Washington State Department of Commerce

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2024 Report

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Report to the Legislature

Director Joe Nguyễn

ENERGY POLICY OFFICE

v4

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Table of contents

Executive summary 4

Introduction 6

Utility reporting 7

Results 8

Overgeneration 19

Resource adequacy 20

Appendix A: Utility cover sheets 23

Appendix B: Washington utility customer count, revenue, sales, and average price 24

Appendix C: Glossary of terms 28

Executive summary

Overview

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.[1]

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.

Key findings

This report collects and summarizes data from Washington state utilities' 2024 resource plans. The 2024 Utility Resource Plan Report summarizes the findings of Washington state load and resource information for a 10-year planning cycle — with most utilities using 2023 as the base year. This report does not reflect state or federal policy changes post-2024. Key findings of the 2024 Utility Resource Plan report are:

- Utilities plan to reduce their use of coal-fired electricity generation and market purchases serving Washington retail customers in the forecast periods, and to increase their use of hydropower, wind power, and utility-scale solar. Hydropower will remain the dominant source of electric for Washington utilities over the 10-year forecast period.
- Following successive years of stagnant or declining load forecasts, many utilities anticipate modest load growth driven by population growth and transportation and building electrification over the next five to ten years. In addition, the Mid-Columbia utilities (Grant, Douglas, and Chelan public utility districts) forecast significant load growth from data centers.
- Utilities anticipate a decline in savings potential from energy efficiency and conservation compared to past resource plans due to building and appliance codes and standards, market saturation of efficient technologies, and load growth from electrification.

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), pursuing new renewable resources, and maximizing energy conservation measures. While several consumer-owned utilities plan to remove natural gas from their resource portfolios in the next five and ten years, investor-owned utilities plan to maintain relatively steady amounts of natural gas in their resource portfolio.

[1] Section 19.280.060, Department's duties—Report to the legislature. (2025). Retrieved from Revised Code of Washington: https://app.leg.wa.gov/RCW/default.aspx?cite=19.280.060.

Assessments of resource adequacy from regional experts conclude the Northwest has adequate resources to meet current demand for electricity and does not face a significant risk of outages in the near term. However, these assessments assume the industry will be able to execute their planned capacity expansions. Confidence in these assessments is also limited by the increasing level of uncertainty that planners face about future demand for electricity. The sources of this uncertainty include the added volatility of our weather, the pace of consumer conversion to electricity for transportation, heating and other end uses, changing federal and state policies, and the growing energy demands of data centers.

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. 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. 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 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.

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 to 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.[2] 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 ninth report since the Legislature enacted the resource planning law in 2006. This report collects and summarizes data from Washington state utilities' 2024 resource plans. Data collection was completed in early 2025.

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[3] and resources and may be submitted only if the utility has fewer than 25,000 customers or is a full requirements customer"[4] 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 utility submittals 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. The Legislature has asked Commerce to provide this review and oversight of the resource planning process so that they can understand and assist in meeting the state's electricity needs.

This report summarizes the electricity loads and resources reported by Washington utilities in their 2024 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, i.e. "hydropower" or "market purchase." 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). It also does not evaluate the impacts of new state or federal policies after 2024 which may contradict the assumptions utilized in the utility resource plans, regional resource adequacy assessments, or regional forecasts summarized in this report.

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[2] Chapter 19.280, Electric Utility Resource Plans. (2025). Retrieved from Revised Code of Washington

[3] 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.

[4] "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 61[5] utilities. The individual reports are presented in Appendix A: Utility cover sheets. A summary of electricity sales to customers is presented in Appendix B: Washington utility customer count, revenue, sales, and average price. A glossary of terms is provided in Appendix C: Glossary of terms.

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. As mentioned previously, 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 2024, most utilities used 2023 as the base year, and the five-year and 10-year points are 2028 and 2033, 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 2022 to 2024. For purposes of the statewide summary, Commerce aggregates all base-year data into a single value (2023) and does likewise for the five-year (2028) data and 10-year data (2033).

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 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, demand response, and behind-the-meter solar (BTM solar). The report separately lists the conservation resources, demand response, and BTM solar that the utility expects during the five-year and 10-year periods.

[5] Commerce did not receive a resource plan coversheet from Consolidated Irrigation District #19 for 2024.

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

Results

The 2024 resource plans submitted to Commerce are summarized in Table 1-4 and Figures 1-2.

Table 1 presents utility report information in units of average-Megawatts (aMW)[6] on statewide annual utility load and resources, including imports and exports, for the base year (2023), 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. Table 1 shows the five and 10-year forecast for load growth is nearly double the amount presented from two years ago, most of which comes from data center load growth in Chelan, Grant, and Douglas counties.

In this year of reporting, Commerce asked utilities to disaggregate "other renewable resources." We can see that the use of biomass and utility-scale solar was nearly equal in the base year (55 and 56 aMW respectively), but utilities are expecting substantial growth in utility-scale solar in the next five to 10 years as the use of biomass resources remains steady.

Table 1: Washington's projected requirements and resources - annual energy aMW

Requirements	Base Year	5-year Forecast	10-year Forecast	5-year Change	10-year Change
Loads	10,189	11,316	12,245	1,128	2,057
Exports	746	513	423	(234)	(323)
Energy Conservation Measures	No data	(336)	(790)	(336)	(790)
Demand Response	No data	(42)	(57)	(42)	(57)
BTM Solar	0	(26)	(52)	(26)	(52)
Total Net Requirements	**10,935**	**11,425**	**11,770**	**490**	**835**

Resources	Base Year	5-year Forecast	10-year Forecast	5-year Change	10-year Change
Total BPA	4,511	4,844	4,985	333	474
Hydro	3,044	3,513	3,878	469	834
Thermal Natural Gas	1,101	1,206	855	105	(246)
Market Purchases	934	327	132	(607)	(802)
Thermal Coal	450	No data	No data	(450)	(450)
Other	850	196	161	(654)	(689)
Wind	811	1,059	1,625	248	814
Imports	237	259	301	22	64
Cogeneration	2	2	2	No data	No data
Biomass	55	62	62	7	7

[6] 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.

Resources	Base Year	5-year Forecast	10-year Forecast	5-year Change	10-year Change
Utility-scale Solar	56	363	499	307	443
Other Distributed Renewables	25	25	25	(0)	(0)
Geothermal	2	2	102	(0)	99
Landfill Gas	1	7	9	6	8
Undecided	No data	175	94	175	94
FTM Distributed Solar	No data	1	1	1	1
Nuclear	No data	No data	24	No data	24
Biogas	No data	No data	No data	No data	No data
Total Resources	12,079	12,446	13,654	367	1,575
Load Resource Balance	1,144	1,021	1,884	(123)	740

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.

While several consumer-owned utilities plan to remove natural gas from their resource portfolios in their five-year forecast, all the investor-owned utilities forecast relatively steady amounts of natural gas in their resource portfolios. For the first time since reporting started, Washington utilities forecast that wind power will surpass thermal natural gas plants in meeting their 10-year resource need.

Figure 1: Forecast available resources

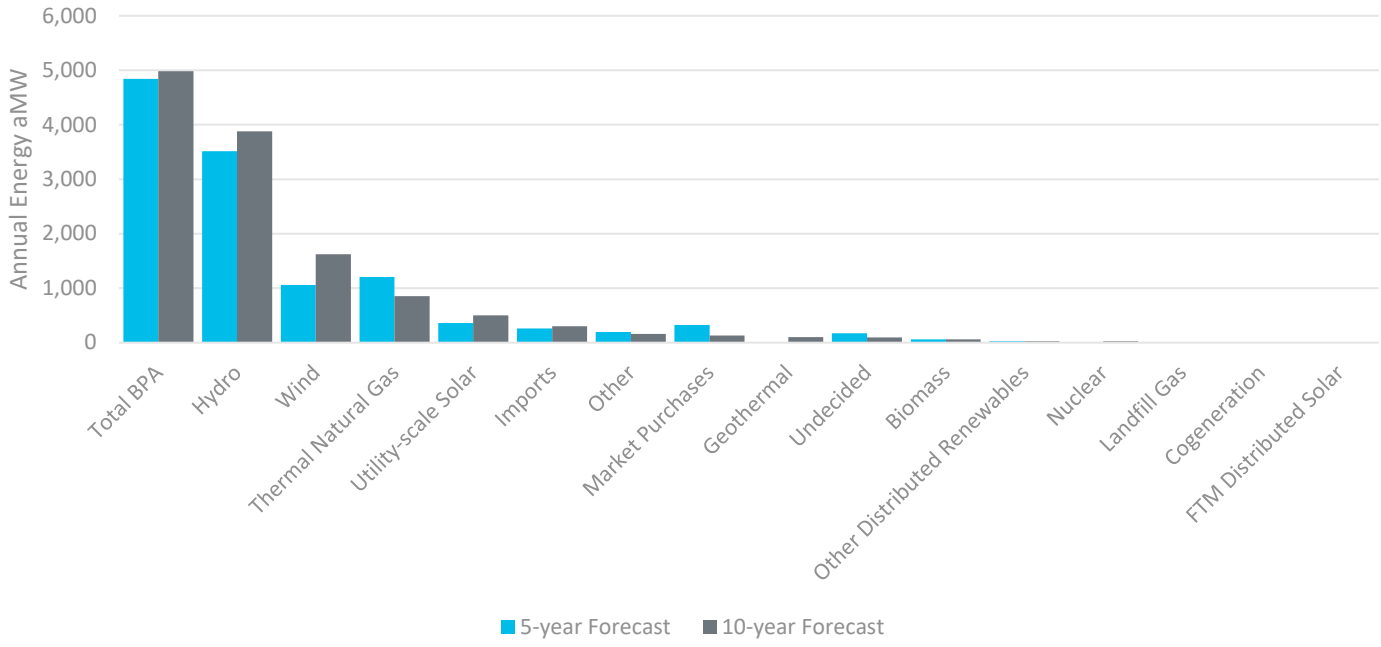


Table 2 presents in average-megawatts the differences between the 2022 and 2024 resource reports on statewide annual utility load and resources and the five and 10-year forecasts. Table 2 shows a diminished contribution from

coal-fired electricity generation and natural gas-fired generation in the forecast period, and an increased reliance on BPA resources, hydropower, wind, imports, and other renewables.

Table 2: Difference between 2024 and 2022 requirements and resources — annual energy aMW

Requirements	Base Year	5-year Forecast	10-year Forecast
Loads	(14)	499	882
Exports	520	295	233
Energy Conservation Measures	No data	(70)	(26)
Demand Response	No data	18	24
BTM Solar	No data	26	52
Total Net Requirements	**507**	**819**	**1,066**

Resources	Base Year	5-year Forecast	10-year Forecast
Total BPA	151	352	316
Hydro	363	197	325
Thermal Natural Gas	(1,591)	(1,357)	(1,578)
Market Purchases	718	249	18
Other	(266)	(44)	(19)
Wind	173	(11)	599
Thermal Coal	(275)	(156)	(67)
Imports	148	203	250
Other Renewables	(29)	91	127
Distributed Generation	20	39	57
Cogeneration	(13)	(13)	(13)
Undecided	No data	174	82
Nuclear	No data	No data	24
Total Resources	(454)	28	685
Load Resource Balance	(961)	(791)	(380)

The shift in electric generation resources suggests progress towards meeting the requirements of the Clean Energy Transformation Act (CETA). CETA prohibits utilities from using coal generation after 2025.[7] CETA requires all retail sales of electricity to Washington be greenhouse gas neutral by 2030[8] and 100% non-emitting by 2045.[9]

[7] Section 19.405.030(1), Coal-fired resources-Depreciation schedule-Penalties. (2025). Retrieved from Revised Code of Washington.
[8] Section 19.405.040(1), Greenhouse gas neutrality-Responsibilities for electric utilities-Energy transformation project criteria-Penalties. (2025). Retrieved from Revised Code of Washington.
[9] Section 19.405.050(1), Clean energy implementation-Hydroelectric facilities-Special contracts. (2025). Retrieved from Revised Code of Washington.

Table 3 presents utilities' aggregated report information for their highest estimated one-hour load during the winter season,[10] including imports and exports, for the base year (2023), and the five and 10-year forecasts. In the past, utilities forecasted more reliance on market purchases to meet peak demand, but utilities are increasingly aiming to decrease their reliance on short-term wholesale electricity markets (market purchases). The availability of dispatchable generation resources is declining and market power prices and volatility is increasing, especially during peak demand periods when prices can be high and supply uncertain.[11] Utilities are exploring various solutions, including demand response programs, energy efficiency measures, and new generation resources.

Table 3: Washington projected requirements and resources — winter capacity MW

Requirements	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Loads	14,584	15,976	17,224	1,391	2,640
Exports	1,093	802	741	(291)	(352)
Energy Conservation Measures	No data	(404)	(896)	(404)	(896)
Demand Response	No data	(387)	(526)	(387)	(526)
BTM Solar	0	(12)	(16)	(12)	(16)
Total Net Requirements	15,678	15,975	16,526	297	848

Resources	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Hydro	5,171	6,195	6,750	1,024	1,578
Total BPA	4,334	4,725	4,808	391	474
Thermal Natural Gas	3,182	3,008	3,001	(174)	(181)
Other	1,878	1,300	1,340	(578)	(538)
Market Purchases	1,598	225	200	(1,373)	(1,398)
Wind	770	1,420	1,953	649	1,183
Imports	654	526	584	(128)	(70)
Thermal Coal	596	No data	No data	(596)	(596)
Biomass	59	66	66	7	7
Other Distributed Renewables	26	26	26	No data	No data
Utility-scale Solar	20	527	544	507	524
Cogeneration	5	90	90	85	85
Landfill Gas	2	8	11	6	9
Geothermal	2	2	102	(0)	100
Undecided	No data	80	No data	80	No data
Nuclear	No data	No data	30	No data	30
FTM Distributed Solar	No data	0	0	0	0
Biogas	No data	No data	No data	No data	No data

[10] Table 1 expressed in energy units of aMW, Table 3 in capacity units of MW.
[11] Puget Sound Energy. (2023, Chapter 1, p. 5). Electric Progress Report.

Resources	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Total Resources	18,297	19,000	20,943	703	2,646
Load Resource Balance	2,619	3,025	4,417	405	1,798

Most Washington utilities experience their annual peak load during the winter months; however, due to climate change, utilities anticipate less heating required in the winter and more cooling required during the summer. Table 4 presents utilities' aggregated report information for their highest estimated one-hour load during the summer season, including imports and exports, for the base year (2023), and the five and 10-year forecasts.

Warmer average summer temperatures and more frequent and intense heat waves are leading to increased demand for air conditioning and cooling, directly driving up electricity consumption during summer peak hours. For instance, Puget Sound Energy (PSE) noted that incorporating climate change data into their demand forecast resulted in increased summer peak temperatures and thus, increased summer demand.[12] Avista anticipates needing to prepare for a near-term future as a dual summer and winter peaking utility due to these trends.[13]

Table 4: Washington projected requirements and resources - summer Capacity MW

Requirements	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Loads	11,996	13,911	15,517	1,915	3,520
Exports	1,427	1,385	1,295	(42)	(133)
Energy Conservation Measures	No data	(392)	(854)	(392)	(854)
Demand Response	No data	(400)	(539)	(400)	(539)
BTM Solar	0	(83)	(122)	(83)	(122)
Total Net Requirements	13,424	14,421	15,296	998	1,872

Resources	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Hydro	5,392	6,262	6,509	870	1,117
Total BPA	3,301	3,421	3,582	120	281
Thermal Natural Gas	2,681	2,515	2,508	(166)	(173)
Other	1,541	1,249	1,248	(292)	(293)
Market Purchases	1,778	248	200	(1,530)	(1,578)
Wind	547	1,216	1,759	669	1,212
Imports	282	222	280	(60)	(2)
Thermal Coal	595	No data	No data	(595)	(595)
Biomass	59	66	66	7	7
Other Distributed Renewables	22	22	22	No data	No data
Utility-scale Solar	84	966	1,022	882	938

[12] Puget Sound Energy. (2023, Chapter 3, p. 14). Electric Progress Report.
[13] Avista. (2023, Chapter 2, p. 21). Electric Integrated Resource Plan.

Resources	Base Year	5-year forecast	10-year forecast	5-year change	10-year change
Cogeneration	4	4	89	No data	85
Landfill Gas	2	9	11	7	9
Geothermal	2	2	102	(0)	100
Undecided	No data	128	No data	128	No data
Nuclear	No data	No data	31	No data	31
FTM Distributed Solar	No data	1	2	1	2
Biogas	No data	No data	No data	No data	No data
Total Resources	16,290	17,206	18,946	916	2,656
Load Resource Balance	2,866	2,784	3,649	(82)	783

Figure 2 shows Washington utilities' 10-year (2033) projected resources by utility ownership type. Most consumer-owned utilities (public utility districts, municipal, and cooperatives) rely predominantly on BPA resources and hydropower; however, municipal utilities forecast a higher use of wind power and energy conservation measures than other consumer-owned utilities. Investor-owned utilities plan to rely on baseload natural gas generation for approximately 20% of their 10-year projected resources; however, they plan to reduce their natural gas generation by approximately 16% compared to the base year of 2023.

Figure 2: Washington 10-year projected resources by utility ownership type

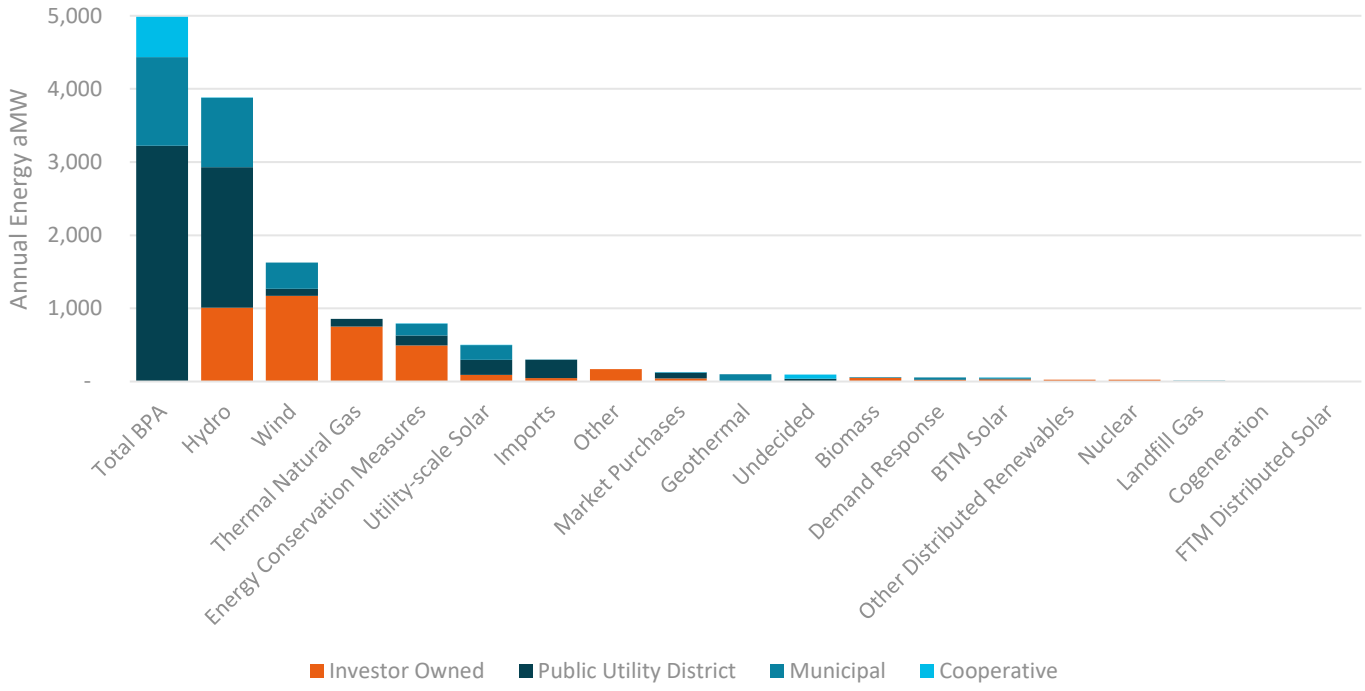


Table 5 presents a time series of Commerce Utility Resource Plans. The information in the table presents aggregated annual utility loads (base year, five-year and 10-year) for the 2008 through 2024 Commerce reports. The forecast loads do not include the energy conservation measure (ECM) forecast by utilities. Figure 3 presents the information in Table 5 in a graphical format. Table 6 and Figure 4 present the aggregated annual utility loads (base-year, five-year and 10-year) and include energy conservation measures (ECM), demand response (DR), and behind-the-meter (BTM) solar forecasts by utilities.

Table 5 and 6 and Figure 3 and 4 show load growth forecasts by utilities for the five and 10-year points which have typically trended down with each successive report; however, this year, the forecasts do not follow the trend. This is due to new high load growth rates from factors, such as data center growth, population growth, and electrification.

The Mid-Columbia utilities, Grant, Chelan, and Douglas PUDs, are forecasting high load growth rates due to the growth of data centers, computing demand, cryptocurrency mining, and industrial load.

Chelan County PUD forecasts a very high average annual growth rate of 31.71%, 31.88%, and 32.23% for High Density Loads[14], cryptocurrency processing, and large loads during the planning period.[15]

For Grant County PUD, over the past the twenty years, 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. Industrial loads have transitioned from a 28% share twenty years ago to a 47% share of total Grant PUD load today.[16]

Over the last decade, Douglas PUD experienced a load growth of 76% principally due to large loads.[17] Douglas PUD expects elevated levels of load growth to continue. Douglas PUD reports it has instituted a number of policies to curb risk associated with data loads. One of these policies requires large contract customers to enter into special contracts that mitigate risk associated with transmission and distribution build-out by requiring customers to pay for all required infrastructure upgrades upfront.[18]

Other utilities are also predicting increasing load growth (though not at the very high rates from data centers, computing demand, cryptocurrency mining, and industrial and manufacturing growth) due to electrification of buildings and transportation and population growth. Clark Public Utilities (CPU) projects an average year-over-year load growth of 1.98%, with a high scenario reaching 3.12% for 2025-2044. The load forecast in CPU's study incorporates additional load growth due to building and vehicle electrification beyond what has been seen historically. Over the study period, CPU shifts from a predominantly winter-peaking utility to a summer-peaking utility. CPU is currently forecast to have sufficient resources available to meet average energy demand through 2035. However, on a capacity basis, CPU is currently at a deficit and is projected to grow that deficit to roughly 750 MW of summer capacity and 500 MW of winter capacity by the end of the study period absent additional resource procurement. That deficit is partially exacerbated by the additional capacity required to comply with the Western Resource Adequacy Program (WRAP), which is modeled to take effect in November 2027.[19] Moreover, Puget Sound Energy (PSE) primarily serves residential and commercial customers, and it expects energy demand to grow an average rate of 1.8 percent annually from 2024-2045.[20] Rising customers and electric vehicle counts drive most of the growth in energy demand for PSE. This demand growth is partially, but not entirely, offset by decreasing residential heating energy demand — a consequence of adopting trended normal temperatures consistent with climate change impacts.

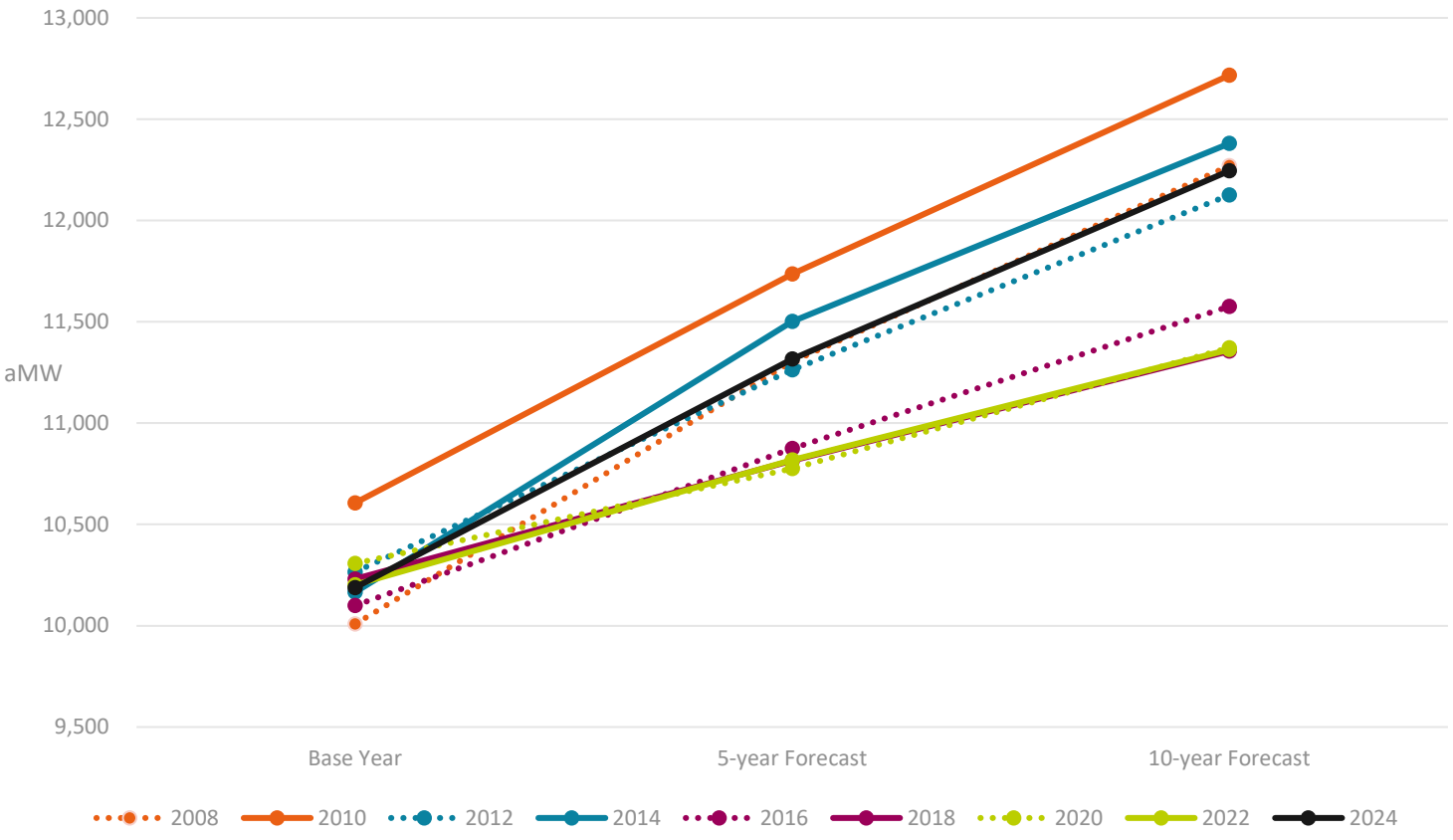
Table 5: Utility report time series — base year and forecast loads without ECM

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

[14] These are typically server farms and similar technological operations.
[15] Chelan PUD. (2023, p. 15-16). Integrated Resource Plan Progress Report.
[16] Grant PUD. (2024, p. 54). Integrated Resource Plan.
[17] Douglas PUD. (2024, p. 6). Integrated Resource Plan Update.
[18] Douglas PUD. (2024, p. 7). Integrated Resource Plan Update.
[19] Clark Public Utilities. (2024, p. 6). Integrated Resource Plan.
[20] Puget Sound Energy. (2023, Chapter 6, p. 1). Electric Progress Report.

Utility Report Year	Base Year	Base Year, aMW	5-year Est.	5-year Est. aMW	10-year Est.	10-year Est. aMW
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
2024	2023	10,189	2028	11,316	2033	12,245

Figure 3: Utility report time series — base year and forecast loads without ECM



By comparing, Table 5 and 6 as well as Figure 3 and 4 it is evident that utility conservation programs significantly reduce aggregate load growth.

Table 6: Utility report time series — base year and forecast loads with ECM, DR, and BTM solar

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
2024	2023	10,189	2028	10,912	2033	11,347

Figure 4: Utility report time series — base year and forecast loads with ECM, DR, and BTM solar

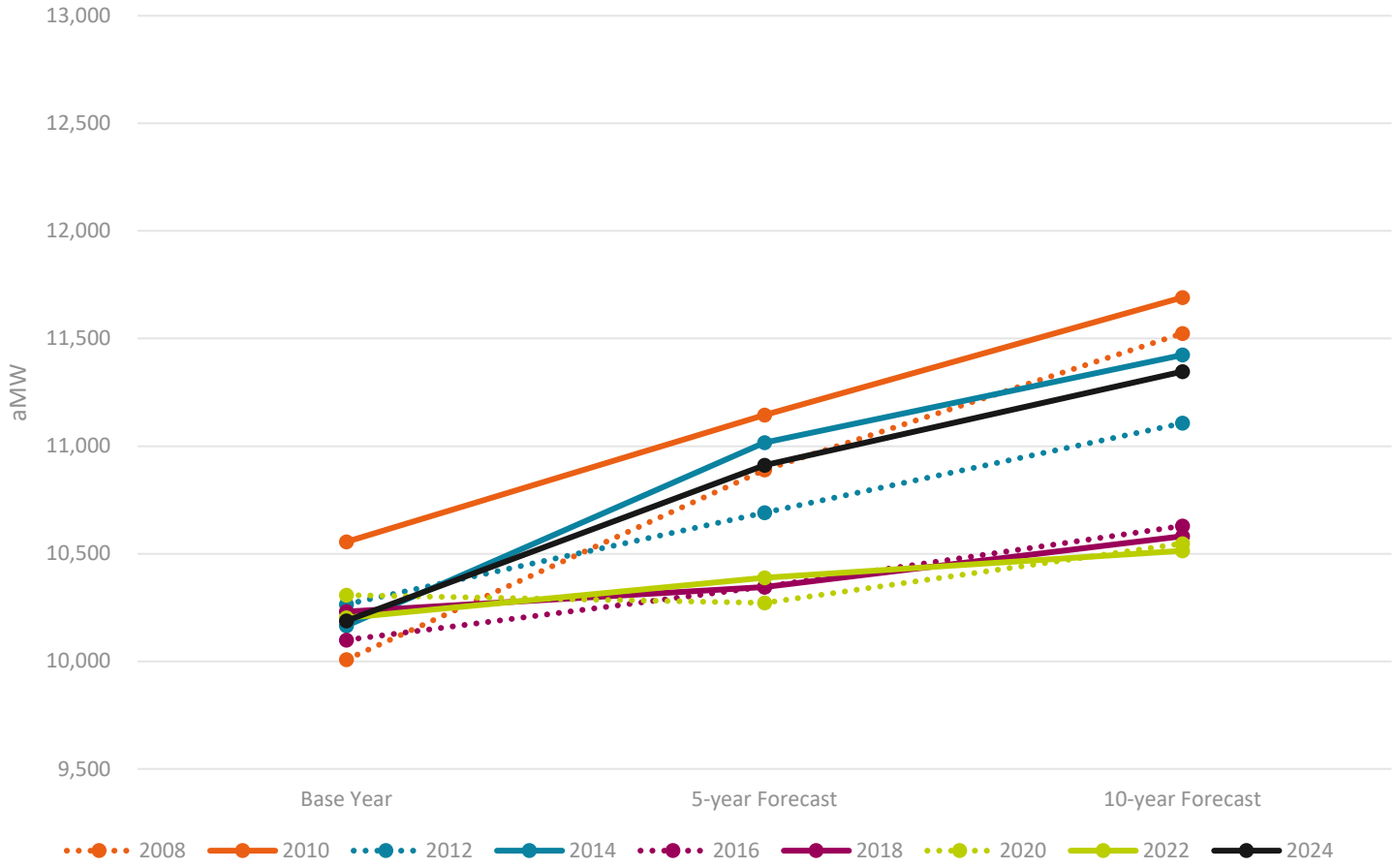


Table 7 presents the individual utility growth forecasts and the percentage of load growth anticipated to be met by energy conservation measures. The average load growth with no conservation across utilities has more than doubled compared to the 2022 resource plan report. The average 5-year load growth with no conservation increased from 3.2% in 2022 to 8.5% in 2024, and the average 10-year load growth with no conservation increased from 6.2% in 2022 to 15.5% in 2024. Most of this load growth comes from data centers, computing demand, and cryptocurrency mining in the service territories of Chelan County PUD, Douglas County PUD, and Grant County PUD.

Table 7: Individual utility load forecasts without conservation and with conservation

Utility Name	5-year load growth change % without conservation	10-year load growth change % without conservation	5-year load growth change % met by conservation	10-year load growth change % met by conservation
Asotin County PUD No. 1	6.01%	6.20%	0.00%	0.00%
Avista	6.12%	12.81%	47.63%	45.71%
Benton County PUD No. 1	-0.95%	2.34%	-239.74%	194.86%
Benton Rural Electric Assn	2.84%	7.27%	0.00%	0.00%
Big Bend Electric Cooperative	9.16%	11.60%	3.81%	3.01%
Blaine, City of	34.09%	46.81%	0.21%	0.15%
Centralia, City of	7.94%	9.23%	0.00%	0.00%
Chelan County PUD No.1	72.93%	140.13%	4.98%	6.36%
Cheney, City of	3.63%	7.19%	3.39%	1.71%
Chewelah, City of	-0.49%	-0.45%	-80.35%	-87.70%
Clallam County PUD No. 1	3.33%	8.13%	134.19%	109.77%
Clark Public Utilities	3.62%	12.50%	0.00%	0.00%
Columbia REA	0.74%	4.86%	0.00%	0.00%
Coulee Dam, Town of	1.02%	3.47%	0.00%	0.00%
Cowlitz County PUD No. 1	31.61%	32.21%	0.00%	0.00%
Douglas County PUD No. 1	106.98%	171.13%	0.00%	0.00%
Eatonville, Town of	0.00%	0.00%	0.00%	0.00%
Ellensburg, City of	8.29%	9.79%	5.76%	4.88%
Elmhurst Mutual Power and Light Company	0.72%	2.35%	150.00%	46.15%
Ferry County PUD	-1.07%	1.15%	-9.46%	8.79%
Franklin County PUD No. 1	23.87%	32.56%	0.00%	0.00%
Grant County PUD No. 2	37.89%	54.16%	2.50%	4.21%
Grays Harbor County PUD No. 1	9.33%	7.40%	0.00%	0.00%
Inland Power and Light	11.24%	21.75%	0.00%	0.00%
Jefferson County PUD No. 1	1.59%	2.84%	31.05%	17.35%

Utility Name	5-year load growth change % without conservation	10-year load growth change % without conservation	5-year load growth change % met by conservation	10-year load growth change % met by conservation
Kalispel Tribal Utilities	25.31%	32.70%	0.00%	0.00%
Kittitas County PUD No. 1	10.87%	21.01%	2.00%	1.03%
Klickitat County PUD No. 1	-3.44%	3.23%	0.00%	0.00%
Lakeview Light & Power	1.83%	2.86%	21.82%	13.95%
Lewis County PUD No. 1	2.93%	8.07%	0.00%	0.00%
Mason County PUD No. 1	2.26%	4.20%	0.00%	0.00%
Mason County PUD No. 3	7.82%	16.30%	21.08%	10.42%
McCleary, City of	4.47%	5.83%	0.00%	0.00%
Milton, City of	-0.06%	0.16%	-775.00%	281.82%
Modern Electric	-0.20%	2.14%	-126.68%	11.88%
Nespelem Valley Electric Cooprative	4.99%	7.09%	0.00%	0.00%
Ohop Mutual Light Company	3.22%	7.95%	14.03%	5.68%
Okanogan County Electric Cooperative	9.41%	16.15%	0.00%	0.00%
Okanogan County PUD No. 1	4.73%	8.45%	0.00%	0.00%
Orcas Power and Light Cooperative	6.34%	8.82%	0.00%	0.00%
Pacific County PUD No. 2	2.75%	5.23%	50.00%	21.05%
PacifiCorp	9.82%	15.91%	72.64%	80.89%
Parkland Light and Water Company	1.42%	2.39%	10.47%	6.23%
Pend Oreille PUD	-58.45%	-56.90%	0.00%	0.00%
Peninsula Light	-4.67%	-4.14%	-14.62%	-16.50%
Port Angeles, City of	5.02%	6.70%	28.51%	43.42%
Puget Sound Energy	1.68%	4.61%	369.23%	363.55%
Richland, City of	11.05%	16.16%	26.78%	66.31%
Seattle City Light	8.62%	19.37%	52.69%	44.02%
Seattle, Port of	2.53%	23.11%	31.90%	3.50%
Skamania County PUD No. 1	5.62%	9.05%	1.05%	0.65%
Snohomish County PUD No. 1	9.56%	25.45%	42.27%	40.96%
Steilacoom, Town of	4.75%	7.01%	5.71%	3.87%
Sumas, City of	4.85%	4.85%	11.11%	11.11%
Tacoma Power	-2.78%	1.99%	-154.95%	478.49%
Tanner Electric	18.69%	21.78%	0.89%	0.77%
Vera Water and Power	3.52%	7.02%	4.93%	2.47%
Wahkiakum County PUD No. 1	8.10%	11.96%	0.00%	0.00%
Whatcom County PUD No. 1	10.51%	47.71%	0.00%	0.00%

Utility Name	5-year load growth change % without conservation	10-year load growth change % without conservation	5-year load growth change % met by conservation	10-year load growth change % met by conservation
Yakama Power	4.71%	6.01%	5.88%	4.61%
Average	**8.47%**	**15.46%**	**-4.07%**	**30.59%**

Energy efficiency and conservation (also referred to as energy conservation measures) is a fundamental resource for utilities in their long-term planning, but utilities are anticipating energy efficiency and conservation to contribute less towards meeting load growth. Projected load growth across utilities is also greater than prior resource plans due to the incorporation of new load growth projections due to building and transportation electrification. For instance, Avista anticipates that energy conservation measures will meet a significant portion of future load growth, although the percentage may be lower than in previous forecasts due to factors like electric transportation, building electrification, and market saturation of efficient technologies. Energy conservation measures meet more than 27% of all future load growth for Avista, where prior IRP forecasts found energy conservation measures met nearly 70% of future load growth.[21]

Several utilities are actively exploring and implementing demand response programs, specifically targeting large load customers, including data centers and cryptocurrency miners, to manage peak demand. For instance, Grant PUD is currently operating a pilot demand response program aimed at high load factor customers, including cryptocurrency miners. They are also considering direct load curtailment for irrigation customers. Grant PUD anticipates these programs can help reduce near-term capacity shortfalls and compete with storage and peaking assets. They estimate 30 to 50 MW could be available through these DR programs by 2026.[22] Tacoma Power is testing demand response as a potential resource option under scenarios where they anticipate capacity shortfalls. They have considered generic demand response resources that either shift usage or are called upon during peak events, equivalent to approximately 20 to 30 MW by the late 2030s.[23] In 2024, Clark Public Utilities (CPU) launched an industrial demand response incentive pilot program allowing qualified customers to nominate load reductions during a demand response event. CPU plans to continue expanding demand response programs as they become more cost-effective and with the adoption of Advanced Metering Infrastructure (AMI). [24]

Overgeneration

In 2013, the Legislature amended the resource planning statute to address concerns about the potential for "overgeneration" events.[25] 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:

[21] Avista. (2023, Chapter 9, p. 7). Electric Integrated Resource Plan.
[22] Grant PUD. (2024, p. 77). Integrated Resource Plan.
[23] Tacoma Power. (2024, p. 39-40). Integrated Resource Plan.
[24] Clark Public Utilities. (2024, p. 74). Integrated Resource Plan.
[25] Section 19.280.060, Department's duties—Report to the legislature. (2025). Retrieved from Revised Code of Washington.

> 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. It might occur when high river flows and high wind volumes coincide with low load. It might also occur when the hours of solar generation misalign 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. This oversupply results in negatively priced spot market prices. The consequence is that a utility must pay another entity to take unwanted power or generation is curtailed. Many wind generators receive federal incentive credits and/or payments based upon their wind production, and they can sell the RECs from this generation. Thus, these generators can withstand some degree of negative pricing and still make a profit.[26]

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.[27] In the Northwest, the BPA has business practices that push the burden of oversupply back to the market and away from themselves. These practices include not selling at negative prices until spilled water reaches dissolved gas limits, holding renewable generators to a fixed schedule, not accepting unplanned surplus, and canceling transmission loss returns.[28] 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 2022-2024 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 and response programs.

Many consumer-owned utilities already have 80% or more renewable generation, and they plan to comply with CETA requirements between 2030 and 2045 using clean energy credits. With the emergence of the Western Resource Adequacy Program (WRAP) and increased reliance on regional markets for power, some utilities, such as Snohomish PUD and Benton PUD, are moving to BPA load-following customers to rely on BPA to ensure resource adequacy.

Other strategies utilities reported considering include:

- Developing WRAP
- 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

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[26] Chelan PUD. (2023, p. 24-25). Integrated Resource Plan Progress Report.
[27] Oversupply. (n.d.). Retrieved from Bonneville Power Administration.
[28] Chelan PUD. (2023, p. 25). Integrated Resource Plan Progress Report.

- Enhancing the capacity of their transmission lines

Regional resource adequacy forecasts

Commerce and the Utilities and Transportation Commission (UTC) regularly review regional resource adequacy assessments and other load forecasts and scenario studies,[29] and convene an annual meeting with regional resource adequacy experts, utilities, and other stakeholders per RCW 19.280.065.

The joint meeting between the UTC and Commerce in September 2024 found assessments of resource adequacy from regional experts show the Northwest has adequate resources to meet current demand for electricity and does not face a significant risk of outages in the near term.[30] However, these assessments assume the industry will be able to execute their planned capacity expansions. Confidence in these assessments is also limited by the increasing level of uncertainty that planners face about future demand for electricity. The sources of this uncertainty include the added volatility of our weather, the pace of consumer conversion to electricity for transportation, heating and other end uses, and the growing energy demands of data centers. Common themes across resource adequacy assessments and other regional load forecasts and scenario studies include:

- Participation of utilities in WRAP is crucial for the future of regional resource adequacy
- Limited transmission capacity is a key binding constraint that once addressed would enable utilities to more efficiently access a diverse set of cost-effective resources from across the West, mitigate weather disruptions, and enhance regional resource adequacy
- Demand-side management and virtual power plants have significant potential to shave peak load and maintain resource adequacy
- Traditional battery storage technologies can help enable the smooth integration of intermittent renewables onto the electric grid while emerging long duration storage technologies can support the electric grid for multiple days during potential natural gas supply or electric generation disruptions
- Emerging technologies, such as green hydrogen and enhanced geothermal, show promise as firm power supplies free of greenhouse gas emissions
- High data center load growth and lower than expected energy efficiency scenarios would place severe resource demands on the grid and put the adequacy of the electric grid at risk
- The region needs to steadfastly permit, site, and build resources to maintain current levels of resource adequacy over the medium-to-long term

Conclusion

The 2024 Washington State Electric Utility Resource Planning report reveals modest load growth increasingly met by clean energy resources. Utilities plan to cut coal and market purchases, and increase use of hydropower, wind, and solar.

After years of declining or stagnant load forecasts, utilities across the state project modest load growth from population increases and electrification. Alongside this general assessment, substantial load growth was forecasted by Grant, Douglas, Chelan PUDs, driven by potential data center electricity needs.

To meet these demands, consumer-owned utilities are focusing on renewing their Bonneville Power Administration (BPA) contracts, and both consumer-owned utilities and investor-owned utilities are developing new renewables

[29] These studies include but are not limited to: the Western Electricity Coordinating Council Resource Assessment of Resource Adequacy, the Pacific Northwest Power and Conservation Council Power Supply and Adequacy Assessment; and Pacific Northwest Utilities Conference Committee Northwest Regional Forecast, the latter of which is not a resource adequacy assessment.
[30] 2024 Resource Adequacy Letter and Summary; Western Assessment of Resource Adequacy 2024.

and maximizing conservation. While many consumer-owned utilities plan to phase out natural gas, investor-owned utilities project stable usage. Wind power is notably forecasted to surpass natural gas within ten years, advancing Clean Energy Transformation Act (CETA) goals. Some utilities are preparing for dual winter and summer peaks due to increased summer temperatures and household cooling demands driven by climate change. Regional assessments indicate adequate resources to meet loads in the near term, but maintaining resource adequacy depends on successful capacity expansions and increased regional cooperation between utilities.

The 2024 report presents several other developments since the 2022 legislative report:

- Incorporation of climate change and electrification modelling: The resource plans summarized in the 2024 report more thoroughly accounted for the impacts of climate change and electrification. These changes resulted in a shift in peak demand for some utilities and modest load growth for many utilities.
- Energy conservation contribution: The 2024 report offers a more cautious outlook on the incremental contribution of energy conservation measures (ECM) to meet future load growth compared to 2022. Planned five-year ECM is 70 aMW lower than the 2022 report's anticipation for that period.
- Reduced market reliance for peak demand: The 2024 report indicates utilities have a stronger intent to reduce reliance on short-term wholesale market purchases for peak demand, a shift from earlier forecasts where such purchases were more prominent in peak capacity strategies.
- Load resource balance: The 2024 report projects a tighter (lower) load-resource balance (surplus) for base, five-year, and ten-year forecasts compared to 2022's anticipated balances, suggesting a closer but adequate margin between expected resources and requirements.

Finally, this report points to a continued need to improve clean energy siting and permitting processes and enhance transmission capacity in Washington and across the Western Interconnection. Increased deployment of demand-side management, virtual power plants, and traditional battery storage systems, accompanied by emerging technologies and utility participation in the Western Regional Adequacy Program (WRAP), are additional actions that would further resource adequacy and the clean energy transition.

Appendix A: Utility cover sheets

Washington Electric Utility Loads and Resources Estimates reported to the Department of Commerce in 2024 are available in this Excel workbook.

Appendix B: Washington utility customer count, revenue, sales, and average price[31]

Behind the Meter	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
Tesla Inc.	99	$67	608	11¢
Sunnova	60	$11	64	17¢

Cooperative	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
Inland Power & Light Company	44,400	$85,033	1,016,225	8¢
Peninsula Light Company	35,429	$60,993	624,171	10¢
Elmhurst Mutual Power & Light Co	16,037	$21,137	279,846	8¢
Benton Rural Electric Assn	15,962	$44,938	620,972	7¢
Orcas Power & Light Coop	15,855	$36,214	214,371	17¢
Modern Electric Water Company	10,615	$15,619	227,881	7¢
Lakeview Light & Power	10,481	$23,781	251,778	9¢
Big Bend Electric Coop, Inc	9,946	$42,454	564,937	8¢
Columbia Rural Elec Assn, Inc	6,490	$33,210	367,976	9¢
Tanner Electric Coop	5,317	$12,949	99,247	13¢
Ohop Mutual Light Company, Inc	5,017	$8,438	98,989	9¢
Parkland Light & Water Company	4,591	$9,005	117,676	8¢
Okanogan County Elec Coop, Inc	4,143	$6,798	67,139	10¢
Yakama Power	2,298	$7,004	95,343	7¢
Nespelem Valley Elec Coop, Inc	1,538	$5,535	59,863	9¢
Clearwater Power Company	1,046	$2,326	21,443	11¢
Kootenai Electric Cooperative	98	$267	2,626	10¢
Northern Lights, Inc	15	$30	252	12¢

[31] Energy Information Administration. (2023). Annual Electric Power Information Report.

Federal	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
Bonneville Power Administration	10	$31,985	1,195,413	3¢

Investor owned	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
Puget Sound Energy Inc	1,223,225	$2,753,519	23,436,236	12¢
Avista Corp	270,433	$610,155	5,739,294	11¢
PacifiCorp	136,363	$387,829	3,850,048	10¢

Municipal	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
City of Seattle - (WA)	503,221	$1,048,523	9,228,431	11¢
City of Tacoma - (WA)	196,833	$410,927	4,552,573	9¢
City of Richland - (WA)	27,048	$77,437	997,726	8¢
City of Port Angeles - (WA)	11,018	$27,557	396,839	7¢
City of Centralia - (WA)	10,701	$26,675	265,359	10¢
City of Ellensburg - (WA)	10,582	$19,101	221,650	9¢
City of Cheney - (WA)	6,007	$8,359	148,111	6¢
Town of Steilacoom	3,782	$4,335	38,733	11¢
City of Blaine - (WA)	3,766	$7,244	83,974	9¢
City of Milton - (WA)	3,593	$5,964	55,110	11¢
City of Chewelah	1,363	$2,115	24,088	9¢
Town of Eatonville - (WA)	1,278	$2,302	28,247	8¢
City of McCleary - (WA)	1,194	$3,752	31,649	12¢
City of Sumas - (WA)	1,028	$2,582	31,283	8¢
Town of Ruston - (WA)	622	$1,368	10,382	13¢
City of Coulee Dam - (WA)	602	$1,243	16,701	7¢
PUD No 1 of Asotin County	3	$14	245	6¢

Political subdivision	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
PUD No 1 of Snohomish County	377,261	$668,410	6,794,876	10¢
PUD No 1 of Clark County - (WA)	235,481	$392,180	4,785,718	8¢
PUD No 1 of Benton County	57,263	$134,664	1,838,441	7¢
PUD No 2 of Grant County	55,012	$269,355	5,958,946	5¢
PUD No 1 of Cowlitz County	53,155	$232,091	4,104,045	6¢
PUD No 1 of Chelan County	49,579	$67,197	1,876,426	4¢
PUD No 1 of Grays Harbor County	45,223	$106,199	930,270	11¢
PUD No 3 of Mason County	35,985	$80,923	695,379	12¢
PUD No 1 of Lewis County	34,809	$81,808	964,301	8¢
PUD No 1 of Clallam County	33,931	$72,147	665,293	11¢
PUD No 1 of Franklin County	29,428	$87,670	1,103,231	8¢
PUD No 1 of Okanogan County	22,018	$53,592	633,607	8¢
PUD No 1 of Jefferson County	20,873	$42,250	391,951	11¢
PUD No 2 of Pacific County	18,338	$27,693	315,430	9¢
PUD No 1 of Douglas County	17,364	$53,512	1,345,707	4¢
PUD No 1 of Klickitat County	14,111	$38,965	441,885	9¢
Vera Irrigation District #15	13,509	$20,325	239,014	9¢
PUD No 1 of Pend Oreille County	10,008	$53,256	695,193	8¢
PUD No 1 of Skamania Co	6,571	$15,873	137,082	12¢
PUD No 1 of Mason County	5,610	$10,251	83,748	12¢
PUD No 1 of Ferry County	3,783	$7,784	80,287	10¢
PUD No 1 of Kittitas County	3,771	$12,800	112,794	11¢
PUD No 1 of Wahkiakum County	2,776	$4,638	46,164	10¢
PUD No 1 of Whatcom County	1	$10,206	229,343	4¢

Retail power marketer	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatthours)	Average Price (Cents/kWh)
Shell Energy North America (US), L.P.	3	$33,821	486,097	7¢
BP Energy Company	2	$82,247	830,991	10¢
Brookfield Renewable Energy Marketing US LLC	1	$19,697	361,074	5¢
Avangrid Renewables	1	$1,019	32,879	3¢
Calpine Energy Solutions, LLC	1	$970	8,012	12¢

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.

Behind-the-meter (BTM) solar: refers to customer-sited solar energy panels. BTM solar includes the expected generating capability that is customer-owned, utility-owned, and third-party owned.

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 (also referred to as conservation and efficiency resources): 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.

Front-of-the-meter (FTM) distributed solar: refers to solar power that is located on the distribution system or any subsystem of the distribution system.

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."

Utility-scale solar: refers to a large-scale solar power project that is interconnected to the transmission system.

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.

Western Resource Adequacy Program (WRAP): The Western Resource Adequacy Program (WRAP) is the first regional reliability planning and compliance program in the history of the West.

It will deliver a region-wide approach for assessing and addressing resource adequacy and provide an important step forward for reliability in the region.