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Washington State Electric Utility Resource Planning

2014 Report

December 2014
Report to the Legislature
Brian Bonlender, Director

Acknowledgements

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Table of Contents

Introduction.....	4
Utility Reporting.....	6
Washington State's Forecast of Rising Electricity Demand	9
Resources Overview	12
Utilities Address Overgeneration.....	17
Appendix A: Washington State Requirements and Resources	19
Appendix B: Utility Details.....	20
Appendix C: Utility Cover Sheets.....	22
Appendix D: Utility Overgeneration Planning Efforts Summarized	37

Introduction

Background

Washington State's electricity service is provided by more than 60 utilities serving residential, institutional, business, and industrial consumers. To meet the growing electricity needs of consumers, utilities estimate the amount of power needed and develop plans to meet demand. The 2006 utility resource planning law 19.280 RCW¹, requires all state utilities to develop and update Resource Plans (RP) or Integrated Resource Plans (IRP) and provide them to the Department of Commerce (Commerce) every two years. Commerce reviews then reports findings to the Legislature. This is the fourth report; prior reports were submitted in 2008, 2010, and 2012.

The two types of resource plans differ. The RP is very short and used primarily by utilities having only one or two suppliers of power resources (usually, the Bonneville Power Administration and, perhaps, market power). The IRP is complex and must include requirements specified by law. IRPs are generally required for all utilities with 25,000 or more customers while smaller utilities can write either IRPs or RPs. Most utilities with a customer base under 25,000 write RPs.

Purpose of this Report

While utilities use resource plans to characterize their strategies for meeting customer electricity needs, the state uses the information to show electricity requirements and resource commitments for Washington as a whole. The information in this state resource plan may be considered a collection of snapshots representing each utility's perspective of loads and resources made at the time their plan was developed. As conditions change, perspectives change.

This report summarizes the electricity loads and resources reported by Washington utilities in their 2014 reports to Commerce. It compares them to estimated summaries from 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.

¹ <http://apps.leg.wa.gov/RCW/default.aspx?cite=19.280>.

This report provides information on utilities' energy efficiency and renewable energy resources. It does not analyze issues related to the energy efficiency and renewable energy requirement of, or compliance with, the Energy Independence Act (RCW 19.285).²

Highlights

In 2012, the outlook for available surplus power had dropped from an average of 14 percent of load to 2 percent of load. The 2014 estimate shows the average surplus rebounding a bit at 5 percent of load. What this means is that utilities have reported more secured resources; either they have more contracts, have secured necessary generation, or have simply progressed further toward making resource acquisition decisions than in the 2012 forecast.

Hydropower, natural gas, and future conservation and efficiency are three enduring resource categories for our state. Hydropower continues to be a reliable and widely owned and contracted resource. Competitive pricing combined with new technologies continue to make natural gas a consistent choice in meeting load. Conservation and efficiency has maintained its place in the mix as the resource of choice, boosted by the state Energy Independence Act,³ which mandates adherence to conservation and efficiency targets.

Overgeneration (oversupply) is an added topic to this year's report. The Washington State Legislature modified the reporting requirement to include input on strategies utilities have in place to manage resources and pricing when there is an oversupply of power in relationship to need. Utility feedback is summarized.

² <http://www.commerce.wa.gov/Programs/Energy/Office/Utilities/Pages/ResourcePlans.aspx>.

³ Energy Independence Act, Chapter 19.285 RCW, <http://apps.leg.wa.gov/rcw/default.aspx?cite=19.285>.

Utility Reporting

The reporting process was in June and September 2014. Of the 60 utilities required to report, all but one (the City of Sumas) submitted resource plan cover sheets. Where estimates are not provided by the utility, cover sheet figures are estimated by Commerce.⁴

Some utilities published and posted resource plans prior to the opening of the reporting process; others completed theirs during it. The legislation requires the development and provision of both a resource plan and a cover sheet that summarizes the more detailed plan. While the law calls for a new plan every four years and a progress report every two years since the first plan, the planning process has taken on a life of its own. Many of the larger utilities are drafting new plans every two years, while many of the smaller utilities are completing and providing only the cover sheet.

Cover sheets contain the core elements essential to a plan and include a three-interval series of data across a 10-year planning cycle. Commerce combines cover sheet data to assess the status of power needed versus resources anticipated for the whole state. Plan narratives are provided at varying levels of detail and rigor, and offer some insight into the planning challenges and opportunities facing utilities.

Utilities with more than 25,000 customers that are solely reliant on BPA for power may submit a Resource Plan rather than an Integrated Resource Plan.

Three utilities located in Idaho that serve some Washington customers are exempted from taking part in utility resource planning. The utilities, combined, serve under 2,000 Washington customers, or 0.04 percent of Washington electricity consumers. They are Clearwater Power Co., Kootenai Electric Co-op Inc., and Northern Lights Electric Co.

Changes in this year's reporting include:

1. A new requirement in the law requires utility feedback regarding a strategy for handling oversupply – large utilities only.
2. The addition of resource categories: Distributed Generation and Undecided (to capture the difference between undecided where there are known options and a situation where there are unknown options).

Peak demand is not reviewed in this report. The data are available by request.

⁴ With a population estimated at 1,336 in 2013, City of Sumas is fully served by Bonneville Power Administration. Their loads and resources were estimated by Commerce based on a combination Fuel Mix 2013, Utility Resource Planning 2012, and their population rate of change. See the Appendix for more information.

Washington State Utility Resource Plan 2012 Summary Data

Reading Charts and Tables

The data are described in terms of the three intervals used in the 10-year planning cycle. The first interval is the base year. It is not an estimate. It consists of actual loads and resources from 2013, in most cases. The next two intervals reflect projected load and resources outward for five and 10 years. Units of measure include average megawatts (aMW), defined as a one megawatt of capacity produced continuously over the period of one year or 8,760 megawatt hours.

While some utilities showed a negative resource-to-load balance, overall utilities reported firm resources that exceed anticipated need. Surplus typically narrows toward the end of the 10-year cycle.

Unadjusted Load Forecast versus Adjusted Load and the Role of Conservation

For each utility, the cover sheet summarizes the quantity of electricity needed (load), the quantity of electricity for which there is known commitment (resource), and the difference between the two, demonstrating a positive or negative balance (surplus or deficit). The load forecast component of resource planning may treat conservation in one of two ways: as a resource toward meeting demand, or as an offset to the amount of electricity needed. The first method does not alter the estimate of power needed.

1. **Unadjusted Load treats conservation as a resource.**

When resource planning treats conservation as a resource, it takes on a positive value along with other energy resources. In this case, load, the estimate of electricity needed, is a reflection of the gross energy required. This is considered as load “before conservation,” prior to reduction resulting from the application of conservation and efficiency measures, and is referred to in this report as unadjusted load.

2. **Adjusted Load treats conservation as an offset.**

When treated as an offset to load, conservation does not appear as a resource and is instead removed (netted out) from the gross amount of electricity needed. The result is a load “after conservation,” referred to as “adjusted load.”

All things being equal, the first treatment, unadjusted load, results in a higher load estimate, representing “true” demand. The second treatment, adjusted load, results in a lower load estimate, reducing the appearance of demand by removing the impacts of conservation.

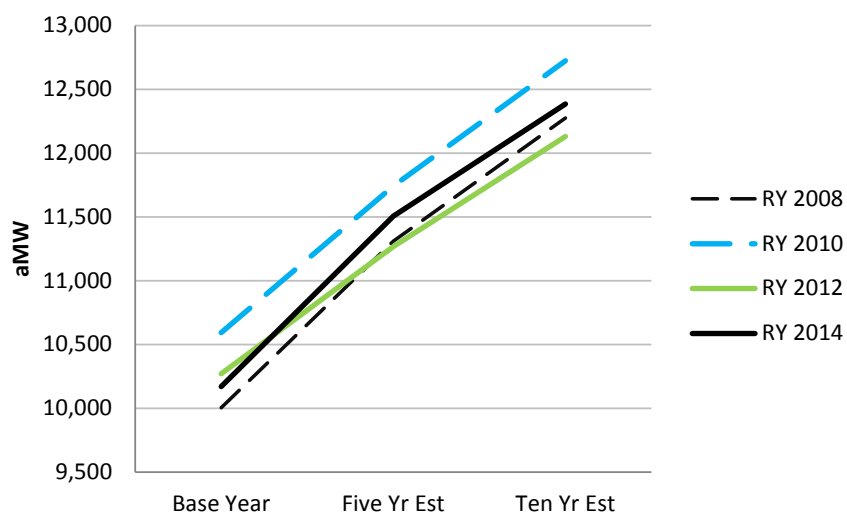
Where this report discusses loads without qualification, it will be referring to Unadjusted Loads; power needed to serve customers, before accounting for the impacts of conservation.

Conservation is not reported in the base year in order to be able to measure future additions to conservation and efficiency, not including carryover. Therefore, the base year load in both the unadjusted and adjusted scenarios is adjusted, since load and resources reported represent actual energy resources used in meeting actual and not estimated need. Conservation and efficiency are referred to it as future conservation and efficiency because our accounting only addresses the forecasted amount, not the actual base year conservation that occurred.

Washington State's Forecast of Rising Electricity Demand

In terms of total power, the forecast starts out between reporting years (RY) 2008 and 2012 and then climbs above them at the close of the 10-year cycle (Figure 1). It is modestly optimistic in light of the 2010 forecast, which was higher across the board.

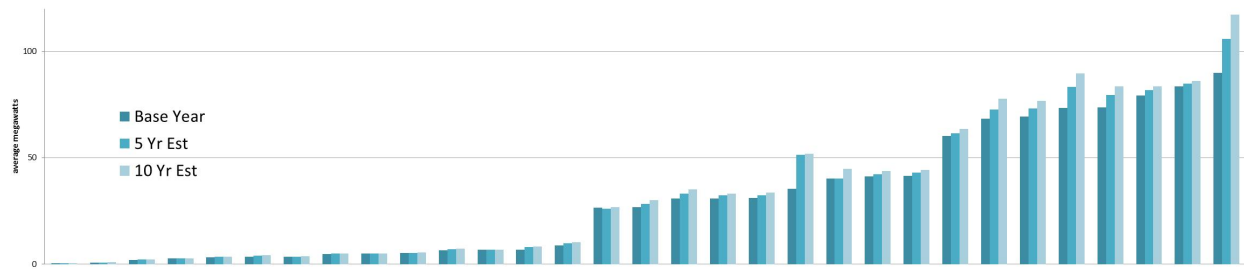
Figure 1: Electric Load (demand) as forecast by utilities in the four planning cycles (2008, 2010, 2012, 2014) since the resource planning law was enacted (aMW=average megawatt., RY= Report Year) (Source: URP 2014)



The 60 electric utilities covered in this report serve 3,254,436 customers. The population in Washington State is expected to grow by an average of 1.01 percent per year through 2030. Based on the combined electric utility load estimates, load is rising slightly faster.

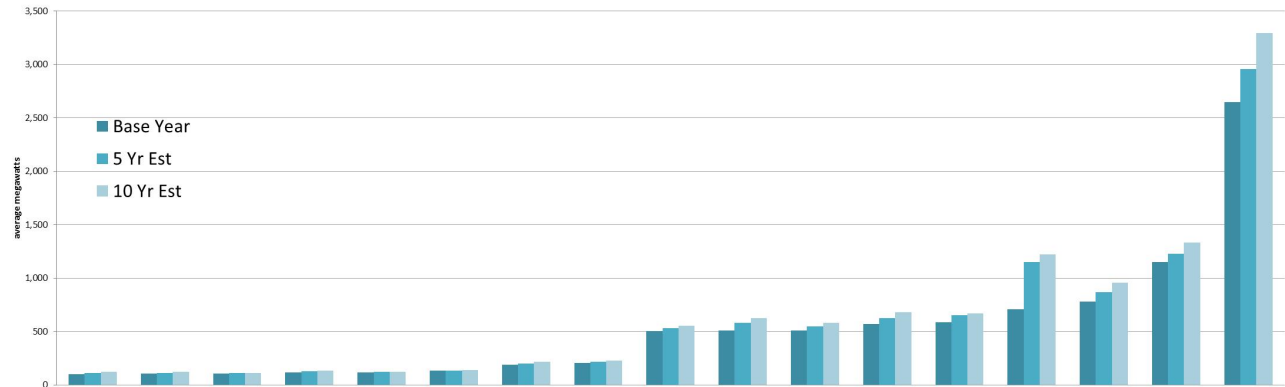
Across the state, utilities report similar trends in load forecasts, yet they vary greatly in load size. Of the 60 utilities covered in this report, 43 deliver 11 percent of the electricity (Figure 2). These utilities carry under 100 average megawatts each and, together, they make up nearly three-fourths of all of the utilities in the state.

Figure 2: Forecasted Loads by Utility – for utilities carrying under 100 average megawatts (amW) of load (Bar clusters represent utility loads for base year, 5-year and 10-year estimates. Each cluster = one utility.) (Source: URP 2014)



The remaining 17 utilities make up only slightly over one-fourth of the state’s utilities. Combined, they meet the electricity needs for 89 percent of load demanded. The nine largest utilities carry loads of over 500 average megawatts. Some utilities forecast greater spikes in future load while others are forecasting very little to moderate increases (Figure 3). See the Appendix for individual utility cover sheet figures.

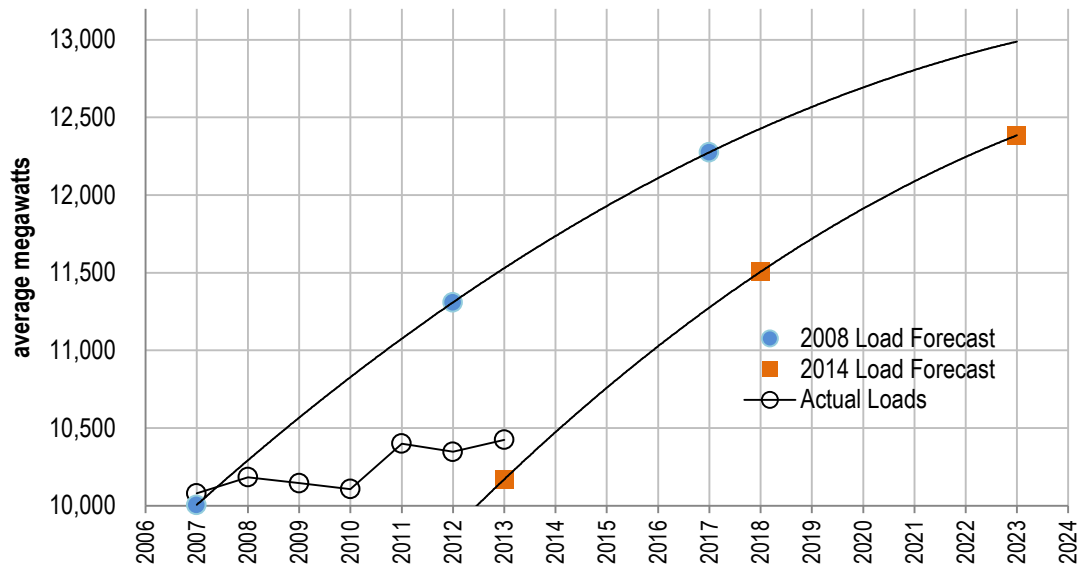
Figure 3: Forecasted Loads by Utility – for utilities with 100+ average megawatts of load (Bar clusters represent utility loads for base year, 5 year and 10 year estimates. Each cluster = one utility.) (Source: URP 2014)



Are Forecasts Lining-Up with Actual Supply?

The first forecast covered in by the Utility Resource Planning reporting effort was the five-year estimate of the 2008 report. Since that year’s report had a base year of 2007, the five-year estimate was for the year 2012. Figure 4 plots actual loads for 2006 through 2013, and compares them to the first forecasts of 2008 and the current forecast of 2014. Actual loads for 2012 were 9 percent lower than those estimated in the 2008 report.

Figure 4: Actual and Estimated Loads (demand) as forecast by utilities – comparing estimates for 2008 and 2014 (Sources: URP and WA Fuel Mix Disclosure)



It will be more telling in future years, with more estimated loads to compare to actual loads. Based on data we have so far, the seven-year series of actual loads are trending flatter than those in the 2008 and 2014 forecasts.

Forecasted load estimates reflect a snapshot of the future from the standpoint just prior to the base year. The 2008 report, based on perspectives formed in 2007 and early 2008 were just prior to the economic plunge into a recession. Greater growth was anticipated before the economic downturn of 2008 than after.

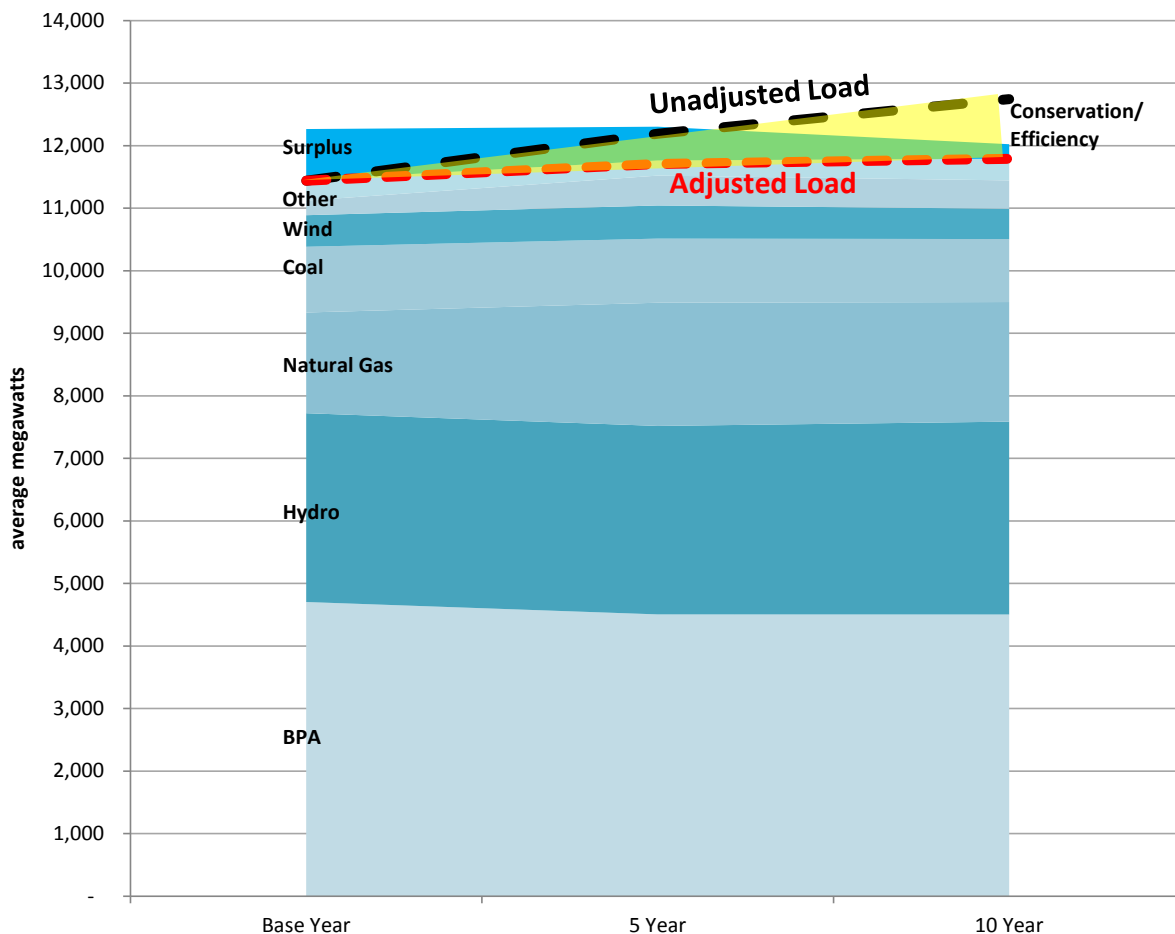
Resources Overview

Resources Intended to Meet Loads

Utilities may supply their customers using combinations of their own generating sources, through contracts with providers and generators, or by purchases from the spot market. Utilities reported resources by fuel or by method of purchase. Figure 5 shows the resources utilities have in their portfolios for the next ten years. The category “Other” includes spot market, contract, demand response, other renewables, distributed generation, and other. BPA is the federal resource contribution to the electricity supply and is made up of a mix of energy sources, most of which is hydropower. Surplus represents the excess of resources over expected demand for power.

The green and yellow portions filling the distance between Adjusted and Unadjusted Load indicate the amount of future electricity demand that will be met with conservation and efficiency.

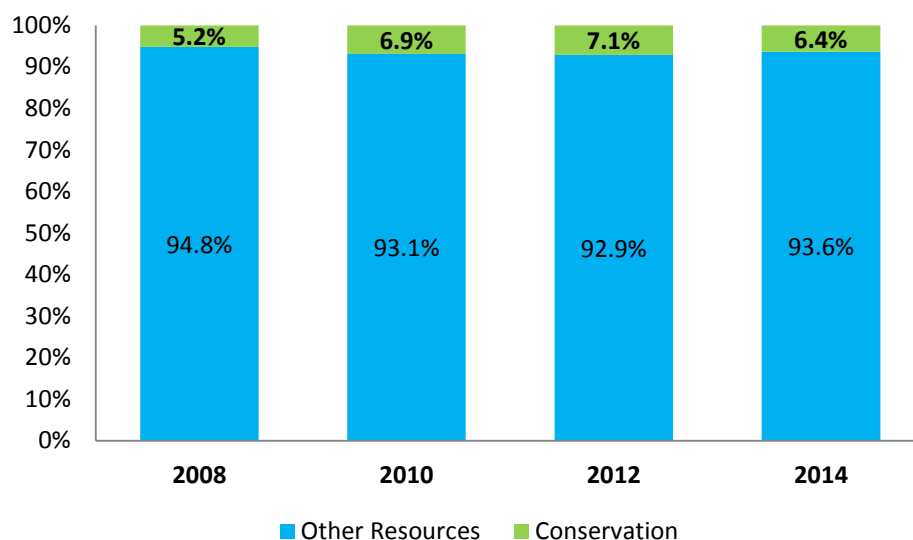
Figure 5: Resource commitment by order of magnitude



The top three resources in utility portfolios over the 10-year planning horizon are BPA power, utility-owned or contracted hydropower, and natural gas. (Figure 5). Commitment to coal and wind remain at a constant level throughout the 10-year period.

Overall, as a portion of load, conservation has increased its share since the 2008 forecast, going from 5.2 to 6.4 percent of the load share. However, since the last forecast of 2012, the conservation share of the planned resource mix dropped 0.7 of a percentage point from 7.1 percent. The top three resources utilities are planning to use to cover power needs over the 10-year planning horizon are BPA power, utility-owned or contracted hydropower, and natural gas.

Figure 6: Conservation as a percentage of load for all utility resource plan reporting years



Coal and conservation/efficiency are nearly even in their share of the Washington State resource portfolio. Wind is holding its share of the portfolio; it was at 4 percent in the 2012 reporting cycle.

Future Compared to Current Resource Commitment

Figure 7 and Figure 8 show estimated resources added and estimated resources in decline, with the base year as a starting point. Each interval was assessed relative to the base year in order to compare future to current resource commitment.

The summary of the resource plans tells what kinds of resources utilities are planning to acquire, but cannot summarize the resources that are available yet not chosen. A reduction in a given resource does not indicate that the resource itself is in decline. Commitment to the resource may not yet be fully realized in terms of the utility's load or the resource may be eventually exported, contracted-out, or sold on the spot market. Resource plans define electricity need and anticipate strategies to meet it, but the market itself will greatly influence the outcome of resource choices.

Figure 7: Resource additions and reductions compared to the base year per planning interval

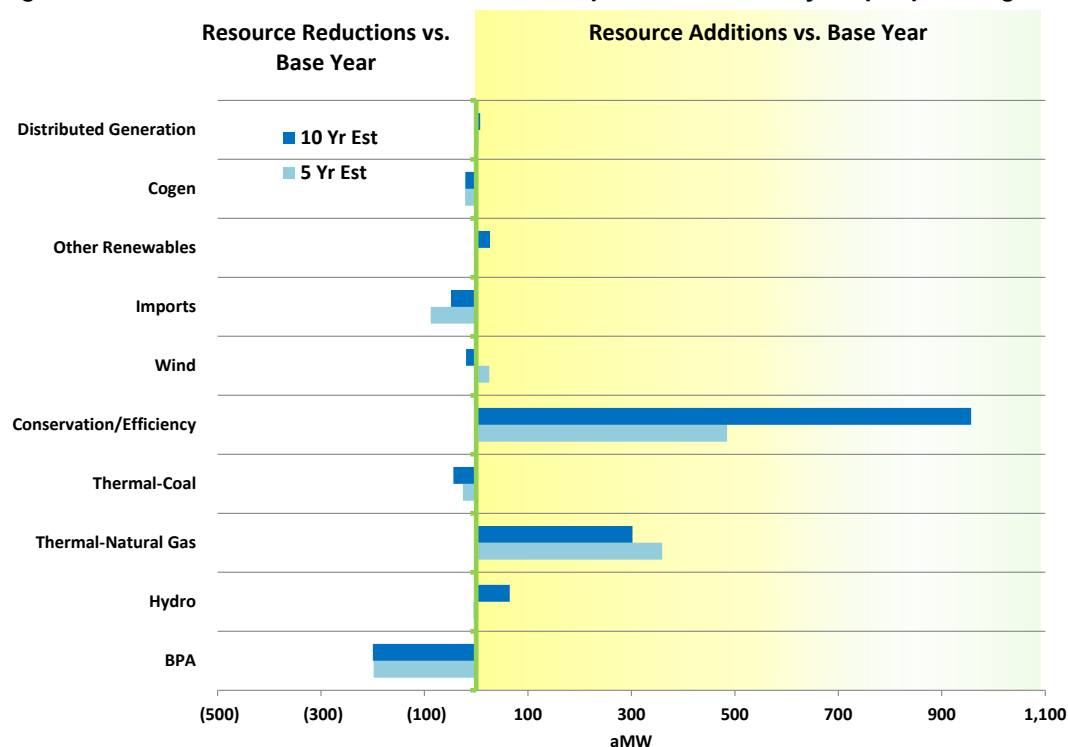
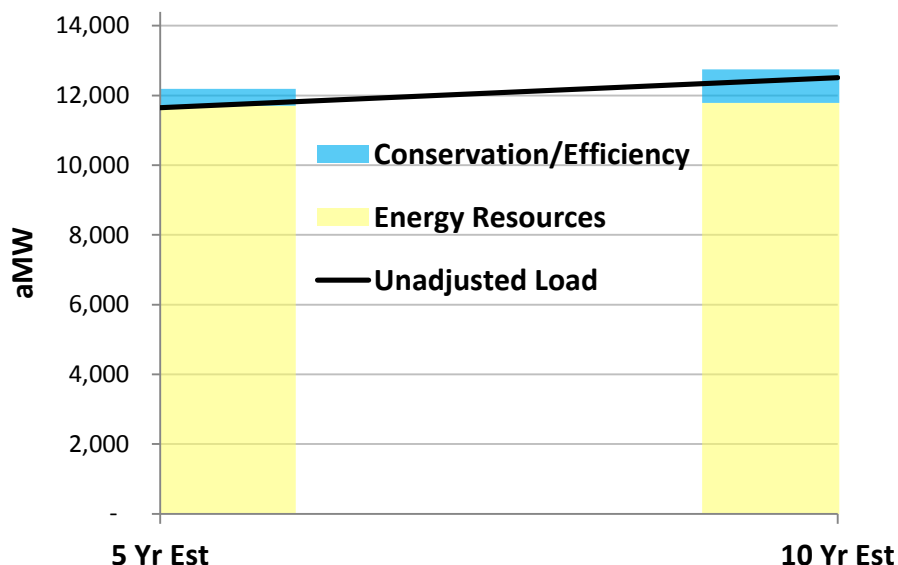


Figure 8 (data for Figure 7): Resource additions and reductions compared to the base year per planning interval

Resource Additions/Reductions	5-Yr Est (aMW)	10-Yr Est (aMW)
BPA	(198)	(90)
Hydro	(5)	(71)
Thermal-Natural Gas	360	302
Thermal-Coal	(26)	(44)
Conservation/Efficiency	485	957
Wind	25	(20)
Imports	(88)	(49)
Other Renewables	(3)	27
Cogen	(21)	(21)
Distributed Generation	4	8

Conservation accounts for 67 percent of the planned added resources, according to current utility resource plans. Natural gas is approximately 30 percent of the added resources. Other renewables, distributed generation, and wind make up the 2 percent balance of future additions.

Figure 9: Conservation and efficiency as a resource



As noted earlier, this report does not lower the estimate for electricity needed by the anticipated amount of conservation and efficiency that may be acquired. Conservation is considered a resource toward meeting electricity load. When stacked atop the resource pile, conservation contributes toward surplus in the 5-year estimate and thereafter contributes primarily toward Unadjusted Load. While this display shows the overall relationship of conservation and load, the practical contribution of conservation and efficiency contributes daily toward offsetting load, and meeting demand and peak demand.

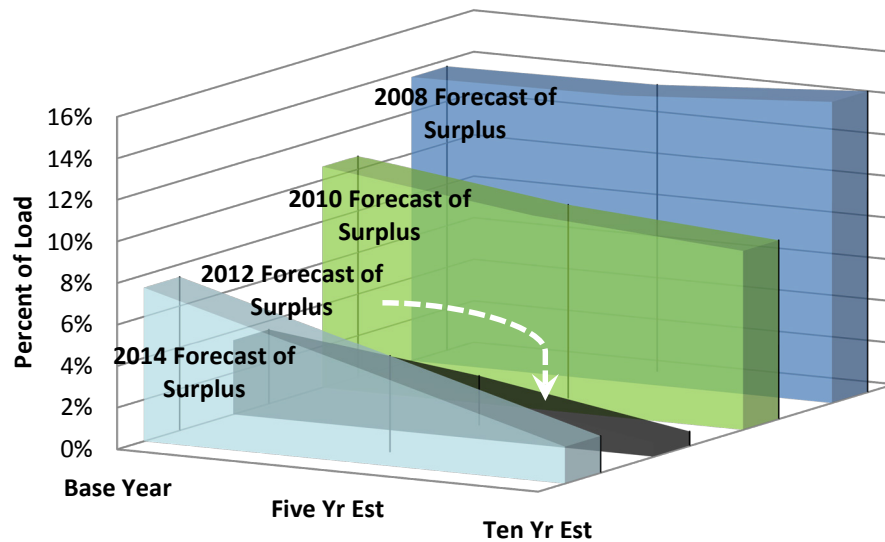
BPA and hydropower, both large contributors to Washington's resource lineup, show some decline in future commitment as compared to the base-year levels. Both of these resources are impacted by the status of utility contracts that may end at some point in the planning period. This may result in an apparent reduction in a resource commitment when, in actuality, a utility has simply not yet committed to a particular resource.

Utilities reported no activity in Demand Response this year.

Rebounding Estimated Surplus

Surplus is the commitment of resources over actual or forecasted electricity demand. Washington has historically had an excess of electric power due, in part, to abundant hydropower resources. This surplus, especially hydropower surplus, has always been a valuable resource because it can be stored for future use or exported for economic gain. Currently, as intermittent resources, notably, wind, become a greater fraction of the fuel mix, surplus hydro is an essential load-balancing resource.

Figure 10: Rebounding estimated surplus (Surplus is calculated as a percent of forecast load)



Aggregately, utilities reported more resources to meet load in this cycle than were reported in 2012, resulting in a higher surplus estimate. Nearly 4 percent more resources were reported in Base Year 2014 than in Base Year 2012.

Aside from having more committed resources in relationship to load than in the prior reporting cycle of 2012, the reported information may be impacted by enhancements to data collection. Categories were added to assess 'Undecided' resource allocations where options were available but not decided, and instructions were revised to clarify data needs.

Utilities Address Overgeneration

In May 2013, the Legislature passed [FHB 1826](#), adding a requirement to the law governing Utility Resource Planning. The modification requires Commerce to review the methods that utilities are using to integrate renewable resources and address “overgeneration” events, if these apply to the utility’s portfolio.

It 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 may occur when heavy snowmelt leads to excess water in the dam system than cannot be reasonably and safely managed for resource protection and system stability. When, at the same time, intermittent sources of power such as wind, are operating at such a rate that state loads and export needs are already met, there is a surplus of water that has no other reasonable option for use other than for power. In this situation, an authority with the ability to make resource distribution decisions for a region, steps in to manage the options.

In 2012, an overgeneration event occurred where there was an oversupply of water and the Bonneville Power Administration made a determination to curtail wind production. As a result, the power industry experienced a negative power pricing environment and policy decisions that challenged the status quo. In order to prepare for future oversupply events, utilities now strategize resource management and fiscal options that protect them and their customers from the disadvantageous price and supply instability.

The 17 largest utilities were required to provide feedback on their strategies and considerations addressing overgeneration. The Independently Owned Utilities (IOU) employ a range of strategies to respond to oversupply events, primarily tackling two issues: resource management and energy price forecasting. Resource management considerations revolved around issues connected with storage, ease of dispatch, and new technologies/sources. Energy price forecasting efforts focused on modeling tools and dealing with the pricing problems created by political and federal market intervention.

Utilities served by BPA do not have resource balancing authority and are primarily concerned with the financial aspects of oversupply. Most use forecast modeling tools to address these issues.

A few utilities indicated that they were not impacted by oversupply due to their resource mix.

See the Appendix for summarized feedback from utilities.

Future reports will continue to focus on this topic because oversupply is the nexus of significant components of the state's power landscape.

1. It pits environmentally preferred resources against each other: steadfast hydropower and the rising star, wind.
2. BPA, federal supply to the state's electricity, provides 25 percent of the load and depends primarily on the hydropower system.
3. The state's continuing commitment to affordable electricity.

Appendix A: Washington State Requirements and Resources

Annual Energy (average megawatts)

Firm Requirements

	Base Year	5-Year Est	10-Year Est.
Load	10,170	11,506	12,385
Exports	458	143	127
Total	10,628	11,650	12,512

Firm Resources

Resource	Base Year	5-Yr Est.	10-Yr Est
Hydro	3,018	3,013	3,083
Conservation/Efficiency	-	485	957
Demand Response	-	0	0
Cogen	35	14	14
Wind	504	530	485
Other Renewables	38	35	64
Thermal-Natural Gas	1,610	1,970	1,912
Thermal-Coal	1,051	1,025	1,007
Long Term Contracts	234	478	453
Short Term Contracts	(12)	(57)	(4)
Distributed Generation	2	6	10
Other	(12)	16	16
Imports	238	150	189
BPA Tier 1	1,364	1,378	1,382
BPA Tier 2	9	31	45
BPA	3,331	3,096	3,077
Market Purchase	29	11	23
Undecided	2	10	31
Total Resources	11,440	12,190	12,743
Surplus (Need)	812	540	231

Appendix B: Utility Details

Electric Utility	Plan Type (IRP or blank for RP)	Ownership Class	No. of Customers	Subject to Energy Independence Act
Alder Mutual Light Co, Inc.	*	Coop	283	No
Avista Corp	IRP	IOU	236,643	Yes
Benton Rural Electric Assn		Coop	15,188	No
Big Bend Electric Coop, Inc.		Coop	8,694	No
City of Blaine		Public	3,020	No
City of Centralia		Public	9,982	No
City of Cheney		Public	4,925	No
City of Chewelah		Public	1,307	No
City of Coulee Dam		Public	600	No
City of Ellensburg		Public	9,531	No
City of McCleary		Public	1,046	No
City of Milton		Public	3,389	No
City of Richland		Public	25,727	No
City of Sumas		Public	679	No
Columbia Rural Elec Assn, Inc.		Coop	4,759	No
Elmhurst Mutual Power & Light Co		Coop	13,935	No
Inland Power & Light Company		Coop	37,139	Yes
Lakeview Light & Power		Coop	11,434	No
Modern Electric Water Company		Coop	9,855	No
Nespelem Valley Elec Coop, Inc.		Coop	1,541	No
Ohop Mutual Light Company, Inc.		Coop	4,188	No
Okanogan County Elec Coop, Inc.		Coop	3,512	No
Orcas Power & Light Coop		Coop	14,685	No
PacifiCorp	IRP	IOU	127,894	Yes
Parkland Light & Water Company		Coop	4,453	No
Peninsula Light Company		Coop	30,865	Yes
Port Angeles City of		Public	11,527	No
Port of Seattle		Public	1	No
PUD No 1 of Asotin County		Public	3	No
PUD No 1 of Benton County	IRP	Public	48,710	Yes
PUD No 1 of Chelan County	IRP	Public	47,911	Yes
PUD No 1 of Clallam County		Public	30,470	Yes
PUD No 1 of Clark County	IRP	Public	186,577	Yes
PUD No 1 of Cowlitz County	IRP	Public	48,306	Yes
PUD No 1 of Douglas County		Public	15,983	No
PUD No 1 of Ferry County		Public	3,384	No
PUD No 1 of Franklin County		Public	24,000	No
PUD No 1 of Grays Harbor County	IRP	Public	41,607	Yes
PUD No 1 of Jefferson County		Public	18,000	No
PUD No 1 of Kittitas County		Public	4,391	No
PUD No 1 of Klickitat County		Public	12,203	No
PUD No 1 of Lewis County	IRP	Public	31,047	Yes
PUD No 1 of Mason County		Public	5,143	No
PUD No 1 of Okanogan County		Public	20,679	No
PUD No 1 of Pend Oreille Cnty		Public	8,803	No
PUD No 1 of Skamania County		Public	5,853	No
PUD No 1 of Snohomish County	IRP	Public	325,849	Yes

Utility Details (continued)

Electric Utility	Plan Type (IRP or blank for RP)	Ownership Class	No. of Customers	Subject to Energy Independence Act
PUD No 1 of Wahkiakum County		Public	2,414	No
PUD No 1 of Whatcom County		Public	1	No
PUD No 2 of Grant County	IRP	Public	46,602	Yes
PUD No 2 of Pacific County		Public	17,277	No
PUD No 3 of Mason County		Public	32,249	Yes
Puget Sound Energy Inc.	IRP	IOU	1,089,271	Yes
Seattle City of	IRP	Public	402,608	Yes
Tacoma City of	IRP	Public	169,018	Yes
Tanner Electric Coop		Coop	4,558	No
Town of Eatonville		Public	1,178	No
Town of Ruston		Public	495	No
Town of Steilacoom		Public	2,863	No
Vera Irrigation District #15		Public	10,181	No

Washington Electric Utility Loads and Resources Estimates

Appendix C: Utility Cover Sheets

Reported to Department of Commerce in 2014

Annual Average Megawatts

Base Year is 2013 for nearly all utilities. See utility websites for more information.

Alder Mutual Light Co, Inc

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	0.5	0.0			0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.5	0.0
Five Yr Est	0.6	0.0			0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.6	0.0
Ten Yr Est	0.6	0.0			0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		0.6	0.0

Avista Corp

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	709.5	0.0		28.4			383.9	178.1	31.7	97.6	4.6	0.0	0.0	15.7	91.0	-17.5		0.0	0.0	0.0	813.6	104.1
Five Yr Est	1,149.8	0.0		27.7			326.7	418.8	0.0	125.3	26.4	0.0	0.0	14.3	18.5	0.0		0.0	0.0	0.0	977.0	-172.8
Ten Yr Est	1,223.0	0.0		0.0			317.5	416.8	0.0	124.0	26.4	0.0	0.0	14.3	16.5	0.0		0.0	0.0	0.0	961.7	-261.4

Benton Rural Electric Assn.

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	68.4	0.0			67.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.4	0.0	0.0		68.4	0.0
Five Yr Est	72.7	0.0			65.7	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		72.7	0.0
Ten Yr Est	77.7	0.0			65.7	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		77.7	0.0

Big Bend Electric Coop, Inc

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	60.3	0.0			58.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.7	0.0	0.0		60.3	0.0
Five Yr Est	61.6	0.0			60.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		61.6	0.0
Ten Yr Est	63.6	0.0			60.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		63.6	0.0

Washington Electric Utility Loads and Resources Estimates

Reported to Department of Commerce in 2014

Annual Average Megawatts

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City of Blaine

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	8.9	0.0			8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		8.9	0.0
Five Yr Est	9.7	0.0			9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		9.7	0.0
Ten Yr Est	10.3	0.0			8.9	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		10.3	0.0

City of Centralia

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	30.8	0.0			22.4	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.7	0.0	0.0		31.1	0.3
Five Yr Est	33.1	0.0			24.5	0.5	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.0	0.0	0.0		33.1	0.0
Ten Yr Est	35.2	0.0			24.5	0.6	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0			3.0	0.0	0.0		35.2	0.0

City of Cheney

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	15.8	0.0			15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.5	0.0	0.0		16.3	0.6
Five Yr Est	17.2	0.0			15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.0	0.0	0.4		17.2	0.0
Ten Yr Est	18.5	0.0			15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	2.0	0.7		18.5	0.0

City of Chewelah

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	2.7	0.0			2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		2.7	0.0
Five Yr Est	2.6	0.0			2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		2.6	0.0
Ten Yr Est	2.6	0.0			2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		2.6	0.0

Washington Electric Utility Loads and Resources Estimates

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Annual Average Megawatts

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City of Coulee Dam

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	2.0	0.0			2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		2.0	0.0
Five Yr Est	2.1	0.0			2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		2.1	0.0
Ten Yr Est	2.2	0.0			2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		2.2	0.0

City of Ellensburg

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	23.7	0.0			23.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		23.7	0.0
Five Yr Est	24.2	0.0			24.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		25.9	1.7
Ten Yr Est	24.7	0.0			24.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	1.0	0.0		25.3	0.6

City of McCleary

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	3.6	0.0			3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		3.6	0.0
Five Yr Est	3.6	0.0			3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		3.6	0.0
Ten Yr Est	3.6	0.0			3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		3.6	0.0

City of Milton

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	6.8	0.0			6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		6.8	0.0
Five Yr Est	8.0	0.0			7.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		8.0	0.0
Ten Yr Est	8.2	0.0			7.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		8.2	0.0

Washington Electric Utility Loads and Resources Estimates

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Annual Average Megawatts

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City of Richland

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	101.7	0.0			95.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			2.9	0.0	0.0		101.7	0.0
Five Yr Est	111.0	0.0			104.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		111.0	0.0
Ten Yr Est	121.6	0.0			104.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			0.0	17.5	0.0		126.6	5.0

City of Sumas

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	3.5	0.0			3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		3.5	0.0
Five Yr Est	4.0	0.0			4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		4.0	0.0
Ten Yr Est	4.2	0.0			4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		4.2	0.0

Columbia Rural Elec Assn, Inc

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	40.4	0.0			38.3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			2.1	0.0	0.0		40.4	0.0
Five Yr Est	40.2	0.0			37.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			2.9	0.0	0.0		40.2	0.0
Ten Yr Est	44.9	0.0			37.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			7.6	0.0	0.0		44.9	0.0

Elmhurst Mutual Power & Light Co

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	31.1	0.0			31.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		31.1	0.0
Five Yr Est	32.4	0.0			32.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		32.4	0.0
Ten Yr Est	33.8	0.0			32.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		33.8	0.0

Washington Electric Utility Loads and Resources Estimates

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Annual Average Megawatts

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Inland Power & Light Company

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	106.3	0.0			104.7	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		106.3	0.0
Five Yr Est	113.3	0.0			108.2	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		113.3	0.0
Ten Yr Est	120.2	0.0			108.2	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			5.4	0.0	0.0		120.2	0.0

Lakeview Light & Power

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	30.8	0.0			30.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		30.8	0.0
Five Yr Est	32.3	0.0			32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		32.3	0.0
Ten Yr Est	33.1	0.0			32.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		33.1	0.0

Modern Electric Water Company

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	26.5	0.0			25.3	1.2	0.0	0.0	0.0	0.0	0.0	26.5	0.0	0.0			0.0	0.0	0.0			41,898.0
Five Yr Est	26.0	0.0			26.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0	0.0	0.0			0.0	0.0	0.0			
Ten Yr Est	26.8	0.0			26.8	0.0	0.0	0.0	0.0	0.0	0.0	26.8	0.0	0.0			0.0	0.0	0.0			

Nespelem Valley Elec Coop, Inc

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	6.5	0.0			6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		6.5	0.0
Five Yr Est	7.0	0.0			6.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		7.0	0.0
Ten Yr Est	7.3	0.0			6.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		7.3	0.0

Washington Electric Utility Loads and Resources Estimates

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Annual Average Megawatts

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Ohop Mutual Light Company, Inc

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	9.6	0.0			9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		9.6	0.0
Five Yr Est	9.8	0.0			9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		9.8	0.0
Ten Yr Est	9.9	0.0			9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		9.9	0.0

Okanogan County Elec Coop, Inc

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	6.7	0.0			6.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.1	0.0	0.0		6.7	0.0
Five Yr Est	6.7	0.0			6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.3	0.0	0.0		6.7	0.0
Ten Yr Est	6.9	0.0			6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.4	0.0	0.0		6.9	0.0

Orcas Power & Light Coop

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	23.8	0.0			25.1	1.0	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.0			0.0	0.0	0.0		27.0	3.2
Five Yr Est	24.7	0.0			24.9	1.0	0.1	0.0	0.0	0.0	0.0	1.5	0.1	0.0			0.0	0.0	0.0		28.6	3.9
Ten Yr Est	25.9	0.0			24.7	1.0	0.1	0.0	0.0	0.0	0.0	2.0	0.1	0.0			0.0	0.0	0.0		28.9	3.0

PacifiCorp

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	504.3	35.4		0.0			40.6	71.2	1.1	387.8	50.6	0.1	0.0	5.1	21.9	5.1		0.0	0.0	28.6	612.2	72.5
Five Yr Est	533.0	24.3		0.0			37.8	108.8	0.5	334.2	54.2	0.7	0.0	7.6	21.3	10.6		0.0	0.0	6.2	606.3	49.0
Ten Yr Est	553.3	12.8		0.0			30.0	132.6	0.9	317.4	51.6	1.1	0.0	7.0	11.2	12.8		0.0	0.0	4.4	604.8	38.7

Washington Electric Utility Loads and Resources Estimates

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Parkland Light & Water Company

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	13.7	0.0			13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		13.7	0.0
Five Yr Est	14.2	0.0			14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		14.2	0.0
Ten Yr Est	14.5	0.0			14.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		14.5	0.0

Peninsula Light Company

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	69.4	0.0			69.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		69.4	0.0
Five Yr Est	73.3	0.0			70.9	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0			0.0	0.0	0.0		73.3	0.0
Ten Yr Est	76.7	0.0			70.9	1.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0			0.0	0.0	0.0		76.7	0.0

Port Angeles City of

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	83.5	0.0			83.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.1	0.0	0.0		83.5	0.0
Five Yr Est	84.9	0.0			84.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.1	0.0	0.0		84.9	0.0
Ten Yr Est	86.1	0.0			84.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.1	0.0	0.0		86.1	0.0

Port of Seattle

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	16.2	0.0			17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		17.5	1.4
Five Yr Est	18.4	0.0			17.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		18.4	0.0
Ten Yr Est	19.5	0.0			17.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		19.5	0.0

Washington Electric Utility Loads and Resources Estimates

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Annual Average Megawatts

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PUD No 1 of Asotin County

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	5.2	0.0			0.0	0.0	4.0	0.2	0.0	0.4	0.0	0.0	0.0	0.7			0.0	0.0	0.0		5.2	0.0
Five Yr Est	5.3	0.0			0.0	0.0	4.1	0.2	0.0	0.3	0.0	0.0	0.0	0.8			0.0	0.0	0.0		5.3	0.0
Ten Yr Est	5.4	0.0			0.0	0.0	4.1	0.3	0.0	0.3	0.0	0.0	0.0	0.8			0.0	0.0	0.0		5.4	0.0

PUD No 1 of Benton County

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	202.5	0.0		216.3			1.5	19.0	0.0	0.0	4.9	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	241.7	39.3
Five Yr Est	214.0	0.0		204.6			1.3	45.8	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	264.8	50.7
Ten Yr Est	227.7	0.0		204.6			1.3	0.0	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	227.1	-0.6

PUD No 1 of Chelan County

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	185.8	0.0		0.0			195.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	197.1	11.4
Five Yr Est	200.5	0.0		0.0			361.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	370.6	170.0
Ten Yr Est	213.7	0.0		0.0			361.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	377.8	164.1

PUD No 1 of Clallam County

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	73.5	0.0			72.8	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		73.5	0.0
Five Yr Est	83.5	0.0			74.9	4.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		83.5	0.0
Ten Yr Est	89.6	0.0			74.9	6.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		89.6	0.0

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PUD No 1 of Clark County

	TOTAL RESOURCES																			Total Resources	Load-Res Balance
	Loads	Exports	BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports		
Base Year	508.6	0.0	346.6			2.0	197.5	0.0	0.0	17.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	563.2	54.6
Five Yr Est	549.0	0.0	296.0			1.0	225.0	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	567.0	18.0
Ten Yr Est	582.0	0.0	300.0			1.0	225.0	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	601.0	19.0

PUD No 1 of Cowlitz County

	TOTAL RESOURCES																			Total Resources	Load-Res Balance
	Loads	Exports	BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports		
Base Year	583.9	0.0	618.0			14.9	0.0	0.0	0.0	35.5	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	668.4	84.5
Five Yr Est	650.5	0.0	558.0			14.6	0.0	0.0	0.0	36.0	0.0	0.0	0.0	0.0	0.0		0.0	24.0	0.0	637.5	-13.0
Ten Yr Est	670.7	0.0	558.0			14.6	0.0	0.0	0.0	36.0	0.0	0.0	0.0	0.0	0.0		0.0	24.0	0.0	650.0	-20.7

PUD No 1 of Douglas County

	TOTAL RESOURCES																			Total Resources	Load-Res Balance
	Loads	Exports	BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports		
Base Year	89.8	0.0		0.0	0.0	127.3	0.0	0.0	0.0	3.1	0.0	0.0	0.0			16.8	0.0	0.0		147.1	57.3
Five Yr Est	105.9	0.0		0.0	0.0	157.4	0.0	0.0	0.0	3.1	0.0	0.0	0.0			0.0	0.0	0.0		160.7	54.8
Ten Yr Est	117.4	0.0		0.0	0.0	241.3	0.0	0.0	0.0	3.1	0.0	0.0	0.0			0.0	0.0	0.0		244.6	127.2

PUD No 1 of Ferry County

	TOTAL RESOURCES																			Total Resources	Load-Res Balance
	Loads	Exports	BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports		
Base Year	11.5	0.0		11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		11.5	0.0
Five Yr Est	10.8	0.0		10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		10.8	0.0
Ten Yr Est	10.0	0.0		10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		10.0	0.0

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PUD No 1 of Franklin County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	113.7			119.4	0.0	1.2	12.5	0.0	0.0	5.3	0.8	0.0	0.0				0.0	0.0	0.0		139.1	25.4
Five Yr Est	126.3			119.4	0.0	0.7	30.0	0.0	0.0	6.0	0.7	0.0	0.0				0.0	0.0	0.0		161.4	35.1
Ten Yr Est	132.2			119.4	0.0	0.7	30.0	0.0	0.0	6.0	0.7	0.0	0.0				0.0	0.0	0.0		165.4	33.2

PUD No 1 of Grays Harbor Cnty

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	130.5	0.0		149.6			0.0	24.2	0.0	0.0	10.6	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	184.4	53.9
Five Yr Est	132.8	0.0		129.7			0.0	33.8	11.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	183.6	50.7
Ten Yr Est	136.4	0.0		129.1			0.0	0.0	11.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	153.4	17.0

PUD No 1 of Jefferson County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	41.4	0.0		41.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		41.4	0.0
Five Yr Est	43.0	0.0		42.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		43.0	0.0
Ten Yr Est	44.3	0.0		44.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		44.3	0.0

PUD No 1 of Kittitas County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	11.3	0.0		9.6	0.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		11.3	0.0
Five Yr Est	12.4	0.0		9.6	1.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		12.4	0.0
Ten Yr Est	12.9	0.0		9.6	2.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		12.9	0.0

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PUD No 1 of Klickitat County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	41.2	0.0			36.8	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		41.2	0.0
Five Yr Est	42.4	0.0			36.8	0.0	4.4	0.0	0.0	0.0	1.0	0.0	0.0	0.0			0.0	0.0	0.0		42.4	0.0
Ten Yr Est	43.9	0.0			36.8	0.0	4.4	0.0	0.0	0.0	2.5	0.0	0.0	0.0			0.0	0.0	0.0		43.9	0.0

PUD No 1 of Lewis County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	107.9	0.0		127.0			1.7	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	136.4	28.5
Five Yr Est	109.9	0.0		109.1			1.2	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	119.6	9.7
Ten Yr Est	111.3	0.0		115.4			1.2	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	127.4	16.1

PUD No 1 of Mason County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	9.2				9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		9.2	0.0
Five Yr Est	9.8				9.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		9.8	0.0
Ten Yr Est	12.0				9.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		12.0	0.0

PUD No 1 of Okanogan County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	73.6	0.0			48.3	0.0	24.3	0.0	0.0	0.0	4.5	0.0	0.0	0.0			0.0	0.0	0.0		77.0	3.4
Five Yr Est	79.4	0.0			46.1	0.0	24.3	0.0	0.0	0.0	4.5	0.0	0.0	0.0			0.0	0.0	0.0		74.9	-4.6
Ten Yr Est	83.5	0.0			46.1	0.0	24.3	0.0	0.0	0.0	4.5	0.0	0.0	0.0			0.0	0.0	0.0		74.9	-8.6

Washington Electric Utility Loads and Resources Estimates

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PUD No 1 of Pend Oreille Cnty

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	116.2	0.0			32.0	0.0	89.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		121.9	5.8
Five Yr Est	123.9	0.0			26.0	0.0	81.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		107.6	-16.3
Ten Yr Est	120.6	0.0			26.0	0.0	81.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		107.6	-13.0

PUD No 1 of Skamania County

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	15.4	0.0			15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		15.4	0.0
Five Yr Est	15.5	0.0			15.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		15.5	0.0
Ten Yr Est	15.7	0.0			15.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		15.7	0.0

PUD No 1 of Snohomish County

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	779.0	184.3		858.6			56.1	0.0	0.0	0.0	56.2	0.2	0.0	4.1	0.0	0.0		0.0	-11.9	0.0	963.3	0.0
Five Yr Est	866.5	0.0		811.0			37.2	0.0	0.0	0.0	55.7	3.3	0.0	0.0	0.0	-67.6		0.0	-8.5	0.0	866.5	0.0
Ten Yr Est	956.9	0.0		811.0			37.2	0.0	0.0	0.0	55.7	5.6	0.0	0.0	0.0	-17.1		0.0	-8.5	0.0	956.9	0.0

PUD No 1 of Wahkiakum County

	TOTAL RESOURCES			BPA	BPA T1	BPA T2	Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports																				
Base Year	4.9	0.0			4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		4.9	0.0
Five Yr Est	4.9	0.0			4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		4.9	0.0
Ten Yr Est	4.9	0.0			4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		4.9	0.0

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PUD No 1 of Whatcom County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	26.0	0.0			26.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		26.0	0.0
Five Yr Est	26.2	0.0			25.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		26.2	0.0
Ten Yr Est	26.6	0.0			26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		26.6	0.0

PUD No 2 of Grant County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	507.0	131.0		5.0			529.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0		2.0	0.0	99.0	638.0	0.0
Five Yr Est	583.0	51.0		5.0			529.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	95.0	634.0	0.0
Ten Yr Est	624.0	51.0		5.0			529.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	136.0	675.0	0.0

PUD No 2 of Pacific County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	35.5	0.0			40.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.9	0.0	0.0		42.1	6.6
Five Yr Est	51.4	0.0			36.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			3.8	10.0	0.0		51.4	0.0
Ten Yr Est	51.8	0.0			36.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			4.1	10.0	0.0		51.8	0.0

PUD No 3 of Mason County

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	79.4	0.0			77.9	0.0	0.7	0.0	0.0	0.0	0.8	0.0	0.0	0.0			0.0	0.0	0.0		79.4	0.0
Five Yr Est	81.8	0.0			79.3	0.0	0.7	0.0	0.0	0.0	1.4	0.0	0.0	0.0			0.0	0.0	0.0		81.8	0.0
Ten Yr Est	83.6	0.0			79.3	1.9	0.7	0.0	0.0	0.0	1.4	0.0	0.0	0.0			0.0	0.0	0.0		83.6	0.0

Washington Electric Utility Loads and Resources Estimates

Reported to Department of Commerce in 2014

Annual Average Megawatts

Base Year is 2013 for nearly all utilities. See utility websites for more information.

Puget Sound Energy Inc

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	2,643.9	70.1		0.0			522.8	1,107.4	0.0	565.3	251.3	0.0	0.0	0.0	87.9	0.0		0.0	0.0	73.3	2,607.9	-106.1
Five Yr Est	2,956.7	68.1		0.0			508.7	1,107.4	0.0	565.3	251.3	0.0	0.0	0.0	408.3	0.0		0.0	0.0	48.6	3,131.8	107.0
Ten Yr Est	3,290.8	63.1		0.0			519.0	1,107.4	0.0	565.3	251.3	0.0	0.0	0.0	395.7	0.0		0.0	0.0	48.6	3,360.5	6.6

Seattle City of

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	1,148.0	37.0		553.0			709.0	0.0	2.5	0.0	47.0	0.0	0.0	12.0	0.0	0.0		0.0	0.0	37.0	1,360.5	175.5
Five Yr Est	1,228.0	0.0		554.0			736.0	0.0	2.5	0.0	47.0	0.0	0.0	12.0	0.0	0.0		0.0	0.0	0.0	1,421.5	193.5
Ten Yr Est	1,330.0	0.0		552.0			729.0	0.0	2.5	0.0	0.0	0.0	0.0	42.0	0.0	0.0		0.0	0.0	0.0	1,465.5	135.5

Tacoma City of

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	572.0	0.0		428.8			300.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.0		0.0	0.0	0.0	762.4	190.4
Five Yr Est	626.7	0.0		401.4			176.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.5	0.0		0.0	0.0	0.0	629.5	2.8
Ten Yr Est	679.0	0.0		401.4			176.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.5	0.0		0.0	0.0	0.0	648.8	-30.2

Tanner Electric Coop

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	11.2	0.0			11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		11.2	0.0
Five Yr Est	12.5	0.0			11.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		12.5	0.0
Ten Yr Est	13.6	0.0			11.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		13.6	0.0

Washington Electric Utility Loads and Resources Estimates

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Town of Eatonville

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	3.2	0.0			3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		3.2	0.0
Five Yr Est	3.4	0.0			3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		3.4	0.0
Ten Yr Est	3.4	0.0			3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		3.4	0.0

Town of Ruston

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	0.7	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.7	0.0	0.0		0.7	0.0
Five Yr Est	0.8	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.8	0.0	0.0		0.8	0.0
Ten Yr Est	0.8	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.8	0.0	0.0		0.8	0.0

Town of Steilacoom

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	4.7	0.0			4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		4.7	0.0
Five Yr Est	5.0	0.0			4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		5.0	0.0
Ten Yr Est	5.1	0.0			5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		5.1	0.0

Vera Irrigation District #15

				TOTAL RESOURCES			Hydro	Natural Gas	Cogen	Coal	Wind	Distrib. Gen.	Demand Resp.	Other Renew.	Contracts Long Term	Contracts Short	Market	Undecided	Other	Imports	Total Resources	Load-Res Balance
	Loads	Exports		BPA	BPA T1	BPA T2																
Base Year	26.8	0.0			26.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0		26.8	0.0
Five Yr Est	28.4	0.0			27.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.0	0.0	0.0		28.4	0.0
Ten Yr Est	30.1	0.0			28.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			2.0	0.0	0.0		30.1	0.0

Appendix D: Summary of Utility Feedback on Overgeneration Planning

(Excerpted from utility input and from Integrated Resource Plans)

The following utilities responded to a request for input:

Avista

Avista began including planning for oversupply events in their IRP in 2011. To overcome oversupply's effects to the IRP, Avista will value and therefore favor resources with flexible dispatch capability rather than resources with non-dispatchable characteristics or with production curves in spring months. Main considerations are: market prices and operations of current and future plants. They use the market forecasting model, Aurora.

Benton County PUD

Benton County PUD is part of the Bonneville Balancing Authority and complies with BPA oversupply management protocols. Their focus, in terms of oversupply, is the financial impact. They use the Aurora market forecasting model.

Chelan County PUD

Chelan County PUD is part of the Bonneville Balancing Authority and complies with BPA oversupply management protocols. Their oversupply plan addresses financial impacts and the PUD's hydro reserves. Wind is less than 1% of Chelan's portfolio and this can, in most cases, be integrated operationally without issue. In cases of oversupply, where they must reduce hydro generation, the PUD is prepared to sell at negative prices.

Grant County PUD # 2

Grant mitigates the impacts of overgeneration by predicting their loads and managing their resources. They also have a range of operational actions planned to respond to negative pricing, should it occur, such as: sell hydro reserves, reduce hydro generation. Their main considerations are financial impacts and supply reliability. They use forecasting models, load shaping, etc. They note: "Operating measures taken during over-generation and/or negative pricing periods can be for reliability or economic reasons or both."

Seattle City Light

Seattle City Light reported: "We do not have overgeneration events originating from within our balancing area." Seattle conducts rigorous planning efforts including demand forecasting, resource management and development and conservation.

PacifiCorp

The PacifiCorp IRP contains a number of assessments regarding maintaining operating reserves primarily to meet NERC requirements for their balancing authority. In addition, PacifiCorp conducts assessments to address issues such as “disturbance events” relating to intra-hour changes in load demand and variances in wind generation. Their main considerations are financial impacts, system reliability. They note that long-term resource pricing continues to be a challenge to predict. PacifiCorp serves a multi-state region including California, Oregon, Utah, and Washington, all with unique Renewable Portfolio Standards.

The following utilities did not respond to the request for input. This information is based on a brief review of the utilities IRPs.

PUD 1 Clark

Clark’s Integrated Resource Plan describes oversupply situation that can occur in the spring in the Pacific Northwest and subsequent generation curtailment. They are evaluating pumped storage as a wind power balancing resource. Cost is a major consideration. Other storage options are also noted and reviewed in terms of cost, risk, commercial availability.

PUD 1 Cowlitz

Cowlitz PUD’s power supply is made up of hydro, wind, and nuclear generation resource, some of which comes from BPA. They review their ability to serve peak capacity and their load balancing ability during ‘an extreme event that will likely occur only a few hours out [of] the entire year.’ They do not have sufficient capacity to serve load during these periods and must rely on the wholesale market to make up the deficit. (Source: Page 5 of the 2014 Cowlitz PUD IRP.)

PUD 1 Grays Harbor County

The majority of Grays Harbor PUD’s power is supplied by BPA and has the subsequent mix of primarily hydro followed by nuclear, coal, gas. Less than 10 percent of their mix consists of wind, biomass, waste, petroleum etc. The District purchased a portion of the Nine Canyon Wind Project as an intermittent source of energy for the District. Their resource plan does not specifically address oversupply. Since they are primarily served by BPA, their operational authority would be largely driven by BPA protocols.