows how PSE expressed its annual goals in the 2021 CEIP.

Table 2.6: Comparison of 2021 CEIP and Biennial Update annual goals

Description	2022 (actual)	2023	2024	2025	Average*
2021 CEIP annual goals – based on 2021 IRP demand forecast	43%	53%	59%	63%	54.5%
Proposed annual goals – based on draft 2025 IRP demand forecast	45.4%	53%	60%	60%	54.5%

* The average may differ slightly based on rounding.

The first row of Table 2.6 above demonstrates an average of PSE’s retail electric load served by clean energy resources during the four-year compliance period. This average is calculated by summing the four annual percentage goals in 2022, 2023, 2024, and 2025, which equals 218, and then dividing by the number of percentages (4), which equals 54.5 percent.

In the second row, PSE projects that, through the end of 2025, it will still serve an average of at least 54.5 percent of retail electric load with energy from clean energy resources over the four-year compliance period, even when using the most recent demand forecast, which estimates higher retail electric loads and accounting for a lower annual goal of 60 percent in 2025. Table 2.7 provides a breakdown of how the forecasted retail electric sales, energy, and percentages compare between the 2021 CEIP and this Biennial Update.

Table 2.7: Comparison of retail sales, energy, and percentage, 2022 - 2025

Year	Document	Actual/forecasted retail sales (MWh)	Actual/forecast load reduction (MWh)	Actual/forecast CETA retail load (MWh)	CETA eligible energy (MWh)	CETA percentage*
2022	2021 CEIP	20,236,296 (forecasted)	1,512,019	18,724,277	8,104,783	43%
	2023 Biennial	21,863,548 (actuals)	1,109,953	20,753,595	9,423,931	45.4%
2023	2021 CEIP	20,378,670 (forecasted)	1,800,537	18,578,133	9,762,017	53%

Year	Document	Actual/forecasted retail sales (MWh)	Actual/forecast load reduction (MWh)	Actual/forecast CETA retail load (MWh)	CETA eligible energy (MWh)	CETA percentage*
	2023 Biennial	21,374,656 (actual + forecast)	1,703,568	19,671,088	10,550,270	53%**
2024	2021 CEIP	20,604,482 (forecasted)	2,143,425	18,461,057	10,821,995	59%
	2023 Biennial	21,866,622 (forecasted)	2,237,782	19,628,840	11,729,946	60%
2025	2021 CEIP	20,722,203 (forecasted)	2,724,716	17,997,487	11,381,593	63%
	2023 Biennial	22,161,979 (forecasted)	2,258,412	19,903,567	11,935,549	60%

* CETA % = CETA Eligible Energy / CETA Retail Load (Retail sales - load reduction). [see Chapter 2, pg. 16 of the 2021 CEIP for a full description of this calculation]

** For 2023, PSE is rounding down to 53 percent in light of recent trends as discussed in section 4.2 below.

3. Annual goal update

As noted in previous sections, PSE continues to monitor and track our annual goals based on updated load and generation information. PSE also continues to pursue adding additional electricity from clean energy resources for the remainder of the four-year compliance period through the 2021 All-Source RFP and other short-term opportunities to secure clean resources. Table 2.8 below shows our current projections that inform the interim target for, and the annual goals for years within, the four-year compliance period.

Table 2.8: Estimated 2025 annual goal calculation (as of 10/1/23)

Description	2024	2025
Current forecasted CETA retail load based on most recent demand forecast (10/1/23)	19,628 GWh	19,904 GWh
Current existing CETA resources (10/1/23)	11,237 GWh	9,814 GWh
Short-term hydroelectric	370 GWh	370 GWh
All-source RFP	-	215 GWh
Short-term RFP	122 GWh	337 GWh
Anticipated opportunities to pursue in 2025	-	1,200 GWh
Projected Total CETA-eligible energy	11,729 GWh	11,936 GWh
Projected annual goal	60%	60%

In July of 2023, PSE submitted our first Annual Progress Report² to show its progress towards the 2022 annual goal and calculated the percentage of CETA retail load served by clean energy resources. As

2. Puget Sound Energy, Puget Sound Energy 2023 Annual Clean Energy Progress Report, Docket UE-210795 (June 30, 2023).

shown in Table 2.9, PSE served 45.4 percent of its CETA retail load with renewable and non-emitting energy in 2022, which is 2.4 percentage points higher than our annual goal for 2022 of 43 percent.

Table 2.9: 2022 Annual Goal Calculation

2022 CEIP Performance (MWhs)	2021 CEIP Original MWh Target for 2022	2022 Actual
CETA Retail Electric Load	18,724,277	20,753,595
Existing Wind/Solar/Biomass	2,390,017	2,507,501
Existing Hydro	5,714,766	6,436,850
EIM renewable resources sold to California	-	(245,835)
BPA System Power	-	725,414
Total CETA-Eligible Energy	8,104,783	9,423,930
Eligible Energy as % of CETA retail load	43%	45.4%
Over / (under) annual goal	-	2.4%

Since 2022, PSE has acquired, and continues to acquire, long-term and short-term electricity from clean energy resources, to meet our annual goals and achieve our goals over, and the interim target for, the four-year compliance period. PSE projects that, by the end of calendar year 2025, it will have acquired 1.5 GWh of supply-side electricity from clean energy generation resources. As shown in Table 2.10, these acquisitions range in size and type but illustrate PSE's commitment to acquiring electricity from clean energy resources to meet annual goals and achieve compliance over the four-year compliance period.

Table 2.10: Supply-side resources 2022-2025

Description	2022	2023	2024	2025
Specific resources (existing or contracted)	250 MW Short-term transaction(s) for electricity from renewable and nonemitting generation resources	350 MW Long-term PPA for output of Clearwater I Wind Project in eastern Montana 500 MW Short-term transaction(s) for electricity from renewable and nonemitting generation resources	265 MW Short-term transaction(s) for electricity from renewable and nonemitting generation resources	90 MW Long-term PPA for output of Vantage Wind Project in eastern Washington

3.1. Modeling for this Biennial Update

The 2021 CEIP modeling process optimized resource additions over the 2022-2025 compliance period. For this Biennial Update, however, PSE has focused its modeling efforts on the two remaining years of the four-year compliance period (2024 and 2025). As part of this analysis, PSE updated the preferred portfolio from the 2023 Electric Progress Report to incorporate recent acquisitions of renewable and non-emitting energy made by PSE after finishing the 2023 Electric Progress Report.

PSE built the modeling assumptions and framework for this Biennial Update upon analytical work completed for the 2023 Electric Progress Report. This Biennial Update provides updated analysis for the 2021 IRP as required by (1) commitments made in the 2021 CEIP and (2) conditions contained in the Commission's Order 08³ approving PSE's 2021 CEIP.

Several significant updates from the 2021 IRP to the 2023 Electric Progress Report include the following:

- Updates to the load forecast to reflect the impacts of climate change. In previous modeling, PSE has used temperatures from the previous 30 years. In the 2023 Electric Progress Report, however, PSE used — for the first time — climate change projections modeled by climate change scientists for the region, as listed below:
- Revisions to effective load carrying capability (ELCC) estimates provided by consultant E3 – Energy and Environmental Economics, Inc.
- Inclusion of the impacts of the Climate Commitment Act, which created a Cap-and-Invest allowance market for Washington State
- Revisions to Conservation and Demand Response Potential Assessments conducted by consultant Cadmus Group
- Updates to cost impacts of the Inflation Reduction Act on supply-side and some demand-side resources

For the purposes of this modeling and to comply with Condition 32 of Order 08,⁴ PSE considered two portfolios:

1. A reference portfolio based on the modeling methodology from the 2023 Electric Progress Report
2. A reference portfolio that uses the social cost of greenhouse gas (SCGHG) as a dispatch cost

Based on the results of this analysis, PSE projects that it has sufficient resources to meet the annual goal for 2024 but not sufficient resources to meet the annual goal for 2025. For the SCGHG methodology modeling, PSE saw no difference in the years 2024 and 2025 because the only resources available in those years are the contracts PSE has signed to meet current goals.

The first methodology aligns with the 2023 Electric Progress Report and applies the SCGHG as an externality cost throughout the process. This approach does not affect economic dispatch at any step of the process, instead adding the SCGHG pollution costs after dispatch decisions. The alternative

3. In the Matter of Puget Sound Energy Clean Energy Implementation Plan Pursuant to WAC 480-100-640, Docket UE-210795, Order 08 (June 6, 2023).

4. See Order 08, *infra* note 3, Appx. A at ¶ 34.

methodology applies the SCGHG as a dispatch cost when the Aurora model calculates the long-term capacity expansion plan to design the portfolio.

The alternative method then redispatches the portfolio without SCGHG, and SCGHG is again applied as an externality cost. PSE performed the projected incremental cost calculation for the limited purpose of complying with Condition 32 and showed the results calculated over a two-year period. This calculation did not inform the updates PSE is seeking for its annual goals or interim target in this Biennial Update. The drivers for PSE's updates to targets are explained fully earlier in this chapter.

It is important to note that the Commission requires the SCGHG be included in both the CETA and no-CETA portfolios but this incremental cost calculation does not reflect bill impacts to customers. Instead, it reflects the estimated cost of renewable resources after inclusion of the SCGHG. In other words, the incremental cost calculations presented here are for comparative modeling purposes and are not a measure of rate impacts. The modeling showed the builds and targets were the same for both portfolios. Therefore, there is no impact to the energy storage sub-target. Furthermore, the Commission specifically directed PSE in Condition 29 in Order 08 to “not use the projected incremental cost of compliance as a planning constraint.”⁵

→ Additional information on this analysis is provided in [Appendix A-1: Aurora Modeling Analysis](#) and [Appendix E: Biennial Cost Update](#).

PSE also performed a risk analysis on the probability of meeting annual goals given varying retail electric loads, wind, solar, and hydro generation. The risk analysis showed PSE was likely to meet the annual goal for 2024; however, the risk analysis showed PSE was only able to meet the annual goal for 2025 in the 90th percentile or better conditions.

→ Additional information on this analysis is provided in [Appendix A-1: Aurora Modeling Analysis](#).

Interested parties asked PSE to take into full consideration the impacts of the Inflation Reduction Act (IRA) in the 2023 Electric Report. PSE included the IRA provision for distributed solar investment tax credits (ITC) in the 2023 Electric Report because these are clear provisions that PSE has used in the past. The IRA rulemaking process is largely incomplete, and PSE does not expect to understand the nuances of those results until mid-2024. PSE is working to stay informed about the IRA rulemaking process and will incorporate known impacts in the 2025 IRP cycle.

5. See Order 08, Appx. A at ¶ 31.

➔ Please see [Chapter Four: Legislative and Policy Change](#) in the 2023 Electric Progress Report for additional information about how PSE incorporated the impacts of the IRA into this report.

PSE partially incorporated the Infrastructure Investment and Jobs Act (IIJA) in the demand forecast used in the 2023 Electric Progress and this Biennial Update. PSE used economic data that incorporated the IIJA, including employment data that included forecasted effects of the IIJA. The demand forecast did not include the IIJA's effects on electric vehicle (EV) growth. The EV forecasting process was too far along, and the turnaround time too tight, to take this information into account at the time. PSE will incorporate any impacts of the IIJA into the EV forecasts for the 2025 IRP cycle and future IRP cycles.

3.2. Impact of conditions

In Order 08, the Commission included the following Conditions 1 and 2:

CONDITION 1: In its 2023 Biennial CEIP Update and in future CEIPs, PSE must include descriptions of quantitative (i.e., cost based) and qualitative (e.g., equity considerations) analyses that support interim targets to comply with the CETA 2030 and 2045 clean energy standards.⁶

CONDITION 2: In its 2023 Biennial CEIP Update and in future CEIPs, PSE must include quantitative and qualitative risk analysis, if risk is used to justify deviating from the lowest reasonable cost solution that complies with CETA.⁷

Per Conditions 1 and 2 in Order 08, PSE has included a quantitative analysis in the Aurora modeling discussed above and the methodology used in the All-Source, DER, and DSS RFPs. PSE incorporated a qualitative analysis in the portfolio benefit analysis discussed in the 2023 Electric Progress Report and in the evaluation of resources in RFPs, including the use of customer benefit plans.

➔ Details of the cost-based and equity analysis for the RFPs can be seen in [Appendix D: RFP Quantitative and Qualitative Analysis](#).

The risk analysis is discussed above and shows how PSE analyzed the probability of meeting the CETA target at various levels of generation and load.

6. See Order 08, *infra* note 3, Appx. A at ¶ 3.

7. See Order 08, *infra* note 3, Appx. A at ¶ 4.

➔ Additional details of the Aurora modeling and risk analysis are in [Appendix A-1: Aurora Modeling Analysis](#).

In Order 08, the Commission also included the following Condition 32:

CONDITION 32: PSE will rerun its portfolio optimization models with an updated methodology for incorporating the Social Cost of Greenhouse Gas Emissions and updated capacity values for energy storage. PSE will recalculate its interim clean energy targets and energy storage sub-target, and its projected incremental cost of compliance with CETA, based on these new model runs. PSE will incorporate any changes in its 2023.⁸

Please see [Section 3.1](#) in this chapter for a discussion of Condition 32.

4. Reason for updates to annual goals and the interim target

As discussed above, the primary factors contributing to PSE’s decision to reduce its annual goal for calendar year 2025, include the following:

- Updated retail electric load forecast (retail electric sales forecasted to be seven percent higher than the retail electric sales forecasted in the 2021 CEIP)
- Generation assumptions in forecasts (actual hydropower generation is trending lower than “mean water conditions” indicate)
- Supply chain and generator interconnection issues delaying forecast commercial operation dates for new renewable and non-emitting resources

4.1. Updated load forecast

In the 2021 CEIP, PSE used the retail electric demand forecast from the 2021 IRP as a base assumption in developing the annual goals reflected in the 2021 CEIP. For this Biennial Update, PSE uses the retail electric demand forecast used in the 2023 Electric Progress Report as a starting point. PSE updates its retail electric demand forecast annually and completed a new retail electric demand forecast in 2023 to inform the 2025 IRP but was not able to include it in modeling for this Biennial Update.

Still, PSE went on to estimate the impact of the draft 2025 IRP demand forecast on PSE’s annual goals and compliance with the interim target for the four-year compliance period. As demonstrated in Table 2.11, both the retail electric demand forecast used in the 2023 Electric Progress Report and

8. See Order 08; Appx. A at ¶ 34.

PSE's draft 2025 IRP retail electric demand forecast project higher retail sales over the four-year compliance period than the retail electric sales projected over the same four-year compliance period reflected in the 2021 IRP demand forecast used in the 2021 CEIP.

Table 2.11: Comparison of demand forecast within CEIP compliance period, 2022-2025

Forecasted Retail Sales	2022	2023	2024	2025
2021 CEIP retail sales based on 2021 IRP demand forecast	20,236,296 (forecasted)	20,378,670 (forecasted)	20,604,482 (forecasted)	20,722,203 (forecasted)
2023 retail sales based on 2023 Electric Progress report	21,863,548 (actuals)	20,562,303 (actual + forecast)	21,229,856 (forecast)	21,481,788 (forecast)
Current forecasted retail sales based on most recent demand forecast (10/1/23)	21,863,548 (actuals)	21,374,656 (actual + forecast)	21,866,622 (forecast)	22,161,979 (forecast)

The most recent retail electric demand forecast is seven percent higher than the retail electric demand forecast used in the 2021 CEIP (the 2021 IRP demand forecast). PSE developed the 2021 IRP retail electric demand forecast used in the 2021 CEIP during the initial stages of the COVID-19 pandemic, and that retail electric demand forecast included projected impacts of the Washington State stay at home order and non-essential businesses being shuttered for a then-unknown length of time.

Since 2020, retail electric load patterns have been higher than pre-pandemic levels. The retail electric demand forecast used in the 2021 CEIP also anticipated a slowdown of residential growth and loss of commercial customers due to the pandemic's effect on the economy, which has occurred, but to a more modest extent than predicted. For more recent load forecasts, PSE recalibrated load forecasts to the actual consumption patterns observed.

The projections for EV adoption (and therefore energy consumption) also increased significantly over the course of PSE's last several retail electric demand forecasts. The increase in EV adoption reflects several federal and state policies enacted to encourage a decrease in greenhouse gas emissions from the transportation sector.

Such policies include:

1. The Washington Zero Emission Vehicles Program enacted in 2020
2. The Washington Low Carbon Fuel Standard and Climate Commitment Act enacted in 2021
3. The federal Infrastructure Investment and Jobs Act enacted in 2021
4. The federal Inflation Reduction Act enacted in 2022
5. The U.S. Environmental Protection Agency's Advanced Clean Trucks Rule published in 2022
6. Washington's Internal Combustion Engine Ban announced in 2022

PSE's 2023 retail electric demand forecast was the first retail electric demand forecast to include a forecast of medium and heavy-duty vehicles — the retail electric demand forecast used in the 2021

CEIP included only light duty vehicles. These updates in forecasted adoption of EVs account for a 1.5 percent increase in forecasted retail electric load in 2025, when comparing the 2023 demand forecast to the 2020 retail electric demand forecast.

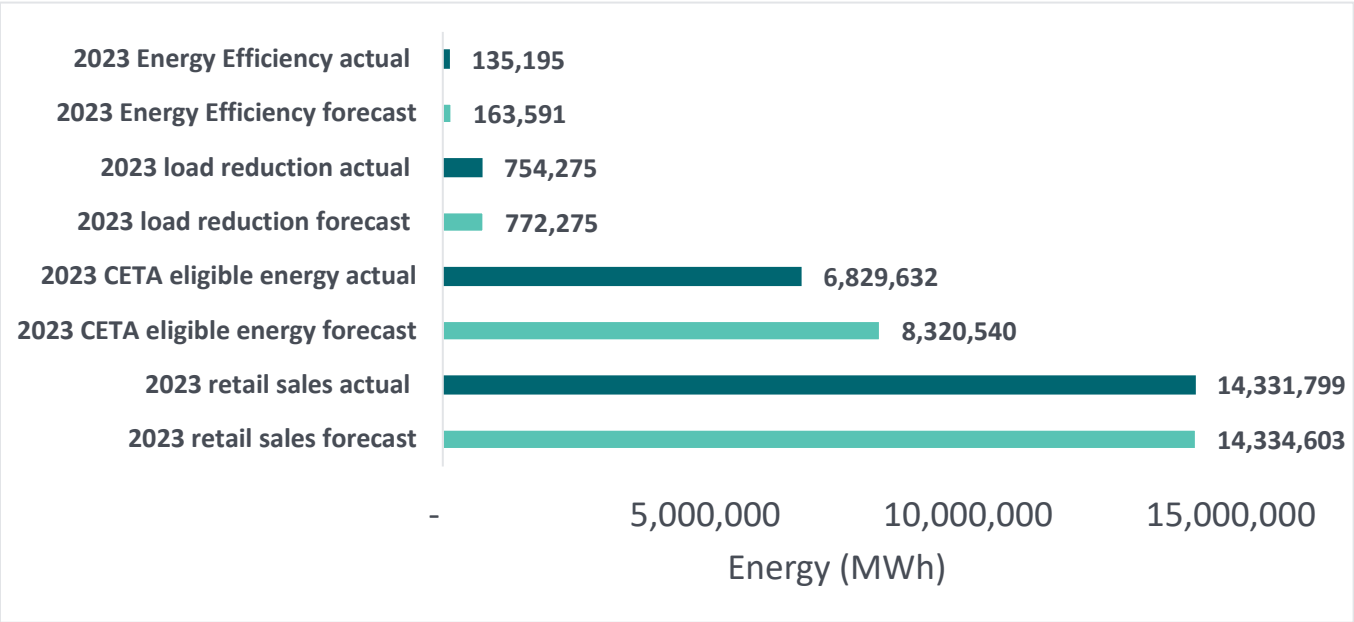
The retail electric demand forecast used in this Biennial Update reflects lower demand-side resources than previous retail electric demand forecasts, thereby resulting in increased forecasted retail electric demands. The lower demand-side resources are reflected in the decrease in energy efficiency targets discussed below. Other elements that decrease the retail electric demand forecast (e.g., climate change, lower forecast of customer growth, increased projection of net-metered solar) are outweighed by the continued post-pandemic consumption patterns and expected growth in load due to EV adoption.

4.2. Generation assumptions in forecasts: P50 vs. P10

Since 2022, PSE has modeled electricity from existing and contracted clean energy resources using a P50 risk assessment, which assumes that a resource will achieve mean expected generation for any given year. As PSE moves through each month in a given calendar year, however, the gap between actual electricity from clean energy resources and the P50 forecast of mean expected electricity from clean energy generating resources grows larger, as seen in Figure 2.1 below.

For calendar year 2023, for example, the gap between actual and the P50 forecast of electricity from clean energy resources is primarily due to existing hydropower projects generating lower than the expected mean suggested by the P50 forecast. In fact, actual generation from hydropower projects is trending closer to the P10 forecast (10 percent probability of generation) than the P50 forecast.

Figure 2.1: Actual vs. forecast generation (based on data through August 2023)



PSE used the P50 forecast to establish the annual goals reflected in the 2021 CEIP for each year of the four-year compliance period because the Commission's rules require that an electric company's historic performance under median water conditions inform an interim target.⁹ The use of a P50 forecast for CETA compliance over the four-year compliance period allows for variability within any given year of the four-year compliance period. Due to the differences observed in actual and the P50 forecast of hydropower generation over the past two years, PSE has concerns about the use of a P50 forecast to establish annual goals. Indeed, the P50 forecast, which reflects mean expected generation, will, by definition, reflect only a 50 percent probability that such mean generation will occur in any given year. Although PSE will continue to comply with WAC 480-100-640(2)(d), its resource strategy should plan more conservatively than a P50 standard to ensure PSE can meet its compliance obligations.

PSE has also experienced changes in generation assumptions. Specifically, power purchase agreements for output from hydropower resources — a crucial element in PSE's strategy in meeting the annual goals in the 2021 CEIP — have reduced the forecasted amount of energy that PSE will receive in calendar years 2024 and 2025. This reduction in generation assumption represents a loss of about 682 GWh in 2024 and 492 GWh in 2025, or about 4 to 6 percent of the energy needed in each calendar year to meet the annual goal.

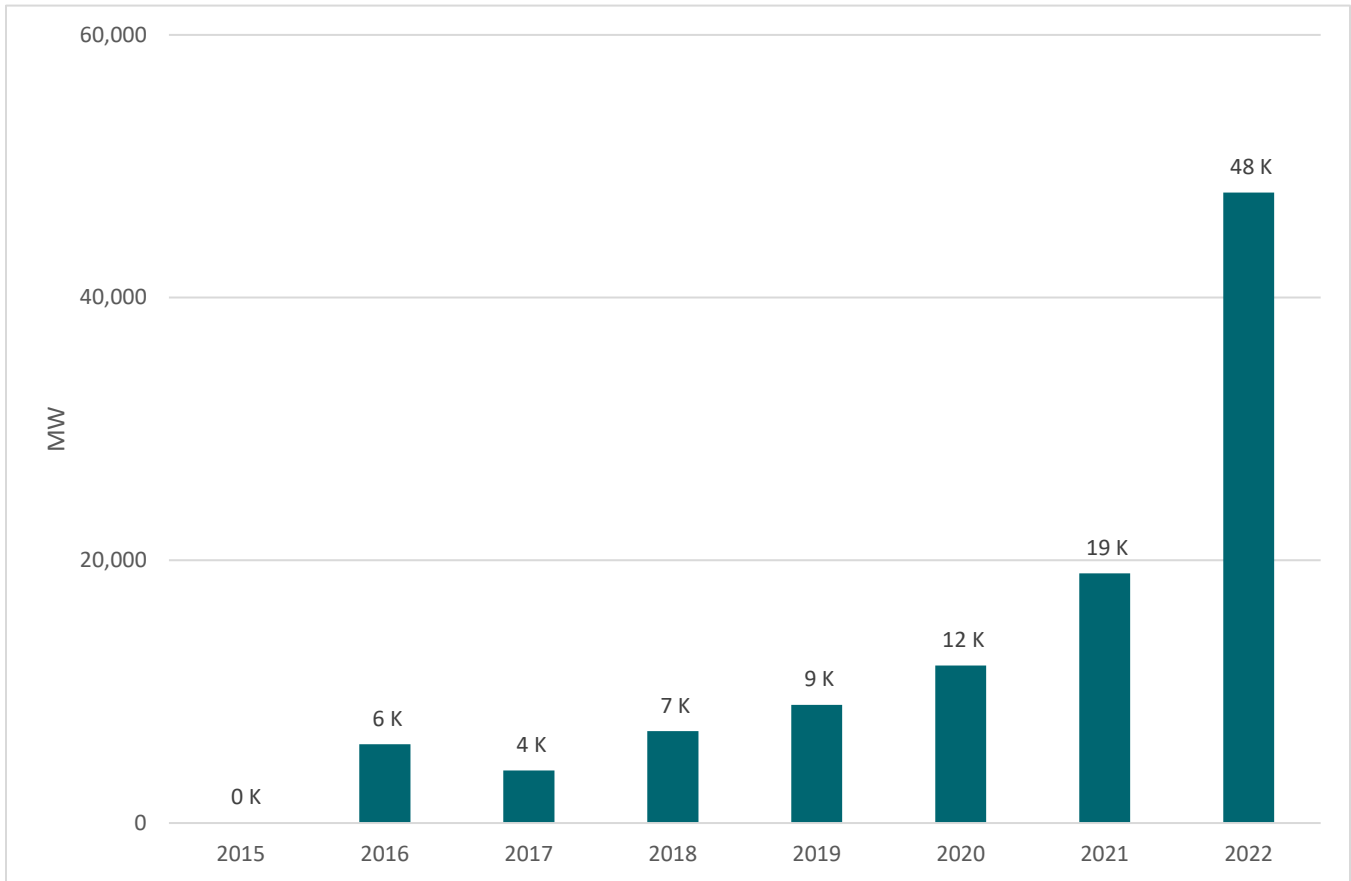
4.3. Supply chain and generator interconnection issues

PSE continues to evaluate and acquire renewable and non-emitting resources necessary to meet its goals. However, PSE faces several obstacles in acquiring a considerable volume of renewable and non-emitting resources in the very near term. For example, many projects bid into PSE's 2021 All-Source Request for Proposals have delayed their commercial operation date to 2026 or later (i.e., after the four-year compliance period of the 2021 CEIP).

Additionally, the unprecedented demand for clean energy resources has created permitting and transmission challenges. For example, Bonneville Power Administration (BPA) has experienced incredible growth in the amount of capacity requesting interconnection to its transmission system. As shown in Figure 2.2, BPA experienced an eightfold increase in generation capacity seeking interconnection between 2016 (6 GW) and 2022 (48 GW).¹⁰

9. See WAC 480-100-640(2)(d).

10. Bonneville Power Administration, 2022 Transmission Plan: Open Access Transmission Tariff Attachment K Planning Process, at section 1.3.1 (Dec. 2022), available at <https://www.bpa.gov/-/media/Aep/transmission/attachment-k/2022-bpa-transmission-plan.pdf>.

Figure 2.2: BPA Generation Interconnection Requests (in MW)

BPA has reported that, over calendar year 2022, BPA's large-generator interconnection queue consistently contained more than 130 GW of requests, whereas BPA interconnected about 8 GW of generation over the twenty-two-year period between 2000 and 2022.

PSE is also observing growing competition in the demand for renewable and non-emitting generation from other utilities as the Pacific Northwest region pushes for a cleaner energy portfolio. Increasing demand for these resources has diminished PSE's opportunities to acquire new resources as desirable projects have been acquired by other utilities.

5. Specific target update

5.1. Energy efficiency target

As PSE was drafting this Biennial Update, PSE was concurrently drafting its 2024-2025 Biennial Conservation Plan, which PSE will file on November 1, 2023. The 2024-2025 Biennial Conservation Plan includes a new energy efficiency target for 2024-2025.¹¹ CETA requires utilities to file a CEIP

¹¹. Please see dockets [UE-230892](#) and [UG-230893](#).

every four years that includes a four-year energy efficiency target; however, WAC 480-109 requires a two-year biennial conservation plan process with penalties.

PSE estimated the four-year energy efficiency target in the 2021 CEIP by applying the Total Utility Conservation Goal from the 2022-2023 Biennial Conservation Plan for calendar years 2022 and 2023, and then replicating those values for the calendar years 2024 and 2025. In the 2021 CEIP, PSE acknowledged the 2022-2023 Total Utility Conservation Goal values used for 2024-2025 were a placeholder and that PSE would adjust the energy efficiency target in the Biennial Update to align with the Total Utility Conservation Goal for calendar years 2024 and 2025 in the 2024-2025 Biennial Conservation Plan. PSE now makes this adjustment in this Biennial Update.

PSE's original energy efficiency target for the 2022-2025 compliance period in the 2021 CEIP was 1,073,434 MWh, consistent with the 2022-2023 Biennial Conservation Plan filed on November 1, 2021. Table 2.12 shows the calculated target for each biennium of the four-year compliance period. The biennial targets are detailed in the 2022-2023 Biennial Conservation Plan and include all energy efficiency and conservation targets and goals required by the Commission.

Table 2.12: PSE's energy efficiency target from the 2021 CEIP

Category	2022-2023	2024-2025	Total
Energy Efficiency target	536,717 MWh	536,717 MWh	1,073,434 MWh

As of the date of this filing, the updated energy efficiency target for the 2024-2025 two year period is 397,620 MWh. Table 2.13 shows the updated 4-year energy efficiency target once the energy efficiency target for the 2024-2025 biennium is incorporated.

Table 2.13: Updated CEIP 4-year energy efficiency target

Description	2021 CEIP (2022 – 2025)	2023 Biennial Update (2022-2025)
Energy Efficiency target	1,073,434 MWh	934,337 MWh

This target is lower than the initial Energy Efficiency target proposed in the 2021 CEIP of 1,073,434 MWh. As a reminder, the target in the 2021 CEIP for calendar years 2024 and 2025 was based on the 2022-2023 Biennial Conservation Plan. The target is lower because the 2023 Electric Progress Report modeling selected a lower energy efficiency bundle. A summary of the modeling for determining this target is below.

PSE's two-year conservation targets are set based on RCW 19.285 and WAC 480-109 and in consultation with its Conservation Resource Advisory Group (CRAG). Actual program performance and savings mitigation efforts are reviewed at least quarterly with the CRAG. Table 2.14 shows performance for the 2022-2023 biennium using a combination of actuals and forecast for 2023.

Table 2.14: Energy efficiency first two-year performance

Description	2022-2023 total target	22-23 actuals + forecast	Shortfall
Energy Efficiency	536,717 MWh	476,706 MWh	60,011 MWh

Per RCW 19.285, PSE updated its 2024-2025 energy efficiency target based on the current conservation potential assessment plus a required five percent decoupling adder and an additional 70,000 MWh based on projected program activity.

As described in the 2021 CEIP, the “holding place” savings for the third and fourth years of the energy efficiency target have been updated with the savings forecast from the 2024-2025 Biennial Conservation Plan. The new four-year energy efficiency target is 934,337 MWh.

5.1.1. Energy efficiency methodology

PSE’s 2024-2025 Biennial Conservation Plan informed the energy efficiency targets of this Biennial Update. PSE conducted a Conservation Potential Assessment, a study that determines the conservation potential (i.e., the amount of energy efficiency available in PSE’s service territory), for the 2024-2025 Biennial Conservation Plan. For such Conservation Potential Assessment, PSE builds the conservation potential with a bottom-up approach, using unique energy-efficient technologies applied to appropriate end uses and building types to determine the achievable technical potential.

PSE uses the Conservation Potential Assessment as an input to the PSE IRP economic portfolio modeling. The model selects the amount of cost-effective annual energy efficiency. Variables that influence this selection process include load growth, generation costs, and other factors. In conjunction with the Conservation Resource Advisory Group, PSE uses the achievable, technical, and economic potential to build biennial targets.

PSE calculates the targets for each biennium, consistent with the Energy Independence Act requirements found in WAC 490-109-100(3). The calculation uses a pro rata share of the ten-year conservation potential identified in the IRP and then adds a five percent decoupling target. On top of this, PSE adds additional firm savings not included in the Conservation Potential Assessment (Schedule 449 Program) and additional program savings based on projected program activity to obtain the final two-year conservation goal.

Working with the CRAG, PSE uses the information in the Conservation Potential Assessment and other relevant data to build PSE’s portfolio of programs designed to achieve the targets. These programs fall in residential energy management, business energy management, pilots, and regional programs, like participating in the NEEA, and system distribution efficiency activities. The work to implement the biennial targets constitutes specific actions under CETA.

For detailed information about energy efficiency targets, budgets, and program specifics please see the 2024-2025 Biennial Conservation Plan as filed on November 1, 2023 in Docket UE-230892.

➔ See [Chapter 5: Specific Actions](#) for more information.

5.2. Demand response target

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

CONDITION 4: PSE will increase its demand response target to include all cost-effective DR bids it received in response to its recent RFP. PSE will include expanded Direct Load Control offerings in this increased target.¹²

Accordingly, PSE is updating its demand response target in this Biennial Update to 86 MW (see Table 2.15) and includes Direct Load Control offerings in the Flex Smart program discussed further in [Chapter 5: Specific Actions](#).

Table 2.15: Updated demand response target

Description	2021 CEIP	2023 Biennial Update
Demand Response Target	23.7 MW	86 MW

As discussed in the 2021 CEIP, PSE developed demand response programs through a solicitation process. PSE provides an overview of the qualitative and quantitative analysis performed for the 2022 DER RFP to develop programs to meet this revised target considering all cost-effective bids.

➔ The summary and analysis are provided in greater detail in [Appendix D: RFP Quantitative and Qualitative Analysis](#) and the 2022 DER RFP: Proposal Summary in Docket UE-210878¹³

5.2.1. Demand response methodology: 2022 DER RFP

PSE based its evaluation of resources submitted in response to the 2022 DER RFP on a combined quantitative and qualitative assessment of all proposals that met the minimum requirements of the solicitation. Taken together, the quantitative and qualitative evaluation criteria assessed the feasibility of proposals and measured each proposal's ability to satisfy compatibility with resource need, cost minimization, contribution to CETA customer benefit and equity provisions, risk management, and strategic and financial considerations.

PSE divided its evaluation process into three phases:

12. See Order 08, *infra* note 3, Appx. A at ¶ 6.

13. Puget Sound Energy, [2022 DER RFP: Proposal Summary](#), Docket UE-210878 (Apr. 19, 2022)

1. A screening phase (Phase 1)
2. The Value Fit program building and portfolio design phase (Phase 2)
3. A concurrent evaluation with the 2021 All-Source RFP shortlist in Docket UE-210220 (Phase 3)

In Phase 1, PSE evaluated proposals based on qualitative and quantitative metrics and placed proposals into two categories; Category A or Category B:

- **Category A** represented turnkey resources, which were complete resources ready for deployment.
- **Category B** represented vendor services that would be a component of a turnkey resource, such as providing customer enrollment, equipment installation, and other programs activities.

PSE used the DER Benefit Cost Analysis tool developed for the 2021 CEIP to model the costs and benefits of each proposal. PSE then ranked proposals based on their combined score, which was a combination of qualitative and quantitative attributes. PSE decided to move all projects forward from Phase 1 to Phase 2.

For Phase 2, PSE incorporated Category B, or Value Fit Programs, into the evaluation, similar to Category A proposals during Phase 1. Two Value Fit programs were developed and compared with the turnkey Category A proposals. Both Value Fit programs were rejected. One ranked second to last based on the combined score and was found to not be cost-effective based on the Societal Cost Test, and the other completely overlapped with another winning bid that provided more capacity. The Societal Cost Test, as used in the DER RFP, mirrors that used in PSE's 2021 Clean Energy Implementation Plan¹⁴ with minor updates to fully align the Societal Cost Test with the most recent iteration of the Jurisdictional Cost Test outlined in Docket UE-210804.

5.2.2. Demand response results: 2022 DER RFP

PSE received 186 MW in proposals in response to the 2022 DER RFP. During its evaluation, PSE noted that some proposals did not meet the threshold for cybersecurity and eliminated those projects from consideration after Phase 2. To avoid cybersecurity concerns and overlap in customer segments, PSE did not select all proposals and instead selected 86 MW, which included three projects in the concurrent analysis.

The three Category A demand response proposals (provided by AutoGrid, EnelX and Oracle) were highly ranked and cost-effective. These three programs also did not extensively overlap with the customer segments they were separately targeting. PSE short-listed these three proposals for the Concurrent Analysis with the 2021 All-Source RFP short-listed projects. The remaining programs not shortlisted in the 2022 DER RFP did extensively overlap in targeted customer segments (e.g., two

14. See Puget Sound Energy, [2021 Clean Energy Implementation Plan, Appendix D: DER Suite Selection and Evaluation](#), Docket UE-210795 (Dec. 17, 2021)

bidders targeting the same commercial customer base). Table 2.16 provides a summary of the short-listed results.

→ Please see [Chapter 5: Specific Actions](#) for details on the programs.

Table 2.16: Demand response shortlist programs from phase 2 modeling

Program bidder	Cumulative 2025 winter MW	Customer segment	Program type	Societal cost test	Combined score	Selected for contracting
Enel X	30	Commercial	Demand Response – Bundled	10.76	66.42	Yes
Bidder A	Less than 10 MW	Residential	Demand Response – Bundled	4.85	58.94	No
Oracle*	4	Residential	Behavioral	4.82	55.23	Yes
Autogrid	33.6	Majority Residential + Commercial	Demand Response – excluding Battery program	4.41	42.48	Yes
Autogrid (included with the DR proposal, but analyzed separately)	12	Residential	Battery	0.82	42.48	Yes
Bidder B	Greater than 10 MW	Majority Commercial + Residential	Demand Response – Bundled	2.85	40.35	No
Bidder C	Greater than 10 MW	Majority Commercial + Residential	Demand Response – Bundled	3.00	34.26	No

* In contract negotiations Oracle's bid changed from what was initially modeled.

Table 2.16 illustrates the rankings of the 2022 DER RFP proposals based on their Combined Score. PSE selected EnelX, Oracle, and AutoGrid based on their high cost-effectiveness and Combined Score ranking.

Not included in Table 2.16 are bidders who did not meet the minimum qualifications of the 2022 DER RFP, the core of which were SOC II Type 2 certification and having a platform able to integrate with PSE's virtual power plant. Bates & White, the independent evaluator, will submit a report summarizing the 2022 DER RFP process and selected bidders by the end of the year.

5.3. DER solar and storage targets

PSE is not seeking to adjust the DER solar or storage targets in this 2023 CEIP Biennial Update. PSE plans to spend the remainder of the four-year compliance period working to meet the 80 MW solar and

25 MW storage targets identified in the 2021 CEIP (see Table 2.17), which includes the 50 MW stipulated in the CEIP order for Community Solar. PSE’s 2023 Electric Progress Report modeling demonstrated higher potential for DERs over this compliance period. However, the issue of timing is important because PSE is at the midpoint of the four-year compliance period, making it extremely challenging to execute programs and products to go beyond its already ambitious targets in the next two years.

Table 2.17: DER – solar and DER – storage targets

Description	2021 CEIP	2023 Biennial Update
DER – Solar	80 MW	80 MW
DER – Storage	25 MW	25 MW

As discussed in the 2021 CEIP, PSE solicited DER solar and storage resources through an RFP process. The initial 2022 DER RFP produced no results for DER solar and storage but did provide results for Demand Response programs. Following this, PSE issued a DER Solar and Storage RFP (the 2023 DSS RFP). This 2023 DSS RFP was more successful in attracting proposals for distributed solar and storage resources, which was achieved by having a targeted resource request, simplifying the submission process, increasing outreach, as well as benefiting from external factors like the passage of the Inflation Reduction Act.

Below, PSE provides an overview of the qualitative and quantitative analysis performed for the 2022 DSS RFP.

→ The summary and analysis are provided in greater detail in [Appendix D: RFP Quantitative and Qualitative Analysis](#) and the 2023 Voluntary Distributed Solar and Storage Request for Proposal – Summary Report in Docket UE-220971¹⁵

5.3.1. DER solar and storage methodology: 2023 DSS RFP

The evaluation results of PSE’s DERs was based on a quantitative, qualitative, and technical assessment of all proposals to meet the minimum requirements of the 2023 DSS RFP. The technical assessment involved a preliminary site assessment, similar to a feasibility study done under the Schedule 152 interconnection process to assess interconnection feasibility and scope. Proposals were scored and ranked based on qualitative and quantitative metrics, which included the results of the preliminary site assessment. Only those proposals that satisfied the minimum requirements of the 2023 DSS RFP received a qualitative and quantitative score. Some projects were rejected during the initial intake for not being in the service territory or not having a project site for their proposal.

15. Puget Sound Energy, [2023 Voluntary Targeted DSS RFP – Summary Report](#), Docket UE-210878 (Apr. 21, 2023).

The quantitative metrics assessed are expected costs associated with the capacity and energy prices offered for each response. PSE used the DER Benefit Cost Analysis tool developed for the 2021 CEIP and used in the 2023 DER RFP to model the costs and benefits of each proposal. The qualitative and quantitative scoring of each project was individually verified by Bates & White, the independent evaluator.

Following the evaluation, PSE used Societal Cost Test ratio to determine each project's overall cost-effectiveness. A Societal Cost Test ratio greater than one (1) is deemed cost effective. The Societal Cost Test indicates if the benefits of a DER resource will exceed its costs from the perspective of society. This test provides the most comprehensive picture of the total impacts of a DER resource. PSE selected all the cost-effective projects, based on the Societal Cost Test, available from the RFP.

We also included consideration of equity and customer benefits in its evaluation process. Each bidder provided an equity and customer benefit plan demonstrating their proposal's alignment with goals set forth in CETA.

5.3.2. DER solar and storage results: 2023 DSS RFP and 2022 DER RFP

To meet the 80 MW solar target, including the added capacity to meet the Community Solar requirement, PSE selected the most cost-effective solar projects amounting to 56 MWs, which includes both hybrid and solar only projects. However, some proposals have been withdrawn due to third-party issues. Table 2.18 provides a summary of the shortlisted results, with details in [Chapter 5, Specific Actions](#).

PSE intends to use over thirty (30) MWs of proposed solar from the 2023 DSS RFP for community solar programs to help fulfill Condition 18 of the Commission's Order approving the 2021 CEIP. PSE currently has roughly 16 MWs, from 6 projects, in place, with another 6 projects, representing nearly 1 MW, under development in Western Washington. The existing projects are a mixture of PPAs and PSE-owned projects as discussed in [Chapter 5, Specific Actions](#). Finally, PSE continues to solicit interest for new project sites from potential site hosts through a new site host application and web portal as discussed in [Chapter 5: Specific Actions](#).

Table 2.18: Summary of DER Solar resources acquired from the 2023 DSS RFP

Program	Capacity (MW)
New Community Solar	32 MW
Standalone distributed generation (Solar) [not a customer product, operated by PSE]	9 MW
Hybrid distributed generation (Solar) coupled with storage	9 MW
TOTAL	50 MW

Looking ahead, PSE plans to achieve the remainder of the 80 MW solar target through PSE products, which are described further in [Chapter 5: Specific Actions](#).

For the 25 MW storage target, PSE expects to exceed this target because it selected 38.5 MWs of cost-effective projects. We will meet this target with projects from both the 2022 DER RFP and the 2023 DSS RFP. Although PSE has selected enough storage projects to meet the 25 MW storage target, various risks in negotiations, development, and additional stages remain in which projects fail to meet commercial operation. PSE will strive to meet this target but acknowledges that known and unknown risks may make achievement of this storage target by the end of 2025 challenging. A summary of the shortlisted results is provided in Table 2.19 with details in [Chapter 5: Specific Actions](#).

Table 2.19: Summary of DER storage resources acquired from the 2022 DER and 2023 DSS RFPs

Program	Capacity (MW)
Hybrid distributed generation (storage) coupled with solar [2023 DSS RFP]	3.5 MW
Standalone BESS [2023 DSS RFP]	30 MW
Residential BESS Services [2022 DER RFP]	5 MW
TOTAL	38.5 MW

5.4. Renewable energy

In Order 08, the Commission also included the following Condition 6:

CONDITION 6: Within 60 days of the entry of this Order, PSE must file with the Commission a narrative describing the methodology used to develop the renewable energy Specific Target and describing how its renewable energy Specific Target contributes to PSE achieving its Interim Target of serving 63 percent of retail load with renewable, non-emitting resources by 2025. PSE must express its renewable energy Specific Target as a percentage of retail load. PSE must provide sufficient supporting detail to be understood by a generalist, and the Company may not rely on mere “global” references to the underlying Aurora model.¹⁶

Accordingly, PSE clarified its renewable energy target in its 60-day compliance filing.¹⁷ As discussed in the filing, PSE’s renewable energy target was translated from 800 MW to 63 percent. Furthermore, in that 60-day compliance filing, PSE updated its renewable energy target to a percentage of new utility-scale renewable energy as a target of 10.5 percent of retail load (see Table 2.20).

16. See Order 08, *infra* note 3, Appx. A at ¶ 8.

17. <https://apiproxy.utc.wa.gov/cases/GetDocument?docID=1112&year=2021&docketNumber=210795>

Table 2.20: Updated Renewable Energy Target

Description	2021 CEIP	2023 Biennial Update
Renewable energy target	10.5% as a percent of new utility-scale renewable energy (updated in 60-day compliance filing)	11% as a percent of new utility-scale renewable energy
Annual goal	63% in 2025	60% in 2025*

* Please see section above for details on adjustment of Interim Target.

Table 2.21 shows a breakdown of the table used previously to calculate this renewable energy target.

Table 2.21: Calculation of Renewable Energy Specific Target, 60-Day Compliance Filing

Line	CETA summary	2025	Percent of retail load
1	CETA Retail Electric load	17,997,487 MWh	-
2	New wind	1,256,988 MWh	6.98%
3	New utility-scale solar	629,343 MWh	3.50%
4	New DER/Non-wires Solar	8,148 MWh	0.05%
5	DER Solar – CETA Eligible resources	22,589 MWh	0.13%
6	Existing Wind/Solar/Biomass (includes signed contracts)	4,054,720 MWh	22.53%
7	Existing Hydro	5,409,805 MWh	30.06%
8	CETA-eligible energy	11,381,593 MWh	-
9	Interim Target	63%	-
10	Renewable energy Specific Target		63.24%
11	NEW utility scale renewable energy as a percent of retail load		10.48%

In alignment with the discussion earlier in this chapter on updating the interim target to 54.5 percent, the 2025 annual goal to 60 percent and the 60-day compliance filing, PSE also updates its renewable energy target for new utility scale renewable energy to 11 percent PSE provides the calculation for this updated renewable energy target in Table 2.22.

Table 2.22: Calculation of Renewable Energy Specific Target

Line	CETA Summary	2025	Percent of retail load
1	CETA Retail Electric load	19,903,567 GWh	-
2	New utility-scale CETA eligible resources	2,185,000 GWh	11%
3	Existing CETA eligible resources*	9,749,832 GWh	49%
4	Annual goal	60%	-
5	Renewable Energy specific target		60%
6	NEW utility scale renewable energy as a percent of retail load		11%

* Assumes 95% of energy is derived from a BPA source

Based on the calculation above, PSE is also updating its renewable energy target from 10.5 percent to 11 percent.

5.4.1. Renewable energy methodology: 2021 All-Source RFP

PSE initiated the 2021 All-Source RFP to bring utility-scale resources to meet the goal from the 2021 CEIP. PSE provides an overview of the qualitative and quantitative analysis performed for this RFP below.

→ The summary and analysis is provided in greater detail in [Appendix D: RFP Quantitative](#) and Qualitative Analysis and Docket UE-210220.¹⁸

PSE received 95 proposals for 21 gigawatts (GW) of new resources in response to its 2021 All-Source RFP. Bids reflected a range of resource types, as shown in Table 2.23. Interested parties can find more information about these proposals on PSE's [RFP web site](#) in a proposal summary¹⁹ posted pursuant to WAC 480-107-035(5).

Table 2.23: 2021 All-Source RFP proposals received

Resource category	Resource type	Phase 1	
		# of proposals ¹	Total capacity (MW) ²
Solar	Solar only	20	4,094
	Hybrid: Solar + Storage	9	1,181
	Hybrid: Solar + System PPA	1	200
Wind	Wind only	20	6,986
	Hybrid: Wind + Storage	2	800
	Hybrid: Wind + Solar + Storage	2	451
Storage	Storage: Battery	29	4,360
	Storage: Pumped Hydro	3	800
Flexible capacity	Natural Gas-fired Generation	3	1,247
	Biofuel-fired Generation	4	857
Other resources	Run-of-river Hydro	1	22
	Hydrogen Fuel Cell	1	10
Total		95	21,008

PSE included consideration of equity and customer benefits in each phase of its 2021 All-Source RFP evaluation process. The 2021 All-Source RFP required each bidder to provide an equity and customer benefit plan demonstrating their proposal's alignment with goals set forth in CETA. Required 2021 All-Source RFP proposal forms also included a series of questions designed to capture information about

18. Puget Sound Energy, [2021 Request for Proposals for All Generation Sources – Summary Report](#), Docket UE-210220 (Oct. 1, 2021)

19. Puget Sound Energy, [2021 Request for Proposals for All Generation Sources – Summary Report](#), Docket UE-210220 (Oct. 1, 2021)

the project relevant to supporting goals set forth in RCW 19.405.040(8) related to customer benefits; diversity, equity, and inclusion; and labor.

PSE’s evaluation of resources for the 2021 All-Source RFP was based on a combined quantitative and qualitative assessment of all proposals that met the minimum requirements of the solicitation. In Phase 1, PSE performed a preliminary cost and risk analysis to screen for the most promising resources for further consideration. This phase used a combination of quantitative and qualitative scores. At the end of Phase 1, sixty-seven (67) proposals with the highest combined scores from each resource category were identified for further evaluation in Phase 2.

In Phase 2, PSE performed a portfolio optimization and qualitative due diligence to verify and identify key commercial issues and project risks. PSE also performed a sensitivity analysis to produce a portfolio that meets capacity and renewable need, while maximizing CBIs.

→ See [Appendix D: RFP Quantitative and Qualitative Analysis](#) for details of the rubrics and evaluation used.

In the concurrent analysis, PSE brought in all three of the Demand Response programs as part of the modeling analysis. In this analysis all three demand response projects were selected as part of the short-list.

5.4.2. Renewable energy results

At the time of writing this Biennial Update, PSE has signed and executed one (1) contract and expects more contracts to be signed by the end of the first quarter of 2024.

Table 2.24: Signed contracts from 2021 All-Source RFP

Project name	Capacity (MW)	Contract Start Date
Vantage Wind Power Purchase Agreement	90 MW	2025

Additionally, PSE is evaluating and/or negotiating with other counterparties for additional resources to help meet PSE’s renewable and non-emitting energy and capacity needs consistent with the requirements of CETA. Among these resources, PSE has identified several offers that are currently in contract negotiations. Combined, these offers represent over 1,000 MW of additional wind and solar energy that would help meet PSE’s 2030 CETA target and over 500 MW of additional CETA-compliant capacity resources. These resources, if secured, are expected to be online after 2025 but would help PSE to ramp into meeting its 2030 CETA clean energy standard.

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.