

# Washington State Electric Utility Resource Planning



2022 Report

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Report to the Legislature

Director Mike Fong

**ENERGY**

v3.4

# Acknowledgments

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# Executive summary

[Chapter 19.280 RCW](#) requires electric utilities develop resource plans to assess their specific future load and resource requirements. The Department of Commerce is tasked with collecting and analyzing the utility resource plans and creating a summary report for the Legislature.<sup>1</sup>

The 2022 Utility Resource Plan Report summarizes the findings of Washington state load and resource information for a 10-year planning cycle – with most utilities using 2021 as the base year.<sup>2</sup> Key findings of the 2022 Utility Resource Plan report are:

- Utilities plan to reduce their use of coal-fired electricity generation serving Washington retail customers and net use of short-term contracts in the forecast periods, and to increase their use of natural gas-fired generation, wind power, other renewables, and Bonneville Power Administration resources. Hydropower will remain the dominant source of electric for Washington utilities over the 10-year forecast period.
- There was no significant variation in the electricity needed to serve the state from 2008 through 2022. Statewide aggregate load growth forecasts by utilities for the next five and 10 years has trended down with each successive Commerce Utility Resource Plan report.
- The statewide aggregate load growth in electricity demand for 2026 and 2031 is expected to be moderate, and most of this growth will be offset through energy conservation programs operated by utilities. With the majority of load growth met by energy conservation programs, new renewable resources primarily serve to replace retiring coal-fired generation and thermal natural gas generation. However, several utilities (Chelan, Douglas and Grant PUDs) are forecasting high load growth rates over the next 10 years due to growth in data centers, computing demand, and cryptocurrency mining.

Most utilities plan to meet load requirements in the lowest-cost, least-risk way by renewing Bonneville Power Administration contracts (for slice or block products or shifting to a load following product), maximizing energy conservation measures, and implementing new demand response measures. While several consumer-owned utilities plan to remove natural gas from their resource portfolios in their five-year forecast, all the investor-owned utilities plan to maintain relatively steady amounts of natural gas in their resource portfolio.

Regional resource planning studies have found the Northwest has adequate resources to meet current demand for electricity and does not face significant risk of outages in the short term, but there needs to be a concerted effort to bolster the electric grid to serve the dual objectives of reducing fossil-fired generation and increasing electric loads for transportation, buildings, and industry.

The Clean Energy Transformation Act (CETA), Washington's 100% clean electricity law, includes requirements for utilities to establish specific standards for resource adequacy and incorporate those standards into their planning and compliance. As utilities reduce reliance on coal-fired and gas-fired power plants and add variable renewable energy such as wind and solar, new approaches and resources will be required to maintain resource

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<sup>1</sup> Section 19.280.060, Department's duties—Report to the legislature. (2022, June 29). Retrieved from Revised Code of Washington: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.280.060>. This report was completed prior to the close of the 2024 legislative session. Any amendments to this statute will be taken into consideration in future reports.

<sup>2</sup> Completed reporting of utility plans under Washington's 100% clean electricity law ([RCW 19.405](#)) and proposed legislation to amend this report led Commerce to delay the release of the 2022 report.

adequacy to ensure reliable service to customers. It is equally important to incorporate risks associated with fossil generating resources, including fuel supply risk and weather-driven forced outage risks.

While resource adequacy is an obligation of each electric utility serving end use customers in the state, it also is a shared responsibility of the overall electric power system and the entities that operate, plan, regulate, design, and fund the generation, transmission, and delivery of that system.

At the state level, Commerce and the Utilities and Transportation Commission hold an annual resource adequacy meeting in accordance with [RCW 19.280.065](#).<sup>3</sup> A summary of that meeting is available on [Commerce's Resource Adequacy webpage](#).

## Legislative mandate

This report is required biennially per RCW 19.280.060, which states:

The department shall review the plans of consumer-owned utilities and investor-owned utilities, and data available from other state, regional, and national sources, and prepare an electronic report to the legislature aggregating the data and assessing the overall adequacy of Washington's electricity supply. The report shall include a statewide summary of utility load forecasts, load/resource balance, and utility plans for the development of thermal generation, renewable resources, conservation and efficiency resources, and an examination of assessment methods used by utilities to address overgeneration events. The commission shall provide the department with data summarizing the plans of investor-owned utilities for use in the department's statewide summary. The department shall submit any reports it receives of existing and potential combined heat and power facilities as reported by utilities to the Washington State University extension energy program for analysis. The department may submit its report within the biennial report required under RCW 43.21F.045.

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<sup>3</sup> Section 19.280.065, Department and commission meeting—Summary to the governor and legislature. (2022, June 29). Retrieved from Revised Code of Washington: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.280.065>

# Introduction

## Background

Washington consumers and businesses depend on electricity service from more than 60 electric utilities operating in this state. These utilities vary greatly in size, geographic scope, history and governance, but each is responsible for ensuring an adequate supply of an essential resource.

Washington law requires each utility plan for the future by examining the projected amounts of electricity that will be required by customers in the coming decade and identifying the power resources that will be used to meet those demands.<sup>4</sup> Each utility must prepare a report every two years and submit it to Commerce. Commerce reviews the utility reports and submits a summary to the Legislature. This is the eighth report since the Legislature enacted the resource planning law in 2006.

Depending on their size and power sources, utilities submit either a resource plan (RP) or an integrated resource plan (IRP). The RP is a short-form report of load<sup>5</sup> and resources and may be submitted only if the utility has fewer than 25,000 customers and is a full requirements customer<sup>6</sup> of Bonneville Power Administration. The IRP is a more detailed plan and must incorporate a number of specific requirements identified in statute.

## Purpose

Utilities develop resource plans to assess their future load and resource situations. This report aggregates the individual reports to provide an assessment at the statewide level of whether utilities are planning for adequate supplies, and what resources are expected to meet any growth in electric power demand.

This report summarizes the electricity loads and resources reported by Washington utilities in their 2022 reports to Commerce. It compares them to estimated summaries of previous years. Resources proposed to meet load are categorized by generating fuel type and source type (such as contract or market). An imbalance of loads and resources may indicate either a resource surplus or deficit.

The information collected for this report is limited to the identification of loads and resources and their associated aggregate quantities. It does not attempt to evaluate specific goals or outcomes for resource acquisition strategies used by utilities.

This report provides information on utilities' energy efficiency and renewable energy resources. It does not analyze issues related to the energy efficiency and renewable energy requirement of, or compliance with, the Energy Independence Act ([Chapter 19.285 RCW](#)) or the Clean Energy Transformation Act ([Chapter 19.405 RCW](#)).

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<sup>4</sup> Chapter 19.280, Electric Utility Resource Plans. (2022, June 29). Retrieved from Revised Code of Washington: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.280>

<sup>5</sup> As used in the statute and this report, "load" means the amount of electric energy demanded by a utility's customers during a defined period.

<sup>6</sup> "Full requirements customer" as defined in Section 19.280.020(7) means an electric utility that relies on the Bonneville Power Administration for all power needed to supply its total load requirement other than that served by nondispatchable generating resources totaling no more than six megawatts or renewable resources.

# Utility reporting

The utility resource planning statutes ([Chapter 19.280 RCW](#)) require that each utility prepare a resource plan (RP) and submit it to Commerce by Sept. 1 of each even-numbered year. Commerce received reports from 63 utilities. The individual reports are presented in [Appendix A](#).

Electric utilities in Washington vary significantly in size and the scope of operations. This is reflected in the way utilities approach resource planning and forecasting. Larger utilities typically use multiple sources of electricity supply to meet their customers' requirements and engage in sophisticated assessments of risks and benefits in evaluating alternative sources of new energy. Many smaller utilities rely on the Bonneville Power Administration, which undertakes the complex planning and forecasting exercise that leads to a resource plan.

The resource planning statute reflects this difference in approaches. It requires that larger utilities prepare and submit IRPs, which are the product of a thorough assessment of future needs and alternatives for meeting those needs through both demand-side and supply-side resources. Smaller utilities are allowed to prepare and submit a simplified assessment of loads and resources.

## Interpretation of base year, five-year and 10-year data

The resource plan summary submitted to Commerce includes load and resource information for three points in a 10-year planning cycle. These points are the base year, five-year and 10-year plans. In 2022, most utilities used 2021 as the base year, and the five-year and 10-year points are 2026 and 2031, respectively. However, utilities vary in their planning cycles, and some utilities use an earlier or later set of years in their reporting; the base year ranges from 2020 to 2022. For purposes of the statewide summary, Commerce aggregates all base-year data into a single value (2021) and does likewise for the five-year (2026) data and 10-year data (2031).

## Interpretation of conservation and load data

An important principle of integrated resource planning is that all resources should be evaluated on a consistent basis. This includes different generating resources, such as wind and natural gas, as well as energy conservation measures and demand response resources. With energy conservation measures and demand response being analyzed and compared to supply-side options, utilities are able to determine whether customers are better served by increasing energy efficiency, demand reduction, or energy supply. Consequently, energy conservation measures are sometimes portrayed as a reduction in the utility's load and sometimes portrayed as resources available to meet load. This can lead to confusion in interpreting utility plans.

Here is how this potential confusion is resolved:

Utilities report a base year load amount that reflects whatever conservation has occurred in the past. For the five-year and 10-year values, utilities are directed to report the load that they would expect to serve in the absence of any additional conservation savings. The report separately lists the conservation resources that the utility expects to acquire during the five-year and 10-year periods.

For example, Avista reports that its load in 2022 (base year) was 680 average megawatts (aMW).<sup>7</sup> This figure represents the actual load of its customers in the base year. It reflects many years of conservation programs at Avista and would be significantly higher without those historical conservation achievements. For the five-year interval (2027), Avista forecasts a load of 692 aMW and conservation savings of 33 aMW.

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<sup>7</sup> aMW, or average megawatt, is an amount of electric energy equal to one megawatt-hour per hour for an entire year, or 8,760 megawatt-hours.

The first number represents the load that Avista would expect if it achieved no conservation savings after the base year. Without additional conservation, its load would increase by 12 aMW, but with future conservation the forecast load with conservation decreases by 21 aMW for an adjusted total load of 659 aMW at the end of the five-year interval.

In summary, the amounts reported as load for the five-year and 10-year intervals are based on an assumption of no new conservation. The actual loads at these future time points are likely to be lower by the amount of energy conservation identified by each utility.

## Results

The 2022 resource plans submitted to Commerce are summarized in Table 1-5 and Figures 1 and 3.

Table 1 presents utility report information in units of average-Megawatts (aMW) on statewide annual utility load and resources, including imports and exports, for the base year (2021), and the five and 10-year forecasts. The right two columns in the table illustrate the difference between the base year and the five and 10-year forecasts.

Table 1 also presents the composition of electric generation resources for the base year, and the five and 10-year forecasts.

Figure 1 presents the composition of electric generation resources for the five-year and 10-year forecasts.

Table 1 and Figure 1 show that utilities plan to continue relying mostly on Bonneville Power Administration (BPA), hydroelectric generation and thermal natural gas plants to meet electricity demand. The BPA resource is a blended resource and is typically 85% hydropower, 11% nuclear, and 4% unspecified market purchases. Figure 1 reveals that hydropower will remain the largest source of electricity for Washington utilities. While several consumer-owned utilities plan to remove natural gas from their resource portfolios in their five-year forecast, all the investor-owned utilities plan to maintain relatively steady amounts of natural gas in their resource portfolio.

### Table 1: Washington's Projected Requirements and Resources - Annual Energy aMW

	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
<b>Requirements</b>					
<b>Loads</b>	10,202	10,818	11,363	616	1,161
<b>Exports</b>	226	217	190	(9)	(36)
<b>Energy Conservation Measures</b>	-	(405)	(816)	(405)	(816)
<b>Demand Response</b>	0	(23)	(33)	(23)	(33)
<b>Total Net Requirements</b>	<b>10,428</b>	<b>10,607</b>	<b>10,704</b>	<b>179</b>	<b>276</b>
<b>Resources</b>					
<b>Total BPA</b>	4,360	4,492	4,669	132	309
<b>Hydro</b>	2,681	3,316	3,553	635	872



	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Thermal Natural Gas	2,692	2,563	2,433	(129)	(259)
Wind	638	1,070	1,026	432	388
Other Renewables	142	342	538	200	395
Net Short-Term Contracts	214	78	114	(136)	(100)
Net Long-Term Contracts	1,080	197	103	(883)	(977)
Other	37	44	77	7	40
Thermal Coal	726	156	67	(570)	(658)
Imports	89	56	51	(33)	(38)
Distributed Generation	5	11	18	6	13
Cogeneration	15	15	15	0	0
Undecided	-	1	13	1	13
Market Purchase	2			(2)	(2)
<b>Total Resources</b>	<b>12,680</b>	<b>12,341</b>	<b>12,676</b>	<b>(339)</b>	<b>(4)</b>
<b>Load Resource Balance</b>	<b>2,252</b>	<b>1,735</b>	<b>1,972</b>	<b>(517)</b>	<b>(280)</b>

Of note is that coal resources listed after 2025 are entirely attributable to PacifiCorp's integrated resource plan. PacifiCorp pro-rated its total system resources to Washington based on the ratio of Washington's energy usage to PacifiCorp's total system energy usage. In the company's April 13, 2023, submission, Washington is seeing a share of coal resources because PacifiCorp does not have a Washington-specific load and resource balance and therefore all resources (regardless of type) were pro-rated. This methodology notwithstanding, Washington will no longer receive either the costs or benefits from PacifiCorp's coal resources after 2025, in accordance with Washington Clean Energy Transformation Act (CETA) requirements and Washington Utilities and Transportation Commission (WUTC) orders.

**Figure 1: Forecast Available Resources**

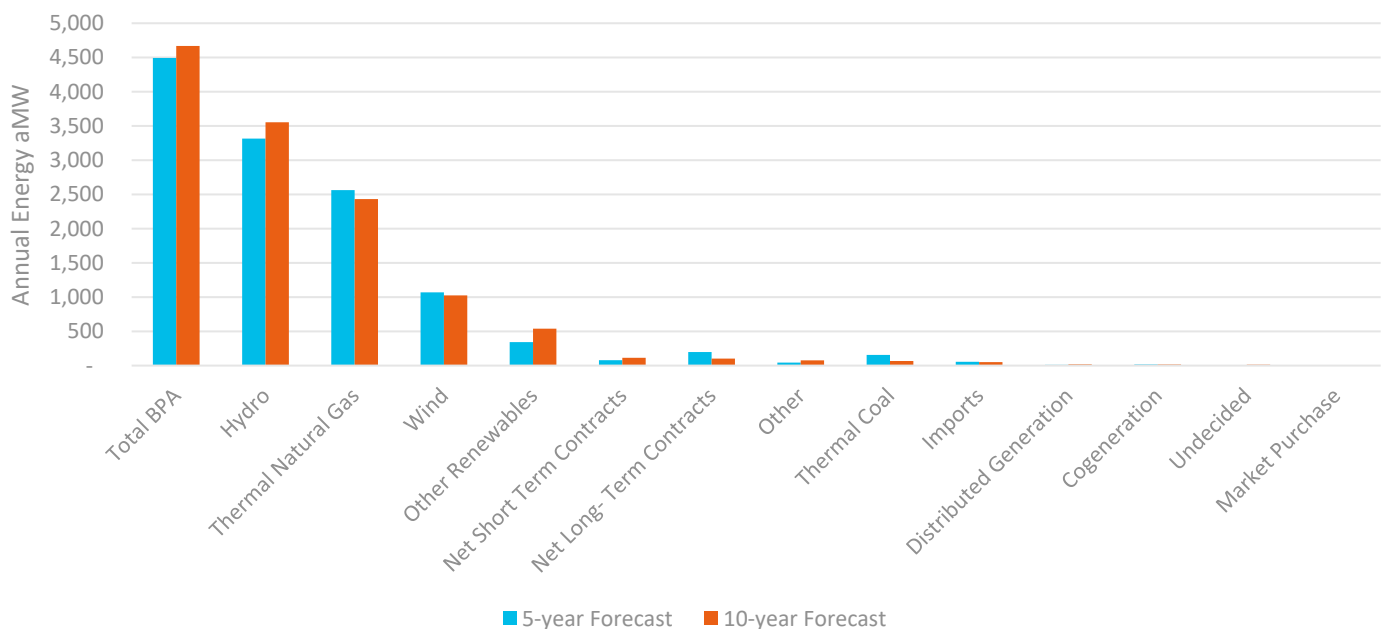


Table 2 presents in average-megawatts the differences between the 2022 and 2020 resource reports on statewide annual utility load and resources and the five and 10-year forecasts.

Table 2 shows a diminished contribution from coal-fired electricity generation in the forecast period, and an increased reliance on natural gas-fired generation, wind power, other renewables, and BPA resources.

The shift in electric generation resources shows progress towards meeting the requirements of the Clean Energy Transformation Act (CETA). CETA prohibits utilities from using coal generation after 2025.<sup>8</sup> It requires all retail sales of electricity to Washington be greenhouse gas neutral by 2030<sup>9</sup> and 100% non-emitting by 2045.<sup>10</sup>

**Table 2: Difference between 2022 and 2020 Requirements and Resources - Annual Energy aMW**

	Base Year	5-year Forecast	10-year Forecast
<b>Requirements</b>			
Loads	(105)	43	(9)
Exports	(107)	(40)	(1)
Energy Conservation Measures	-	88	(2)
Demand Response	-	(13)	(23)
<b>Total Net Requirements</b>	<b>(213)</b>	<b>78</b>	<b>(35)</b>
<b>Resources</b>			
Total BPA	(57)	212	265
Hydro	(379)	127	193
Thermal Natural Gas	606	675	690
Wind	119	395	448
Other Renewables	61	188	257
Net Short-Term Contracts	(32)	(243)	(221)
Net Long-Term Contracts	553	(302)	8
Other	42	49	71
Thermal Coal	(252)	(527)	(402)
Imports	(76)	2	(6)
Distributed Generation	2	4	5
Cogeneration	2	(0)	11
Undecided	-	(10)	(14)

<sup>8</sup> Section 19.405.030(1), Coal-fired resources-Depreciation schedule-Penalties. (2022, June 29). Retrieved from Revised Code of Washington: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.405.030>

<sup>9</sup> Section 19.405.040(1), Greenhouse gas neutrality-Responsibilities for electric utilities-Energy transformation project criteria-Penalties. (2022, June 29). Retrieved from Revised Code of Washington: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.405.040>

<sup>10</sup> Section 19.405.050(1), Clean energy implementation-Hydroelectric facilities-Special contracts. (2022, June 29). Retrieved from Revised Code of Washington: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.405.050>

	Base Year	5-year Forecast	10-year Forecast
Market Purchase	(10)	(34)	(43)
Total Resources	580	535	1,262
Load Resource Balance	792	459	1,297

Most Washington utilities experience their annual peak load during the winter months. Table 3 presents utilities' aggregated report information for their highest estimated one-hour load during the winter season,<sup>11</sup> including imports and exports, for the base year (2021), and the five and 10-year forecasts. Because electricity demand tends to be higher during the winter season compared to other seasons, utilities rely more extensively on dispatchable thermal resources and short-term contracts to meet load during the winter season. Demand response is also an important resource during the winter, as this reduces the need for utilities to operate gas turbines or make market purchases during periods of very high demand. Utilities forecast reduced use of long-term contracts, coal, and BPA resources to meet summer peak and winter peak requirements in the five-year and 10-year forecasts.

**Table 3: Washington Projected Requirements and Resources - Winter Capacity MW**

	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
<b>Requirements</b>					
Loads	12,721	13,623	14,640	902	1,919
Exports	263	188	162	(75)	(102)
Energy Conservation Measures		(524)	(1,006)	(524)	(1,006)
Demand Response		(202)	(387)	(202)	(387)
<b>Total Net Requirements</b>	<b>12,985</b>	<b>13,086</b>	<b>13,409</b>	<b>102</b>	<b>425</b>
<b>Resources</b>					
Hydro	3,225	4,595	5,146	1,370	1,920
Total BPA	3,762	3,506	3,650	(256)	(112)
Wind	233	310	323	77	90
Other Renewables	68	130	179	61	111
Thermal Natural Gas	3,175	2,849	3,258	(326)	83
Cogeneration	15	16	16	0	0
Thermal Coal	935	342	263	(593)	(672)
Other	20	112	244	92	224
Undecided	-	-	-	-	-
Imports	309	323	305	13	(5)
Distributed Generation	1	2	3	1	2
Net Short-Term Contracts	1,836	1,816	1,892	(20)	56

<sup>11</sup> Table 1 expressed in energy units of aMW, Table 3 in capacity units of MW.

	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Net Long-Term Contracts	1,396	114	70	(1,282)	(1,326)
Market Purchase				-	-
<b>Total Resources</b>	<b>14,976</b>	<b>14,114</b>	<b>15,349</b>	<b>(862)</b>	<b>372</b>
<b>Load Resource Balance</b>	<b>1,991</b>	<b>1,028</b>	<b>1,939</b>	<b>(964)</b>	<b>(52)</b>

Table 4 presents a time series of Commerce Utility Resource Plans. The information in the table presents aggregated annual utility loads (base year, five-year and 10-year) for the 2008 through 2022 Commerce reports. The forecast loads do not include the energy conservation measure (ECM) forecast by utilities. Figure 2 presents the information in Table 4 in a graphical format. Table 5 and Figure 3 present the aggregated annual utility loads (base-year, five-year and 10-year) and include energy conservation measures and demand response forecasts by utilities.

Table 4 and Table 5 and Figure 2 and Figure 3 show load growth forecasts by utilities for the five and 10-year out points have been trending down with each successive report. By comparing Figure 2 and Figure 3 it is evident that utility conservation programs significantly reduce aggregate load growth.

## Table 4: Utility Report Time Series – Base Year and Forecast Loads Without Energy Conservation Measures

Utility Report Year	Base Year	Base Year, aMW	5-year Est.	5-year Est. aMW	10-year Est.	10-year Est. aMW
2008	2007	10,008	2012	11,304	2017	12,270
2010	2009	10,606	2014	11,737	2019	12,717
2012	2011	10,265	2016	11,264	2021	12,126
2014	2013	10,166	2018	11,502	2023	12,380
2016	2015	10,099	2020	10,875	2025	11,576
2018	2017	10,231	2022	10,816	2027	11,356
2020	2019	10,307	2024	10,775	2029	11,372
2022	2021	10,202	2026	10,818	2031	11,363

Figure 2: Utility Report Time Series – Base Year and Forecast Loads Without Energy Conservation Measures

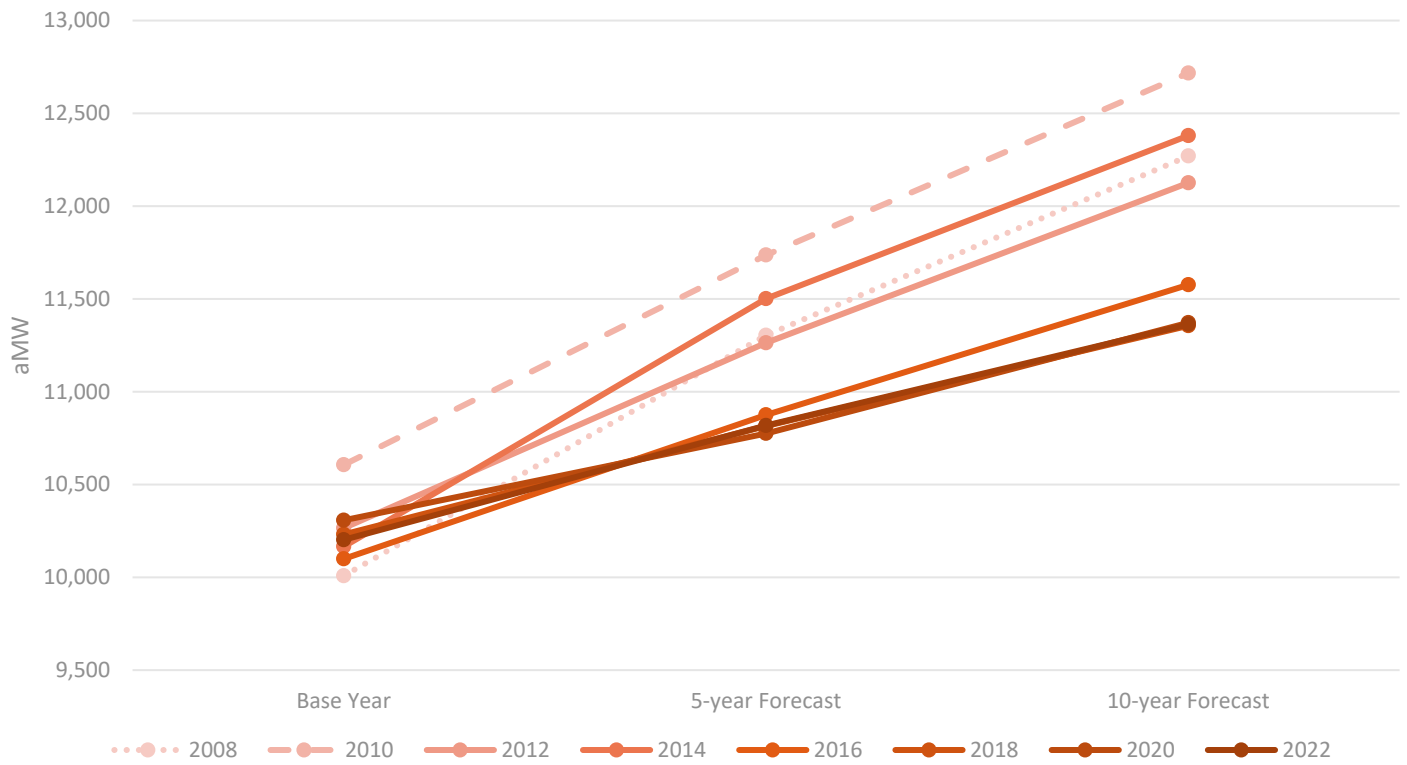


Table 5: Utility Report Time Series – Base Year and Forecast Loads with ECM and Demand Response

Utility Report Year	Base Year	Base Year, aMW	5-year Est.	5-year Est. aMW	10-year Est.	10-year Est. aMW
2008	2007	10,008	2012	10,890	2017	11,524
2010	2009	10,555	2014	11,145	2019	11,691
2012	2011	10,265	2016	10,692	2021	11,107
2014	2013	10,166	2018	11,017	2023	11,423
2016	2015	10,099	2020	10,347	2025	10,629
2018	2017	10,231	2022	10,345	2027	10,582
2020	2019	10,307	2024	10,272	2029	10,548
2022	2021	10,202	2026	10,389	2031	10,514

Figure 3: Utility Report Time Series – Base Year and Forecast Loads with ECM and Demand Response

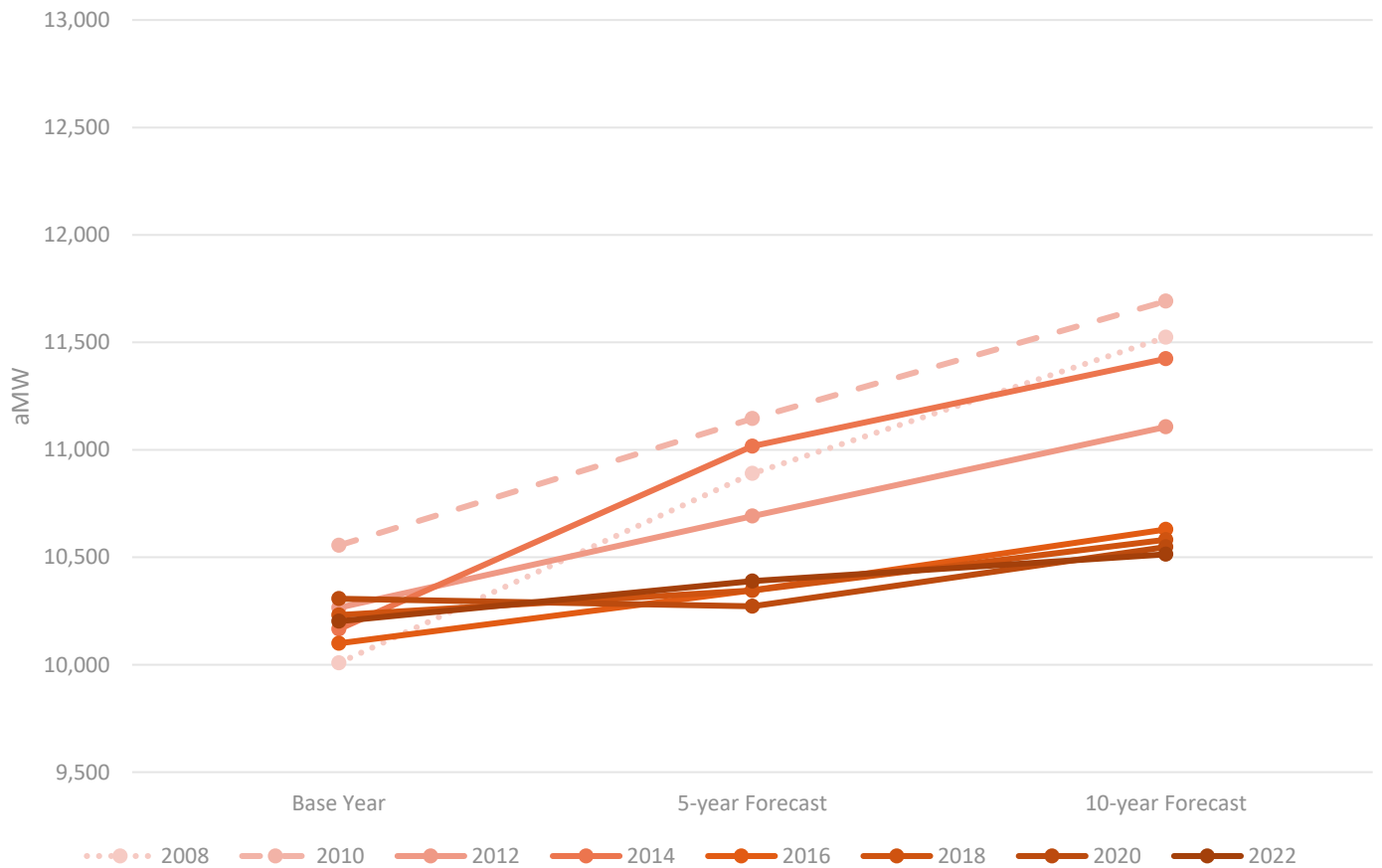


Table 6 presents the individual utility growth forecasts and the percent of load growth anticipated to be met by energy conservation measures. For example, Benton County PUD No 1 estimates a load growth of 14.2 aMW or 6.52% by 2031. Benton County PUD No 1 estimates 11.72 aMW of energy conservation measures by 2031, and 82.52% of that load growth will be met by energy conservation measures (11.72 aMW/14.2 aMW=82.52%). Several utilities (Chelan, Douglas, and Grant PUDs) are forecasting very high load growth rates over the next 10 years due to the growth of data centers, computing demand, and cryptocurrency mining. Chelan County PUD forecasts the average base case annual growth rate for High Density Loads, Cryptocurrency Loads, and Large Loads combined to be 31.88% for their 2023-2032 planning period. In comparison, Chelan County PUD expects its base case residential average annual growth rate to be 1.44% and its base case commercial sector average annual growth rate to be 1.97% during the same planning period.<sup>12</sup> As a result of data center proliferation and the growth of computing demand, especially artificial intelligence, Douglas PUD will experience significant increases in new data loads in the next several years as well. By 2029, new data load will increase from 22% of 2024 load to 58% of 2029 energy load.<sup>13</sup> For Grant County PUD, over the past the decade, industrial class load growth has made up an ever-increasing portion of their total retail load, and data centers have grown to dominate load growth in that sector.<sup>14</sup>

**Table 6: Individual Utility Load Forecasts With and Without Conservation**

Utility Name	Load Growth with No Conservation		% of Load Growth Met by Conservation	
	5-year Change %	10-year Change %	5-year Conservation	10-year Conservation
Alder Mutual Light Co, Inc	-2.91%	-2.91%	-5.12%	-5.12%
Asotin County PUD No 1	-0.22%	2.27%	0.00%	0.00%
Avista Corp	1.76%	2.65%	275.00%	372.22%
Benton County PUD No 1	2.21%	6.52%	108.46%	82.52%
Benton Rural Electric Assn	-9.18%	-8.28%	-9.40%	-10.43%
Big Bend Electric Coop, Inc	-4.62%	-2.39%	-10.24%	-19.81%
Blaine City Public Works	0.49%	1.14%	#N/A	#N/A
Centralia City Light	2.64%	2.65%	#N/A	#N/A
Chelan County PUD No 1	16.38%	22.25%	16.69%	31.12%
Chewelah Electric Dept	2.94%	2.96%	8.33%	8.29%
City of Cheney Light Dept	15.93%	22.63%	#N/A	#N/A
City of Coulee Dam Light Dept	4.84%	7.27%	14.76%	9.82%
City of McCleary Public Utility	3.85%	7.20%	2.11%	1.13%
City of Milton Electric Division	-0.27%	-0.07%	-44.63%	-178.78%
City of Sumas Electric Services	4.77%	2.28%	2.34%	4.88%
Clallam County PUD No 1	0.31%	0.32%	257.00%	251.45%
Clark County PUD No 1	4.65%	18.40%	#N/A	#N/A
Columbia Rural Elec Assn, Inc	2.80%	5.78%	#N/A	#N/A

<sup>12</sup> Chelan County PUD. (2023, p. 15-16). Integrated Resource Plan Progress Report. Retrieved from <https://www.chelanpud.org/docs/default-source/default-document-library/irp-2023-book.pdf>

<sup>13</sup> Douglas PUD. (2024, p. 14, 21-23). Integrated Resource Plan. Retrieved from <https://douglaspuud.org/wp-content/uploads/2024/02/2024-Draft-IRP.pdf>

<sup>14</sup> Grant County PUD. (2022, p.25). Integrated Resource Plan. Retrieved from [https://www.grantpud.org/templates/galaxy/images/Exhibit\\_A\\_2022\\_Integrated\\_Resource\\_Plan.pdf](https://www.grantpud.org/templates/galaxy/images/Exhibit_A_2022_Integrated_Resource_Plan.pdf)

Utility Name	Load Growth with No Conservation		% of Load Growth Met by Conservation	
	5-year Change %	10-year Change %	5-year Conservation	10-year Conservation
Consolidated Irrigation District No 19	-29.94%	-29.94%	#N/A	#N/A
Cowlitz County PUD No 1	13.04%	20.26%	#N/A	#N/A
Douglas County PUD No 1	21.07%	36.99%	6.66%	8.53%
Eatonville Power & Light Dept	0.73%	1.39%	58.19%	30.61%
Ellensburg Energy Services Dept	1.20%	2.74%	3.49%	1.53%
Elmhurst Mutual Power & Light Co	1.65%	3.66%	33.86%	15.26%
Ferry County PUD No 1	-9.17%	-8.26%	-2.75%	-3.05%
Franklin County PUD No 1	29.74%	33.72%	#N/A	#N/A
Grant County PUD No 2	28.53%	44.52%	4.53%	6.47%
Grays Harbor County PUD No 1	-2.27%	-3.79%	-22.00%	-18.00%
Inland Power & Light Company	10.41%	21.90%	2.72%	2.93%
Jefferson County PUD No 1	2.49%	4.11%	23.00%	13.94%
Kalispel Tribal Utilities	20.05%	27.45%	0.00%	0.00%
Kittitas County PUD No 1	2.99%	8.03%	19.96%	7.43%
Klickitat County PUD No 1	4.77%	11.31%	#N/A	#N/A
Lakeview Light & Power	1.21%	2.23%	65.56%	35.63%
Lewis County PUD No 1	4.49%	7.69%	52.04%	96.94%
Mason County PUD No 1	-2.16%	-0.28%	-6.06%	-47.36%
Mason County PUD No 3	9.77%	16.92%	15.20%	24.96%
Modern Electric Water Company	0.74%	2.93%	157.74%	39.88%
Nespelem Valley Elec Coop, Inc	-0.07%	0.66%	-252.67%	27.55%
Ohop Mutual Light Company, Inc	-0.59%	-0.59%	-3.15%	-3.15%
Okanogan County Elec Coop, Inc	3.95%	16.38%	#N/A	#N/A
Okanogan County PUD No 1	1.05%	3.60%	0.00%	0.00%
Orcas Power & Light Coop	0.67%	4.08%	25.57%	4.18%
Pacific County PUD No 2	7.18%	10.22%	38.46%	24.32%
PacifiCorp	3.46%	9.07%	206.79%	139.63%
Parkland Light & Water Company	-0.09%	0.93%	-320.63%	29.33%
Pend Oreille County PUD No 1	3.75%	11.77%	#N/A	#N/A
Peninsula Light Company	-5.20%	-4.78%	-13.26%	-28.82%
Port Angeles City Light	-1.36%	-1.36%	-7.12%	-7.12%
Port of Seattle	6.66%	6.66%	15.93%	15.93%
Puget Sound Energy, Inc	5.88%	12.80%	144.90%	130.31%
Richland Energy Services	0.77%	1.77%	388.37%	504.04%
Seattle City Light	0.47%	2.99%	960.00%	265.63%
Skamania County PUD No 1	-4.08%	-2.15%	-0.88%	-1.68%
Snohomish County PUD No 1	1.87%	5.16%	183.80%	189.06%



Utility Name	Load Growth with No Conservation		% of Load Growth Met by Conservation	
	5-year Change %	10-year Change %	5-year Conservation	10-year Conservation
Steilacoom Public Works	-0.12%	2.30%	-10.97%	5.62%
Tacoma Power	1.51%	-3.70%	150.62%	-129.65%
Tanner Electric Coop	0.42%	3.19%	18.37%	2.44%
Town of Ruston Utility Dept	1.85%	-3.70%	#N/A	#N/A
Vera Irrigation District #15	-3.23%	-0.78%	-3.36%	-13.84%
Wahkiakum County PUD No 1	-1.96%	-0.50%	-1.89%	-7.46%
Whatcom County PUD No 1	14.43%	13.19%	0.00%	0.00%

The current round of utility resource plans indicates a continued reliance on energy conservation measures as the primary resource for balancing electricity supply and demand. The statewide aggregate growth in electricity demand is expected to be moderate with an average load growth of 3.15% over the five-year forecast and 6.16% over the 10-year forecast without conservation. The load growth projections may be conservative for 2022 because some of the utility resource plan results do not fully account for the impacts of climate change or new policies passed after 2021. Several utilities (Avista, Benton PUD, Seattle City Light, PacifiCorp and Puget Sound Energy) project that their energy conservation programs will result in more electricity savings than their projected amount of load growth. These utilities expect to experience negative growth in observed electric loads. With the majority of load growth met by energy conservation programs, new renewable resources primarily serve to replace retiring coal-fired generation and thermal natural gas generation.

## Overgeneration

In 2013, the Legislature amended the resource planning statute to address concerns about the potential for “overgeneration” events.<sup>15</sup> The legislation required that utilities consider this potential in their planning “if applicable to the utility’s resource portfolio,” and required that Commerce include in this report an assessment of utility approaches to overgeneration.

The statute defines an overgeneration event as:

*An event within an operating period of a balancing authority when the electricity supply, including generation from intermittent renewable resources, exceeds the demand for electricity for that utility’s energy delivery obligations and when there is a negatively priced regional market.*

Overgeneration is also referred to as oversupply, and the consequence is generation curtailment. It might occur when high river flows and high wind volumes coincide. It might also occur when the hours of solar generation misaligns with peak electricity demand. The capacity of the hydroelectric system to store extra river flow is limited, and even the option of spilling water over the dams is restricted by fish mortality concerns. In these circumstances, the regional power system may have more electric generation from hydroelectric, wind, and solar resources than what is required to meet regional loads and export opportunities.

<sup>15</sup> Section 19.280.060, Department’s duties—Report to the legislature. (2022, June 29). Retrieved from Revised Code of Washington: <https://app.leg.wa.gov/RCW/default.aspx?cite=19.280.060>

Since 2013, the Bonneville Power Administration has adopted an Oversupply Management Protocol, providing tools for the operators of the hydroelectric system and transmission grid to manage oversupply situations.<sup>16</sup> The implementation of this protocol has generally shifted the overgeneration issue from a planning concern to an operational concern.

In many cases, utilities did not find it necessary in their 2020-2022 resource plans to address overgeneration, or generation curtailment, as an issue separate from the more general assessment of generating resource alternatives.

## Resource adequacy

Most utilities plan to meet load requirements in the lowest-cost, least-risk way by renewing BPA contracts (for slice or block products or shifting to a load following product), maximizing energy conservation measures, and implementing new demand response programs. Many consumer-owned utilities already have 80% or more renewable electric generation, and they plan to comply with CETA requirements between 2030 and 2045 using renewable energy credits.<sup>17</sup> With increased demand for renewables, some utilities, such as Clark PUD and Seattle City Light, have requested 100% clean block products from BPA. Some utilities, such as Centralia City Light, would like BPA to find a way to eliminate unspecified power purchases; otherwise, they would have to purchase renewable energy credits to cover the unspecified purchases by BPA to comply with CETA.<sup>18</sup>

Other strategies utilities reported considering include:

- Developing the Western Resource Adequacy Program
- Investigating dispatchable, renewable and non-emitting resources such as batteries, hydrogen, geothermal, and small modular nuclear reactors
- Diversifying the geographic location of their renewable resources
- Utilities reported transmission constraints as a key constraint to accessing cheap renewable resources.

There has been significant progress in the development of a Resource Adequacy Program; however, significant work remains in developing the Western Resource Adequacy Program. Grant PUD explains: "[T]he Western Resource Adequacy Program (WRAP), aims to set regional standards for planning methods and metrics, provide load and resource diversity savings, and establish a robust procurement process... There are many challenges that will need to be overcome for establishing a Resource Adequacy program unique to the Northwest, including the lack of an organized market administrator, the large number of consumer-owned utilities, the significant amount of hydropower resources and the size and role of Bonneville Power Administration (BPA). In addition, questions remain on how WRAP might coexist with energy imbalance and day-ahead markets."<sup>19</sup>

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<sup>16</sup> Oversupply. (n.d.). Retrieved from Bonneville Power Administration: <https://www.bpa.gov/energy-and-services/transmission/oversupply>

<sup>17</sup> [Section 19.405.040\(1\)](#) states that it is the policy of the state that all retail sales be greenhouse gas neutral by January 1, 2030, and that through December 31, 2044, an electric utilities may satisfy up to 20% of its compliance obligation using an alternative compliance option, such as unbundled renewable energy credits.

<sup>18</sup> Centralia City Light. (2022, p.34). 2022 Electric Utility Resource Plan Update. Retrieved from <https://cityofcentralia.com/DocumentCenter/View/1938/2022-Electric-Utility-Resource-Plan-PDF?bidId=>

<sup>19</sup> Grant Public Utility District. (2022, p.32). Integrated Resource Plan. Retrieved from [https://www.grantpud.org/templates/galaxy/images/Exhibit\\_A\\_2022\\_Integrated\\_Resource\\_Plan.pdf](https://www.grantpud.org/templates/galaxy/images/Exhibit_A_2022_Integrated_Resource_Plan.pdf)

# Regional resource forecasts

## PNUCC 2022 Northwest Regional Forecast

The Pacific Northwest Utilities Conference Committee (PNUCC) is an electric utility association that compiles information on expected loads and resources of electric utilities in the Pacific Northwest. It includes the loads and resources of Washington utilities along with those of utilities in Oregon, Idaho and Montana.<sup>20</sup> Washington state is the largest state in the Northwest Regional Planning Area which is the area defined by the Pacific Northwest Electric Power Planning and Conservation Act.

The 2022 Northwest Regional Forecast (through 2032) highlighted three key themes:

- A significant transition from thermal generation to clean energy resources is underway in the Pacific Northwest and the rest of the Western Interconnection, with coal plant retirements and increasing adoption of variable clean energy resources. The transition in the Pacific Northwest is in large part due to Washington's Clean Energy Transformation Act and Oregon's Renewable Portfolio Standard.<sup>21</sup>
- A variety of new policies that promote electrification such as Washington's Climate Commitment Act, Washington State's new building code standards, and Oregon's Climate Change Executive Order 20-40 are contributing to the challenges of electricity demand forecasting. The shift to a more variable clean power supply coinciding with growth in electricity demand due to electrification results in a growing need to address resource adequacy issues and increasing winter and summer peak deficits.
- Continued robust energy efficiency acquisition efforts and new demand response efforts by Northwest utilities.

The report concluded that more regional utilities are expecting modest growth in retail loads through the forecast period compared to the previous year. Load growth is largely coming from new industrial loads that include server farms and a growing population in eastern Washington, Idaho, and western Montana. The load growth is diminished due to energy efficiency programs, as well as energy codes and standards. However, estimates of load growth may be conservative because many utilities are only just beginning to examine the implications of electrification and climate change in their load forecasts. In PNUCC's request for data, utilities representing just over 25% of load indicated that they factored in climate change, and utilities making up 30% of regional load are directly accounting for some electrification.<sup>22</sup> The inclusion of electrification in load forecasts will increase load estimates, and the inclusion of climate change impacts will increase summer load estimates while decreasing winter supply estimates.

PNUCC highlights winter-peaking requirements as a continuing concern. Additionally, as shown in

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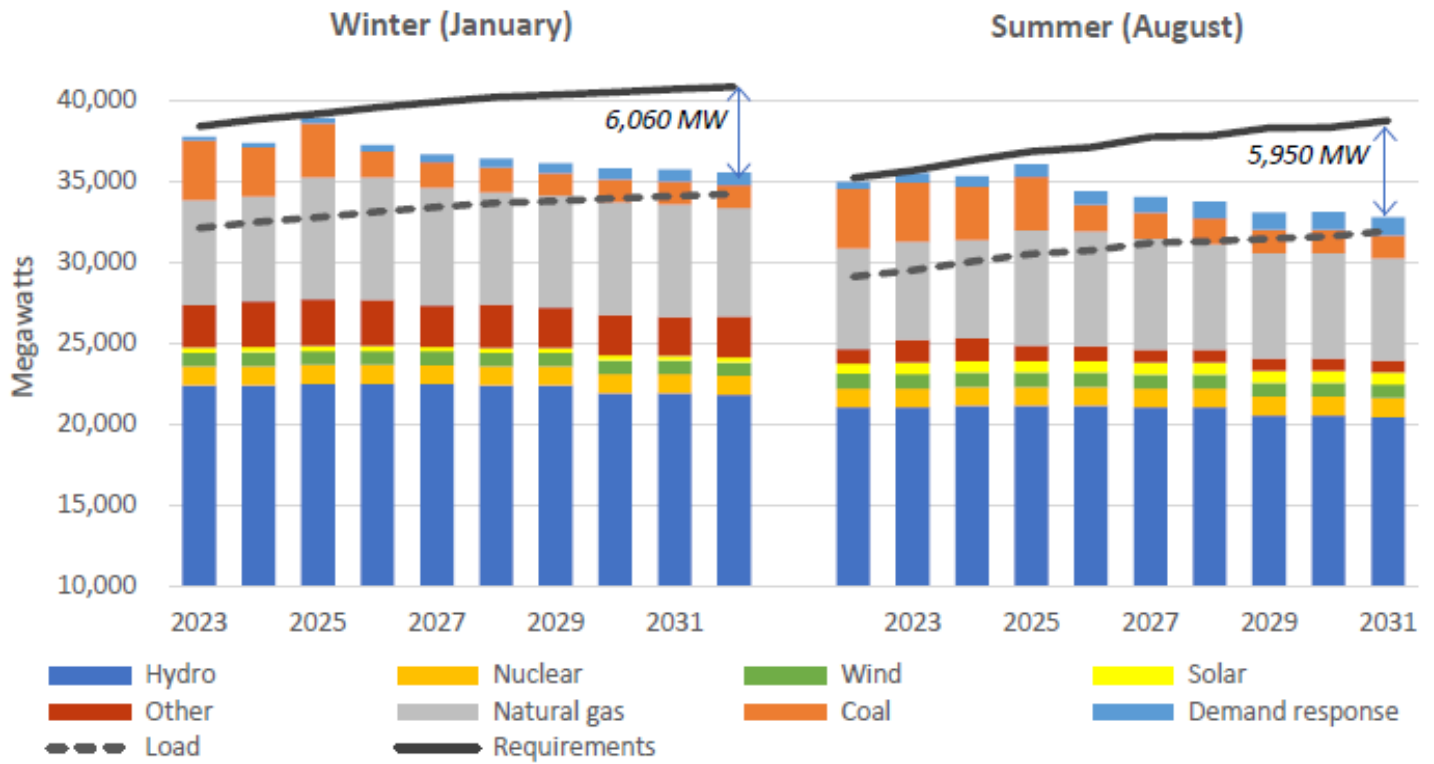
<sup>20</sup> Pacific Northwest Utilities Conference Committee. (2022). Northwest Regional Forecast of Power Loads and Resources 2022 through 2032. Retrieved from <https://www.pnucc.org/wp-content/uploads/2022-PNUCC-Northwest-Regional-Forecast-final.pdf>

<sup>21</sup> Idaho and Montana do not have any renewable portfolio standards. Montana's renewable portfolio standard of fifteen percent renewable energy by 2015 was repealed in 2021. Source: State Renewable Portfolio Standards and Goals. (2021). Retrieved from National Conference of State Legislatures: <https://www.ncsl.org/energy/state-renewable-portfolio-standards-and-goals>

<sup>22</sup> (Pacific Northwest Utilities Conference Committee, 2022, p. 6)

Figure 4, the summer peak deficit is widening to nearly match the expected winter peak deficit in the future. The region's projected peak demand is projected to exceed utilities' firm resources in every year of the planning period. The supply of winter peaking and summer peaking resources does not include out-of-region imports, the capacity of independent power projects within the Northwest or hydroelectric system capacity in excess of critical water conditions.

Figure 4: Northwest Utilities Peak Capacity Load/Resource



Source: Pacific Northwest Utilities Conference Committee

The compiled results from PNUCC indicate that the Northwest utilities collectively expect to have surplus energy resources for the 2022-23 operating years on an annual energy basis. The regional forecast shows an energy deficit starting in 2023-2024 (19 aMW) and continuing to grow through the end of the 10-year planning period (3,790 aMW). Much of the deficit is the result of the retirement of coal plants. Just over 2,100 MW of coal have already retired in the Northwest, with more to come. And by 2025, two coal plants<sup>23</sup> (almost 1,100 MW) will be converted to natural gas-fired generation.<sup>24</sup>

According to PNUCC, Northwest utilities made capacity additions of 58 MW in 2019 and are committed to adding nearly 1,647 MW of capacity from 2020 through 2025 – primarily wind, solar, battery projects with one natural gas plant. PNUCC identifies a larger amount of planned resources in the region. Planned resources through 2032 are estimated at 9,447 MW of capacity and include 3,385 MW of wind, 2,130 MW of standalone solar, 2,541 MW of solar capacity with battery storage, as well as over 2,000 MW of dispatchable resources, such as natural gas and storage (for peak demand). However, they are not included in the forecast because they have less certainty from a financial or regulatory standpoint.

<sup>23</sup> PacifiCorp is converting Jim Bridger 1 and 2 in Wyoming to natural gas in order to keep operating them while complying with federal regional haze requirements. Source: NewsData. (2023, August 25). PacifiCorp Coal Units Set for Conversion to Natural Gas This Fall. Retrieved from [https://www.newsdata.com/clearing\\_up/supply\\_and\\_demand/pacificcorp-coal-units-set-for-conversion-to-natural-gas-this-fall/article\\_9802600e-435f-11ee-9dba-a3fe639f5da2.html](https://www.newsdata.com/clearing_up/supply_and_demand/pacificcorp-coal-units-set-for-conversion-to-natural-gas-this-fall/article_9802600e-435f-11ee-9dba-a3fe639f5da2.html)

<sup>24</sup> (Pacific Northwest Utilities Conference Committee, 2022, p. 4)

# Pacific Northwest Power Supply Adequacy Assessment for 2027

The Northwest Power and Conservation Council, which is the region's premier power planning body, evaluated the adequacy of the Northwest electric power supply in 2023 and concluded that the 2027 regional power supply would be adequate if the region's utilities add the resources identified in the Council's most recent regional power plan. Power supply would not be adequate if the region relied solely on existing resources, existing reserve levels, and no new energy efficiency measures.

Traditionally, resource adequacy was assessed through the loss of load probability metric which is limited to 5%. However, this metric fails to indicate the shortfall magnitude, duration, or frequency. To better assess customer risk, the Council examined additional metrics and proposed standards for each one. These metrics are loss of load events (LOLEV), duration value at risk (VaR Duration), and peak (VaR Peak) and energy value at risk (VaR Energy).<sup>25</sup> If demand growth remains consistent with the plan's baseline forecast, then the power supply would be adequate with resources and reserves identified in the [2021 Power Plan's resource strategy](#).

However, if future electricity market supplies are significantly limited, if new policy commitments to electrification accelerate demand growth, or if major coal resources are retired earlier than expected without replacement, then additional resources and reserves will be required to maintain system adequacy. More work needs to be done to understand how the average load increase in the regional load forecast compare to the actual expected load growth driven by new policies implemented since the adoption of the 2021 Power Plan. Given the passage of recent electrification policies and recent global instability, the current resource strategy may be inadequate to ensure resource adequacy and reliability in 2027 based on the estimates of resource adequacy metrics.

This assessment also found that the 2021 Power Plan resource strategy is effective at eliminating nearly all summer shortfalls, when resource needs peak in the rest of the Western Interconnection (outside of the Pacific Northwest region).<sup>26</sup> Implementing the strategy does not eliminate winter shortfall events, but it does mitigate them by reducing shortfall event magnitude and shortening event duration to only a few hours during the morning and evening ramps.<sup>27</sup> New clean energy policies will result in market supply and demand dynamic changes because the hours of renewable generation will not always coincide with the hourly pattern of greatest energy need. Under the limited markets and high Western Electricity Coordinating Council (WECC) interconnection demand scenarios, summer market imports decrease in the morning and summer evening imports are eliminated. Under the limited markets and high WECC demand scenarios, the winter morning ramp period has increased imports. Transmission limitations within the Western grid may have a larger influence on market dynamics, as it may not be adequate to meet the import needs of California and Canada under certain scenarios.

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<sup>25</sup> Northwest Power and Conservation Council. (2023, p.4). Pacific Northwest Power Supply Adequacy Assessment for 2027. Retrieved from <https://www.nwcouncil.org/reports/2023-1/>

<sup>26</sup> (Northwest Power and Conservation Council, 2023, p. 5). The Northwest Power Plan applies to the Pacific Northwest states (Washington, Oregon, Idaho, and Montana). The interconnected Western power grid encompasses 14 states, two Canadian provinces, and a portion of Mexico.

<sup>27</sup> (Northwest Power and Conservation Council, 2023, p. 29)

## 2022 Western Assessment of Resource Adequacy<sup>28</sup>

The WECC is a regional entity with authority delegated under the Federal Power Act to ensure a reliable and secure bulk power system in the Western Interconnection. As the only independent, interconnection-wide organization in the West, WECC creates and enforces reliability standards.

The Western Assessment of Resource Adequacy provides assessments for the Western Interconnection and five subregions. Washington is part of the Northwest Power Pool subregion. Over the next decade, entities will retire nearly 26 GW of resources, mostly coal and natural gas, while building close to 80 GW of new generation and energy storage resources, three-quarters of which will be solar, wind, and battery storage. The resource mix in 2032 will be very different and highly variable. This is because solar and wind resources have constantly changing energy outputs and limited dispatchability. Additionally, it is uncertain how electrification, energy efficiency, and new technologies will affect demand over the next decade. The assessment shows some near-term reduction in resource adequacy risk, but WECC foresees an increasing risk over the next 10 years. Not only is resource adequacy risk growing, but it is spreading throughout beyond the peak load seasons.

WECC uses two measures of resource adequacy: demand-at-risk indicator and planning reserve margin indicator. The demand-at risk indicator (DRI) is the number of hours in a year when demand is at risk. Planning reserve margin indicator (PRMI) is a measure of variability on the system. WECC presents major findings and recommendations to manage resource adequacy risks:

- **The increase in PRMI indicates that entities may need to plan for more reserves or take other actions to account for the increased variability.** Mitigation actions could include adding dispatchable resources; increasing demand management measures; participating in subregional cooperative efforts; supporting the research and development of new technology; and improving coordination of transmission planning and operation.
- **New challenges like supply chain disruption, skilled workforce shortages, and siting issues may impede or delay the build-out of new resources.** WECC recommends resource plans should include contingency plans to manage the risk of impediments to building planned resources. State commissions and regulatory bodies should continue to scrutinize integrated resource plans to ensure that utilities are planning for the increased risks.
- **All subregions rely on imports to help be resource adequate; however, the risk of wide-spread variability could create situations where the imports that entities depend on are not available.** WECC recommends that the Western Interconnection evaluate resource and transmission adequacy in a coordinated fashion through comprehensive wide-area system planning.
- **Uncertainty about future impacts to demand of electrification, energy efficiency, new technology, and other factors creates difficulties for load forecasting.** WECC recommends that some entities will need to evaluate and adapt their resource planning approaches to account for increased future uncertainty.

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<sup>28</sup> Western Electricity Coordinating Council. (2022). Western Assessment of Resource Adequacy. Retrieved from <https://www.wecc.org/Reliability/2022%20Western%20Assessment%20of%20Resource%20Adequacy.pdf>

# Appendix A: Utility Cover Sheets

Washington Electric Utility Loads and Resources Estimates reported to the Department of Commerce in 2022

## Avista Utilities

Washington State Utility Integrated Resource Plan Year 2022									
Prepared by: Mike Hermanson									
		Base Year			5 Year Estimate			10 Year Estimate	
Estimate Year		2022			2027			2032	
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
<b>Loads</b>	1,086.00	1,019.00	680.00	1,135.00	1,037.00	692.00	1,186.00	1,056.00	698.00
<b>Exports</b>	36.00	5.00	19.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Resources:</b>									
Future Conservation/Efficiency				34.00	38.00	33.00	70.00	75.00	67.00
Demand Response				23.00	23.00		26.00	25.00	
Cogeneration									
Hydro	773.00	748.00	371.00	720.00	696.00	351.00	711.00	639.00	344.00
Wind	8.00	8.00	60.00	75.00	75.00	151.00	103.00	106.00	196.00
Other Renewables	31.00	37.00	31.00	31.00	37.00	31.00	31.00	37.00	31.00
Thermal - Natural Gas	576.00	478.00	425.00	483.00	403.00	370.00	483.00	403.00	370.00
Thermal - Coal	222.00	222.00	222.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Long Term Contracts	26.00	22.00	25.00	26.00	22.00	25.00	26.00	22.00	25.00
Net Short Term Contracts									
BPA									
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>1,636.00</b>	<b>1,515.00</b>	<b>1,134.00</b>	<b>1,392.00</b>	<b>1,294.00</b>	<b>961.00</b>	<b>1,450.00</b>	<b>1,307.00</b>	<b>1,033.00</b>
<b>Load Resource Balance</b>	<b>514.00</b>	<b>491.00</b>	<b>435.00</b>	<b>257.00</b>	<b>257.00</b>	<b>269.00</b>	<b>264.00</b>	<b>251.00</b>	<b>335.00</b>

Date of Board/Commission Approval: N/A

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Loads are 1 in 2 expected values and do not include any consideration of planning margin. Reported loads and resources represent the Washington share of Avista's system. Resources include new resource selection in 2027 of 100 MW of NG CT new facilities and upgrades, 67 MW of wind, and 23 MW of DR. New Resources in addition to those selected in 2027 include 3 additional MW of DR, 44 MW of hydro, and an additional 28 MW of wind. These resource selections provide a resource balance commensurate with Avista planning parameters.



# PUD No. 1 of Chelan County

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Becky Keating

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2020			2025			2030		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
Loads	446.00	243.00	204.50	522.93	274.73	238.00	547.16	289.01	250.00
Exports									
<b>Resources:</b>									
Future Conservation/Efficiency				11.93	6.73	5.59	30.16	17.01	14.16
Demand Response									
Cogeneration									
Hydro	419.00	220.00	189.00	770.00	386.00	338.00	1,227.00	603.00	532.00
Wind	0.37	0.33	2.58	1.38	0.76	2.25	1.38	0.76	2.25
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA									
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>419.37</b>	<b>220.33</b>	<b>191.58</b>	<b>783.31</b>	<b>393.49</b>	<b>345.84</b>	<b>1,258.54</b>	<b>620.77</b>	<b>548.41</b>
<b>Load Resource Balance</b>	<b>-26.63</b>	<b>-22.67</b>	<b>-12.92</b>	<b>260.38</b>	<b>118.76</b>	<b>107.84</b>	<b>711.38</b>	<b>331.76</b>	<b>298.41</b>

Date of Board/Commission Approval: December 21

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Appendix B in Chelan PUD's IRP includes this cover sheet with supplemental information on loads and resources.

# Clark Public Utilities

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Steve Andersen

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
Loads	967.96	1,016.20	553.68	1,024.00		579.41	1,331.00		655.58
Exports									
<b>Resources:</b>									
Future Conservation/Efficiency									
Demand Response									
Cogeneration									
Hydro	5.00	5.00	1.75	80.00		51.74	80.00		51.74
Wind	6.00	0.00	16.31	9.00		18.13	9.00		18.00
Other Renewables									
Thermal - Natural Gas	255.40	203.80	221.80	265.00		227.16	265.00		102.00
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts	200.56	473.40	72.00						
BPA	506.00	340.00	323.74	554.00		363.96	762.00		500.48
Other				4.00		4.18	5.00		4.72
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>972.96</b>	<b>1,022.20</b>	<b>635.59</b>	<b>912.00</b>	<b>0.00</b>	<b>665.17</b>	<b>1,121.00</b>	<b>0.00</b>	<b>676.94</b>
<b>Load Resource Balance</b>	<b>5.00</b>	<b>6.00</b>	<b>81.91</b>	<b>-112.00</b>	<b>0.00</b>	<b>85.76</b>	<b>-210.00</b>	<b>0.00</b>	<b>21.36</b>

Date of Board/Commission Approval: August 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Line 10: Historic 2021 actual winter and summer peak demands and annual energy. Projected 2026 and 2031 winter peak demands and annual energy. A summer peak demand forecast is not included in the IRP update. Line 16: Hydro includes the Packwood Hydroelectric Project (CPU receives an 18% share of project generation) and a future Power Purchase Agreement

Line 17: Wind is the Combine Hills II Wind Project (CPU receives 100% of project generation)

Line 19: Natural Gas is the River Road Generating Plant

Line 21: Net Short Term Contracts includes all historic market purchases

Line 24: Other is future market balancing purchases

# Cowlitz PUD

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: TEA

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
Loads	725.03	608.54	515.24	893.34	780.77	582.41	977.36	846.58	619.63
Exports									
<b>Resources:</b>									
Future Conservation/Efficiency									
Demand Response									
Cogeneration									
Hydro	76.20	78.50	24.49	79.00	79.00	15.80	79.00	79.00	15.80
Wind	0.82	1.04	40.01	0.00	0.00	34.71	0.00	0.00	0.00
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts				212.68	173.87		340.84	193.81	61.89
BPA	776.00	614.00	455.06	601.66	527.90	541.70	557.52	573.77	541.94
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>853.02</b>	<b>693.54</b>	<b>519.56</b>	<b>893.34</b>	<b>780.77</b>	<b>592.21</b>	<b>977.36</b>	<b>846.58</b>	<b>619.63</b>
<b>Load Resource Balance</b>	<b>127.99</b>	<b>85.00</b>	<b>4.32</b>	<b>0.00</b>	<b>0.00</b>	<b>9.80</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: August 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Line 10: Base year seasonal peak loads are not weather adjusted. Actual summer peak occurred: 8/11/21 HE 19 Actual winter peak occurred: 12/27/21 HE 18; Annual average load is weather normalized

Line 13: Loads were forecasted using regression methodology that captured conservation effects and trends, therefore conservation is not captured as a separate line item

Line 16: Hydro resources include Swift No. 2, Wanapum, and Priest Rapids, Winter and Summer values represent actual average peak generation and the Annual value reflects the yearly average

Line 17: Wind resources include White Creek Wind, Nine Canyon Wind, and Harvest Wind--Peak MW represent wind actuals on winter and summer load peaks

Line 22 (Net Short Term Contracts): Future energy and capacity beyond the District portfolio will continue to be supplemented with market purchases on a short-term basis.

Line 23: Winter and Summer values for 2021 represent the maximum peak slice + block BPA power and the Annual value is based on actual average slice + block, for 2026 and 2031 critical water assumptions were used for the federal system, the deficits resulting from the critical water assumptions are captured in the Net Short Term Contracts (line 22) and would be purchased from the market.

# Public Utility District No. 1 of Douglas County

Washington State Utility Integrated Resource Plan Year 2020 2022

Prepared by: Jeff Johnson

	Base Year			5 Year Estimate				10 Year Estimate	
Estimate Year	2021			2026				2031	
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
<b>Loads</b>	239.00	179.00	142.56	289.40	209.20	172.60	319.50	226.50	195.30
<b>Exports</b>									
<b>Resources:</b>									
Future Conservation/Efficiency				2.00	2.00	2.00	4.50	4.50	4.50
Demand Response				5.00	5.00	1.00	10.00	10.00	2.00
Cogeneration									
Hydro	355.50	227.30	181.50	444.00	339.00	268.00	452.00	434.00	323.00
Wind	10.00	10.00	2.29	10.00	10.00	2.95	10.00	10.00	2.95
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts	47.00	47.00	47.00						
Net Short Term Contracts									
BPA									
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>412.50</b>	<b>284.30</b>	<b>230.79</b>	<b>461.00</b>	<b>356.00</b>	<b>273.95</b>	<b>476.50</b>	<b>458.50</b>	<b>332.45</b>
<b>Load Resource Balance</b>	<b>173.50</b>	<b>105.30</b>	<b>88.23</b>	<b>171.60</b>	<b>146.80</b>	<b>101.35</b>	<b>157.00</b>	<b>232.00</b>	<b>137.15</b>

Date of Board/Commission Approval: September 22

# Public Utility District No. 2 of Grant County

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Lisa Stites

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
<b>Loads</b>	833.57	929.18	639.33	1,008.99	1,146.55	821.73	1,134.57	1,289.25	923.95
<b>Exports</b>									
<b>Resources:</b>									
Future Conservation/Efficiency				8.14	8.40	8.27	17.91	18.91	18.41
Demand Response									
Cogeneration									
Hydro	114.46	124.00	117.74	1,089.19	1,011.29	628.70	1,142.00	1,059.18	638.90
Wind	0.93	1.56	3.52	8.74	12.85	50.10	7.80	10.47	46.82
Other Renewables				62.95	82.30	93.85	114.40	149.41	210.57
Thermal - Natural Gas				198.00	198.00	11.51	270.00	270.00	5.91
Thermal - Coal									
Net Long Term Contracts	702.73	788.18	401.59						
Net Short Term Contracts			110.57			23.90			-2.06
BPA	15.44	15.44	5.90	15.44	15.44	5.40	15.44	15.44	5.40
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>833.57</b>	<b>929.18</b>	<b>639.33</b>	<b>1,382.46</b>	<b>1,328.28</b>	<b>821.73</b>	<b>1,567.55</b>	<b>1,523.41</b>	<b>923.96</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>373.47</b>	<b>181.73</b>	<b>0.00</b>	<b>432.98</b>	<b>234.16</b>	<b>0.00</b>

Date of Board/Commission Approval: August 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Line 10: Base year load is actual load for 2021

Line 18: Our other renewables includes both stand-alone solar PV and solar PV+battery hybrids

# Lewis County PUD 1

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Luke Canfield

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
Loads	213.08	148.36	114.63	239.34	154.40	119.78	239.34	158.35	123.45
Exports									
<b>Resources:</b>									
Future Conservation/Efficiency				4.30	2.60	2.68	14.40	9.50	8.55
Demand Response									
Cogeneration									
Hydro	5.12	4.52	1.19	5.12	4.52	1.19	5.12	4.52	1.19
Wind	1.80	1.40	1.60	1.80	1.40	1.60	1.80	1.40	1.60
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA	142.00	111.40	114.60	151.22	118.88	120.89	156.63	117.75	126.04
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>148.92</b>	<b>117.32</b>	<b>117.39</b>	<b>162.44</b>	<b>127.40</b>	<b>126.36</b>	<b>177.95</b>	<b>133.17</b>	<b>137.38</b>
<b>Load Resource Balance</b>	<b>-64.16</b>	<b>-31.04</b>	<b>2.76</b>	<b>-76.90</b>	<b>-27.00</b>	<b>6.58</b>	<b>-61.39</b>	<b>-25.18</b>	<b>13.93</b>

Date of Board/Commission Approval: September 22

# Grays Harbor PUD

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Shailesh Shere

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
Loads	235.00	143.00	132.00	224.00	138.00	129.00	219.00	136.00	127.00
Exports									
<b>Resources:</b>									
Future Conservation/Efficiency						0.66			0.90
Demand Response									
Cogeneration	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00	13.00
Hydro									
Wind	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Other Renewables									
Thermal - Natural Gas	45.00	45.00	45.00						
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA	170.00	129.00	135.70	170.00	129.00	135.00	170.00	129.00	135.00
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>236.00</b>	<b>195.00</b>	<b>201.70</b>	<b>191.00</b>	<b>150.00</b>	<b>156.66</b>	<b>191.00</b>	<b>150.00</b>	<b>156.90</b>
<b>Load Resource Balance</b>	<b>1.00</b>	<b>52.00</b>	<b>69.70</b>	<b>-33.00</b>	<b>12.00</b>	<b>27.66</b>	<b>-28.00</b>	<b>14.00</b>	<b>29.90</b>

Date of Board/Commission Approval: September 6

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Line 13: Annual data from 2021 Conservation Potential Assessment.

Lines 15 and 17: Assumption Resource Power Contract's will be extended.

Line 23: Assumption we will purchase similar product to the current Slice/Regional Dialogue contract. Current contract expires 9/30/2028.

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Brian Osborn

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2022			2027			2032		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
<b>Loads</b>	699.25	716.34	528.18	767.83	802.04	546.43	803.37	822.11	576.08
<b>Exports</b>	33.23	35.17	6.33	26.60	29.78	3.19	26.63	27.87	3.15
<b>Resources:</b>									
Future Conservation/Efficiency				30.96	74.95	37.74	47.94	120.30	66.88
Demand Response				50.20	61.53	10.75	28.92	27.94	11.32
Cogeneration									
Hydro	91.97	78.57	45.97	73.08	63.83	34.11	70.45	63.12	33.54
Wind	25.31	31.44	103.14	48.75	69.02	166.77	49.99	51.50	177.20
Other Renewables	8.26	31.94	46.61	6.39	48.50	99.45	5.63	11.31	178.56
Thermal - Natural Gas	218.67	192.50	102.65	213.81	187.26	98.54	190.33	172.98	98.88
Thermal - Coal	405.91	372.08	256.54	341.72	318.50	155.81	262.73	256.08	67.31
Net Long Term Contracts	0.00	0.00	6.98	0.00	0.00	0.10	0.00	0.00	0.10
Net Short Term Contracts	49.61	114.11	23.08	0.00	0.00	28.46	0.00	0.00	35.98
BPA									
Other	19.98	26.41	-1.40	108.16	108.68	2.71	238.77	234.65	35.35
Imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distributed Generation	0.21	5.57	2.46	0.71	7.45	3.54	1.25	14.58	6.83
Undecided									
<b>Total Resources</b>	<b>819.93</b>	<b>852.63</b>	<b>586.04</b>	<b>873.76</b>	<b>939.73</b>	<b>637.98</b>	<b>896.01</b>	<b>952.44</b>	<b>711.95</b>
<b>Load Resource Balance</b>	<b>87.44</b>	<b>101.11</b>	<b>51.53</b>	<b>79.33</b>	<b>107.92</b>	<b>88.35</b>	<b>66.01</b>	<b>102.46</b>	<b>132.72</b>

Date of Board/Commission Approval:

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Information is based on the 2021 Update Integrated Resource Plan filed with the Washington Utilities and Transportation Commission on March 31, 2022.

The Load Resource Balance in Capacity primarily reflects the 13% Planning Reserve Margin not included in Loads.



# Puget Sound Energy

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Chris Schaefer

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2022			2027			2032		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
<b>Loads</b>	4,687.00	3,515.00	2,500.00	4,949.00	3,848.00	2,647.00	5,269.00	4,220.00	2,820.00
<b>Exports</b>	24.00	324.00	59.00	0.00	300.00	47.00	0.00	300.00	47.00
<b>Resources:</b>									
Future Conservation/Efficiency				383.00	188.00	213.00	693.00	335.00	417.00
Demand Response				89.00	89.00		198.00	198.00	
Cogeneration									
Hydro	743.00	774.00	514.00	762.00	808.00	505.00	757.00	801.00	504.00
Wind	118.00	118.00	295.00	113.00	113.00	485.00	129.00	129.00	475.00
Other Renewables	28.00	28.00	52.00	28.00	28.00	52.00	27.00	27.00	52.00
Thermal - Natural Gas	2,050.00	1,689.00	1,856.00	1,689.00	2,050.00	1,856.00	2,050.00	1,689.00	1,856.00
Thermal - Coal	307.00	307.00	247.00						
Net Long Term Contracts	612.00	612.00	534.00	63.00	63.00	107.00	44.00	44.00	45.00
Net Short Term Contracts	1,518.00	1,487.00		1,479.00	1,433.00		1,479.00	1,435.00	0.00
BPA									
Other									
Imports	303.00	303.00	50.00	303.00	303.00	50.00	303.00	303.00	50.00
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>5,679.00</b>	<b>5,318.00</b>	<b>3,548.00</b>	<b>4,909.00</b>	<b>5,075.00</b>	<b>3,268.00</b>	<b>5,680.00</b>	<b>4,961.00</b>	<b>3,399.00</b>
<b>Load Resource Balance</b>	<b>968.00</b>	<b>1,479.00</b>	<b>989.00</b>	<b>-40.00</b>	<b>927.00</b>	<b>574.00</b>	<b>411.00</b>	<b>441.00</b>	<b>532.00</b>

Date of Board/Commission Approval:

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Line 18: PSE's Other Renewables are Solar and Biomass. PSE's Integrated Resource Plan ("IRP") includes the least cost combination of conservation and supply-side resources to meet requirements per WAC 480-100-620. This information is also available in PSE's 2021 IRP, Appendix B, page 30, filed with the Washington Utilities and Transportation Commission ("WUTC") Docket UE-200304, filed April 20, 2021.

# City of Richland

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Sandi Edgemon

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
Loads	189.78	211.82	111.84	194.40	193.80	112.70	199.10	198.50	113.82
Exports									
<b>Resources:</b>									
Future Conservation/Efficiency				3.34	3.34	3.34	9.98	9.98	9.98
Demand Response				0.00	0.00	0.00	0.00	0.00	0.00
Cogeneration									
Hydro									
Wind									
Other Renewables	0.79	1.05	0.70	0.75	1.00	0.67	0.71	0.95	0.63
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts	8.00	8.00	8.00	0.00	0.00	0	0.00	0.00	0
Net Short Term Contracts									
BPA	180.99	202.77	103.63	190.31	189.46	108.69	188.41	187.57	103.21
Other									
Imports									
Distributed Generation									
Undecided									
<b>Total Resources</b>	<b>189.78</b>	<b>211.82</b>	<b>112.33</b>	<b>194.40</b>	<b>193.80</b>	<b>112.70</b>	<b>199.10</b>	<b>198.50</b>	<b>113.82</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.49</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: August 20

# Seattle City Light (SCL)

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Paul Nissley

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
Loads			1,072.00			1,077.00			1,104.00
Exports			25.00						
<b>Resources:</b>									
Future Conservation/Efficiency						48.00			85.00
Demand Response				20.00	14.00		89.00	53.00	
Cogeneration									
Hydro			719.00			742.00			733.00
Wind			41.00			95.00			95.00
Other Renewables			12.00			64.00			64.00
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA			470.00			418.00			416.00
Other			37.00			37.00			37.00
Imports			31.00						
Distributed Generation						3.00			4.00
Undecided									
<b>Total Resources</b>	<b>0.00</b>	<b>0.00</b>	<b>1,310.00</b>	<b>20.00</b>	<b>14.00</b>	<b>1,407.00</b>	<b>89.00</b>	<b>53.00</b>	<b>1,434.00</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>213.00</b>	<b>20.00</b>	<b>14.00</b>	<b>330.00</b>	<b>89.00</b>	<b>53.00</b>	<b>330.00</b>

Date of Board/Commission Approval: August 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Line 10: this row's 1072 aMW base year load is weather adjusted\*\* (includes 3aMW OwnUse & 5.5% line loss). 2026 and 2031 load estimates don't include conservation. Line 11: this row's Exports include Lucky Peak contract, but no contract in place after 2025. Line 16: This row represents City Light's hydro resources and long-term hydro contracts. For purposes of 2026 & 2031 estimates, a hypothetical median hydro year was created based on individual median months from historical period 1999 to 2020.

Line 17: this row's Stateline wind contract expires in 2021; 95 aMW new Gorge wind resources planned in 2026.

Line 18: this row's Other renewables include landfill gas and sewage treatment plant digester gas (~13aMW in 2026 & 2031) and 51 aMW planned SE OR and/or WA utility solar by 2026.

Line 24: this row's Other includes SCL long term PPAs with BC Hydro classified as unspecified power. Line 25: this row's Imports include Lucky Peak exchange energy. Line 26: this row's estimated incremental distributed solar generation in Seattle associated w/ customer programs.\*\*Annual estimates of weather normalized system load are computed by summing together the weather normalized monthly system loads. The monthly system load model is fit using 5 years of daily observed system load and temperature data. Additional effects like day of the week, holidays, annual level shifts, and a trigonometric seasonal component are also included to capture non-weather drivers. This isn't an exhaustive list of explanatory variables that could drive day-to-day changes in load, but it is sufficient to get an accurate estimate of the non-linear relationship between load and temperature which is the crux of the weather normalization process. To model the non-linear link between system load and temperature a Multivariate Adaptive Regression Spline (MARS) model is used to estimate a piece wise linear function. The MARS model selects break points in temperature to estimate the system response to changes in temperature

# Public Utility District #1 of Snohomish County

## Washington State Utility Integrated Resource Plan Year 2022

Prepared by: Landon Snyder

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year	2021			2026			2031		
Period	Winter	Summer	Annual	Winter	Summer	Annual	Winter	Summer	Annual
Units	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)	(MW)	(MW)	(MWa)
<b>Loads</b>	946.89	663.73	784.42	948.90	685.07	799.11	977.19	710.02	824.93
<b>Exports</b>	170.16	158.59	116.51	161.74	212.78	166.86	135.25	167.03	140.19
<b>Resources:</b>									
Future Conservation/Efficiency				28.77	25.58	27.00	81.22	73.43	76.59
Demand Response				4.54	0.00	1.74	25.18	0.00	9.82
Cogeneration	2.29	1.63	2.06	2.78	1.87	2.34	2.78	1.87	2.34
Hydro	99.87	34.64	59.31	89.45	40.09	62.22	94.00	37.52	63.52
Wind	48.72	67.97	56.48	28.06	54.22	41.30	0.00	0.00	0.00
Other Renewables	0.03	0.14	0.09	0.45	1.48	0.98	0.45	1.48	0.98
Thermal - Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thermal - Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Long Term Contracts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Short Term Contracts	25.00	0.00	8.33	50.00	0.00	16.67	0.00	0.00	0.00
BPA	940.35	714.36	772.56	905.21	768.34	810.03	906.77	753.48	806.41
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Distributed Generation	0.79	3.58	2.10	1.38	6.27	3.69	2.04	9.27	5.46
Undecided	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Resources</b>	<b>1,117.05</b>	<b>822.32</b>	<b>900.93</b>	<b>1,110.64</b>	<b>897.85</b>	<b>965.97</b>	<b>1,112.44</b>	<b>877.05</b>	<b>965.12</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: December 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

1. Not in the categories listed, so not in the table, Snohomish has identified a storage need of up to 70MW by 2031.
2. Snohomish plans to add 5MW of local, utility-scale solar by 2031. (Line 18)
3. Snohomish plans to offer Smart Rate programs to customers in conjunction with AMI meter rollout in the early 2020's, in order to achieve over 25MW of peak demand reduction by 2031. (Line 14)
4. Snohomish currently plans to let existing wind contracts expire at the end of their term without renewal (line 17)
5. Snohomish plans to add winter capacity via short-term contract from 2022-2026 (line 22)

# Alder Mutual Light Co.

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	0.67	0.65	0.65
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	0.55	0.55	0.55
BPA Tier 2	0.13	0.10	0.10
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>0.67</b>	<b>0.65</b>	<b>0.65</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Asotin County PUD No 1

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	0.63	0.58	0.58
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	0.57	0.57	0.57
BPA Tier 2	0.05	0.01	0.01
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>0.63</b>	<b>0.58</b>	<b>0.58</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Benton Rural Electric Association

Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	71.37	64.82	65.46
<b>Resources:</b>			
Future Conservation/Efficiency		0.62	0.62
Demand Response			
BPA Tier 1 (include BPA PF)	59.34	59.66	59.66
BPA Tier 2	12.03	4.54	5.19
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>71.37</b>	<b>64.82</b>	<b>65.46</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# City of Centralia

## Washington State Utility Resource Plan Year 2022

Prepared by: David Hayes

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2027	2032
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	31.57	32.41	32.41
<b>Resources:</b>			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	23.98	24.37	24.37
BPA Tier 2	0.48	0.92	0.93
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	7.11	7.11	7.11
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>31.57</b>	<b>32.41</b>	<b>32.41</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: August 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

SEE 2022 ELECTRIC UTILITY RESOURCE PLAN UPDATE



# City of Cheney

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	15.82	18.34	19.40
<b>Resources:</b>			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	14.82	18.34	19.40
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	1.00	0.00	0.00
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>15.82</b>	<b>18.34</b>	<b>19.40</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# City of Chewelah

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	2.45	2.52	2.52
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	2.45	2.51	2.51
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>2.45</b>	<b>2.52</b>	<b>2.52</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Clallam County PUD No. 1

## Washington State Utility Resource Plan Year 2022

Prepared by: Tyler King

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2020	2025	2030
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	77.23	77.47	77.48
<b>Resources:</b>			
Future Conservation/Efficiency		0.62	0.62
Demand Response			
BPA Tier 1 (include BPA PF)	75.62	76.03	76.03
BPA Tier 2	0.94	0.15	0.16
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	0.67	0.67	0.67
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>77.23</b>	<b>77.47</b>	<b>77.48</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: August 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Data is reported using the Federal fiscal year (October through September). The base year is 2020 actual load. The 2025 and 2028 load forecasts are based on 2020 weather normalized actual load applied to BPA using a flat growth rate, including mandated conservation from the Energy Independence Act. The non-federal hydro resource "Line 17" is Clallam's share of the Packwood Lake project owned by Energy Northwest. We have current contracts for RECs to meet the 15% Washington State Renewable Energy Portfolio Standard through 2028. The PUD is planning a Demand Response pilot project within 5 years load shifting 0.10 aMW. The 10 year projected demand response is contingent on an estimated BPA demand rate, with the pilot project saving 0.80 aMW.

# Columbia REA

## Washington State Utility Resource Plan Year 2022

Prepared by: Jim Cooper

	Base Year	5 Yr. Est.	10 Yr Est.
<b>Estimate Year</b>			
<b>Period</b>	<b>Annual</b>	<b>Annual</b>	<b>Annual</b>
<b>Units</b>	<b>(MWa)</b>	<b>(MWa)</b>	<b>(MWa)</b>
<b>Loads</b>	42.54	43.73	45.00
<b>Resources:</b>			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	37.85	37.57	43.93
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	1.07	1.07	1.07
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	3.62	5.09	0.00
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>42.54</b>	<b>43.73</b>	<b>45.00</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: October 23

# Consolidated Irrigation District

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	0.31	0.22	0.22
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	0.23	0.22	0.22
BPA Tier 2	0.08		
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>0.31</b>	<b>0.22</b>	<b>0.22</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Town of Coulee Dam

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	1.96	2.05	2.10
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	1.96	2.02	2.02
BPA Tier 2		0.02	0.07
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>1.96</b>	<b>2.05</b>	<b>2.10</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval:

# Town of Eatonville

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	3.29	3.31	3.33
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	3.29	3.30	3.32
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>3.29</b>	<b>3.31</b>	<b>3.33</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# City of Ellensburg

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	23.89	24.18	24.55
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	23.89	23.98	23.98
BPA Tier 2		0.19	0.55
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>23.89</b>	<b>24.18</b>	<b>24.55</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>



# Elmhurst Mutual Power & Light Company

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	32.62	33.16	33.81
<b>Resources:</b>			
Future Conservation/Efficiency		0.18	0.18
Demand Response			
BPA Tier 1 (include BPA PF)	32.24	32.24	32.24
BPA Tier 2	0.38	0.74	1.39
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>32.62</b>	<b>33.16</b>	<b>33.81</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Ferry County PUD No 1

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	9.12	8.28	8.37
<b>Resources:</b>			
Future Conservation/Efficiency		0.02	0.02
Demand Response			
BPA Tier 1 (include BPA PF)	9.12	8.26	8.34
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>9.12</b>	<b>8.28</b>	<b>8.37</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Jefferson County PUD No 1

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	45.20	46.33	47.06
<b>Resources:</b>			
Future Conservation/Efficiency		0.26	0.26
Demand Response			
BPA Tier 1 (include BPA PF)	45.17	45.17	45.17
BPA Tier 2	0.03	0.90	1.63
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>45.20</b>	<b>46.33</b>	<b>47.06</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Inland Power & Light

## Washington State Utility Resource Plan Year 2022

Prepared by: Brian Hess

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	127.53	140.80	155.46
<b>Resources:</b>			
Future Conservation/Efficiency		0.36	0.82
Demand Response			
BPA Tier 1 (include BPA PF)	104.89	104.89	120.70
BPA Tier 2	12.37	35.55	33.94
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	10.27	0.00	0.00
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>127.53</b>	<b>140.80</b>	<b>155.46</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources**

Starting in 2025, Inland Power & Light will supply all needed resources from BPA and transition away from any market purchases in order to better comply with CETA obligations.

# Kalispel Indian Community of the Kalispel Reservation

## Washington State Utility Resource Plan Year 2002

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	3.44	4.13	4.38
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	3.44	4.07	4.07
BPA Tier 2		0.06	0.31
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>3.44</b>	<b>4.13</b>	<b>4.38</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Kittitas County PUD No. 1

## Washington State Utility Resource Plan Year 2022

Prepared by: EES Consulting

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	13.75	14.15	14.84
<b>Resources:</b>			
Future Conservation/Efficiency		0.08	0.08
Demand Response			
BPA Tier 1 (include BPA PF)	9.70	9.70	9.70
BPA Tier 2	2.74	2.79	3.20
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	0.98	0.98	0.98
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation	0.33	0.60	0.88
Undecided			
<b>Total Resources</b>	<b>13.75</b>	<b>14.15</b>	<b>14.84</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: November 22

# Public Utility District No. 1 of Klickitat County

## Washington State Utility Resource Plan Year 2022

Prepared by: Mike DeMott-Director of Finance and Power Management

	Base Year	5 Yr. Est.	10 Yr Est.
<b>Estimate Year</b>	<b>2021</b>	<b>2026</b>	<b>2031</b>
<b>Period</b>	<b>Annual</b>	<b>Annual</b>	<b>Annual</b>
<b>Units</b>	<b>(MWa)</b>	<b>(MWa)</b>	<b>(MWa)</b>
<b>Loads</b>	60.32	63.20	67.14
<b>Resources:</b>			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	36.28	37.20	45.00
BPA Tier 2	10.74	21.60	17.74
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	4.80	4.40	4.40
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	8.50	0.00	0.00
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>60.32</b>	<b>63.20</b>	<b>67.14</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Lakeview Light & Power

## Washington State Utility Resource Plan Year 2022

Prepared by: PBA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	29.99	30.35	30.66
<b>Resources:</b>			
Future Conservation/Efficiency		0.24	0.24
Demand Response			
BPA Tier 1 (include BPA PF)	29.99	30.12	30.42
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>29.99</b>	<b>30.35</b>	<b>30.66</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>



# Mason County PUD No. 1

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	10.69	10.45	10.66
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	8.85	8.99	8.99
BPA Tier 2	1.30	0.91	1.11
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	0.54	0.54	0.54
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>10.69</b>	<b>10.45</b>	<b>10.66</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Mason PUD 3

## Washington State Utility Resource Plan Year 2022

Prepared by: Michele Patterson

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	80.76	88.65	94.42
<b>Resources:</b>			
Future Conservation/Efficiency		1.20	3.41
Demand Response		0.00	0.00
BPA Tier 1 (include BPA PF)	77.79	79.93	79.93
BPA Tier 2	0.00	5.04	0.00
<b>Non BPA:</b>			
Co-generation	0.00	0.00	0.00
Hydro (critical water)	0.97	0.66	0.66
Wind	1.97	1.80	0.00
Other Renewables	0.00	0.00	0.00
Thermal-Natural Gas	0.00	0.00	0.00
Thermal-Coal	0.00	0.00	0.00
Market Purchase (non BPA)	0.00	0.00	0.00
Other	0.00	0.00	0.00
Distributed Generation	0.02	0.02	0.02
Undecided	0.00	0.00	10.40
<b>Total Resources</b>	<b>80.76</b>	<b>88.65</b>	<b>94.42</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: August 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Based on federal fiscal year to align with BPA.

Line 5: actuals used for base year load; forecast not weather adjusted.

Line 20: distributed generation source is solar.

Line 21: decision to be made at a later date once 2028 BPA contract terms better understood.

# City of McCleary

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	3.70	3.84	3.97
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	3.70	3.72	3.72
BPA Tier 2		0.12	0.25
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>3.70</b>	<b>3.84</b>	<b>3.97</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# City of Milton

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	6.63	6.62	6.63
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	6.63	6.61	6.62
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>6.63</b>	<b>6.62</b>	<b>6.63</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Modern Electric Water Company

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	26.88	27.08	27.67
<b>Resources:</b>			
Future Conservation/Efficiency		0.31	0.31
Demand Response			
BPA Tier 1 (include BPA PF)	26.29	26.29	26.29
BPA Tier 2	0.59	0.48	1.07
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>26.88</b>	<b>27.08</b>	<b>27.67</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Nespelem Valley Electric Cooperative Inc.

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	8.20	8.20	8.26
<b>Resources:</b>			
Future Conservation/Efficiency		0.02	0.02
Demand Response			
BPA Tier 1 (include BPA PF)	5.88	5.88	5.88
BPA Tier 2	2.32	2.30	2.36
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>8.20</b>	<b>8.20</b>	<b>8.26</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Okanogan County Electric Cooperative

## Washington State Utility Resource Plan Year 2022

Prepared by: Jeff Kugel

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2022	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	8.85	9.20	10.30
<b>Resources:</b>			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	8.10	8.00	8.00
BPA Tier 2	0.56		
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	0.19		
Other			
Distributed Generation			
Undecided		1.20	2.30
<b>Total Resources</b>	<b>8.85</b>	<b>9.20</b>	<b>10.30</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# PUD No. 1 of Okanogan County

## Washington State Utility Resource Plan Year 2022

Prepared by: Ron Gadeberg

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	75.04	75.83	77.74
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response		0.00	0.00
BPA Tier 1 (include BPA PF)	45.00	45.00	45.00
BPA Tier 2	0.00	0.00	0.00
<b>Non BPA:</b>			
Co-generation	0.00	0.00	0.00
Hydro (critical water)	0.00	0.00	0.00
Wind	0.00	0.00	0.00
Other Renewables	0.00	0.00	0.00
Thermal-Natural Gas	0.00	0.00	0.00
Thermal-Coal	0.00	0.00	0.00
Market Purchase (non BPA)	30.04	30.83	32.74
Other	0.00	0.00	0.00
Distributed Generation	0.00	0.00	0.00
Undecided	0.00	0.00	0.00
<b>Total Resources</b>	<b>75.04</b>	<b>75.83</b>	<b>77.74</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Date of Board/Commission Approval: June 23

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Loads: Used Actual 2021 Loads at POD (Point of Delivery). Used Actual 2021 Resources at POD. Forecasted Load based on BPA approved load forecast. Forecasted Resources: BPA based on Block Slice Contract. Future load growth met via PGE Load following product.



# Ohop Mutual Light Company

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	10.73	10.67	10.67
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	10.16	10.16	10.16
BPA Tier 2	0.57	0.51	0.51
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>10.73</b>	<b>10.67</b>	<b>10.67</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Orcas Power and Light Cooperative

## Washington State Utility Resource Plan Year 2022

Prepared by: RHS

	Base Year	5 Yr. Est.	10 Yr Est.
<b>Estimate Year</b>			
<b>Period</b>	<b>Annual</b>	<b>Annual</b>	<b>Annual</b>
<b>Units</b>	<b>(MWa)</b>	<b>(MWa)</b>	<b>(MWa)</b>
<b>Loads</b>	26.47	26.64	27.55
<b>Resources:</b>			
Future Conservation/Efficiency		0.05	0.05
Demand Response		0.00	0.00
BPA Tier 1 (include BPA PF)	26.39	26.01	26.40
BPA Tier 2	0.00	0.00	0.00
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation	0.08	0.59	1.10
Undecided			
<b>Total Resources</b>	<b>26.47</b>	<b>26.64</b>	<b>27.55</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources**

No plans demand response at this point 2.) 5/10 year projections on load comes from BPA 3.)Distributed generation is solely solar

# Pacific PUD #2

## Washington State Utility Resource Plan Year 2022

Prepared by:

	Base Year	5 Yr. Est.	10 Yr Est.
<b>Estimate Year</b>	2021	2026	2031
<b>Period</b>	Annual	Annual	Annual
<b>Units</b>	(MWa)	(MWa)	(MWa)
<b>Loads</b>	36.20	38.80	39.90
<b>Resources:</b>			
Future Conservation/Efficiency		1.00	0.90
Demand Response			
BPA Tier 1 (include BPA PF)	35.60	36.87	39.00
BPA Tier 2		0.93	
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	2.00		
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>37.60</b>	<b>38.80</b>	<b>39.90</b>
<b>Load Resource Balance</b>	<b>1.40</b>	<b>0.00</b>	<b>0.00</b>

**Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources**

BPA has not set contract high water marks for new contract just yet.

# Parkland Light & Water Company

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	13.49	13.48	13.62
<b>Resources:</b>			
Future Conservation/Efficiency		0.04	0.04
Demand Response			
BPA Tier 1 (include BPA PF)	13.49	13.45	13.58
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>13.49</b>	<b>13.48</b>	<b>13.62</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Pend Oreille PUD

Washington State Utility Resource Plan Year 2022

Prepared by: April Owen

	Base Year	5 Yr. Est.	10 Yr Est.
<b>Estimate Year</b>	2021	2026	2031
<b>Period</b>	Annual	Annual	Annual
<b>Units</b>	(MWa)	(MWa)	(MWa)
<b>Loads</b>	34.40	35.69	38.45
<b>Resources:</b>			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	29.20	0.00	0.00
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	94.90	94.90	94.90
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation	0.01	0.01	0.01
Undecided			
<b>Total Resources</b>	<b>124.11</b>	<b>94.91</b>	<b>94.91</b>
<b>Load Resource Balance</b>	<b>89.71</b>	<b>59.22</b>	<b>56.46</b>

Date of Board/Commission Approval: September 22

Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources

Line 17: Pend Oreille PUD is anticipating it will sell approximately 54.00 of the 94.90 MWa reported Hydro as a wholesale product beginning in 2026.  
 Line 24: We have a limited amount of distributed generation, mostly in the form of solar. We are not expecting a material amount of growth in this area. Pend Oreille PUD currently sells its length as a wholesale product. Loads reported are the District's base load and do not include cryptomining consumption of approximately 90 MWa.

# City of Port Angeles

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	47.41	46.76	46.76
<b>Resources:</b>			
Future Conservation/Efficiency		0.05	0.05
Demand Response			
BPA Tier 1 (include BPA PF)	47.41	46.71	46.71
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>47.41</b>	<b>46.76</b>	<b>46.76</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Port of Seattle

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	15.83	16.89	16.89
<b>Resources:</b>			
Future Conservation/Efficiency		0.17	0.17
Demand Response			
BPA Tier 1 (include BPA PF)	15.83	16.72	16.72
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>15.83</b>	<b>16.89</b>	<b>16.89</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Town of Ruston

## Washington State Utility Resource Plan Year 2022

Prepared by: Rick Applegate

	Base Year	5 Yr. Est.	10 Yr Est.
<b>Estimate Year</b>	2021	2026	2031
<b>Period</b>	Annual	Annual	Annual
<b>Units</b>	(MWa)	(MWa)	(MWa)
<b>Loads</b>	1.08	1.10	1.04
<b>Resources:</b>			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	0.79	0.80	0.74
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)	0.69	0.41	0.40
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>1.47</b>	<b>1.21</b>	<b>1.14</b>
<b>Load Resource Balance</b>	<b>0.39</b>	<b>0.11</b>	<b>0.10</b>

**Notes: Explain resource choices other than conservation / use of renewable energy credits in planning/ distributed generation sources**

The Town of Ruston is a full requirements customer of Tacoma Power. As a result, the Resource Plan has been derived from the Tacoma Power IRP, scaled to load values for the Town of Ruston. The assumed load for Ruston is as follows: 2021 uses actual load for the calendar year; 2026 and 2031 reflect the same load growth percentage rates as forecast in the Tacoma Power IRP for the same periods.



# Skamania County PUD No 1

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	16.68	16.00	16.32
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	15.91	15.91	15.91
BPA Tier 2	0.77	0.09	0.41
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>16.68</b>	<b>16.00</b>	<b>16.32</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Town of Steilacoom

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	4.65	4.64	4.75
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	4.65	4.64	4.75
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>4.65</b>	<b>4.64</b>	<b>4.75</b>
<b>Load Resource Balance</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>

# City of Sumas

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	3.59	3.76	3.67
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	3.59	3.64	3.64
BPA Tier 2		0.11	0.03
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>3.59</b>	<b>3.76</b>	<b>3.67</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Tanner Electric Cooperative

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	11.57	11.62	11.94
<b>Resources:</b>			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	11.03	11.03	11.03
BPA Tier 2	0.54	0.58	0.90
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>11.57</b>	<b>11.62</b>	<b>11.94</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Vera Water and Power

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	27.67	26.781	27.457
<b>Resources:</b>			
Future Conservation/Efficiency		0.03	0.03
Demand Response			
BPA Tier 1 (include BPA PF)	25.91	26.751	27.157
BPA Tier 2	0.77	0.00	0.27
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other*	1.00		
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>27.67</b>	<b>26.78</b>	<b>27.46</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Wahkiakum County PUD No 1

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	5.39	5.29	5.37
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	5.01	5.01	5.01
BPA Tier 2	0.39	0.28	0.36
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>5.39</b>	<b>5.29</b>	<b>5.37</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Whatcom County PUD No 1

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	26.45	30.27	29.94
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	26.45	26.83	26.83
BPA Tier 2		3.44	3.11
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>26.45</b>	<b>30.27</b>	<b>29.94</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

# Yakama Power

## Washington State Utility Resource Plan Year 2022

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2021	2026	2031
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
<b>Loads</b>	17.66	18.59	18.80
<b>Resources:</b>			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	17.66	18.59	18.80
BPA Tier 2			
<b>Non BPA:</b>			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
<b>Total Resources</b>	<b>17.66</b>	<b>18.59</b>	<b>18.80</b>
<b>Load Resource Balance</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>



# Appendix B: Washington Utility Customer Count, Revenue, Sales, and Average Price<sup>29</sup>

## 2021 Utility Data

	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
<b>Cooperatives</b>				
Inland Power & Light Company	42,755	\$62,455	977,541	6¢
Peninsula Light Company	34,707	\$60,505	602,240	10¢
Elmhurst Mutual Power & Light Co	15,741	\$19,527	287,017	7¢
Orcas Power & Light Coop	15,569	\$32,011	219,743	15¢
Benton Rural Electric Assn	15,309	\$42,519	592,182	7¢
Modern Electric Water Company	10,420	\$14,926	224,121	7¢
Lakeview Light & Power	10,311	\$23,531	252,098	9¢
Big Bend Electric Coop, Inc	9,686	\$39,958	582,631	7¢
Columbia Rural Elec Assn, Inc	5,999	\$33,350	381,765	9¢
Tanner Electric Coop	5,186	\$12,316	95,867	13¢
Parkland Light & Water Company	4,603	\$8,799	113,343	8¢
Ohop Mutual Light Company, Inc	4,591	\$7,542	90,949	8¢
Okanogan County Elec Coop, Inc	3,952	\$6,356	65,828	10¢
Nespelem Valley Elec Coop, Inc	1,536	\$5,311	64,234	8¢
Clearwater Power Company	1,030	\$2,305	22,054	10¢
Alder Mutual Light Co, Inc	315	\$405	5,019	8¢
Kootenai Electric Cooperative	97	\$245	2,807	9¢
Northern Lights, Inc	15	\$15	117	13¢
<b>Investor Owned</b>				
Puget Sound Energy Inc	1,196,851	\$2,367,219	23,282,858	10¢
Avista Corp	263,559	\$568,172	5,730,590	10¢
PacifiCorp	134,816	\$339,381	4,198,960	8¢
<b>Municipal</b>				
City of Seattle - (WA)	485,155	\$952,665	8,922,444	11¢
City of Tacoma - (WA)	184,103	\$380,881	4,642,537	8¢
City of Richland - (WA)	26,485	\$74,590	950,951	8¢
City of Port Angeles - (WA)	11,864	\$24,942	374,660	7¢
City of Centralia - (WA)	10,550	\$26,480	266,777	10¢

<sup>29</sup> Energy Information Administration. (2023, October 5). Annual Electric Power Information Report. Retrieved from <https://www.eia.gov/electricity/data/eia861/>

	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
City of Ellensburg - (WA)	10,345	\$18,148	206,175	9¢
City of Cheney - (WA)	5,879	\$8,325	134,942	6¢
City of Blaine - (WA)	3,612	\$6,853	81,074	8¢
City of Milton - (WA)	3,541	\$4,989	55,790	9¢
Town of Steilacoom	2,990	\$4,069	38,973	10¢
City of Chewelah	1,341	\$2,001	21,433	9¢
Town of Eatonville - (WA)	1,278	\$2,210	27,312	8¢
City of McCleary - (WA)	1,227	\$2,892	32,390	9¢
City of Sumas - (WA)	1,050	\$2,300	30,431	8¢
City of Coulee Dam - (WA)	605	\$1,169	16,749	7¢
Town of Ruston - (WA)	575	\$1,160	9,330	12¢
<b>Public Utility Districts</b>				
PUD No 1 of Asotin County	3	\$18	302	6¢
PUD 1 of Snohomish County	367,096	\$623,345	6,587,977	9¢
PUD No 1 of Clark County - (WA)	224,988	\$381,092	4,675,496	8¢
PUD No 1 of Benton County	56,072	\$130,786	1,807,315	7¢
PUD No 2 of Grant County	53,213	\$231,937	5,382,366	4¢
PUD No 1 of Cowlitz County	52,217	\$261,272	4,509,075	6¢
PUD No 1 of Chelan County	48,576	\$80,373	1,984,267	4¢
PUD No 1 of Grays Harbor County	43,620	\$107,549	1,164,781	9¢
PUD No 3 of Mason County	35,082	\$71,024	675,366	11¢
PUD No 1 of Lewis County	33,873	\$79,825	948,798	8¢
PUD No 1 of Clallam County	33,397	\$68,656	651,819	11¢
PUD No 1 of Franklin County	28,824	\$85,833	1,104,954	8¢
PUD No 1 of Okanogan County	21,663	\$49,357	616,510	8¢
PUD No 1 of Jefferson County	20,440	\$38,776	377,797	10¢
PUD No 2 of Pacific County	18,071	\$25,814	309,414	8¢
PUD No 1 of Douglas County	16,779	\$38,958	1,222,085	3¢
PUD No 1 of Klickitat County	13,696	\$36,090	442,246	8¢
Vera Irrigation District #15	12,920	\$19,233	234,126	8¢
PUD No 1 of Pend Oreille County	9,648	\$20,298	275,483	7¢
PUD No 1 of Skamania Co	6,470	\$14,079	127,678	11¢
PUD No 1 of Mason County	5,505	\$9,711	81,779	12¢
PUD No 1 of Kittitas County	4,888	\$11,687	110,501	11¢
PUD No 1 of Ferry County	3,700	\$7,179	72,939	10¢
PUD No 1 of Wahkiakum County	2,685	\$4,422	43,860	10¢
PUD No 1 of Whatcom County	1	\$11,479	223,343	5¢

## Appendix C: Glossary of Terms

**Average Annual Energy:** one megawatt is equal to one million watts. One million watts delivered continuously 24 hours a day for a year (8,760 hours) is called an average megawatt. The maximum amount of power a generating plant is capable of producing over the course of an average year is called its generating capability or average annual energy, expressed in average megawatts.

**Cogeneration:** the sequential production of electricity and useful thermal energy from a common fuel source.

**Demand Response:** the voluntary and temporary reduction in consumers' use of electricity when the power system is stressed. It includes voluntary demand response, demand response with paid incentives, time-of-use, and demand voltage reduction programs.

**Distributed Generation:** an eligible renewable resource where the facility or any integrated cluster of generating units has a generating capacity of not more than five megawatts.

**Duration Value at Risk (VaR Duration):** longest shortfall event for the 97.5th worst simulation year. VaR Duration sets a limit for shortfall duration during rare (once per 40 year) events. To calculate this metric, the duration of the longest shortfall event for each simulation year is recorded (or zero if there is no shortfall). The Duration VaR97.5 is the 97.5th highest duration from that record. Choosing the 97.5th percentile limits the risk of an excessively long shortfall event to no more than once per 40 years.

**Energy Conservation Measures:** any reduction in electric power consumption resulting from increases in the efficiency of energy use, production, or distribution.

**Energy Value at Risk (VaR Energy):** total annual shortfall energy for the 97.5th worst simulation year. VaR Energy set limits for the big energy shortfalls during rare (once per 40 year) events.

**Loss of Load Probability (LOLP):** traditionally, a power supply is deemed to be adequate when its annual Loss of Load Probability (LOLP) is 5% or less; that is, when the likelihood of having one or more shortfalls during an operating year is less than or equal to 5%. A 5% LOLP means that the simulated operation of the power supply yields only one year out of 20 with shortfalls.

**Loss of Load Events (LOLEV):** the expected number of shortfall events per year. A shortfall event is a set of contiguous hours of unserved demand. LOLEV is equal to the total number of shortfall events divided by the total number of simulation years.

**Net short-term contracts/Market Purchases:** refers to limited duration wholesale power purchase not to exceed one month, made by an electric utility for delivery to Washington retail electric customers for which the source of the power is not known at the time of entry into the transaction to procure the electricity.

**Loads:** electric loads include retail sales + line losses + utility needs. The base year includes existing conservation or demand reduction as a part of base year load. All projected electric loads (non-base year) are estimated before reductions from energy conservation measure programs or demand response program estimates. Additional future conservation and demand response are treated as resources to meet future load.

**Peak Energy:** highest estimated one-hour load for summer and winter, normalized for weather.

**Peak Value at Risk (VaR Peak):** highest single-hour shortfall for the 97.5th worst simulation year. VaR Peak set limits for occurrences of big energy shortfalls during rare (once per 40 year) events.

**Resource Adequacy:** the ability of the electricity system to supply the aggregate electric power and energy requirements of the electricity consumers at all times, taking into account scheduled and expected unscheduled outages of system components.

**Renewable Resources:** RCW 19.280, Electricity Utility Resource Plans, defines “renewable resources” as “electricity generation facilities fueled by: (a) Water; (b) wind; c) solar energy, (d) geothermal energy, (e) landfill gas, (f) biomass energy utilizing animal waste, solid organic fuels from wood, forest or field residues or dedicated energy crops that do not include wood pieces that have been treated with chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenic; (g) by-products of pulping or wood manufacturing processes, including but not limited to bark, wood chips, sawdust, and lignin in spent pulping liquors; (h) ocean thermal, wave or tidal power; and (i) gas from sewage treatment facilities.”

**Western Electricity Coordinating Council (WECC):** WECC promotes bulk power system reliability and security in the Western Interconnection. WECC is the regional entity responsible for compliance monitoring and enforcement and oversees reliability planning and assessments. In addition, WECC provides an environment for the development of reliability standards and the coordination of the operating and planning activities of its members.

**Western Interconnection:** the geographic area containing the synchronously operated electric grid in the western part of North America, which includes parts of Montana, Nebraska, New Mexico, South Dakota, Texas, Wyoming and Mexico and all of Arizona, California, Colorado, Idaho, Nevada, Oregon, Utah, Washington and the Canadian provinces of British Columbia and Alberta.