CITY OF CENTRALIA

2020 ELECTRIC UTILITY RESOURCE PLAN UPDATE

Required by: RCW 19.280.030

Prepared by:

David L. Hayes, P.E., Engineering & Operations Manager

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EXECUTIVE SUMMARY

The City of Centralia's (City) energy future is essential to its economic health. The City has long benefited from having access to low-cost electricity from the federally-based Bonneville Power Administration (BPA) system; as well as, low-cost energy from its Yelm hydroelectric generation plant (Yelm). However, as the world and the energy industry change, the City faces a challenge to its economy in the form of rising electricity costs. This document is intended to be a roadmap to assist the City in meeting its future energy requirements for the next ten years. Planned resources include a mix of BPA resources, City resources, non-federal external resources, Renewable Resources, and Conservation resources.

This resource plan is written to satisfy the requirements set forth in Washington State law RCW 19.29A, 19.280, and 19.405. In 2018, 95.6 percent of the City's power resources were non-carbon producing. The City will continue its efforts to reduce the remaining 4.4 percent of carbon-sourced power to zero by 2030.

Centralia City Light (Utility) will continue to purchase clean carbon-free hydroelectric power from BPA and to produce clean hydroelectric power from its Yelm Hydroelectric plant. The Utility will continue to offer conservation related programs that promote the efficient use of energy. The Utility will expand its commitment to support the deployment of solar-related net metered services by increasing the upper limits of allowable net metered installations to 2.341 aMW. The Utility will only purchase future non-federal power if the source of generation is specified so that unspecified purchases can be reduced to a minimum.

While this Plan is not a legally binding document, it provides a description of current power loads and resources, as well as the forecasted power loads and resources for the 2025 and 2030 time periods as required by RCW 19.280.030. The Plan is available to the public[1] and will next be updated in 2022. This Plan update provides substantive information regarding the City's power sales contract with BPA.

The City has less than 25,000 customers and is exempt from meeting the mandatory conservation and renewable portfolio standards required for larger utilities (I-937). However, the 2020 Plan still places emphasis on energy efficiency and conservation opportunities.

[1] 2020 Resource Plan is available on the City's website: http://www.cityofcentralia.com/Page.asp?NavID=27

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1. DEFINITIONS

aMW: means average megawatts for one year.

ARHWM: means the power required by the Utility to meet its TRL obligations less the RHWM allocation by BPA and less any existing resources that the Utility might have. The ARHWM value only includes whole MW increments of this calculation. Under the regional dialog contract with BPA the Utility is obligated to purchase additional power (either federal or non-federal) to cover its ARHWM obligations.

BPA: means the Bonneville Power Administration, a federal agency.

City: means the City of Centralia.

CETA: means the Clean Energy Transformation Act which was codified on May 7, 2019. This law seeks to eliminate all carbon-sourced generation from electricity by January 1, 2045 and prohibits electricity generation from coal sources being used within the State of Washington after 2025.

CMC: means Centralia Municipal Code.

Commission: means the Washington Utilities and Transportation Commission. The Commission does not establish, approve, or set rates for publically-owned utilities.

Conservation: means any reduction in electric power consumption that results from increases in the efficiency of energy use, production, transmission, or distribution.

Contract: means the 20-year Power Sales Agreement #09PB-13016 with BPA starting in 2008 and ending in 2028.

Council: means the Centralia City Council. It is the governing body of Centralia City Light with the authority to set and approve rates.

Demand Response: means changes in electric usage by demand-side resources from their normal consumption patterns in response to changes in the price of electricity, or to incentive payments designed to induce lower electricity use, at times of high wholesale market prices or when system reliability is jeopardized. "Demand response" may include measures to increase or decrease electricity usage on the customer's side of the meter in response to incentive payments.

Department: means the Washington State Department of Commerce

Distributed Energy Resource: means a Nonemitting electric generation or Renewable Resource or program that reduces electric demand, manages the level or timing of electricity consumption, or provides storage, electric energy, capacity, or ancillary services to an Electric Utility and that is located on the distribution system, any subsystem of the distribution system, or behind the customer meter, including conservation and energy efficiency.

Electric Utility or **Utility**: means Centralia City Light electric utility.

Energy Transformation Project: means a project or program that: provides energy-related goods or services, other than the generation of electricity; results in a reduction of fossil fuel consumption and in a reduction of the emission of greenhouse gases attributable to that consumption; and provides benefits to the customers of an Electric Utility.

FERC: means the Federal Energy Regulatory Commission which is the licensing agency for the Utility's Yelm Hydroelectric Plant.

Fossil Fuel: means natural gas, petroleum, coal, or any form of solid, liquid, or gaseous fuel derived from such a material.

Fuel Mix: Identifies the source of fuel used by an Electric Utility to provide electric service to its customers during the previous calendar year using the following standardized categories: (a) Coal; (b) Hydroelectric; (c) Natural gas; (d) Nuclear; (e) Petroleum; (f) Solar; (g) Wind; (h) Other generation; (i) Unspecified sources.

Greenhouse Gas (GHG): includes carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and any other gas or gases designated by the department of ecology by rule under RCW 70.235.010.

Megawatt (MW): is a unit of electric capacity or electric load. A MW is equal to 1,000 kilowatts (kW). Watts are a measurement of power, describing the rate at which electricity is being used at a specific moment.

Megawatt Hour (MWh): is a unit of measure of electric energy. A MWh is 1,000 kilowatt-hours (kWh). A MWh is the amount of electricity generated by a one megawatt (MW) electric generator operating or producing electricity for one hour.

Natural Gas: means naturally occurring mixtures of hydrocarbon gases and vapors consisting principally of methane, whether in gaseous or liquid form, including methane clathrate. Does not include renewable natural gas or the portion of renewable natural gas when blended into other fuels.

NEMS: means the Northwest Energy Management Services which is a trade organization set up to purchase non-federal power for its members.

NIES: means the Northwest Intergovernmental Energy Supply which is a part of NEMS that is set up to purchase non-federal power for intergovernmental agencies such as municipalities and public utility districts.

Nonemitting Electric Generation: means electricity from a generating facility or a resource that provides electric energy, capacity, or ancillary services to an Electric Utility and that does not emit Greenhouse Gases as a by-product of energy generation. This does not include renewable resources or nuclear power generation.

NRU: means Northwest Requirements Utilities

P28 Contract: means the yet to be developed and approved Post 2028 20-year Power Sales Agreement with BPA covering the time frame between 2028 and 2048.

RHWM: means Rate period High Water Mark which is set by BPA and establishes the amount of Tier 1 power the Utility may receive from BPA during the given rate period which occurs in two-year increments.

RCW: means the Revised Code of Washington

Renewable Energy Certificate or Credit (REC): means a tradable certificate of proof of one megawatt-hour of power generated by a Renewable Resource. The certificate includes all of the non-power attributes associated with that one megawatt-hour of electricity and the certificate is verified by a Renewable Energy Credit tracking system selected by the Department.

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

Resource Plan: means an assessment that estimates electricity loads and resources over a defined period of time and complies with the requirements in RCW 19.280.030(2).

Total Retail Load (TRL): means the amount of megawatt-hours of electricity delivered in a given calendar year by an electric utility to its Washington retail electric customers.

TRM: means Tiered Rate Methodology used in the regional dialog contract with BPA.

Unspecified Source: means an electricity source for which the fuel attribute is unknown or has been separated from the energy. This electricity is obtained in a transaction where the seller does not identify a specific generating source, typically through short-term transactions in the bulk power markets.

YELM: means the City's Yelm hydroelectric generation facility located in Yelm, Washington.

2. INTRODUCTION

Located in southwest Washington, the town of Centralia was founded by George Washington, an African American who came west in 1850 to escape discrimination. Washington first settled in Oregon Territory, but was barred from owning land there, so he moved north and eventually obtained a land claim at the junction of the Skookumchuck and Chehalis rivers. When the Northern Pacific Railroad built a line through the area in 1872, Washington recognized the opportunity to start a town. In early 1875, Washington and his wife Mary Jane formally platted the town of Centerville, later to be renamed Centralia.

In 1893, the Centralia City Council authorized formation of Centralia City Light for $13,000. In 1895, citizens of Centralia approved the formation of Centralia City Light through a public vote with 259 people for and 98 people against.

In 1929, the City passed Ordinance #658 to purchase, acquire, and construct the Yelm Hydroelectric generation plant, canal, diversion dam, and transmission line for a total of $955,000. Of this, the City authorized a $650,000 revenue bond and provided the remaining $300,000 from its existing funds to complete the project.

Today, the city owns and operates a complete electrical system consisting of a hydroelectric generating plant, transmission system, substations, and distribution system serving the City and surrounding area. This intent of this Resource Plan is to identify the resources required to meet our customers' electricity needs in both the short term and the long term.

3. LEGISLATIVE MANDATE

The Utility is required by the State of Washington under RCW 19.280.030 to develop an Electric Utility Resource Plan (Plan) that must be submitted to the Department by September 1, 2020. This statute specifies the requirements for utilities that need to develop a fully integrated resource plan (utilities with 25,000 or more customers) or simply a resource plan (utilities with fewer than 25,000

customers). The City of Centralia currently serves fewer than 25,000 customers and submits this document per the requirements set forth within the RCW for an electric resource plan.

The Council encourages participation of its consumers in development and approval of the Plan. The Plan will be made available on the City of Centralia's website prior to a public hearing to be held in August 2020. Results of the public hearing will be included in Appendix C.

3.1. RCW 19.280.030

An electric utility that is required to develop a resource plan under RCW 19.280.030 was required to complete its initial plan by September 1, 2008 and update the plan on a regular basis at a minimum interval of every two years. In 2008, 2010, 2012, 2014, 2016, and 2018 the Utility submitted plans to meet the requirements of RCW 19.280.030. This report is an update of the 2018 Plan.

The intent of RCW 19.280.030 is to encourage the development of new safe, clean, and reliable energy resources to meet demand in Washington for affordable and reliable electricity. This legislation requires utilities to develop comprehensive resource plans that explain the mix of generation and demand-side resources they plan to use to meet their customers' electricity needs in both the short and long terms. Information obtained from these plans will be used to assist in identifying and developing new energy generation, conservation and efficiency resources, methods and commercially available technologies and facilities for integrating renewable resources, and related infrastructure to meet the state's electricity needs.

This Plan:

a) Estimates loads for the next five and ten years; and

b) Enumerates the resources that will be maintained and/or required to serve those loads; and

c) Explains why the resources in (b) of this subsection were chosen and, if the resources chosen are not:

   (i) Renewable resources;

   (ii) methods, commercially available technologies, or facilities for integrating renewable resources, including addressing any over-generation event; or

   (iii) conservation and efficiency resources, why such a decision was made.

d) By December 31, 2020, and in every resource plan thereafter, identify how the utility plans over a ten-year period to implement RCW 19.405.040 and 19.405.050.

3.2. RCW 19.405.040

This is an abbreviated description of the requirements set forth in the RCW. This RCW requires that all retail sales of electricity to Washington Retail electric customers be Greenhouse Gas neutral

between January 1, 2030 and December 31, 2044. An Electric Utility must demonstrate its compliance using a combination of Nonemitting Electric Generation and electricity from Renewable Resources, or alternate compliance options. To achieve compliance with this standard an Electric Utility must:

a) For the four-year compliance period beginning January 1, 2030, and for each multiyear compliance period thereafter through December 31, 2044, must demonstrate its compliance with this standard using a combination of Nonemitting Electric Generation and electricity from Renewable Resources, or alternative compliance options, as provided in this section.

   (i) Pursue all cost-effective, reliable, and feasible Conservation and efficiency resources to reduce or manage TRL, using the methodology established in RCW 285.040, if applicable; and

   (ii) Use electricity from Renewable Resources and Nonemitting Electric Generation in an amount equal to one hundred percent of the Utility's TRL over each multiyear compliance period.

b) Through December 31, 2044, an Electric Utility may satisfy up to twenty percent of its compliance obligation under (a) of this subsection with an alternative compliance option.

c) Electricity from Renewable Resources used to meet the standard under (a) of this subsection must be verified.

d) Hydroelectric generation used by an Electric Utility in meeting the standard under (a) of this subsection may not include new diversions, new impoundments, new bypass reaches, or expansion of existing reservoirs constructed after May 7, 2019.

3.3. RCW 19.405.050

There are eight elements to this legislation.

1) It is the policy of the state that Nonemitting Electric Generation and electricity from Renewable Resources supply one hundred percent of all sales of electricity to Washington retail electric customers by January 1, 2045.

2) Each Electric Utility must incorporate subsection (1) of this section into all relevant planning and resource acquisition practices including, but not limited to: Resource planning under chapter 19.280 RCW; the construction or acquisition of property, including electric generating facilities.

3) In planning to meet projected demand consistent with the requirements of subsection (2) of this section and RCW 19.285.040, if applicable, an electric utility must pursue all cost-effective, reliable, and feasible Conservation and efficiency resources, and Demand Response. In making new investments, an Electric Utility must, to the maximum extent feasible:

a. Achieve targets at the lowest reasonable cost, considering risk;

b. Consider acquisition of existing Renewable Resources; and

c. In the acquisition of new resources constructed after May 7, 2019, rely on Renewable Resources and energy storage, insofar as doing so is consistent with (a) of this subsection.

4) The Commission, Department, Energy Facility Site Evaluation Council, Department of Ecology, and all other state agencies must incorporate this section into all relevant planning and utilize all programs authorized by statute to achieve subsection (1) of this section.

5) Hydroelectric generation used by an Electric Utility to satisfy the requirements of this section may not include new diversions, new impoundments, new bypass reaches, or expansion of existing reservoirs constructed after May 7, 2019.

6) Nothing in this section prohibits an Electric Utility from purchasing or exchanging power from the Bonneville Power Administration.

7) Affected market customers must comply with the obligations of this section.

8) Any market customer that purchases electricity exclusively from carbon-free resources and eligible Renewable Resources, as defined in RCW 19.285.030 as of January 1, 2019, pursuant to a special contract with an investor-owned utility approved, prior to May 7, 2019, by order of the commission is subject to the requirements of such an order and not to the standards established in this section.

4. HISTORIC LOADS

4.1. Background

The Utility owns and operates an electric system that serves customers within the City, Centralia's Urban Growth Area, and areas surrounding the City. The Utility currently serves approximately 10,381 residential and general service electric consumers. Electric Utility customers fall into the following six service classes:

- Residential
- Small General Service (less than 50kW demand)
- Medium General Service (50kW to 200kW demand)
- Large General Service (200kW to 1,000kW demand)
- Extra Large General Service (greater than 1,000kW demand)
- Public Street Lighting

In 2008, the City made structural changes to its service class definitions. Historical data does not include a true delineation between the service classes used today. Data used in this evaluation, prior to 2013, was derived through actual percentages calculated from 2013 data for the Medium, Large, and Extra Large General Service classes. These percentages were applied to the Large Commercial service class historical data between 2001 and 2012. Table 1 illustrates the methodology used to calculate service class loadings for 2001 to 2012 data.

Table 1 - Service Class Adjustments

Original Service Class Name	New Service Class Name	Description	Percentage Applied
Large Commercial (>50kW)	Medium General Service (50kW – 200kW)	Calculated as a percentage of the original Large Commercial Service Class value	24.43%
	Large General Service (200kW – 1,000kW)		26.84%
	Extra Large General Service (>1,000kW)		48.73%

4.2. Base Year Loads

The six previous reports utilized 2007, 2009, 2011, 2013, 2015, and 2017 as their respective base years. This report will use 2019 as its base year. The base year begins on January 1st and ends on December 31st. Table 2 illustrates the base year loads for the City. These loads are broken out by service class, total energy consumption, and annual peak demand.

Table 2 - Base Year Loads

	Base Year						
Load Category	2007	2009	2011	2013	2015	2017	2019
Service Class (aMW)							
Residential	13.61	14.23	14.09	13.44	12.14	13.90	13.34
Small General Service (<50kW)	3.96	3.85	4.07	3.91	3.71	3.90	3.73
Medium General Service (50kW - 200kW)	2.69	2.94	2.99	2.99	2.94	2.98	2.84
Large General Service (200kW - 1,000kW)	2.96	3.24	3.29	3.28	3.14	3.30	3.24
Extra Large General Service (>1,000kW)	5.40	5.92	6.01	5.96	5.92	6.24	6.28
Street Lighting	0.13	0.13	0.13	0.13	0.13	0.05	0.05
Losses/Utility Usage*	1.28	1.06	1.06	1.06	1.66	1.43	1.30
Total Retail Loads (aMW)	30.15	31.50	31.78	30.77	29.64	31.81	30.78
Total Energy Consumption (MWh)	253,019	266,731	266,141	260,342	245,099	266,120	258,189
Peak Demand (MW)	54.6	71.8	60.71	64.32	61.02	67.85	63.09

** An error in the calculations was corrected for all years. Gross power received less customer load.*

4.3. Service Class Loads

Total loads for the base year can be broken down by service class. The pie chart in Figure 1 shows the distribution of electricity by service class for the base year. In the base year, residential customers consumed 45.25% of the total retail load while general service customers (small, medium, large, and extra-large) consumed 54.58% and street lighting consumed 0.17%.

Figure 1 - 2019 Base Year by Customer Class

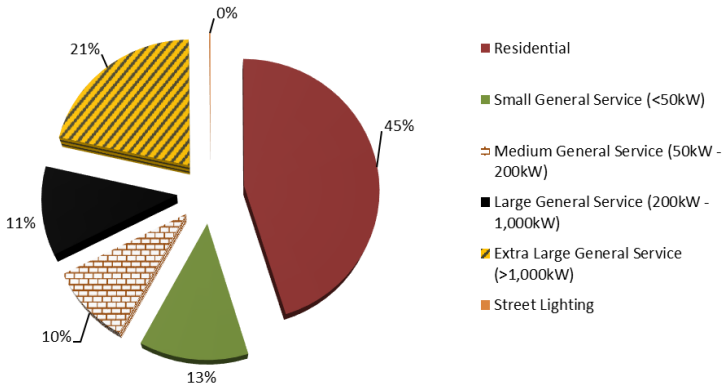
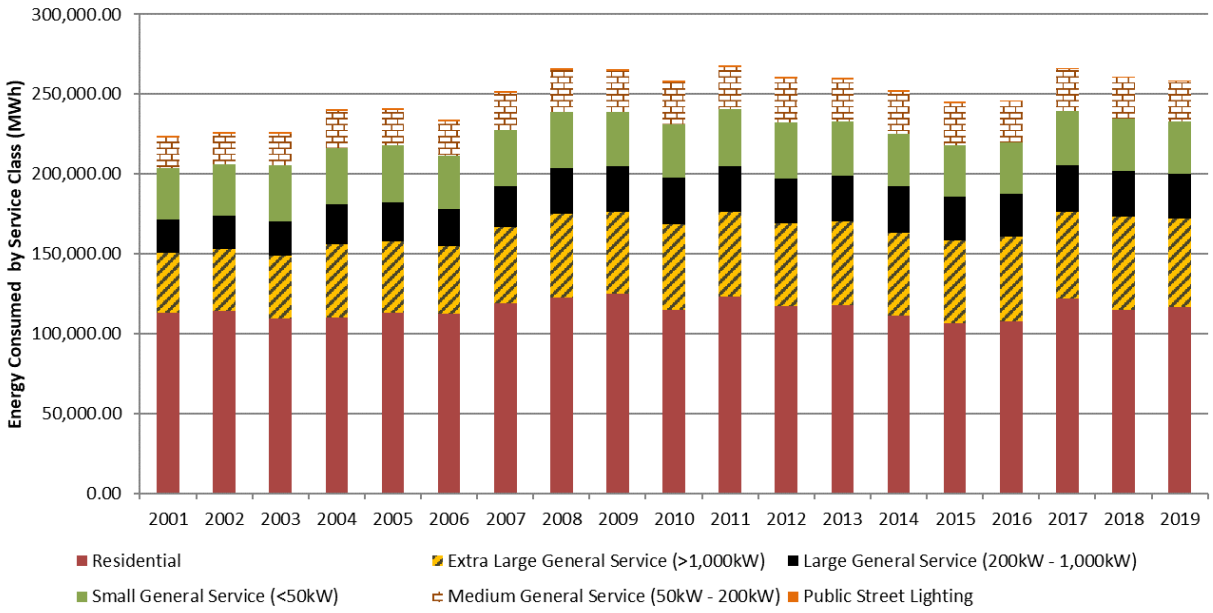


Figure 2 illustrates historic energy sales distributed by service classes between 2001 and 2019. The dominant retail loading for the Utility comes from its residential service class followed by extra-large general service loading.

Figure 2 - Historic Energy Consumption by Customer Class



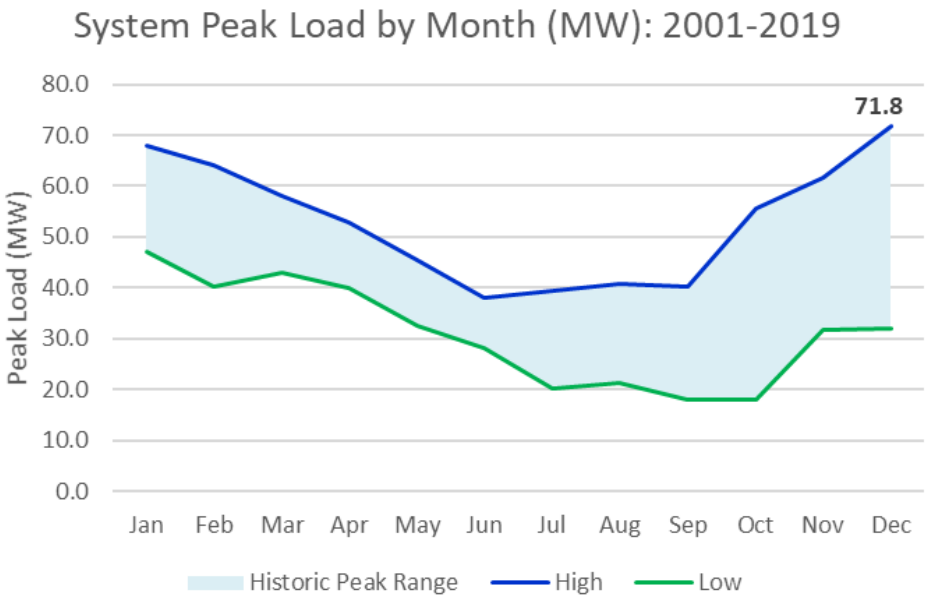
4.4. Peak Loads

Figure 3 provides a range of historic system peak loads for each month of the year between 2001 and 2019. The City's historic system peak of 71.8 MW occurred on December 9, 2009. The range of peak loading is greatest during the fall and winter months. This further supports the notion that the City's induction heat loading from residential customers is weather dependent. On very cold winter years the peak will rise and during mild years it approaches the total system average TRL. Loading during the spring and summer follows a fairly narrow band between high and low system loading. During summer months the system peaks are most likely developed by the use of air conditioning during warmer summers. The system peak variability is most susceptible during the November to February time frame where loading is generally driven by residential heating and weather conditions.

The Utility is concerned about future power availability during winter peak loading conditions. This is promulgated by the anticipated closure of base load generation plants and the increased emphasis on generation resources that are variable (i.e. solar and wind resources). Since the Utility's system peak loads occur during the winter months, it is difficult to imagine where the power resources will come from to support these loads. The variability of renewable resources, especially during the cold winter months gives pause to the possibility that these resources will be dependably available when

the Utility's customers are the most vulnerable. The Utility's peak loads are totally driven by weather.

Figure 3 - System Peak Loading



5. FORECASTED LOADS

This plan is based on typical customer growth rates, the trends in customer energy use, and collaboration with BPA forecast planners. BPA's 2019 TRL forecast was used to update the Utility's load forecast for the next five (5) and ten (10) years (2025 and 2030 respectively). BPA forecasted that the Utility's load would fluctuate from 31.754 aMW in 2020 to 32.739 aMW in 2025 and 32.739 aMW in 2030 as illustrated in Table 3. All loads are estimated assuming that the Utility continues to implement reductions because of conservation and/or demand response programs. An average annual growth rate of 0.48% was used to project BPA's loads through 2030.

The Utility estimates a majority of its TRL will continue to come from residential sales. The Utility expects that all other service class retail loads will continue to lag behind expected residential loads. This of course excludes any extra-large general service loads that may develop (exceeding one aMW) during this time frame. At this point in time, the Utility cannot accurately estimate additional extra-large general service (exceeding 1 aMW) loads. The Utility has established criteria in its rate ordinances[2] that require any new extra-large general service loads to enter into a power purchasing

[2] CMC 13.04.045 Extra Large General Service Rate

contract with the City to reduce power purchasing risks associated with the purchase of non-federal resources to meet loads generated by new extra-large general service customers (Appendix A).

Table 3 - TRL Load Forecast

Year	2012 BPA Load Forecast TRL (aMW)	2014 BPA Load Forecast TRL (aMW)	2016 BPA Load Forecast TRL (aMW)	2018 BPA Load Forecast TRL (aMW)	2020 BPA Load Forecast TRL (aMW)	2020 System Peak-CP (MW)
2020	36.679	33.581	30.333	32.357	31.754	63.283
2021	37.460	33.909	30.788	32.735	32.551	64.673
2022	38.172	34.310	31.209	32.781	32.739	64.673
2023		34.712	31.434	32.820	32.739	64.673
2024		35.186	31.692	32.832	32.760	64.673
2025			32.086	32.893	32.739	64.673
2026			32.417	32.928	32.739	64.673
2027				32.967	32.739	64.673
2028				32.981	32.760	64.673
2029					32.739	64.673
2030					32.739	64.673

* BPA Forecast
\+ Includes Conservation

The arrival of COVID-19[3] in March 2020 was not anticipated in the load forecast prepared by BPA in 2019. This was an unprecedented event with entire states shut down and people ordered to shelter in-place at home to reduce the spread of the virus. The shelter in-place orders closed many businesses and public agencies between March 2020 and late-June 2020. “The Coronavirus is a once-in-a-century event, for which there is no precedent in modern times. Neither we nor anyone else can predict with certainty what the next twelve months will hold.” (Ohrenschall, 2020)

During this time the Utility’s total electrical loads declined. While residential loading saw a slight increase because people were staying home, larger loads derived from commercial customers have reduced significantly. The impacts of load reductions on the Utility are unknown at this time. In an April 14, 2020 webinar Robert Whaley (Whaley, 2020) predicts “a relatively strong bounce back in 2021, with no prolonged long-term structural damage to power demand, unlike previous recessions.” Mr. Whaley acknowledged “potential for some prolonged downside to our power demand forecast, based on lagging economic conditions and power-use patterns in which it could

[3] COVID-19 is a mild to severe respiratory illness that is caused by a coronavirus (Severe acute respiratory syndrome coronavirus 2 of the genus Betacoronavirus).

take longer than expected for demand to recover, both in the wider economy and the power sector, which in turn could lead to potential loss of demand through 2023."

6. EXISTING RESOURCES

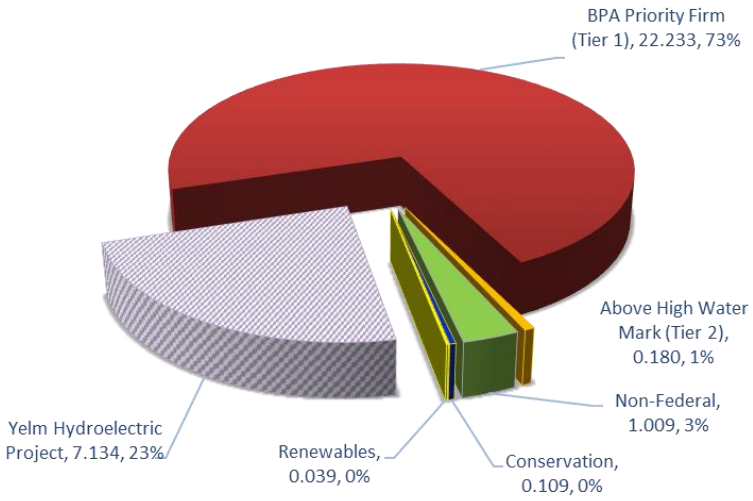
The Utility receives federal power from the Bonneville Power Administration (BPA), non-federal power from Northwest Energy Management Services (NEMS), and power from its own Hydroelectric Generation plant in Yelm. The City's power supply portfolio changed on October 1, 2011 due to fundamental changes in the pricing structure offered by BPA. BPA has developed two pricing tiers to capture the difference in costs associated with existing BPA resources (Tier 1) and new resources (load growth) or market based purchases (Tier 2) which may be required to meet a utility's load growth power supply needs that exceed the current capability of the BPA system.

Table 4 provides a breakdown of resources for the base year. In 2019, the Utility had 30.704 aMW of total resources available to serve its TRL. Figure 4 provides a percentage breakdown showing the source of these resources. BPA Tier 1 and Tier 2 resources provide 74 percent of the available resource to the Utility. The Utilities Yelm Hydroelectric plant provides 23 percent. The remaining three percent comes from Conservation, Renewables, and non-federal purchases.

Table 4 - Base Year Resources

	Base Year			
Resource Category (aMW)	**2013**	**2015**	**2017**	**2019**
Yelm Hydroelectric Project	7.907	7.652	9.486	7.134
BPA Priority Firm (Tier 1)	23.035	20.659	21.663	22.233
Above High Water Mark (Tier 2)	0.732	0.227	0.111	0.180
Non-Federal	0.000	0.810	0.252	1.009
Conservation	0.197	0.106	0.217	0.109
Renewables	0.000	0.007	0.016	0.039
Total Resources	**31.871**	**29.460**	**31.746**	**30.704**

Figure 4 - Base Year Resource Pie Chart

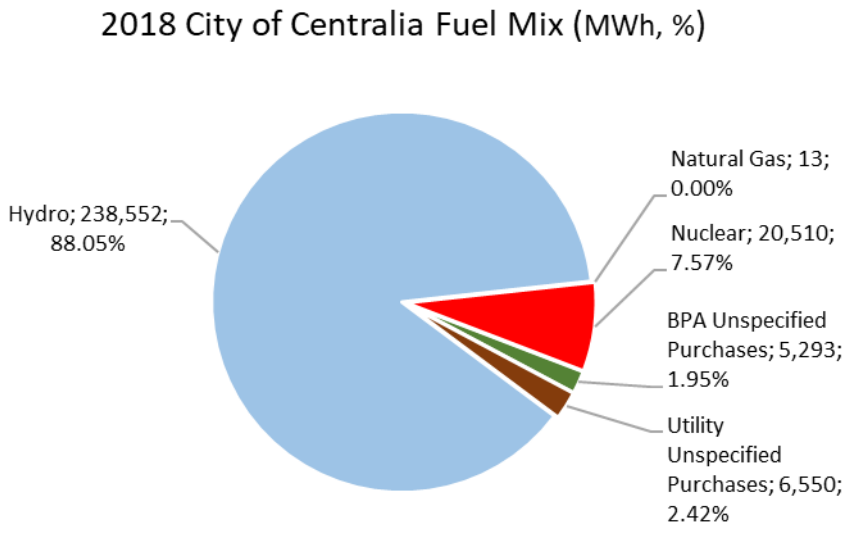


6.1. Fuel Mix

The Fuel Mix disclosure law, RCW 19.29A, requires Electric Utilities to report the sources of power they use to serve their customers. The law defines how the Utility's "Fuel Mix" should be calculated, which fuel categories to use, and how utilities should share this information with customers.

The objective of the fuel mix disclosure process is to inform customers and policy makers about the characteristics of the electricity delivered by each Electric Utility. The Utility uses electricity from multiple sources: BPA; Yelm; and non-federal power purchases. Historically, BPA has made Unspecified Source purchases to meet its short term power supply obligations. The Utility has purchased ARHWM power from NIES. These purchases have been made without requiring the seller to identify the specific generation source. As a result, short-term purchases made by BPA and ARHWM purchases made by the Utility have been considered Unspecified Source's. In 2018, the Utility's Fuel Mix is illustrated in Figure 5. The Utility purchased a total of 11,843 MWh of power from Unspecified Sources which represents 4.37 percent of the total power purchased by the Utility. 95.63 percent of the power purchased was from known resources.

Figure 5 - Centralia 2018 Fuel Mix

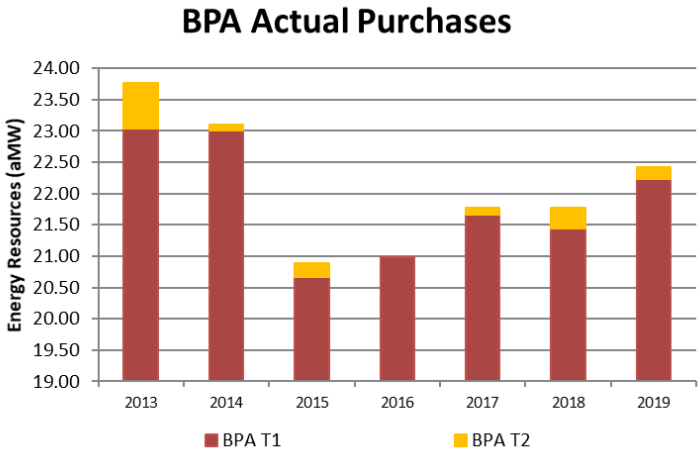


6.2. Bonneville Power Administration

The Utility has been a full requirements customer of BPA since 1941. The Utility signed the 20-year Power Sales Agreement #09PB-13016 (Contract) with BPA that started in 2008 and terminates in 2028. The Contract is based on BPA's Tiered Rate Methodology (TRM). The Utility will continue to be a full service customer of BPA for its Tier 1 energy requirements in excess of the Yelm Hydroelectric Facility (YELM) until 2028. The Utility intends to enter into a Post-28 (P28) Contract with BPA when it is ready.

The Base Year 2019 electricity resources supplied by BPA were Priority Firm (PF) purchases (Tier 1) totaling 22.23 aMW. The Utility also received BPA's Load Shaping resources in the amount of 0.18 aMW. Figure 6 illustrates the amount of Tier 1 and Tier 2 power supplied to the Utility between 2013 and 2019.

Figure 6 - BPA Historical Resources



6.3. Yelm Hydroelectric Plant

The Utility owns and operates a hydroelectric facility on the Nisqually River in Yelm, Washington. The facility diverts water through a man-made canal from the Nisqually River approximately nine miles upstream of the powerhouse. This facility is connected to the City of Centralia via a 26.1-mile 69KV transmission line that traverses through Thurston County to the Utility's May Street Substation. All power produced by Yelm must be used by the Utility and cannot be sold to third parties. The Yelm Hydroelectric Project was originally built in 1929 and is licensed[4], with a maximum rated capacity of 12 MW, through 2037. The project operated during the Base Year providing around 7.134 aMW to the distribution system.

Figure 7 shows historical generation amounts for Yelm between 2013 and 2019. The BPA load following power purchase contract specifies that the Utility must produce 7.114 aMW each year and 7.109 aMW during leap years. When the Utility does not meet this requirement it must purchase additional power from BPA to meet system load requirements. The amount of power generated is dependent on the amount of water available in the Nisqually River.

During the past twenty-five years, the YELM plant has generated varying amounts of power as indicated in Figure 8. Actual production of the plant depends greatly on several operational factors: having enough water in the Nisqually River; dependability of generation equipment; capacity of the nine-mile canal to deliver water; reliability of the canal; and reliability of the 26.1-mile transmission line that delivers the power produced in YELM to Centralia. YELM's production curve varies from year to year as illustrated in Figure 8. Between 1995 and 2019 YELM generated a high average of 9.86 aMW during the peak month of February and low average of 4.94 aMW during the month of

[4] FERC License #10703 in 1997

August. The Utility has experienced occasions where a single operational factor shut down power production at YELM. Power production at YELM is dependent on having all of the operational factors listed above available. For planning purposes, the Utility assumes generation at the levels specified within the BPA contract (7.114 aMW and 7.109 aMW on leap years).

Figure 7 – Historical Yelm Hydroelectric Generation

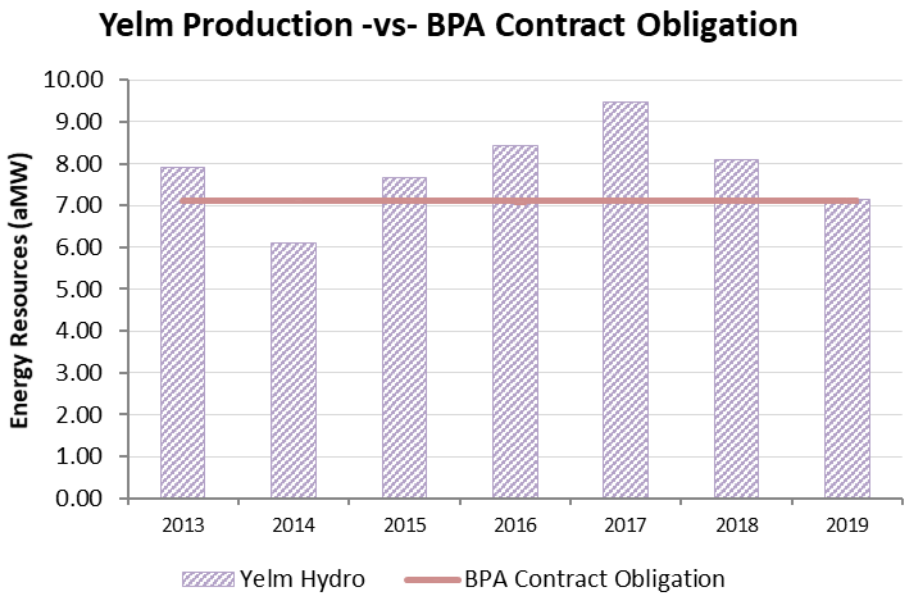
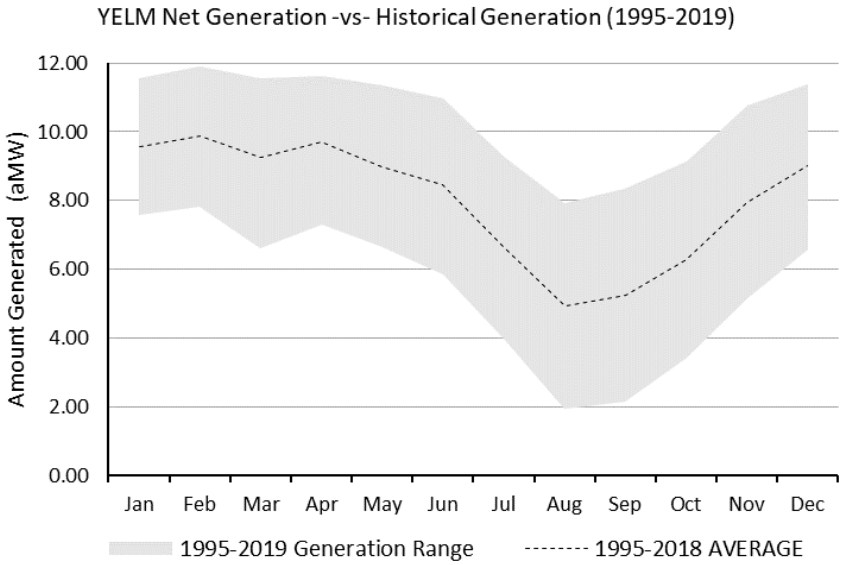


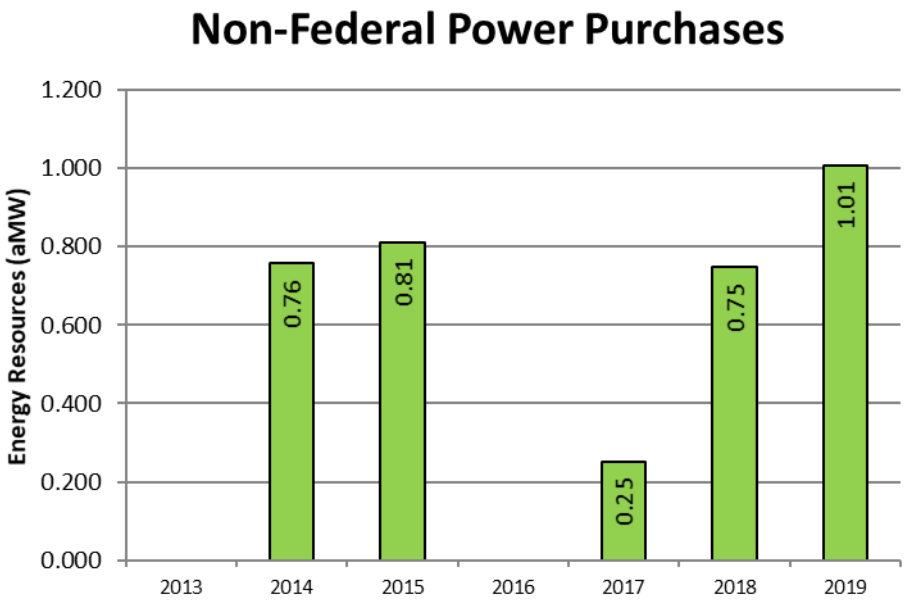
Figure 8 - Yelm Production between 1995-2019



6.4. Non-federal

In October of 2011, BPA implemented the TRM where the traditionally low rates for power are only available for the first block of power. This first block is referred to as Tier 1, set by the Contract High Water Mark (CHWM) for each utility, and was defined by the utilities actual 2010 loads. Within the TRM the actual availability of Tier 1 power is adjusted based upon the Federal Columbia River Power System (FCRPS) and the City's Tier 1 Cost Allocator (TOCA) which is adjusted every two years. The TOCA and FCRPS resources are used to define the City's Rate Period High Water Mark (RHWM). BPA established a new RHWM in 2020[5] for the 2022/23 rate period equal to 23.248 aMW. The BPA contract requires that the City acquire additional resources for the amount of power needed to support the TRL. The ARHWM power equates to TRL less RHWM less existing resources. In the Base Year the City purchased 1.01 aMW of Non-Federal resources. Figure 9 provides details regarding Non-Federal purchases between 2013 and 2019.

Figure 9 - Non-Federal Power Purchases



6.5. Conservation

The City has a long history of participation in energy efficiency programs. The City has taken advantage of Conservation credits from BPA and self-funding to maintain its Conservation programs. Programs include lighting, ductless heat pumps, heat pumps, track and tune, and appliance rebates. A majority of annual expenditures come from commercial and industrial lighting projects.

[5] BPA 2021/22 Rate Case proceedings were being worked in 2020 and will be finalized in 2021.

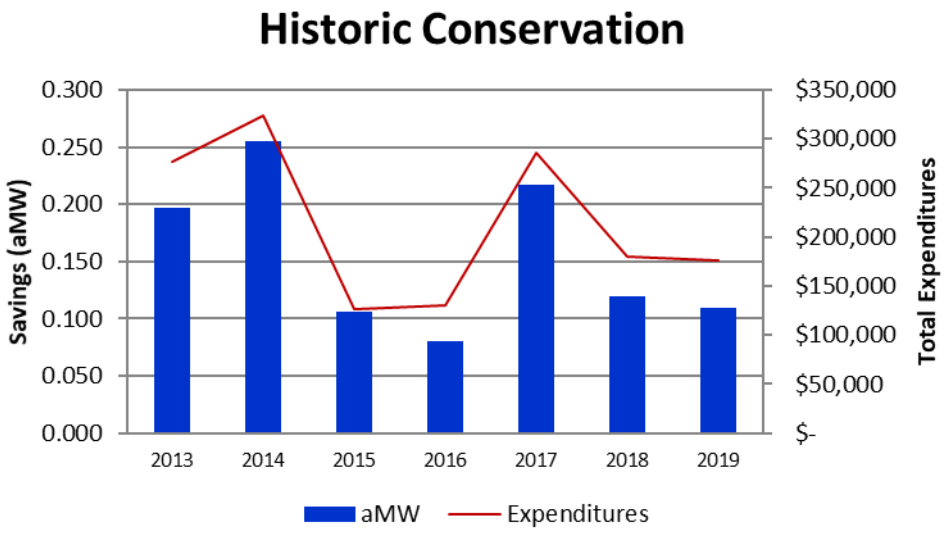
BPA has an Energy Smart Industrial program that seeks to find energy saving measures for industrial customers.

For industrial customers, the highest achievable savings are in energy management. The City has supported a track and tune project with the help of Energy Smart Industrial during the 2015-2018 timeframe. BPA has provided the City with engineering support to assist commercial customers with custom projects. The greatest achievable savings are found in lighting and HVAC for commercial customers. That is where the City has focused its funding.

Residential achievable savings are the highest for HVAC and water heating. The City estimates that there may still be potential savings in HVAC upgrades. In the last few years, most residential conservation savings were attributed to the ductless heat pump program.

Figure 10 illustrates the conservation efforts that the City has achieved between 2013 and 2019. Total accumulated conservation between 2013 and 2019 was 1.085 aMW. The total cost for this investment was $1,499,006. The historical average cost, between 2007 and 2019, to achieve one (1) aMW worth of energy savings is roughly $1.406 million.

Figure 10 – Historic Conservation



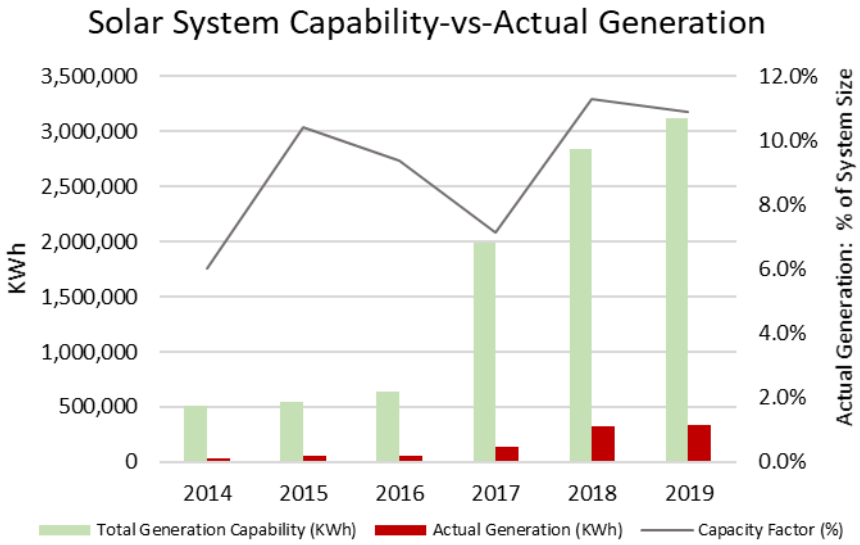
6.6. Renewables

The Utility supports a net metering program for the installation of residential and commercial solar installations (CMC 13.04.300). The Utility requires the installation of a production meter on all net metered systems. The production meter measures and records actual production of solar energy on these systems before the energy is either used by the customer or sent to the Utility's electric distribution system through the net meter. The net meter measures the amount of energy that the

customer draws from the Utility's electric distribution system and the amount of energy that the customer sends to the Utility's electric distribution system if that energy is not used by the customer.

As of December 31, 2019, installed solar capacity on the Utility's electric distribution system totaled 357 KW. Figure 11 illustrates the total system capacity between 2013 and 2019. This graph shows the actual amount of generation (taken from the production meter data) for each year. The annual efficiency of solar installations within the Utility's service territory averaged 9.19 percent between 2013 and 2019. In 2019, the total actual production of solar energy was 0.039 aMW.

Figure 11 - Historic Solar Generation



7. PROJECTED RESOURCES

The State of Washington requires that in its projection of resources estimated to serve future loads, the Utility's plan must delineate what specific supply resources were chosen. Moreover, the Utility must provide an explanation as to why such a decision was made for the selected supply resources.

The Utility plans to utilize a mix of resources to meet its future TRL forecast in 2025 and 2030. These resources include: BPA; Yelm, non-federal purchases, Conservation, Renewables, and through the purchase of REC's. The Utility's goal is to support the requirements of the Clean Energy Transformation Act (CETA) which was enacted in 2019 and created RCW 19.405. The Utility intends to remove all sources of electricity from carbon based generation fuel sources by 2030, but is concerned that the adequacy, reliability, and resiliency of the power supply to 10,000+ customers be maintained. Projected resources for 2025 and 2030 are listed in Table 5.

Table 5 - Projected Resources Required in 2025 and 2030

Projected Resources		
Resource Category (aMW)	**2025**	**2030**
Yelm Hydroelectric Project	7.114	7.114
BPA Priority Firm (Tier 1)	23.248	23.248
Above High Water Mark (Tier 2)	0.172	0.123
Non-Federal	2.000	2.000
Conservation	0.120	0.118
Renewables	0.085	0.136
Total Resources	**32.739**	**32.739**

7.1. Fuel Mix

It is the Utility's understanding that any Unspecified Source shown in its annual Fuel Mix report will be considered by the Department as a carbon-producing generation source and be subject to the penalties outlined in RCW 19.405.090. Unspecified Sources shown in the 2018 Fuel Mix report were designated as contributing 843 pounds of CO2 per MWh. As a comparison, coal contributes approximately 2,265 pounds of CO2 per MWh. The Utility has purchased non-federal power from the TransAlta Centralia coal fired generation plant for 2020 and 2021 which will show up on the Fuel Mix reports for those respective years. The Utility purchased 4 aMW in 2020 and 5 aMW in 2021. The Utility has no plans to purchase additional power from that coal based plant.

For future non-federal purchases, the Utility will require source identification for all ARHWM purchases. The Utility will require disclosure (per RCW 19.29A.060) of the fuel characteristics of the electricity it is purchasing and the source of generation. Furthermore, the Utility will collaborate with BPA, NRU, and NEMS to determine if there is a process that can be implemented to identify the source of all market-based purchases that are made by BPA.

7.2. BPA

During this planning cycle the Utility will need to establish a new 20-year Contract with BPA. The Utility's existing Contract was established in 2008 and expires in 2028. This first block is referred to as Tier 1, set by the Contract High Water Mark (CHWM[6]) for each utility, and was defined by the utilities' actual 2010 loads. The Utility will continue to receive Tier 1 power from BPA for the duration of this Contract period. As of this writing, it is too early to tell what changes will be made

[6] CHWM for the City is equal to 24.735 aMW and is fixed for the duration of the existing agreement between BPA and the City 09PB-13016 which expires in 2028. This represents the maximum amount of Tier 1 power that may be available to the City each year.

to the P28 Contract with BPA. This resource plan assumes that the P28 Contract methodologies and allocations, between 2028 and 2030, will remain essentially the same as the Contract. It is anticipated that by the next writing of this plan in 2022, more information about the P28 Contract will be available, but not finalized. Current estimates indicate that P28 Contracts will not be finalized until sometime in 2025.

A fundamental component of the existing TRM is BPA's RHWM[7] process which occurs on even-numbered years for the remainder of the regional dialog contract. The RHWM process is a public process in which BPA formally establishes two important values for the next two-year rate period: (a) the size of the Tier 1 System Firm Critical Output (T1SFCO) and (b) each customer's RHWM Load for that rate period. The Utility will then calculate the ARHWM load for that rate period using its newly calculated RHWM and its most recently updated TRL forecasts. The ARHWM Load amounts are then set for the rate period. Centralia will serve its ARHWM Load using a combination of Federal and Non-Federal resources. However, if the ARHWM Load is less than one (1) aMW it may be served by BPA via load shaping charges. This Plan assumes a RHWM of 23.980 aMW for the 2020 – 2021 period and 23.248 aMW for the 2022 – 2030 period.

Table 6 shows BPA's original load forecast along with resources that will be used to meet the forecasted loads with the impact of conservation. This table shows that the Utility will not be able to meet its expected TRL using BPA Tier 1 and Yelm generation resources between 2021 and 2030. Starting in 2021, the Utility will need additional resources such as BPA Load Shaping or other Non-Federal resources to meet its expected TRL. The Utility's ARHWM load is expected to be one (1) aMW in 2021 and two (2) aMW each year between 2022 and 2030. This assumes a TRL growth between 2020 and 2025 of approximately 3.1 percent. Between 2025 and 2030 the expected TRL load growth flattens to nearly zero percent growth. The expected load growth can change between planning periods depending on projected commercial and industrial developments.

[7] RHWM = (CHWM / ΣCHWM) x RT1SC where: ΣCHWM = Sum of all Publics CHWM, and RT1SC = Forecast RHWM Tier 1 System Capability which is averaged for the Rate Period.

Table 6 - Load Forecast

Year	BPA Load Forecast (TRL) (aMW)	BPA Tier 1 CHWM (aMW)	BPA Tier 1 RHWM (aMW)	Yelm Generation (aMW)	TRL Less Resources (aMW)	BPA Load Shaping (aMW)	Above* RHWM (aMW)
2020	31.754	24.735	23.980	7.109	0.665	0.665	0.000
2021	32.551	24.735	23.980	7.114	1.457	0.457	1.000
2022	32.739	24.735	23.248	7.114	2.377	0.377	2.000
2023	32.739	24.735	23.248	7.114	2.377	0.377	2.000
2024	32.760	24.735	23.248	7.109	2.403	0.403	2.000
2025	32.739	24.735	23.248	7.114	2.377	0.377	2.000
2026	32.739	24.735	23.248	7.114	2.377	0.377	2.000
2027	32.739	24.735	23.248	7.114	2.377	0.377	2.000
2028	32.760	24.735	23.248	7.109	2.403	0.403	2.000
2029	32.739	24.735	23.248	7.114	2.377	0.377	2.000
2030	32.739	24.735	23.248	7.114	2.377	0.377	2.000

** This represents the amount of power that will need to be purchased.*

7.3. Yelm Hydroelectric Plant

The generating resources provided by this facility are defined within Exhibit 'A' of the Contract between the Utility and BPA. The specified resource amounts are listed in Table 7. If the Yelm plant fails to produce the amount of power (as specified within Table 7) the Utility will be placed in a resource deficient position. The Utility will need to meet this resource deficiency through acquisition of other resources (such as BPA Load Shaping or other Non-Federal resources).

If the Yelm facility were to fail, the Utility would immediately place an equal demand (about 7.109 aMW in 2020) on the BPA power system to meet its TRL at that time. BPA would then pass these additional demand impacts back to the Utility in the form of increased demand charges and power supply costs. This represents a significant risk to the Utility with the potential to create a substantial financial liability if the Yelm facility, or any of its generation and transmission assets, were to fail.

The Utility has focused its efforts in upgrading the Yelm facility to mitigate potential risks of failure. During the past several years the Utility has made significant investments in refurbishing YELM generation units, lining the canal, inspecting assets (transmission line poles), and replacing deteriorated transmission structures to improve the overall reliability of the Yelm Hydroelectric Facility. In the coming years, the Utility will need to focus its attention on reducing risks tied to the diversion of water from the Nisqually River and conveying that water over nine miles to the powerhouse.

Table 7 - Yelm Production Contractual Requirements

Year	Total (aMW)	HLH (aMW)	LLH (aMW)
2020	7.109	7.126	7.088
2021	7.114	7.127	7.099
2022	7.114	7.122	7.104
2023	7.114	7.118	7.110
2024	7.109	7.114	7.104
2025	7.114	7.129	7.126
2026	7.114	7.124	7.102
2027	7.114	7.127	7.099
2028	7.109	7.112	7.106
2029	7.114	7.129	7.126
2030	7.114	7.124	7.102

7.4. Conservation

This plan assumes that the Utility will continue to implement and participate in energy efficiency projects. Table 8 illustrates the impact of energy efficiency programs on the Utility's TRL Forecast. The TRL assumes that the Utility will continue to implement its conservation goals. If the Utility were to forego conservation efforts, it would need to acquire an additional 0.757 aMW of power by 2025 and 1.350 aMW in 2030 in order to continue to meet its expected TRL.

Table 8 - Planned Conservation Impacts

Year	BPA Load Forecast (TRL) *a*	Annual Conservation	Cumulative Conservation *b*	TRL Without Conservation *c = a + b*
2020	31.754	0.131	0.131	31.885
2021	32.551	0.130	0.261	32.811
2022	32.739	0.128	0.388	33.127
2023	32.739	0.126	0.514	33.253
2024	32.760	0.123	0.637	33.397
2025	32.739	0.120	0.757	33.496
2026	32.739	0.120	0.877	33.616
2027	32.739	0.119	0.996	33.735
2028	32.760	0.118	1.114	33.874
2029	32.739	0.118	1.232	33.971
2030	32.739	0.118	1.350	34.089

7.5. Non-Federal

This resource plan identifies total resources needed by the Utility to meet its expected TRL in 2025 and 2030. Any of the Utility's retail loads that exceed the RHWM must be met by internal resources, additional conservation, BPA load shaping, or other Federal or Non-Federal Resources that the City acquires. The Utility's current resources provided by BPA, the Yelm Hydroelectric Facility, or conservation will not be sufficient enough to meet expected loads in 2025 and 2030. Table 5 provides a summary illustrating the expected deficiencies that will need to be met through Non-Federal Power purchases.

As required by the TRM, the Utility will procure non-federal (market) resources to meet its ARHWM resource requirements via its membership in the NEMS trade organization and the NIES purchasing arm for municipal utilities. The Utility plans to acquire additional non-federal resources between 2020 and 2021 for ARHWM loads as illustrated in Table 5. This resource plan indicates that the Utility will remain resource deficient in 2025 by 2.377 aMW and in 2030 by 2.377 aMW. Hence the Utility will need to purchase non-federal resources equal to 2.000 aMW each year between 2022 and 2030. The Utility has already made purchases to cover the deficiency in 2020 and 2021. These amounts already take into account the conservation and Yelm resources.

7.6. Renewables

In the Utility's service territory, the actual annual production of energy by a solar system is approximately 9.19 percent of the installed capacity. This implies that in order to achieve one (1) aMW of actual energy produced by solar energy, the total installed capacity of solar would need to

rise from 357 kW to approximately 10,881 kW. The average size of a solar installation in 2019 was 7.8 kW. In order to reach 10,881 kW of generation, the utility would need to increase the number of solar system installations to 1,395. As of December 31, 2019, the Utility had a total of 42 solar system connections installed in its service territory.

The Utility forecast for net-metered solar installations are shown in Table 9 and Figure 12. The forecasted resources indicate that net-metered solar installations will increase from 0.039 aMW in 2019 to 0.085 aMW (117 percent) in 2025 and to 0.136 aMW in 2030 (249 percent). The graph shows forecasted figures representing high estimates and low estimates beyond 2019. In order to achieve 0.136 aMW of production from solar systems in 2030, the Utility would need to see an additional 148 new 7.8 kW solar systems installed.

CMC 13.04.300[8] indicates that net metered locations are limited to: a generation capacity of no more than one hundred kW; use solar, wind or hydropower as fuel; and are intended to offset part or all of a customer's electrical load. The cumulative generating capacity of net metering systems connected to the City distribution system is limited to 2,341 kW on a first-come basis. Theoretically, if the historical average production capability of these systems is 9.19 percent, then the highest actual generation amount, from solar net metered systems, that we can expect would average approximately 215 kW or 1,883,400 kWh per year. The total number of net metered connections would need to increase from 42 to 300. It is difficult to believe that the Utility will see a 714 percent increase in these connections given the fact that the State of Washington's incentive programs have been fully subscribed.

If the Utility were to pursue development of a Renewable Resource, such as solar, the following considerations must be made. Year-to-year variations in solar radiation mean that some years a system will produce more or less energy than the typical year. Based on 30 years of historical weather data (Ryberg, 2015) for nearby Olympia, Washington, which is 17 miles north of Centralia, a Fixed (open rack) PV system has a 90% likelihood of generating at least 96% of a typical year's production (Dobos). Similarly, it has a 10% chance of generating more than 105% the typical year's output. A typical year's energy output is based on the Typical Meteorological Year (TMY) data set. The TMY for Centralia is 3.74 kWh/m2/day which is equivalent to 0.3475 kWh/ft2/day or 126.8 kWh/ft2/year. In order to produce one (1) aMW of actual solar energy in the Utility's service territory it would take approximately 69,000 square feet (or 1.6 acres) of area dedicated exclusively to solar panels.

[8] CMC 13.04.300 is the Centralia Municipal Code for Net Metering

Figure 12 - Solar Generation Forecast

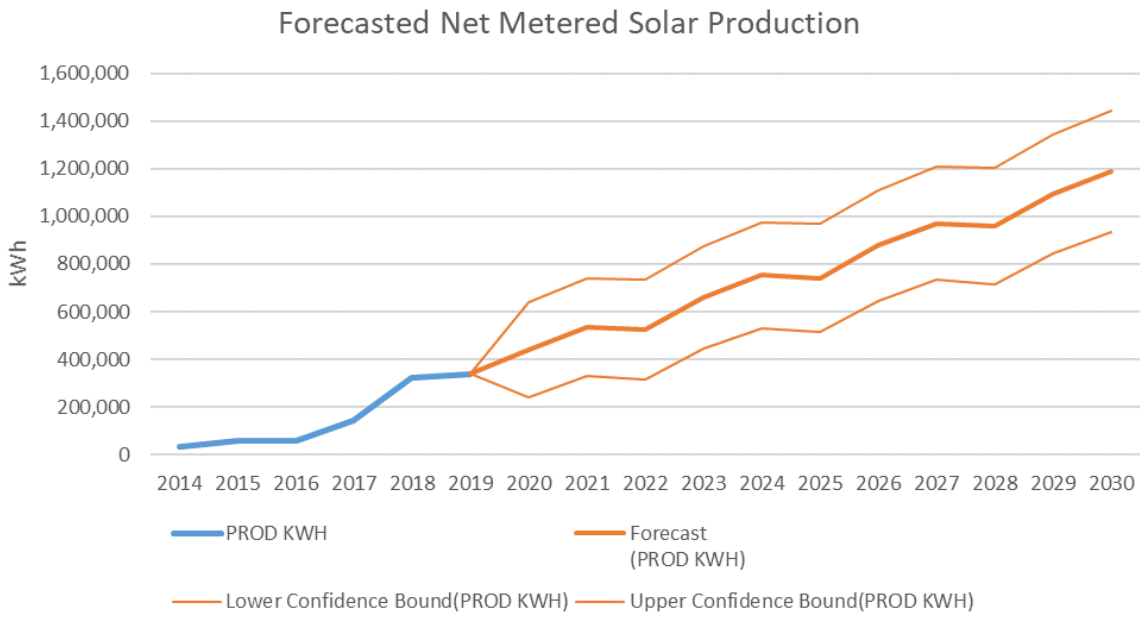


Table 9 - Forecasted Net Metered Solar

Year	Annual Production (aMW)	Change from Previous Year (aMW)	*Cumulative Production (aMW)*
2014	0.004	0.000	0.004
2015	0.007	0.003	0.007
2016	0.007	0.000	0.007
2017	0.016	0.009	0.016
2018	0.037	0.020	0.037
2019	0.039	0.002	0.039
2020	0.050	0.011	0.050
2021	0.061	0.011	0.061
2022	0.060	-0.001	0.060
2023	0.075	0.015	0.075
2024	0.086	0.011	0.086
2025	0.085	-0.001	0.085
2026	0.100	0.015	0.100
2027	0.111	0.011	0.111
2028	0.109	-0.002	0.109
2029	0.125	0.016	0.125
2030	0.136	0.011	0.136

This could be spread out to several different locations but the Utility would need to consider distribution system requirements necessary to install the generation capacity at each location. In addition, since solar generation is only available when there is sufficient solar radiation available,

such a resource would only support the Utility's TRL during a portion of the daylight hours. Therefore, in order to provide support, outside of daylight hours, the Utility would need to consider development of a Utility grade battery backup system. The battery system required to support 1 aMW of capacity would conceivably need to be sized to support the power requirements outside of the normal solar generation times of the day. This can be a complicated analysis, since system demands vary throughout the day and the battery backup system would need to be sized to accommodate the power requirements when solar radiation is zero. A detailed study would be required if the Utility were to pursue battery backup as an alternative.

For illustration purposes, let us assume that the solar system generates power 12 hours per day. In reality, this would most likely only occur during the summer months with the longest days. During winter months the number of hours of solar radiation available should be less than summer months because of the shorter winter days. If the Utility needs 12 hours of battery backup to support 1 aMW of power, it would need a 12 MWh battery backup system. This is an over simplified example but it generally lays out the potential size of what may be required in sizing a battery backup system. Without this battery backup system, it will be difficult to support the TRL demands for an entire year.

Since 95.6 percent of the Utility's current resources are carbon free, it might be in the best interest of the Utility to pursue other options than the development of renewable resources itself. If an opportunity arises for the Utility to participate in development of a Renewable Resource with another entity, the City might want to consider it.

7.7. Renewable Energy Credits (REC's)

Under Washington State Law Utility's may purchase and use unbundled REC's to offset unspecified resource purchases made by the Utility. The Utility plans to purchase these REC's to offset unspecified purchases starting in 2030.

Unbundled REC's are the same as other REC's, as long as there is no double counting (e.g. counting null power as having renewable attributes). The "actual" sources of electricity used to serve customers can only be determined contractually and REC's are the contractual accounting instrument used in Washington to verify that a renewable energy source was used to produce the power that serves customers. REC's are not merely a Renewable Portfolio Standard (RPS) compliance mechanism, they are in fact the only credible way to verify the sources of electricity used to serve customers with renewable energy.

There is no difference in terms of consumer claims between bundled and unbundled renewable energy. Since there is no way to physically deliver electricity from a specified source to a particular customer on the grid, sourcing electricity and REC's from the same grid region is functionally equivalent to sourcing electricity and REC's from a single grid-connected facility for the purposes

of consumer claims. In both cases, the customer can claim to be powered with renewable energy, and in neither case are the electrons physically originating from a renewable facility. Renewable energy is, in this respect, "unbundled" at the moment the electricity is injected to the grid. As such, whether the "bundling" occurs at the wholesale level (by a generator), at the retail level (by a supplier), or indeed at the consumer level has no effect on the consumer's claim to be receiving and using renewable electricity on the grid, which is precisely what is being communicated in fuel mix disclosure reports.

Most states allow generators to unbundle or separate the non-power attributes from the electricity and sell two commodities, electricity and REC's, separately. Once a buyer makes an environmental claim based on a REC, the REC is considered used. The buyer can no longer sell the REC and it is considered permanently "retired." While REC's are created at the time the renewable energy is delivered to the grid, when unbundled they can be retained for other uses and in some cases can be banked for days or months. Further, unbundled REC's can be sold throughout the country. The Western Renewable Energy Generation Information System (WREGIS) is an independent, web-based tracking system for REC's that covers the Western Interconnection territory.

The Utility intends to establish an account with WREGIS to track any and all REC's that will be purchased and used. The exact number of REC's needed by the Utility will depend on how much of the Utility's Fuel Mix is designated as carbon-sourced or unspecified purchases. The only sources of unspecified purchases are through spot market purchases made by BPA or the Utility's purchases of non-federal power through NIES.

The Utility will work with NIES to ensure that all non-federal power purchases beyond 2025 identify the source of generation. This will effectively eliminate any Unspecified power purchases from the NIES Fuel Mix. The Utility will collaborate with NRU, NEMS, and BPA to determine if there is a mechanism that can be put in place to eliminate Unspecified power purchases by BPA. In the event BPA cannot eliminate its unspecified purchases the Utility will be left with having to purchase REC's to cover the unspecified purchases by BPA.

In 2018, the total amount of Unspecified purchases that BPA made on behalf of CCL was 5,293 MWh. If this same-sized purchase was to occur in 2030, the Utility would need to purchase at least 5,293 MWh of REC's to effectively bring the Utility to 100 percent compliance with CETA. Since this is a variable and it is difficult to predict the amount of Unspecified resources that BPA will purchase, the Utility will need to wait and see what actually happens in 2030. The Utility should be prepared to develop a bank of REC's that can be cashed in when the need arises. Any REC's that are banked prior to the expiration of the present BPA Contract in 2028 will be cancelled and not available for use in 2030 and beyond.

7.8. Nuclear

The City was one of the original utilities that invested in the construction of the Columbia Generating Station (CGS), the Pacific Northwest's only nuclear power plant. The plant is operated by Energy Northwest (EN). The plant presently produces approximately 1,200 MW of carbon-free electrical power that is sold directly to BPA. The City receives output from this facility through its purchase of power from BPA. The Utility's General Manager serves on the Board of Directors of EN.

EN is presently at the forefront of the development of a new type of nuclear reactor called a Small Modular Reactor (SMR). This new reactor concept groups up to twelve 60 MW modules that share a common cooling pond. Each one of the units can be replaced individually. The shared pond has sufficient cooling capacity so that no backup power is required to cool down the modules in the event of an emergency.

In 2011, an agreement was reached between the Centralia coal-fired generation plant owner and operator, TransAlta, and the State of Washington to decommission the coal boilers. The two identical coal-fired generating units have a combined fully-dispatchable capacity of 1,340 MW. Both units started up for commercial operation in August 1971. The first unit will be shut down by the end of 2020 followed by the second unit by the end of 2025. Infrastructure associated with this plant's operation include substations, transmission lines, land, and extensive dedicated water rights. This associated infrastructure will become stranded if other uses are not found for them.

One idea that has been discussed is to convert the coal-fired generation site to support an SMR. This seems to make a lot of sense, since the associated infrastructure that will become stranded could be available to support generation by an SMR. Since it can be very difficult to acquire the necessary rights to construct new transmission infrastructure and this infrastructure is already in place at the Centralia facility, placing an SMR at this site may provide a long-term source of fully-dispatchable carbon-free power to the region. This resource can be used to balance the variability associated with renewable generation resources, such as solar and wind thereby providing the region with a reliable source of baseload power. Placement of an SMR has been discussed with the leadership of EN and has received very favorable support. One of the ways that the City can meet the CETA requirements for carbon-free power is to be a participant in a fully-dispatchable, carbon-free, 24/7/365 SMR installation that is free of the intermittent challenges experienced with solar and wind renewable resources.

The City intends to support redevelopment of the TransAlta Centralia coal plant with an SMR. If this proves successful, the City anticipates delivery of SMR carbon-free power sometime after 2030.

8. CONCLUSION

The Utility's resource needs during the next five and 10 years were explored by this resource plan. The Utility should consider the following:

1. Continue to purchase BPA Tier 1 power.
2. Make improvements to the Yelm system to eliminate risks of failure and ensure power generation at the maximum allowable amount based on water availability.
3. Continue to support the Conservation program.
4. Only purchase non-federal resources when the generation source can be certified to reduce Unspecified power purchases to zero.
5. Work to encourage BPA to develop a mechanism that will identify the source of its spot market purchases to reduce Unspecified power purchases to zero.
6. Consider partnering with other utilities if development of a Renewable Resource becomes available.
7. Become a member of WREGIS to develop a mechanism to support the tracking of REC's.
8. Develop a process, by 2030, to purchase REC's that will offset anticipated Unspecified power purchases in 2030 and beyond. Seek to supply 100 percent carbon-free power resources (with REC's) to customers by January 1, 2030.
9. Continue to support Energy Northwest and the Columbia Generating Station to develop SMR's that can provide fully-dispatchable, carbon-free, 24/7/365 power to the region. Support the potential re-development of the TransAlta coal plant to SMR's.
10. Monitor the load reductions caused by COVID-19 and possibly make adjustments to the forecasted loads during the next load forecast process.
11. Work with NEMS and NIES to purchase two (2) aMW of non-Federal power 2022 and 2023 to cover the Utilities shortfall during BPA's 2022/23 rate period.

APPENDIX A – CITY OF CENTRALIA EXTRA-LARGE SERVICE

13.04.045 Extra-large general service rate.

A. Extra-large general service rate shall be:

EXTRA-LARGE GENERAL SERVICE	2012
Greater than 1,000 kW demand	
Customer Charge—per month	same as for LARGE GENERAL SERVICE As of March 8, 2012, rates for new customers for this service or for existing customers with incremental increases in demand exceeding 1,000 kW will be covered by individual contract between the city and customer. Rates will be based on current market rate.
Energy Charge—per kWh	
Demand Charge—per kW	

B. Extra-large general service is available at:

1. Unregulated primary voltage of 7.2/12.5 kV and above at one or more points of delivery for use where the connected load is in excess of one thousand kW, and the customer owns his own primary distribution facilities, including transformers; or
2. Three-phase four hundred eighty-volt secondary voltage under special arrangement with Centralia City Light.
3. In either case, subsection (B)(1) or (2) of this section, the customer shall pay for all installed facilities.

C. Available only to customers that execute a written power supply contract with the City for a period of not less than five years.

D. Loads that are determined to be new large single loads by the Bonneville Power Administration (BPA) are not eligible for this service.

E. Energy and demand amounts (kilowatt-hours and kilowatts) and power factor will be measured by meters located at or near the point(s) of delivery. (Ord. 2277 § 1, 2012: Ord. 2246 § 2 (part), 2010).

APPENDIX B – RESOURCE PLAN COVER SHEET

Centralia City Light	<< Utility Name	
Washington State Utility Resource Plan Year	2020	
Prepared by:	David L. Hayes	

	Base Year	5 Yr. Est.	10 Yr Est.
Estimate Year	2019	2025	2030
Period	Annual	Annual	Annual
Units	(MWa)	(MWa)	(MWa)
Loads	31	32.739	32.739
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 Conservation	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 plan

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

APPENDIX C – PUBLIC HEARING

The public notice and hearing required by RCW 19.280.050(1) was advertised in the local newspaper of record for Centralia (The Chronicle) on 7/14/2020 and 7/21/2020. The notice was active for a period of two (2) weeks. The public hearing was held (via WebEx due to COVID-19 complications preventing in-person meetings) on 7/28/2020 at 7:00pm at the City of Centralia Council Chambers.

Hearing Comments:

A public hearing was held (via WebEx) on 7/28/2020 at 7:00pm in the City of Centralia City Council Chambers located at 118 Maple Street Centralia, WA 98531. M.L. Norton, CCL General Manager delivered a PowerPoint presentation explaining the purpose and content of the 2020 Resource Plan. The public was given an opportunity to provide written comment on this plan.

The City did not receive any written comments as of the public hearing date and time. The hearing was held via WebEx due to the Governor Jay Inslee's COVID-19 restrictions on public gatherings of five or more people.

The following comments were received by City Council members prior to the opening of the public hearing. A video of the public hearing can be found on the City's website at (Time 0:43:02).

https://media.avcaptureall.com/session.html?sessionid=21f0ebce-8c82-4450-a96d-bd2f91d83f6e&prefilter=447,2433

1. *Max Vogt, City Council member: Comment on slide 6 of the presentation. (Time 0:49:18)*

   Question: "So, I'm noticing that our conservation graph stays the same every year. Is there any way that we can improve that?"

   ML Norton Response: "We offer programs that are supplied by BPA. We've had good success with that but we also have limited staff to implement it. Right now we have one primary person who serves as an Engineering Technician and as a Conservation person. In order to expand our conservation program, we would have to dedicate some FTE's to that because once you go beyond what we are doing, which is offering rebates for appliances, rebates for ductless heat pumps you start having to go into the insulation and window business and that business takes a lot of man hours to implement it. We just don't have the staff to implement it."

   Question: "I'm curious, would it move the needle at all if we had a public campaign just making people more aware of what they are using and changing their light bulbs and things like that. Do you think we would see a difference?"

   ML Norton Response: "It would certainly nudge the needle. But with 54% of our sales going to commercial and very large commercial it would have some effect but on the

coldest nights and the hottest days, people will still turn up their heaters and turn up their air conditioners. There are limitations."

2. *Rebecca Staebler, City Council member: Comment on slide 9. (Time 0:54:56)*

   Question: "Following up on Councilor Vogt's question. I just hope that we can continue whether it saves us money or costs us money to continue to push the concept of and encourage the City and all of our citizens to do the best conservation that they can and look for alternative sources of power. I mean, I think just like you said with what's become a known trying to electrify the corridor with electric busses to reduce our carbon footprint and if we want to be known for one thing let's make it a package. I've always had this fantasy that we can be this little mini green town. I just want us to continue to keep that at the forefront as much as possible."

   ML Norton Response: "Well I think we have a real geographical advantage being half way between Portland and Seattle. I think we're gonna be a natural point to expand charging facilities and if you think Tesla's require a lot of power, wait until they start coming out with electric busses and electric semi-trucks."

   Question: "We're buying electric busses right now, so absolutely and that's what I said that that's one and I think that we're going in that direction and I'd just love to see a whole package where were looking at it wherever we can."

   ML Norton Response: "Well, we are excited about that possibility. That will definitely help our bottom line."

3. *Kelley Smith-Johnston, City Council member: Comment on slide 9. (Time 0:56:43)*

   Question: "Thinking about forecasting resources and changing weather patterns and I'm not sure how clear the data is. I know there is a potential for a sudden exponential curve of change to come into play and I'm thinking, you know, if we get hotter is that significant enough to affect our forecast and is that calculated in there or if we get dryer is it significant enough if we have increased drought to affect our resources? Have you been able to forecast any of that at this point?

   ML Norton Response: "Good point. There are large utilities, and particularly BPA, that are always watching that type of forecast of the weather. I don't think City Light has done much of that but your right about climate change affecting the runoff, particularly in the summer time. If there's less snow in the mountains, then there will be less runoff in the later days of summer. In our report, one of the things that we looked at and would consider being a part of is small modular reactors, a nuclear reactor that

can be sized to meet load needs. I'm on the board of directors for Energy Northwest. Energy Northwest operates the Columbia Generating Station and I'm excited about the potential for new sources of nuclear generated power."

4. *Elizabeth Cameron, City Council member: Comment on slide 9. (Time 0:58:32)*

   Question: "If we were to entertain those mini nuclear stations placed in a location where it's not likely to be affected if we have another earthquake or Mt Rainier eruption. You know, those are considerations for safety."

   ML Norton Response: "Yes, I understand. They have very, very smart people working on this and they are considering all possibilities. I believe they will thoroughly cover that. The small modular reactor design is designed to be the safest reactor that has ever been produced. The TransAlta location, if we're shutting down the coal plant in 2020 this year half of it, and 2025 the other half, then that would be an ideal location to place a small modular reactor because of the transmission lines and substations that are built near the TransAlta facility."

5. *Susan Luond, Mayor: Opened the Public Hearing at time 1:00:13.*
   a. *Announced that there are no written comments received.*
   b. *Closed the Public Hearing at time 1:00:30.*

AFFIDAVIT
OF PUBLICATION
STATE OF WASHINGTON
COUNTY OF LEWIS

Alyssa Andrews, and/or Maury Klemola, and/or Karlyn Sawyer, and/or Cindy [illegible] says that she is the legal clerk of

The Chronicle

a semi-weekly newspaper, which has been established, published in the English language, and circulated continuously as a semi-weekly newspaper in the City of Centralia and in Lewis County, Washington, general circulation in Lewis County for more than six (6) months prior to the date of the first publication of the notice hereto attached, and that the said Chronicle was on the 29th day of July 1941, approved as a legal newspaper by the Superior Court of said Lewis County. And that the attached is a true copy and was published in regular issues (and not in supplement form) of said newspaper as LEGAL # 114396 RE:Notice of Public Hearing

once each *day* for a series of 1 *day*

commencing on 07/14/2020 and ending on 07/14/2020

and both regularly distributed to its subscribers during all of said period. That the full amount of the fee charged for the foregoing publication is the sum of $ 325.50

[signature]

Subscribed and sworn to before me 07/14/2020

[signature]

Notary Public in and for the State of Washington, residing at *Chehalis*

[Notary seal: NOTARY PUBLIC, STATE OF WASHINGTON]

NOTICE OF PUBLIC HEARING
CENTRALIA CITY COUNCIL MEETING
TUESDAY, JULY 28, 2020

[illegible]

Pub: The Chronicle
July 14, 2020

CCL Power Ops A A

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