Washington State Electric Utility Resource Planning

Washington State Department of Commerce

2020 Report Pursuant to RCW 19.280.060

ENERGY

December 2020

REPORT TO THE LEGISLATURE

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Acknowledgments

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Executive Summary

Authorizing Legislation

In 2006, the Washington Legislature passed HB 1010, creating a body of law in chapter 19.280 RCW to encourage safe, clean, and reliable energy sources. RCW 19.280.060 requires Commerce to provide a report as follows:

> 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

Hydropower will remain the dominant source of electric for Washington utilities over the 10-year forecast period. Generation from coal-fired electricity will decrease in the forecast period that will increase reliance on natural gas-fired generation.

Base-year aggregated state utility load has remained in a narrow band over the period from 2008 through 2020. Load growth forecasts by utilities for the five and 10-year out points have been trending down with each successive Commerce Utility Resource Plan report.

The statewide aggregate growth in electricity demand is expected to be moderate, and most of this growth will be offset through energy conservation programs operated by utilities. However, several utilities with surplus generating capacity and very inexpensive electricity (Chelan, Douglas and Grant PUDs) are forecasting very high load growth rates over the next 10 years.

The report shows that short and long-term contracts make a smaller contribution to total resources in the base year (2019), but they are forecast to make larger contributions in the five and 10-year forecasts than was seen in the 2018 utility resource report.

The Pacific Northwest Utilities Conference Committee 2020 Regional Forecast report reveals a projected electricity deficit for the Northwest starting in 2024 (283 aMW) and continuing to grow through the end of the 10-year planning period (3,200 aMW). PNUCC identifies a large amount of planned resources in the region, but because they have less certainty from a financial or regulatory standpoint, they therefore are not included in the forecast.

The region’s premier planning body, the Northwest Power and Conservation Council, evaluated the adequacy of the Northwest electric power supply in 2020 and concluded that resources are not expected to meet its adequacy standard after 2020. Resources are considered adequate when the loss-of-load probability (LOLP) is less than 5 percent. However, with the planned retirements of Boardman and Centralia 1 at the end of 2020, the LOLP will reach of 7.5 percent in 2021 and will no longer meet the Power Council’s adequacy standard. The retirement of the Hardin coal-fired power plant and the Klamath Hydro facility in 2021 were forecast to raise

the LOLP to 8.2 percent by 2024. The Council noted that other power plant retirements announced for later in the decade would raise the LOLP value further if replacement resources are not brought on line in a timely manner.

Introduction

Background

Washington consumers and businesses depend on electricity service from one or more of over 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.[1] Each utility must prepare a report every two years and submit it to the Department of Commerce. Commerce reviews the utility reports and submits a summary to the Legislature. This is the seventh 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[2] resources and is primarily provided by utilities having only one or two suppliers of power resources (usually, the Bonneville Power Administration and, perhaps, market power). The IRP is more complex plan and must incorporate a number of specific requirements identified in statute. IRPs are generally required for utilities with 25,000 or more customers.

Purpose of this Report

Utilities develop resource plans to assess their specific 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 2020 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, and this will be identified.

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

[1] Chapter 19.280 Revised Code of Washington, Electric Utility Resource Plans. http://app.leg.wa.gov/RCW/default.aspx?cite=19.280
[2] 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.

Energy Independence Act (Chapter 19.285 RCW) or the Clean Energy Transformation Act (Chapter 19.405 RCW).

Utility Resource Planning

Background

The utility resource planning statutes (Chapter 19.280 RCW[3]) 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 a single supplier to supply all of the power required by their customers. For smaller utilities, the upstream provider – often the Bonneville Power Administration but sometimes another electric utility – 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, a five-year plan and a 10-year plan. In 2020, most utilities used 2019 as the base-year, and the five-year and 10-year points are 2024 and 2029, 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 2016 to 2020. For purposes of the statewide summary, Commerce aggregates all base-year data into a single value (2019) and does likewise for the five-year (2024) data and 10-year data (2029).

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 both different generating resources – such as wind and natural gas – and demand-side resources in the form of energy conservation. With conservation analyzed as resource and compared to supply-side options, utilities are able to determine whether customers are better served by improving the efficiency of their energy consumption or increasing the amount of energy delivered to them.

A consequence of this approach is that energy conservation is sometimes portrayed as a reduction in the utility's load and sometimes portrayed as a resource available to meet load. This can lead to confusion in interpreting utility plans.

[3] http://apps.leg.wa.gov/rcw/default.aspx?cite=19.280

Here is how this potential confusion is resolved in the reports submitted to Commerce and summarized in this document:

> 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, Clark Public Utilities reports that its load in 2019 (base year) was 531 average megawatts (aMW).[4] This figure represents the actual load of its customers in the base-year. It reflects many years of conservation programs at Clark Public Utilities and would be significantly higher without those historical conservation achievements. For the five-year interval (2024), Clark forecasts a load of 564 aMW and conservation savings of 26 aMW. The first number represents the load that Clark would expect if it achieved no conservation savings after the base-year. Without conservation, its load would increase by 33 aMW, but with conservation the forecast load increase is only 7 aMW for an adjusted total load of 538 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.

Summary of Utility Report Data

The 2020 resource plans submitted to Commerce are summarized in Table 1 through Table 5 and Figures 1 and 3 of this report.

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 (2019), 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.

A few points of interest in the table should be noted. First the large export value noted in the base-year for the 2018 utility resource report, is not seen in the 2020 report. The 2020 report shows a diminished contribution from coal-fired electricity generation in the forecast and an increased reliance on natural gas-fired generation.[5] Finally, the 2020 Resource Plan report shows that short and long-term contracts make a smaller contribution to total resources in the base year, but are forecast to make larger contributions in the five and 10-year forecasts than was seen in the 2018 utility resource report.

Washington utilities experience peak load events during the winter months. Table 2 presents utility report information for utility winter requirements and resources expressed in MW of capacity,[6] including imports and exports, for the base-year (2019), and the five and 10-year forecasts. Because electricity demand tends to be higher during the winter period, utilities rely more extensively on dispatchable thermal resources and short-term contracts to meet load. Demand response is also an important resource during the winter, as this reduces

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[4] 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.
[5] The Clean Energy Transformation Act prohibits use of coal-fired generation to serve Washington retail loads after 2025. PacifiCorp and Puget Sound Energy continue to report planned use of coal after 2025. This result is presumably because these utilities' most recent integrated resource plans were prepared before CETA was enacted in 2019.
[6] Table 1 expressed in energy units of aMW, Table 2 in capacity units of MW.

the need for utilities to make market purchases during periods of very high demand. Windpower and BPA resources generally provide less electricity and capacity during the winter season.

Table 3 presents a time series of Commerce Utility Resource Plans. The information in the table is aggregated annual utility loads (base-year, five-year and 10-year) for the 2008 through 2020 Commerce reports. The forecast loads do not include energy conservation/efficiency forecast by utilities. Figure 1 presents the information in Table 3 in a graphical format. Table 4 and Figure 2 present the aggregated annual utility loads (base-year, five-year and 10-year) and include energy conservation/efficiency forecast by utilities.

Tables 3 and 4 and Figures 1 and 2 illustrate several key points. First, while the base-year aggregate utility load has remained in a narrow band over the period of 2008 through 2020, load growth forecasts by utilities for the five and 10-year out points have been trending down with each successive Commerce Utility Resource Plan report. Second, by comparing Figures 1 and 2 it is evident that utility conservation/efficiency programs significantly reduce aggregate load growth.

Third, a comparison to the 10-year aggregate load forecast published in the 2010 Commerce Utility Resource Plan report reveals that the most recent actual loads are less than the amounts forecast a decade ago. There are likely two primary reasons for this: the deep recession of 2007-09, and the subsequent slow recovery, tempered both residential and commercial growth, thereby reducing demand for electricity for several years; and Washington utilities have acquired more energy conservation/efficiency than they forecast over the previous decade.

Table 5 presents the individual utility growth forecasts and the percent of load growth anticipated to be meet by conservation/efficiency. Of note in this table is that several utilities with surplus generating capacity and very inexpensive electricity (Chelan, Douglas and Grant PUDs) are forecasting very high load growth rates over the next 10 years. The growth is the result of industrial growth and server farms locating within these service territories to access the inexpensive electricity. Several utilities (Avista, Benton PUD, Tacoma Power, Seattle City Light, PacifiCorp and Puget Sound Energy) are forecasting conservation/efficiency that exceeds forecast load growth.

Figure 3 illustrates the resources that utilities forecast they will use to serve load for five and 10 years from now.[7] The BPA resource is a blended resource and is typically 87 percent hydropower, 10 percent nuclear, and 3 percent market purchases. Figure 3 reveals that hydropower will remain the dominant source of electric for Washington utilities.

The current round of utility resource plans indicates a continued reliance on energy conservation as the primary resource for balancing electricity supply and demand. The statewide aggregate growth in electricity demand is expected to be moderate, and most of this growth will be offset through energy conservation programs operated by utilities. Several utilities project that their 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 conservation programs, utilities are projecting minimal need to acquire additional generating supply resources. The additional resources will primarily be used to replace retiring coal-fired generation.

[7] The chart represents an average of the resources in the five-year and 10-year forecasts.

Table 1: Washington State Projected Requirements and Resources, Annual Energy, aMW

	Base year (2019)	Five Year Forecast	Ten Year Forecast	Five Year Forecast: versus base year	Ten Year Forecast: versus base year
Requirements					
Loads	10,307	10,775	11,372	468	1,064
Exports	333	257	191	(76)	(142)
Conservation	0	493	814	493	814
Total Net Requirements	**10,641**	**10,539**	**10,749**	**(101)**	**108**
Resources					
Hydro	3,060	3,189	3,360	129	300
BPA total	4,417	4,280	4,404	(137)	(13)
Wind	519	675	578	156	59
Other Renewables	82	154	281	72	199
Thermal Natural Gas	2,086	1,888	1,743	(198)	(343)
Cogeneration	13	15	4	3	(8)
Thermal Coal	977	683	469	(294)	(508)
Other	(6)	(6)	6	0	12
Undecided	0	12	26	12	26
Imports	165	54	57	53.5	57.1
Demand Response	0	10	10	10.0	10.0
Distributed Generation	3	7	14	4	11
Net Short Term Contracts	246	321	335		
Net Long Term Contracts	527	499	94	(28)	(433)
Market Purchase	12	34	43	22	30
Total Resources	**12,100**	**11,816**	**11,424**	**(284)**	**(676)**
Load Resource Surplus	1,459	1,277	675	(182.9)	(784.2)

Table 2: Washington State Projected Requirements and Resources, Winter Capacity, MW

	Base year (2019)	Five Year Forecast	Ten Year Forecast	Five Year Forecast: vs base year	Ten Year Forecast: vs base year
Requirements					
Loads	13,234	13,836	14,620	602	1,386
Exports	145	122	84	(23)	(61)
Demand Response	0	119	176	119	176
Conservation	0	615	975	615	975
Total Net Requirements	**13,379**	**13,224**	**13,553**	**(155)**	**174**
Resources					
Hydro	3,816	4,386	4,743	569	926
BPA total	3,388	3,557	3,874	169	486
Wind	383	374	351	(9)	(32)
Other Renewables	56	71	139	15	83
Thermal Natural Gas	3,186	3,137	3,070	(49)	(117)
Cogeneration	12	13	2	1	(10)
Thermal Coal	1,240	878	602	(362)	(638)
Other	12	12	69	(0)	57
Undecided	0	0	0	0	0
Imports	463	329	322	(134)	(141)
Distributed Generation	1	2	4	2	4
Net Short Term Contracts	2,562	2,088	2,253	(473)	(308)
Net Long Term Contracts	599	474	77	(125)	(522)
Market Purchase	0	0	0	0	0
Total Resources	**15,717**	**15,321**	**15,506**	**(396)**	**(211)**
Load Resource Balance	2,338	2,097	1,953	(241.1)	(385.3)

Note: Winter capacity (MW) results reflect only utilities submitting integrated resource plans. Utilities submitting integrated resource plans represent about 87 percent of state load (aMW). Smaller utilities submit resource plans and do not report seasonal capacity requirements or resources.

Table 3: Utility Report Time Series Base-year and Forecast Loads Without Conservation/Efficiency

Utility Report Year	Base Year	Base Year, aMW	Five Year Est.	Five Year Est. aMW	Ten Year Est.	Ten 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

Figure 1: Utility Report Time Series Base-year and Forecast Loads

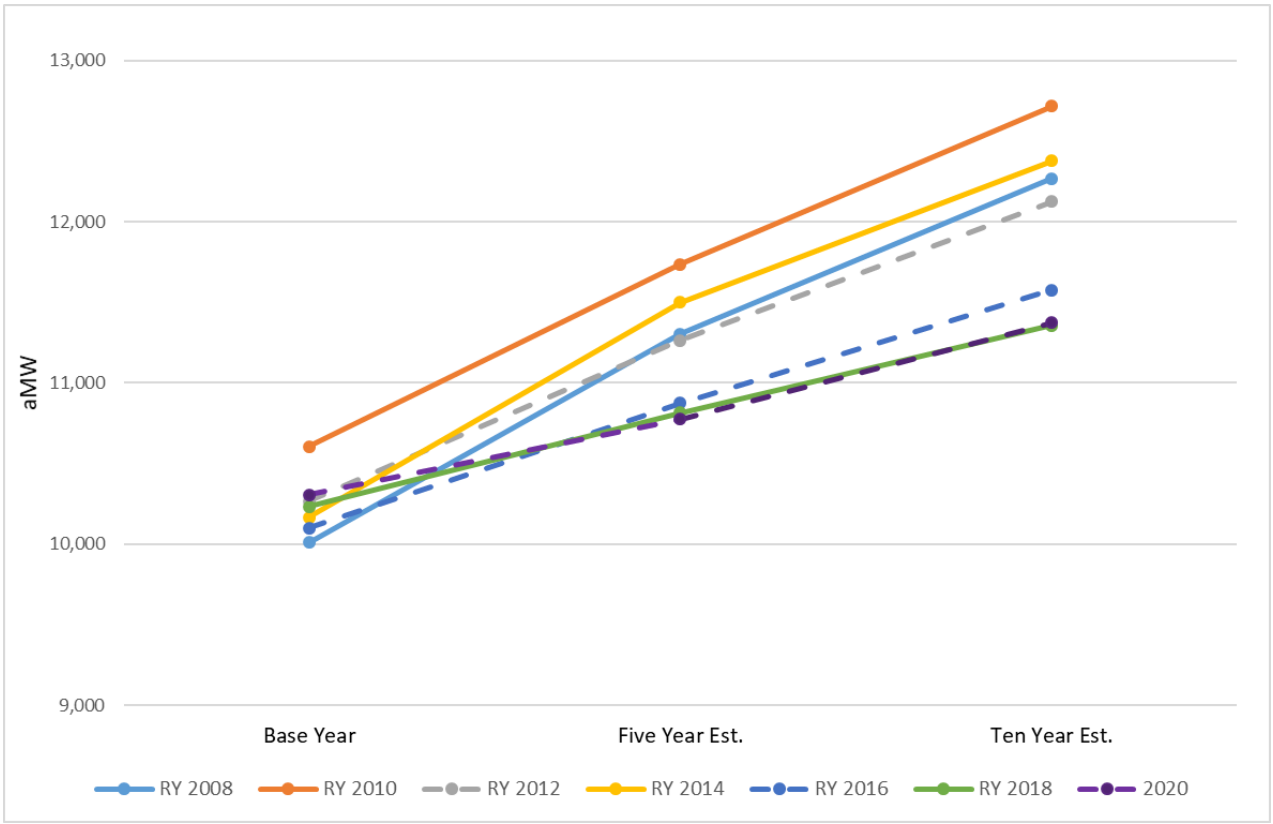


Table 4: Utility Report Time Series Base-year and Forecast Loads With Conservation/Efficiency Forecast Loads

Utility Report Year	Base Year	Base Year, aMW	Five Year Est.	Five-Yr Est. aMW	Ten Year Est.	Ten-Yr 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

Figure 2. Utility Report Time Series Base-year and Forecast Loads With Conservation/Efficiency

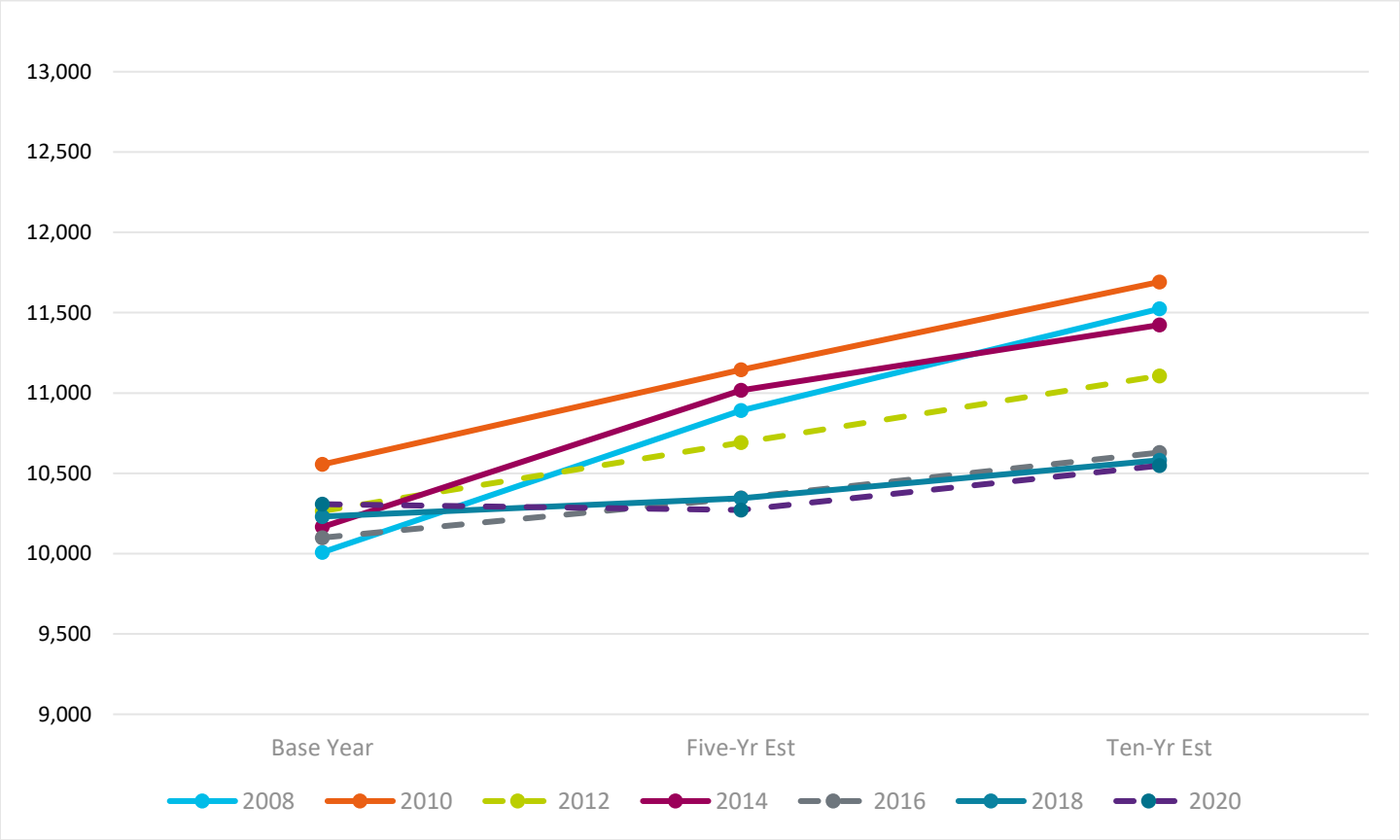
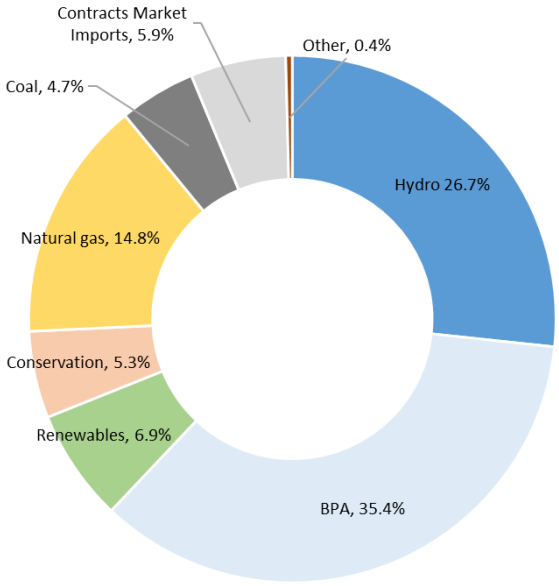


Table 5: Individual Utility Load Forecasts with and without Conservation

	Load Growth with No Conservation		Percent of Load Growth Met by Conservation	
Utility Name	**Five Yr Change %**	**Ten Year Change %**	**Five Yr Conservation**	**Ten Yr Conservation**
Alder Mutual Light Company	10.3%	15.4%	1.7%	1.1%
Asotin County PUD No. 1	1.6%	3.2%	0.0%	0.0%
Avista	2.9%	3.1%	69.5%	166.8%
Benton County PUD No. 1	1.8%	3.4%	147.2%	161.7%
Benton Rural Electric Assn	7.1%	15.3%	0.0%	0.0%
Big Bend Electric Cooperative	3.1%	5.7%	19.0%	10.5%
Blaine, City of	1.5%	2.2%	69.4%	49.0%
Centralia, City of	6.6%	6.6%	0.0%	0.0%
Chelan County PUD No.1	16.1%	21.1%	28.8%	38.5%
Cheney, City of	2.8%	2.8%	15.8%	15.8%
Chewelah, City of	8.7%	9.9%	13.3%	11.7%
Clallam County PUD No. 1	0.7%	1.6%	703.8%	596.8%
Clark Public Utilities	6.2%	11.7%	78.8%	66.1%
Columbia REA	1.4%	4.8%	0.0%	0.0%
Consolidated Irrigation District No. 19	-12.0%	-8.2%	NA	NA
Coulee Dam, Town of	-4.4%	-2.9%	NA	NA
Cowlitz County PUD No. 1	-23.9%	-24.2%	NA	NA
Douglas County PUD No, 1	18.9%	38.0%	3.9%	1.9%
Eatonville, Town of	4.7%	5.4%	0.0%	0.0%
Ellensburg, City of	0.9%	2.4%	58.3%	22.7%
Elmhurst Mutual Power and Light Company	2.3%	3.7%	28.8%	17.8%
Ferry County PUD	9.3%	10.9%	3.9%	3.4%
Franklin County PUD No. 1	10.0%	16.5%	43.5%	56.1%
Grant County PUD No. 2	28.5%	61.3%	2.0%	0.5%
Grays Harbor County PUD No. 1	-8.7%	-8.7%	NA	NA
Inland Power and Light	2.9%	6.7%	21.9%	12.5%
Jefferson County PUD No. 1	2.9%	4.9%	5.4%	3.2%
Kittitas County PUD No. 1	4.4%	6.8%	36.7%	40.2%
Klickitat County PUD No. 1	-4.8%	-0.7%	NA	NA
Lakeview Power and Light	3.3%	5.8%	5.1%	2.9%
Lewis County PUD No. 1	-0.5%	5.7%	NA	139.2%
Mason County PUD No. 1	10.6%	12.5%	3.0%	2.6%
Mason County PUD No. 3	6.3%	28.0%	6.9%	2.1%
McCleary, City of	11.1%	16.7%	3.3%	2.2%
Milton, City of	5.6%	5.4%	5.5%	5.6%
Modern Electric	2.2%	5.3%	30.5%	12.6%
Nespelem Valley Electric Cooprative	16.6%	15.6%	0.8%	0.9%
Ohop Mutual Light Company	-2.7%	-2.8%	NA	NA
Okanogan County Electric Cooperative	-3.1%	-3.7%	NA	NA
Okanogan County PUD No. 1	3.8%	6.4%	0.0%	0.0%

	Load Growth with No Conservation		Percent of Load Growth Met by Conservation	
Orcas Power and Light Cooperative	-2.4%	-2.4%	NA	NA
Pacific County PUD No. 2	2.2%	3.9%	64.9%	71.9%
Pacific Power and Light (PacifiCorp)	6.1%	10.7%	122.1%	111.2%
Parkland Light and Water Company	1.3%	2.2%	41.2%	24.1%
Pend Oreille PUD	-67.1%	-65.4%	0.0%	0.0%
Peninsula Light	-1.6%	0.9%	NA	307.7%
Port Angeles, City of	78.4%	78.4%	1.2%	1.2%
Puget Sound Energy	6.8%	13.2%	130.6%	100.0%
Richland, City of	6.4%	15.1%	60.0%	57.2%
Ruston, Town of	4.4%	4.4%	0.0%	0.0%
Seattle City Light	1.6%	3.4%	299.5%	246.7%
Seattle, Port of	3.8%	3.8%	30.2%	30.2%
Skamania County PUD No. 1	-6.8%	-6.9%	NA	NA
Snohomish County PUD No. 1	7.0%	10.6%	66.2%	86.7%
Steilacoom, Town of	4.1%	6.5%	11.1%	6.9%
Sumas, City of	7.2%	5.8%	1.9%	2.3%
Tacoma Power	3.0%	3.0%	79.4%	159.2%
Tanner Electric	1.9%	4.3%	23.8%	10.4%
Vera Water and Power	3.5%	5.0%	17.4%	11.9%
Wahkiakum County PUD No. 1	0.2%	0.2%	300.0%	300.0%
Whatcom County PUD No. 1	66.0%	141.4%	0.3%	0.2%
Kalispel Tribal Utilties	17.0%	24.8%	0.0%	0.0%
State level forecast	4.5%	10.3%	105%	76%

Figure 3: Forecast Available Resources



Comparison to Regional Plans

PNUCC 2020 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.[8]

The *2020 Northwest Regional Forecast* (through 2030) noted the continuation and acceleration of four themes from previous regional forecast reports.

- The increasing number of carbon reduction policies being deployed at the state and utility level.
- An accelerated rate of retirement of coal-fired power plants in the Northwest.
- The increase in committed and planned renewable energy projects, often combined with battery storage.
- Continued robust energy efficiency acquisition efforts by Northwest utilities.

The report concluded that regional utilities are expecting only modest growth in retail loads through the forecast period, in large part due to energy efficiency programs, as well as energy codes and standards. Also noted is that the forecast growth in winter peak demand is flattening, while the summer peak demand growth is remaining steady.

[8] *Northwest Regional Forecast of Power Loads and Resources*, April 2020. www.pnucc.org/system-planning/northwest-regional-forecast. The PNUCC report provides considerably more detail on individual generating units than utilities submit through the state resource plan reporting requirements.

PNUCC highlights winter-peaking requirements as a continuing concern. The region's projected peak demand, including a planning margin that increases over time, is projected to exceed utilities' firm resources in every year of the planning period. The supply of winter 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.

The compiled results from PNUCC indicate that, on an annual energy basis, the Northwest utilities collectively expect to have surplus energy resources for the 2021-23 operating years. The regional forecast shows an energy deficit starting in 2024 (283 aMW) and continuing to grow through the end of the 10-year planning period (3,200 aMW). Much of the deficit is the result of the planned retirement of seven coal-fired generating units representing 2,351 MW of capacity: Boardman and Centralia Unit 1 in 2020, North Valmy 1 in 2021, Jim Bridger 1 in 2023, Valmy 2 and Centralia Unit 2 in 2025, and Bridger 2 in 2028. In addition over 2000 MW of coal fired generating capacity in the NW retired in late 2019. PNUCC also notes that additional retirement of coal-fired generating units in the broader Western Intertie over the next decade is likely.

According to PNUCC, Northwest utilities made capacity additions of 58 MW in 2019 and are committed to additions of nearly 1,400 MW of capacity during the 2020 through 2022 time frame - primarily wind, solar, contracts, battery and hydropower upgrade projects. PNUCC identifies a larger amount of planned resources in the region, but because they have less certainty from a financial or regulatory standpoint, and therefore they are not included in the forecast. Planned resources through 2029 are estimated at over 6,000 MW of capacity and include 200 MW of wind and 2000 MW of solar capacity with battery storage, as well as over 1,000 MW of dispatchable resources (for peak demand).

Pacific Northwest Power Supply Adequacy Assessment for 2024

The region's power planning body, the Northwest Power and Conservation Council (Power Council), evaluated the adequacy of the electric power supply in 2020 and concluded that resources are not expected to be adequate after 2020. Resources are considered adequate when the loss-of-load probability (LOLP) is less than 5 percent.[9] However, with the planned retirements of Boardman and Centralia 1 at the end of 2020, the LOLP will reach of 7.5 percent in 2021 and will no longer meet the Power Council's adequacy standard.

The retirement unit 1 of the North Valmy coal-fired power plant and the Klamath River Hydroelectric Project in 2021 were forecast to raise the LOLP to 8.2 percent for 2024. However, after the publication of the Power Council's 2024 report, PacifiCorp announced that it was considering early retirement dates of two generation units of the Jim Bridger power plant: moving unit 1 retirement from 2028 to 2023 and unit 2 from 2032 to 2028. This possible change to retirement schedules raises the forecast LOLP for 2024 to 12.8 percent and the 2026 LOLP from 17 to 26 percent. The update to the report noted the potential for over 1,700 MW of additional coal-fired generation retirements by 2028. For the medium growth forecast and medium import power scenario (2500 MW) an additional 800 MW of capacity will have to be acquired to maintain the LOLP 5 percent standard in 2024.[10] The report also noted that if additional imported power was available for the Northwest the capacity addition requirements would be lower.

Like the PNUCC report, the Power Council notes that the Pacific Northwest is a winter peaking region, and that a resource shortfall exists and is likely to occur during November, December, January and February. They also

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[9] A LOLP above 5 percent should not be interpreted to mean that actual curtailments will occur. Rather, it means that the likelihood of utilities having to take extraordinary and costly measures to provide continuous service exceeds the tolerance for such events. The analyses to determine LOLP are somewhat conservative.

[10] *Pacific Northwest Power Supply Adequacy Assessment for 2024*, October 31, 2020, Document 2019-11. https://www.nwcouncil.org/sites/default/files/2024%20RA%20Assessment%20Final-2019-10-31.pdf

noted that many utilities are developing notable summer demand peaks and that the region will begin to see a higher likelihood of summer shortfalls within the next 10 years.

Overgeneration Concerns

In 2013, the Legislature amended the resource planning statute to address concerns about the potential for "overgeneration" events.[11] 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, can also referred to as oversupply, and the consequence is generation curtailment. It might occur when high river flows and high wind volumes coincide. 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 rare and short-lived circumstances, the regional power system may have more electric generation from hydroelectric and wind resources than what is required to meet regional loads and export opportunities.

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.[12] 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 2018-2020 integrated resource plans to address overgeneration, or generation curtailment, as an issue separate from the more general assessment of generating resource alternatives. The prospect of overgeneration, and consequent generation curtailment, is one that contributes to an increasing interest among utilities in energy storage technologies, such as pumped storage and battery storage systems, a diversity of renewable generating resources, as well as flexible end use loads.

Here are excerpts illustrating utilities' analyses of the overgeneration and generation curtailment issue:

Grays Harbor (2020 IRP, p. 52):

> During spring months in the Northwest, hydroelectric resources produce significant amounts of energy from spring run-off. At the same time, windy spring conditions result in large quantities of wind energy available at the same time when demands for electricity are low. This oversupply of energy has been resolved in the past by generation curtailment, which can be highly contentious and disruptive. Pumped storage may become the energy storage solution of choice as more wind and solar is added to the balancing area and curtailments increase. During periods of high wind and high water, water is pumped to

[11] RCW 19.280.060: Department's duties—Report to the legislature. (wa.gov)
[12] www.bpa.gov/projects/initiatives/oversupply/Pages/default.aspx

a storage reservoir using wind energy to power the pumps. The water is then released through the hydroelectric facility once demand increases or there is less generation from renewable resources.

The cost-effectiveness of pumped storage is primarily determined by the price differential between heavy load hours (high demand) and low load hours (low demand) and the efficiency of the pumps and hydroelectric generators. As facilities become more efficient and require less energy, the cost-effectiveness increases. Pumped storage is a net consumer of energy in that it takes more energy to pump the water uphill than is recouped in the generation process when the water is released through the generator.

Grant Public Utilities (2018 IRP, p. 66 and 88):

The primary impact of California's increasing renewable goals is a reduction in the size of the potential export market for the Northwest— particularly during hydro runoff season (spring). This will increase the likelihood of oversupply and renewable curtailment.

Renewable generation is an important component of a low-carbon future; however a Renewables Portfolio Standard results in higher costs and higher carbon emissions than a policy that focuses directly on carbon. RPS policy has been successful at driving investment in renewables but ignores other measures, such as energy efficiency and coal displacement. RPS policy has unintended consequences, such as oversupply and negative wholesale electricity prices that create challenges for reinvestment in existing zero-carbon resources.

Clark PUD (2020 IRP, pp. 50-51):

The portfolios developed under the Core Policy scenarios span a wide range of renewable penetration, ranging from the 20% RPS (Reference Case) to 50% RPS. This wide range highlights how increasing penetrations of renewables will impact system operations in the Northwest region, and, in particular, the emerging role of renewable curtailment as a crucial tool to manage the variability of renewables at high penetrations.

PacifiCorp (2019 IRP, Vol. 1, pp. 66 & 236):

The EIM has produced significant monetary benefits ($736 million total footprint-wide benefits as of July 31, 2019), quantified in the following categories: (1) more efficient dispatch, both inter and intra-regional, by automating dispatch every 15 minutes and every five minutes within and across the EIM footprint; (2) reduced renewable energy curtailment by allowing balancing authority areas to export or reduce imports of renewable generation that would otherwise need to be curtailed; and (3) reduced need for flexibility reserves in all EIM balancing authority areas, also referred to as diversity benefits, which reduces cost by aggregating load, wind, and solar variability and forecast errors of the EIM footprint.

As detailed in Volume I, Chapter 7 (Modeling and Portfolio Evaluation Approach), PacifiCorp identified that 620 MW of Wyoming wind resources added to each portfolio in the 2028-2029 timeframe, which coincides with the assumed retirement of Dave Johnston, were being curtailed at relatively significant levels—through 2038, capacity factors average 32 percent, down from the 43.6 percent assumed without curtailment. From 2029 through 2033 the level of curtailment is higher, with output falling below a 30 percent capacity factor.

Chelan PUD (2018 draft IRP, p. 13):

> Oversupply in the region continues to have a financial impact to utilities. In spite of the Northwest seeing a rapid end to the wind fleet buildout as many financial incentives are ending, regional policies, California markets and solar energy continue to create oversupply conditions throughout the Western Interconnect.
>
> For comparison, the spring runoff period (April-July) of 2016 had two day-ahead days with negative local prices, and 2017 had 35 days. In the hourly balancing or real-time market, 2016 had 23 hours with negative local prices, and 2017 had 368 hours. Snowpack and timing of spring runoff can impact the number of days and hours with oversupply and negative prices.
>
> As wind's intermittent nature can push a region into oversupply, behind-the-meter or unmetered solar (residential) and metered (utility-sized) solar continues to increase due to an exponential drop in solar panel cost and similar growth in solar panel output. Full solar output can just as easily push a region into oversupply as wind alone once did.
>
> In the Northwest, the BPA has developed new business practices that push the burden of oversupply back to the market and away from themselves. These new 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. The cancelling of transmission loss returns can add hundreds of megawatts to an already oversupplied period and drive prices even more negative.

Appendix A: Utility Resource Plan Reports

Alder Mutual Light	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	0.58	0.64	0.67
Resources:			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	0.58	0.64	0.67
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	0.58	0.64	0.67
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

PUBLIC UTILITY DISTRICT NO. 1 OF ASOTIN CO << Utility Name

Washington State Utility Resource Plan Year 2020

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	0.55	0.64	0.66
Resources:			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	0.55	0.64	0.66
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	0.55	0.64	0.66
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Avista Utilities

<<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: John Lyons

0.6564 Washington Production/Transmission Ratio

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	1,127.04	1,065.34	720.07	1,142.14	1,080.43	741.08	1,144.76	1,087.65	742.39
Exports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Resources:									
Future Conservation/Efficiency				27.21	21.21	14.64	63.31	53.65	37.24
Demand Response				0.00	0.00	0.00	0.00	0.00	0.00
Cogeneration	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro	777.18	679.37	378.74	728.60	688.56	354.46	720.73	673.47	347.89
Wind	0.00	0.00	26.91	0.00	0.00	56.45	0.00	0.00	56.45
Other Renewables	30.85	34.79	32.82	30.85	34.79	32.16	30.85	34.79	32.16
Thermal - Natural Gas	576.32	477.86	447.01	576.32	477.86	447.01	390.56	324.92	303.91
Thermal - Coal	145.72	145.72	135.22	145.72	145.72	135.22	0.00	0.00	0.00
Net Long Term Contracts	0.00	0.00	-30.27	14.17	14.69	15.75	14.17	14.69	15.75
Net Short Term Contracts	0.00	0.00	-69.13	0.00	0.00	0.00	0.00	0.00	0.00
BPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.26	0.04	0.00	0.26	0.04	0.00	0.26	0.04
Undecided	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Resources	1,530.07	1,338.01	921.35	1,522.87	1,383.10	1,055.73	1,219.61	1,101.77	793.45
Load Resource Balance	403.03	272.67	201.28	380.73	302.67	314.66	74.85	14.12	51.06

Date of Board/Commission Approval N/A* (mm/yy)

* The Washington Commission did not offcially review the 2020 IRP for acknowledgment, opting for an update while the rules for CETA are

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

2018 Notes: Loads are 1 in 2 expected valuyes and do not include any consideration of planning margin. Using the 90th percentile for hydro energy, rather than the critical water year. Load for the 2017 Base Year is actual load instead of weather adjusted load. The main cover sheet shows the Avista system, and WA share only cover sheet shows 65.35% to show the Washington only part of the system. The other category includes the Pullman Energy Storage Project.

Public Utility District No. 1 of Benton County <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Blake Scherer

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	354.30	407.70	213.20	292.90	426.10	216.95	296.10	428.00	220.39
Exports									
Resources:									
Future Conservation/Efficiency				8.45	8.45	5.51	18.26	18.26	11.63
Demand Response									
Cogeneration									
Hydro	4.00	1.00	0.91	2.00	2.00	2.00	2.00	2.00	2.00
Wind	1.00	0.09	3.71	0.00	0.00	5.00	0.00	0.00	2.00
Other Renewables									
Thermal - Natural Gas	0.00	50.00	29.45						
Thermal - Coal									
Net Long Term Contracts				25.00	75.00	18.90			
Net Short Term Contracts	105.30	77.61		5.45	42.65		23.84	109.74	4.55
BPA	244.00	279.00	210.53	252.00	298.00	200.21	252.00	298.00	200.21
Other									
Imports									
Distributed Generation									
Undecided									
Total Resources	354.30	407.70	244.60	292.90	426.10	231.63	296.10	428.00	220.39
Load Resource Balance	0.00	0.00	31.40	0.00	0.00	14.68	0.00	0.00	0.00

Date of Board/Commission Approval August-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

Benton Rural Electric Association	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	Steve Catlow

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	67.62	72.45	77.99
Resources:			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	59.35	59.34	59.34
BPA Tier 2	8.27	13.11	18.65
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	67.62	72.45	77.99
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Big Bend Electric Cooperative, Inc.

Washington State Utility Resource Plan Year 2020

Prepared by: Christina A Wyatt Manager of Power Supply

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	*2019*	*2024*	*2029*
Period	*Federal Fiscal*	*Federal Fiscal*	*Federal Fiscal*
Units	*(MWa)*	*(MWa)*	*(MWa)*
Loads	65.17	67.17	68.87
Resources:			
Future Conservation/Efficiency		0.38	0.39
Demand Response		0.00	0.00
BPA Tier 1 (include BPA PF)	60.21	58.37	58.00
BPA Tier 2	1.95	0.42	0.48
Non BPA:			
Co-generation	0.00		
Hydro (critical water)	0.00		
Wind	0.00		
Other Renewables	0.00		
Thermal-Natural Gas	0.00		
Thermal-Coal	0.00		
Market Purchase (non BPA)	3.00	8.00	10.00
Other	0.00		
Distributed Generation	0.00		
Undecided	0.00		
Total Resources	65.16	67.17	68.87
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval August-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in planning / Distributed Generation Sources

2019 loads are actual - no weather adjustments have been made.

See attached document:
2020 Washington State Electric Resource Plan for Big Bend Electric Cooperative

Approved by Big Bend Electric Cooperative's Board of Trustees on 8/27/2020

City of Blaine << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	9.42	9.56	9.62
Resources:			
Future Conservation/Efficiency		0.10	0.10
Demand Response			
BPA Tier 1 (include BPA PF)	9.42	8.34	8.34
BPA Tier 2		1.12	1.18
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	9.42	9.56	9.62
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

City of Centralia << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: **David L. Hayes, P.E.**

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2025	2030
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	30.70	32.74	32.74
Resources:			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	22.23	23.25	23.25
BPA Tier 2	0.18	0.17	0.12
Non BPA:			
Co-generation			
Hydro (critical water)	7.13	7.11	7.11
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	1.01	2.00	2.00
Other	0.11	0.12	0.12
Distributed Generation	0.04	0.09	0.14
Undecided			
Total Resources	30.70	32.74	32.74
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval August-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in

See City of Centralia 2020 ELECTRIC UTILITY RESOURCE PLAN UPDATE for details related to this plan.
Distributed Generation comes from rooftop solar installations.

Chelan PUD <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Becky Keating

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2025**			**2030**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	452.00	240.00	201.50	513.00	270.00	234.00	534.00	282.00	244.00
Exports									
Resources:									
Future Conservation/Efficiency				19.98	11.27	9.37	34.82	19.64	16.35
Demand Response									
Cogeneration									
Hydro	419.00	220.00	189.00	770.00	386.00	338.00	1,227.00	603.00	532.00
Wind	0.00	0.08	1.91	1.45	0.78	2.23	1.45	0.78	2.23
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA									
Other									
Imports									
Distributed Generation									
Undecided									
Total Resources	419.00	220.08	190.91	791.43	398.05	349.60	1,263.27	623.42	550.58
Load Resource Balance	-33.00	-19.92	-10.59	278.43	128.05	115.60	729.27	341.42	306.58

Date of Board/Commission Approval July-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

Appendix B in Chelan PUD's 2020 IRP includes this cover sheet with supplemental information on loads and resources.

City of Cheney << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	17.35	17.84	17.84
Resources:			
Future Conservation/Efficiency		0.08	0.08
Demand Response			
BPA Tier 1 (include BPA PF)	15.41	15.09	15.09
BPA Tier 2	0.19	0.67	0.67
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	1.75	2.00	2.00
Other			
Distributed Generation			
Undecided			
Total Resources	17.35	17.84	17.84
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

City of Chewelah << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	2.42	2.63	2.66
Resources:			
Future Conservation/Efficiency		0.03	0.03
Demand Response			
BPA Tier 1 (include BPA PF)	2.42	2.60	2.63
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	2.42	2.63	2.66
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

PUD #1 of Clallam County << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: Sean Worthington

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2018	2023	2028
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	76.40	76.93	77.65
Resources:			
Future Conservation/Efficiency		3.73	7.46
Demand Response			
BPA Tier 1 (include BPA PF)	73.73	72.52	69.52
BPA Tier 2	2.00	0.01	
Non BPA:			
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			
Total Resources	76.40	76.93	77.65
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval July-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in

Data is reported using the Federal fiscal year (October through September). The base year is 2018 weather normalized load. The 2023 and 2028 load forecasts are based on 2018 weather normalized actual load applied to BPA's AAGR of 0.3% 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 Portrfolio Standard throgh 2028

Clark Public Utilities <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Tom Haymaker

	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	976.00		531.00	1,024.00		564.00	1,084.00		593.00
Exports									
Resources:									
Future Conservation/Efficiency				48.00		26.00	55.00		41.00
Demand Response				30.00			59.00		
Cogeneration									
Hydro	1.00		1.00	1.00		1.00	1.00		1.00
Wind	0.00		18.00	0.00		18.00	0.00		0.00
Other Renewables	0.00		0.00	0.00		0.00	0.00		0.00
Thermal - Natural Gas	260.00		228.00	260.00		228.00	260.00		109.00
Thermal - Coal	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
Net Short Term Contracts	350.00		0.00	0.00		0.00	0.00		0.00
BPA	508.00		306.00	508.00		311.00	823.00		437.00
Other									
Imports									
Distributed Generation				0.00		2.00			5.00
Undecided									
Total Resources	1,119.00	0.00	553.00	847.00	0.00	586.00	1,198.00	0.00	593.00
Load Resource Balance	143.00	0.00	22.00	-177.00	0.00	22.00	114.00	0.00	0.00

Date of Board/Commission Approval August-20 (mm/yy)

COLUMBIA REA << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: JIM COOPER

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2020	2025	2030
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	43.91	44.52	46.02
Resources:			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	38.42	38.96	37.96
BPA Tier 2	0.63		
Non BPA:			
Co-generation			
Hydro (critical water)	0.95	1.35	1.35
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	3.91	4.21	6.71
Other			
Distributed Generation			
Undecided			
Total Resources	43.91	44.52	46.02
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval October-19 (mm/yy)

Consolidated Irrigation District	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	0.27	0.24	0.25
Resources:			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	0.27	0.23	0.24
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	0.27	0.24	0.25
Load Resource Balance	0.00	0.00	-0.01

Date of Board/Commission Approval (mm/yy)

Town of Coulee Dam	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	1.98	1.89	1.92
Resources:			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	1.98	1.88	1.91
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	1.98	1.89	1.92
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Cowlitz PUD <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: CRA

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	757.50	590.50	531.60	573.50	440.53	404.32	572.97	438.16	403.06
Exports									
Resources:									
Future Conservation/Efficiency						23.63			41.44
Demand Response									
Cogeneration									
Hydro	62.00	77.00	17.21	67.00	67.00	15.76	67.00	67.00	15.76
Wind	0.00	4.03	33.86	0.00	0.00	34.70	0.00	0.00	8.49
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts	163.00	66.00	99.18						
BPA	539.00	461.00	465.80	552.00	536.00	388.74	552.00	536.00	391.07
Other									
Imports									
Distributed Generation									
Undecided									
Total Resources	764.00	608.03	616.06	619.00	603.00	462.82	619.00	603.00	456.76
Load Resource Balance	6.50	17.53	84.46	45.50	162.47	58.50	46.04	164.84	53.70
	0.9%	2.9%	13.7%	7.9%	36.9%	14.5%	8.0%	37.6%	13.3%
Date of Board/Commission Approval			sufficient	23.32	sufficient		22.72	sufficient	
August-20				4.1%			4.0%		
				12.0%			12.0%		

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

Winter/Summer loads represent the absolute, 1-hour peak (MWh) while annual loads represent the average for the entire year (aMW). Historical load data is not weather adjusted. Conservation forecasts represent the cumulative forecast (aMW) as determined within the District's 2019 Conservation Potential Assessment report.

Net Short Term Contract category represents the within year purchases made to serve District loads and obligations.
Hydro category resources include Swift No. 2, Wanapum, and Priest Rapids resources.
Wind category represents White Creek, Harvest, and Nine Canyon resources.

Public Utility District No. 1 of Douglas County <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Jeff Johnson

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	239.00	179.00	135.10	275.40	196.30	160.60	310.50	226.90	186.50
Exports									
Resources:									
Future Conservation/Efficiency				1.00	1.00	1.00	1.00	1.00	1.00
Demand Response									
Cogeneration									
Hydro	327.00	188.00	181.60	352.00	222.00	204.00	418.00	407.00	280.00
Wind	10.00	10.00	2.29	10.00	10.00	2.60	10.00	10.00	2.60
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts	48.00	48.00	48.00	48.00	48.00	48.00	48.00	48.00	48.00
Net Short Term Contracts									
BPA									
Other									
Imports									
Distributed Generation									
Undecided									
Total Resources	385.00	246.00	231.89	411.00	281.00	255.60	477.00	466.00	331.60
Load Resource Balance	146.00	67.00	96.79	135.60	84.70	95.00	166.50	239.10	145.10

Date of Board/Commission Approval 9/24/2019 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

Note: The District updated and adopted its Integrated Resource Plan on September 24, 2019.

Town of Eatonville	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	3.16	3.31	3.33
Resources:			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	3.16	3.31	3.33
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	3.16	3.31	3.33
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

City of Ellensburg << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	24.65	24.88	25.24
Resources:			
Future Conservation/Efficiency		0.13	0.13
Demand Response			
BPA Tier 1 (include BPA PF)	24.65	22.88	22.88
BPA Tier 2		1.87	2.23
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	24.65	24.88	25.24
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Elmhurst Mutual Power and Light Co

<< Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	32.02	32.75	33.20
Resources:			
Future Conservation/Efficiency		0.21	0.21
Demand Response			
BPA Tier 1 (include BPA PF)	32.02	30.75	30.75
BPA Tier 2		1.79	2.24
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	32.02	32.75	33.20
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

PUBLIC UTILITY DISTRICT NO. 1 OF FERRY COU << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	8.20	8.96	9.09
Resources:			
Future Conservation/Efficiency		0.03	0.03
Demand Response			
BPA Tier 1 (include BPA PF)	8.20	8.93	9.06
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	8.20	8.96	9.09
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Franklin PUD <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by:

Richard Sargent

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	175.00	236.00	124.00	179.00	245.00	136.40	182.00	250.00	144.49
Exports									
Resources:									
Future Conservation/Efficiency				13.00	21.00	5.40	23.00	32.00	11.49
Demand Response									
Cogeneration									
Hydro			1.00	0.50	3.00	1.00	0.50	3.00	1.00
Wind	3.00	3.00	1.00	6.00	6.00	6.00	6.00	6.00	6.00
Other Renewables									
Thermal - Natural Gas		30.00	5.14						
Thermal - Coal									
Net Long Term Contracts					30.00	10.00		30.00	10.00
Net Short Term Contracts									
BPA	148.00	165.00	117.40	148.00	165.00	117.40	148.00	165.00	117.40
Other									
Imports	24.00	38.00		11.50	20.00	3.40	4.50	14.00	7.00
Distributed Generation									
Undecided									
Total Resources	175.00	236.00	124.54	179.00	245.00	143.20	182.00	250.00	152.89
Load Resource Balance	0.00	0.00	0.54	0.00	0.00	6.80	0.00	0.00	8.40

Date of Board/Commission Approval August-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

1) "Loads" for the 5, 10, 15 & 20 year Estimates are before new conservation and at the total system level. 2) Net Long term contracts include 30 MW summer capacity contract 3) Wind includes contracted wind with White Creeks wind and long term contract with Nine Canyon. 4) Imports reflect short term balancing purchases from the wholesale market to balance Distrct loads; 5) BPA reflects the current contract with BPA for the Block/Slice and assumes continued BPA purchases in future contract; 6) Hydro reflects Esquatzel Canal long term contract

Public Utility District No. 2 of Grant County <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Mike Frantz

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	772.41	810.43	598.09	967.88	1,069.73	768.74	1,229.95	1,342.51	964.76
Exports									
Resources:									
Future Conservation/Efficiency						3.40			1.80
Demand Response									
Cogeneration									
Hydro	764.45	707.15	551.17	885.38	827.12	642.65	885.38	819.42	642.33
Wind			3.24			3.24			3.24
Other Renewables	0.00	10.13	6.05	0.00	10.13	6.05	66.67	176.79	106.05
Thermal - Natural Gas							120.00	345.00	100.00
Thermal - Coal									
Net Long Term Contracts	104.00	89.00	79.57						
Net Short Term Contracts	210.00	257.80	212.59	301.55	458.59	320.63	345.37	400.63	319.58
BPA	6.38	5.50	5.25	6.38	5.50	5.25	6.38	5.50	5.25
Other									
Imports									
Distributed Generation									
Undecided									
Total Resources	1,084.82	1,069.57	857.88	1,193.30	1,301.34	981.22	1,423.79	1,747.35	1,178.24
Load Resource Balance	312.42	259.14	259.78	225.42	231.61	212.48	193.84	404.84	213.48

Date of Board/Commission Approval (mm/yy)

Grays Harbor PUD <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Linda James-Saffron

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	230.00	125.00	115.00	230.00	105.00	105.00	230.00	115.00	105.00
Exports									
Resources:									
Future Conservation/Efficiency						5.35			10.98
Demand Response									
Cogeneration	11.00	11.00	11.00	11.00	11.00	11.00			
Hydro									
Wind	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00	26.00
Other Renewables									
Thermal - Natural Gas	45.00	45.00	45.00						
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA	162.00	162.00	162.00	160.00	160.00	160.00	160.00	160.00	160.00
Other									
Imports									
Distributed Generation									
Undecided									
Total Resources	244.00	244.00	244.00	197.00	197.00	202.35	186.00	186.00	196.98
Load Resource Balance	14.00	119.00	129.00	-33.00	92.00	97.35	-44.00	71.00	91.98

Date of Board/Commission Approval July-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

Line 23: The 2029 BPA is an assumption that we will purchase a similar product to the current Slice/Regional Dialogue contract. The current contract expires in September 30, 2028.

Inland Power and Light Co

<< Utility Name

Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	116.18	119.60	123.92
Resources:			
Future Conservation/Efficiency		0.75	0.97
Demand Response			
BPA Tier 1 (include BPA PF)	109.43	100.06	100.06
BPA Tier 2	5.49	0.80	0.89
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	1.26	18.00	22.00
Other			
Distributed Generation			
Undecided			
Total Resources	116.18	119.60	123.92
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

PUBLIC UTILITY DISTRICT NO. 1 OF JEFFERSOI << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2028
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	44.71	46.01	46.91
Resources:			
Future Conservation/Efficiency		0.07	0.07
Demand Response			
BPA Tier 1 (include BPA PF)	44.71	43.09	43.09
BPA Tier 2		2.85	3.75
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	44.71	46.01	46.91
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Kalispel Tribal Utilties << Utility Name

Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	3.31	3.88	4.14
Resources:			
Future Conservation/Efficiency		0.00	0.00
Demand Response			
BPA Tier 1 (include BPA PF)	3.31	3.88	4.14
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	3.31	3.88	4.14
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Kittitas County PUD No. 1	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	EES Consulting

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	12.86	13.42	13.74
Resources:			
Future Conservation/Efficiency		0.21	0.35
Demand Response		0.00	0.00
BPA Tier 1 (include BPA PF)	10.99	9.26	9.26
BPA Tier 2	0.60	2.33	2.39
Non BPA:			
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	0.29	0.65	0.76
Undecided			
Total Resources	12.86	13.42	13.74
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval August-20 (mm/yy)

Klickitat County PUD #1	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by: Mike DeMott	

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	51.97	49.50	51.60
Resources:			
Future Conservation/Efficiency		0.19	0.26
Demand Response		0.00	0.00
BPA Tier 1 (include BPA PF)	36.11	34.97	34.97
BPA Tier 2	4.44	0.92	0.95
Non BPA:			
Co-generation			
Hydro (critical water)	4.42	4.42	4.42
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	7.00	9.00	11.00
Other			
Distributed Generation			
Undecided			
Total Resources	51.97	49.50	51.60
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Lakeview Light and Power Co << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	30.11	31.10	31.86
Resources:			
Future Conservation/Efficiency		0.05	0.05
Demand Response			
BPA Tier 1 (include BPA PF)	30.11	31.05	31.81
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	30.11	31.10	31.86
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Lewis County PUD 1 <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Matt Samuelson

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	239.00	127.00	108.76	219.21	124.14	108.17	245.57	130.81	114.98
Exports									
Resources:									
Future Conservation/Efficiency				7.00	5.60	3.87	15.65	12.52	8.65
Demand Response									
Cogeneration									
Hydro	5.12	4.52	1.19	5.12	4.52	1.19	5.12	4.52	1.19
Wind	1.50	1.50	1.50	1.30	1.30	1.30	1.30	1.30	1.30
Other Renewables									
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA	142.00	114.00	117.62	188.00	166.00	121.58	188.00	166.00	120.31
Other									
Imports									
Distributed Generation									
Undecided									
Total Resources	148.62	120.02	120.31	201.42	177.42	127.94	210.07	184.34	131.46
Load Resource Balance	-90.38	-6.98	11.55	-17.79	53.28	19.77	-35.50	53.53	16.48

Date of Board/Commission Approval September-20 (mm/yy)

Mason County Public Utility District No. 1	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	**Katie Arnold**

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	*2019*	*2024*	*2029*
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	9.30	10.29	10.46
Resources:			
Future Conservation/Efficiency		0.03	0.03
Demand Response			
BPA Tier 1 (include BPA PF)	8.83	8.57	8.57
BPA Tier 2		1.15	1.32
Non BPA:			
Co-generation			
Hydro (critical water)	0.47	0.54	0.54
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	9.30	10.29	10.46
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval August-20 (mm/yy)

Mason PUD 3

Washington State Utility Resource Plan Year 2020

Prepared by: Michele Patterson

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2018	2023	2028
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	77.53	82.44	99.25
Resources:			
Future Conservation/Efficiency		0.34	0.45
Demand Response			
BPA Tier 1 (include BPA PF)	74.21	79.69	79.31
BPA Tier 2	0.25		18.00
Non BPA:			
Co-generation			
Hydro (critical water)	1.11	0.66	0.66
Wind	1.94	1.73	0.81
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation	0.02	0.02	0.02
Undecided			
Total Resources	77.53	82.44	99.25
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval September-20 (mm/yy)

Notes:

Based on federal fiscal year to align with BPA.
Line 9: Actual base year load. *Line 14:*
Contract election for BPA's short term Tier 2 product was made through BPA FY2024. The final contract election (for FY25-28) must be made by 9/30/21. It is assumed that the same election will be declared for the 10-year estimate.
Lines 17 & 18: Actual amounts were used for the base year and the Specified Resource amounts as listed in the BPA Power Sales Agreement were used for the hydro and wind resource estimates.
Line 24: Mason PUD 3's Distribution Generation source is solar.

City of McCleary << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	3.582	3.98	4.18
Resources:			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	3.58	3.97	4.17
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	3.58	3.98	4.18
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

City of Milton << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2028
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	6.545	6.91	6.90
Resources:			
Future Conservation/Efficiency		0.02	0.02
Demand Response			
BPA Tier 1 (include BPA PF)	6.54	6.89	6.88
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	6.54	6.91	6.90
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Modern Electric Water Co << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	27.01	27.60	28.44
Resources:			
Future Conservation/Efficiency		0.18	0.18
Demand Response			
BPA Tier 1 (include BPA PF)	26.59	25.07	25.07
BPA Tier 2	0.42	2.34	3.18
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	27.01	27.60	28.44
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Nespelem Valley Electric Cooperation Inc << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	7.25	8.45	8.38
Resources:			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	7.25	5.60	5.60
BPA Tier 2		2.84	2.77
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	7.25	8.45	8.38
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Ohop Mutual Light Co

<< Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	10.08	9.81	9.80
Resources:			
Future Conservation/Efficiency		0.02	0.02
Demand Response			
BPA Tier 1 (include BPA PF)	10.08	9.79	9.78
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	10.08	9.81	9.80
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Okanogan County Electric Cooperative	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	**Greg Mendonca - PNGC Power**

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2018	2023	2028
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	7.12	6.88	6.83
Resources:			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	6.91	6.49	6.49
BPA Tier 2	0.12	0.38	0.34
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	0.09		
Other			
Distributed Generation			
Undecided			
Total Resources	7.12	6.87	6.83
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

PUD No. 1 of Okanogan County << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: Ron Gadeberg

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	72.13	74.88	76.77
Resources:			
Future Conservation/Efficiency		0.00	0.00
Demand Response		0.00	0.00
BPA Tier 1 (include BPA PF)	48.82	45.68	45.68
BPA Tier 2	0.00	0.00	0.00
Non BPA:			
Co-generation	0.00	0.00	0.00
Hydro (critical water)	33.77	29.36	31.15
Wind	3.69	4.40	4.40
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	0.00	0.00	0.00
Undecided			
Total Resources	86.28	79.44	81.23
Load Resource Balance	14.15	4.56	4.46

Date of Board/Commission Approval September-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in planni

Loads: Used Actual 2019 Loads at POD. Used Actual 2019 Resources at POD. Forecasted Resources: BPA based on Block Slice contract (Block only 45.68MWa) Hydro Based on Critical Wells Project (9.8%-2024 and 10.4%-2029 net of output, increased critical amount by load growth for projection. BPA projection based n Block only product.

Orcas Power & Light << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: Greg Mendonca - PNGC Power

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2018	2023	2028
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	25.25	24.55	24.55
Resources:			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	24.75	24.48	24.48
BPA Tier 2	0.28		
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables		0.07	0.07
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	0.22		
Other			
Distributed Generation			
Undecided			
Total Resources	25.25	24.55	24.55
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in

Other Renewables = Solar Project

PacifiCorp <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by:

	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	743.56	719.52	521.94	782.52	816.11	553.77	812.62	856.39	577.69
Exports	27.37	61.75	21.89	18.92	17.09	11.59	12.88	11.69	6.00
Resources:									
Future Conservation/Efficiency				43.99	47.68	38.86	71.63	75.11	62.00
Demand Response				0.00	26.94	0.10	0.00	38.00	0.10
Cogeneration									
Hydro	64.59	52.84	40.03	60.22	49.27	30.02	60.57	48.96	30.27
Wind	173.53	65.31	66.89	153.64	103.28	167.22	169.47	95.07	189.02
Other Renewables	25.01	81.57	31.77	40.09	118.11	91.21	41.09	102.25	108.92
Thermal - Natural Gas	244.20	214.26	185.51	239.81	213.13	67.40	237.94	210.44	83.74
Thermal - Coal	436.37	393.11	233.94	372.21	339.82	213.63	241.75	220.24	135.14
Net Long Term Contracts	41.85	2.07	6.43	0.00	0.00	0.00	0.00	0.00	0.00
Net Short Term Contracts	11.30	55.76	3.15	4.31	9.76	0.64	21.23	99.27	10.64
BPA									
Other	11.76	10.58	-5.76	11.56	10.54	-5.65	62.95	54.35	0.11
Imports	19.20	16.25	2.64	9.55	8.69	0.10	9.66	8.77	0.10
Distributed Generation	0.05	5.01	2.12	0.27	7.67	3.37	0.71	13.35	6.01
Undecided									
Total Resources	1,027.86	896.76	566.72	935.66	934.88	606.91	917.00	965.81	626.05
Load Resource Balance	256.93	115.49	22.89	134.22	101.68	41.55	91.50	97.73	42.36

Date of Board/Commission Approval (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

Notes/Explanation for category choices:
- Information is based on the 2019 Integrated Resource Plan filed with the Washington Utilities and Transportation Commission on October 18, 2019.
- The Load Resource Balance in Capacity primarily reflects the 13% Planning Reserve Margin not included in Loads.

Public Utility District No.2 of Pacific County	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	Jason Dunsmoor

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	35.28	36.05	36.67
Resources:			
Future Conservation/Efficiency		0.50	1.00
Demand Response			
BPA Tier 1 (include BPA PF)	35.50	36.87	36.87
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	3.01		
Other			
Distributed Generation			
Undecided			
Total Resources	38.51	37.37	37.87
Load Resource Balance	3.23	1.32	1.20

Date of Board/Commission Approval August-20 (mm/yy)

Parkland Light and Water Company

<< Utility Name

Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	13.38	13.55	13.67
Resources:			
Future Conservation/Efficiency		0.07	0.07
Demand Response			
BPA Tier 1 (include BPA PF)	13.38	13.48	13.60
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	13.38	13.55	13.67
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Pend Oreille PUD	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	**Director, Audit, Finance & Power Supply**

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	111.72	36.73	38.60
Resources:			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)	23.71	0.00	0.00
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)	94.76	81.60	81.60
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation	0.01	0.01	0.01
Undecided			
Total Resources	118.48	81.61	81.61
Load Resource Balance	6.76	44.88	43.01

Date of Board/Commission Approval 09/20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in planning / Distributed Generation Sources

We have limited distributed generation at this point. Forecasted DG is not expected to grow much.

Peninsula Light Company	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	69.35	68.52	68.81
Resources:			
Future Conservation/Efficiency		0.21	0.21
Demand Response			
BPA Tier 1 (include BPA PF)	69.35	68.31	68.60
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	69.35	68.52	68.81
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

City of Port Angeles	<<	Utility Name		
Washington State Utility Resource Plan Year		**2020**		
Prepared by:		Gregg King		
		Base Year	***5 Yr. Est.***	***10 Yr Est.***
Estimate Year		*2019*	*2024*	*2029*
Period		***Annual***	***Annual***	***Annual***
Units		***(MWa)***	***(MWa)***	***(MWa)***
Loads		31.61	56.40	56.38
Resources:				
Future Conservation/Efficiency			0.30	0.30
Demand Response				
BPA Tier 1 (include BPA PF)		31.52	56.01	55.99
BPA Tier 2				
Non BPA:				
Co-generation				
Hydro (critical water)				
Wind				
Other Renewables				
Thermal-Natural Gas				
Thermal-Coal				
Market Purchase (non BPA)		0.09	0.09	0.09
Other				
Distributed Generation				
Undecided				
Total Resources		***31.61***	***56.40***	***56.38***
Load Resource Balance		***0.00***	***0.00***	***0.00***
Date of Board/Commission Approval		08/20	(mm/yy)	

Notes: Explain resource choices other than conservation / Use of renewable energy credits in planning / Distributed Generation Sources

Resources: BPA Tier 1 (includes BPA PF) - The City of Port Angeles is a full resource customer of the Bonneville Power Administration. The current BPA contract ends in 2028. This forecast for 2029 assumes the City continues it's power purchase contract with BPA.
Carbon: The City is complying with all state and federal requirements to decrease carbon in the the City's power supply. As of 2018 (last year available) BPA's power is 97.23% carbon free.

Port of Seattle	<< Utility Name
Washington State Utility Resource Plan Year	**2020**
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	16.72	17.35	17.35
Resources:			
Future Conservation/Efficiency		0.19	0.19
Demand Response			
BPA Tier 1 (include BPA PF)	13.66	17.16	17.16
BPA Tier 2	3.07		
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	16.72	17.35	17.35
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Puget Sound Energy <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Chris Schaefer

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2018**			**2023**			**2028**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	5,021.00	3,224.00	2,681.00	5,359.00	3,498.00	2,864.00	5,662.00	3,801.00	3,036.00
Exports	14.00	320.00	66.00	11.00	311.00	63.00	0.00	300.00	48.00
Resources:									
Future Conservation/Efficiency				374.00	257.00	239.00	549.00	376.00	355.00
Demand Response				79.00			107.00		
Cogeneration									
Hydro	853.00	762.00	505.00	814.00	768.00	473.00	685.00	743.00	433.00
Wind	143.00	90.00	242.00	143.00	143.00	275.00	137.00	137.00	261.00
Other Renewables									
Thermal - Natural Gas	2,061.00	1,841.00	1,146.00	2,061.00	1,841.00	1,146.00	2,061.00	1,841.00	1,146.00
Thermal - Coal	658.00	658.00	608.00	360.00	360.00	334.00	360.00	360.00	334.00
Net Long Term Contracts	401.00	386.00	410.00	387.00	376.00	394.00	15.00	4.00	5.00
Net Short Term Contracts	1,722.00	1,695.00		1,752.00	1,670.00		1,863.00	1,677.00	
BPA									
Other									
Imports	308.00	8.00	50.00	308.00	8.00	50.00	308.00	8.00	50.00
Distributed Generation									
Undecided									
Total Resources	6,146.00	5,440.00	2,961.00	6,278.00	5,423.00	2,911.00	6,085.00	5,146.00	2,584.00
Load Resource Balance	1,111.00	1,896.00	214.00	908.00	1,614.00	-16.00	423.00	1,045.00	-500.00

Date of Board/Commission Approval May-18 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

PSE's Intergrated Resource Plan ("IRP") includes the least cost combination of conservation and supply-side resources to meet requirements per WAC 480-100-238. This information is also availabe in PSE's 2017 IRP, page 8-17, filed with the Washington Utilities and Transporation Commission ("WUTC"), Dockets UE-160918 and UG-160919. Due to delays caused by energy-related legislation, PSE will file its next IRP by April 1, 2021.

City of Richland <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: EES Consulting

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	215.71	185.35	112.77	202.48	193.84	120.00	215.29	206.29	129.81
Exports									
Resources:									
Future Conservation/Efficiency				4.34	4.34	4.34	9.75	9.75	9.75
Demand Response									
Cogeneration									
Hydro									
Wind									
Other Renewables				0.03	0.22	0.82	0.03	0.22	0.80
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts			2.02						
Net Short Term Contracts									
BPA	215.71	185.35	110.76	198.11	189.28	103.31	205.51	196.33	103.31
Other									
Imports									
Distributed Generation									
Undecided						11.54			15.95
Total Resources	215.71	185.35	112.77	202.48	193.84	120.00	215.29	206.29	129.81
Load Resource Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Date of Board/Commission Approval August-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

The City will use RECs from its BPA renewable resource allocation, HRSST, and REC purchases.

City of Ruston << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by:

City of Ruston - Clint Thayer

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2020	2025	2030
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	0.68	0.71	0.71
Resources:			
Future Conservation/Efficiency			
Demand Response			
BPA Tier 1 (include BPA PF)			
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	0.68	0.71	0.71
Other			
Distributed Generation			
Undecided			
Total Resources	0.68	0.71	0.71
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in

Projections for 2025 Based on Load Growth Rate for the Point Ruston Commercial Development.

Seattle City Light <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2018**

Prepared by: A. Seelig

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		2017			2022			2027	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads			1,126.10			1,144.60			1,164.16
Exports			75.60			0.00			0.00
Resources:									
Future Conservation/Efficiency						55.40			93.90
Demand Response									
Cogeneration			1.10			2.45			2.45
Hydro			795.90			709.73			682.70
Wind			37.70			11.80			0.00
Other Renewables			11.00			12.00			12.00
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts									
BPA			625.90			508.10			508.20
Other									
Imports			40.40			0.00			0.00
Distributed Generation									
Undecided									
Total Resources	0.00	0.00	1,512.00	0.00	0.00	1,299.48	0.00	0.00	1,299.25
Load Resource Balance	0.00	0.00	310.30	0.00	0.00	154.88	0.00	0.00	135.09

Date of Board/Commission Approval 09/18 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

10) Base year system load. 2022 and 2027 loads don't include conservation. 11 & 25) There are no seasonal exchanges in place after 2019. 16) This row represents City Light's hydro resources and long-term hydro contracts. Actual production for 2017. It also represents 1936-37 critical water condition based on 2018-19 regulation. 17) Stateline wind contract expires in 2021, but some energy is delivered in 2022 through an integration and exchange agreement. 18) Other renewables include landfill gas and waste wood biomass. Burlington Renewable biomass contract expired in 2017. 23) BPA contract converted to all Block 10/1/2017. 31) Public hearing and Housing, Health, Energy, & Workers' Rights Committee approval of Resolution 31833 on Aug 16, 2018, full council adoption Sept 4, 2018.

PUBLIC UTILITY DISTRICT #1 OF SKAMANIA COUNTY

Washington State Utility Resource Plan Year	2020
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	16.56	15.37	15.36
Resources:			
Future Conservation/Efficiency		0.06	0.06
Demand Response			
BPA Tier 1 (include BPA PF)	16.56	15.31	15.30
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	16.56	15.37	15.36
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Snohomish PUD <<< Utility Name

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Garrison Marr

	Base Year				5 Year Estimate			10 Year Estimate	
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads	1,008.4	710.4	769.0	1,121.9	791.5	822.6	1,154.0	831.0	850.2
Exports	103.30	104.30	169.80	91.78	29.04	182.71	71.02	0.87	137.42
Resources:									
Future Conservation/Efficiency				45.86	36.57	35.47	93.26	73.36	70.37
Demand Response									
Cogeneration	0.6	0.4	0.5	2.00	2.00	2.00	2.00	2.00	2.00
Hydro	63.00	23.80	40.40	90	30	65	95	27	66
Wind	24.9	54.2	48.3	32	53	53	-	-	8
Other Renewables				0.27	1.54	0.65	0.3	1.5	0.6
Thermal - Natural Gas									
Thermal - Coal									
Net Long Term Contracts									
Net Short Term Contracts				25.00					
BPA	911.1	724.6	777.7	1,016	692	849	1,025	668	833
Other							5.94	5.94	5.94
Imports	111.60	10.30	71.60					44.70	
Distributed Generation	0.50	1.40	0.30	2.00	5.57	1.00	3.50	9.73	1.74
Undecided									
Total Resources	1,111.70	814.70	938.80	1,213.70	820.53	1,005.31	1,225.00	831.86	987.62
Load Resource Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Date of Board/Commission Approval May-19 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

The 2019 IRP Update to the 2017 IRP concluded with its probabilistic approach to existing and committed resources and BPA contract assumptions that the PUD continues to have an annual energy surplus position in the near term, and conservation continues to be the single largest resource to be acquired over the 2020-2039 IRP study period. The IRP Update included consideration of a small scale solar project (5MW DC nameplate) in 2024 which is reflected on the "Other Renewables" row. The 2019 IRP also called for a total of 66MW nameplate of dispatchable resources to be added by 2029, which at their assumed dispatch rate and availability would contribute 5.94 aMW to each period as reflected in the "Other" row for 2029. In addition, the lowest cost approach to meet the increasing Energy Independence Act (I-937) annual renewables compliance targets continues to be the acquisition of unbundled renewable energy credits to supplement the PUD's existing power supply portfolio.

1) Base year reflects 2019 data with Winter reflecting December HLH and Summer reflecting August HLH.
2) 5 and 10 Year reflect 2019 IRP Update Long Term Resource Strategy, adopted by the Snohomish PUD Board of Commissioners on May 7, 2019.
3) 5 and 10 Year for Winter reflects monthly average for December on peak period, Summer reflects monthly average for August on peak period.
4) "Loads" for the 5 and 10 Year Estimates are before new conservation and are at the total system level as expressed at BPA busbar (i.e., retail sales + distribution line losses + transmission losses).
5) "Future Conservation/Efficiency" reflects new cumulative acquisition of Conservation as described in the 2019 Integrated Resource Plan Update.
6) Cogeneration consists of output from the Hampton Lumber Mill's Darrington, WA wood waste generator and uses a probabilistic forecast based on historical actuals.
7) "Hydro" includes PUD's hydro resources: Jackson, Woods Creek, Youngs Creek, Packwood, Hancock & Calligan and uses a probabilistic forecast based on historical actuals.
8) "Wind" includes PUD's long term power purchase agreements for 10% White Creek, 100% Wheat Field and 100% Hay Canyon wind projects and uses a probabilistic forecast based on historical actuals.
9) "Distributed Generation" for the 5 and 10 Year estimates reflects assumption for Customer-Owned Generation assumed in 2019 IRP Update.
10) "Net Short Term Contracts" for the 5 Year estimates reflect the 2019 IRP procurement of a 25 MW short term capacity product that can be called on to serve peak winter demand.
11) "BPA" for the 5 and 10 Year reflects forecast of Snohomish PUD's long-term power contract with BPA for the Block/Slice product.
12) "Imports" reflect short term balancing purchases from the wholesale energy market to balance the PUD's loads and resources.
13) "Exports" reflect short term balancing sales to the wholesale energy market to balance the PUD's loads and resources.

Town of Steilacoom << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	4.44	4.62	4.73
Resources:			
Future Conservation/Efficiency		0.02	0.02
Demand Response			
BPA Tier 1 (include BPA PF)	4.44	4.60	4.71
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	4.44	4.62	4.73
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

City of Sumas << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	3.71	3.97	3.92
Resources:			
Future Conservation/Efficiency		0.01	0.01
Demand Response			
BPA Tier 1 (include BPA PF)	3.71	3.97	3.92
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	3.71	3.97	3.92
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Tacoma Power

Washington State Utility

Integrated Resource Plan Year **2020**

Prepared by: Rachel Clark

	Base Year			5 Year Estimate			10 Year Estimate		
Estimate Year		**2019**			**2024**			**2029**	
Period	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**	**Winter**	**Summer**	**Annual**
Units	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**	**(MW)**	**(MW)**	**(MWa)**
Loads			554.93	953.29	633.78	571.75	945.82	627.93	571.70
Exports			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Resources:									
Future Conservation/Efficiency				22.29	14.38	13.35	40.12	25.63	26.70
Demand Response				10.00	10.00	10.00	10.00	10.00	10.00
Cogeneration			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydro			212.59	609.45	707.76	224.30	575.20	526.44	196.04
Wind			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Renewables			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thermal - Natural Gas			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
Net Long Term Contracts			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Short Term Contracts			0.00	0.00	0.00	0.00	0.00	0.00	0.00
BPA			404.47	528.71	426.36	412.69	514.08	416.56	401.38
Other			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
Distributed Generation			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Undecided			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Resources	0.00	0.00	617.06	1,170.45	1,158.50	660.34	1,139.40	978.63	634.12
Load Resource Balance	0.00	0.00	62.13	217.16	524.72	88.59	193.58	350.70	62.42

Date of Board/Commission Approval August-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of Renewable Energy Credits in planning/ Distributed Generation Sources

Line 16: Hydro values include Tacoma Power-owned generation and contracted hydro power other than BPA. The vast majority comes from Tacoma Power-owned resources.
Line 16: Summer and winter hydro capacity are calculated as capacity available during the modeled peak hour for the relevant season under 2001 water conditions.
Line 23: Values for BPA summer and winter capacity are based on system model estimates of Tacoma Power right to power during the modeled peak hour for the relevant season under 2001 water conditions.
Line 10: Winter and summer peak load estimates are based on Tacoma Power's 2019 load forecast and do not reflect modeled peak loads under 2001 temperature conditions.

Tanner Electric Cooperative

<< Utility Name

Washington State Utility Resource Plan Year	2020
Prepared by:	BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	11.09	11.30	11.57
Resources:			
Future Conservation/Efficiency		0.05	0.05
Demand Response			
BPA Tier 1 (include BPA PF)	11.09	11.25	11.52
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	11.09	11.30	11.57
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

Vera Water and Power << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	26.64	27.56	27.98
Resources:			
Future Conservation/Efficiency		0.16	0.16
Demand Response			
BPA Tier 1 (include BPA PF)	24.43	25.91	25.91
BPA Tier 2	0.46	0.50	0.92
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)	1.75	1.00	1.00
Other			
Distributed Generation			
Undecided			
Total Resources	26.64	27.56	27.98
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

PUBLIC UTILITY DISTRICT NO. 1 OF WAHKIAKUM << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: BPA

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	4.94	4.95	4.95
Resources:			
Future Conservation/Efficiency		0.03	0.03
Demand Response			
BPA Tier 1 (include BPA PF)	4.94	4.92	4.92
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind			
Other Renewables			
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)			
Other			
Distributed Generation			
Undecided			
Total Resources	4.94	4.95	4.95
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval (mm/yy)

PUBLIC UTILITY DISTRICT NO.1 OF WHATCOM COUNTY << Utility Name

Washington State Utility Resource Plan Year **2020**

Prepared by: **Brian Walters**

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2024	2029
Period	**Annual**	**Annual**	**Annual**
Units	**(MWa)**	**(MWa)**	**(MWa)**
Loads	27.18	45.11	65.60
Resources:			
Future Conservation/Efficiency		0.06	0.06
Demand Response			
BPA Tier 1 (include BPA PF)	27.18	25.60	25.60
BPA Tier 2			
Non BPA:			
Co-generation			
Hydro (critical water)			
Wind		7.00	7.00
Other Renewables		11.00	20.00
Thermal-Natural Gas			
Thermal-Coal			
Market Purchase (non BPA)		1.45	2.60
Other			
Distributed Generation			
Undecided			10.34
Total Resources	27.18	45.11	65.60
Load Resource Balance	0.00	0.00	0.00

Date of Board/Commission Approval September-20 (mm/yy)

Notes: Explain resource choices other than conservation / Use of renewable energy credits in

Line 19: All non BPA purchases at 5 and 10 yrs will be renewables. Line 25: Undecided sources will depend on outcome of new BPA power contract. Line 29: Commission approval is anticipated to be September 22, 2020.

Note: Yakama Power opted to not participate in the 2020 Resource Plan report. The utilities of Clearwater, Kootenai and Northern Lights are primarily based in other states and do not contribute to this report.

Appendix B: Utility Summary Data - 2019

Utility Name	Ownership class	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatt-hours)	Average price: cents/kwh
Avista Corp	Investor Owned	257,394	547,777	5,672,876	9.7
Benton Rural Electric Assn	Cooperative	14,559	41,107	562,534	7.3
Big Bend Electric Coop, Inc	Cooperative	9,469	36,009	535,908	6.7
Bonneville Power Administration	Federal	10	75,550	4,838,044	1.6
Calpine Energy Solutions, LLC	Retail Power Marketer	1	313	8,760	3.6
City of Blaine - (WA)	Municipal	3,475	6,363	77,458	8.2
City of Centralia - (WA)	Municipal	10,381	25,922	258,189	10.0
City of Cheney - (WA)	Municipal	5,798	9,715	148,540	6.5
City of Chewelah	Municipal	1,309	1,700	21,000	8.1
City of Coulee Dam - (WA)	Municipal	601	1,128	17,109	6.6
City of Ellensburg - (WA)	Municipal	10,039	18,107	212,409	8.5
City of McCleary - (WA)	Municipal	1,193	2,755	31,854	8.6
City of Port Angeles - (WA)	Municipal	10,999	22,746	267,362	8.5
City of Richland - (WA)	Municipal	24,966	73,209	911,106	8.0
City of Seattle - (WA)	Municipal	470,380	920,914	9,082,792	10.1
City of Sumas - (WA)	Municipal	951	2,352	31,565	7.5
City of Tacoma - (WA)	Municipal	182,234	366,663	4,665,640	7.9
Clearwater Power Company	Cooperative	999	2,161	21,999	9.8
Columbia Rural Elec Assn, Inc	Cooperative	5,945	30,284	343,259	8.8
Elmhurst Mutual Power & Light Co	Cooperative	15,538	19,255	273,000	7.1
Inland Power & Light Company	Cooperative	40,917	75,754	912,016	8.3
Kootenai Electric Cooperative	Cooperative	83	245	2,865	8.5
Lakeview Light & Power	Cooperative	10,224	23,809	256,307	9.3
Modern Electric Water Company	Cooperative	10,250	14,583	226,919	6.4
Nespelem Valley Elec Coop, Inc	Cooperative	1,520	4,780	57,745	8.3
Northern Lights, Inc	Cooperative	14	17	139	12.2
Ohop Mutual Light Company, Inc	Cooperative	4,471	7,226	83,967	8.6
Okanogan County Elec Coop, Inc	Cooperative	3,747	5,902	61,989	9.5
Orcas Power & Light Coop	Cooperative	15,163	30,678	207,180	14.8
PacifiCorp	Investor Owned	132,291	332,300	4,144,590	8.0
Parkland Light & Water Company	Cooperative	4,575	8,668	114,599	7.6
Peninsula Light Company	Cooperative	33,723	57,508	586,557	9.8
PUD 1 of Snohomish County	Political Subdivision	354,978	615,355	6,526,450	9.4
PUD No 1 of Asotin County	Municipal	3	14	238	5.8

Utility Name	Ownership class	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatt-hours)	Average price: cents/kwh
PUD No 1 of Benton County	Political Subdivision	54,581	127,692	1,766,171	7.2
PUD No 1 of Chelan County	Political Subdivision	51,507	52,804	1,720,632	3.1
PUD No 1 of Chelan County	Political Subdivision	1	12,953	237,992	5.4
PUD No 1 of Clallam County	Political Subdivision	32,237	62,492	638,626	9.8
PUD No 1 of Clark County - (WA)	Political Subdivision	213,948	367,584	4,514,170	8.1
PUD No 1 of Cowlitz County	Political Subdivision	50,870	274,012	4,609,092	5.9
PUD No 1 of Douglas County	Political Subdivision	16,083	33,855	1,135,682	3.0
PUD No 1 of Ferry County	Political Subdivision	3,533	6,654	66,687	10.0
PUD No 1 of Franklin County	Political Subdivision	27,677	84,249	1,078,951	7.8
PUD No 1 of Grays Harbor County	Political Subdivision	43,296	103,410	951,186	10.9
PUD No 1 of Jefferson County	Political Subdivision	19,742	38,024	376,212	10.1
PUD No 1 of Kittitas County	Political Subdivision	4,625	10,460	105,905	9.9
PUD No 1 of Klickitat County	Political Subdivision	13,254	33,125	369,066	9.0
PUD No 1 of Lewis County	Political Subdivision	32,771	73,788	940,053	7.8
PUD No 1 of Mason County	Political Subdivision	5,349	8,851	76,378	11.6
PUD No 1 of Okanogan County	Political Subdivision	21,249	45,810	600,415	7.6
PUD No 1 of Pend Oreille County	Political Subdivision	9,296	48,720	958,410	5.1
PUD No 1 of Skamania Co	Political Subdivision	6,323	12,092	127,087	9.5
PUD No 1 of Wahkiakum County	Political Subdivision	2,558	3,978	41,495	9.6
PUD No 1 of Whatcom County	Political Subdivision	1	11,549	225,010	5.1
PUD No 2 of Grant County	Political Subdivision	51,635	209,896	5,038,302	4.2
PUD No 2 of Pacific County	Political Subdivision	17,690	24,442	294,203	8.3
PUD No 3 of Mason County	Political Subdivision	34,214	65,311	654,549	10.0
Puget Sound Energy Inc	Investor Owned	1,165,611	2,117,343	20,833,230	10.2
Puget Sound Energy Inc	Investor Owned	80	19,512	2,322,021	0.8
Shell Energy North America (US), L.P.	Retail Power Marketer	4	35,503	1,212,576	2.9

Utility Name	Ownership class	Customers (Count)	Revenue (Thousand Dollars)	Retail Sales (Megawatt-hours)	Average price: cents/kwh
SolarCity Corporation	Behind the Meter	99	76	587	12.9
Tanner Electric Coop	Cooperative	4,941	11,170	92,334	12.1
Town of Eatonville - (WA)	Municipal	1,246	2,432	26,865	9.1
Town of Steilacoom	Municipal	2,908	3,382	35,843	9.4
Vera Irrigation District #15	Political Subdivision	12,141	17,855	226,332	7.9