



# 2020 Budget

**Including:**

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- Comparative Capital Budget
- Comparative Budget by Activity
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# Overview

**Tab 1**





To: Benton PUD Commissioners

From: Chad Bartram, General Manager

A handwritten signature in blue ink, appearing to read "Chad Bartram", is written over the printed name.

Date: December 10, 2019

Re: 2020 Budget

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Benton PUD's 2020 Preliminary Budget was presented to the Commission at a public hearing on Wednesday, November 6, 2019. The Preliminary Budget is a first draft of the District's proposed expenditures for the coming year. Since then, staff has reviewed both expenses and revenues and revised the numbers to reflect the new Collective Bargaining Agreement with the International Brotherhood of Electrical Workers authorized by the Commission on November 12, 2019 via Resolution 2522 as well as updated staffing figures, which includes removal of one full time position due to attrition and subsequent department restructure and salaries for recent new hires that were previously budgeted as vacant positions. The proposed 2020 Budget includes the resources necessary to adequately support our core priorities of Safety, Reliability & Resiliency, and Customer Value.

#### **Context**

During our budget presentation on November 6<sup>th</sup>, we provided year-over-year budget comparisons as well as context to the budget by discussing our challenges, strategic focus, financial condition, long term trends and forecasts, and benchmark comparisons. Some of that context is addressed below.

#### **Challenges & Opportunities**

The Northwest utility industry continues to change at a rapid pace presenting ongoing challenges for utilities:

- **Regulatory Requirements:** On May 7, 2019, the Governor signed into law Senate Bill 5116, also known as the Clean Energy Transformation Act (CETA), which commits Washington to an electricity supply free of greenhouse gas emissions by 2045. CETA phases out coal entirely by 2025 and requires all electricity sales to be carbon-neutral by 2030. At this time, utilities do not know the full impact CETA may have on customer retail rates, grid reliability, and resource adequacy. Compared to Investor-Owned Utilities, Benton PUD is expected to see a reduced impact from this legislation due to its largely carbon-free portfolio.
- **Power Contracts:** BPA customers continue to be concerned regarding historical increases in wholesale rates and are insisting BPA bend the cost curve to ensure plentiful and reliable hydro power continues to be the power supply of choice in the northwest. BPA demonstrated a commitment to keeping rates down this past rate case implementing a zero percent rate increase to the base power rate; however, the rate case did include a surcharge for building BPA financial

reserves as well as a 3.6% transmission rate increase, resulting in about \$800,000 of additional annual costs each year to the District. BPA's current contracts with its customers expire in 2028. BPA will likely ask its customers to make contract renewal decisions as early as 2023. At this point, it is not clearly defined if BPA will offer the same types of products that are currently offered or what utilities across the region are planning to do post 2028.

- Resource Adequacy: Planned retirements of about 5,000 megawatts of dependable and dispatchable generation in the Northwest Power Pool in the next five years coupled with reliance by many utilities on market purchases to cover seasonal power deficits is creating significant regional concern regarding generation capacity shortages during winter and summer peak load events. California energy policies and electricity markets are presenting both opportunities and challenges for northwest utilities. The California Independent System Operator (CAISO) has formed a western Energy Imbalance Market (EIM) that many Northwest utilities have joined. BPA is moving forward with agreements and planning efforts to enable their possible participation in the EIM by April 2022. While EIM represents relatively small amounts of within-hour energy balancing, it appears to be a key opportunity to begin the process of increasing the value of northwest hydropower. EIM expansion has also triggered expected implementation of enhancements to the existing CAISO Day Ahead Market (DAME) which may be followed by an extended Day Ahead Market (EDAM) offering to EIM participants. There is some concern that overall CAISO expansion efforts may reduce the number of counterparties available for bi-lateral transactions outside of the CAISO market which could impact northwest utilities that rely on market power purchases and sales to meet load and resource balance requirements.
- Reliability & Resiliency: Electric grid reliability can be affected by the region's power supply mix or by an individual utility's ability to respond to major weather or other events. Our society is increasingly dependent on electricity in every aspect of our lives.
- Diminished Value of Generation Assets: Legislative and regulatory policy have diminished the value of carbon-free resources, such as hydro and nuclear, that are considered as non-qualifying renewables under the Energy Independence Act. Further, court-ordered spill has reduced the value of energy produced by Columbia and Snake River dams. The Columbia River System Operations (CRSO) Environmental Impact Statement (EIS) is underway. The EIS is considering five alternatives relative to the future operations of the dams. One alternative is to breach one or more of the dams. A draft EIS is scheduled to be released in February 2020 for public review and comment. A final EIS is slated for issuance in Summer 2020 and a Record of Decision by September 2020.
- Developing Technologies: Utilities must continually respond to new technologies. Rooftop solar, battery storage, electric vehicles, and demand response programs continue to provide opportunities to customers, but utilities must adapt their business models to integrate these technologies.

### **Strategic Focus**

Given these and other challenges, we have developed this list of Key Focus Areas:

- Carbon Policy: Inform & influence constituents and key legislators on the potential cost and reliability impacts of CETA.
- Major Outage Response & Restoration: Form an interdepartmental project team to enhance plans and training for extended outages.
- Electric System Investments: Create a 21<sup>st</sup> century power grid that is reliable, redundant, automated, and accommodates current and future customer growth.

- Value of Hydro: Without question, the value of hydro today to electric grid reliability is immense. We must enhance the value of hydro through energy markets and regulatory policy. Communicate the value of hydro to legislators and constituents. Provide leadership in support of the lower Snake River Dams.
- Power Contracts & Markets: Support BPA in lowering their wholesale rate trajectory through cost reductions and revenue enhancements. Ensure that BPA will receive adequate compensation for the total value of its hydro assets prior to joining the Energy Imbalance Market.
- Resource Adequacy: Support regional efforts in developing resource adequacy standards and develop a strategy for Benton PUD's resource adequacy in the short-term as well as long-term.
- Customer Value: Continue to provide safe reliable service while maintaining rates below the median of comparable northwest utilities and preserving long-term financial stability.

### **Current Financial Position**

Given Benton PUD's 95% carbon-free portfolio, we are well-positioned to meet the requirements of CETA. Our financial health is solid. We have a conservative debt profile, adequate reserves with a portion set aside for power market volatility, and our retail rates remain below the median of comparable benchmark utilities. Further, our comparisons to APPA benchmarks remain favorable and our customers-per-employee trend-line remains near the District's all-time high.

### **Budget Overview**

From October 2017 to October 2019, Benton PUD was able to forego a rate increase by using financial reserves that were generated in prior years largely as the result of conservative financial planning. The main driver for the 2.9% October 1, 2019 rate increase was 1) an increase in BPA costs, 2) less power received from the federal hydro system as a result of additional spill ordered the courts, and 3) an increase in the Energy Independence Act (EIA) requirement to purchase qualifying renewables which moved to 15% in 2020 from 9% in 2019. In 2020, BPA is forecasting less generation from the Federal Columbia River Power System (FCRPS) due to both climate change and court-ordered spill. Less generation means the District will need to procure additional power to meet customer loads or have less surplus power to sell resulting in either higher costs or lower revenue for the District. While power costs continue to rise and generation from the FCRPS continues to decline, Benton PUD plans to use financial reserves to forego a rate increase in 2020 and will evaluate the need for an increase in 2021.

Despite the recent retail rate increase, our customers' average bills remain below the median of benchmark Northwest utilities and are significantly below other regions of the United States. Currently, the District's average retail bills are near the bottom third of comparable Northwest utilities.

In addition to rising power costs, the 2020 Budget includes an increase in O&M expenses of 6.4% when compared to the 2019 Original O&M Budget. After adjusting for scope additions, reliability and safety enhancements, and other factors, the 2020 O&M Budget (excluding Broadband) is 3.3% higher than the 2019 Original Budget (see schedule at the end of this memo).

The District's capital plan is \$2.2 million below the 2019 Budget. The plan includes significant investments in new and aging transmission and substation infrastructure to increase reliability for customers and accommodate growth in our service territory.

The following sections include more detail on each of the District's key budget categories.

### **Net Power Expenses**

Net power expenses currently represent nearly 60% of the District's expenditures. These expenses include purchased power net of the revenue from selling surplus energy into the market, and transmission services.

The 2020 Budget has been prepared in compliance with the District's financial policies which call for conservative power supply planning assumptions that are consistent with prudent utility practices. The District employs a Monte Carlo analysis that projects 1,000 possible outcomes and selects the budget amount that represents a 75% probability that the net power budget will be achieved.

Over the last several years, net power costs have continued to rise for many Northwest utilities driven by three key factors: 1) increases in BPA wholesale rates, 2) reductions in revenues from the sale of surplus power, and 3) state-wide mandates related to renewable energy targets.

Benton PUD shares the concerns expressed by several Northwest utilities regarding rising wholesale power costs. We continue to be actively involved in efforts to mitigate the potential impacts of legislation and regulations that impact reliability, power costs and customer retail rates. Further, we are an active participant in efforts to monitor and influence BPA budgets and rates.

Overall, 2020 net power costs are expected to be \$84.0 million. This amount is less than the currently projected 2019 net power costs of \$91.3 million. 2019 net power costs were substantially higher than normal primarily attributable to a combination of below-average water conditions coupled with extreme cold weather in February/March. This cold spell caused the District to purchase high priced wholesale power in order to meet customer loads when power prices were abnormally high contributing to a large draw down of financial reserves. When comparing the 2020 net power costs to 2018, there is an increase of about \$3.9 million. While the recent BPA wholesale rate increase of 0% for power effective October 1, 2019 was beneficial to the District, BPA's increase in transmission rates along with a Financial Reserve Policy surcharge will add about \$800,000 annually to the District's net power costs. In addition, reduced generation from the FCRPS will cost the District an estimated \$500,000 to \$1.3 million annually over the next several years.

The District receives reimbursement for much of its conservation spending from BPA (which uses funds collected through power rates charged to utilities to reimburse utilities for conservation). The amount the District receives is set each two-year rate period. The District has elected to submit all conservation costs to BPA as early as possible to ensure it receives all the available credit. This creates a "net" conservation budget that is lower in even-numbered years and higher in odd-numbered years.

### **Staffing**

Our budget and staffing plans continue a positive trend in staffing efficiencies relative to customer counts (number of meters). In 2008, our customer per employee ratio was 305. In 2018, the ratio improved to 361 customers per employee, a 19.3% improvement. The 2020 Budget maintains the ratio at virtually the same level as 2018. This greater efficiency level is a direct result of the efforts and skills of our employees as well as our investments in technology and employee training.

In 2020, projected full-time equivalent (FTE) staffing levels are expected to decrease by 3.0 from the 2019 budget. Total 2020 salary and wages expense are expected to increase by 3.2% from the 2019 budget. The following details the labor increase:

- Base Salary & Wages 2.9%
- Overtime Wages 8.2%

Projected overtime wages reflect a gradual increase in overtime expense over the last few years. As the number of customers served continues to grow and technological diagnostic capabilities increase, the District is experiencing a greater number of after-hour callouts. As an example, the District's Advanced Metering Infrastructure (AMI) proactively monitors grid conditions and provides alerts 24 hours a day making it possible to address both safety and power integrity issues much earlier.

### **Operations & Maintenance Expenses**

O&M expenses currently represent 17.7% of the District's expenditures.

Over the last several years, we have successfully managed our O&M expenses despite cost pressures associated with a growing customer base, higher employee benefit costs escalation including state-mandated pension contribution increases, and new regulatory requirements. For the last several years, our O&M "cost per customer" metric has remained well below the benchmark figures published by the APPA.

As noted earlier, the 2020 O&M Budget is 6.4% above the 2019 Original O&M Budget. After adjusting for selected items, the increase over the 2019 Original Budget is further reduced to 3.3% (see schedule at the end of this memo).

### **Broadband**

Broadband is consistently looking for opportunities to further its mission and vision of developing and operating a "world-class" open access information technology platform for the benefit of our local communities. Through October 2019, Benton PUD Broadband has extended our high-speed broadband network to an additional 60 business locations, for a total of almost 550 end users.

In 2020, Broadband's capital budget includes increased capital expenditures of nearly \$815k related to a proposed "small cell" project being undertaken by a national cellular communication provider. The initial project costs will be more than offset by projected revenues over the next several years effectively paying for new broadband infrastructure which can then be used to provide new services to local businesses and schools. When completed, this project will be the first step in enabling 5G telecommunications within our communities.

With the increased capital budget, Broadband's net cash flow is expected to drop below zero in 2020, which will mark the end of a nine-year stretch in which Broadband experienced positive cash flows. The small-cell project investment meets the Commission-approved criteria of maintaining positive cash flows over time. Using a five-year lookback (including 2020 projections), broadband net cash flows are positive at \$0.4 million. When looking forward five years, broadband net cash flows are projected to be a positive \$2.3 million.

### **Capital Projects**

Consistent with our Strategic Plan, the District continues to focus on capital projects that have a significant impact on safety, customer service, system reliability, security, and regulatory compliance. The District's goal is to create a 21<sup>st</sup> century power grid that is reliable, redundant, automated, and accommodates current and future customer growth. The 2020 Net Capital Budget is set at \$15.5 million and is broken into the following categories: \$0.6 million for transmission/substation projects; \$12.8 million for distribution projects; \$1.2 million for information technology projects; \$0.6 million for general plant projects; \$2.1 million for broadband projects; and (\$1.8) million for contributions in aid or reimbursements. Some of the major projects include \$4.5 million for customer growth (services, transformers, and running secondary lines), \$2.0 million for the Southridge substation, \$1.7 million for plant maintenance for continued operations, \$1.5 million for repair and replacement of cables, and \$0.9 million for substation capacity and reliability, \$0.8 million for network infrastructure.

### **Summary**

The 2020 Budget provides for the resources necessary to meet our core priorities of Safety, Reliability & Resiliency, and Customer Value as well as other important initiatives that are contained within our draft strategic plan.

SUPPORTING TABLE

Description	2020 Budget	2019 Original Budget	Increase / (Decrease)	% Change
<b>Total O&amp;M</b>	<b>\$ 25,915,072</b>	<b>\$ 24,358,284</b>	<b>\$ 1,556,788</b>	<b>6.4%</b>
Less: Broadband (increased costs tied to increased revenues)	(1,071,293)	(948,000)	(123,293)	
<b>Total Electric O&amp;M</b>	<b>\$ 24,843,779</b>	<b>\$ 23,410,284</b>	<b>\$ 1,433,495</b>	<b>6.1%</b>
Less: Leap year additional labor	(114,000)			
Less: Move non-barg merit from July 1 <sup>st</sup> back to April 1 <sup>st</sup>	(57,000)			
Less: Shift of labor, overtime, and benefits from capital to O&M	(217,700)			
Less: Expanded/change of scope, reliability, and safety enhancements in 2020 Budget				
Move to subscription based software (previously capitalized and depreciated)	(128,900)			
Overtime increased for historical experience on callouts related to public safety <sup>1</sup>	(56,578)			
Ability to handle to major outage phone traffic (eliminate busy signal)	(46,000)			
NESC Compliance - Public Safety	(31,016)			
<b>Total O&amp;M with Adjustments</b>	<b>\$ 24,192,585</b>	<b>\$ 23,410,284</b>	<b>\$ 782,301</b>	<b>3.3%</b>

1) As the number of customers served continues to grow and technological diagnostic capabilities increase, the District is experiencing a greater number of after-hour callouts. As an example, the District's Advanced Metering Infrastructure (AMI) proactively monitors grid conditions and provides alerts 24 hours a day making it possible to address both safety and power integrity issues much earlier.





# Key Assumptions

**Tab 2**



# 2020 BUDGET - KEY ASSUMPTIONS

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## REVENUES

- The 2020 Budget reflects no revenue increase.
- Gross retail energy sales of \$137.0 million are based on 203 aMW of retail load.
- Sales for resale are estimated at \$20.4 million.
- 721 new customer connections are included in the 2020 load forecast, medium load growth (see Tab 8) and of these new customer connections, 638 are residential.

## POWER & TRANSMISSION COSTS (see Tab 10, 2020 Power Supply Plan, Section 4, for more details)

- **The District's net power cost is estimated using a "Risk Model or Probability of Occurrence Forecast."**
  - The purpose of the Risk Model is to define the distribution of possible outcomes taking into account changes in power cost variables.
  - The model is run 1,000 times to produce a probability curve of net power cost.
  - A conservative assumption of the 25<sup>th</sup> percentile of probability is used for budgeting purposes. Thus 75% of the model's net power cost outcomes were equal to or less than the budgeted net power cost.
  - The net power cost budget details are developed by choosing a single model result of occurrence at the 25<sup>th</sup> percentile of probability point and using its detail information.
- **Within the model, known variables were included as follows:**
  - Power costs reflect BPA's Tiered Rate Methodology.
  - The financial plan includes a proposed BPA rate increase effective October 1, 2020 and results in a 0% increase in the power base rate, a 3.6% increase in transmission rates and a Financial Reserve Policy (FRP) surcharge of 1.5%. In total, the increase in BPA rates equate to about an annual increase in costs to the District of about \$0.8 million, or 1.2%.
  - The budget includes an irrigation mitigation benefit of \$3.5 million in CY 2020.
  - Conservation program costs for CY 2020 are \$2.8 million, offset by a \$2.5 million reimbursement from BPA.
  - No Cost Recovery Adjustment Clauses (CRACs) are assumed for CY 2020.
  - Court ordered additional spill costs are included in BPA's rates for 2020.
  - No slice true-up credit is assumed for CY 2020.
  - Power cost assumptions include the Frederickson contract cost through the contract period.
  - Power cost forecast includes the estimated cost to meet the requirements of the Energy Independence Act (EIA).
  - No carbon cap and trade impact included in power budget.

# 2020 BUDGET - KEY ASSUMPTIONS

(CONTINUED)

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## **INTERNAL DISTRICT COSTS**

- Employee benefits and payroll taxes of \$6.8 million are based on total District labor of \$15.3 million. Employee benefit costs include the District's share of FICA, Medicare, retirement, medical, dental, life insurance, short-term disability insurance, personal leave, retirement, unemployment tax, and state industrial insurance (see Tab 5).

## **FINANCING**

- No debt issuance is assumed in the 2020 Budget.

## **CAPITAL**

- Capital is based on the District's five-year Capital Requirements Plan (see Tab 9).
  - Includes \$0.6 million for new transmission line planning and design.
    - Design for new transmission line from Phillips to Spaw
    - Hedges 115kV Metering Point
  - Includes \$2.6 million for new substations and existing substation improvements/replacements.
    - New Southridge Substation
  - Includes \$2.9 million for distribution capacity & reliability, and system improvements.
  - Includes \$5.1 million for projected customer growth, such as requested electrical line extension, transformers, and meters (721 new services).
  - Includes \$2.2 million for electrical distribution system upgrades and underground cable replacement.
    - Underground cable replacement
    - NESC compliance
  - Includes \$1.2 million for Information Technology network reliability upgrades, security enhancements, utility analytics, and enterprise applications.
  - Includes \$2.1 million for projected broadband growth
    - Advanced wireless/small cell
  - Includes \$0.6 million for equipment replacements and facilities improvements/replacements.
    - Line truck replacement and other replacements and improvements
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# Annual Budget Summary

**Tab 3**



**Comparative Operating Statement**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	2020 Budget	2019 Original Budget	Increase/ (Decrease)	% Change
<b>OPERATING REVENUES</b>				
Energy Sales - Retail	\$137,001,522	\$134,253,115	\$2,748,407	2.0%
Energy Secondary Market Sales	19,518,637	16,281,671	3,236,966	19.9%
Transmission of Power for Others	900,000	900,000	-	0.0%
Broadband Revenue	2,638,253	2,413,253	225,000	9.3%
Other Revenue	1,523,700	1,517,400	6,300	0.4%
<b>TOTAL OPERATING REVENUES</b>	<b>161,582,112</b>	<b>155,365,439</b>	<b>6,216,673</b>	<b>4.0%</b>
<b>OPERATING EXPENSES</b>				
Purchased Power	89,626,501	88,128,815	1,497,686	1.7%
Purchased Transmission and Ancillary Services	14,467,044	13,877,983	589,061	4.2%
Conservation	343,793	1,236,670	(892,877)	-72.2%
<b>Total Power Supply</b>	<b>104,437,338</b>	<b>103,243,468</b>	<b>1,193,870</b>	<b>1.2%</b>
Transmission Operation & Maintenance	165,419	176,440	(11,021)	-6.2%
Distribution Operation & Maintenance	11,523,052	10,500,476	1,022,576	9.7%
Broadband Expense	1,071,293	948,000	123,293	13.0%
Customer Accounting, Collection and Information	4,914,573	4,707,493	207,080	4.4%
Administrative & General	7,683,735	7,499,890	183,844	2.5%
Subtotal before NESC Compliance - Public Safety	25,358,072	23,832,300	1,525,772	6.4%
NESC Compliance - Public Safety	557,000	525,984	31,016	5.9%
Subtotal before Taxes & Depreciation	25,915,072	24,358,284	1,556,788	6.4%
Taxes	14,689,000	14,349,000	340,000	2.4%
Depreciation & Amortization	10,110,642	10,055,082	55,560	0.6%
Total Other Operating Expenses	50,714,714	48,762,366	1,952,348	4.0%
<b>TOTAL OPERATING EXPENSES</b>	<b>155,152,052</b>	<b>152,005,834</b>	<b>3,146,219</b>	<b>2.1%</b>
<b>OPERATING INCOME (LOSS)</b>	<b>6,430,060</b>	<b>3,359,605</b>	<b>3,070,454</b>	<b>91.4%</b>
<b>NONOPERATING REVENUES &amp; EXPENSES</b>				
Interest Income	1,000,000	700,000	300,000	42.9%
Other Income	376,070	376,070	-	0.0%
Interest Expense	(2,591,154)	(2,525,760)	(65,394)	2.6%
Debt Discount & Expense Amortization	359,620	453,710	(94,090)	-20.7%
<b>TOTAL NONOPERATING REVENUES &amp; EXPENSES</b>	<b>(855,464)</b>	<b>(995,980)</b>	<b>140,516</b>	<b>-14.1%</b>
<b>INCOME (LOSS) BEFORE CONTRIBUTIONS</b>	<b>5,574,596</b>	<b>2,363,625</b>	<b>3,210,970</b>	<b>135.8%</b>
<b>CAPITAL CONTRIBUTIONS</b>	<b>1,801,775</b>	<b>2,065,153</b>	<b>(263,378)</b>	<b>-12.8%</b>
<b>CHANGE IN NET POSITION</b>	<b>\$7,376,371</b>	<b>\$4,428,778</b>	<b>\$2,947,592</b>	<b>66.6%</b>
<b>NET POWER</b>	<b>84,018,701</b>	<b>86,061,797</b>	<b>(2,043,096)</b>	<b>-2.4%</b>
<b>CHANGE IN NET POSITION</b>	<b>\$7,376,371</b>	<b>\$4,428,778</b>	<b>\$2,947,592</b>	<b>66.6%</b>
Less: Gross Capital in Excess of Depreciation	(7,182,224)	(9,720,108)	2,537,884	-26.1%
Less: Principal Payment on Outstanding Debt	(3,940,000)	(3,750,000)	(190,000)	5.1%
Plus: Non-Cash Items (Prepaid Expense Amortizations, etc.)	657,516	563,426	94,090	16.7%
<b>ESTIMATED ADDITION/(REDUCTION) TO CASH RESERVES</b>	<b>(\$3,088,337)</b>	<b>(\$8,477,904)</b>	<b>\$5,389,566</b>	<b>-63.6%</b>

**Comparative Capital Budget**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

Capital Category	Project Group	2019			
		2020 Budget	Original Budget	Increase/ (Decrease)	% Change
<b>Transmission</b>	Transmission Projects	\$620,328	\$2,431,753	(\$1,811,425)	-74.5%
<b>Distribution</b>	Capacity & Reliability	5,524,917	7,355,192	(1,830,275)	-24.9%
	Customer Growth	4,879,724	3,569,125	1,310,599	36.7%
	General Plant	200,000	200,000	-	0.0%
	Other	192,500	(179,289)	371,789	-207.4%
	Repair & Replace	1,995,000	2,022,804	(27,804)	-1.4%
Total		12,792,141	12,967,831	(175,690)	-1.4%
<b>Broadband</b>	Broadband	2,101,128	1,353,454	747,674	55.2%
<b>General Plant</b>	General Plant	620,800	1,758,875	(1,138,075)	-64.7%
<b>Information Technology</b>	Information Technology	1,158,469	1,001,177	157,292	15.7%
<b>Capitalized Interest</b>	Capitalized Interest	-	262,100	(262,100)	-100.0%
<b>Grand Total (Gross)</b>		<b>17,292,866</b>	<b>19,775,190</b>	<b>(2,482,324)</b>	<b>-12.6%</b>
<b>Contributions in Aid</b>	Broadband	(73,500)	-	(73,500)	N/A
	Capacity & Reliability	-	(889,444)	889,444	-100.0%
	Customer Growth	(1,644,000)	(1,096,209)	(547,791)	50.0%
	Other	(84,275)	(79,500)	(4,775)	6.0%
	Total		(1,801,775)	(2,065,153)	263,378
<b>Net Capital</b>		<b>\$15,491,091</b>	<b>\$17,710,037</b>	<b>(\$2,218,946)</b>	<b>-12.5%</b>

**Comparative Budget by Activity Code**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
<b>Allocated Costs:</b>				
88 Payroll Taxes	\$1,148,190	\$1,115,634	\$32,556	2.9%
101 Employee Benefits	5,672,155	5,395,610	276,545	5.1%
<b>Allocated Cost Total</b>	<b>6,820,345</b>	<b>6,511,244</b>	<b>309,101</b>	<b>4.7%</b>
<b>Payroll:</b>				
10 District Overtime Labor	745,095	688,517	56,578	8.2%
11 All Other District Labor	14,538,797	14,123,696	415,100	2.9%
<b>District Labor Total</b>	<b>15,283,892</b>	<b>14,812,213</b>	<b>471,679</b>	<b>3.2%</b>
<b>Power Cost:</b>				
9 Purchased Power	100,518,131	99,867,284	650,847	0.7%
<b>Power Cost Total</b>	<b>100,518,131</b>	<b>99,867,284</b>	<b>650,847</b>	<b>0.7%</b>
<b>System Costs:</b>				
1 Unidentified Under Run / Carry Over	(695,000)	(1,000,000)	305,000	-30.5%
12 Materials & Supplies	3,872,684	4,436,504	(563,820)	-12.7%
13 Store Expense - Non Labor	25,000	25,000	-	0.0%
14 Small Tools & Materials	112,450	106,350	6,100	5.7%
15 Transportation Expense-Gas&Oil	225,000	225,000	-	0.0%
16 Transportation Exp-Repair&Main	192,000	192,000	-	0.0%
17 Operation & Maintenance Exp	427,922	412,778	15,144	3.7%
18 Misc Construction Expense	187,892	2,178,962	(1,991,070)	-91.4%
19 Tree Trimming - Contract	805,000	805,000	-	0.0%
20 Off-the-Dock Labor	1,296,496	933,690	362,806	38.9%
21 Elec Construction Contracts	2,980,073	1,948,393	1,031,680	53.0%
23 Environmental	22,000	22,000	-	0.0%
<b>System Cost Total</b>	<b>9,451,517</b>	<b>10,285,677</b>	<b>(834,160)</b>	<b>-8.1%</b>
<b>General Expenditures:</b>				
25 Maintenance of Software	1,059,350	930,425	128,925	13.9%
26 Computer Hardware & Equip Exp	74,000	64,500	9,500	14.7%
27 Personal Computer Software	89,500	55,000	34,500	62.7%
28 Personal Computer O&M Costs	187,700	129,200	58,500	45.3%
29 Personal Computer Supplies&Exp	10,000	12,000	(2,000)	-16.7%
30 Customer Service Expenses	407,500	407,302	198	0.0%
33 Office Supplies & Expenses	79,100	84,600	(5,500)	-6.5%
34 Insurance	584,700	588,450	(3,750)	-0.6%
37 Grounds Care	93,000	93,000	-	0.0%
38 Maint of Bldg & Improvements	315,000	271,000	44,000	16.2%
39 Maint of Equipment	40,400	40,000	400	1.0%
40 Rents	373,284	353,774	19,510	5.5%
41 Insurance Damages & Other Reim	10,000	10,000	-	0.0%

**Comparative Budget by Activity Code**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
42 Business Expense & Travel	267,100	278,400	(11,300)	-4.1%
43 Training Expense & Travel	250,060	274,535	(24,475)	-8.9%
44 Other General Expenses	982,165	925,099	57,066	6.2%
45 Subscriptions & Publications	24,961	60,460	(35,499)	-58.7%
46 Treasurer Expenses	451,000	436,000	15,000	3.4%
<b>General Expenditure Total</b>	<b>5,298,820</b>	<b>5,013,745</b>	<b>285,075</b>	<b>5.7%</b>
<b>Utilities:</b>				
50 Telephone & Answering Services	247,000	204,384	42,616	20.9%
51 Water, Garbage, Irrigation & Other	75,000	75,000	-	0.0%
<b>Utilities Total</b>	<b>322,000</b>	<b>279,384</b>	<b>42,616</b>	<b>15.3%</b>
<b>Outside Services:</b>				
60 Audit Examination - State	102,500	71,500	31,000	43.4%
61 Professional Services	1,515,095	1,212,996	302,099	24.9%
<b>Outside Services Total</b>	<b>1,617,595</b>	<b>1,284,496</b>	<b>333,099</b>	<b>25.9%</b>
<b>Dues and Assessments:</b>				
70 Civic & Service Organizations	19,205	18,955	250	1.3%
72 Industry Assoc Assessments	534,146	510,324	23,822	4.7%
<b>Dues and Assessments Total</b>	<b>553,351</b>	<b>529,279</b>	<b>24,072</b>	<b>4.5%</b>
<b>Taxes:</b>				
80 Public Utility & Excise Tax	5,477,000	5,366,000	111,000	2.1%
81 State Privilege Tax	2,801,000	2,746,000	55,000	2.0%
82 City Occupation Taxes	6,411,000	6,237,000	174,000	2.8%
<b>Taxes Total</b>	<b>14,689,000</b>	<b>14,349,000</b>	<b>340,000</b>	<b>2.4%</b>
<b>Other Employee Costs:</b>				
104 Other Employee Costs	184,694	173,724	10,970	6.3%
<b>Other Employee Costs Total</b>	<b>184,694</b>	<b>173,724</b>	<b>10,970</b>	<b>6.3%</b>
<b>Energy Resources:</b>				
112 Residential Conservation Exp	512,765	440,881	71,884	16.3%
113 Commercial Conservation Exp	537,293	300,000	237,293	79.1%
114 Industrial Conservation Exp	726,668	580,000	146,668	25.3%
115 Agriculture Conservation Exp	67,002	100,000	(32,998)	-33.0%
118 Low Income Conservation	230,000	180,000	50,000	27.8%
<b>Energy Resources Total</b>	<b>2,073,728</b>	<b>1,600,881</b>	<b>472,847</b>	<b>29.5%</b>
<b>Public Information:</b>				
119 Public Information Expenses	294,100	290,600	3,500	1.2%
<b>Public Information Total</b>	<b>294,100</b>	<b>290,600</b>	<b>3,500</b>	<b>1.2%</b>
<b>Purchased Electric Plant &amp; Equip:</b>				

**Comparative Budget by Activity Code**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
120 Substation Xfrs & Regulators	583,051	1,775,420	(1,192,369)	-67.2%
121 Substation Equip & Materials	1,288,633	872,331	416,302	47.7%
122 Line Devices	392,593	479,870	(87,277)	-18.2%
123 Transformers & Related Items	1,200,000	925,000	275,000	29.7%
124 Meters & Related Items	200,000	200,000	-	0.0%
125 Land & Land Rights - Electric	321,510	-	321,510	n/a
127 SCADA Communications Equipment	113,500	203,022	(89,522)	-44.1%
128 SCADA Substation Equipment	30,000	30,000	-	0.0%
<b>Purchased Electric Plant and Equip Total</b>	<b>4,129,287</b>	<b>4,485,644</b>	<b>(356,356)</b>	<b>-7.9%</b>
<b>Purchased General Plant &amp; Equip:</b>				
131 Structures & Improvements	139,000	384,500	(245,500)	-63.8%
132 Office Equipment	7,000	7,000	-	0.0%
133 Transportation Equipment	380,000	949,000	(569,000)	-60.0%
134 Tools, Shop & Stores Equipment	19,900	76,400	(56,500)	-74.0%
135 Laboratory & Test Equipment	55,000	76,475	(21,475)	-28.1%
136 Communication Equipment	190,000	230,000	(40,000)	-17.4%
137 Capitalized Computer Software	97,000	201,695	(104,695)	-51.9%
138 Computer Equipment	647,500	484,500	163,000	33.6%
<b>Purchased General Plant &amp; Equip Total</b>	<b>1,535,400</b>	<b>2,409,570</b>	<b>(874,170)</b>	<b>-36.3%</b>
<b>Debt Service:</b>				
150 Principal	3,940,000	3,750,000	190,000	5.1%
151 Interest	1,815,464	1,918,080	(102,616)	-5.3%
<b>Debt Service Total</b>	<b>5,755,464</b>	<b>5,668,080</b>	<b>87,384</b>	<b>1.5%</b>
<b>Other Misc. Expenditures:</b>				
200 New Services Expenses	2,500	4,000	(1,500)	-37.5%
201 New Product Expenses	3,500	3,500	-	0.0%
<b>Other Misc Expenditures Total</b>	<b>6,000</b>	<b>7,500</b>	<b>(1,500)</b>	<b>-20.0%</b>
<b>Depreciation:</b>				
301 Depreciation (Other)	10,110,642	10,055,082	55,560	0.6%
Transportation Equipment - Allocation	296,417	296,417	-	0.0%
<b>Depreciation Total</b>	<b>10,407,059</b>	<b>10,351,499</b>	<b>55,560</b>	<b>1%</b>
<b>Grand Total</b>	<b>\$178,940,383</b>	<b>\$177,919,820</b>	<b>\$1,020,563</b>	<b>1%</b>

**Comparative Broadband Budget  
Public Utility District No. 1 of Benton County  
2020 Budget**

	<b>2020 Budget<sup>1</sup></b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
<b>Revenue</b>	\$2,638,253	\$2,413,253	\$225,000	9.3%
<b>Operating Expenses</b>	(1,071,293)	(948,000)	(123,293)	13.0%
<b>Net Income (Loss)</b>	<b>1,566,960</b>	<b>1,465,253</b>	<b>101,707</b>	<b>6.9%</b>
<b>Broadband Capital:</b>				
Base Capital Expenditures	1,285,278	1,353,454	(68,176)	-5.0%
Small Cell	815,850	-	815,850	n/a
Capital Contributions	(73,500)	-	(73,500)	n/a
<b>Net Capital Expenditures</b>	<b>2,027,628</b>	<b>1,353,454</b>	<b>674,174</b>	<b>49.8%</b>
<b>Net Cash from / (to) Broadband</b>	<b>(\$460,668)</b>	<b>\$111,799</b>	<b>(\$572,467)</b>	<b>n/a</b>
	<b>Future 5 Years (2020-2024)<sup>1</sup></b>	<b>Previous 5 Years (2016-2020)</b>		
Five Year Rolling Net Cash Test <sup>2</sup>	\$2,339,952	\$436,168		

1) Includes small cell estimated cost, revenue, and capital contributions

2) Resolution 2432: Broadband Strategy states "... maintain net positive cash flows over rolling five-year period, both looking back and forward. Net cash flow may be negative in individual years provided that the amount is offset by positive net cash flow in other years."



# Summary of Revenues

**Tab 4**



**Comparative Revenues**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
Retail Power Sales	\$ 137,001,522	\$ 134,253,115	\$ 2,748,407	2.0%
Wholesale Power Sales	20,418,637	17,181,671	3,236,966	18.8%
Broadband Revenues	2,638,253	2,413,253	225,000	9.3%
Interest Income and Other	1,376,070	1,076,070	300,000	27.9%
Other Electric Revenue	1,523,700	1,517,400	6,300	0.4%
Joint Use Cost Share	700,000	614,016	85,984	14.0%
Capital Contributions:				
Electric Facilities	1,728,275	2,065,153	(336,878)	-16.3%
Broadband Facilities	73,500	-	73,500	n/a
<b>Total Revenue</b>	<b>\$ 165,459,957</b>	<b>\$ 159,120,678</b>	<b>\$ 6,339,279</b>	<b>4.0%</b>

**Comparative Revenues**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
<b><u>Finance and Business Services</u></b>				
515 Interest Income	\$ 1,000,000	\$ 700,000	\$ 300,000	42.9%
151 BAB's Subsidy	376,070	376,070	-	0.0%
560 Insurance/Claims Reimbursements	100,000	100,000	-	0.0%
<b>Total Finance &amp; Business Services</b>	<b>1,476,070</b>	<b>1,176,070</b>	<b>300,000</b>	<b>25.5%</b>
<b><u>Customer Programs &amp; Services</u></b>				
530 Property Rental Revenue				
Auditorium Rental	10,000	10,000	-	0.0%
545 Other Electric Revenue				
Customer Fees and late charges	500,000	500,000	-	0.0%
<b>Total Customer Programs &amp; Services</b>	<b>510,000</b>	<b>510,000</b>	<b>-</b>	<b>0.0%</b>
<b><u>Engineering and Power Management</u></b>				
<b>Engineering</b>				
523 Pole Contact Revenue				
Pole Contact Fees	440,000	440,000	-	0.0%
Annual Cell Site Fee with Verizon Wireless	-	2,400	(2,400)	n/a
525 Capital Contributions				
Angus Franklin Transmission	21,775	17,000	4,775	28.1%
ENW Nine Canyon Harmonic Analysis	-	50,000	(50,000)	n/a
Joint Use Deficiency Correction CAIC	62,500	62,500	-	0.0%
Teague Farms Sunheaven #1 Substation Upgrades	-	204,375	(204,375)	n/a
DNR Teague Farms Booster Station	-	635,069	(635,069)	n/a
Misc. Customer Fees (Primary, etc.)	1,644,000	1,096,209	547,791	50.0%
545 Other Electric Revenue	700,000	614,016	85,984	14.0%
Total Engineering	2,868,275	3,121,569	(253,294)	-8.1%
<b>Power Management</b>				
505 Wholesale Power Sales Revenue				
Slice Power Sales for Resale	6,881,327	9,153,545	(2,272,218)	-24.8%
Fredrickson Power Sales for Resale	11,667,250	7,128,126	4,539,124	63.7%
Fredrickson Gas Sales for Resale	970,060	-	970,060	n/a
510 Wholesale Transmission Sales Revenue	900,000	900,000	-	0.0%
Total Power Management	20,418,637	17,181,671	3,236,966	18.8%
<b>Total Engineering and Power Management</b>	<b>23,286,912</b>	<b>20,303,240</b>	<b>2,983,672</b>	<b>14.7%</b>
<b><u>Broadband</u></b>				
550 Products and Services Revenue				
Ethernet Revenue	1,555,953	1,480,953	75,000	5.1%
TDM Revenue	36,000	36,000	-	0.0%
Wireless Revenue	42,300	42,300	-	0.0%
Internet Transport Revenue	54,000	54,000	-	0.0%
Access Internet Revenue	300,000	250,000	50,000	20.0%
Broadband Revenue-Other (Incl. Fiber Leases)	650,000	550,000	100,000	18.2%
525 Capital Contributions				
Advanced Wireless/Small Cell	73,500	-	73,500	n/a
<b>Total Broadband</b>	<b>2,711,753</b>	<b>2,413,253</b>	<b>298,500</b>	<b>12.4%</b>

**Comparative Revenues**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
<b><u>Operations</u></b>				
<b>Supt. of Transmission &amp; Distribution</b>				
550 Products and Services Revenue				
Pre-Notifier - Tree Trimming	59,000	45,000	14,000	31.1%
Safety Coordinator	109,000	120,000	(11,000)	-9.2%
Total Supt. of Transmission & Distribution	168,000	165,000	3,000	1.8%
<b>Supt. of Operations</b>				
535 Microwave Site Rental	62,700	61,000	1,700	2.8%
Rattlesnake Site Rental	49,000	45,000	4,000	8.9%
545 Other Electric Revenue				
Windfarm Maintenance	114,000	114,000	-	0.0%
Total Supt. of Operations	225,700	220,000	5,700	2.6%
<b>Total Operations</b>	<b>393,700</b>	<b>385,000</b>	<b>8,700</b>	<b>2.3%</b>
<b><u>Non-Departmental</u></b>				
501 Retail Energy Sales Total	130,847,156	128,267,639	2,579,517	2.0%
503 Bad Debt Expense	(256,634)	(251,524)	(5,110)	2.0%
502 City Occupation Taxes Collected	6,411,000	6,237,000	174,000	2.8%
520 Temporary Service Revenue	80,000	80,000	-	0.0%
<b>Total Non-Departmental</b>	<b>137,081,522</b>	<b>134,333,115</b>	<b>2,748,407</b>	<b>2.0%</b>
<b>Grand Total Revenue</b>	<b>\$ 165,459,957</b>	<b>\$ 159,120,678</b>	<b>\$ 6,339,279</b>	<b>4.0%</b>





# Labor Staffing

**Tab 5**



**Public Utility District No. 1 of Benton County**  
**2020 Labor & Benefits Budget**

	2020 Budget	2019 Original Budget	Increase (Decrease)	% Change
<b>District Labor</b>				
Regular Labor - Activity 11	\$ 14,523,796	\$ 14,123,697	\$ 400,099	2.8%
Overtime Labor - Activity 10	745,095	688,517	56,578	8.2%
<b>Total Labor</b>	<b>\$ 15,268,891</b>	<b>\$ 14,812,214</b>	<b>\$ 456,677</b>	<b>3.1%</b>
<b>District Labor Taxes &amp; Benefits</b>				
Payroll Taxes - Activity 88	\$ 1,148,191	\$ 1,115,634	\$ 32,557	2.9%
Employee Benefits - Activity 101	5,672,155	5,395,610	276,545	5.1%
<b>Total Labor Taxes &amp; Benefits</b>	<b>\$ 6,820,345</b>	<b>\$ 6,511,244</b>	<b>\$ 309,101</b>	<b>4.7%</b>
<b>District Staffing</b>				
Full Time Equivalent Positions (FTEs)	155.00	158.00	(3.00)	-1.9%

**Public Utility District No. 1 of Benton County  
2020 Staffing Plan**

*Full Time Equivalent Positions (FTEs)*

Directorate	2019		Increase/ (Decrease)
	2020 Budget	Original Budget	
Executive / Human Resources / Communications & Government	10.00	10.00	0.00
Finance & Business Services	14.00	14.00	0.00
Engineering / Power Management	26.25	26.25	0.00
Operations	63.50	64.50	(1.00)
IT	17.00	18.00	(1.00)
Customer Programs & Services	24.25	25.25	(1.00)
<b>Authorized District Positions</b>	<b>155.00</b>	<b>158.00</b>	<b>(3.00)</b>
Less: FTEs utilized by other local utilities*	(1.10)	(1.10)	0.00
<b>District Adjusted FTEs</b>	<b>153.90</b>	<b>156.90</b>	<b>(3.00)</b>

\*Positions that are shared with local utilities are Safety Coordinator & Vegetation Management.

	Change in FTEs
<b>Engineering / Power Management</b>	<b>0.00</b>
<b>Dept. 21 - Engineering Directorate</b>	
Add - Electrical Engineer I	1.00
Add - Distribution Designer	1.00
<b>Dept. 22 - Customer Engineering</b>	
Remove - Distribution Designer	(1.00)
<b>Dept. 51 - Power Management</b>	
Remove - Power & Energy Program Analyst II	(1.00)
<b>Operations</b>	<b>(1.00)</b>
<b>Dept. 31 - Ops. Directorate</b>	
Add - Assistant Superintendent - Transmission & Distribution	1.00
<b>Dept. 32 - Superintendent T &amp; D</b>	
Apprentice moved to Journeyman Lineman (Additional Apprentice inadvertently included in previous budget)	(1.00)
<b>Dept. 34 - Meter Shop</b>	
Remove - Meterman Journeyman (NECA Temp)	(1.00)
Add - Meterman - Apprentice	1.00
<b>Dept. 38 - Warehouse</b>	
Remove - Janitor	(1.00)
<b>IT</b>	<b>(1.00)</b>
<b>Dept. 18 - Information Systems</b>	
Remove - GIS Specialist II (Restructured department)	(1.00)
<b>Customer Programs &amp; Services</b>	<b>(1.00)</b>
<b>Dept. 42 - Prosser</b>	
Add - Customer Service Representative (LA)	1.00
<b>Dept. 44 - Customer Service</b>	
Remove - Manager of Customer Engagement (Restructured department)	(1.00)
Remove - Customer Service Representative II	(2.00)
Add - Customer Service Representative (LA)	1.00

**Public Utility District No. 1 of Benton County  
2020 Payroll Taxes and Employee Benefits Allocation Budget**

**Overview**

The District allocates the cost of payroll taxes, employee benefits (including paid time off) over actual regular productive work hours. Overtime hours receive an allocation of those payroll taxes and benefits that directly relate to overtime. Payroll taxes and employee benefit costs are distributed to applicable general ledger accounts via activity codes 88 and 101, respectively, by applying a percentage rate to overtime and regular labor (activity codes 10 and 11, respectively). Calculation of the percentage rate is provided

<b>Labor Breakdown</b>	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>Notes</b>
Labor charged to Expense	\$ 9,763,577	\$ 9,216,628	\$ 546,949	
Labor charged to Capital	2,177,810	2,360,661	(182,851)	
Labor charged to Warehouse & Equipment Maintenance	550,080	545,936	4,144	
<i>Total Productive Labor</i>	<i>12,491,467</i>	<i>12,123,225</i>	<i>368,241</i>	
Paid Leave - Includes Holidays and Personal Leave	\$ 2,047,330	\$ 2,000,471	\$ 46,859	
<b>Total Regular Labor</b>	<b>\$ 14,538,797</b>	<b>\$ 14,123,697</b>	<b>\$ 415,100</b>	
<b>Benefits/Taxes</b>				
Social Security	\$ 926,574	\$ 900,857	\$ 25,718	
Medicare	221,616	214,777	6,839	
WA State Sick Leave	22,396	21,727	670	This amount represents the employer portion at 36.67% at the 0.40% premium for the Districts total labor, which follows the Washington State FMLA plan.
State Industrial	141,836	138,899	2,937	This represents 80% of the employer portion of the total L&I charges with a 2% increase assumption. The District's experience rating is contributing to reduced premiums.
Unemployment	12,000	14,000	(2,000)	The District does not pay unemployment tax but instead reimburses the State for benefits paid to former employees.
PERS	1,909,027	1,839,138	69,889	According to the Collective Bargaining Agreement, the District provides a deferred compensation match of 3%. In addition, there is a \$50 per month contribution to a VEBA account along with an additl \$150 per month contributin which is dependent on the employee's participation in a wellness program. As of 7/1/19, the employer rate for PERS was set at 12.86%. The 2020 projected rate is 12.86% this rate will be in place until June of 2021.
Deferred Compensation	422,052	272,477	149,575	
VEBA Contribution	360,000	277,200	82,800	
Medical Insurance	2,337,894	2,335,932	1,963	The 2020 budget assumes a 2.20% increase in medical insurance, and no increase for dental and vision insurance on 1/1/20. A shift in employee enrollment to the CDHP Plan has mitigated the increase in medical.
Dental Insurance	205,250	211,117	(5,868)	
Vision Insurance	36,791	37,841	(1,051)	
Life Insurance	71,909	69,279	2,630	
STD Admin Fee	3,000	3,000	-	
<b>Total Benefits/Taxes</b>	<b>\$ 6,670,345</b>	<b>\$ 6,336,243</b>	<b>\$ 334,102</b>	
<b>Leave</b>				
Change PL Liability	\$ 150,000	\$ 175,000	\$ (25,000)	
Paid Time Off	2,047,330	2,000,471	46,859	
<b>Leave Subtotal</b>	<b>\$ 2,197,330</b>	<b>\$ 2,175,471</b>	<b>\$ 21,859</b>	
<b>Total Benefits/Taxes and Leave</b>	<b>\$ 8,867,675</b>	<b>\$ 8,511,714</b>	<b>\$ 355,961</b>	

**Allocation Rate - Regular and Overtime**

Total Regular Benefits/Taxes and Leave	\$ 8,867,675
Total Regular Productive Labor	12,491,467
<b>Allocation Rate - Regular Time</b>	<b>70.99%</b>





# Budget by Directorate

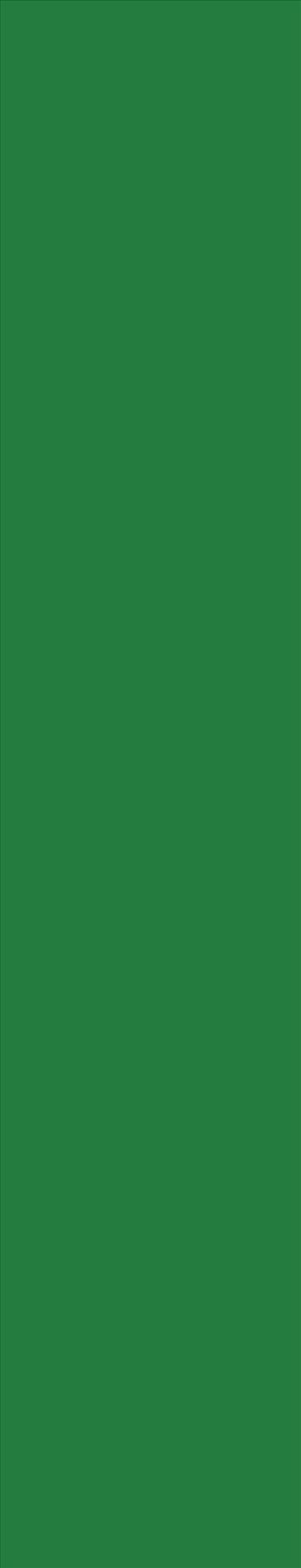
**Tab 6**



**Revenue and Expense Summary by Department**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase/ (Decrease)</b>	<b>% Change</b>
<b>REVENUE</b>				
<i>Finance &amp; Business Services</i>	\$1,476,070	\$1,176,070	\$300,000	25.5%
<i>Broadband</i>	2,711,753	2,413,253	298,500	12.4%
<i>Engineering/Power Mgmt</i>	23,286,912	20,303,240	2,983,672	14.7%
<i>Operations</i>	393,700	385,000	8,700	2.3%
<i>Customer Programs &amp; Services</i>	510,000	510,000	-	0.0%
<i>Non-Departmental</i>	137,081,522	134,333,118	2,748,404	2.0%
<b>Total Revenue</b>	<b>\$165,459,957</b>	<b>\$159,120,681</b>	<b>\$6,339,276</b>	<b>4.0%</b>
<b>EXPENSES</b>				
<i>Executive Administration</i>	\$2,678,091	\$2,630,055	\$48,036	1.8%
<i>Finance &amp; Business Services</i>	2,440,413	2,371,318	69,095	2.9%
<i>Information Technology</i>	7,460,281	6,305,294	1,154,987	18.3%
<i>Engineering/Power Mgmt</i>	116,189,283	116,220,525	(31,242)	0.0%
<i>Operations</i>	11,277,205	11,983,331	(706,126)	-5.9%
<i>Customer Programs &amp; Services</i>	2,018,242	2,115,738	(97,496)	-4.6%
<i>Non-Departmental</i>	36,876,868	35,679,543	1,197,325	3.4%
<b>Total Expenses</b>	<b>\$178,940,383</b>	<b>\$177,305,804</b>	<b>\$1,634,579</b>	<b>0.9%</b>





# Executive

**Tab 6**



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**  
**Summary of Expense by Directorate**

**Executive Administration**

<b>Department(s)</b>		<b>Totals</b>
01	General Manager, Commission	1,462,962
02	Human Resources	707,829
12	Communications & Government	507,300
<b>Grand Total Expenses    Executive Administration</b>		<b>\$2,678,091</b>

**Directorate Budget by Department and Activity  
2020 Budget Compared to 2019 Budget**

<b>Directorate</b>	<b>Executive</b>
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<b>Department</b>	<b>Activity</b>	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase / (Decrease)</b>	<b>% Increase / (Decrease)</b>
<b>1 - General Manager, Commission</b>	11 - All Other District Labor	\$797,244	\$1,220,926	(\$423,682)	-34.7%
	33 - Office Supplies & Expenses	17,200	28,200	(11,000)	-39.0%
	42 - Business Expense & Travel	70,500	78,500	(8,000)	-10.2%
	43 - Training Expense & Travel	11,500	14,100	(2,600)	-18.4%
	44 - Other General Expenses	30,000	4,000	26,000	650.0%
	45 - Subscriptions & Publications	9,306	9,630	(324)	-3.4%
	61 - Professional Services	85,000	85,000	-	0.0%
	72 - Industry Assoc Assessments	442,212	427,004	15,208	3.6%
<b>1 - General Manager, Commission Total</b>		<b>1,462,962</b>	<b>1,867,360</b>	<b>(404,398)</b>	<b>-21.7%</b>
<b>2 - Human Resources</b>	11 - All Other District Labor	438,779	-	438,779	N/A
	33 - Office Supplies & Expenses	1,500	1,500	-	0.0%
	42 - Business Expense & Travel	16,000	24,500	(8,500)	-34.7%
	43 - Training Expense & Travel	6,000	11,500	(5,500)	-47.8%
	44 - Other General Expenses	56,200	51,000	5,200	10.2%
	45 - Subscriptions & Publications	6,500	34,700	(28,200)	-81.3%
	61 - Professional Services	95,800	68,800	27,000	39.2%
	72 - Industry Assoc Assessments	36,550	29,545	7,005	23.7%
	104 - Other Employee Costs	50,500	49,800	700	1.4%
<b>2 - Human Resources Total</b>		<b>707,829</b>	<b>271,345</b>	<b>436,484</b>	<b>160.9%</b>
<b>12 - Communications &amp; Government</b>	33 - Office Supplies & Expenses	400	400	-	0.0%
	42 - Business Expense & Travel	26,000	26,000	-	0.0%
	45 - Subscriptions & Publications	800	800	-	0.0%
	61 - Professional Services	166,000	156,000	10,000	6.4%
	70 - Civic & Service Organizations	15,950	15,500	450	2.9%
	72 - Industry Assoc Assessments	6,550	6,050	500	8.3%
	119 - Public Information Expenses	291,600	286,600	5,000	1.7%
<b>12 - Communications &amp; Government Total</b>		<b>507,300</b>	<b>491,350</b>	<b>15,950</b>	<b>3.2%</b>
<b>Grand Total</b>		<b>\$2,678,091</b>	<b>\$2,630,055</b>	<b>\$48,036</b>	<b>1.8%</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department** 01 General Manager, Commission

Activity	Description	GL/FERC	BU Project	Amount
<b>011</b>	<b>All Other District Labor</b>			<b>\$797,244</b>
	Labor - Admin General	920.00		\$607,589
	Labor - Customer Accounting	903.00		\$77,832
	Labor - Distribution	588.00		\$209
	Labor - Leave	184.30		\$111,614
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$17,200</b>
	Imaging & Preservation of Records	921.00		\$8,000
	Misc Office Supplies	921.00		\$3,000
	Off-Site Storage of Permanent Records	921.00		\$1,200
	Records Mgmt - Shredding Services	921.00		\$5,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$70,500</b>
	Commission Travel	930.20		\$45,000
	Manager	921.00		\$22,000
	RM Software Users Group (Records Administrator)	921.00		\$2,000
	WPUDA Annual Assistant's Meeting (Executive Assistant)	921.00		\$500
	WPUDA Records Roundtable (2) (Records Administrator)	921.00		\$1,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$11,500</b>
	AIIIM/ARMA Nat'l Conference and other local/in-state trainings - (Program Administrator)	921.00		\$4,000
	Misc Training (local seminars/trainings) - (Executive Assistant, Program Administrator)	921.00		\$1,000
	NW Clerks Institute, Professional Development II (Tacoma, WA) (Executive Assistant)	921.00		\$2,500
	WA Municipal Clerks Association Conference - (Executive Assistant)	921.00		\$1,000
	WAPRO Training (Supervisor, Program Administrator, Executive Assistant)	921.00		\$3,000
<b>044</b>	<b>Other General Expenses</b>			<b>\$30,000</b>
	Election Costs (annual fee)	930.20		\$30,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$9,306</b>
	Clearing Up - (Newsdata)	930.20		\$8,300
	Columbia Basin Bulletin	930.20		\$96
	Executive Leadership	930.20		\$170
	Kiplinger Letter	930.20		\$100
	Wall Street Journal (two)	930.20		\$640
<b>061</b>	<b>Professional Services</b>			<b>\$85,000</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 01 General Manager, Commission**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Contract Attorney	930.20		\$75,000
	Misc. Legal (Gordon Thomas Honeywell)	930.20		\$10,000
<b>072 Industry Association Assessment</b>				<b>\$442,212</b>
	Administrative Professionals of TC - APTC (Executive Assistant)	921.00		\$50
	APPA	930.20		\$49,138
	ARMA Membership - includes Local Chapter (Program Administrator)	921.00		\$200
	Benton/Franklin Council of Governments	930.20		\$6,659
	International Institute of Municipal Clerks (Executive Assistant)	921.00		\$200
	Notary (Supervisor, Executive Assistant)	921.00		\$70
	NW River Partners	930.20		\$37,275
	NWPPA	930.20		\$30,000
	NWPPA Columbia River Treaty Dues	930.20		\$3,000
	Pacific Northwest Waterways (PNWA)	930.20		\$3,200
	PNUCC	557.00		\$10,450
	Public Generating Pool (PGP)	557.00		\$70,000
	Public Power Council (PPC)	557.00		\$71,495
	Soroptimist International of Three Rivers - (Commissioners)	930.20		\$150
	TRIDEC	930.20		\$20,000
	WA Municipal Clerk Association (Executive Assistant)	921.00		\$75
	WA Public Records Officer Association (Supervisor, Program Administrator, Executive Assi	921.00		\$75
	WAPRO Certified Public Records Officer Designation (Program Administrator)	921.00		\$175
	WPUDA	930.20		\$140,000
<b>TOTAL EXPENSE General Manager, Commission</b>				<b>\$1,462,962</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 02 Human Resources**

Activity	Description	GL/FERC	BU Project	Amount
<b>011</b>	<b>All Other District Labor</b>			<b>\$438,779</b>
	Labor - Admin General	920.00		\$377,350
	Labor - Leave	184.30		\$61,429
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$1,500</b>
	Misc. Supplies & Expenses	921.00		\$1,500
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$16,000</b>
	CWPU Meetings	921.00		\$1,000
	Executive - Leadership Planning Workshop	921.00		\$500
	HR - Affiliate Conferences	921.00		\$6,000
	HR - AWC Labor Relations Institute	921.00		\$500
	HR - Business Travel	921.00		\$3,000
	HR - LERG Meetings	921.00		\$5,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$6,000</b>
	District Leadership Training	921.00		\$500
	District Misc. Developmental Training	921.00		\$2,500
	HR - Misc. Training	921.00		\$3,000
<b>044</b>	<b>Other General Expenses</b>			<b>\$56,200</b>
	Community Outreach	921.00		\$500
	Driver Abstracts	921.00		\$1,200
	Employee Recognition & Programs	921.00		\$5,000
	General Expenses	921.00		\$500
	Recruitment - Advertising	921.00		\$35,000
	Recruitment - Assessments	921.00		\$1,500
	Recruitment - Background Screening	921.00		\$3,000
	Recruitment - Interview Expenses	921.00		\$5,500
	Recruitment - Physicals & DOT Screens	921.00		\$3,000
	Trucking Consortia - Collections	921.00		\$1,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$6,500</b>
	Labor Law Poster Updates	921.00		\$500
	Salary Survey - Misc.	921.00		\$500
	Salary Surveys - Milliman	921.00		\$5,000
	Subscription & Publications	921.00		\$500

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 02 Human Resources**

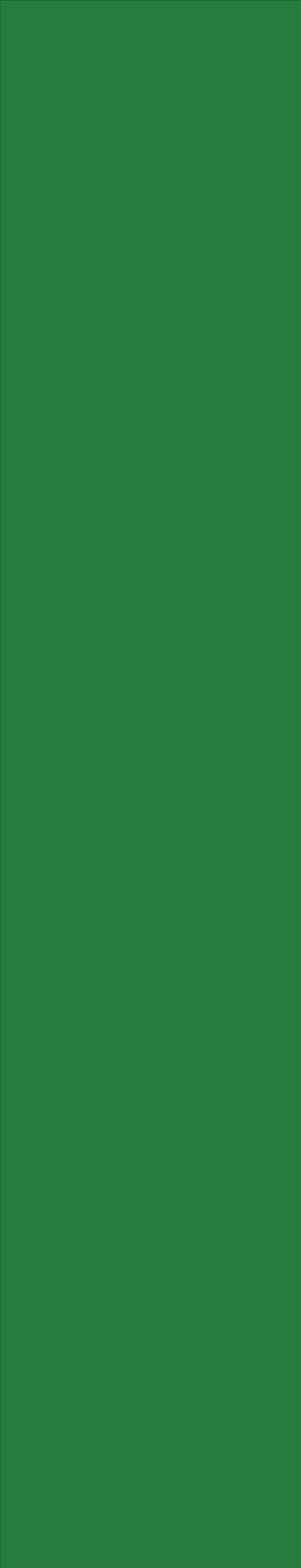
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>061</b>	<b>Professional Services</b>			<b>\$95,800</b>
	Consultant - Affirmative Action	921.00		\$1,500
	Consultant - Policy Development	921.00		\$20,000
	District - Employment Law Training	921.00		\$5,000
	District - IBM Tests & Administration	921.00		\$2,500
	District - Respectful Workforce Training	921.00		\$11,500
	District - Safety Training	921.00		\$15,000
	Engagement Survey	921.00		\$8,500
	Leadership Training Series	921.00		\$20,000
	Legal Services	921.00		\$10,000
	Trucking Consortium (Service Fee & Training)	923.00		\$1,800
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$36,550</b>
	CWPU Membership Assessments	921.00		\$34,000
	District - Assoc. of WA Cities Membership	921.00		\$500
	District - NWPPA Labor & Employee Relations Membership	921.00		\$650
	HR Staff - SHRM Professional Memberships (5)	921.00		\$850
	HR Staff - World at Work Memberships (2)	921.00		\$550
<b>104</b>	<b>Other Employee Costs</b>			<b>\$50,500</b>
	Assessments - ADA, Ergonomic & Fitness For Duty	921.00		\$2,000
	Assessments - CDL Medical Certifications	926.10		\$3,000
	COBRA Administration	921.00		\$2,500
	ComPsych EAP Administration	921.00		\$2,500
	CWPU Wellness Program Events	926.10		\$1,500
	Employee Assistance Program (EAP) Mediation	921.00		\$2,000
	Flex 125 Plan Administration	921.00		\$2,500
	HealthInvest Administration Fee	921.00		\$500
	Local Wellness Activities & Events	921.00		\$8,000
	Professional Certifications	921.00		\$5,000
	Safety Program - Supplies & Administration	921.00		\$6,000
	Tuition Reimbursement	921.00		\$15,000
<b>TOTAL EXPENSE Human Resources</b>				<b>\$707,829</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 12 Communications & Government**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$400</b>
	Misc Office Supplies	921.00		\$400
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$26,000</b>
	Adobe Max, NWPPA, WPUDA (Communications Specialist)	921.00		\$8,000
	APPA, NWPPA, Olympia, PPC, WPUDA (Manager)	921.00		\$18,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$800</b>
	Seattle Times, Survey Monkey, Tri-City Herald	921.00		\$800
<b>061</b>	<b>Professional Services</b>			<b>\$166,000</b>
	Customer Survey	910.00		\$10,000
	Governmental Relations	910.00		\$66,000
	Production, Graphics	910.00		\$35,000
	Website Maintenance/Technical	921.00		\$55,000
<b>070</b>	<b>Civic &amp; Service Organizations</b>			<b>\$15,950</b>
	Tri-Cities Area Chamber of Commerce	921.00		\$10,500
	Tri-Cities Hispanic Chamber of Commerce	921.00		\$450
	Tri-Cities Visitor & Convention Bureau	921.00		\$5,000
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$6,550</b>
	Association of Washington Business	910.00		\$2,000
	Leadership TC Alumni Association Dues (Manager)	910.00		\$50
	Smart Energy Consumer Collaborative	910.00		\$2,500
	TC Public Relations Society of America (Manager, Communications Specialist)	910.00		\$1,000
	Washington Business Alliance	910.00		\$1,000
<b>119</b>	<b>Public Information Expenses</b>			<b>\$291,600</b>
	Advertising (Print & Online)	910.00		\$50,100
	Printing (Newsletter, Brochures, Inserts, Direct Mail, etc)	910.00		\$72,900
	Public Education	910.00		\$55,300
	TV/Radio	910.00		\$113,300
<b>TOTAL EXPENSE Communications &amp; Government</b>				<b>\$507,300</b>





# **Finance & Business** **Services**

**Tab 6**



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**  
**Summary of Expense by Directorate**

**Finance & Business Services**

<b>Department(s)</b>		<b>Totals</b>
11	Finance & Business Services	755,694
14	General Accounting	575,164
16	Risk Management & Treasury	1,086,380
17	Contracts & Purchasing	23,175
<b>Grand Total Expenses Finance &amp; Business Services</b>		<b>\$2,440,413</b>

**Directorate Budget by Department and Activity  
2020 Budget Compared to 2019 Budget**

<b>Directorate</b>	<b>Finance &amp; Business Services</b>
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<b>Department</b>	<b>Activity</b>	<b>2020 Budget</b>	<b>2019 Original Budget</b>	<b>Increase / (Decrease)</b>	<b>% Increase / (Decrease)</b>
<b>11 - Finance &amp; Business Services</b>	10 - District Overtime Labor	\$2,000	\$2,000	\$0	0.0%
	11 - All Other District Labor	741,287	698,198	43,089	6.2%
	33 - Office Supplies & Expenses	5,000	5,000	-	0.0%
	42 - Business Expense & Travel	2,000	2,000	-	0.0%
	43 - Training Expense & Travel	4,000	4,000	-	0.0%
	45 - Subscriptions & Publications	200	200	-	0.0%
	72 - Industry Assoc Assessments	1,207	1,257	(50)	-4.0%
<b>11 - Finance &amp; Business Services Total</b>		<b>755,694</b>	<b>712,655</b>	<b>43,039</b>	<b>6.0%</b>
<b>14 - General Accounting</b>	10 - District Overtime Labor	1,000	1,000	-	0.0%
	11 - All Other District Labor	492,091	476,905	15,186	3.2%
	43 - Training Expense & Travel	6,000	6,000	-	0.0%
	45 - Subscriptions & Publications	2,305	2,780	(475)	-17.1%
	60 - Audit Examination - State	72,500	71,500	1,000	1.4%
	72 - Industry Assoc Assessments	1,268	1,323	(55)	-4.2%
<b>14 - General Accounting Total</b>		<b>575,164</b>	<b>559,508</b>	<b>15,656</b>	<b>2.8%</b>
<b>16 - Treasurer</b>	34 - Insurance	584,700	588,450	(3,750)	-0.6%
	41 - Insurance Damages & Other Reim	10,000	10,000	-	0.0%
	42 - Business Expense & Travel	2,000	3,500	(1,500)	-42.9%
	43 - Training Expense & Travel	5,600	4,100	1,500	36.6%
	45 - Subscriptions & Publications	500	500	-	0.0%
	46 - Treasurer Expenses	451,000	436,000	15,000	3.4%
	61 - Professional Services	32,500	32,500	-	0.0%
	72 - Industry Assoc Assessments	80	930	(850)	-91.4%
<b>16 - Treasurer Total</b>		<b>1,086,380</b>	<b>1,075,980</b>	<b>10,400</b>	<b>1.0%</b>
<b>17 - Purchasing</b>	33 - Office Supplies & Expenses	11,000	11,000	-	0.0%
	42 - Business Expense & Travel	2,000	2,000	-	0.0%
	43 - Training Expense & Travel	7,000	7,000	-	0.0%
	44 - Other General Expenses	2,565	2,565	-	0.0%
	72 - Industry Assoc Assessments	610	610	-	0.0%
<b>17 - Purchasing Total</b>		<b>23,175</b>	<b>23,175</b>	<b>-</b>	<b>0.0%</b>
<b>Grand Total</b>		<b>\$2,440,413</b>	<b>\$2,371,318</b>	<b>\$69,095</b>	<b>2.9%</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 11 Finance & Business Services**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>010</b>	<b>District Overtime Labor</b>			<b>\$2,000</b>
	Labor - Overtime - Admin General	920.00		\$2,000
<b>011</b>	<b>All Other District Labor</b>			<b>\$741,287</b>
	Labor - Admin General	920.00		\$491,256
	Labor - Customer Accounting	903.00		\$24,958
	Labor - Distribution	588.00		\$77,374
	Labor - Leave	184.30		\$103,780
	Labor - Purchased Power	557.00		\$43,919
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$5,000</b>
	Misc Office Supplies	921.00		\$5,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$2,000</b>
	Rating Agency Meeting	921.00		\$1,000
	TEA/BPA/Other	921.00		\$1,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$4,000</b>
	APPA/GFOA/Accounting/Auditing Standards Training (Director)	921.00		\$1,500
	Office Training (Administrative Assistant)	921.00		\$1,500
	WPUDA (Director)	921.00		\$1,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$200</b>
	Miscellaneous Publications	921.00		\$200
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$1,207</b>
	AICPA (American Institute of CPA's) Membership (Director)	921.00		\$285
	CMA License - IMA (Inst of Mgmt Accountants) (Director)	921.00		\$260
	CPA License - WA ST Board of Accountancy (Director)	921.00		\$77
	GFOA (Government Finance Officers Assoc) Membership (Director)	921.00		\$280
	WSCPAA (Wa State Board of CPA's) Membership (Director)	921.00		\$305
<b>TOTAL EXPENSE Finance &amp; Business Services</b>				<b>\$755,694</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 14 General Accounting**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>010</b>	<b>District Overtime Labor</b>			<b>\$1,000</b>
	Labor - Overtime - Admin General	920.00		\$1,000
<b>011</b>	<b>All Other District Labor</b>			<b>\$492,091</b>
	Labor - Admin General	920.00		\$423,198
	Labor - Leave	184.30		\$68,893
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$6,000</b>
	Training (Manager)	921.00		\$2,000
	Training (Ap Coordinator, Payroll Specialist)	921.00		\$1,000
	Training (Financial Analyst (2), Financial Specialist)	921.00		\$2,000
	WPUDA Finance Meetings	921.00		\$1,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$2,305</b>
	GASB Subscriptions	921.00		\$500
	GFOA Fee - CAFR Excellence in Reporting program	921.00		\$580
	Governmental GAAP (Various)	921.00		\$550
	Keep Up to Date on A/P	921.00		\$350
	Keep Up to Date on Payroll	921.00		\$325
<b>060</b>	<b>Audit Examination - State</b>			<b>\$72,500</b>
	Financial Statement External Audit	923.00		\$55,500
	State Auditor's Office	923.00		\$17,000
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$1,268</b>
	AICPA (American Institute of CPAs) (Manager, Financial Analyst)	921.00		\$285
	APA (American Payroll Assoc) (Payroll Specialist)	921.00		\$219
	CPA License - Wash. State Board of Accountancy (Manager, Financial Analyst)	921.00		\$154
	WSCPAs (Wash. Society of CPAs) (Manager, Financial Analyst)	921.00		\$610
<b>TOTAL EXPENSE General Accounting</b>				<b>\$575,164</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 16 Risk Management & Treasury**

Activity	Description	GL/FERC	BU Project	Amount
<b>034 Insurance</b>				<b>\$584,700</b>
	Crime Policy	925.00		\$3,700
	Cyber Security Insurance	925.00		\$15,000
	Fiduciary Liability Policy	925.00		\$18,000
	Liability, Directors & Officers	925.00		\$18,000
	Liability, Excess \$50 million, EIM	925.00		\$40,000
	Liability, Excess General & Professional, AEGIS	925.00		\$145,000
	Liability, General Assessment	925.00		\$150,000
	Other Insurance Policies (Flood, Bonds, Fronting, etc)	925.00		\$2,000
	Property, Excess, National Union Fire	925.00		\$105,000
	Property, General Assessment	925.00		\$80,000
	Railroad	925.00		\$3,000
	Special Trips	925.00		\$4,000
	Storage Tank Pollution Liability, WA. State	925.00		\$1,000
<b>041 Insurance Damages &amp; Other Reimbursable</b>				<b>\$10,000</b>
	Direct Payment of Damages and other Reimbursements	925.00		\$10,000
<b>042 Business Expense and Travel</b>				<b>\$2,000</b>
	PURMS (Manager)	921.00		\$2,000
<b>043 Training Expense &amp; Travel</b>				<b>\$5,600</b>
	NWPPA / APPA / Rates (Manager, Analyst)	921.00		\$3,000
	Training (Analyst, Specialist)	921.00		\$1,500
	WPTA (Analyst)	921.00		\$600
	WPUDA Finance Officers (Manager, Analyst)	921.00		\$500
<b>045 Subscriptions &amp; Publications</b>				<b>\$500</b>
	Subscription & Publications	921.00		\$500
<b>046 Treasurer Expenses</b>				<b>\$451,000</b>
	Bank Service Fees (Bank of America)	921.00		\$35,000
	Credit Card Processor Fees (NISC)	903.00		\$360,000
	Fiscal Agent Fees (US Bank)	921.00		\$1,500
	Investment Custody Fees (US Bank)	921.00		\$3,000
	Jack Henry & Associates Processing Fees	903.00		\$5,750
	Line of Credit Fee (Bank of America)	431.00		\$40,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

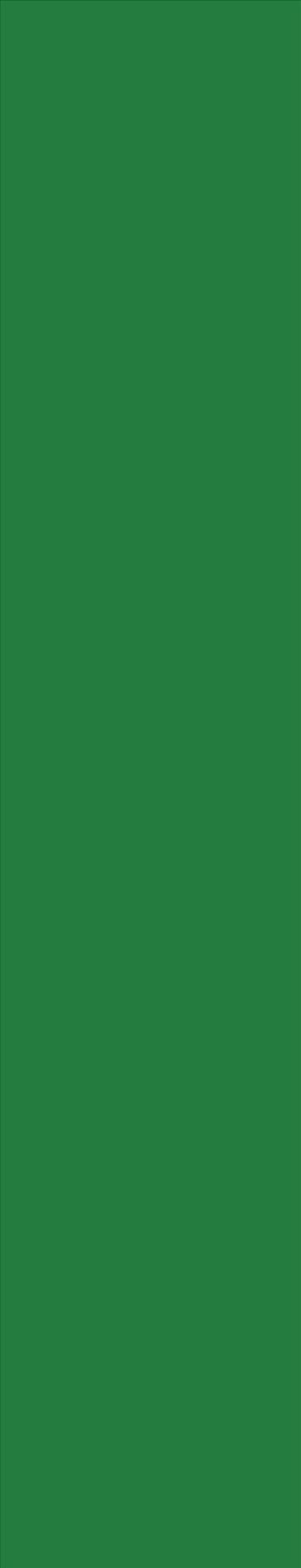
<b>Department 16 Risk Management &amp; Treasury</b>				
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	NISC Banking Fees (Citi Bank First Data)	903.00		\$5,750
<b>061</b>	<b>Professional Services</b>			<b>\$32,500</b>
	Bond Counsel / Financial Advisor	923.00		\$10,000
	Fitch Ratings	923.00		\$7,500
	Retail Rate Design Consultant	916.00		\$10,000
	Standard & Poors	923.00		\$5,000
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$80</b>
	WPTA	921.00		\$80
<b>TOTAL EXPENSE Risk Management &amp; Treasury</b>				<b>\$1,086,380</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 17 Contracts & Purchasing**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$11,000</b>
	Misc Office Supplies	588.00		\$1,000
	Paper, Envelopes, Mailing Labels, Letterhead	588.00		\$10,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$2,000</b>
	Plant Tour (Manager)	588.00		\$2,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$7,000</b>
	Contracts & Purchasing Training State DES (Manager, Buyer, Contracts/Purchasing Coordi	921.00		\$3,000
	ISM Seminar (Local) (Manager, Buyer)	921.00		\$500
	L & I Training (Manager, Buyer, Contracts/Purchasing Coordinator)	921.00		\$500
	NIGP - Contract Training (Manager)	921.00		\$3,000
<b>044</b>	<b>Other General Expenses</b>			<b>\$2,565</b>
	Advertising (A & E Notice, Vendor Notice, Bids, & RFPs)	921.00		\$2,000
	Costco Membership	921.00		\$165
	Small Works Administrative Fee	921.00		\$400
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$610</b>
	ISM Membership Dues (Manager, Buyer)	588.00		\$360
	NIGP Membership Dues (Base Agency Fee) (Manager)	588.00		\$190
	NIGP Membership Dues (Buyer)	588.00		\$60
<b>TOTAL EXPENSE Contracts &amp; Purchasing</b>				<b>\$23,175</b>





# Information Technology

**Tab 6**



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**  
**Summary of Expense by Directorate**

Information Technology (IT)

<b>Department(s)</b>		<b>Totals</b>
15	IT Infrastructure	2,155,595
18	IT Applications	2,206,487
46	Broadband	3,098,199
<b>Grand Total Expenses    Information Technology (IT)</b>		<b>\$7,460,281</b>

**Directorate Budget by Department and Activity  
2020 Budget Compared to 2019 Budget**

<b>Directorate</b>	<b>Information Technology</b>
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Department	Activity	2020 Budget	2019 Original Budget	Increase / (Decrease)	% Increase / (Decrease)
<b>15 - IT Infrastructure</b>					
	10 - District Overtime Labor	\$3,500	\$3,500	\$0	0.0%
	11 - All Other District Labor	695,495	673,321	22,174	3.3%
	25 - Maintenance of Software	273,150	261,050	12,100	4.6%
	26 - Computer Hardware & Equip Exp	56,500	47,000	9,500	20.2%
	27 - Personal Computer Software	78,000	48,000	30,000	62.5%
	28 - Personal Computer O&M Costs	128,700	121,700	7,000	5.8%
	29 - Personal Computer Supplies&Exp	9,000	11,000	(2,000)	-18.2%
	33 - Office Supplies & Expenses	-	1,000	(1,000)	-100.0%
	42 - Business Expense & Travel	18,000	18,000	-	0.0%
	43 - Training Expense & Travel	19,500	19,500	-	0.0%
	45 - Subscriptions & Publications	250	250	-	0.0%
	50 - Telephone & Answering Services	125,000	82,000	43,000	52.4%
	61 - Professional Services	54,000	25,000	29,000	116.0%
	136 - Communication Equipment	-	75,000	(75,000)	-100.0%
	137 - Capitalized Computer Software	47,000	95,000	(48,000)	-50.5%
	138 - Computer Equipment	647,500	484,500	163,000	33.6%
<b>15 - IT Infrastructure Total</b>		<b>2,155,595</b>	<b>1,965,821</b>	<b>189,774</b>	<b>9.7%</b>
<b>18 - IT Applications</b>					
	11 - All Other District Labor	1,071,137	1,089,265	(18,128)	-1.7%
	17 - Operation & Maintenance Exp	68,400	63,900	4,500	7.0%
	25 - Maintenance of Software	786,200	669,375	116,825	17.5%
	26 - Computer Hardware & Equip Exp	17,500	17,500	-	0.0%
	27 - Personal Computer Software	7,500	2,500	5,000	200.0%
	33 - Office Supplies & Expenses	1,500	1,500	-	0.0%
	42 - Business Expense & Travel	27,500	27,500	-	0.0%
	43 - Training Expense & Travel	16,500	16,500	-	0.0%
	45 - Subscriptions & Publications	250	250	-	0.0%
	61 - Professional Services	152,000	111,000	41,000	36.9%
	72 - Industry Assoc Assessments	8,000	8,000	-	0.0%
	137 - Capitalized Computer Software	50,000	106,695	(56,695)	-53.1%
<b>18 - IT Applications Total</b>		<b>2,206,487</b>	<b>2,113,985</b>	<b>92,502</b>	<b>4.4%</b>
<b>46 - Broadband</b>					
	12 - Materials & Supplies	536,004	317,296	218,708	68.9%
	17 - Operation & Maintenance Exp	46,500	40,000	6,500	16.3%
	20 - Off-the-Dock Labor	1,286,496	743,690	542,806	73.0%
	28 - Personal Computer O&M Costs	59,000	7,500	51,500	686.7%
	38 - Maint of Bldg & Improvements	7,500	7,500	-	0.0%
	40 - Rents	124,299	101,969	22,330	21.9%
	44 - Other General Expenses	888,400	857,534	30,866	3.6%
	136 - Communication Equipment	150,000	150,000	-	0.0%
<b>46 - Broadband Total</b>		<b>3,098,199</b>	<b>2,225,489</b>	<b>872,710</b>	<b>39.2%</b>
<b>Grand Total</b>		<b>\$7,460,281</b>	<b>\$6,305,294</b>	<b>\$1,154,987</b>	<b>18.3%</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 15 IT Infrastructure**

Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$3,500</b>
	Labor - Overtime - Admin General	920.00		\$3,500
<b>011</b>	<b>All Other District Labor</b>			<b>\$695,495</b>
	C-Series UCS	391.00	219	\$1,450
	External DMZ hosts	391.00	218	\$5,237
	Labor - Admin General	920.00		\$277,486
	Labor - Customer Accounting	903.00		\$127,644
	Labor - Distribution	588.00		\$149,843
	Labor - Leave	184.30		\$97,369
	Large Format Scanner	391.00	224	\$1,100
	MPLS Substations	391.00	216	\$3,048
	Network Management Server	391.00	221	\$1,487
	Network Switch Purchase	391.00	33	\$5,141
	Nexus Switch (Prosser) Upgrade	391.00	34	\$2,286
	Physical Security Audit Recommendations Phase 1	391.00	222	\$8,500
	SCADA Network Switch Purchase	391.00	41	\$2,496
	Structured Cabling	391.00	220	\$1,016
	TGB Replacement	391.00	223	\$1,016
	UCS Blade Server purchase	391.00	44	\$3,121
	Video Accelerator	391.00	217	\$471
	Video Accelerator Cards	391.00	213	\$942
	Windows Datacenter Licenses	391.00	38	\$1,752
	Wireless Access Equipment for Substations	391.00	46	\$2,820
	WO# XXXXXX - Southridge Substation	362.01	191	\$1,270
<b>025</b>	<b>Maintenance of Software</b>			<b>\$273,150</b>
	Accellion (FTP Software)	921.00		\$8,600
	Accellops	921.00		\$8,100
	Acronis (Desktop/Server Imaging)	921.00		\$2,250
	Archive Social	921.00		\$1,800
	Azure ID Badging Software	921.00		\$1,000
	Brava Reader	921.00		\$500
	Cisco ISE Anyconnect	921.00		\$3,000
	Cradlepoint Cloud Mngr	921.00		\$1,000
	Cyber Security Training	921.00		\$2,000
	Fax Server	921.00		\$1,300

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 15 IT Infrastructure**

Activity	Description	GL/FERC	BU Project	Amount
	FoxIT	921.00		\$2,000
	Kemp Load Balancers	921.00		\$2,500
	Microcall (Phone Call Logging)	921.00		\$1,200
	Mobile Device Management	921.00		\$3,000
	Nessus (Network Analysis)	921.00		\$19,500
	Net App Software Maintenance	921.00		\$9,000
	OATI Certificate	921.00		\$1,100
	OEL for Existing	921.00		\$6,000
	OVM	921.00		\$2,200
	Phone Q/A Software	903.00		\$3,500
	Power Broker (Desktop Security)	921.00		\$1,600
	RSA (Network Authentication)	921.00		\$2,000
	Secret Server	921.00		\$2,200
	SmartNet (Ironport, Firepower)	921.00		\$32,500
	SmartNet (Phone)	921.00		\$19,000
	Solar Winds (Network Monitoring)	921.00		\$21,000
	Solar Winds (Storage, VM)	921.00		\$5,000
	Third Tier Backup Software (Veeam)	921.00		\$19,500
	Trackit (Help Desk Ticket Tracker)	921.00		\$3,400
	Trend (Antivirus)	921.00		\$16,000
	Varonis	921.00		\$5,100
	VMWare (Server Virtualization)	921.00		\$45,000
	VMWare (VDI)	921.00		\$16,500
	Wallboard	903.00		\$1,800
	Zero Client Support	921.00		\$3,000
<b>026</b>	<b>Computer Hardware &amp; Equip Exp</b>			<b>\$56,500</b>
	General PC needs (HD, Mouse, DVD Burner, Cables, etc)	921.00		\$5,000
	Printers for Desktops	921.00		\$4,000
	Replacement Desktop (8)	921.00		\$20,000
	Replacement Laptops (3)	921.00		\$7,500
	Replacement Monitors (20)	921.00		\$4,000
	Replacement projector - (Manager of Power Contracts & Analytics)	921.00		\$3,000
	Replacement projectors - (Conference Room)	921.00		\$3,000
	Tablets - iPads (7)	588.00		\$5,000
	Zero Clients (10)	921.00		\$5,000
<b>027</b>	<b>Personal Computer Software</b>			<b>\$78,000</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 15 IT Infrastructure**

Activity	Description	GL/FERC	BU Project	Amount
	Misc Upgrades and Software	921.00		\$7,500
	MSDN (Support Specialist (2), System Administrator)	921.00		\$2,000
	Office 365	921.00		\$55,000
	VDA	921.00		\$13,500
<b>028 Personal Computer O&amp;M Costs</b>				<b>\$128,700</b>
	Cisco SmartNets	921.00		\$72,000
	GoTo Meeting	921.00		\$8,000
	MFP Maintenance - Engineering	588.00		\$9,000
	MFP Maintenance - Executive	921.00		\$1,500
	MFP Maintenance - Finance/CS	921.00		\$10,000
	MFP Maintenance - Operations	588.00		\$7,000
	MFP Maintenance - Power Mgmt	921.00		\$5,000
	MFP Maintenance - Prosser	921.00		\$1,000
	Printer Maintenance - Engineering	588.00		\$2,200
	Printer Maintenance - Executive	921.00		\$500
	Printer Maintenance - Finance/CS	921.00		\$500
	Printer Maintenance - IT	921.00		\$2,500
	Printer Maintenance - Operations	588.00		\$2,000
	Printer Maintenance - Power Mgmt	921.00		\$500
	Printer Maintenance - Prosser	921.00		\$1,000
	Records Scanner	921.00		\$1,000
	UPS Maintenance	921.00		\$5,000
<b>029 Personal Computer Supplies &amp; Expenses</b>				<b>\$9,000</b>
	Engineering	588.00		\$3,000
	Executive	921.00		\$1,000
	Finance/CS	921.00		\$650
	IT	921.00		\$250
	Operations	588.00		\$3,500
	Power Mgmt	921.00		\$300
	Prosser	921.00		\$300
<b>042 Business Expense and Travel</b>				<b>\$18,000</b>
	IT Mgmt/Strategic Planning (Infrastructure Manager)	921.00		\$3,500
	SAN/Vmware Conference (System Administrator)	921.00		\$6,000
	Security Conference (Network Engineer)	921.00		\$6,000
	TechMentor (IT Support Specialist)	921.00		\$2,500

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 15 IT Infrastructure**

Activity	Description	GL/FERC	BU Project	Amount
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$19,500</b>
	IT Mgmt Training (Infrastructure Manager)	921.00		\$2,500
	Security/Network Training (Network Engineer)	921.00		\$7,500
	Storage/VMWare Training (System Administrator)	921.00		\$7,000
	Windows 10 (IT Support Specialist)	921.00		\$2,500
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$250</b>
	Subscription & Publications	921.00		\$250
<b>050</b>	<b>Telephone &amp; Answering Services</b>			<b>\$125,000</b>
	Aircards - Operations (Cradlepoint)	588.00		\$6,500
	AVL - Operations - 85	588.00		\$23,000
	Charter (Backup Internet Service)	921.00		\$2,000
	Cisco Phones	921.00		\$10,000
	Frontier (includes all Non-Wireless Services)	921.00		\$33,500
	Local Cloud Call Prompter	921.00		\$35,000
	Verizon Wireless	921.00		\$15,000
<b>061</b>	<b>Professional Services</b>			<b>\$54,000</b>
	Exchange Support	921.00		\$5,000
	Infrastructure Support	921.00		\$10,000
	Phone System Support	921.00		\$10,000
	Physical Security Audit Recommendations Phase 1	391.00	222	\$25,000
	Structured Cabling	391.00	220	\$4,000
<b>137</b>	<b>Capitalized Computer Software</b>			<b>\$47,000</b>
	MPLS Substations	391.00	216	\$12,000
	Video Accelerator	391.00	217	\$15,000
	Windows Datacenter Licenses	391.00	38	\$20,000
<b>138</b>	<b>Computer Equipment</b>			<b>\$647,500</b>
	Capital True - Up	391.00		\$20,000
	C-Series UCS	391.00	219	\$30,000
	External DMZ hosts	391.00	218	\$60,000
	Large Format Scanner	391.00	224	\$10,000
	Network Management Server	391.00	221	\$5,000
	Network Switch Purchase	391.00	33	\$20,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

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**Department**    15    IT Infrastructure

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<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Nexus Switch (Prosser) Upgrade	391.00	34	\$60,000
	Physical Security Audit Recommendations Phase 1	391.00	222	\$70,000
	SCADA Network Switch Purchase	391.00	41	\$7,500
	Structured Cabling	391.00	220	\$5,000
	TGB Replacement	391.00	223	\$200,000
	UCS Blade Server purchase	391.00	44	\$125,000
	Video Accelerator Cards	391.00	213	\$30,000
	Wireless Access Equipment for Substations	391.00	46	\$5,000
<b>TOTAL EXPENSE IT Infrastructure</b>				<b>\$2,155,595</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 18 IT Applications**

Activity	Description	GL/FERC	BU Project	Amount
<b>011</b>	<b>All Other District Labor</b>			<b>\$1,071,137</b>
	iVUE Enhancements	391.00	31	\$42,000
	Labor - Admin General	920.00		\$418,621
	Labor - Broadband	935.50		\$1,005
	Labor - Customer Accounting	903.00		\$188,296
	Labor - Distribution	588.00		\$226,055
	Labor - Leave	184.30		\$149,959
	Labor - Transmission	566.00		\$3,265
	NoaNET NCS and District Labor	397.20	22	\$15,000
	Physical Security Audit Recommendations Phase 1	391.00	222	\$11,000
	SCADA Historian	391.00	215	\$13,592
	TGB Replacement	391.00	223	\$2,344
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$68,400</b>
	Benton County Aerial Imagery (Orthophotos)	588.00		\$6,000
	Benton County Plat Imagery	588.00		\$900
	Sensus Flexnet Meter Reading Fee	902.00		\$61,500
<b>025</b>	<b>Maintenance of Software</b>			<b>\$786,200</b>
	Adobe Creative Cloud	921.00		\$2,000
	Alden	588.00		\$4,400
	AutoCAD Network License	588.00		\$3,800
	Cascade (Asset Management)	588.00		\$16,500
	Crystal Server (DEV) Maintenance	921.00		\$100
	Crystal Server (PROD) Maintenance with Report Viewer Cals	921.00		\$6,000
	Doble Software Maintenance	588.00		\$3,250
	Epicor	921.00		\$7,200
	ESRI (GIS)	588.00		\$27,200
	IKE GPS Software Services	588.00		\$6,000
	Kapish EasyLink	921.00		\$900
	MilSoft (Distribution System Analysis)	588.00		\$13,000
	NeoGov	921.00		\$12,000
	NISC Monthly Recurring Costs	921.00		\$185,500
	NISC Monthly Recurring Costs	588.00		\$94,500
	NISC Monthly Recurring Costs	903.00		\$42,000
	NISC Monthly Recurring Costs	902.00		\$28,000
	Oracle (Database, Partitioning, Tuning/Diagnostics)	921.00		\$118,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 18 IT Applications**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Osmose Ocalc Licenses (8)	588.00		\$3,000
	PI Historian Annual Maintenance	588.00		\$11,000
	PowerWorld Transimission Software	588.00		\$3,800
	Quest Toad (Pro version x1)	921.00		\$1,100
	Sensus Alarm Manager	902.00		\$7,000
	Sensus RNI	902.00		\$92,000
	SentryOne (SSIS)	921.00		\$3,000
	SQL Server SA	921.00		\$500
	Survalent (SCADA)	592.30		\$25,000
	Tableau Businiess Intelligence Software	921.00		\$30,000
	Toad (Std version x 3 for Analysts)	921.00		\$800
	Toad DBA Suite	921.00		\$1,350
	Toad for Data Analysts (1)	921.00		\$300
	Toad for SQL Server	921.00		\$300
	TRIM	921.00		\$27,000
	Vegetation Management Software	588.00		\$5,000
	Vehicle Management System Maintenance	588.00		\$4,700
<b>026</b>	<b>Computer Hardware &amp; Equip Exp</b>			<b>\$17,500</b>
	Kiosks (2) - Lease Kennewick & Prosser	903.00		\$17,500
<b>027</b>	<b>Personal Computer Software</b>			<b>\$7,500</b>
	Misc Upgrades and Software	921.00		\$2,500
	MSDN licenses (3)	921.00		\$5,000
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$1,500</b>
	Misc Office Supplies	921.00		\$1,500
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$27,500</b>
	Business Intelligence Conference	921.00		\$3,000
	Data Integration Conference	921.00		\$3,500
	Database Conference (Data Architect)	921.00		\$3,500
	IT Mgmt/Strategic Planning (Applications Manager)	921.00		\$4,500
	It Mgmt/Strategic Planning (Director)	921.00		\$4,000
	NISC User Group (Analyst)	921.00		\$4,000
	Records Mgmt Conference (Analyst)	921.00		\$2,000
	SCADA User Group	588.00		\$3,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 18 IT Applications**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$16,500</b>
	AppDev Training (3) (BI/ETL Developer)	921.00		\$1,000
	BI Training (3)	921.00		\$7,500
	Database Admin Training	921.00		\$3,500
	SCADA Historian Training	588.00		\$2,500
	Technical Training (Director)	921.00		\$2,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$250</b>
	Subscription & Publications	921.00		\$250
<b>061</b>	<b>Professional Services</b>			<b>\$152,000</b>
	AMI Enhanced Support	902.00		\$42,000
	Crystal Reports Server Consulting	921.00		\$5,000
	Epicor Support/Consulting	921.00		\$7,000
	Intranet Redesign Study	921.00		\$10,000
	iVUE Enhancements	391.00	31	\$50,000
	NeoGov Implementation Phase 2	921.00		\$3,000
	NISC Programming (Expense)	921.00		\$5,000
	Physical Security Audit Recommendations Phase 1	391.00	222	\$25,000
	TRIM Support/Consulting	921.00		\$5,000
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$8,000</b>
	Utility Analytics Membership	921.00		\$8,000
<b>137</b>	<b>Capitalized Computer Software</b>			<b>\$50,000</b>
	Physical Security Audit Recommendations Phase 1	391.00	222	\$25,000
	Purchase and Implement ETL Tool	391.00	35	\$25,000
<b>TOTAL EXPENSE IT Applications</b>				<b>\$2,206,487</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 46 Broadband**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>012</b>	<b>Materials &amp; Supplies</b>			<b>\$536,004</b>
	Advanced Wireless/Small Cell	397.30	214	\$244,504
	Advanced Wireless/Small Cell LEC	397.20	214	\$244,500
	Capital True - Up	397.20		(\$244,500)
	Fiber Backbone & Laterals	397.30	134	\$67,500
	Fiber Conduit	397.20	19	\$6,000
	Fiber Customer Connects - LEC 1	397.20	135	\$30,000
	Fiber Customer Connects LEC 2	397.20	21	\$180,000
	WO# XXXXXX - Southridge Substation	362.01	191	\$8,000
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$46,500</b>
	18-46-02 NCS - Fiber Replacement and Restoration	935.30		\$40,000
	Fiber Reel Testing	935.20		\$6,500
<b>020</b>	<b>Off-the-Dock Labor</b>			<b>\$1,286,496</b>
	Advanced Wireless/Small Cell	397.30	214	\$570,496
	Advanced Wireless/Small Cell LEC	397.20	214	\$570,500
	Capital True - Up	397.20		(\$570,500)
	Fiber Backbone, Laterals, Customers	397.30	134	\$150,000
	Fiber Conduit	397.20	19	\$14,000
	Fiber Customer Connects - LEC 1	397.20	135	\$70,000
	Fiber Customer Connects LEC 2	397.20	21	\$420,000
	Joint Use Audit Corrective Actions	935.30		\$50,000
	WO# XXXXXX - Southridge Substation	362.01	191	\$12,000
<b>028</b>	<b>Personal Computer O&amp;M Costs</b>			<b>\$59,000</b>
	Curvature Cisco Equipment Maintenance	935.20		\$22,000
	Nokia - MPLS Equipment M&S	935.20		\$37,000
<b>038</b>	<b>Maint of Bldg &amp; Improvements - General</b>			<b>\$7,500</b>
	Maintenance Expense (Nodes and Building)	935.20		\$7,500
<b>040</b>	<b>Rents</b>			<b>\$124,299</b>
	10-46-07 Energy NW - (2) Dark Fiber-Ashe Facility to POS, Line #1	935.20		\$3,050
	10-46-07 Energy NW Facility - Misc Svcs.- Rack Units, Line #2	935.20		\$1,800
	10-46-12 Verizon Colocation Space and DC Power - 10-46-12	935.20		\$17,520
	12-46-11 COR - Fiber Lease - 5 Towers	935.20		\$16,200

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 46 Broadband**

Activity	Description	GL/FERC	BU Project	Amount
	13-46-02 COR - Fiber Lease - 4 Towers	935.20		\$23,184
	13-46-04 - FPUD Dark Fiber Lease	935.20		\$15,480
	14-46-06 COR - Dark Fiber Lease	935.20		\$5,213
	15-46-04 COR - Fiber Lease - GWW & Knight St.	935.20		\$3,519
	15-46-07 COR - Fiber Lease - 2800 Polar Way	935.20		\$1,303
	17-46-01 COR - Fiber Lease - LW Campus	935.20		\$3,240
	17-46-04 COR - Fiber Lease - Williams Blvd	935.20		\$3,240
	18-46-01 COR - Fiber Lease - Fowler St	935.20		\$1,620
	19-46-03 COR - Dark Fiber Lease - RSD	935.20		\$1,620
	19-46-04 COR - Dark Fiber Lease - MSA	935.20		\$1,810
	19-46-05 COR - Dark Fiber Lease - WalMart Duportail	935.20		\$1,620
	19-46-06 COR - Dark Fiber Lease - BIPIN	935.20		\$3,240
	19-46-07 COR - Dark Fiber Lease - Columbia REA	935.20		\$1,620
	19-46-XX COR - Dark Fiber Lease - Preferred Freezer	935.20		\$6,420
	BPA Dark Fiber Lease (BPA 01TX-10704/BPUD #01-41-05)	935.20		\$4,000
	Pole Contact Fees (COR, FPUD, & LSN)	935.20		\$8,600
<b>044</b>	<b>Other General Expenses</b>			<b>\$888,400</b>
	10-46-13 NoaNet - Internet Access via Franklin POP (\$1,260 x 12 plus bursting @ \$3.6 per	935.20		\$16,200
	14-46-02 NoaNet - CALEA Hosted Services	935.20		\$4,200
	18-46-02 NCS; NoaNet Labor Allocation to O&M	935.20		\$692,640
	Franklin PUD Recurring Transport Charges	935.20		\$2,200
	NoaNET NCS and District Labor	397.20	22	\$173,160
<b>136</b>	<b>Communication Equipment</b>			<b>\$150,000</b>
	WO#559986 - Backbone System Electronics	397.40	133	\$75,000
	WO#560002 - Premise Electronics	397.25	136	\$75,000
<b>TOTAL EXPENSE Broadband</b>				<b>\$3,098,199</b>



# Engineering & Power Management

Tab 6



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**  
**Summary of Expense by Directorate**

**Engineering & Power Management**

<b>Department(s)</b>		<b>Totals</b>
21	Engineering	11,609,691
22	Customer Engineering	761,770
45	Energy Programs	245,631
51	Power Management	103,572,191
<b>Grand Total Expenses    Engineering &amp; Power Management</b>		<b>\$116,189,283</b>

**Directorate Budget by Department and Activity  
2020 Budget Compared to 2019 Budget**

<b>Directorate</b>	<b>Engineering/Power Management</b>
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Department	Activity	2020 Budget	2019 Original Budget	Increase / (Decrease)	% Increase / (Decrease)
<b>21 - Engineering</b>					
	11 - All Other District Labor	\$837,709	\$665,262	\$172,446	25.9%
	12 - Materials & Supplies	3,336,680	4,119,208	(782,528)	-19.0%
	18 - Misc Construction Expense	79,224	2,088,362	(2,009,138)	-96.2%
	21 - Elec Construction Contracts	2,830,073	1,779,393	1,050,680	59.0%
	33 - Office Supplies & Expenses	4,000	4,000	-	0.0%
	42 - Business Expense & Travel	14,500	11,500	3,000	26.1%
	43 - Training Expense & Travel	16,000	15,000	1,000	6.7%
	45 - Subscriptions & Publications	2,500	2,000	500	25.0%
	61 - Professional Services	553,564	363,156	190,408	52.4%
	72 - Industry Assoc Assessments	15,154	15,130	24	0.2%
	120 - Substation Xfrs & Regulators	583,051	1,775,420	(1,192,369)	-67.2%
	121 - Substation Equip & Materials	1,288,633	872,331	416,302	47.7%
	122 - Line Devices	392,593	479,870	(87,277)	-18.2%
	123 - Transformers & Related Items	1,200,000	925,000	275,000	29.7%
	125 - Land & Land Rights - Electric	321,510	-	321,510	N/A
	127 - SCADA Communications Equipment	108,500	198,022	(89,522)	-45.2%
	128 - SCADA Substation Equipment	25,000	25,000	-	0.0%
	132 - Office Equipment	1,000	1,000	-	0.0%
<b>21 - Engineering Total</b>		<b>11,609,691</b>	<b>13,339,655</b>	<b>(1,729,964)</b>	<b>-13.0%</b>
<b>22 - Customer Engineering</b>					
	10 - District Overtime Labor	10,000	2,500	7,500	300.0%
	11 - All Other District Labor	636,815	678,830	(42,015)	-6.2%
	14 - Small Tools & Materials	850	850	-	0.0%
	17 - Operation & Maintenance Exp	3,600	3,600	-	0.0%
	18 - Misc Construction Expense	28,405	13,100	15,305	116.8%
	29 - Personal Computer Supplies&Exp	1,000	1,000	-	0.0%
	33 - Office Supplies & Expenses	1,000	1,000	-	0.0%
	40 - Rents	24,000	30,000	(6,000)	-20.0%
	42 - Business Expense & Travel	9,000	11,000	(2,000)	-18.2%
	43 - Training Expense & Travel	30,500	30,500	-	0.0%
	61 - Professional Services	10,000	10,000	-	0.0%
	132 - Office Equipment	1,000	1,000	-	0.0%
	134 - Tools, Shop & Stores Equipment	5,600	5,000	600	12.0%
<b>22 - Customer Engineering Total</b>		<b>761,770</b>	<b>788,380</b>	<b>(26,610)</b>	<b>-3.4%</b>
<b>45 - Energy Programs</b>					
	9 - Purchased Power	(2,516,125)	(1,141,500)	(1,374,625)	120.4%
	10 - District Overtime Labor	5,000	5,000	-	0.0%
	11 - All Other District Labor	593,363	571,193	22,170	3.9%
	33 - Office Supplies & Expenses	5,000	5,000	-	0.0%
	42 - Business Expense & Travel	15,000	8,000	7,000	87.5%
	43 - Training Expense & Travel	8,000	5,000	3,000	60.0%
	45 - Subscriptions & Publications	150	7,150	(7,000)	-97.9%
	60 - Audit Examination - State	30,000	-	30,000	N/A
	61 - Professional Services	20,000	67,000	(47,000)	-70.1%
	70 - Civic & Service Organizations	140	140	-	0.0%
	72 - Industry Assoc Assessments	11,375	9,335	2,040	21.9%
	112 - Residential Conservation Exp	512,765	440,881	71,884	16.3%
	113 - Commercial Conservation Exp	537,293	300,000	237,293	79.1%
	114 - Industrial Conservation Expense	726,668	580,000	146,668	25.3%
	115 - Agriculture Conservation Expense	67,002	100,000	(32,998)	-33.0%
	118 - Low Income Conservation	230,000	180,000	50,000	27.8%
<b>45 - Energy Programs Total</b>		<b>245,631</b>	<b>1,137,199</b>	<b>(891,568)</b>	<b>-78.4%</b>
<b>51 - Power Management</b>					
	9 - Purchased Power	103,034,256	101,008,784	2,025,472	2.0%
	11 - All Other District Labor	301,229	378,708	(77,479)	-20.5%
	33 - Office Supplies & Expenses	1,500	1,500	-	0.0%
	42 - Business Expense & Travel	21,500	19,300	2,200	11.4%
	43 - Training Expense & Travel	5,000	9,000	(4,000)	-44.4%
	61 - Professional Services	203,231	146,540	56,691	38.7%
	72 - Industry Assoc Assessments	5,475	5,475	-	0.0%
<b>51 - Power Management Total</b>		<b>103,572,191</b>	<b>101,569,307</b>	<b>2,002,884</b>	<b>2.0%</b>
<b>Grand Total</b>		<b>\$116,189,283</b>	<b>\$116,834,541</b>	<b>(\$645,258)</b>	<b>-0.6%</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 21 Engineering**

Activity	Description	GL/FERC	BU Project	Amount
<b>011 All Other District Labor</b>				<b>\$837,709</b>
	Capital True - Up	365.00		\$7,728
	Dist System Improvements	366.00	141	\$2,806
	Dist System Improvements	365.00	141	\$2,806
	Distribution voltage regulator SCADA	380.00	143	\$33,042
	Fiber to Substations & Line Devices	380.00	144	\$7,500
	Labor - Admin General	920.00		\$2,429
	Labor - Broadband	935.50		\$31,313
	Labor - Customer Accounting	903.00		\$6,971
	Labor - Distribution	588.00		\$452,635
	Labor - Leave	184.30		\$117,279
	Labor - Purchased Power	557.00		\$61,003
	Labor - Transmission	566.00		\$49,682
	Repair & Replacement - Cable	380.00	147	\$2,400
	Ridgeline Substation Property Acquisition	362.01	226	\$5,001
	Services, Set Xfmrs and Run Secondary	369.10	94	\$4,843
	Substation RTU & radio communications upgrades	380.00	97	\$9,129
	WO# 524249 - Feeder Position Addition-Phillips P8R	362.01	112	\$1,721
	WO# 552659 - Chevron Power Transformer Change Out	362.01	126	\$4,800
	WO# 564613 - Xfmr & Feeder Relay Upgrade - Ely #2	362.01	104	\$5,364
	WO# XXXXXX - 735 Meter install at H2F3 Substation	362.01	110	\$323
	WO# XXXXXX - 735 Meter install at H2F4 Substation	362.01	111	\$323
	WO# XXXXXX - 735 Meter install at Sandpiper Substation	362.01	113	\$323
	WO# XXXXXX - Control House Addition & Batteries-Gum Street	362.01	201	\$3,697
	WO# XXXXXX - Highlands Battery Bank	362.01	210	\$1,500
	WO# XXXXXX - Southridge Substation	362.01	191	\$17,297
	WO# XXXXXX - Xfmr & Feeder Relay Upgrade-Gum Street	362.01	202	\$5,294
	WO# XXXXXX -Southridge Sub Feeder Getaways	366.00	207	\$500
<b>012 Materials &amp; Supplies</b>				<b>\$3,336,680</b>
	Dist Base Growth	366.00	140	\$693,995
	Dist Base Growth	365.00	140	\$468,577
	Dist System Improvements	365.00	141	\$40,602
	Dist System Improvements	366.00	141	\$40,602
	Distribution - Inventory Issued for O&M	588.00		\$100,000
	JU - NESC Compliance Program	365.00	145	\$190,000
	JU-NESC Compliance Program	364.00	145	\$60,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 21 Engineering**

Activity	Description	GL/FERC	BU Project	Amount
	Poles & Fixtures, Misc Repairs	350.00	75	\$15,000
	Repair & Replacement - Cable	380.00	147	\$215,000
	Repair & Replacement - Other	380.00	92	\$265,000
	RTA-1, extend OH from Reata Rd south	364.00	209	\$6,000
	RTA-1, extend OH from Reata Rd south	365.00	209	\$9,000
	RTA-3, extend UG west along Sagebrush Rd	366.00	203	\$30,000
	RTA-3, extend UG west along Sagebrush Rd	367.00	203	\$47,965
	Service Poles	380.00	93	\$20,000
	Services, Set Xfmrs and Run Secondary	369.10	94	\$93,484
	Services, Set Xfmrs and Run Secondary	369.20	94	\$93,484
	Trouble Orders	380.00	149	\$190,000
	WO# 524249 - Feeder Position Addition-Phillips P8R	362.01	112	\$982
	WO# 564613 - Xfmr & Feeder Relay Upgrade - Ely #2	362.01	104	\$1,000
	WO# XXXXXX - BEC-3, new feeder to east to tie with SSR-1	365.00	205	\$112,800
	WO# XXXXXX - BEC-3, new feeder to east to tie with SSR-1	364.00	205	\$75,200
	WO# XXXXXX - Control House Addition & Batteries-Gum Street	362.01	201	\$4,980
	WO# XXXXXX - Distribution Pole Replacement	364.00	160	\$5,137
	WO# XXXXXX - HED - 4 Reconductor #6, Bernath Rd.	364.00	211	\$40,000
	WO# XXXXXX - HED - 4 Reconductor #6, Bernath Rd.	365.00	211	\$60,000
	WO# XXXXXX - HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	365.00	204	\$96,774
	WO# XXXXXX - HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	364.00	204	\$64,516
	WO# XXXXXX - Southridge Substation	362.01	191	\$7,722
	WO# XXXXXX - Xfmr & Feeder Relay Upgrade-Gum Street	362.01	202	\$1,000
	WO# XXXXXX - ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	364.00	206	\$21,200
	WO# XXXXXX - ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	365.00	206	\$31,800
	WO# XXXXXX -Southridge Sub Feeder Getaways	366.00	207	\$70,458
	WO# XXXXXX -Southridge Sub Feeder Getaways	367.00	207	\$164,402
<b>018</b>	<b>Miscellaneous Construction Expense</b>			<b>\$79,224</b>
	Ridgeline Substation Property Acquisition	362.01	226	\$10,000
	WO# 511742 - Transmission Line-Phillips to Spaw	350.00	212	\$26,564
	WO# 552659 - Chevron Power Transformer Change Out	362.01	126	\$10,000
	WO# XXXXXX - Distribution Pole Replacement	364.00	160	\$2,660
	WO# XXXXXX - Hedges 115kV Metering Point	350.00	169	\$30,000
<b>021</b>	<b>Electric Construction Contracts</b>			<b>\$2,830,073</b>
	Dist System Improvements	366.00	141	\$91,074
	Dock Crew Joint Use Deficiency Corrections	590.10		\$1,210,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 21 Engineering**

Activity	Description	GL/FERC	BU Project	Amount
	Fiber to Substations & Line Devices	380.00	144	\$37,500
	Repair & Replacement - Cable	380.00	147	\$1,115,446
	WO# 564613 - Xfmr & Feeder Relay Upgrade - Ely #2	362.01	104	\$10,000
	WO# XXXXXX - Control House Addition & Batteries-Gum Street	362.01	201	\$33,032
	WO# XXXXXX - Hedges 115kV Metering Point	350.00	169	\$23,021
	WO# XXXXXX - Southridge Substation	362.01	191	\$300,000
	WO# XXXXXX - Xfmr & Feeder Relay Upgrade-Gum Street	362.01	202	\$10,000
<b>033 Office Supplies &amp; Expenses</b>				<b>\$4,000</b>
	Misc Office Supplies	588.00		\$4,000
<b>042 Business Expense and Travel</b>				<b>\$14,500</b>
	Cascade Users Conference (Senior Engineer)	588.00		\$1,500
	Industry Trade Show (Senior Director)	588.00		\$2,000
	PPC/PNUCC/JSOC (Senior Director)	557.00		\$11,000
<b>043 Training Expense &amp; Travel</b>				<b>\$16,000</b>
	Technical Training (Administrative Assistant)	588.00		\$1,500
	Technical Training (Manager)	588.00		\$3,000
	Technical Training (Distribution Designer)	588.00		\$1,000
	Technical Training (Electrical Engineer)	557.00		\$1,500
	Technical Training (Electrical Engineer)	588.00		\$3,000
	Technical Training (Electrical Engineer)	588.00		\$3,000
	Technical Training (Senior Engineer)	588.00		\$3,000
<b>045 Subscriptions &amp; Publications</b>				<b>\$2,500</b>
	Subscription & Publications (IEEE, ANSI stds, etc.)	588.00		\$2,500
<b>061 Professional Services</b>				<b>\$553,564</b>
	Distribution - Joint Use Pole Contact Consulting	590.10		\$47,000
	Distribution - Unanticipated Consulting Engineering Support	588.00		\$25,000
	NERC/WECC Consulting - GDS #10-51-06	560.01		\$30,000
	Ridgeline Substation Property Acquisition	362.01	226	\$10,000
	WO# 511742 - Transmission Line-Phillips to Spaw	350.00	212	\$226,564
	WO# XXXXXX - Hedges 115kV Metering Point	350.00	169	\$5,000
	WO# XXXXXX - Southridge Substation	362.01	191	\$210,000
<b>072 Industry Association Assessment</b>				<b>\$15,154</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 21 Engineering**

Activity	Description	GL/FERC	BU Project	Amount
	IEEE Membership (Senior Director, Manager, Senior Engineer, Electrical Engineer (3))	588.00		\$1,200
	Miscellaneous	588.00		\$100
	Notary Renewals	588.00		\$250
	PE Licenses & Renewals (4) \$201 every 2 yrs ea	588.00		\$604
	Smart Electric Power Alliance (SEPA)	588.00		\$5,000
	WSU Power Engineering Program	588.00		\$8,000
<b>120 Substation Transformers &amp; Regulators</b>				<b>\$583,051</b>
	WO# XXXXXX - Southridge Substation	362.01	191	\$583,051
<b>121 Substation Equipment &amp; Materials</b>				<b>\$1,288,633</b>
	RTA-1, extend OH from Reata Rd south	365.00	209	\$6,000
	Substation Inventory Issued for O&M	592.00		\$100,000
	Substation Misc. Aux Equip, Relays/Controls	362.01	148	\$25,000
	WO# 524249 - Feeder Position Addition-Phillips P8R	362.01	112	\$2,461
	WO# 552659 - Chevron Power Transformer Change Out	362.01	126	\$10,000
	WO# 564613 - Xfmr & Feeder Relay Upgrade - Ely #2	362.01	104	\$27,545
	WO# XXXXXX - 735 Meter install at H2F3 Substation	362.01	110	\$5,794
	WO# XXXXXX - 735 Meter install at H2F4 Substation	362.01	111	\$5,794
	WO# XXXXXX - 735 Meter install at Sandpiper Substation	362.01	113	\$5,794
	WO# XXXXXX - BEC-3, new feeder to east to tie with SSR-1	365.00	205	\$16,003
	WO# XXXXXX - Control House Addition & Batteries-Gum Street	362.01	201	\$47,946
	WO# XXXXXX - HED - 4 Reconductor #6, Bernath Rd.	365.00	211	\$23,997
	WO# XXXXXX - HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	365.00	204	\$38,714
	WO# XXXXXX - Hedges 115kV Metering Point	350.00	169	\$100,000
	WO# XXXXXX - Highlands Battery Bank	362.01	210	\$8,500
	WO# XXXXXX - Southridge Substation	362.01	191	\$713,397
	WO# XXXXXX - Xfmr & Feeder Relay Upgrade-Gum Street	362.01	202	\$27,545
	WO# XXXXXX - ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	365.00	206	\$8,000
	WO# XXXXXX -Southridge Sub Feeder Getaways	367.00	207	\$100,143
	WO#XXXXXX - POS#104 ORV-2 to ORV-5 switch	365.00	208	\$8,000
	WO#XXXXXX - POS#107 RVF-1 to PSR-1 Switch	365.00	194	\$8,000
<b>122 Line Devices</b>				<b>\$392,593</b>
	Capital True - Up	365.00		\$43,887
	Dist System Improvements	365.00	141	\$40,287
	Dist System Improvements	366.00	141	\$40,287
	Distribution - Inventory Issued for O&M	595.00		\$100,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 21 Engineering**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Switch Upgrade/Additions	350.00	137	\$148,000
	WO# 524249 - Feeder Position Addition-Phillips P8R	362.01	112	\$20,132
<b>123</b>	<b>Transformers &amp; Related Items</b>			<b>\$1,200,000</b>
	Services, Set Xfmrs and Run Secondary	368.10	94	\$1,200,000
<b>125</b>	<b>Land &amp; Land Rights - Electric</b>			<b>\$321,510</b>
	Ridgeline Substation Property Acquisition	362.01	226	\$321,510
<b>127</b>	<b>SCADA Communications Equipment</b>			<b>\$108,500</b>
	Distribution voltage regulator SCADA	380.00	143	\$66,000
	Fiber to Substations & Line Devices	380.00	144	\$12,500
	Substation RTU & radio communications upgrades	380.00	97	\$5,000
	WO# XXXXXX - Hedges 115kV Metering Point	380.00	169	\$25,000
<b>128</b>	<b>SCADA Substation Equipment</b>			<b>\$25,000</b>
	Substation RTU & radio communications upgrades	380.00	97	\$25,000
<b>132</b>	<b>Office Equipment</b>			<b>\$1,000</b>
	Miscellaneous Office Furniture	588.00		\$1,000
<b>TOTAL EXPENSE Engineering</b>				<b>\$11,609,691</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 22 Customer Engineering**

Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$10,000</b>
	Labor - Overtime - Distribution	588.00		\$10,000
<b>011</b>	<b>All Other District Labor</b>			<b>\$636,815</b>
	Dist Base Growth	366.00	140	\$58,671
	Dist Base Growth	365.00	140	\$31,410
	Dist System Improvements	365.00	141	\$13,222
	Dist System Improvements	366.00	141	\$6,246
	Labor - Admin General	920.00		\$818
	Labor - Customer Accounting	903.00		\$2,413
	Labor - Distribution	588.00		\$317,749
	Labor - Leave	184.30		\$89,154
	Labor - Transmission	566.00		\$1,556
	Repair & Replacement - Cable	380.00	147	\$13,350
	RTA-1, extend OH from Reata Rd south	364.00	209	\$1,000
	RTA-1, extend OH from Reata Rd south	365.00	209	\$500
	RTA-3, extend UG west along Sagebrush Rd	366.00	203	\$2,500
	RTA-3, extend UG west along Sagebrush Rd	367.00	203	\$3,750
	Services, Set Xfmrs and Run Secondary	369.10	94	\$69,500
	WO# XXXXXX - BEC-3, new feeder to east to tie with SSR-1	365.00	205	\$3,500
	WO# XXXXXX - BEC-3, new feeder to east to tie with SSR-1	364.00	205	\$1,500
	WO# XXXXXX - Distribution Pole Replacement	364.00	160	\$1,536
	WO# XXXXXX - HED - 4 Reconductor #6, Bernath Rd.	365.00	211	\$3,640
	WO# XXXXXX - HED - 4 Reconductor #6, Bernath Rd.	364.00	211	\$1,500
	WO# XXXXXX - HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	364.00	204	\$1,500
	WO# XXXXXX - HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	365.00	204	\$3,500
	WO# XXXXXX - ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	365.00	206	\$2,000
	WO# XXXXXX - ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	362.01	206	\$1,500
	WO# XXXXXX -Southridge Sub Feeder Getaways	366.00	207	\$1,000
	WO# XXXXXX -Southridge Sub Feeder Getaways	367.00	207	\$3,500
	WO#XXXXXX - POS#104 ORV-2 to ORV-5 switch	365.00	208	\$150
	WO#XXXXXX - POS#107 RVF-1 to PSR-1 Switch	365.00	194	\$150
<b>014</b>	<b>Small Tools &amp; Materials</b>			<b>\$850</b>
	GPS Batteries - Replacement/Purchase	588.00		\$200
	GPS Cables - Replacement/Purchase	588.00		\$200
	Training/Instructional Manuals & Publications	588.00		\$450

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 22 Customer Engineering**

Activity	Description	GL/FERC	BU Project	Amount
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$3,600</b>
	Equipment Maintenance/Repair	935.40		\$500
	Miscellaneous Form Printing	588.00		\$500
	O&M Related Permit Fees	588.00		\$500
	Scanning Services	588.00		\$1,000
	Unplanned O&M Expenses	588.00		\$500
	WA State Ref. Network - Annual Mtnc for VRS Net (GPS Signals)	588.00		\$600
<b>018</b>	<b>Miscellaneous Construction Expense</b>			<b>\$28,405</b>
	County Recording Fees - Easements	360.00	140	\$5,000
	Dist Base Growth	366.00	140	\$10,905
	New Permits (Crossings, etc)	361.00	140	\$10,000
	Title Reports for Construction Projects	361.00	140	\$2,500
<b>029</b>	<b>Personal Computer Supplies &amp; Expenses</b>			<b>\$1,000</b>
	Printer / Plotter Paper	588.00		\$1,000
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$1,000</b>
	Labeling & Binding Supplies	588.00		\$1,000
<b>040</b>	<b>Rents</b>			<b>\$24,000</b>
	Maintenance Crossing Permits (Railroad, DOT, etc)	588.00		\$10,000
	Pole Contact Fee (us on their poles)	588.00		\$14,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$9,000</b>
	Design Software User Group (Distribution Design Technician)	588.00		\$3,000
	NWPPA E&O (Supervisor, Distribution Design Technician)	588.00		\$4,000
	Trimble Dimensions GPS Conference (Engineering Technician)	588.00		\$2,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$30,500</b>
	NESC code update or other Advanced Tech Training (3) (Distribution Design Technician)	588.00		\$6,000
	NWPPA Leadership Training (Supervisors)	588.00		\$3,000
	NWPPA Staking Certification Courses (2) (Distribution Design Technician)	588.00		\$12,500
	Technical Training (2) (Engineering Technician)	588.00		\$3,000
	Technical Training Class (Distribution Designer)	588.00		\$3,000
	Training Admin Staff (Department Assistant)	588.00		\$3,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

<b>Department 22 Customer Engineering</b>				
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>061</b>	<b>Professional Services</b>			<b>\$10,000</b>
	Surveying for O&M Support	588.00		\$10,000
<b>132</b>	<b>Office Equipment</b>			<b>\$1,000</b>
	Office Furniture	588.00		\$1,000
<b>134</b>	<b>Tools, Shop &amp; Stores Equipment</b>			<b>\$5,600</b>
	GPS, Staking or Other Related Tools and Equipment	588.00		\$5,000
	Survey Supplies (Stakes, flags, etc)	588.00		\$600
<b>TOTAL EXPENSE Customer Engineering</b>				<b>\$761,770</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 45 Energy Programs**

Activity	Description	GL/FERC BU Project	Amount
<b>009</b>	<b>Purchased Power</b>		<b>(\$2,516,125)</b>
	EEl Reimbursement - Rebates	555.71	(\$2,475,625)
	PTCS Reimbursement	555.71	(\$40,500)
<b>010</b>	<b>District Overtime Labor</b>		<b>\$5,000</b>
	Labor - Overtime - Conservation Program	908.30	\$5,000
<b>011</b>	<b>All Other District Labor</b>		<b>\$593,363</b>
	Labor - Conservation Program	908.30	\$398,028
	Labor - EV Expense	908.60	\$40,823
	Labor - Leave	184.30	\$83,071
	Labor - Purchased Power	557.00	\$40,823
	Labor - Solar Connections	908.97	\$30,618
<b>033</b>	<b>Office Supplies &amp; Expenses</b>		<b>\$5,000</b>
	Audit Field Materials (Flow Meter, Camera, Protective Clothing, Customer Materials)	908.30	\$5,000
<b>042</b>	<b>Business Expense and Travel</b>		<b>\$15,000</b>
	BPA/PNWCC Conservtion Mtgs (Manager, Program Analyst )	908.30	\$5,000
	EV (Manager)	908.60	\$2,500
	Renewable meetings (White Creek, Nine Canyon, Packwood)	557.00	\$5,000
	Solar (Manager)	908.97	\$2,500
<b>043</b>	<b>Training Expense &amp; Travel</b>		<b>\$8,000</b>
	BOC and Misc. Training - (Energy Efficiency Advisor (3), Energy Programs Analyst (2), Dep	908.30	\$4,000
	BPA Annual Conservation Mtgs (Energy Efficiency Advisor (2), Energy Programs Analyst (2	908.30	\$4,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>		<b>\$150</b>
	Subscription & Publications (Home Energy Mag.)	908.30	\$150
<b>060</b>	<b>Audit Examination - State</b>		<b>\$30,000</b>
	I-937 SAO Audit Examination Fees (CPA)	908.30	\$19,500
	I-937 SAO Audit Examination Fees (REC)	557.00	\$10,500
<b>061</b>	<b>Professional Services</b>		<b>\$20,000</b>
	CPA SAO audit support	908.30	\$5,000
	Legal expense- K&L Gates, EES CPA audit support	557.00	\$15,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 45 Energy Programs**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC BU Project</b>	<b>Amount</b>
<b>070</b>	<b>Civic &amp; Service Organizations</b>		<b>\$140</b>
	Kiwanis - Bergum	921.00	\$140
<b>072</b>	<b>Industry Association Assessment</b>		<b>\$11,375</b>
	APPA - DEED Program	921.00	\$9,000
	Home Builders Association Dues	908.30	\$375
	PNW Transportation Electrification Collaborative Dues and Fees	908.60	\$1,000
	WREGIS Annual Dues & Fees	555.52	\$1,000
<b>112</b>	<b>Residential Conservation Expense</b>		<b>\$512,765</b>
	Residential Conservation Expense	908.30	\$512,765
<b>113</b>	<b>Commercial Conservation Expense</b>		<b>\$537,293</b>
	Commercial Conservation Expense	908.32	\$537,293
<b>114</b>	<b>C&amp;R Discount Reimbursable Expenses</b>		<b>\$726,668</b>
	Industrial Conservation Expense	908.31	\$726,668
<b>115</b>	<b>Irrigation Conservation Expense</b>		<b>\$67,002</b>
	Agriculture /Irrigation Conservation Expenses	908.33	\$67,002
<b>118</b>	<b>Low Income Conservation Expense</b>		<b>\$230,000</b>
	Residential CAC Low Income Program	908.34	\$80,000
	Residential District Low Income Program	908.30	\$150,000
<b>TOTAL EXPENSE Energy Programs</b>			<b>\$245,631</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 51 Power Management**

Activity	Description	GL/FERC	BU Project	Amount
<b>009</b>	<b>Purchased Power</b>			<b>\$103,034,256</b>
	Ancillary Services (includes TEA Scheduling & Risk Management)	557.00		\$1,651,058
	BPA Financial Reserve Policy Surcharge	555.00		\$639,458
	BPA Prepay Credit	555.72		(\$161,256)
	BPA Transmission	565.50		\$9,390,600
	BPA Transmission Ancillary Costs	565.50		\$2,364,212
	Frederickson CT Fixed Expense	555.51		\$7,968,083
	Frederickson Variable Expense	555.51		\$9,949,610
	GTA Delivery Charge	557.00		\$2,885
	Irrigation Mitigation	555.01		(\$3,468,978)
	Load Shaping	555.03		(\$428,011)
	Non-Slice (Block)	555.01		(\$3,562,257)
	Other Purchases - Options Premium	555.50		\$350,000
	Other Purchases - Power	555.50		\$5,363,662
	Packwood	555.50		\$403,718
	Renewable Energy Credit Purchases	555.52		\$1,151,400
	Renewables (Nine Canyon, White Creek)	555.50		\$3,679,931
	Tier 1 Composite Block	555.01		\$35,211,935
	Tier 1 Composite Slice	555.00		\$32,528,206
<b>011</b>	<b>All Other District Labor</b>			<b>\$301,229</b>
	Labor - Admin General	920.00		\$1,597
	Labor - Customer Accounting	903.00		\$27,580
	Labor - Distribution	588.00		\$6,651
	Labor - Leave	184.30		\$42,172
	Labor - Purchased Power	557.00		\$220,475
	Labor - Transmission	566.00		\$2,754
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$1,500</b>
	Misc Office Supplies	557.00		\$1,500
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$21,500</b>
	BPA, PPC, TEA, PNUCC (Manager, Senior Engineer)	557.00		\$16,500
	Utility Analytics Institute (Manager, Senior Engineer)	557.00		\$5,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$5,000</b>
	NWPPA, APPA, AMA (Manager, Senior Engineer, Department Specialist)	557.00		\$5,000

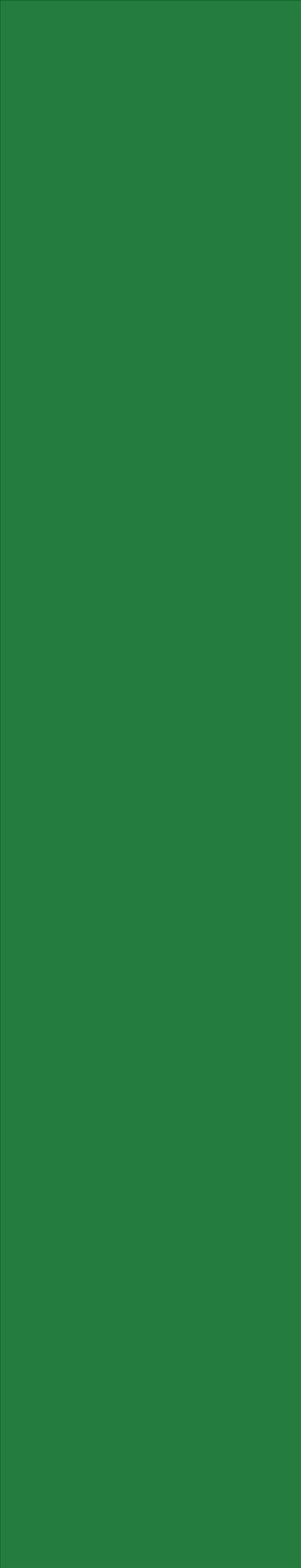
**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

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**Department**    51    Power Management

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Activity	Description	GL/FERC	BU Project	Amount
<b>061 Professional Services</b>				<b>\$203,231</b>
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	Power Contracting, RMC Audit	557.00		\$15,000
	Slice Implementation Group Assessment via PPC	557.00		\$10,000
	TEA Consulting	557.00		\$178,231
<b>072 Industry Association Assessment</b>				<b>\$5,475</b>
<hr style="border-top: 1px dashed black;"/>				
	GMEI Maintenance Fee	557.00		\$125
	OATI Web Registry Fee	557.00		\$350
	PPC Slice Assessment Cash Call	557.00		\$5,000
<b>TOTAL EXPENSE Power Management</b>				<b>\$103,572,191</b>



# Operations

**Tab 6**



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**  
**Summary of Expense by Directorate**

**Operations**

<b>Department(s)</b>		<b>Totals</b>
31	Operations	1,041,074
32	Supt. of Transmission & Distribution	5,376,534
33	Supt. of Operations	592,322
34	Meter Shop	975,453
35	Transformer Shop	850,005
37	Automotive Shop	801,924
38	Support Services	1,497,243
39	Warehouse	142,650
<b>Grand Total Expenses    Operations</b>		<b>\$11,277,205</b>

**Directorate Budget by Department and Activity  
2020 Budget Compared to 2019 Budget**

<b>Directorate</b>	<b>Operations</b>
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Department	Activity	2019			
		2020 Budget	Original Budget	Increase / (Decrease)	% Increase / (Decrease)
<b>31 - Operations</b>	11 - All Other District Labor	\$888,865	\$731,845	\$157,020	21.5%
	27 - Personal Computer Software	1,200	2,000	(800)	-40.0%
	33 - Office Supplies & Expenses	4,000	4,000	-	0.0%
	42 - Business Expense & Travel	4,500	7,500	(3,000)	-40.0%
	43 - Training Expense & Travel	4,000	6,000	(2,000)	-33.3%
	45 - Subscriptions & Publications	500	500	-	0.0%
	61 - Professional Services	73,000	73,000	-	0.0%
	72 - Industry Assoc Assessments	1,165	1,165	-	0.0%
	104 - Other Employee Costs	58,844	50,374	8,470	16.8%
	132 - Office Equipment	5,000	5,000	-	0.0%
<b>31 - Operations Total</b>		<b>1,041,074</b>	<b>881,384</b>	<b>159,690</b>	<b>18.1%</b>
<b>32 - Supt of Transm &amp; Distribtution</b>	10 - District Overtime Labor	578,600	535,539	43,061	8.0%
	11 - All Other District Labor	3,484,484	3,369,728	114,756	3.4%
	14 - Small Tools & Materials	80,500	74,400	6,100	8.2%
	17 - Operation & Maintenance Exp	30,000	30,000	-	0.0%
	18 - Misc Construction Expense	67,500	67,500	-	0.0%
	19 - Tree Trimming - Contract	805,000	805,000	-	0.0%
	20 - Off-the-Dock Labor	10,000	190,000	(180,000)	-94.7%
	21 - Elec Construction Contracts	150,000	169,000	(19,000)	-11.2%
	39 - Maint of Equipment	15,000	15,000	-	0.0%
	42 - Business Expense & Travel	9,600	9,100	500	5.5%
	43 - Training Expense & Travel	27,000	45,975	(18,975)	-41.3%
	50 - Telephone & Answering Services	10,000	10,000	-	0.0%
	61 - Professional Services	50,000	50,000	-	0.0%
	104 - Other Employee Costs	44,550	42,750	1,800	4.2%
	134 - Tools, Shop & Stores Equipment	14,300	71,400	(57,100)	-80.0%
<b>32 - Supt of Transm &amp; Distribtution Total</b>		<b>5,376,534</b>	<b>5,485,392</b>	<b>(108,858)</b>	<b>-2.0%</b>
<b>33 - Supt of Operations</b>	10 - District Overtime Labor	20,850	19,500	1,350	6.9%
	11 - All Other District Labor	166,987	158,119	8,868	5.6%
	17 - Operation & Maintenance Exp	48,500	45,500	3,000	6.6%
	40 - Rents	224,985	221,805	3,180	1.4%
	43 - Training Expense & Travel	19,000	19,000	-	0.0%
	50 - Telephone & Answering Services	112,000	112,384	(384)	-0.3%
<b>33 - Supt of Operations Total</b>		<b>592,322</b>	<b>576,308</b>	<b>16,014</b>	<b>2.8%</b>
<b>34 - Meter Shop</b>	10 - District Overtime Labor	27,604	26,800	804	3.0%
	11 - All Other District Labor	602,439	625,170	(22,731)	-3.6%
	14 - Small Tools & Materials	4,000	4,000	-	0.0%
	17 - Operation & Maintenance Exp	7,500	6,600	900	13.6%
	39 - Maint of Equipment	10,000	10,000	-	0.0%
	42 - Business Expense & Travel	2,500	2,500	-	0.0%
	43 - Training Expense & Travel	15,910	14,810	1,100	7.4%
	45 - Subscriptions & Publications	500	500	-	0.0%
	124 - Meters & Related Items	200,000	200,000	-	0.0%
	127 - SCADA Communications Equipment	5,000	5,000	-	0.0%
	128 - SCADA Substation Equipment	5,000	5,000	-	0.0%
	135 - Laboratory & Test Equipment	55,000	55,000	-	0.0%
	136 - Communication Equipment	40,000	5,000	35,000	700.0%
<b>34 - Meter Shop Total</b>		<b>975,453</b>	<b>960,380</b>	<b>15,073</b>	<b>1.6%</b>
<b>35 - Transformer Shop</b>	10 - District Overtime Labor	40,685	39,500	1,185	3.0%
	11 - All Other District Labor	641,735	602,103	39,632	6.6%
	14 - Small Tools & Materials	8,000	8,000	-	0.0%
	17 - Operation & Maintenance Exp	126,922	126,678	244	0.2%
	18 - Misc Construction Expense	12,763	10,000	2,763	27.6%
	42 - Business Expense & Travel	6,600	6,600	-	0.0%
	43 - Training Expense & Travel	12,800	12,800	-	0.0%
	45 - Subscriptions & Publications	500	500	-	0.0%
	135 - Laboratory & Test Equipment	-	21,475	(21,475)	-100.0%
<b>35 - Transformer Shop Total</b>		<b>850,005</b>	<b>827,656</b>	<b>22,349</b>	<b>2.7%</b>
<b>37 - Automotive Shop</b>	10 - District Overtime Labor	8,500	7,100	1,400	19.7%
	11 - All Other District Labor	349,324	336,572	12,752	3.8%
	14 - Small Tools & Materials	12,100	12,100	-	0.0%
	15 - Transportation Expense-Gas&Oil	225,000	225,000	-	0.0%
	16 - Transportation Exp-Repair&Main	192,000	192,000	-	0.0%
	17 - Operation & Maintenance Exp	1,000	1,000	-	0.0%
	39 - Maint of Equipment	6,000	6,000	-	0.0%

Department	Activity	2020	2019	Increase / (Decrease)	% Increase / (Decrease)
		Budget	Original Budget		
	42 - Business Expense & Travel	1,800	1,800	-	0.0%
	43 - Training Expense & Travel	6,200	6,200	-	0.0%
<b>37 - Automotive Shop Total</b>		<b>801,924</b>	<b>787,772</b>	<b>14,152</b>	<b>1.8%</b>
<b>38 - Support Services</b>					
	10 - District Overtime Labor	20,200	19,200	1,000	5.2%
	11 - All Other District Labor	414,943	468,289	(53,346)	-11.4%
	14 - Small Tools & Materials	3,000	3,000	-	0.0%
	17 - Operation & Maintenance Exp	17,500	17,500	-	0.0%
	23 - Environmental	22,000	22,000	-	0.0%
	27 - Personal Computer Software	2,800	2,500	300	12.0%
	37 - Grounds Care	93,000	93,000	-	0.0%
	38 - Maint of Bldg & Improvements	307,500	263,500	44,000	16.7%
	39 - Maint of Equipment	5,000	5,000	-	0.0%
	42 - Business Expense & Travel	3,600	5,600	(2,000)	-35.7%
	43 - Training Expense & Travel	11,400	11,400	-	0.0%
	45 - Subscriptions & Publications	500	500	-	0.0%
	51 - Water, Garbage, Irrigation & Other	60,000	60,000	-	0.0%
	61 - Professional Services	15,000	15,000	-	0.0%
	104 - Other Employee Costs	1,800	1,800	-	0.0%
	131 - Structures & Improvements	139,000	384,500	(245,500)	-63.8%
	133 - Transportation Equipment	380,000	949,000	(569,000)	-60.0%
<b>38 - Support Services Total</b>		<b>1,497,243</b>	<b>2,321,789</b>	<b>(824,546)</b>	<b>-35.5%</b>
<b>39 - Warehouse</b>					
	13 - Store Expense - Non Labor	25,000	25,000	-	0.0%
	14 - Small Tools & Materials	4,000	4,000	-	0.0%
	17 - Operation & Maintenance Exp	78,000	78,000	-	0.0%
	42 - Business Expense & Travel	1,500	1,500	-	0.0%
	43 - Training Expense & Travel	5,150	5,150	-	0.0%
	104 - Other Employee Costs	29,000	29,000	-	0.0%
<b>39 - Warehouse Total</b>		<b>142,650</b>	<b>142,650</b>	<b>-</b>	<b>0.0%</b>
<b>Grand Total</b>		<b>\$11,277,205</b>	<b>\$11,983,331</b>	<b>(\$706,126)</b>	<b>-5.9%</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 31 Operations**

Activity	Description	GL/FERC	BU Project	Amount
<b>011</b>	<b>All Other District Labor</b>			<b>\$888,865</b>
	Capital True - Up	365.00		\$5,832
	Dist System Improvements	366.00	141	\$4,714
	Dist System Improvements	365.00	141	\$4,714
	Labor - Admin General	920.00		\$98,430
	Labor - Automotive Shop	184.12		\$27,664
	Labor - Customer Accounting	903.00		\$43,336
	Labor - Distribution	588.00		\$520,741
	Labor - Inventory	163.00		\$20,249
	Labor - Leave	184.30		\$124,441
	Services, Set Xfmrs and Run Secondary	369.10	94	\$38,744
<b>027</b>	<b>Personal Computer Software</b>			<b>\$1,200</b>
	Web Based Record Keeping Package - Safety Coordinator	588.00		\$1,200
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$4,000</b>
	Misc Office Supplies	588.00		\$4,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$4,500</b>
	EECSC/EUSAC Quarterly (Safety Coordinator)	588.00		\$1,500
	Travel (Senior Director, Executive Assistant)	588.00		\$3,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$4,000</b>
	Training (Safety Coordinator)	588.00		\$1,000
	Training (Senior Director, Executive Assistant)	588.00		\$3,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$500</b>
	Publications	588.00		\$500
<b>061</b>	<b>Professional Services</b>			<b>\$73,000</b>
	Communications Contracting	588.00		\$25,000
	Meter Testing	586.10		\$28,000
	Safety Committee Consultant	588.00		\$10,000
	Strategic Planning	921.00		\$10,000
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$1,165</b>
	Admin Professionals (Executive Assistant)	588.00		\$50

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 31 Operations**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
IEEE - (Senior Director)		588.00		\$250
IEEE - Frost (Associate Level)		588.00		\$225
ISA (Tree Coordinator)		588.00		\$220
National Arbor Day Foundation (Tree Coordinator)		588.00		\$220
PE License (Senior Director)		588.00		\$150
UDIG (Superintendent)		588.00		\$50
<b>104 Other Employee Costs</b>				<b>\$58,844</b>
AED Pads		588.00		\$1,500
CDL Endorsement Reimbursement - Ops		588.00		\$1,224
First Aid Cards		588.00		\$2,000
First Aid Training Supplies		588.00		\$1,000
Other Dist. Expense		588.00		\$2,000
Safety Incentive		921.00		\$30,000
Safety Lens Reimbursement Program		588.00		\$3,000
Safety Supplies		588.00		\$1,000
Special Safety Sessions		588.00		\$2,000
Vivid Learning - Elec Worker Training/Admin Safety Training		588.00		\$15,120
<b>132 Office Equipment</b>				<b>\$5,000</b>
Projected Capital Equip - Ops		390.00	66	\$5,000
<b>TOTAL EXPENSE Operations</b>				<b>\$1,041,074</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 32 Supt. of Transmission & Distribution**

Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$578,600</b>
	Labor - Overtime - Distribution	588.00		\$578,600
<b>011</b>	<b>All Other District Labor</b>			<b>\$3,484,484</b>
	Capital True - Up	365.00		\$126,168
	Dist Base Growth	365.00	140	\$125,389
	Dist Base Growth	366.00	140	\$233,618
	Dist System Improvements	365.00	141	\$48,334
	Dist System Improvements	366.00	141	\$48,334
	Labor - Admin General	920.00		\$3,640
	Labor - Broadband	935.50		\$5,486
	Labor - Customer Accounting	903.00		\$86,174
	Labor - Distribution	588.00		\$1,443,971
	Labor - Leave	184.30		\$485,728
	Labor - Transmission	566.00		\$9,468
	Meal Reimbursement	588.00		\$15,000
	Repair & Replacement - Cable	380.00	147	\$34,050
	RTA-1, extend OH from Reata Rd south	365.00	209	\$8,750
	RTA-1, extend OH from Reata Rd south	364.00	209	\$4,500
	RTA-3, extend UG west along Sagebrush Rd	367.00	203	\$15,000
	RTA-3, extend UG west along Sagebrush Rd	366.00	203	\$10,000
	Services, Set Xfmrs and Run Secondary	369.10	94	\$222,796
	Services, Set Xfmrs and Run Secondary	369.20	94	\$145,312
	WO# XXXXXX - BEC-3, new feeder to east to tie with SSR-1	364.00	205	\$30,040
	WO# XXXXXX - BEC-3, new feeder to east to tie with SSR-1	365.00	205	\$45,059
	WO# XXXXXX - Distribution Pole Replacement	364.00	160	\$13,828
	WO# XXXXXX - HED - 4 Reconductor #6, Bernath Rd.	365.00	211	\$65,000
	WO# XXXXXX - HED - 4 Reconductor #6, Bernath Rd.	364.00	211	\$40,000
	WO# XXXXXX - HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	364.00	204	\$43,205
	WO# XXXXXX - HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	365.00	204	\$57,808
	WO# XXXXXX - ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	364.00	206	\$9,201
	WO# XXXXXX - ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	365.00	206	\$13,802
	WO# XXXXXX -Southridge Sub Feeder Getaways	367.00	207	\$55,307
	WO# XXXXXX -Southridge Sub Feeder Getaways	366.00	207	\$36,872
	WO#XXXXXX - POS#104 ORV-2 to ORV-5 switch	365.00	208	\$1,322
	WO#XXXXXX - POS#107 RVF-1 to PSR-1 Switch	365.00	194	\$1,322

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

<b>Department 32 Supt. of Transmission &amp; Distribution</b>				
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>014</b>	<b>Small Tools &amp; Materials</b>			<b>\$80,500</b>
	S&R cutters (2)	588.00		\$7,200
	S&R Press	588.00		\$3,300
	Small Tool Expense	588.00		\$70,000
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$30,000</b>
	Other Dist Exp	588.00		\$30,000
<b>018</b>	<b>Miscellaneous Construction Expense</b>			<b>\$67,500</b>
	Misc. Construction Capital Expense - Line Department	364.00	60	\$67,500
<b>019</b>	<b>Tree Trimming - Contract</b>			<b>\$805,000</b>
	Herbicide	593.40		\$1,000
	Tree Replacement	593.40		\$4,000
	Tree Trimming-Contract	593.40		\$800,000
<b>020</b>	<b>Off-the-Dock Labor</b>			<b>\$10,000</b>
	Pole Stubbing	361.00	64	\$10,000
<b>021</b>	<b>Electric Construction Contracts</b>			<b>\$150,000</b>
	Fire Guard	593.10		\$30,000
	Pole Testing	593.10		\$120,000
<b>039</b>	<b>Maintenance of Equipment</b>			<b>\$15,000</b>
	Maint of Tools	588.00		\$15,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$9,600</b>
	E&O (2)	588.00		\$2,500
	Supt Business (2)	588.00		\$5,000
	Tree Coordinator Business Exp	588.00		\$2,100
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$27,000</b>
	Lineman Rodeo	588.00		\$2,500
	NESC	588.00		\$12,000
	Training (2) (Line Apprentices)	588.00		\$12,500
<b>050</b>	<b>Telephone &amp; Answering Services</b>			<b>\$10,000</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

<b>Department 32 Supt. of Transmission &amp; Distribution</b>				
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Locates	584.00		\$10,000
<b>061</b>	<b>Professional Services</b>			<b>\$50,000</b>
	Distribution System Inspection	595.00		\$40,000
	Meter Repair /Coordinated Electrical Repair	597.00		\$10,000
<b>104</b>	<b>Other Employee Costs</b>			<b>\$44,550</b>
	FR Clothing (Current Employees)	588.00		\$32,800
	FR Clothing (New Hires)	588.00		\$5,250
	FR Clothing (Rain Gear)	588.00		\$1,800
	Gloves	588.00		\$4,700
<b>134</b>	<b>Tools, Shop &amp; Stores Equipment</b>			<b>\$14,300</b>
	Light Plant	394.00	200	\$14,300
<b>TOTAL EXPENSE Supt. of Transmission &amp; Distribution</b>				<b>\$5,376,534</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 33 Supt. of Operations**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC BU Project</b>	<b>Amount</b>
<b>010</b>	<b>District Overtime Labor</b>		<b>\$20,850</b>
	Labor - Overtime - Distribution	588.00	\$20,850
<b>011</b>	<b>All Other District Labor</b>		<b>\$166,987</b>
	Labor - Admin General	920.00	\$314
	Labor - Customer Accounting	903.00	\$4,701
	Labor - Distribution	588.00	\$138,594
	Labor - Leave	184.30	\$23,378
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>		<b>\$48,500</b>
	Communication Expenses	588.00	\$2,500
	Doble Lease - Power Factor Test Set	592.00	\$28,000
	Doble Relay Test Set Maintenance	592.00	\$12,000
	Microwave Site /Umatilla Power Bill	935.01	\$6,000
<b>040</b>	<b>Rents</b>		<b>\$224,985</b>
	800 MHz Usage Fee - BCES	588.00	\$37,000
	Badger Mtn Site AMI Fee	935.00	\$6,500
	DNR Billing - Jump Off Joe	935.02	\$40,485
	Finley Lease - Phillips Substation	588.00	\$50,000
	Microwave Circuit Billing - BCES	588.00	\$35,000
	Prosser Tower Site	935.03	\$2,500
	Rattlesnake Site Fee	588.00	\$50,000
	Umatilla Ground Lease	935.01	\$3,500
<b>043</b>	<b>Training Expense &amp; Travel</b>		<b>\$19,000</b>
	Survallent Training /Training (Back Up Dispatcher)	588.00	\$14,000
	Training (Department Assistant)	588.00	\$2,000
	Training (System Dispatcher)	588.00	\$3,000
<b>050</b>	<b>Telephone &amp; Answering Services</b>		<b>\$112,000</b>
	Call Center	588.00	\$110,000
	Microwave Site Comm/Misc Expenses	935.00	\$2,000
<b>TOTAL EXPENSE Supt. of Operations</b>			<b>\$592,322</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 34 Meter Shop**

Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$27,604</b>
	Labor - Overtime - Distribution	588.00		\$27,604
<b>011</b>	<b>All Other District Labor</b>			<b>\$602,439</b>
	Capital True - Up	365.00		\$4,970
	Labor - Admin General	920.00		\$319
	Labor - Customer Accounting	903.00		\$22,343
	Labor - Distribution	588.00		\$375,546
	Labor - Leave	184.30		\$84,341
	Services, Set Xfmrs and Run Secondary	370.00	94	\$54,492
	TGB Replacement	391.00	223	\$4,421
	WO# 524249 - Feeder Position Addition-Phillips P8R	362.01	112	\$535
	WO# 564613 - Xfmr & Feeder Relay Upgrade - Ely #2	362.01	104	\$12,972
	WO# XXXXXX - 735 Meter install at H2F3 Substation	362.01	110	\$1,000
	WO# XXXXXX - 735 Meter install at H2F4 Substation	362.01	111	\$1,000
	WO# XXXXXX - 735 Meter install at Sandpiper Substation	362.01	113	\$1,000
	WO# XXXXXX - Chevron Power Transformer Change Out	362.01	126	\$3,527
	WO# XXXXXX - Hedges 115kV Metering Point	350.00	169	\$5,000
	WO# XXXXXX - Southridge Substation	362.01	191	\$18,032
	WO# XXXXXX - Xfmr & Feeder Relay Upgrade-Gum Street	362.01	202	\$12,941
<b>014</b>	<b>Small Tools &amp; Materials</b>			<b>\$4,000</b>
	Small Tool Expense	597.00		\$4,000
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$7,500</b>
	Calibration of RFL and Weco Meter Test Boards	597.00		\$2,000
	O&M Expenses	597.00		\$5,000
	Support Package for RFL5800	597.00		\$500
<b>039</b>	<b>Maintenance of Equipment</b>			<b>\$10,000</b>
	Other Dist Exp	597.00		\$10,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$2,500</b>
	NW Meter Group and Hands On Relay Planning	588.00		\$2,500
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$15,910</b>
	NW Meter School (2)	588.00		\$2,200

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 34 Meter Shop**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Power Quality	588.00		\$2,000
	Relay School (2)	588.00		\$1,830
	SEL-2032 Communication Processor Training	588.00		\$1,900
	Training	588.00		\$2,000
	Training (Meterman Apprentice)	588.00		\$5,980
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$500</b>
	Subscription & Publications	588.00		\$500
<b>124</b>	<b>Meters &amp; Related Items</b>			<b>\$200,000</b>
	Meters	370.00	86	\$200,000
<b>127</b>	<b>SCADA Communications Equipment</b>			<b>\$5,000</b>
	SCADA Radio	592.30		\$5,000
<b>128</b>	<b>SCADA Substation Equipment</b>			<b>\$5,000</b>
	SCADA Substation Equipment	592.00		\$5,000
<b>135</b>	<b>Laboratory &amp; Test Equipment</b>			<b>\$55,000</b>
	Doble Relay Test Set	395.00	52	\$55,000
<b>136</b>	<b>Communication Equipment</b>			<b>\$40,000</b>
	Communications Equipment/800 MHz Radios	397.00	49	\$40,000
<b>TOTAL EXPENSE Meter Shop</b>				<b>\$975,453</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 35 Transformer Shop**

Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$40,685</b>
	Labor - Overtime - Distribution	588.00		\$40,685
<b>011</b>	<b>All Other District Labor</b>			<b>\$641,735</b>
	Capital True - Up	365.00		\$4,970
	Labor - Broadband	935.50		\$1,471
	Labor - Distribution	588.00		\$450,133
	Labor - Leave	184.30		\$89,843
	WO# 524249 - Feeder Position Addition-Phillips P8R	362.01	112	\$2,330
	WO# 564613 - Xfmr & Feeder Relay Upgrade - Ely #2	362.01	104	\$1,664
	WO# XXXXXX - 735 Meter install at H2F3 Substation	362.01	110	\$1,000
	WO# XXXXXX - 735 Meter install at H2F4 Substation	362.01	111	\$1,000
	WO# XXXXXX - 735 Meter install at Sandpiper Substation	362.01	113	\$1,000
	WO# XXXXXX - Chevron Power Transformer Change Out	362.01	126	\$5,385
	WO# XXXXXX - Control House Addition & Batteries-Gum Street	362.01	201	\$27,328
	WO# XXXXXX - Hedges 115kV Metering Point	350.00	169	\$5,000
	WO# XXXXXX - Highlands Battery Bank	362.01	210	\$2,328
	WO# XXXXXX - Southridge Substation	362.01	191	\$46,518
	WO# XXXXXX - Xfmr & Feeder Relay Upgrade-Gum Street	362.01	202	\$1,765
<b>014</b>	<b>Small Tools &amp; Materials</b>			<b>\$8,000</b>
	Small Tool Expense	595.00		\$8,000
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$126,922</b>
	Gloves, Mac's, Blankets, Rubber	595.00		\$12,000
	O&M Expense	595.00		\$81,922
	Oil Testing at Wind Farm	595.00		\$13,000
	SD Myer Oil Screening	595.00		\$10,000
	Substation Sterilization	595.00		\$10,000
<b>018</b>	<b>Miscellaneous Construction Expense</b>			<b>\$12,763</b>
	Misc. Construction Capital Expense - Transformer Shop	362.01	61	\$10,000
	WO# XXXXXX - Southridge Substation	362.01	191	\$2,763
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$6,600</b>
	Cascade Conference (1)	588.00		\$1,500
	Codes Update (6) (Station Electrician)	588.00		\$3,600

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

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**Department**    35    Transformer Shop

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<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
E&O		588.00		\$1,500
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$12,800</b>
<hr style="border-top: 1px dashed black;"/>				
	Cooper Reg Workshop	588.00		\$2,500
	Doble Training Onsite	588.00		\$2,500
	Pesticide License - Refresher	588.00		\$300
	Recloser Training	588.00		\$2,500
	Reinhausen Tap Changer Workshop	588.00		\$2,500
	Waukesha Tap Changer Training	588.00		\$2,500
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$500</b>
<hr style="border-top: 1px dashed black;"/>				
	Subscription & Publications	588.00		\$500
<b>TOTAL EXPENSE Transformer Shop</b>				<b>\$850,005</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 37 Automotive Shop**

Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$8,500</b>
	Labor - Overtime - Automotive Shop	184.11		\$8,500
<b>011</b>	<b>All Other District Labor</b>			<b>\$349,324</b>
	Labor - Automotive Shop	184.12		\$297,506
	Labor - Distribution	588.00		\$2,665
	Labor - Inventory	163.00		\$248
	Labor - Leave	184.30		\$48,905
<b>014</b>	<b>Small Tools &amp; Materials</b>			<b>\$12,100</b>
	All Data	184.12		\$2,100
	General Tools	184.12		\$3,000
	Software Update	184.12		\$7,000
<b>015</b>	<b>Transportation Expense - Gas &amp; Oil</b>			<b>\$225,000</b>
	Transportation Expense - Gas and Oil	184.11		\$225,000
<b>016</b>	<b>Transportation Expense - Repair &amp; Maintenance</b>			<b>\$192,000</b>
	Fire Extinguishers on Vehicles	184.12		\$2,000
	Transportation Expense	184.12		\$180,000
	Vehicle Detailing	184.12		\$10,000
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$1,000</b>
	O&M Expense	588.00		\$1,000
<b>039</b>	<b>Maintenance of Equipment</b>			<b>\$6,000</b>
	Bio Digester (Filtration System for Wash Bay)	598.10		\$2,500
	Maint Agrmts for Pressure Washer, Compressor and Water Filter	184.12		\$2,500
	Transportation Expense - Other	184.12		\$1,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$1,800</b>
	Business Travel & Expense (Foreman, Mechanic)	588.00		\$1,800
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$6,200</b>
	Altec Aerial Training	588.00		\$1,900
	Automotive Training Group (at CBC)	588.00		\$1,100
	Cummings Training	588.00		\$1,600

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

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**Department**    37    Automotive Shop

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<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Vehicle Motor Maint (1)	588.00		\$1,600
<b>TOTAL EXPENSE</b>	<b>Automotive Shop</b>			<b>\$801,924</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 38 Support Services**

Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$20,200</b>
	Labor - Overtime - Inventory	163.00		\$20,200
<b>011</b>	<b>All Other District Labor</b>			<b>\$414,943</b>
	Labor - Admin General	920.00		\$75,032
	Labor - Broadband	935.50		\$614
	Labor - Distribution	588.00		\$73,746
	Labor - Inventory	163.00		\$204,413
	Labor - Leave	184.30		\$58,092
	Labor - Transmission	566.00		\$3,046
<b>014</b>	<b>Small Tools &amp; Materials</b>			<b>\$3,000</b>
	Small Tool Expense	588.00		\$3,000
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$17,500</b>
	O&M Expense	588.00		\$2,500
	Pole Line Sterilization	571.20		\$15,000
<b>023</b>	<b>Environmental</b>			<b>\$22,000</b>
	Hazardous Waste Disposal	588.00		\$6,000
	TransportationExpense - Oil Disposal	588.00		\$10,000
	Universal Waste Disposal	588.00		\$6,000
<b>027</b>	<b>Personal Computer Software</b>			<b>\$2,800</b>
	MSDS Online	588.00		\$2,800
<b>037</b>	<b>Grounds Care</b>			<b>\$93,000</b>
	Admin Office	921.00		\$25,000
	General Expenses	921.00		\$4,000
	General Expenses	588.00		\$3,000
	Operations	588.00		\$25,000
	Property Clean-Up	588.00		\$4,000
	Prosser	935.04		\$13,000
	Substations	588.00		\$6,500
	Tree Maintenance	598.10		\$12,500
<b>038</b>	<b>Maint of Bldg &amp; Improvements - General</b>			<b>\$307,500</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**

**2020 Budget**

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**Department 38 Support Services**

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<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Carpet Cleaning (Admin)	935.00		\$5,000
	Carpet Cleaning (Operations)	588.00		\$4,500
	Commission Room Remodel	935.00		\$13,000
	Fire Extinguishers	588.00		\$2,000
	Floor Mats (Admin)	935.00		\$3,000
	Floor Mats (Operations)	588.00		\$8,000
	General Maintenance (Admin)	935.00		\$22,000
	General Maintenance (Operations)	588.00		\$22,000
	General Maintenance (Prosser)	935.04		\$20,000
	Graffiti Removal	588.00		\$5,000
	HVAC (Admin)	935.00		\$25,000
	HVAC (Operations)	588.00		\$15,000
	HVAC (Prosser)	935.04		\$2,000
	Janitorial Services (Admin)	935.00		\$56,000
	Janitorial Services (Operations)	588.00		\$49,000
	Janitorial Services (Prosser)	935.04		\$17,000
	Painting (Admin)	935.00		\$6,000
	Painting (Operations)	598.10		\$6,000
	Security (Radio Sites)	598.10		\$22,000
	Wireless Expansion (Operations)	588.00		\$5,000
<b>039</b>	<b>Maintenance of Equipment</b>			<b>\$5,000</b>
<hr/>				
	Maintenance	935.00		\$5,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$3,600</b>
<hr/>				
	Audit Disposal Facility	588.00		\$1,500
	Green House Gas Meeting	588.00		\$500
	Maint. Dept Business Travel Exp	588.00		\$600
	Supt of Support Svcs Business Travel (Includes: Fleet Managers Quarterly)	588.00		\$1,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$11,400</b>
<hr/>				
	Hazwopper Training	588.00		\$1,800
	NWPPA Environmental Task Force (quarterly)	588.00		\$2,200
	PCB & XFR Oil Workshop (2)	588.00		\$4,600
	Pesticide License Renewal and Testing	588.00		\$1,800
	Washington Dept of Ecology (RCRA)	588.00		\$1,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$500</b>
<hr/>				

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 38 Support Services**

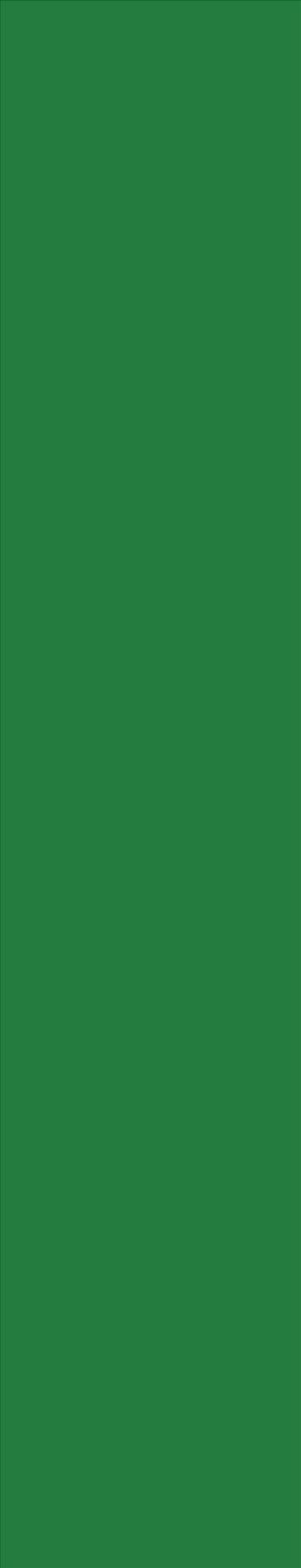
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
	Subscription & Publications	588.00		\$500
<b>051</b>	<b>Water, Garbage, Irrigation &amp; Other</b>			<b>\$60,000</b>
	Benton County Property Tax	935.00		\$2,000
	CID	921.00		\$2,000
	KID	921.00		\$9,000
	Water, Garbage, Irrigation, Other	598.10		\$47,000
<b>061</b>	<b>Professional Services</b>			<b>\$15,000</b>
	General Expenses	921.00		\$4,000
	Green House Gas	588.00		\$3,000
	Mech Engr Drawings	588.00		\$4,000
	Radio Tower Site Inspection	935.02		\$4,000
<b>104</b>	<b>Other Employee Costs</b>			<b>\$1,800</b>
	Clothing/Shoes/Gloves	588.00		\$1,800
<b>131</b>	<b>Structures &amp; Improvements</b>			<b>\$139,000</b>
	Camera System Upgrade - Operations	390.01	198	\$10,000
	Paint - Operations Dock Area	390.01	63	\$15,000
	Physical Security Audit Recommendations Phase 1	390.00	222	\$100,000
	Rebuild HP 2 - at Admin	390.00	196	\$7,000
	Rebuild HP 7 at Admin	390.00	197	\$7,000
<b>133</b>	<b>Transportation Equipment</b>			<b>\$380,000</b>
	Line Truck (Prosser)	392.00	57	\$340,000
	Locator Truck	392.00	199	\$40,000
<b>TOTAL EXPENSE Support Services</b>				<b>\$1,497,243</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 39 Warehouse**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>013</b>	<b>Store Expense - Non Labor</b>			<b>\$25,000</b>
	Stores Exp Undistributed	163.00		\$25,000
<b>014</b>	<b>Small Tools &amp; Materials</b>			<b>\$4,000</b>
	Small Tool Expense	163.00		\$4,000
<b>017</b>	<b>Operation &amp; Maintenance Expense</b>			<b>\$78,000</b>
	Other Dist Exp	588.00		\$30,400
	Stores Exp Undistributed	163.00		\$47,600
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$1,500</b>
	Travel Expense (Foremen, Warehouseworker, Coordinator)	588.00		\$1,500
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$5,150</b>
	AMA (Warehouse Coordinator)	588.00		\$2,000
	Integrated Utility Solution	588.00		\$2,000
	Material Management (1)	588.00		\$1,150
<b>104</b>	<b>Other Employee Costs</b>			<b>\$29,000</b>
	A&G	921.00		\$4,300
	Other Distribution Expense	588.00		\$24,700
<b>TOTAL EXPENSE Warehouse</b>				<b>\$142,650</b>





# **Customer Programs** **& Services**

**Tab 6**



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**  
**Summary of Expense by Directorate**

**Customer Programs & Services**

<b>Department(s)</b>		<b>Totals</b>
42	Customer Service - Prosser	378,354
44	Customer Service	1,639,888
<b>Grand Total Expenses    Customer Programs &amp; Services</b>		<b>\$2,018,242</b>

**Directorate Budget by Department and Activity  
2020 Budget Compared to 2019 Budget**

<b>Directorate</b>	<b>Customer Service</b>
--------------------	-------------------------

Department	Activity	2020 Budget	2019 Original Budget	Increase / (Decrease)	% Increase / (Decrease)
<b>42 - Prosser Branch</b>					
	10 - District Overtime Labor	\$5,980	\$4,539	\$1,441	31.8%
	11 - All Other District Labor	330,759	279,041	51,718	18.5%
	30 - Customer Service Expenses	10,000	10,000	-	0.0%
	33 - Office Supplies & Expenses	3,000	3,000	-	0.0%
	39 - Maint of Equipment	1,000	1,000	-	0.0%
	42 - Business Expense & Travel	2,000	2,000	-	0.0%
	43 - Training Expense & Travel	3,000	3,000	-	0.0%
	51 - Water, Garbage, Irrigation & Other	15,000	15,000	-	0.0%
	70 - Civic & Service Organizations	3,115	2,815	300	10.7%
	72 - Industry Assoc Assessments	4,500	-	4,500	N/A
<b>42 - Prosser Branch Total</b>		<b>378,354</b>	<b>320,395</b>	<b>57,959</b>	<b>18.1%</b>
<b>44 - Customer Service</b>					
	10 - District Overtime Labor	21,176	22,339	(1,163)	-5.2%
	11 - All Other District Labor	1,154,112	1,300,502	(146,390)	-11.3%
	30 - Customer Service Expenses	397,500	397,302	198	0.0%
	33 - Office Supplies & Expenses	24,000	17,500	6,500	37.1%
	39 - Maint of Equipment	3,400	3,000	400	13.3%
	42 - Business Expense & Travel	11,000	10,000	1,000	10.0%
	43 - Training Expense & Travel	10,000	8,000	2,000	25.0%
	44 - Other General Expenses	5,000	10,000	(5,000)	-50.0%
	45 - Subscriptions & Publications	200	200	-	0.0%
	61 - Professional Services	5,000	10,000	(5,000)	-50.0%
	70 - Civic & Service Organizations	-	500	(500)	-100.0%
	72 - Industry Assoc Assessments	-	4,500	(4,500)	-100.0%
	119 - Public Information Expenses	2,500	4,000	(1,500)	-37.5%
	200 - New Services Expenses	2,500	4,000	(1,500)	-37.5%
	201 - New Product Expenses	3,500	3,500	-	0.0%
<b>44 - Customer Service Total</b>		<b>1,639,888</b>	<b>1,795,343</b>	<b>(155,455)</b>	<b>-8.7%</b>
<b>Grand Total</b>		<b>\$2,018,242</b>	<b>\$2,115,738</b>	<b>(\$97,496)</b>	<b>-4.6%</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 42 Customer Service - Prosser**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>010</b>	<b>District Overtime Labor</b>			<b>\$5,980</b>
	Labor - Overtime - Distribution	588.00		\$5,980
<b>011</b>	<b>All Other District Labor</b>			<b>\$330,759</b>
	Labor - Admin General	920.00		\$3,280
	Labor - Customer Accounting	903.00		\$281,173
	Labor - Leave	184.30		\$46,306
<b>030</b>	<b>Customer Service Expenditures</b>			<b>\$10,000</b>
	Armored Car Service	903.00		\$7,200
	Customer Service Expenditures	903.00		\$2,800
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$3,000</b>
	Misc Office Supplies	903.00		\$3,000
<b>039</b>	<b>Maintenance of Equipment</b>			<b>\$1,000</b>
	Maint of Equipment	903.00		\$1,000
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$2,000</b>
	Business Travel & Expense	903.00		\$2,000
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$3,000</b>
	CSR Training Off Site	903.00		\$3,000
<b>051</b>	<b>Water, Garbage, Irrigation &amp; Other</b>			<b>\$15,000</b>
	Prosser Utilities	598.10		\$15,000
<b>070</b>	<b>Civic &amp; Service Organizations</b>			<b>\$3,115</b>
	Benton City Chamber of Commerce	903.00		\$300
	Prosser Chamber of Commerce	903.00		\$315
	Prosser Economic Development Assoc Dues	903.00		\$2,500
<b>072</b>	<b>Industry Association Assessment</b>			<b>\$4,500</b>
	Columbia Snake River Irrigators Association Dues	903.00		\$4,500
<b>TOTAL EXPENSE Customer Service - Prosser</b>				<b>\$378,354</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 44 Customer Service**

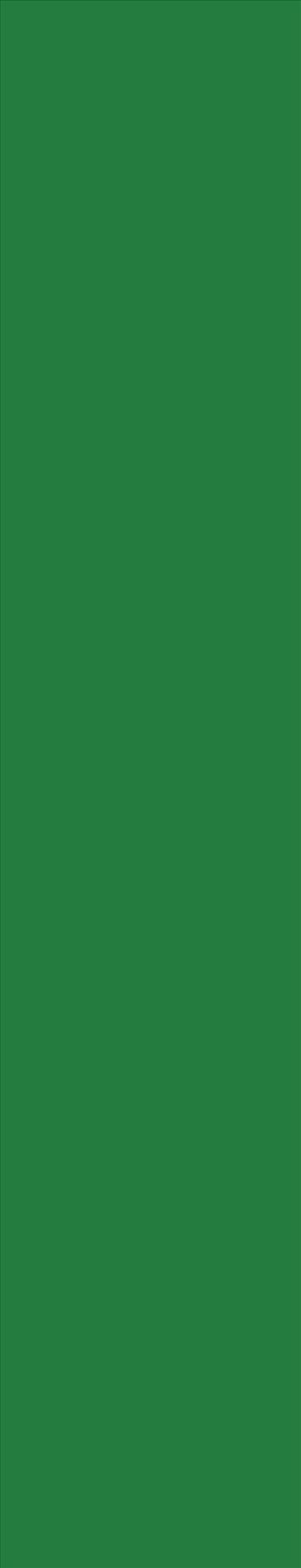
Activity	Description	GL/FERC	BU Project	Amount
<b>010</b>	<b>District Overtime Labor</b>			<b>\$21,176</b>
	Labor - Overtime - Customer Accounting	903.00		\$21,176
<b>011</b>	<b>All Other District Labor</b>			<b>\$1,154,112</b>
	Labor - Admin General	920.00		\$2,060
	Labor - Customer Accounting	903.00		\$990,476
	Labor - Leave	184.30		\$161,576
<b>030</b>	<b>Customer Service Expenditures</b>			<b>\$397,500</b>
	Application Processing Fees (Helping Hands/Disabled Disc Programs)	903.00		\$9,800
	Bill Image Storage Fee	903.00		\$5,000
	Cash Vault Services	903.00		\$8,400
	Identity Verifications and Adverse Action Letters	903.00		\$16,700
	Interpretation Services	903.00		\$3,600
	Mail Machine Rental Fee	903.00		\$2,600
	NISC - Mail Service/Forms	903.00		\$122,900
	NISC - Mail Service/Forms/Print Service/Envelopes	903.00		\$172,000
	Non-Bill District Postage Costs	903.00		\$55,000
	Veriphone Equipment	903.00		\$1,500
<b>033</b>	<b>Office Supplies &amp; Expenses</b>			<b>\$24,000</b>
	Misc Office Supplies	903.00		\$24,000
<b>039</b>	<b>Maintenance of Equipment</b>			<b>\$3,400</b>
	Postage Meter & Mail Insert Machine Expenses	903.00		\$3,400
<b>042</b>	<b>Business Expense and Travel</b>			<b>\$11,000</b>
	CS Week	903.00		\$2,000
	MIC Meeting (3)	903.00		\$7,500
	NISC NW Users Group	903.00		\$750
	NWPPA CS Best Practices	903.00		\$750
<b>043</b>	<b>Training Expense &amp; Travel</b>			<b>\$10,000</b>
	CSR Training Off Site	903.00		\$3,000
	Other Customer Service	903.00		\$1,000
	QA Program	903.00		\$6,000

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

**Department 44 Customer Service**

<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>044</b>	<b>Other General Expenses</b>			<b>\$5,000</b>
	Other Expenses	903.00		\$5,000
<b>045</b>	<b>Subscriptions &amp; Publications</b>			<b>\$200</b>
	Dues and Subscriptions	903.00		\$200
<b>061</b>	<b>Professional Services</b>			<b>\$5,000</b>
	Professional Services	903.00		\$5,000
<b>119</b>	<b>Public Information Expenses</b>			<b>\$2,500</b>
	Public Info / Communication	903.00		\$2,500
<b>200</b>	<b>New Services Expenses</b>			<b>\$2,500</b>
	Demos of New Services	903.00		\$2,500
<b>201</b>	<b>New Product Expenses</b>			<b>\$3,500</b>
	Demos of New Products	903.00		\$3,500
<b>TOTAL EXPENSE Customer Service</b>				<b>\$1,639,888</b>





# Non-Departmental

**Tab 6**



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**  
**Summary of Expense by Directorate**

Non-Departmental

<b>Department(s)</b>		<b>Totals</b>
98	Non-Departmental Rev/Exp	36,876,868
<b>Grand Total Expenses Non-Departmental</b>		<b>\$36,876,868</b>

**Directorate Budget by Department and Activity  
2020 Budget Compared to 2019 Budget**

<b>Directorate</b>	<b>No Directorate</b>
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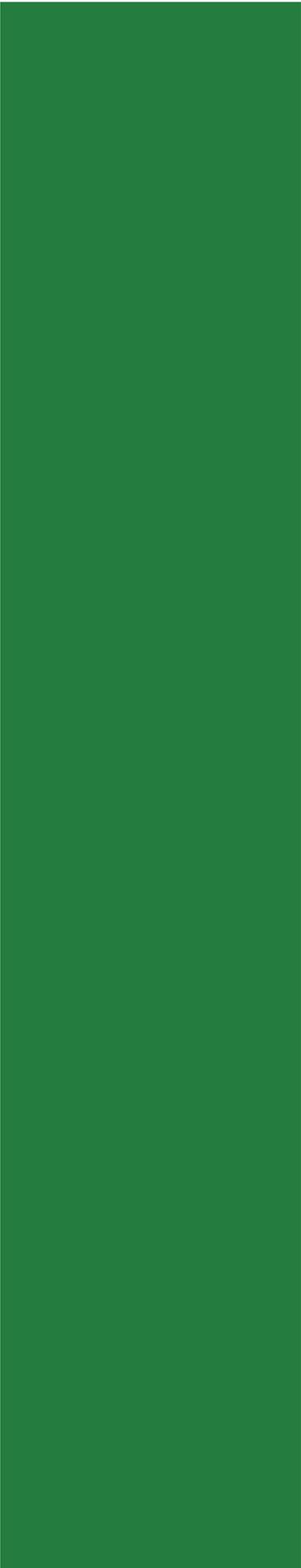
Department	Activity	2020 Budget	2019		
			Original Budget	Increase / (Decrease)	% Increase / (Decrease)
98 - Non-Departmental Rev/Exp	1 - Unidentified Under Run / Carry Over	(\$695,000)	(\$1,000,000)	\$305,000	-30.5%
	11 - All Other District Labor	(100,000)	(200,280)	100,280	-50.1%
	80 - Public Utility & Excise Tax	5,477,000	5,366,000	111,000	2.1%
	81 - State Privilege Tax	2,801,000	2,746,000	55,000	2.0%
	82 - City Occupation Taxes	6,411,000	6,237,000	174,000	2.8%
	88 - Payroll Taxes	1,148,190	1,115,634	32,556	2.9%
	101 - Employee Benefits	5,672,155	5,395,610	276,545	5.1%
	150 - Principal	3,940,000	3,750,000	190,000	5.1%
	151 - Interest	1,815,464	1,918,080	(102,616)	-5.3%
	301 - Depreciation	10,407,059	10,351,499	55,560	0.5%
<b>98 - Non-Departmental Rev/Exp Total</b>		<b>36,876,868</b>	<b>35,679,543</b>	<b>1,197,325</b>	<b>3.4%</b>
<b>Grand Total</b>		<b>\$36,876,868</b>	<b>\$35,679,543</b>	<b>\$1,197,325</b>	<b>3.4%</b>

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

<b>Department</b>				
<b>98</b>	<b>Non-Departmental Rev/Exp</b>			
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>001</b>	<b>Unidentified Under Run / Carry Over</b>			<b>(\$695,000)</b>
	A&G	921.00		(\$185,000)
	Customer Acctg.	901.00		(\$50,000)
	Distribution	588.00		(\$35,000)
	Unidentified Under Run / Carry Over	362.01		(\$425,000)
<b>011</b>	<b>All Other District Labor</b>			<b>(\$100,000)</b>
	Labor Under Run / Carry Over - Distribution	588.00		(\$100,000)
<b>080</b>	<b>State Public Utility Tax &amp; Other Excise Taxes</b>			<b>\$5,477,000</b>
	Other Excise Tax	408.08		\$81,000
	Public Utility Tax	408.06		\$5,396,000
<b>081</b>	<b>State Privelege Tax</b>			<b>\$2,801,000</b>
	Privilege Tax	408.05		\$2,801,000
<b>082</b>	<b>City Occupation Taxes</b>			<b>\$6,411,000</b>
	City Occupation Tax	408.07		\$6,411,000
<b>088</b>	<b>Payroll Taxes</b>			<b>\$1,148,190</b>
	Medicare	184.30		\$221,616
	Social Security	184.30		\$926,574
<b>101</b>	<b>Employee Benefits</b>			<b>\$5,672,155</b>
	Change in PL	184.30		\$150,000
	Deferred Compensation	184.30		\$422,052
	Dental	184.30		\$205,250
	Life Insurance	184.30		\$71,909
	Medical	184.30		\$2,337,894
	PERS	184.30		\$1,909,027
	State Industrial (L&I)	184.30		\$141,836
	STD Admin Fee	184.30		\$3,000
	Unemployment	184.30		\$12,000
	VEBA Wellness (\$200 per employee per month)	184.30		\$360,000
	Vision	184.30		\$36,791
	WA State Sick Leave	184.30		\$22,396

**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**2020 Budget**

<b>Department</b>		<b>98 Non-Departmental Rev/Exp</b>		
<b>Activity</b>	<b>Description</b>	<b>GL/FERC</b>	<b>BU Project</b>	<b>Amount</b>
<b>150</b>	<b>Principal</b>			<b>\$3,940,000</b>
	Debt Service - Principal	125.00		\$3,940,000
<b>151</b>	<b>Interest</b>			<b>\$1,815,464</b>
	Amortization of Bond loss on Defeasance	428.00		\$5,839
	Amortization of Bond Premium	429.00		(\$365,459)
	BABs Subsidy for 2010 Bonds	427.01		(\$376,070)
	Bond Interest Expense	427.00		\$2,551,154
<b>301</b>	<b>Depreciation Expense</b>			<b>\$10,407,059</b>
	Depr - Broadband	403.61		\$800,000
	Depr - Distribution	403.60		\$6,947,517
	Depr - General Plant	403.70		\$2,024,000
	Depr - Generation	403.40		\$84,125
	Depr - Transmission	403.50		\$255,000
	Depr - Transportation Equipment	184.12		\$296,417
<b>TOTAL EXPENSE Non-Departmental Rev/Exp</b>				<b>\$36,876,868</b>



# Activity Codes

**Tab 6**



**PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY**  
**BUDGET ACTIVITY CODE DEFINITIONS**

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**SYSTEM COSTS:**

**5 Construction Overhead Allocated**

The allocation of overhead construction costs based on loaded construction payroll.

**6 Warehouse & Small Tool Allocated**

The allocation of expenses associated with the warehouse and purchasing functions based on inventory activity.

**7 Transportation Expense Allocated**

The allocation of expenses associated with the auto shop function to mileage.

**8 Benefits & Payroll Taxes Allocated**

The allocation of employee benefits and payroll taxes based on labor

**9 Purchased Power**

Includes all expenses associated with the procurement of electric power and the associated transmission expense.

Some examples of power sources are included here:

- \*The Energy Authority (TEA)
- \*Bonneville Power Administration/Energy NW
- \*Market purchases and contracts for purchase
- \*Frederickson

**10 District Overtime Labor**

Includes all expenses for wages paid to District employees for overtime worked.

**11 All Other District Labor**

All expenses for wages, other than for overtime, including the following:

- \*Regular Pay (includes temporary upgrades, etc.)
- \*Standby Pay
- \*Duty Pay
- \*Vehicle Add Pay
- \*Other pay not covered elsewhere

**12 Materials & Supplies**

Includes all materials and supplies used which are kept in the District's inventories, except substation power transformers and regulators.

**13 Stores Expense - Non Labor**

Includes charges for the following:

- \*Cost of special forms for stores and purchasing use
- \*Miscellaneous general use materials and supplies of very low value such as miscellaneous screws, bolts, nuts, batteries, rags, nails, etc.

**14 Small Tools & Materials**

Includes expenses for tools and tool items having a unit cost of less than **\$5,000**. Also includes such items as rope or chain used in conjunction with other tools even though purchased by the reel where the intent is to cut it into useable sizes.

Some examples of expenses included here are:

- \*Klien Chicago Grips
- \*Hot sticks
- \*High voltage gloves
- \*Shovels and handles
- \*Rope & chain
- \*Endless slings
- \*Saw blades and files
- \*Glass range poles
- \*String measuring devices
- \*Extending level rod
- \*Magnetic strobe lights
- \*Travellers
- \*Drill bits and braces
- \*Pull grips and clamp sticks
- \*Hoists-hotstick and lineman
- \*Cadweld molds
- \*Signs - men working, etc.
- \*Traffic cones
- \*Ground clamps
- \*Hot line jumpers
- \*Line guards
- \*Miscellaneous test meters
- \*Electric drills and saws
- \*Various small hand tools

**15 Transportation Expense - Gas & Oil**

Includes all expenses for gasoline, diesel fuel, propane and automotive oil and grease

**16 Transportation Expense - Repair & Maintenance**

Includes all expenses for parts and labor purchased to repair and maintain all vehicles in good condition, including towing costs.

**17 Operations & Maintenance Expense**

Includes expenses pertinent to the operations and maintenance of the District's electrical systems.

Some examples of expenses included here are:

- \*Materials and supplies generally purchased to operations or maintenance expense accounts rather than to inventory.
- \*Special engineering supplies
- \*Drafting film (Mylar, etc.)
- \*White print material
- \*Reduction services
- \*Microfilming
- \*Special forms unique to operations or maintenance
- \*Equipment instructions, operating, maintenance and service manuals
- \*Blueprint machine maintenance and paper costs
- \*Pressure vacuum regulators and gauges
- \*Rubber padding
- \*Paving repairs (i.e. road crossings, etc.)
- \*Wildlife protective boots
- \*Posts with cable decals
- \*Hi-Line road work
- \* Fuse links and other small fuses including bayonet fuses for transformers

\*Miscellaneous materials and services for operations or maintenance of electric systems

\*Repairs to private property

Does not include materials and supplies normally purchased to District inventories or Off-the-Dock contract Labor budgeted separately.

**18 Miscellaneous Construction Expense**

Includes costs charged to jobs for items of expense that do not become a part of a unit of property.

Some examples of expenses included here are:

\*Benton County Engineer costs

\*Purchases of sand, gravel and concrete for construction

\*Rental costs necessary to job

\*Service charges necessary to job

\*Purchased labor other than bid by contract or quote (ex. payments to small contractor for road patching, trenching, blasting, digging pole holes, etc.)

\*Payments to machine shops for making parts

\*Purchased surveying costs incurred on specific jobs the construction of new transmission or distribution plant

\*Miscellaneous Engineering or service labor for specific jobs

\*Photography charged to jobs

\*Miscellaneous small charges not readily identifiable

\*Miscellaneous supplies for surveying such as stakes, flags etc.

**19 Tree Trimming - Contract**

Includes only those expenses for contracted tree trimming

**20 Off-the-Dock Labor**

Includes only contracted Off-the-Dock labor

**21 Electric Construction Contracts**

Includes contracts obtained by bid or quote to do a specific package of work such as build transmission or distribution line or a substation or part thereof.

Does not include contract costs for major maintenance of, or construction of, new general plant such as storage yards, service facilities and general office buildings. Such costs should be budgeted at items 038 - Maintenance of Buildings and Improvements or 131 – Structures and Improvements to differentiate them from electric plant costs.

**22 Contract Temporary Labor**

Includes contract labor on a temporary basis for existing labor positions. These are for people that are paid through a job agency and are not paid through the District's payroll system.

**23 Environmental**

Includes those costs associated with environmental compliance, waste minimization, handling, storage and disposal of hazardous material or dangerous waste.

Some examples of expenses included here are:

\*Fees paid to disposal firms

- \*Transportation costs
- \*Test kits
- \*Testing of materials
- \*Cleanup media
- \*Drums

Does not include, cost to repair or replace real or personal property damaged by an environmental occurrence. Examples of these types of costs are blacktop replacement, concrete, gravel dirt or repairs to personal property.

## **GENERAL EXPENSES:**

### **25 Maintenance of Software**

### **26 Computer Hardware & Equipment Expense**

### **27 Personal Computer Software**

All personal computer software packages

### **28 Personal Computer O & M Costs**

Includes all expenses related to the operation and maintenance of hardware equipment.

Some examples of expenses included here are:

- \*Replacement of cables
- \*Switches
- \*Connectors
- \*Cards
- \*Disk drives with like kind
- \*Maintenance contracts
- \*Phone line costs

### **29 Personal Computer Supplies & Expenses**

Includes all purchases of plotter paper, forms, diskettes, tapes, cartridges, ribbons, pens, and miscellaneous supplies used on the computer

### **30 Customer Service Expenses**

Includes expenses attributable to Customer Service

Some examples of costs included here are:

- \*Armored Car dispatch
- \*Payments to Collections Stations (drugstores, etc.)
- \*Payments to Collection Agencies
- \*Padlocks - (meter readers)
- \*Special Forms (Cust. Accounting, Credit and Meter Reading)
- \*All postage expense

### **33 Office Supplies & Expenses**

Some examples of expenses included here are:

- \*Small items of office equipment - less than **\$5,000** unit cost
- \*Paper and envelopes

- \*General use forms
- \*Pencils, pens, erasers, rulers and misc. scales

**34 Insurance**

Includes the cost of insurance premiums including "Self-Insurance Assessments". It does not include the employee insurance premiums.

**37 Grounds Care**

Includes expenses for care of lawns and shrubbery at all office and substation locations

**38 Maintenance of Building & Improvements - General**

Includes janitorial service, maintenance of buildings, and certain improvements to general property such as graveled and/or paved areas and fences

Some examples of expenses included here are:

- \*Janitorial Services
- \*Painting and repairs to buildings and structures
- \*Adding gravel to graveled areas
- \*Patching paved areas
- \*Repairs to heating, air conditioning, electrical and water systems.
- \*Contracts for major repairs, including labor contract.

**39 Maintenance of Equipment - Communication, Office Equipment, General Property & Other**

Some examples of expenses that may be included here are:

- \*Cost of Maintenance Agreements/Office equipment maintenance repair
- \*Maintenance and repair of vehicle radios
- \*Maintenance of telephones
- \*Maintenance/repair of other general property not budgeted elsewhere, i.e., tools.

**40 Rents**

Includes all expenses for use of property and equipment not budgeted elsewhere.

Some examples of expenses included here are:

- \*Poles contact rentals
- \*Permits for railway crossings

**41 Insurance Damages & Other Reimbursable**

Costs paid to be reimbursed by insurance for damages to District property.

**42 Business Expense & Travel**

Includes all costs of meetings and travel that are for general business-related purposes

Some examples of expenses included here are:

- \*Chamber of Commerce
- \*TRIDEC
- \*Kiwanis
- \*Rotary Club
- \*NoaNet
- \*CWPU
- \*PURMS

\*Foreman's dinner

\*Travel costs related to the evaluation/investigation of products or equipment.

#### **43 Training Expense & Travel**

Includes all costs (travel, registration fees, materials, etc.) for meetings, conferences, and seminars that provide training or educational sessions or speakers in a learning or networking environment related to your work:

Some examples of expenses included here are:

\*Conferences of professional associations with break-out training sessions

\*Sessions offering continuing education credits or units

\*Vendor conferences

\*Meter school

\*APPA or NWPPA courses or seminars

#### **44 Other General Expenses**

Miscellaneous general expenses not budgeted elsewhere, including but not limited to:

\*Miscellaneous advertising for bids, rate studies, surplus property, call for bonds, etc.

\*Employee service pins and awards

\*Special survey costs

#### **45 Subscriptions & Publications**

Included here are all books, reference texts and manuals, newspapers, magazines and other general informational publications.

Some examples of expenses included here are:

\*Special manuals

\*Reference manuals and services (R.C.W.'s, National Public Employee Reports, etc.)

\*Directories

\*Computer Services

\*Westlaw Legal Service

\*Other miscellaneous publications such as:

Kiplinger Letter

Northwest Wage & Hours Subscription

N.A.D.A. Subscription

Electric Power & Light

Clearing Up

Energy Omnium

#### **46 Treasurer Expenses**

Bank fees, escrow fees, and other expenses directly related to the Treasurer.

### **UTILITIES:**

#### **50 Telephone & Answering Services**

Includes all expenses for use of telephone lines and answering services except those for remote computer terminals

Some examples of expenses included here are:

- \*Frontier/Embarg - Prosser
- \*Verizon NW - Kennewick
- \*Kelley's Answering Service
- \*City of Prosser - Emergency Answering Service
- \*Washington State Central Stores - Scan lines
- \*Asplund - Utilities Underground Location Center

**51 Water, Garbage, Irrigation & Other**

Includes expenses for water, garbage and irrigation assessments at all District locations

Some examples of expenses included here are:

- \*Kennewick Disposal - Garbage
- \*City of Kennewick - Water and Sewer
- \*City of Prosser - Water
- \*Culligan - Water conditioning
- \*Irrigation Districts - Annual Assessments
- \*Special Assessments

**OUTSIDE SERVICES:**

**60 Audit Examination - State**

**61 Professional Services**

Includes expenses for all professional services not budgeted elsewhere.

Some examples of expenses included here are:

- \*Engineering studies
- \*Other attorney fees
- \*District share of labor negotiations office
- \*Arbitration costs
- \*Purchased surveying costs not identified to other budget items. These would include surveying costs incurred in conjunction with feasibility studies and would not include survey cost for acquisition of land and land rights for general plant, or survey costs for power line design.

**DUES & ASSESSMENTS:**

**70 Civic & Service Organizations**

**72 Industry Association Assessments**

Includes all assessments paid for membership in various industry associations.

**73 Other Assessments**

Includes all other assessments not budgeted above or elsewhere in the budget.

**TAXES:**

**80 State Public Utility Tax & Other Excise Taxes**

**81 State Privilege Tax**

**82 City Occupation Taxes**

**88 Payroll Taxes**

**EMPLOYEE BENEFITS:**

**101 Employee Benefits**

**104 Other Employee Costs**

Includes expenses made for the benefit of employees.

Some examples of expenses included here are:

\*Purchase of tools supplied to employees

\*School Reimbursements

\*Medical exams

**106 Vacation Accrual**

**CONSERVATION:**

**107 Residential Loans**

**108 Non-Reimbursed Conservation Costs**

Includes the commercial program, flow restrictors, outlet gaskets, etc.

**109 Conservation Advertising**

Includes all conservation advertising costs

**111 Electric Vehicle**

Includes all expenses incurred under the Electrification of Transportation Plan which was adopted by the commission on November 12, 2019, resolution 2521.

**112 Residential Conservation Expenses**

Includes the Weatherization, Heat Pump, Water Heater and Duct Sealing Programs

**113 Commercial Conservation Expenses**

Includes small and medium general service and multi-family residential common area lighting improvements and small and medium general service building and equipment improvements

**114 Industrial Conservation Expense**

Includes reimbursable program expenses for industrial customers

**115 Agriculture Conservation Expenses**

Includes reimbursable program expenses only for the Agriculture programs

**116 Non-Federally Funded Conservation**

Includes non-BPA reimbursable program expenses only for Washington State licensed marijuana facility conservation projects

**117 Residential Appliance**

Includes reimbursable program expenses for washer, dryers, water heaters, along with lighting.

**118 Low Income Conservation**

Includes the Weatherization, Heat Pump, Water Heater and Duct Sealing Programs

**PUBLIC INFORMATION:**

**119 Public Information Expenses**

Includes safety and promotional expenses sponsored by the District, such as radio spots, demonstrations and newspaper ads

**PURCHASED ELECTRIC PLANT & EQUIPMENT:**

**120 Substation Transformers & Regulators**

Purchase of substation power transformers and regulators only.

**121 Substation Equipment & Materials**

Since substations as such are actually large pieces of electric equipment, it is intended that all expenses incurred for the construction of substations including work in progress purchases, which are not specifically budgeted elsewhere, shall be collected here.

Some examples of expenses included here are:

\*Miscellaneous purchased labor

\*Fencing materials or installed fencing

\*Materials used in construction of substations such as gravel, concrete, bar stock, wiring and other materials not budgeted elsewhere.

Does not include power transformers and regulators, substation demand meters and other metering devices for substations, labor contracted to build substations per bid or quote and Off-the-Dock labor.

**122 Line Devices**

Includes all expenses for protective and operational line equipment for transmission and distribution systems other than those line items included in substations

Some examples of expenses included here are:

\*Switches - line type only, except regulator bypass switches

\*Cutouts

\*Lightning arrestors (not included in the substation inventories)

**123 Transformers & Related Items**

Include only those items included in the distribution lines.

Some examples of expenses included here are:

- \*Distribution transformers
- \*Fiberglass enclosures
- \*Transformer vaults and pads (flat and with box)
- \*Miscellaneous installation of low value materials, unique to the items above.

**124 Meters & Related Items**

All meters and metering devices purchased by the District including substation metering, and related items.

Some examples of expenses included here are:

- \*Single phase demand and no demand meters
- \*Three phase demand and no demand meters
- \*Current transformers - including substation type
- \*Potential transformers - including substation type
- \*Demand registers - including substation type
- \*kW demand registers
- \*Compensators
- \*Enclosures
- \*Test switches - meter maintenance
- \*Miscellaneous materials used only in the installation of metering devices

**125 Land & Land Rights - Electric**

Includes all expenses associated with the acquisition of land and land rights for construction of electric plant.

Some examples of expenses included here are:

- \*Purchase price
- \*Taxes and escrow fees
- \*Survey and legal costs associated with the purchase of the land or land rights
- \*Other costs deemed necessary to obtain the property or rights

**126 SCADA Master Station Equipment**

Computers, monitors, printers, furniture, UPS, spare equipment, vendor support, remodeling costs

**127 SCADA Communications Equipment**

Master radio, repeater radio, RTU radios, antennas, coax cables, spares and test equipment

**128 SCADA Substation Equipment**

RTU transducers, cable, auxiliary relays, control modifications, enclosures, RTU test equipment

**129 SCADA Travel & Non-District Labor**

Consists of vendor training costs, travel expenses, consultants, BPA - metering modifications, contract labor

## **PURCHASED GENERAL PLANT & EQUIPMENT:**

### **130 Land & Land Rights - General**

Includes all expenses for the acquisition of land and land rights for the construction of office and operations facilities

Some examples of expenses included here are:

- \*Purchase price
- \*Taxes and escrow fees
- \*Survey and legal costs associated with the purchase of the property or rights.
- \*Other costs deemed necessary to obtain the property or rights.

### **131 Structures & Improvements**

Include expenses for the construction of buildings and the improvement of lands, buildings or other structures.

Some examples of expenses included here are:

- \*Site improvement costs, such as grading, graveling, paving and landscaping.
- \*Costs to build buildings or structures
- \*Improvements to buildings or structures
- \*Surveying costs associated with development of improvement

### **132 Office Equipment**

Includes all expenses for office furniture and equipment with a value of \$5,000 or more

### **133 Transportation Equipment**

Includes all expenses for motor driven or towed vehicles including any ancillary or auxiliary equipment attached to the vehicle with a value of \$5,000 or more

The term vehicle includes:

- \*Automobiles
- \*Trucks
- \*Trailers
- \*Backhoes
- \*Forklifts

### **134 Tools, Shop & Stores Equipment**

Includes the cost of tools and equipment with a value of \$5,000 or more and purchased to accounts 393.00 - Stores Equipment or 394.00 - Tools, Shop and Garage Equipment.

Some items included here are:

- \*Stores cabinets and bins
- \*Work benches
- \*Shelving
- \*Tools for use in the Auto Shop, Meter Shop, Transformer Shop, Warehouse, Line Crews, and equipment used by same, but not specialized calibration and test equipment included at 135 below.

### **135 Laboratory & Test Equipment**

Includes the cost of specialized tools and equipment purchased to account 395.00 - Laboratory Equipment having a unit value of \$5,000 or more

Tools and equipment included here are of a type used to calibrate and/or test other tools or equipment items of electric plant such as meters, transformers, etc.

**136 Communication Equipment**

Includes the expense of all types of communication equipment purchased to account 397.00 - Communications Equipment, having a value of \$5,000 or more

Some items included here are:

- \*The telephone system
- \*Portable and mobile radios
- \*Radio base stations

Does not include communication equipment for linking information systems equipment together.

**137 Capitalized Computer Software**

**138 Computer Equipment**

Personal computers will be identified as a personal computer system and will normally include items such as keyboards, monitors, printers, modems, digitizers, plotters, etc.

All auxiliary equipment, such as that specified above, will be identified to a personal computer. If the total cost of the computer together with the auxiliary equipment identified to it costs or will cost \$5,000 or more, this will constitute a capital purchase and the items will be capitalized in account 391.00. Items added after initial purchase of a computer will be capitalized with the computer for which they are acquired. This will include replacing a floppy disk drive with a hard drive, network cards, etc.

**139 Miscellaneous General Plant**

Includes the cost of equipment purchased to account 398.00 Miscellaneous Equipment, having a value of \$5,000 or more. Equipment included here is usually not necessary to the operation of the business.

Some examples of expenses included here are:

- \*Cameras
- \*Other miscellaneous items

**140 Generation Plant & Equipment**

**DEBT SERVICE:**

**150 Principal**

Includes payment made to retire debt.

**151 Interest**

**153 Provision for Bond Reserve**

Includes monies set aside in special deposits or investments to insure payment of bond debts.

**PRODUCTS & SERVICES EXPENSES:**

**200 New Services Expenses**

Expenses related to providing services that the District offers customers. **These are services not related to the sale or delivery of energy.**

Some examples of expenses included here are:

- \*Postage for Mail Service for other companies
- \*Supplies for Glove Testing provided other utilities
- \*Supplies for Maintenance of Substations belonging to other utilities
- \*Home and Building Inspection expenses (non-Public Purpose)
- \*Advertising and Marketing expense including fees associated with "Home Shows" etc.

**201 New Product Expenses**

Expenses incurred in obtaining, selling, merchandising, and advertising products to consumers.

Some examples of expenses included here are:

- \*Purchase cost of light bulbs, appliances, surge suppressors, etc.
- \*Display booths
- \*Advertising and Marketing expense including fees associated with Home Show, Fair, etc.

**202 Mutual Aid & Other Reimbursable Expenses**

Non-labor expenses incurred by the District in providing mutual aid or maintenance and repair work to other utilities except for Maintenance of Substations (see 200).

Some examples of expenses included here are:

- \*Travel expenses
- \*Fuel
- \*Other miscellaneous costs

**OTHER MISCELLANEOUS EXPENSES:**

**301 Depreciation Expense**

**302 Amortized Conservation**

**303 WCEF Expense**

This is the expense for the one-time credit that residential customers will receive on their bill and the payment to the Housing Authority for weatherization.

**304 Grant Expense**

**REVENUE:**

**501 Retail Energy Sales**

**502 City Occupation Taxes**

- 503 Bad Debt Expense**
- 505 Wholesale Power Sales Revenue**
- 510 Wholesale Transmission & Wheeling Sales**
- 515 Interest and Investment Income**
- 520 Electric Services Installation Revenue**
- 523 Pole Contact Rent Revenue**
  - \*Pole Contact Rental
  - \*Pole Contact Application Fees
- 525 Capital Contributions**
- 530 Property Rental Revenue**
  - \*Rent of Electric Property
  - \*Auditorium Rent
- 535 Microwave Site Rental**
- 545 Other Electric Revenue**
  - \*NSF check charges
  - \*Electric account service charge
  - \*Collection of write-offs
- 546 Miscellaneous Non-Electric Revenue**
- 547 WCEF Settlement Revenue**

This is the Washington Consumer Energy Fund settlement. A portion of the settlement will be given to the Housing Authority for weatherization. The remaining funds will be given back to residential customers as a one-time credit on their bill.
- 548 Grant Revenue**
- 549 SWIFT Grant Revenue**
- 550 Products & Services Revenue**
  - \*Substation Maintenance and Repair for other Utilities
  - \*Meter Shop Revenue
  - \*Glove Testing
  - \*Mail Service
  - \*Sale of Products (light bulbs, surge suppressors, etc.)
  - \*Energy Service Revenue (building inspection fees, etc.)
  - \*Block Heater Rental

560 Insurance Claim Revenue

570 Reserves (Gain or Loss)

**ADDITIONS & USAGE OF INVENTORY:** (for use in controlling the growth of Inventory)

994 Reel Deposits

996 CT Inventory

997 Substation Inventory

998 Fiber Optic Inventory

999 Non-Exempt Inventory





# Financial Plan

**Tab 7**



# 2020 BUDGET

## FINANCIAL PLAN - KEY ASSUMPTIONS

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The Financial Plan for 2020 is based on these key assumptions:

### GENERAL

- Conservative assumptions have been used in the development of the financial plan in accordance with the District's Financial Policies and prudent utility practice.
- The financial plan is based on accrued revenues and costs. To derive end-of-year cash balances, amounts are adjusted to remove non-cash items, to add non-cost cash items and to account for timing differences between accrued cost and cash.

### REVENUES

- The 2020 Budget reflects no revenue increase.
- Retail energy sales are based on the medium case of the Retail Energy Load Ten-Year Forecast, 2019-2028, approved by the Commission on May 7, 2019 (see Tab 8).
- Sales for Resale are consistent with the 2020 Power Supply Plan.

### POWER & TRANSMISSION COSTS (see Tab 10, 2019 Power Supply Plan, Section 4, for more details)

- **The District's net power cost is estimated using a "Risk Model or Probability of Occurrence Forecast."**
  - The purpose of the Risk Model is to define the distribution of possible outcomes taking into account changes in power cost variables.
  - The model is run 1,000 times to produce a probability curve of net power cost.
  - A conservative assumption of the 25<sup>th</sup> percentile of probability is used for budgeting purposes. Thus 75% of the model's net power cost outcomes were equal to or less than the budgeted net power cost.
  - The net power cost budget details are developed by choosing a single model result of occurrence at the 25<sup>th</sup> percentile of probability point and using its detail information.
- **Within the model, known variables were included as follows:**
  - The financial plan includes a proposed BPA rate increase effective October 1, 2020 and results in a 0% increase in the power base rate, a 3.6% increase in transmission rates and a Financial Reserve Policy (FRP) surcharge of 1.5%. In total, the increase in BPA rates equate to about an annual increase in costs to the District of about \$0.8 million, or 1.2%.
  - The forecast includes an irrigation mitigation annual benefit of \$3.5 million.
  - Net conservation program costs after reimbursement from BPA are expected to be \$0.3 million.
  - No Cost Recovery Adjustment Clause (CRAC) is assumed.
  - Court ordered additional spill costs are included in BPA's rates for 2020.
  - No slice true-up credit is assumed.
  - Power cost assumptions include the Frederickson contract cost through the contract period.
  - Power cost forecast assumes the EIA cost cap is not triggered.
  - No carbon cap and trade impact included in power forecast.

# FINANCIAL PLAN - KEY ASSUMPTIONS

*(CONTINUED)*

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## FINANCING

- No debt issuance is assumed in this forecast.
- Short-term borrowing may be used, if needed, to maintain cash flow requirements, but none is projected.

## CAPITAL

- Capital is based on the District's five-year Capital Requirement Plan (see Tab 9).

**Comparative Operating Statement  
Public Utility District No. 1 of Benton County  
2020 Budget**

	2018 Actual	2019 Forecast	2020 Budget
<b>Revenue Action Budget Assumption</b>			<b>0.00%</b>
<i>For planning purposes only, any future rate action would require Commission approval</i>			
<b>OPERATING REVENUES</b>			
Energy Sales - Retail	\$129,792,002	\$133,126,994	\$137,001,522
Energy Secondary Market Sales	24,618,712	19,142,235	19,518,637
Transmission of Power for Others	1,450,552	1,239,725	900,000
Broadband Revenue	2,250,450	2,413,253	2,638,253
Other Electric Revenue	1,756,987	1,517,400	1,523,700
<b>TOTAL OPERATING REVENUES</b>	<b>159,868,703</b>	<b>157,439,607</b>	<b>161,582,112</b>
<b>OPERATING EXPENSES</b>			
Purchased Power	92,569,841	97,250,499	89,629,388
Purchased Transmission & Ancillary Services	13,621,653	13,819,663	14,464,157
Conservation	(20,404)	743,123	343,793
Total Power Supply	106,171,090	111,813,285	104,437,338
Transmission Operation & Maintenance	163,952	176,440	165,419
Distribution Operation & Maintenance	8,925,667	10,100,476	11,523,052
Broadband Expense	936,989	948,000	1,071,293
Customer Accounting, Collections & Information	4,267,684	4,707,493	4,914,573
Administrative & General	6,660,053	7,299,890	7,683,735
Subtotal before NESC Compliance - Public Safety	20,954,345	23,232,299	25,358,072
NESC Compliance - Public Safety	719,367	525,984	557,000
Subtotal before Taxes & Depreciation	21,673,712	23,758,283	25,915,072
Taxes	13,812,993	14,339,000	14,689,000
Depreciation & Amortization	9,854,391	10,055,082	10,110,642
Total Other Operating Expenses	45,341,096	48,152,365	50,714,714
<b>TOTAL OPERATING EXPENSES</b>	<b>151,512,186</b>	<b>159,965,650</b>	<b>155,152,052</b>
<b>OPERATING INCOME (LOSS)</b>	<b>8,356,517</b>	<b>(2,526,043)</b>	<b>6,430,060</b>
<b>NONOPERATING REVENUES &amp; EXPENSES</b>			
Interest Income	1,144,102	1,263,967	1,000,000
Unrealized Gain/(Loss) on Investments	51,590	-	-
Other Income (includes BABs subsidy)	446,902	376,070	376,070
Interest Expense	(2,832,267)	(2,525,760)	(2,591,154)
Debt Premium/Discount & Expense Amortization	453,711	453,710	359,620
<b>TOTAL NONOPERATING REVENUES &amp; EXPENSES</b>	<b>(735,962)</b>	<b>(432,013)</b>	<b>(855,464)</b>
<b>NET INCOME (LOSS) BEFORE CONTRIBUTIONS</b>	<b>7,620,555</b>	<b>(2,958,056)</b>	<b>5,574,596</b>
<b>CAPITAL CONTRIBUTIONS</b>	<b>2,124,000</b>	<b>2,878,155</b>	<b>1,801,775</b>
<b>CHANGE IN NET ASSETS</b>	<b>\$9,744,555</b>	<b>(\$79,901)</b>	<b>\$7,376,371</b>
<b>CAPITAL REQUIREMENTS PLAN (Gross)</b>	<b>\$16,968,693</b>	<b>\$23,484,661</b>	<b>\$17,292,866</b>
<b>UNRESTRICTED RESERVES (End of Year)</b>	<b>\$56,296,378</b>	<b>\$43,776,703</b>	<b>\$37,455,539</b>

**Liquidity Measures  
Public Utility District No. 1 of Benton County  
2020 Budget**

<b>Unrestricted Reserves</b>	<b>2018 Actual</b>	<b>2019 Forecast</b>	<b>2020 Budget</b>
BEGINNING BALANCE	\$55,779,150	\$56,296,378	\$43,776,703
Revenues (excluding sales for resale)	135,442,033	138,697,684	142,539,545
Capital Contributions	2,124,000	2,878,155	1,801,775
Operating Expenses*	(114,665,237)	(129,828,608)	(124,822,773)
Amortization of White Creek	578,400	578,400	578,400
Debt Service and LOC	(6,597,877)	(6,561,487)	(6,563,987)
Gross Capital	(16,968,693)	(23,484,661)	(17,292,866)
BPA Prepay	438,742	438,742	438,742
Capitalized Interest	165,860	262,100	-
Carry Over/Timing of Cash Flow Expenditures		4,500,000	(3,000,000)
<b>ENDING BALANCE</b>	<b>\$56,296,378</b>	<b>\$43,776,703</b>	<b>\$37,455,539</b>

\* Operating expenses include gross power expense and exclude depreciation

<b>Days Cash on Hand</b>	<b>2018 Actual</b>	<b>2019 Forecast</b>	<b>2020 Budget</b>
Unrestricted Reserves	\$56,296,378	\$43,776,703	\$37,455,539
Gross Power Expense	106,171,090	111,813,285	104,437,338
Non-Power Operating Expenses	45,341,096	48,152,365	50,714,714
Depreciation	(9,854,391)	(10,055,082)	(10,110,642)
Amortization of White Creek/BPA Prepay	(1,017,142)	(1,017,142)	(1,017,142)
Operating Expenses (cash basis)	\$140,640,653	\$148,893,426	\$144,024,268
<b>DAYS CASH ON HAND</b>	<b>146</b>	<b>107</b>	<b>95</b>

<b>Days Liquidity on Hand</b>	<b>2018 Actual</b>	<b>2019 Forecast</b>	<b>2020 Budget</b>
Unrestricted Reserves + \$10M LOC	\$66,296,378	\$53,776,703	\$47,455,539
Operating Expenses (cash basis)	\$140,640,653	\$148,893,426	\$144,024,268
<b>DAYS LIQUIDITY ON HAND</b>	<b>172</b>	<b>132</b>	<b>120</b>

**Debt Measures**  
**Public Utility District No. 1 of Benton County**  
**2020 Budget**

<b>Debt Service Coverage</b>	<b>2018 Actual</b>	<b>2019 Forecast</b>	<b>2020 Budget</b>
Change in Net Assets	\$9,744,555	(\$79,901)	\$7,376,371
Depreciation	9,854,391	10,055,082	10,110,642
Amortization of White Creek	578,400	578,400	578,400
Amortization of BPA Prepay	438,742	438,742	438,742
GASB 68 Pension Expense	(1,371,215)	-	-
Interest Expense	2,378,556	2,072,050	2,231,534
Funds Available for Debt Service (FADS)	<b>\$21,623,429</b>	<b>\$13,064,373</b>	<b>\$20,735,689</b>
Debt Service	\$6,519,987	\$6,521,487	\$6,523,987
<b>DSC with capital contributions (Target = 2.0)</b>	<b>3.32</b>	<b>2.00</b>	<b>3.18</b>
<b>DSC without capital contributions (Target = 1.75)</b>	<b>2.99</b>	<b>1.56</b>	<b>2.90</b>

<b>Fixed Charge Coverage</b>	<b>2018 Actual</b>	<b>2019 Forecast</b>	<b>2020 Budget</b>
Change in Net Assets	\$9,744,555	(\$79,901)	\$7,376,371
Depreciation	9,854,391	10,055,082	10,110,642
Amortization of White Creek	578,400	578,400	578,400
Amortization of BPA Prepay	438,742	438,742	438,742
GASB 68 Pension Expense	(1,371,215)	-	-
Interest Expense	2,378,556	2,072,050	2,231,534
Frederickson Fixed Costs	7,525,230	7,090,507	7,968,083
34% of BPA Power & Transmission	24,325,536	24,494,069	26,105,008
Adjusted FADS	<b>\$53,474,195</b>	<b>\$44,648,949</b>	<b>\$54,808,780</b>
Debt Service	\$6,519,987	\$6,521,487	\$6,523,987
Frederickson Fixed Costs	7,525,230	7,090,507	7,968,083
34% of BPA Power & Transmission	24,325,536	24,494,069	26,105,008
Debt Service & Fixed Charges	<b>\$38,370,753</b>	<b>\$38,106,063</b>	<b>\$40,597,078</b>
<b>FCC Ratio (Target = 1.3)</b>	<b>1.39</b>	<b>1.17</b>	<b>1.35</b>

<b>Debt Ratio</b>	<b>2018 Actual</b>	<b>2019 Forecast</b>	<b>2020 Budget</b>
Revenue Bonds Outstanding	\$53,335,000	\$49,585,000	\$45,645,000
Capitalization (bonds + net assets)	\$187,234,572	\$183,756,372	\$187,192,742
<b>Debt Ratio</b>	<b>28%</b>	<b>27%</b>	<b>24%</b>

**Public Utility District No. 1 Of Benton County, Washington**  
**2019 - 2023 Retail Revenue and Kilowatt Hours (kWh) Forecast**  
(Medium Case, December 2019 Forecast)

<b>Forecast - 2019 Medium Case</b>	<b>Revenues</b>	<b>kWh</b>
Residential	\$63,289,112	743,133,556
Small Gen. Service	9,415,919	127,276,586
Medium Gen. Service	13,172,011	184,447,048
Large Gen. Service	14,790,021	231,935,466
Large Industrial	3,397,617	64,149,916
Small Ag Irrigation	888,509	13,046,879
Large Ag. Irrigation	21,510,386	386,145,331
Street Lighting	215,258	2,537,805
Security Lighting	264,129	989,905
Unmetered Accounts	202,387	2,981,718
<b>TOTAL</b>	<b>\$127,145,349</b>	<b>1,756,644,211</b>

<b>Forecast - 2020 Medium Case</b>	<b>Revenues</b>	<b>kWh</b>
Residential	\$64,359,432	734,707,848
Small Gen. Service	9,574,032	126,161,055
Medium Gen. Service	13,510,329	185,931,553
Large Gen. Service	15,221,413	232,106,199
Large Industrial	3,634,652	67,159,385
Small Ag Irrigation	1,040,100	15,297,129
Large Ag. Irrigation	22,771,485	411,045,178
Street Lighting	219,326	2,488,599
Security Lighting	297,762	1,030,841
Unmetered Accounts	218,625	3,080,090
<b>TOTAL</b>	<b>\$130,847,158</b>	<b>1,779,007,875</b>

<b>Forecast - 2021 Medium Case</b>	<b>Revenues</b>	<b>kWh</b>
Residential	\$64,722,299	737,685,686
Small Gen. Service	9,592,269	126,178,562
Medium Gen. Service	13,533,732	186,147,700
Large Gen. Service	15,138,307	230,791,924
Large Industrial	3,625,175	66,983,585
Small Ag Irrigation	1,037,152	15,258,778
Large Ag. Irrigation	22,770,974	411,035,417
Street Lighting	219,326	2,441,359
Security Lighting	297,762	1,027,609
Unmetered Accounts	219,435	3,090,631
<b>TOTAL</b>	<b>\$131,156,431</b>	<b>1,780,641,250</b>

<b>Forecast - 2022 Medium Case</b>	<b>Revenues</b>	<b>kWh</b>
Residential	\$65,249,414	742,922,411
Small Gen. Service	9,625,065	126,418,356
Medium Gen. Service	13,577,515	186,658,040
Large Gen. Service	15,076,350	229,801,839
Large Industrial	3,625,175	66,983,585
Small Ag Irrigation	1,034,227	15,220,787
Large Ag. Irrigation	22,770,974	411,035,417
Street Lighting	219,326	2,401,138
Security Lighting	297,762	1,027,609
Unmetered Accounts	220,803	3,109,903
<b>TOTAL</b>	<b>\$131,696,612</b>	<b>1,785,579,085</b>

<b>Forecast - 2023 Medium Case</b>	<b>Revenues</b>	<b>kWh</b>
Residential	\$65,733,385	747,605,388
Small Gen. Service	9,650,222	126,548,586
Medium Gen. Service	13,609,859	187,006,313
Large Gen. Service	15,003,998	228,653,845
Large Industrial	3,625,175	66,983,585
Small Ag Irrigation	1,031,378	15,184,042
Large Ag. Irrigation	22,669,141	411,035,417
Street Lighting	219,326	2,362,601
Security Lighting	297,762	1,027,609
Unmetered Accounts	222,181	3,129,316
<b>TOTAL</b>	<b>\$132,062,429</b>	<b>1,789,536,702</b>

## Total kWh for 2019-2023

	Actual (January - October 2019)												Total		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
<b>Total kWh 2019</b>															
Residential	80,765,201	92,696,529	91,330,363	53,956,825	39,558,052	46,696,925	50,087,721	59,216,433	53,144,737	42,313,189	51,897,857	81,469,724	743,133,556		
Small Gen. Service	11,410,702	12,539,989	11,753,417	9,331,425	9,040,084	10,312,727	10,626,410	11,945,486	11,300,764	9,068,416	9,014,962	10,932,205	127,276,586		
Medium Gen. Service	15,483,483	15,984,846	15,084,933	14,008,848	14,001,025	15,589,947	15,234,640	16,761,798	16,480,805	15,077,499	15,049,462	15,689,762	184,447,048		
Large Gen. Service	18,581,986	17,721,024	17,041,004	17,834,713	17,272,240	19,710,360	20,089,880	22,490,040	21,740,520	20,373,620	19,793,374	18,586,705	231,935,466		
Large Industrial	5,349,440	5,300,040	5,994,520	5,381,800	5,244,640	5,136,200	3,461,920	5,909,720	5,492,600	5,818,520	5,650,557	5,409,959	64,149,916		
Small Ag Irrigation	64,108	48,733	62,383	501,057	1,949,657	2,495,059	2,651,102	2,629,921	1,791,518	852,470	870	1	13,046,879		
Large Ag. Irrigation	292,485	218,680	1,056,282	19,869,269	55,855,505	94,826,910	90,606,935	71,725,112	30,406,137	18,346,036	2,688,332	253,648	386,145,331		
Street Lighting	211,760	211,838	212,534	212,284	212,278	212,312	212,310	212,134	212,107	212,001	208,078	208,169	2,537,805		
Security Lighting	82,454	81,715	87,981	81,924	81,362	81,210	81,090	80,347	80,026	79,542	86,135	86,118	989,905		
Unmetered Accounts	245,945	246,158	246,223	246,223	246,485	246,879	246,956	246,964	242,539	256,297	255,524	255,524	2,981,718		
<b>TOTAL Retail kWh SALES:</b>	<b>132,487,564</b>	<b>145,049,552</b>	<b>142,869,640</b>	<b>121,424,368</b>	<b>144,161,328</b>	<b>195,308,529</b>	<b>193,298,964</b>	<b>191,217,955</b>	<b>140,891,753</b>	<b>112,397,590</b>	<b>104,645,152</b>	<b>132,891,816</b>	<b>1,756,644,211</b>		
<b>Total kWh 2020</b>															
Residential	95,350,938	83,471,019	60,231,896	49,358,262	42,222,014	49,659,417	59,601,047	64,744,633	53,355,901	41,809,612	52,495,384	82,407,727	734,707,848		
Small Gen. Service	12,059,093	11,266,990	9,077,186	9,114,991	9,328,254	10,552,179	11,570,988	12,425,209	11,240,558	9,459,018	9,068,933	10,997,655	126,161,055		
Medium Gen. Service	16,351,495	15,744,265	13,432,214	13,961,429	14,139,381	15,497,894	16,406,029	17,150,584	16,391,333	15,910,564	15,150,876	15,795,490	185,931,553		
Large Gen. Service	18,375,643	18,036,993	16,530,983	17,544,402	18,080,564	19,524,115	20,779,185	21,570,529	21,695,375	21,569,360	19,803,157	18,595,892	232,106,199		
Large Industrial	5,792,024	5,413,148	5,676,671	5,694,743	5,299,507	5,728,301	5,545,746	6,054,719	4,995,700	5,869,281	5,665,387	5,424,158	67,159,385		
Small Ag Irrigation	6	59	523,191	1,385,673	2,128,616	2,558,246	2,959,508	2,777,817	1,966,762	996,381	868	1	15,297,129		
Large Ag. Irrigation	273,170	318,669	11,250,499	38,984,311	60,742,714	83,926,749	89,880,902	66,229,762	34,605,592	21,865,711	2,711,285	255,813	411,045,178		
Street Lighting	211,203	211,157	211,185	211,081	205,583	205,527	205,320	205,499	205,475	205,504	205,488	205,577	2,488,599		
Security Lighting	87,061	87,029	86,885	86,759	83,605	83,582	83,631	86,555	86,498	86,442	86,406	86,389	1,030,841		
Unmetered Accounts	255,543	255,485	255,485	255,422	255,669	255,669	256,109	258,877	258,848	257,368	257,807	257,807	3,080,090		
<b>TOTAL Retail kWh SALES:</b>	<b>148,756,176</b>	<b>134,804,814</b>	<b>117,276,195</b>	<b>136,597,073</b>	<b>152,485,906</b>	<b>187,991,679</b>	<b>207,288,464</b>	<b>191,504,185</b>	<b>144,802,042</b>	<b>118,029,241</b>	<b>105,445,591</b>	<b>134,026,510</b>	<b>1,779,007,875</b>		
<b>Total kWh 2021</b>															
Residential	95,737,404	83,809,334	60,476,021	49,558,315	42,393,144	49,860,691	59,842,616	65,007,049	53,572,157	41,979,070	52,708,152	82,741,733	737,685,686		
Small Gen. Service	12,060,767	11,268,554	9,078,446	9,116,256	9,329,549	10,553,643	11,572,593	12,426,934	11,242,118	9,460,330	9,070,192	10,999,181	126,178,562		
Medium Gen. Service	16,370,504	15,762,568	13,447,829	13,977,660	14,155,818	15,515,910	16,425,101	17,170,521	16,410,388	15,929,060	15,168,489	15,813,853	186,147,700		
Large Gen. Service	18,271,593	17,934,861	16,437,378	17,445,059	17,978,185	19,413,562	20,661,525	21,448,388	21,572,527	21,447,226	19,691,024	18,490,595	230,791,924		
Large Industrial	5,776,863	5,398,978	5,661,812	5,679,837	5,285,634	5,713,306	5,531,229	6,038,870	4,982,623	5,853,918	5,650,557	5,409,959	66,983,585		
Small Ag Irrigation	6	59	521,880	1,382,199	2,123,280	2,551,832	2,952,088	2,770,853	1,961,831	993,883	866	1	15,258,778		
Large Ag. Irrigation	273,163	318,662	11,250,232	38,983,385	60,741,271	83,924,756	89,878,768	66,228,190	34,604,770	21,865,192	2,711,221	255,807	411,035,417		
Street Lighting	207,193	207,149	207,176	207,074	201,680	201,626	201,423	201,598	201,574	201,604	201,587	201,675	2,441,359		
Security Lighting	86,788	86,756	86,612	86,487	83,343	83,320	83,368	86,283	86,227	86,171	86,135	86,118	1,027,609		
Unmetered Accounts	256,417	256,360	256,360	256,296	256,544	256,544	256,985	259,763	259,734	258,248	258,689	258,689	3,090,631		
<b>TOTAL Retail kWh SALES:</b>	<b>149,040,699</b>	<b>135,043,280</b>	<b>117,423,745</b>	<b>136,692,568</b>	<b>152,548,448</b>	<b>188,075,191</b>	<b>207,405,696</b>	<b>191,638,449</b>	<b>144,893,950</b>	<b>118,074,701</b>	<b>105,546,912</b>	<b>134,257,612</b>	<b>1,780,641,250</b>		
<b>Total kWh 2022</b>															
Residential	96,417,030	84,404,285	60,905,331	49,910,123	42,694,087	50,214,645	60,267,430	65,468,525	53,952,458	42,277,073	53,082,320	83,329,104	742,922,411		
Small Gen. Service	12,083,688	11,289,969	9,095,699	9,133,580	9,347,279	10,573,700	11,594,586	12,450,550	11,263,483	9,478,309	9,087,429	11,020,084	126,418,356		
Medium Gen. Service	16,415,385	15,805,782	13,484,697	14,015,981	14,194,627	15,558,448	16,470,132	17,217,596	16,455,379	15,972,731	15,210,075	15,857,208	186,658,040		
Large Gen. Service	18,193,209	17,857,921	16,366,862	17,370,221	17,901,060	19,330,279	20,572,888	21,356,376	21,479,983	21,355,219	19,606,551	18,411,272	229,801,839		
Large Industrial	5,776,863	5,398,978	5,661,812	5,679,837	5,285,634	5,713,306	5,531,229	6,038,870	4,982,623	5,853,918	5,650,557	5,409,959	66,983,585		
Small Ag Irrigation	6	59	520,580	1,378,758	2,117,993	2,545,478	2,944,738	2,763,954	1,956,947	991,408	864	1	15,220,787		
Large Ag. Irrigation	273,163	318,662	11,250,232	38,983,385	60,741,271	83,924,756	89,878,768	66,228,190	34,604,770	21,865,192	2,711,221	255,807	411,035,417		
Street Lighting	203,780	203,736	203,763	203,663	198,358	198,304	198,104	198,277	198,253	198,282	198,266	198,352	2,401,138		
Security Lighting	86,788	86,756	86,612	86,487	83,343	83,320	83,368	86,283	86,227	86,171	86,135	86,118	1,027,609		
Unmetered Accounts	258,016	257,958	257,958	257,894	258,144	258,144	258,588	261,383	261,354	259,859	260,302	260,302	3,109,903		
<b>TOTAL Retail kWh SALES:</b>	<b>149,707,928</b>	<b>135,624,106</b>	<b>117,833,548</b>	<b>137,019,928</b>	<b>152,821,795</b>	<b>188,400,381</b>	<b>207,799,831</b>	<b>192,070,003</b>	<b>145,241,476</b>	<b>118,338,161</b>	<b>105,893,719</b>	<b>134,828,209</b>	<b>1,785,579,085</b>		
<b>Total kWh 2023</b>															
Residential	97,024,790	84,936,323	61,289,245	50,224,729	42,963,207	50,531,171	60,647,323	65,881,203	54,292,545	42,543,565	53,416,922	83,854,366	747,605,388		
Small Gen. Service	12,096,136	11,301,599	9,105,069	9,142,989	9,356,908	10,584,592	11,606,531	12,463,376	11,275,086	9,488,073	9,096,790	11,031,436	126,548,586		
Medium Gen. Service	16,446,013	15,835,273	13,509,857	14,042,132	14,221,112	15,587,478	16,500,562	17,249,721	16,486,082	16,002,533	15,238,454	15,886,795	187,006,313		
Large Gen. Service	18,102,324	17,768,711	16,285,100	17,283,447	17,811,633	19,233,712	20,470,114	21,249,688	21,372,677	21,248,537	19,508,604	18,319,297	228,653,845		
Large Industrial	5,776,863	5,398,978	5,661,812	5,679,837	5,285,634	5,713,306	5,531,229	6,038,870	4,982,623	5,853,918	5,650,557	5,409,959	66,983,585		
Small Ag Irrigation	6	59	519,323	1,375,429	2,112,880	2,539,333	2,937,629	2,757,282	1,952,222	989,015	862	1	15,184,042		
Large Ag. Irrigation	273,163	318,662	11,250,232	38,983,385	60,741,271	83,924,756	89,878,768	66,228,190	34,604,770	21,865,192	2,711,221	255,807	411,035,417		
Street Lighting	200,509	200,466	200,493	200,394	195,174	195,121	194,925	195,094	195,071	195,100	195,081	195,169	2,362,601		
Security Lighting	86,788	86,756	86,612	86,487	83,343	83,320	83,368	86,283	86,227	86,171	86,135	86,118	1,027,609		
Unmetered Accounts	259,627	259,568	259,568	259,504	259,755	259,755	260,202	263,015	262,985	261,481	261,927	261,927	3,129,316		
<b>TOTAL Retail kWh SALES:</b>	<b>150,266,219</b>	<b>136,106,395</b>	<b>118,167,313</b>	<b>137,278,333</b>	<b>153,030,918</b>	<b>188,652,546</b>	<b>208,110,951</b>	<b>192,412,722</b>	<b>145,510,289</b>	<b>118,533,584</b>	<b>106,166,556</b>	<b>135,300,876</b>	<b>1,</b>		

## Total Revenue for 2019-2023

	Actual (January - October 2019)												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>Total Revenue 2019</b>													
Residential	\$6,597,062	\$7,439,824	\$7,271,368	\$4,677,982	\$3,625,161	\$4,166,269	\$4,386,522	\$5,073,654	\$4,624,872	\$3,882,749	\$4,664,016	\$6,879,633	\$63,289,112
Small Gen. Service	832,063	905,459	845,840	699,905	677,891	763,539	780,788	868,710	827,608	690,133	696,673	827,309	9,415,919
Medium Gen. Service	1,131,401	1,171,010	1,121,885	990,485	927,779	1,032,036	1,005,808	1,093,397	1,185,796	1,182,581	1,141,912	1,187,921	13,172,011
Large Gen. Service	1,211,889	1,173,994	1,151,666	1,104,311	1,078,574	1,174,561	1,183,553	1,308,885	1,401,142	1,374,982	1,361,104	1,265,360	14,790,021
Large Industrial	280,534	282,413	305,416	279,871	274,812	274,474	205,417	301,562	284,774	308,165	304,598	295,581	3,397,617
Small Ag Irrigation	7,389	6,203	8,744	47,810	130,144	158,875	166,767	165,884	120,181	70,370	3,044	3,098	888,509
Large Ag. Irrigation	116,699	113,423	244,249	1,361,831	3,051,408	4,791,509	4,595,543	3,763,565	1,792,163	1,222,618	333,161	124,217	21,510,386
Street Lighting	17,833	17,839	17,887	17,872	17,872	17,875	17,875	17,856	17,852	17,845	18,326	18,326	215,258
Security Lighting	21,785	21,541	21,706	21,673	21,061	21,530	21,484	21,322	21,256	21,138	24,817	24,817	264,129
Unmetered Accounts	16,608	16,623	16,627	16,627	16,645	16,672	16,677	16,677	16,376	17,306	17,774	17,774	202,387
<b>TOTAL REVENUE:</b>	<b>\$10,233,263</b>	<b>\$11,148,329</b>	<b>\$11,005,388</b>	<b>\$9,218,367</b>	<b>\$9,821,347</b>	<b>\$12,417,340</b>	<b>\$12,380,434</b>	<b>\$12,631,512</b>	<b>\$10,292,020</b>	<b>\$8,787,887</b>	<b>\$8,565,425</b>	<b>\$10,644,037</b>	<b>\$127,145,349</b>
<b>Total Revenue 2020</b>													
Residential	\$7,895,860	\$6,932,298	\$5,301,944	\$4,470,576	\$3,973,742	\$4,496,017	\$5,260,717	\$5,641,963	\$4,772,372	\$3,949,539	\$4,711,529	\$6,952,876	\$64,359,432
Small Gen. Service	901,687	839,251	703,964	703,357	720,925	798,946	869,946	926,752	845,012	730,291	701,209	832,692	9,574,032
Medium Gen. Service	1,155,657	1,115,912	977,995	1,007,203	1,019,725	1,119,071	1,178,870	1,223,439	1,324,212	1,157,061	1,093,624	1,137,560	13,510,329
Large Gen. Service	1,167,666	1,155,880	1,081,180	1,144,119	1,187,631	1,276,034	1,354,454	1,401,223	1,568,815	1,392,543	1,291,679	1,200,190	15,221,413
Large Industrial	305,495	292,949	305,915	309,057	293,015	310,704	301,847	320,622	279,222	314,366	305,249	296,210	3,634,652
Small Ag Irrigation	3,141	2,840	44,500	102,045	141,670	165,213	187,271	177,016	132,440	77,738	3,086	3,141	1,040,100
Large Ag. Irrigation	117,033	133,777	810,873	2,175,506	3,295,160	4,383,431	4,609,868	3,504,585	1,995,020	1,289,276	333,815	123,141	22,771,485
Street Lighting	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	219,326
Security Lighting	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	297,762
Unmetered Accounts	18,138	18,134	18,134	18,130	18,147	18,147	18,179	18,375	18,373	18,268	18,299	18,299	218,625
<b>TOTAL REVENUE:</b>	<b>\$11,607,769</b>	<b>\$10,534,131</b>	<b>\$9,287,595</b>	<b>\$9,973,084</b>	<b>\$10,693,106</b>	<b>\$12,610,653</b>	<b>\$13,824,242</b>	<b>\$13,257,067</b>	<b>\$10,978,556</b>	<b>\$8,972,173</b>	<b>\$8,501,580</b>	<b>\$10,607,201</b>	<b>\$130,847,158</b>
<b>Total Revenue 2021</b>													
Residential	\$7,936,465	\$6,968,187	\$5,332,049	\$4,497,048	\$3,998,489	\$4,522,622	\$5,290,706	\$5,673,507	\$4,800,128	\$3,974,247	\$4,739,064	\$6,989,787	\$64,722,299
Small Gen. Service	903,241	840,657	705,489	704,839	722,457	800,445	871,504	928,320	846,523	731,834	702,703	834,255	9,592,269
Medium Gen. Service	1,157,653	1,117,798	979,782	1,009,005	1,021,563	1,121,003	1,180,894	1,225,516	1,326,386	1,159,062	1,095,529	1,139,541	13,533,732
Large Gen. Service	1,161,316	1,149,569	1,075,318	1,137,890	1,181,169	1,269,060	1,347,046	1,393,552	1,560,190	1,384,919	1,284,623	1,193,656	15,138,307
Large Industrial	304,698	292,185	305,118	308,251	292,251	309,894	301,060	319,786	278,494	313,546	304,453	295,438	3,625,175
Small Ag Irrigation	3,104	2,807	44,359	101,761	141,286	164,770	186,772	176,543	132,079	77,514	3,050	3,104	1,037,152
Large Ag. Irrigation	117,033	133,776	810,856	2,175,457	3,295,084	4,383,330	4,609,761	3,504,504	1,994,975	1,289,248	333,810	123,140	22,770,974
Street Lighting	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	219,326
Security Lighting	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	297,762
Unmetered Accounts	18,206	18,202	18,202	18,197	18,215	18,215	18,246	18,443	18,441	18,336	18,367	18,367	219,435
<b>TOTAL REVENUE:</b>	<b>\$11,644,806</b>	<b>\$10,566,270</b>	<b>\$9,314,263</b>	<b>\$9,995,539</b>	<b>\$10,713,606</b>	<b>\$12,632,429</b>	<b>\$13,849,079</b>	<b>\$13,283,264</b>	<b>\$11,000,307</b>	<b>\$8,991,798</b>	<b>\$8,524,689</b>	<b>\$10,640,380</b>	<b>\$131,156,431</b>
<b>Total Revenue 2022</b>													
Residential	\$7,998,508	\$7,022,837	\$5,375,612	\$4,534,515	\$4,032,602	\$4,560,290	\$5,334,008	\$5,719,534	\$4,839,785	\$4,008,226	\$4,778,304	\$7,045,192	\$65,249,414
Small Gen. Service	906,188	843,365	708,060	707,371	725,064	803,163	874,398	931,324	849,334	734,468	705,242	837,088	9,625,065
Medium Gen. Service	1,161,392	1,121,372	983,033	1,012,319	1,024,931	1,124,625	1,184,699	1,229,445	1,330,573	1,162,808	1,099,083	1,143,236	13,577,515
Large Gen. Service	1,156,587	1,144,865	1,070,956	1,133,250	1,176,357	1,263,859	1,341,520	1,387,829	1,553,747	1,379,231	1,279,361	1,188,788	15,076,350
Large Industrial	304,698	292,185	305,118	308,251	292,251	309,894	301,060	319,786	278,494	313,546	304,453	295,438	3,625,175
Small Ag Irrigation	3,068	2,774	44,220	101,480	140,905	164,332	186,278	176,075	131,723	77,292	3,014	3,067	1,034,227
Large Ag. Irrigation	117,033	133,776	810,856	2,175,457	3,295,084	4,383,330	4,609,761	3,504,504	1,994,975	1,289,248	333,810	123,140	22,770,974
Street Lighting	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	219,326
Security Lighting	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	297,762
Unmetered Accounts	18,319	18,315	18,315	18,310	18,328	18,328	18,360	18,558	18,556	18,450	18,481	18,481	220,803
<b>TOTAL REVENUE:</b>	<b>\$11,708,883</b>	<b>\$10,622,579</b>	<b>\$9,359,261</b>	<b>\$10,034,044</b>	<b>\$10,748,614</b>	<b>\$12,670,911</b>	<b>\$13,893,175</b>	<b>\$13,330,146</b>	<b>\$11,040,276</b>	<b>\$9,026,360</b>	<b>\$8,564,840</b>	<b>\$10,697,522</b>	<b>\$131,696,612</b>
<b>Total Revenue 2023</b>													
Residential	\$8,055,053	\$7,072,668	\$5,415,633	\$4,569,050	\$4,064,175	\$4,595,009	\$5,373,802	\$5,761,766	\$4,876,287	\$4,039,687	\$4,814,437	\$7,095,817	\$65,733,385
Small Gen. Service	908,409	845,396	710,077	709,348	727,102	805,242	876,594	933,581	851,466	736,524	707,228	839,255	9,650,222
Medium Gen. Service	1,164,153	1,124,000	985,460	1,014,782	1,027,438	1,127,299	1,187,505	1,232,335	1,333,633	1,165,575	1,101,711	1,145,969	13,609,859
Large Gen. Service	1,151,060	1,139,371	1,065,856	1,127,829	1,170,733	1,257,787	1,335,070	1,381,149	1,546,233	1,372,592	1,273,218	1,183,101	15,003,998
Large Industrial	304,698	292,185	305,118	308,251	292,251	309,894	301,060	319,786	278,494	313,546	304,453	295,438	3,625,175
Small Ag Irrigation	3,030	2,740	44,083	101,206	140,535	163,906	185,798	175,620	131,376	77,076	2,978	3,030	1,031,378
Large Ag. Irrigation	118,116	135,009	814,968	2,146,883	3,270,718	4,450,356	4,666,957	3,479,055	1,960,955	1,251,163	292,936	82,026	22,669,141
Street Lighting	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	18,277	219,326
Security Lighting	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	24,814	297,762
Unmetered Accounts	18,434	18,429	18,429	18,425	18,443	18,443	18,474	18,674	18,672	18,565	18,597	18,597	222,181
<b>TOTAL REVENUE:</b>	<b>\$11,766,044</b>	<b>\$10,672,889</b>	<b>\$9,402,713</b>	<b>\$10,038,865</b>	<b>\$10,754,486</b>	<b>\$12,771,026</b>	<b>\$13,988,351</b>	<b>\$13,345,056</b>	<b>\$11,040,205</b>	<b>\$9,017,819</b>	<b>\$8,558,649</b>	<b>\$10,706,323</b>	<b>\$132,062,429</b>



# Retail Energy Sales Forecast

Tab 8





Public Utility District No. 1 of Benton County

# Ten Year Load & Customer Forecast 2019-2028

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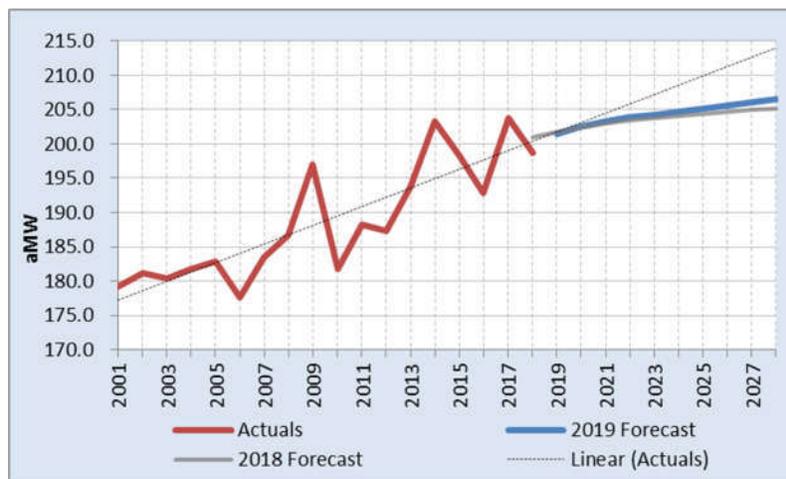
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## 1. Executive Summary

The Ten Year Load and Customer Forecast (Forecast) provides an estimate of the District's annual and monthly load and customer counts for each customer class and for the total system. The Forecast is developed annually and used as critical input to a number of different analyses and processes including the Cost of Service Analysis (COSA), the Integrated Resource Plan (IRP), Rate Analysis, Budgeting, Power Requirements Planning, and the Five-Year Capital Plan.

This year's Forecast expects the total system retail load in 2019 to be 201.5 aMW and the 5-year and 10-year annual average rates of growth to be 0.35% and 0.27%, respectively. The 2019 Forecast for calendar year 2019 is about the same as was estimated by the 2018 Forecast, but the 2019 Forecast has a slightly higher annual average rate of growth, as shown by the Forecast comparison in **Figure 1-1**.



**Figure 1-1 – Total system retail load comparison of 2019 Forecast to 2018 Forecast**

This year's Forecast expects continued growth in the District's number of customers, with the total system average annual customer count forecast to increase by 831 customers in 2019 and then by a rate of about 685 customers per year over the Forecast period.

The following are the key assumptions of the 2019 Forecast:

- Uses regression modeling to relate retail load to economic and weather variables.
- Assumes average weather based on the 12-year average of heating degree days, cooling degree days and precipitation.
- Includes 14.5 aMW of cumulative conservation over the ten year forecast period, based on the same conservation potential assessment inputs that were used for the 2018 Forecast.
- Includes increases in load expected in 2019 due to a new large irrigation project and for load increases realized in 2018 for large general service.
- Does not include a forecast for additions of customer generation, electric vehicles or electricity intensive loads and their potential impact on load.

Overall the 2019 Forecast reflects the continuing trend of the District having strong growth in our customer count, but a relatively low rate of retail load growth, primarily due to declining trends in energy usage per customer as a result of energy efficiency and conservation.

## 2. Forecast Methodology

### 2.1 Overview

The Ten Year Load and Customer Forecast (Forecast) is a forecast of the District’s total system and customer class annual and monthly energy (MWh), average power (aMW) and average annual number of customers. The Forecast inputs include historical load and average annual customer counts by customer class, plus historical and forecast weather and economic data. Regression modeling is used to establish a relationship between annual load, weather and economic variables as well as between the annual average customer count and the economic variables. The regression modeling results in a forecast for each customer class that is then combined with the conservation forecast and any manual adjustments as determined by Staff. Additional details of the Forecast methodology and assumptions are provided in the following sections.

### 2.2 Customer Classes

The Forecast results include a total system forecast that is a summation of the forecasts for each customer class. **Table 2-1** below summarizes the relationship of the District’s customer classes (i.e. revenue classes) to its rate schedules and also identifies the section of this report that discusses the Forecast results. Refer to the [District’s website](#) for detailed descriptions of the rate schedules.

**Table 2-1 – District customer class relationship to rate schedules**

Customer Class	Rate Schedule(s)	Report Section
<b>Total System</b>	All	4.0
<b>Residential</b>	11, 12	5.1
<b>Small General</b>	21, 90, 95	5.2
<b>Medium General</b>	22	5.3
<b>Large General</b>	23, 24	5.4
<b>Large Industrial</b>	34	5.5
<b>Small Irrigation</b>	71	5.6
<b>Large Irrigation</b>	72, 73, 74, 75, 76	5.7
<b>Street Lights</b>	51	5.8
<b>Security Lights</b>	61	5.9
<b>Unmetered Flats</b>	85	5.10

### 2.3 Historical Data

Historical monthly retail energy sales (MWh) and monthly customer counts (i.e. number of active services), as reported by the District’s monthly financial statements by customer class, are key inputs to the Forecast regression modeling. Additionally, the Forecast utilizes the historical monthly energy (MWh) and peak demand (MW) values reported by the Bonneville Power Administration (BPA) Meter Data Management Reporting (MDMR2) system for the District’s total system load at the BPA point-of-delivery (Meter #8110).

### 2.4 Economic Data

Economic variables are a key input for the Forecast’s regression modeling. The Energy Authority (TEA) subscribes to Woods & Poole Economic Forecasts, which are updated annually. The statements below from Woods & Poole provide a summary of their economic data, as described by *Summary Technical Description of the Woods & Poole Economics, Inc. 2018 Regional Projections and Database*:

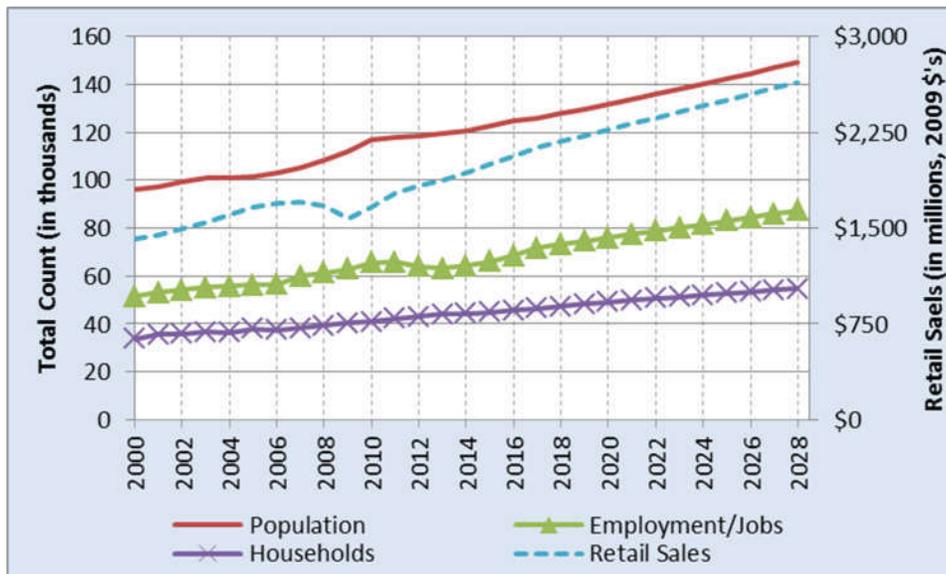
- “The Woods & Poole Economics, Inc. database contains more than 900 economic and demographic variables for every county in the United States for every year from 1970 to 2050 or 1990 to 2050.”
- “This comprehensive database includes detailed population data by age, sex, and race; employment and earnings by major industry; personal income by source of income; retail sales by kind of business; and data on the number of households, their size, and their income. All of these variables are projected for each year through 2050.”
- “The Woods & Poole projection for each county in the United States is done simultaneously so that changes in one county will affect growth or decline in other counties.”

**Table 2-2** identifies the four Woods & Poole economic variables for Benton County that are utilized for the Forecast’s regression modeling.

**Table 2-2 – Woods & Poole economic variables utilized for regression modeling**

Economic Variable
Total population (in thousands)
Total employment (in thousands of jobs)
Total number of households (in thousands)
Total retail sales, including eating and drinking places sales (in millions of 2009 dollars)

In order to adjust the Benton County variables to more closely represent the District’s service territory, estimates for the City of Richland and West Richland are gathered by various sources such as the Washington State Office of Financial Management’s (OFM) website and Google Public Data Explorer, and backed out of the Benton County data totals. **Figure 2-1** shows the values of the economic variables from the years 2000 to 2028 for the District’s service territory estimate.



**Figure 2-1 – Estimates of economic variables from 2000-2028 for the District’s service territory**

## 2.5 Weather Data

Weather data from the Tri-Cities Airport Pasco, WA weather station is a key input for the Forecast’s regression modeling. **Table 2-3** identifies the three weather variables that are utilized.

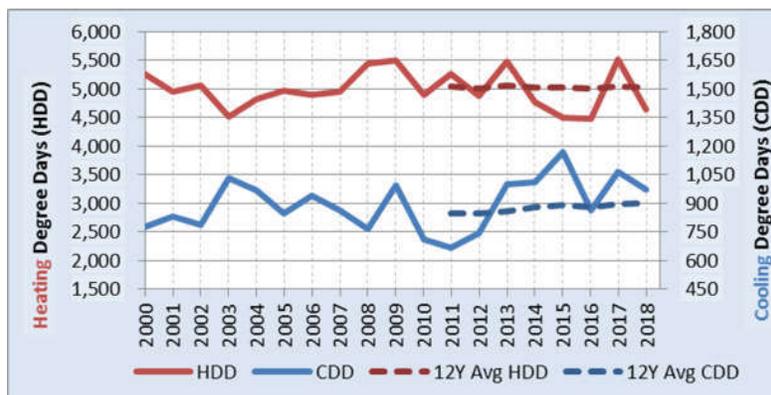
**Table 2-3 – Types of weather variables utilized for regression modeling**

Weather Variable
Heating degree days (HDD) <sup>1</sup>
Cooling degree days (CDD) <sup>1</sup>
Precipitation inches

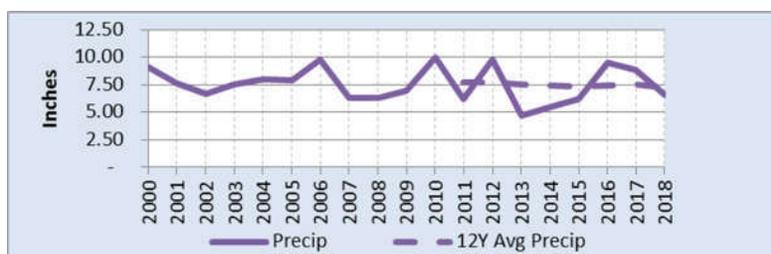
1) Degree days assume 65°F base

Heating degree days represent days where customers are forecasted to need heating services; whereas, cooling degree days represent days where customers are forecasted to need cooling services. As the need for heating and cooling services increases, the District’s customers’ energy usage increases as well. For the purposes of this forecast, heating and cooling degree days have been calculated using a 65 degree base. Precipitation is also used to correlate with loads, especially for the small and large irrigation customer classes.

In addition to the historical weather data being critical for the regression modeling, the data is utilized to calculate averages for each weather variable to define the “average weather” assumed for the base case forecast. For the 2019 forecast, the average weather was calculated using a 12-year average, similar to past years, but a change from the 5-year average that was utilized by last year’s forecast. The longer time period was selected because it is more representative of “average” weather and the high and low cases show a range for more extreme weather. **Figure 2-2** and **Figure 2-3** show the annual historical values for degree days and precipitation, respectively, including the 12-year average. **Table 2-4** summarizes the 12-year minimum, average and maximum values for the weather variables.



**Figure 2-2 – Annual heating and cooling degree days from 2000-2018 at Tri-Cities Airport**



**Figure 2-3 – Annual precipitation from 2000-2018 at Tri-Cities Airport**

**Table 2-4 – Weather variables 12-year min., avg. and max. values at Tri-Cities Airport**

Weather Variable	Minimum	Average (Base Case)	Maximum
Heating degree days (HDD) <sup>1</sup>	4,474	5,023	5,512
Cooling degree days (CDD) <sup>1</sup>	665	902	1,168
Precipitation inches	4.72	7.22	9.96

1) Degree days assume 65°F base

## 2.6 Regression Modeling

The main component of the Forecast methodology is the regression modeling that determines the correlation, or relationship, of historical loads to historical economic and weather variables to produce a trend line forecast. The District provides historical data and average weather assumptions to the Energy Authority (TEA), who the District has contracted with to perform the regression modeling. TEA runs the models they have developed using MATLAB® software and returns the model output to the District.

The relationship between the annual historical load data and the annual economic and weather variables is determined by partial least squares (PLS) regression. This is a typical approach when constructing predictive models with factors that are highly correlated, as is the case when dealing with econometric factors. PLS regression is a technique that generalizes and combines features from principal component analysis and multiple regressions. It is particularly useful when it is necessary to predict a set of dependent variables from a large set of independent variables. PLS regression tends to outperform multiple linear regressions when there are a large number of variables because it avoids over-fitting the data. An over fit model is one that is too complicated for the data set and can result in misleading forecasts of future behavior.

TEA utilizes separate regression models for load and customer forecasts for each customer class. **Table 2-5** for the load forecast and **Table 2-6** for the customer forecast summarize the input variables used by TEA’s regression models. In some cases District staff has overridden the model output (see Section 2.7 – Manual Adjustment); however this section is intended to document the “as-is” status of the TEA models, which have evolved over time.

**Table 2-5 – Load forecast regression model variables by customer class**

Customer Class	Input Years	Economic				Weather		
		Population	Employment	Households	Retail Sales	HDD	CDD	Precip
Residential	2000-2018	☑	☑	☑	☑	☑	☑	☑
Small General	2000-2018	☑	☑	☑	☑	☑	☑	☑
Medium General	2000-2018	☑	☑	☑	☑	☑	☑	☑
Large General	2001-2018	☑	☑	☑	☑	☑	☑	☑
Large Industrial	2002-2018	☑	☑	☑	☑	☑	☑	☑
Small Irrigation	2000-2018	☑	☑	☑	☑	☑	☑	☑
Large Irrigation	2000-2018	☑	☑	☑	☑	☑	☑	☑
Street Lights	2013-2018	☑	☑	☑	☑	☑	☑	☑
Security Lights	2000-2018	☑	☑	☑	☑	☑	☑	☑
Unmetered Flats	2006-2018	☑	☑	☑	☑	☑	☑	☑

**Table 2-6 – Customer forecast regression model variables by customer class**

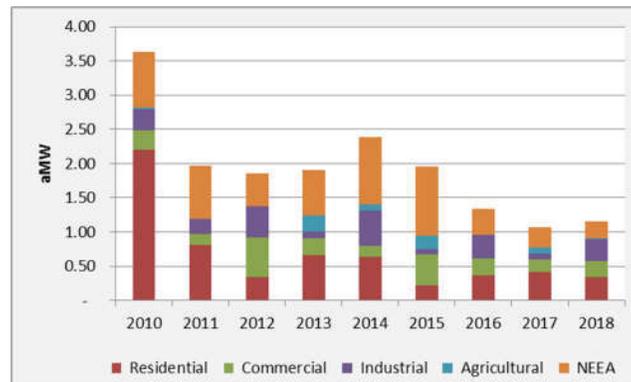
Customer Class	Input Years	Economic				Weather		
		Population	Employment	Households	Retail Sales	HDD	CDD	Precip
Residential	2005-2018	☑	☑	☑	☑	☑	☑	☑
Small General	2005-2018	☑	☑	☑	☑	☑	☑	☑
Medium General	2005-2018	☑	☑	☑	☑	☑	☑	☑
Large General	2005-2018	☑	☑	☑	☑	☑	☑	☑
Large Industrial	2005-2018	☑	☑	☑	☑	☑	☑	☑
Small Irrigation	2005-2018	☑	☑	☑	☑	☑	☑	☑
Large Irrigation	2005-2016	☑	☑	☑	☑	☑	☑	☑
Street Lights	2013-2018	☑	☑	☑	☑	☑	☑	☑
Security Lights	2005-2016	☑	☑	☑	☑	☑	☑	☑
Unmetered Flats	2006-2016	☑	☑	☑	☑	☑	☑	☑

## 2.7 Monthly Shaping

The regression modeling uses annual historical loads and annual economic and weather variables. To create a monthly forecast, the annual forecast values are shaped using a five year average of the percentage of the month's billed retail load compared to the annual billed retail load. Monthly regression modeling would be preferred, but currently the District's historical data is limited to the month billed rather than aligned with the actual month when the usage occurred. For example, a customer may be billed in February for usage that occurred from January 5 to February 5. Therefore, it would not be valid to find a correlation between the customers billed "February usage" and February weather, given that most of the usage actually occurred in January. The District is working on using advanced meter data combined with business intelligence analytics to overcome this limitation in the future, which would deliver significant improvements to the regression modeling.

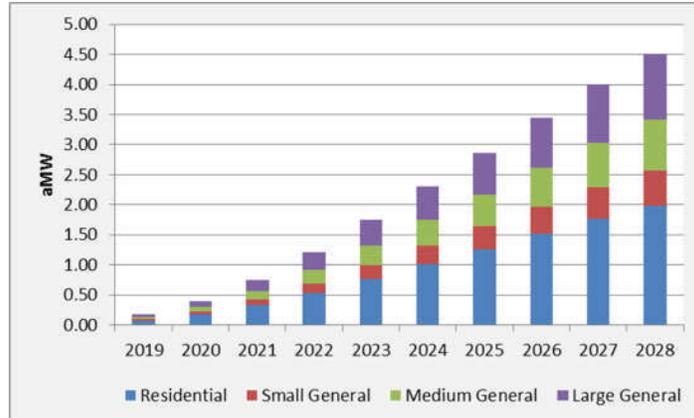
## 2.8 Conservation Forecast

In addition to natural energy saving effects due to electricity rate inflation and economic conditions, the District has an established conservation program in place to proactively assist our customers with efforts to reduce their energy consumption. In order to account for these extra efforts, the District uses the latest Conservation Potential Assessment (CPA) report as an input to the Forecast. The CPA details recent historical conservation savings and provides a 2-year, 10-year and 20-year forecast of conservation savings by customer sector. In October 2017, the District's Commission passed Resolution No. 2427 to adopt a new CPA, which was used as the input for both the 2018 and 2019 Forecasts. **Figure 2-4** shows the historical achieved conservation from 2010 to 2018 by customer sector.



**Figure 2-4 – Historical annual conservation by customer sector from 2010-2018**

The CPA's forecasted conservation by customer sector is allocated, by staff analysis, to the District's customer classes and then subtracted from the forecasted loads to account for load reductions associated with conservation activities. District staff observed that approximately 1.0 aMW of annual conservation has consistently been achieved since the year 2000. In order to account for the impact of historical conservation activities on the regression model's trend line, District staff subtracted 1.0 aMW from the CPA's annual conservation projection. Therefore, the Forecast only includes the expected annual incremental conservation savings above 1.0 aMW. **Figure 2-5** shows the forecast of annual cumulative incremental conservation by customer class for the years 2019-2028.



**Figure 2-5 - Forecast of annual cumulative incremental conservation by customer class from 2019-2028**

## 2.9 Manual Adjustment

Staff uses professional judgement to implement manual adjustments to the regression model’s forecast, primarily for two reasons: 1) to adjust for step-changes or high growth in load or customers that the regression analysis trend line would not be able to consider, and 2) to adjust for modeling results that do not reflect reasonable expectations. In general, it is preferred to make as few adjustments as possible and instead to focus on improving the modeling methodology.

Regarding item number two above, the regression modeling not only forecasts the values going forward, but it also determines the expected historical values given the historical actuals for the economic and weather variables. The regression modeling attempts to minimize the forecast error such that the modeled values align closely with the historical actuals, but there is always some model error. At times there is a need to adjust the starting point for the first year of the forecast (in this case 2019) to account for the forecast error between the previous year’s modeled and actual value (in this case 2018’s value). This “first year forecast error” can result in an over or under stated annual change from the last year of actuals to the first year of the forecast because the annual change includes the forecast error. Removing and/or smoothing the first year forecast error is a common type of adjustment.

**Table 2-7** summarizes the manual adjustments that were utilized for the Forecast.

**Table 2-7 – Manual adjustments applied to the forecast after regression modeling**

Customer Class	Adjustment Type	Adjustment Description
<b>Residential</b>	Customer	1) Removed first year forecast error 2) Increased customer growth per month from model’s 50 to 55 customers per month for 2019
<b>Small General</b>	Customer	3) Removed first year forecast error
<b>Medium General</b>	Customer	4) Removed first year forecast error
<b>Large General</b>	Customer & Load	5) Removed first year forecast error 6) Added 1.0 aMW given the model’s lower than expected 2019 forecast and known customer additions in 2018 over 2017, resulting in a new expected normal going forward 7) Removed model’s baseline negative load growth to return the load forecast to flat (prior to the conservation adjustment)

Customer Class	Adjustment Type	Adjustment Description
Large Industrial	Customer & Load	8) Kept load and customer forecasts flat
Small Irrigation	None	None
Large Irrigation	Customer & Load	9) Kept load and customer forecasts flat, except for item 10 10) Added 1.0 aMW for a new irrigation project expected to operate at 60% in 2019 and 100% thereafter
Street Lights	None	None
Security Lights	Customer & Load	11) Kept load and customer forecasts flat
Unmetered Flats	None	None

## 2.10 System Losses

The historical customer class load data used for the Forecast is based on the District’s billed load, which includes both District metered and unmetered loads. The unmetered loads (street lighting, security lighting and flats) utilize estimates for monthly energy consumption. The aggregation of District billed loads is referred to as “retail load” and this term implies the exclusion of losses associated with serving this load over the District’s transmission and distribution system or the Bonneville Power Administration’s (BPA’s) system. Refer to the following paragraphs for additional background on system losses and to **Appendix A, Table 6-1** for a summary of the how the losses impact the total system load.

The Bonneville Power Administration (BPA) separately meters the District’s load. The District’s contract with BPA defines both a “point-of-delivery” and a “point-of-metering”. The aggregation of load measured by BPA’s points-of-metering will include the District’s entire retail load, as defined above, but only a portion of the losses associated with the District’s transmission and distribution system, because not all of BPA’s meters are physically positioned to measure 100% of the losses at their locations. For example, BPA metering is typically installed on the low-side of a substation power transformer and therefore does not measure the losses associated with the District’s power transformer. Another example is when BPA metering is installed at the substation, but the point-of-delivery is defined at a point upstream where the District’s transmission line taps BPA’s line. For billing, BPA estimates the losses associated with the difference between the point-of-metering and the point-of-delivery. BPA’s billed aggregate load at the point-of-delivery, also referred to as the District’s “wholesale load”, is inclusive of the District’s entire retail load and the District’s entire transmission and distribution system losses.

The difference between BPA’s billed total load at the point-of-delivery and the District’s billed retail load is equal to the District’s transmission and distribution system losses. These losses are typically represented as a percentage of the total point-of-delivery load. The Forecast assumes for 2019 to 2028 that the District’s transmission and distribution system losses are 3.3%, which is the ten year average of historical annual losses.

The District is not only responsible for procuring the energy necessary to serve our customers’ load and our system losses, but also the losses associated with the transport of electricity over BPA’s equipment and power lines from regional generation resources to our points-of-delivery. BPA transmission customers are required to return real power losses to BPA. Schedule 9 of BPA’s Open Access Transmission Tariff (OATT) sets the real power loss factor at 1.9% of kWh delivered.

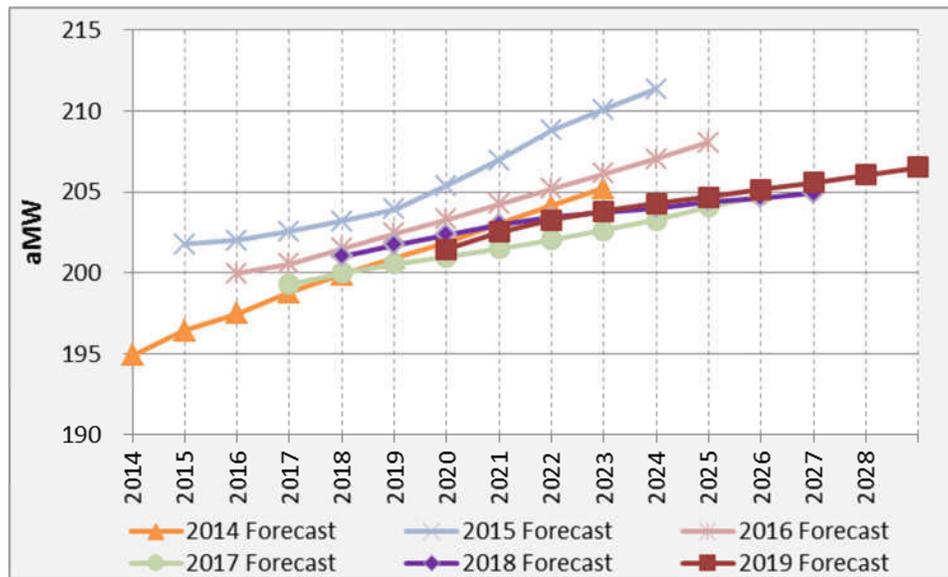
## 2.11 Peak Forecast

To calculate a monthly peak forecast, a five year monthly average load factor was calculated using the historical relationship between monthly average total retail load with assumed losses and the monthly BPA point-of-delivery peak demand. The calculated load factor was then applied to the monthly load forecast to generate peak demands for every month. **Appendix A – Summary Tables, Table 6-1** includes the historical and forecast of the system peak hourly demand.

## 3. Forecast Considerations

### 3.1 Forecast History

**Figure 3-1** shows the past five years of ten year forecasts of total system retail load from 2014 to 2018 and the current 2019 ten year forecast. As seen in the graph, the more recent forecasts have a lower growth rate compared to past years based on the flattening slopes of the recent forecasts. The Forecast’s growth rate has trended downward similar to what has been observed regionally by the Pacific Northwest Utilities Conference Committee (PNUCC).



**Figure 3-1 – Total system retail load ten year forecasts from 2014 to 2019**

### 3.2 Forecast Variances

A number of factors can cause variations from the Forecast compared to actuals, including weather, large irrigation customer crop rotations and unforeseen new loads or loss of loads. The most common driver of the variance is weather, given that the Forecast is based on average weather. **Figure 3-2** below shows that over the past 10 years the District’s total system retail load forecast variance has ranged from +5.9% to -3.7%. For an annual forecast near 200 aMW, a 5% variance is equivalent to 10 aMW. **Table 3-1** shows the variance by customer class for the 2018 forecast versus actuals.

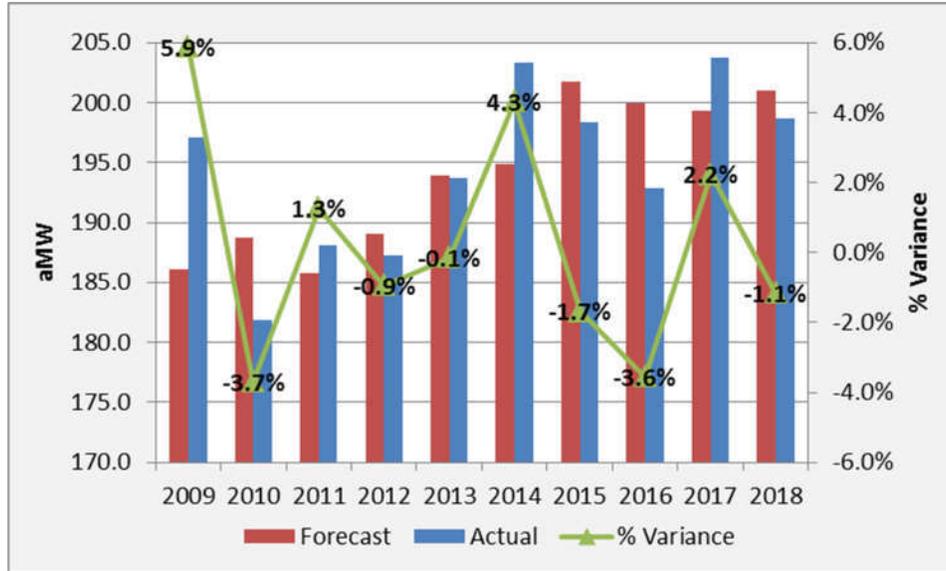


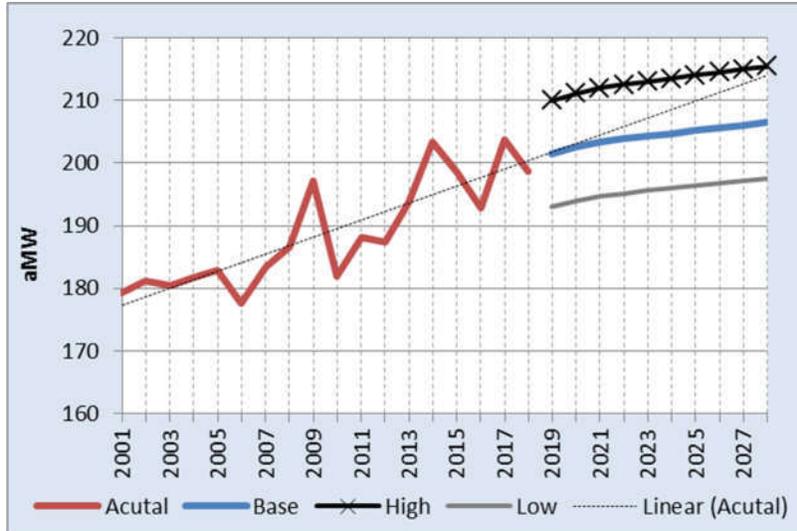
Figure 3-2 – Forecast vs. actuals variance of total system retail load from 2009 to 2018

Table 3-1 – Forecast vs. actuals variance of retail load (aMW) by customer class for 2018

Customer Class	2018 Forecast	2018 Actual	2018 % Variance
Residential	82.2	79.6	-3.2%
Small General	14.3	14.3	0.0%
Medium General	21.0	20.9	-0.5%
Large General	25.4	27.2	7.1%
Large Industrial	7.7	7.5	-2.6%
Small Irrigation	1.7	1.7	0.0%
Large Irrigation	47.9	46.7	-2.5%
Street Lights	0.3	0.3	0.0%
Security Lights	0.1	0.1	0.0%
Unmetered Flats	0.3	0.3	0.0%
<b>Total System</b>	<b>200.9</b>	<b>198.6</b>	<b>-1.1%</b>

### 3.3 Forecast High & Low Cases

To account for some of the load uncertainties, the District’s Forecast includes high and low cases, in addition to a base case load forecast. In past Forecasts, the high and low cases were based on adjusting the economic variables and/or the weather variables input to the regression modeling. Last year’s Forecast adjusted the economic variables up/down by 30% combined with using the five year maximum/minimum weather variables and also manual set the large irrigation class high/low values, resulting in high and low cases for the total system retail load that were about  $\pm 7.0\%$  ( $\pm 14$  MW), compared to the base case. For 2019, a different approach was utilized that adjusts the base case regression model output up/down based on a statistical analysis of the historical percentage deviation from the average from 2001 to 2018 for each customer class. These historical deviations are representative of variances that can be expected going forward, including for above or below average weather. For the 2019 Forecast, the high and low cases are  $\pm 4.2\%$  ( $\pm 8.5$  MW). **Figure 3-3** shows graphically the historical annual variability along with the Forecast base, high, and low case forecasts.



**Figure 3-3 –Total system retail load historical and base forecast with high and low case**

### 3.4 Load Preservation and Load Growth

Many utilities are experiencing lower retail sales growth due to a number of factors which may include general economic activity, energy efficiency programs, or customer self-generation from rooftop solar installations and community solar installations. Flattening or declining retail sales puts upward pressure on customer retail rates as general inflation causes costs to increase while sales remain stagnant. More importantly, about one-half of total utility costs are fixed costs such as poles, wires and substations required to safely and reliably serve customer loads. Fixed costs do not decrease as sales flatten or decrease.

Proactively growing loads has become a strategic focus for the District. This is primarily due to the fact that the District has surplus energy above what is required to meet loads (“long on resources”) on an annual average basis. When the District has excess energy from its resources, it sells the energy on the wholesale market. Wholesale market prices have declined significantly in recent years due a number of different factors including overbuilding of renewable generation due to state mandated renewable energy policies and large increases in natural gas supplies due to fracking technologies. By growing loads and selling the District’s energy at retail rather than wholesale, it will decrease pressure on customer retail rates. The District has partnered with TRIDEC and other local agencies to market and highlight areas within the District’s service territory that have excess capacity and are ready to interconnect new loads.

Due to the District’s interest in growing loads, staff is currently working to develop a New Large Load (NLL) policy that will address loads that are above the District’s Industrial Rate Schedule of 3.5 megawatts (MW) to 10 MW of demand. Rates for new loads in excess of 10 MW are currently subject to negotiations. The NLL policy will develop the process and procedure to facilitate the interconnection of a NLL while considering equity between the new customer and existing customers and possible economic benefit to our community.

### 3.5 Customer Generation

In 2018 the District added 169 new services for customer generation net metering and so far in 2019 the District has added another 48 new services through March 2019. The 2018 and 2019 year-to-date additions have increased the total number of services from 170 as of December 2017 to 381 as of March

2019. The services are predominantly roof top solar, with only about 3 services being wind. In addition to its net metered customers, the District has 154 customers that funded the construction of two community solar projects, the 74.8 kW Ely Community Solar Project in Kennewick, WA (commissioned July 1, 2015) and the 24.6 kW Old Inland Empire (OIE) Community Solar Project in Prosser, WA (commissioned March 4, 2016).

The aggregate of the District’s customer generation, including the District’s community solar projects, reduced the District’s retail load in 2018 by about 0.3 aMW or 2,666 MWh and had an hourly peak of 1.6 MW. Through April 23, 2019, the hourly peak has increased to 2.6 MW. The impact of customer generation reducing load has not been modeled in the Forecast. Significantly slower growth of new customer solar installations is expected during 2019 due to the end of the Washington State incentive funding.

### 3.6 Electricity Intensive Loads

The District has assigned the term Electricity Intensive Loads (EIL) to the emergence of new loads associated with cryptocurrency mining and block chain operations. The District has developed a policy to address the requirements and risks associated with EIL customers. As of April 2019 the District has about 13 EIL services. One of the District’s largest EIL services accounted for 0.7 aMW of new load in 2018 (did not exist in 2017). The Forecast includes a 1.0 aMW manual adjustment increase for the Large General rate class that is partially attributed to this 0.7 aMW EIL increase in 2018; however, the Forecast does not assume any additional EIL growth.

### 3.7 Electric Vehicles

Another possible source of load growth is electric vehicles (EVs). The impact of electric vehicles on load growth has not been modeled in the Forecast. EVs present an opportunity for the District to offset the impact of flattening or declining retail sales by preserving and possibly growing loads. Similar to any new business that enters the community, EVs have the potential to generate more energy sales over the long run that will help mitigate upward pressure on rates. The District is developing programs to educate customers about EVs and their potential benefits to help increase adoption in its service territory.

Washington State has set a goal of increasing electric vehicle registrations from approximately 8,000 in 2013 to 50,000 by 2020, per the [Washington State Electric Vehicle Action Plan 2015-2020](#), published in February 2015. The Washington State Department of Transportation (WSDOT) reports the number of electric vehicles registered in Washington State by county, using data provided by the Washington State Department of Licensing. The table below has been updated with [the latest WSDOT report](#).

**Table 3-2 – Number of electric vehicles registered in Washington State & Benton County**

Reported As of Date	Washington State	Benton County
<b>12/31/2014</b>	12,351	112
<b>12/31/2015</b>	16,529	169
<b>6/30/2016</b>	17,941	195
<b>6/30/2017</b>	24,624	283
<b>12/31/2018</b>	42,542	466

## 4. Forecast for Total System

The total system forecast is an aggregation of the forecasts of each customer class. The forecast for the total system load in 2019 is 201.5 aMW, an increase of 1.4% over the 2018 actual of 198.7 aMW. The five and ten year average annual rates of growth are 0.35% and 0.27% respectively. The ten year forecast includes 4.51 aMW of cumulative incremental conservation. The forecast for the average annual customer count is an increase of about 831 customers in 2019, then leveling off to about 685 customers per year. See **Figure 4-1** and **Table 4-1** for more detail.

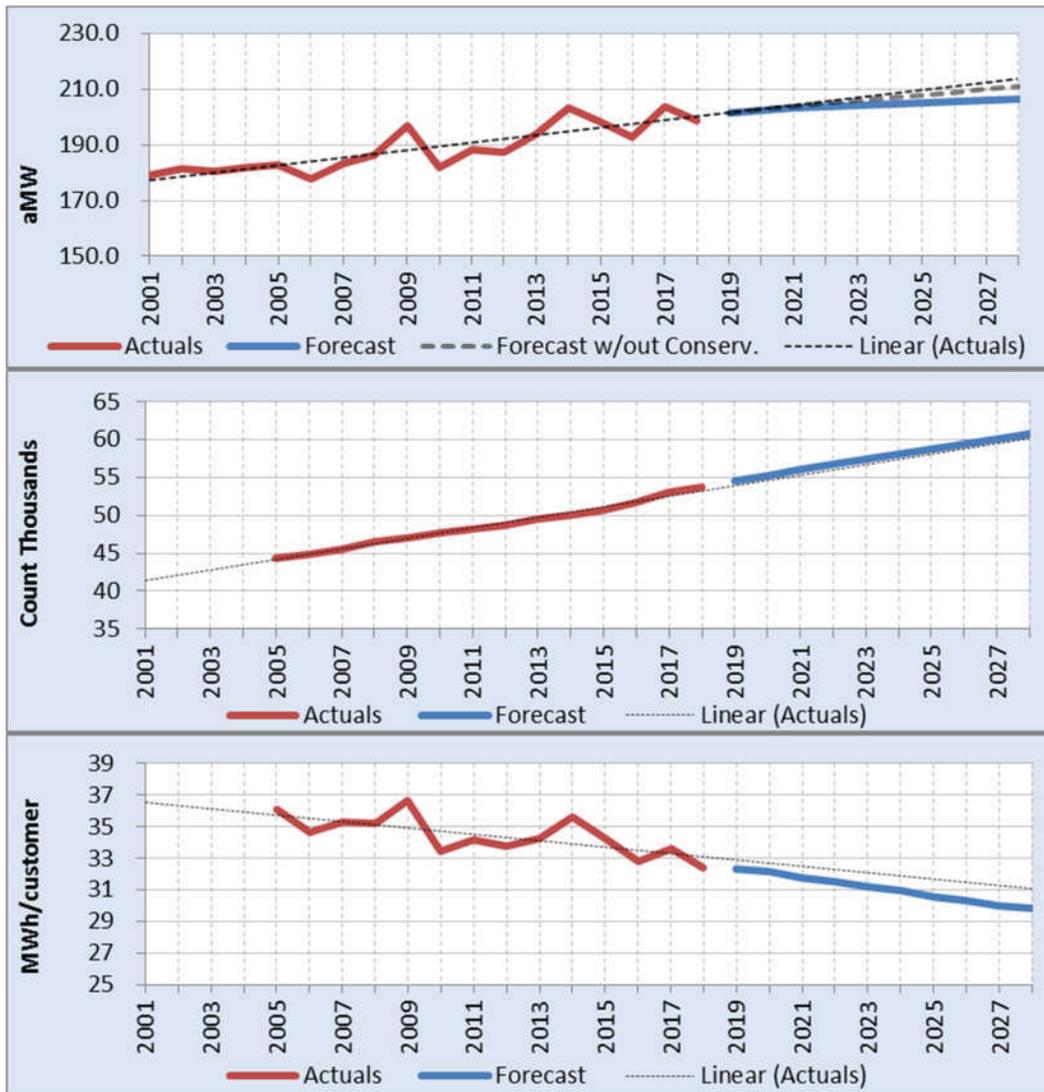


Figure 4-1 – Total System forecast of retail load, customers and usage per customer

**Table 4-1 – Total System forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	1,569,982	#N/A	179.22	-11.52%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	1,587,678	#N/A	181.24	1.13%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	1,580,751	#N/A	180.45	-0.44%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	1,597,054	#N/A	181.81	0.76%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	1,602,508	#N/A	182.93	0.62%	#N/A	#N/A	44,389	#N/A	#N/A	36.102
2006	1,555,710	#N/A	177.59	-2.92%	#N/A	#N/A	44,855	466	1.05%	34.683
2007	1,607,265	#N/A	183.48	3.31%	#N/A	#N/A	45,570	715	1.59%	35.270
2008	1,639,856	#N/A	186.69	1.75%	#N/A	#N/A	46,601	1,031	2.26%	35.189
2009	1,726,341	#N/A	197.07	5.56%	#N/A	#N/A	47,074	473	1.01%	36.673
2010	1,592,802	#N/A	181.83	-7.74%	#N/A	#N/A	47,616	542	1.15%	33.451
2011	1,648,362	#N/A	188.17	3.49%	#N/A	#N/A	48,197	581	1.22%	34.201
2012	1,645,277	#N/A	187.30	-0.46%	#N/A	#N/A	48,710	513	1.07%	33.777
2013	1,696,774	#N/A	193.70	3.41%	#N/A	#N/A	49,519	809	1.66%	34.265
2014	1,781,322	#N/A	203.35	4.98%	#N/A	#N/A	50,052	533	1.08%	35.589
2015	1,738,022	#N/A	198.40	-2.43%	#N/A	#N/A	50,761	709	1.42%	34.239
2016	1,694,078	#N/A	192.86	-2.79%	#N/A	#N/A	51,642	881	1.74%	32.804
2017	1,785,098	#N/A	203.78	5.66%	#N/A	#N/A	53,109	1,467	2.84%	33.612
2018	1,740,849	#N/A	198.73	-2.48%	#N/A	#N/A	53,744	634	1.19%	32.392
2019	#N/A	1,764,913	201.47	1.38%	1,766,486	201.65	54,575	831	1.55%	32.339
2020	#N/A	1,779,008	202.53	0.52%	1,782,545	202.93	55,295	721	1.32%	32.173
2021	#N/A	1,780,641	203.27	0.37%	1,787,158	204.01	56,000	705	1.27%	31.797
2022	#N/A	1,785,579	203.83	0.28%	1,796,176	205.04	56,692	692	1.24%	31.496
2023	#N/A	1,789,537	204.29	0.22%	1,804,864	206.03	57,373	680	1.20%	31.191
2024	#N/A	1,797,909	204.68	0.19%	1,818,150	206.98	58,055	683	1.19%	30.969
2025	#N/A	1,797,262	205.17	0.24%	1,822,381	208.03	58,742	686	1.18%	30.596
2026	#N/A	1,801,026	205.60	0.21%	1,831,246	209.05	59,430	689	1.17%	30.305
2027	#N/A	1,805,045	206.06	0.22%	1,840,118	210.06	60,117	687	1.16%	30.025
2028	#N/A	1,814,032	206.52	0.22%	1,853,653	211.03	60,803	686	1.14%	29.834
<b>AARG %<sup>1</sup> (2019-2023)</b>			<b>0.35%</b>							
<b>AARG %<sup>1</sup> (2019-2028)</b>			<b>0.27%</b>							

1) AARG % = Annual Average Rate of Growth Percentage

## 5. Forecast by Customer Class

### 5.1 Residential

The forecast for residential retail load in 2019 is 82.9 aMW, an increase of 4.2% over the 2018 actual of 79.6 aMW. The five and ten year average annual rates of growth are 0.72% and 0.68% respectively. The ten year forecast includes 1.98 aMW of cumulative incremental conservation. The forecast for the average annual customer count is an increase of about 753 customers in 2019, then leveling off to about 600 customers per year. See **Figure 5-1** and **Table 5-1** for more detail.

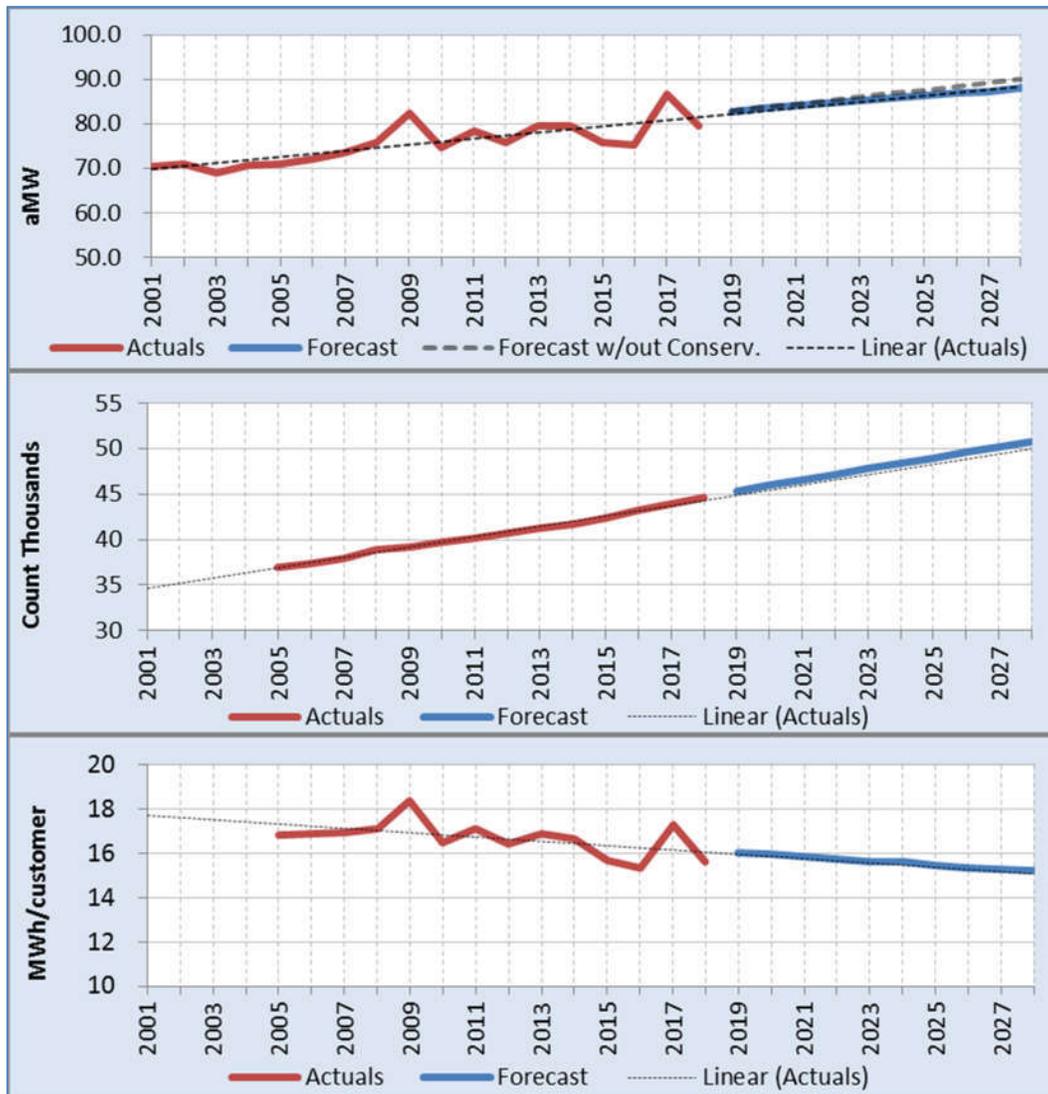


Figure 5-1 - Residential forecast of retail load, customers and usage per customer

**Table 5-1 – Residential forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	617,763	#N/A	70.52	-2.75%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	622,196	#N/A	71.03	0.72%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	604,618	#N/A	69.02	-2.83%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	621,386	#N/A	70.74	2.49%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	622,639	#N/A	71.08	0.48%	#N/A	#N/A	36,963	#N/A	#N/A	16.845
2006	632,213	#N/A	72.17	1.54%	#N/A	#N/A	37,418	455	1.23%	16.896
2007	644,392	#N/A	73.56	1.93%	#N/A	#N/A	37,969	551	1.47%	16.971
2008	666,418	#N/A	75.87	3.14%	#N/A	#N/A	38,855	886	2.33%	17.151
2009	721,719	#N/A	82.39	8.60%	#N/A	#N/A	39,220	365	0.94%	18.402
2010	654,775	#N/A	74.75	-9.28%	#N/A	#N/A	39,687	466	1.19%	16.499
2011	687,953	#N/A	78.53	5.07%	#N/A	#N/A	40,201	514	1.30%	17.113
2012	668,018	#N/A	76.05	-3.16%	#N/A	#N/A	40,645	444	1.10%	16.436
2013	697,887	#N/A	79.67	4.76%	#N/A	#N/A	41,321	676	1.66%	16.890
2014	696,804	#N/A	79.54	-0.16%	#N/A	#N/A	41,758	437	1.06%	16.687
2015	665,505	#N/A	75.97	-4.49%	#N/A	#N/A	42,375	617	1.48%	15.705
2016	661,742	#N/A	75.33	-0.84%	#N/A	#N/A	43,157	783	1.85%	15.333
2017	759,634	#N/A	86.72	15.11%	#N/A	#N/A	43,870	712	1.65%	17.316
2018	697,107	#N/A	79.58	-8.23%	#N/A	#N/A	44,550	680	1.55%	15.648
2019	#N/A	726,345	82.92	4.19%	727,037	83.00	45,303	753	1.69%	16.033
2020	#N/A	734,708	83.64	0.87%	736,264	83.82	45,941	638	1.41%	15.992
2021	#N/A	737,686	84.21	0.68%	740,553	84.54	46,562	621	1.35%	15.843
2022	#N/A	742,922	84.81	0.71%	747,585	85.34	47,171	609	1.31%	15.749
2023	#N/A	747,605	85.34	0.63%	754,350	86.11	47,771	600	1.27%	15.650
2024	#N/A	755,102	85.96	0.73%	764,008	86.98	48,372	601	1.26%	15.610
2025	#N/A	756,947	86.41	0.52%	768,000	87.67	48,977	605	1.25%	15.455
2026	#N/A	761,617	86.94	0.62%	774,914	88.46	49,584	607	1.24%	15.360
2027	#N/A	766,402	87.49	0.63%	781,834	89.25	50,189	606	1.22%	15.270
2028	#N/A	774,268	88.15	0.75%	791,700	90.13	50,794	605	1.20%	15.243
<b>AARG %<sup>1</sup> (2019-2023)</b>			0.72%							
<b>AARG %<sup>1</sup> (2019-2028)</b>			0.68%							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.2 Small General

The forecast for small general service retail load in 2019 is 14.3 aMW, an increase of 0.44% over the 2018 actual of 14.3 aMW. The five and ten year average annual rates of growth are 0.23% and 0.16% respectively. The ten year forecast includes 0.59 aMW of cumulative incremental conservation. The forecast for the average annual customer count is an increase of about 70 customers per year. See **Figure 5-2** and **Table 5-2** for more detail.

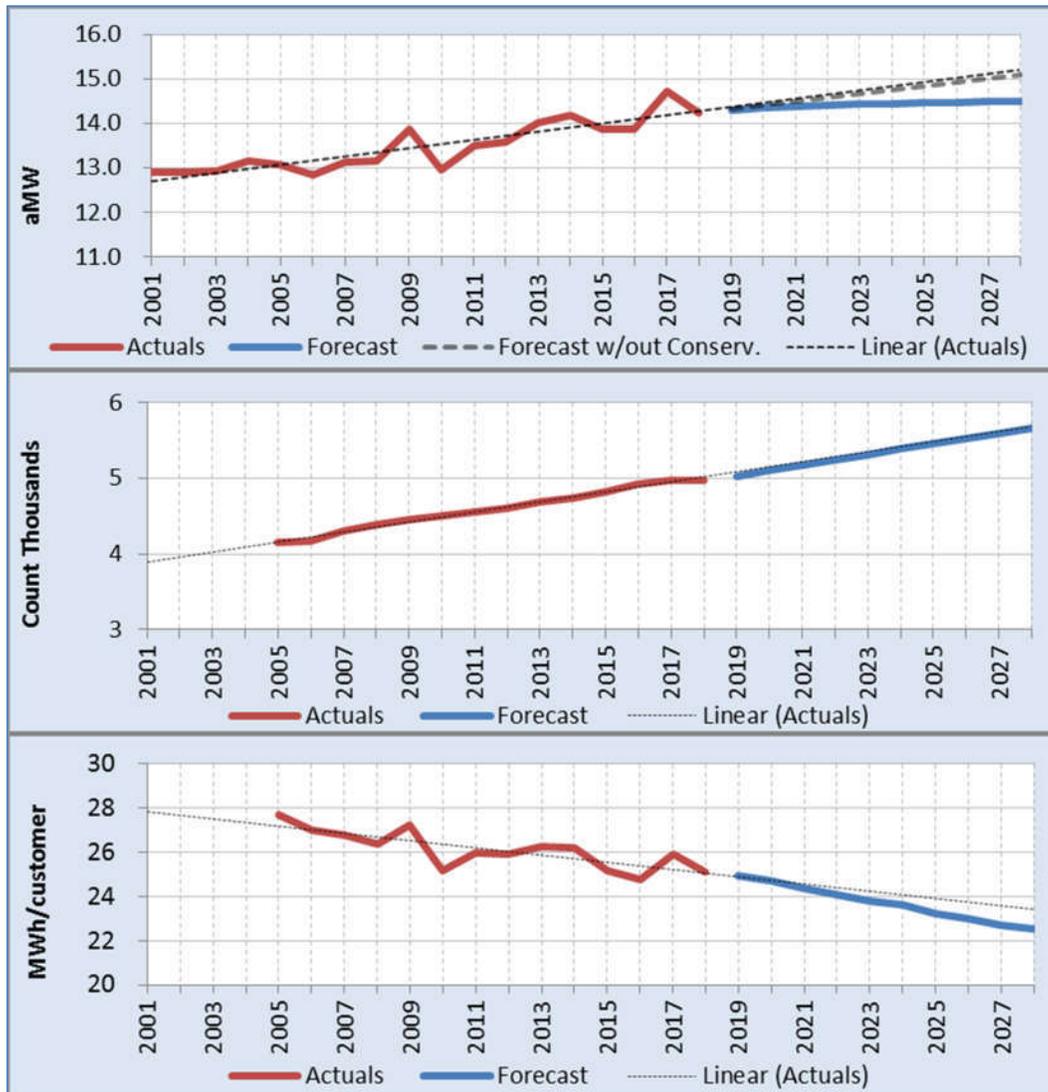


Figure 5-2 – Small General forecast of retail load, customers and usage per customer

**Table 5-2 – Small General forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	113,104	#N/A	12.91	-1.89%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	113,127	#N/A	12.91	0.02%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	113,253	#N/A	12.93	0.11%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	115,574	#N/A	13.16	1.77%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	114,710	#N/A	13.09	-0.48%	#N/A	#N/A	4,144	#N/A	#N/A	27.681
2006	112,705	#N/A	12.87	-1.75%	#N/A	#N/A	4,169	25	0.61%	27.033
2007	115,049	#N/A	13.13	2.08%	#N/A	#N/A	4,295	126	3.03%	26.785
2008	115,616	#N/A	13.16	0.22%	#N/A	#N/A	4,385	90	2.10%	26.364
2009	121,580	#N/A	13.88	5.45%	#N/A	#N/A	4,460	75	1.70%	27.260
2010	113,483	#N/A	12.95	-6.66%	#N/A	#N/A	4,503	43	0.97%	25.201
2011	118,338	#N/A	13.51	4.28%	#N/A	#N/A	4,553	50	1.12%	25.989
2012	119,421	#N/A	13.60	0.64%	#N/A	#N/A	4,610	57	1.25%	25.902
2013	122,928	#N/A	14.03	3.22%	#N/A	#N/A	4,682	72	1.55%	26.256
2014	124,285	#N/A	14.19	1.10%	#N/A	#N/A	4,741	60	1.27%	26.213
2015	121,498	#N/A	13.87	-2.24%	#N/A	#N/A	4,828	87	1.83%	25.165
2016	121,868	#N/A	13.87	0.03%	#N/A	#N/A	4,915	87	1.80%	24.796
2017	129,054	#N/A	14.73	6.19%	#N/A	#N/A	4,977	62	1.25%	25.933
2018	124,864	#N/A	14.25	-3.25%	#N/A	#N/A	4,972	-4	-0.09%	25.113
2019	#N/A	125,410	14.32	0.44%	125,616	14.34	5,029	57	1.15%	24.936
2020	#N/A	126,161	14.36	0.32%	126,623	14.42	5,100	71	1.41%	24.737
2021	#N/A	126,179	14.40	0.29%	127,030	14.50	5,172	72	1.41%	24.396
2022	#N/A	126,418	14.43	0.19%	127,803	14.59	5,243	71	1.38%	24.111
2023	#N/A	126,549	14.45	0.10%	128,551	14.67	5,313	70	1.33%	23.819
2024	#N/A	127,038	14.46	0.11%	129,682	14.76	5,383	70	1.32%	23.601
2025	#N/A	126,773	14.47	0.07%	130,055	14.85	5,453	70	1.31%	23.248
2026	#N/A	126,865	14.48	0.07%	130,814	14.93	5,524	71	1.29%	22.968
2027	#N/A	126,989	14.50	0.10%	131,572	15.02	5,594	71	1.28%	22.700
2028	#N/A	127,542	14.52	0.16%	132,719	15.11	5,665	70	1.26%	22.516
<b>AARG %<sup>1</sup> (2019-2023)</b>			<b>0.23%</b>							
<b>AARG %<sup>1</sup> (2019-2028)</b>			<b>0.16%</b>							

1) AARG % = Annual Average Rate of Growth Percentage

### 5.3 Medium General

The forecast for medium general service retail load in 2019 is 21.1 aMW, an increase of 0.85% over the 2018 actual of 20.9 aMW. The five and ten year average annual rates of growth are 0.31% and 0.24% respectively. The ten year forecast includes 0.84 aMW of cumulative incremental conservation. The forecast for the average annual customer count is an increase of about 14 customers per year. See **Figure 5-3** and **Table 5-3** for more detail.

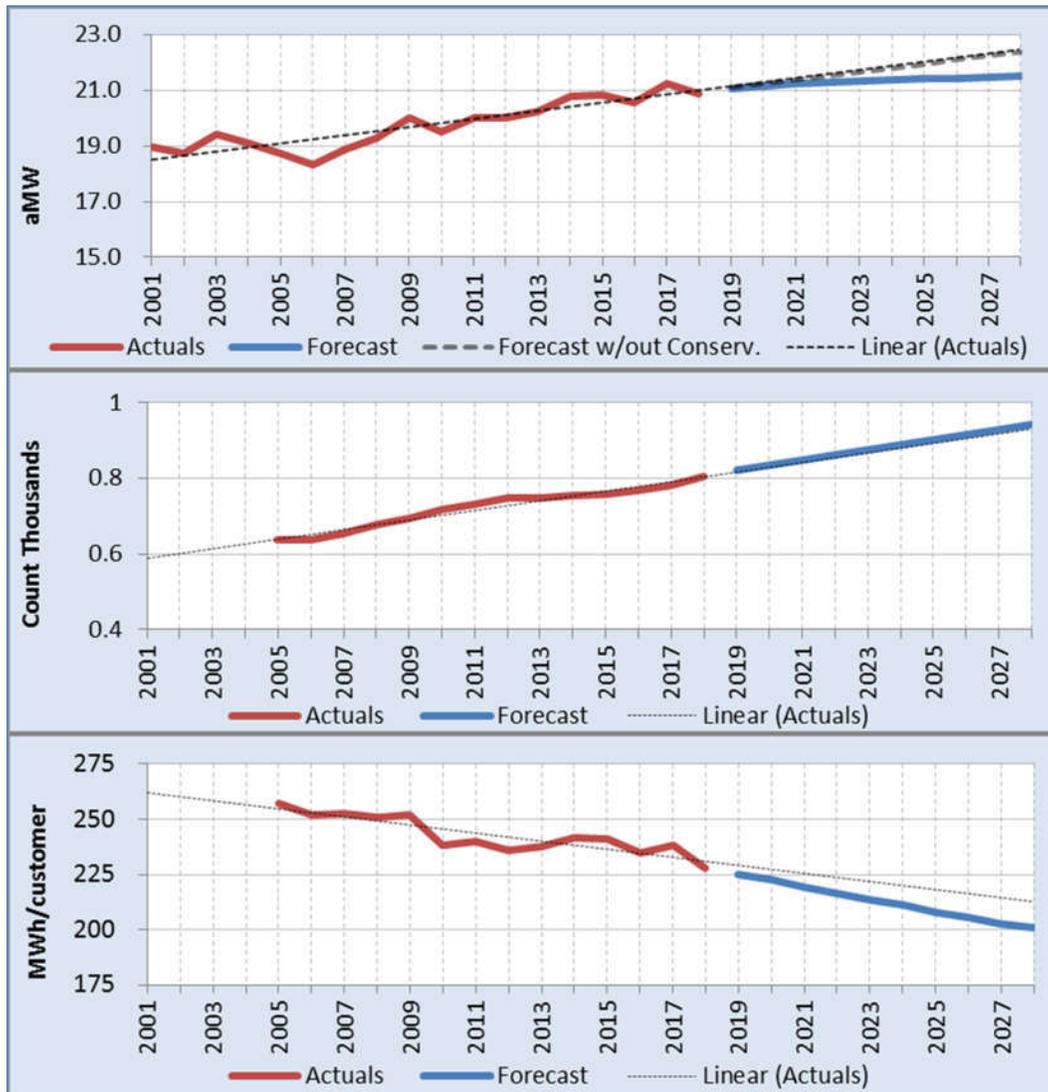


Figure 5-3 – Medium General forecast of retail load, customers and usage per customer

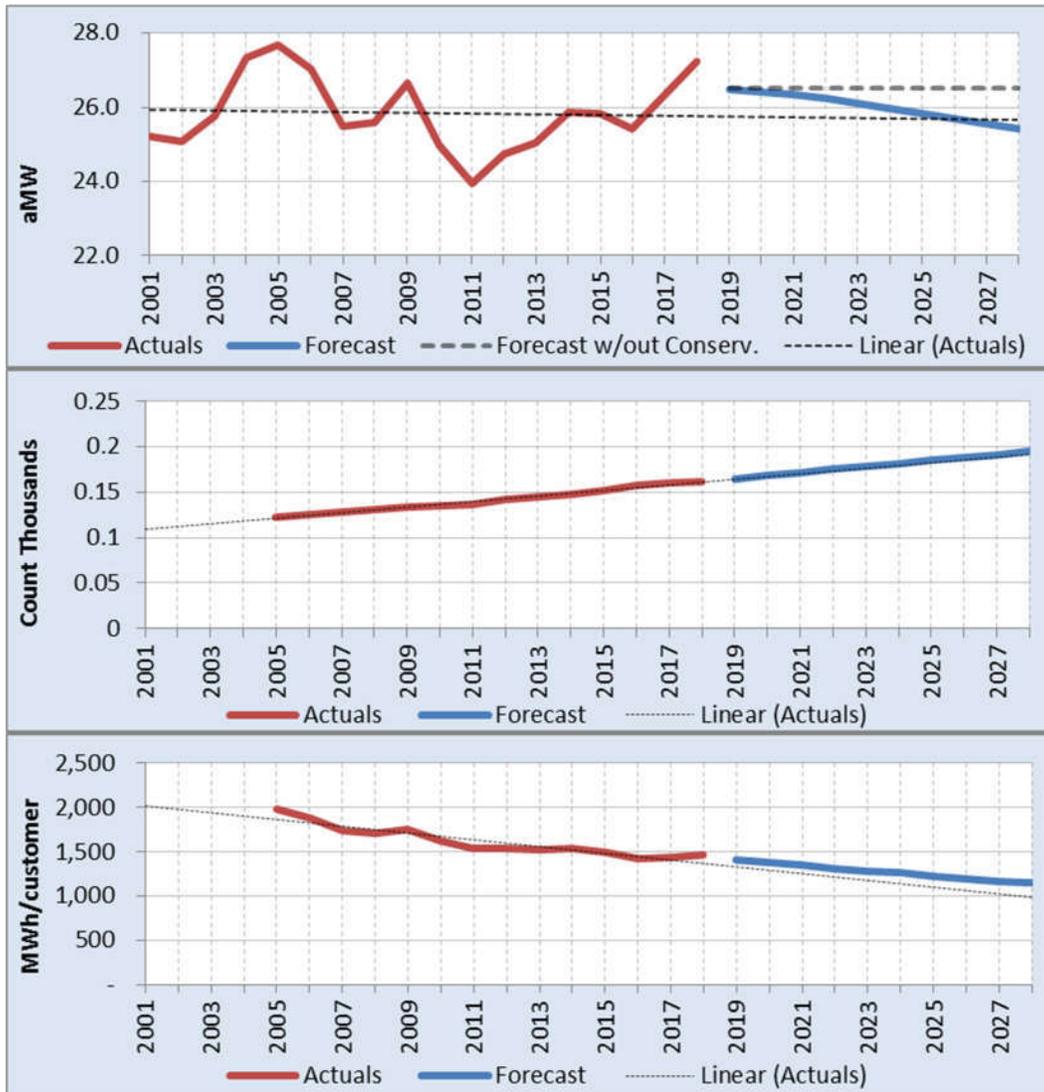
**Table 5-3 – Medium General forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	166,300	#N/A	18.98	-0.33%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	164,197	#N/A	18.74	-1.26%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	170,005	#N/A	19.41	3.54%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	167,622	#N/A	19.08	-1.67%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	164,043	#N/A	18.73	-1.87%	#N/A	#N/A	637	#N/A	#N/A	257.456
2006	160,440	#N/A	18.32	-2.20%	#N/A	#N/A	636	-1	-0.16%	252.197
2007	165,186	#N/A	18.86	2.96%	#N/A	#N/A	654	18	2.86%	252.449
2008	169,571	#N/A	19.30	2.37%	#N/A	#N/A	676	21	3.27%	250.938
2009	175,265	#N/A	20.01	3.64%	#N/A	#N/A	695	19	2.85%	252.179
2010	170,868	#N/A	19.51	-2.51%	#N/A	#N/A	718	23	3.29%	238.032
2011	175,463	#N/A	20.03	2.69%	#N/A	#N/A	732	14	1.92%	239.841
2012	175,999	#N/A	20.04	0.03%	#N/A	#N/A	747	15	2.06%	235.713
2013	177,250	#N/A	20.23	0.99%	#N/A	#N/A	746	-1	-0.09%	237.601
2014	182,044	#N/A	20.78	2.70%	#N/A	#N/A	754	8	1.08%	241.411
2015	182,610	#N/A	20.85	0.31%	#N/A	#N/A	758	4	0.49%	240.990
2016	180,467	#N/A	20.54	-1.44%	#N/A	#N/A	768	10	1.32%	235.059
2017	186,155	#N/A	21.25	3.43%	#N/A	#N/A	782	14	1.86%	238.050
2018	183,125	#N/A	20.90	-1.63%	#N/A	#N/A	803	21	2.73%	227.956
2019	#N/A	184,687	21.08	0.85%	184,981	21.12	822	18	2.26%	224.817
2020	#N/A	185,932	21.17	0.40%	186,592	21.24	835	14	1.64%	222.673
2021	#N/A	186,148	21.25	0.39%	187,364	21.39	849	14	1.65%	219.320
2022	#N/A	186,658	21.31	0.27%	188,636	21.53	862	13	1.58%	216.499
2023	#N/A	187,006	21.35	0.19%	189,867	21.67	875	13	1.54%	213.620
2024	#N/A	187,846	21.39	0.17%	191,625	21.82	889	13	1.53%	211.340
2025	#N/A	187,654	21.42	0.17%	192,343	21.96	902	13	1.49%	208.023
2026	#N/A	187,951	21.46	0.16%	193,592	22.10	916	14	1.50%	205.280
2027	#N/A	188,294	21.49	0.18%	194,841	22.24	929	13	1.47%	202.685
2028	#N/A	189,228	21.54	0.22%	196,624	22.38	942	13	1.43%	200.826
<b>AARG %<sup>1</sup> (2019-2023)</b>			0.31%							
<b>AARG %<sup>1</sup> (2019-2028)</b>			0.24%							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.4 Large General

The forecast for large general service retail load in 2019 is 26.5 aMW, a decrease of 2.8% under the 2018 actual of 27.2 aMW. The five and ten year average annual rates of growth are -0.36% and -0.45% respectively. The ten year forecast includes 1.09 aMW of cumulative incremental conservation. The forecast for the average annual customer count is an increase of about 3 customers per year. See **Figure 5-4** and **Table 5-4** for more detail.



**Figure 5-4 – Large General forecast of retail load, customers and usage per customer**

**Table 5-4 – Large General forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	220,952	#N/A	25.22	-10.49%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	219,625	#N/A	25.07	-0.60%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	225,799	#N/A	25.78	2.81%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	240,192	#N/A	27.34	6.08%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	242,555	#N/A	27.69	1.26%	#N/A	#N/A	122	#N/A	#N/A	1,989.519
2006	236,908	#N/A	27.04	-2.33%	#N/A	#N/A	126	4	3.28%	1,881.465
2007	223,317	#N/A	25.49	-5.74%	#N/A	#N/A	128	2	1.79%	1,742.392
2008	224,958	#N/A	25.61	0.46%	#N/A	#N/A	131	3	2.34%	1,715.052
2009	233,410	#N/A	26.65	4.04%	#N/A	#N/A	134	2	1.84%	1,747.302
2010	218,686	#N/A	24.96	-6.31%	#N/A	#N/A	135	2	1.12%	1,618.900
2011	209,669	#N/A	23.93	-4.12%	#N/A	#N/A	136	1	0.80%	1,539.795
2012	217,377	#N/A	24.75	3.39%	#N/A	#N/A	142	6	4.16%	1,532.625
2013	219,315	#N/A	25.04	1.17%	#N/A	#N/A	144	2	1.70%	1,520.385
2014	226,679	#N/A	25.88	3.36%	#N/A	#N/A	148	4	2.60%	1,531.617
2015	226,175	#N/A	25.82	-0.22%	#N/A	#N/A	151	3	2.14%	1,496.196
2016	223,268	#N/A	25.42	-1.56%	#N/A	#N/A	157	6	3.91%	1,421.334
2017	230,674	#N/A	26.33	3.60%	#N/A	#N/A	160	3	1.75%	1,443.218
2018	238,606	#N/A	27.24	3.44%	#N/A	#N/A	162	2	1.36%	1,472.877
2019	#N/A	231,992	26.48	-2.77%	232,373	26.53	165	3	1.70%	1,408.143
2020	#N/A	232,106	26.42	-0.22%	232,965	26.52	168	3	2.07%	1,380.215
2021	#N/A	230,792	26.35	-0.29%	232,373	26.53	171	3	1.93%	1,346.380
2022	#N/A	229,802	26.23	-0.43%	232,373	26.53	175	3	1.94%	1,315.032
2023	#N/A	228,654	26.10	-0.50%	232,373	26.53	178	3	1.81%	1,285.174
2024	#N/A	228,053	25.96	-0.54%	232,965	26.52	181	3	1.87%	1,258.222
2025	#N/A	226,278	25.83	-0.51%	232,373	26.53	185	3	1.79%	1,226.438
2026	#N/A	225,040	25.69	-0.55%	232,373	26.53	188	3	1.76%	1,198.615
2027	#N/A	223,862	25.56	-0.52%	232,373	26.53	191	3	1.78%	1,171.543
2028	#N/A	223,350	25.43	-0.50%	232,965	26.52	194	3	1.70%	1,149.314
<b>AARG %<sup>1</sup> (2019-2023)</b>			<b>-0.36%</b>							
<b>AARG %<sup>1</sup> (2019-2028)</b>			<b>-0.45%</b>							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.5 Large Industrial

The forecast for large industrial service retail load in 2019 is 7.65 aMW and is expected to remain flat over the ten year forecast period, with no incremental conservation and no additional customers. See **Figure 5-5** and **Table 5-5** for more detail.

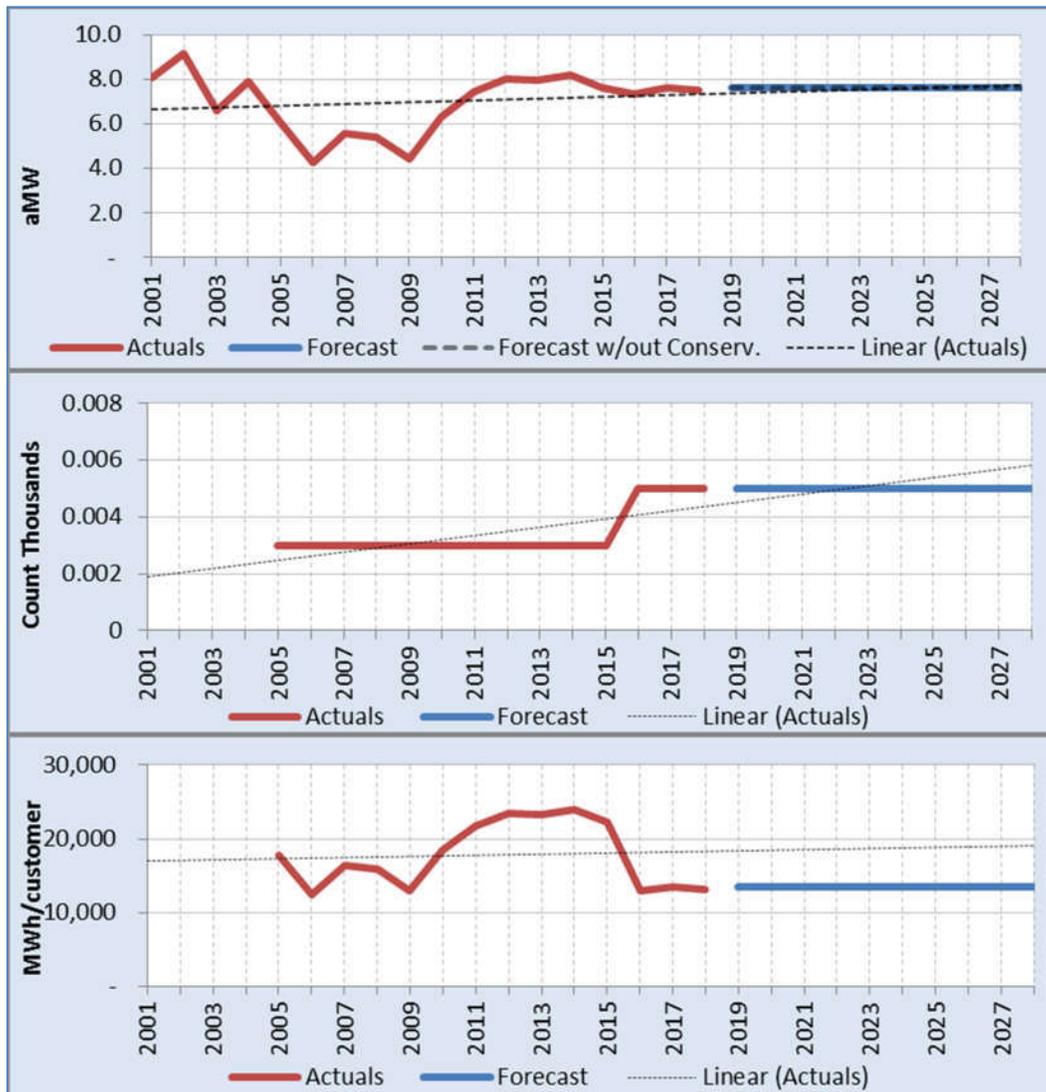


Figure 5-5 – Large Industrial forecast of retail load, customers and usage per customer

**Table 5-5 – Large Industrial forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	70,897	#N/A	8.09	-67.82%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	80,551	#N/A	9.20	13.62%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	58,054	#N/A	6.63	-27.93%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	69,479	#N/A	7.91	19.35%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	53,286	#N/A	6.08	-23.10%	#N/A	#N/A	3	#N/A	#N/A	17,761.932
2006	37,456	#N/A	4.28	-29.71%	#N/A	#N/A	3	0	0.00%	12,485.305
2007	49,045	#N/A	5.60	30.94%	#N/A	#N/A	3	0	0.00%	16,348.383
2008	47,760	#N/A	5.44	-2.89%	#N/A	#N/A	3	0	0.00%	15,920.098
2009	38,909	#N/A	4.44	-18.31%	#N/A	#N/A	3	0	0.00%	12,969.692
2010	55,365	#N/A	6.32	42.29%	#N/A	#N/A	3	0	0.00%	18,454.887
2011	65,411	#N/A	7.47	18.15%	#N/A	#N/A	3	0	0.00%	21,803.603
2012	70,575	#N/A	8.03	7.60%	#N/A	#N/A	3	0	0.00%	23,525.055
2013	69,803	#N/A	7.97	-0.82%	#N/A	#N/A	3	0	0.00%	23,267.593
2014	71,869	#N/A	8.20	2.96%	#N/A	#N/A	3	0	0.00%	23,956.495
2015	66,942	#N/A	7.64	-6.86%	#N/A	#N/A	3	0	0.00%	22,313.962
2016	64,612	#N/A	7.36	-3.74%	#N/A	#N/A	5	2	66.67%	12,922.450
2017	67,084	#N/A	7.66	4.11%	#N/A	#N/A	5	0	0.00%	13,416.822
2018	65,997	#N/A	7.53	-1.62%	#N/A	#N/A	5	0	0.00%	13,199.344
2019	#N/A	66,984	7.65	1.50%	66,984	7.65	5	0	0.00%	13,396.717
2020	#N/A	67,159	7.65	-0.01%	67,159	7.65	5	0	0.00%	13,431.877
2021	#N/A	66,984	7.65	0.01%	66,984	7.65	5	0	0.00%	13,396.717
2022	#N/A	66,984	7.65	0.00%	66,984	7.65	5	0	0.00%	13,396.717
2023	#N/A	66,984	7.65	0.00%	66,984	7.65	5	0	0.00%	13,396.717
2024	#N/A	67,159	7.65	-0.01%	67,159	7.65	5	0	0.00%	13,431.877
2025	#N/A	66,984	7.65	0.01%	66,984	7.65	5	0	0.00%	13,396.717
2026	#N/A	66,984	7.65	0.00%	66,984	7.65	5	0	0.00%	13,396.717
2027	#N/A	66,984	7.65	0.00%	66,984	7.65	5	0	0.00%	13,396.717
2028	#N/A	67,159	7.65	-0.01%	67,159	7.65	5	0	0.00%	13,431.877
<b>AARG %<sup>1</sup> (2019-2023)</b>			<b>0.00%</b>							
<b>AARG %<sup>1</sup> (2019-2028)</b>			<b>0.00%</b>							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.6 Small Irrigation

The forecast for small irrigation retail load in 2019 is 1.8 aMW, about the same as the 2018 actual. The five and ten year average annual rates of growth are -0.24% and -0.27% respectively. The ten year forecast does not include any conservation. The forecast for the average annual customer count is a decrease of about 6 customers per year. See **Figure 5-6** and **Table 5-6** for more detail.

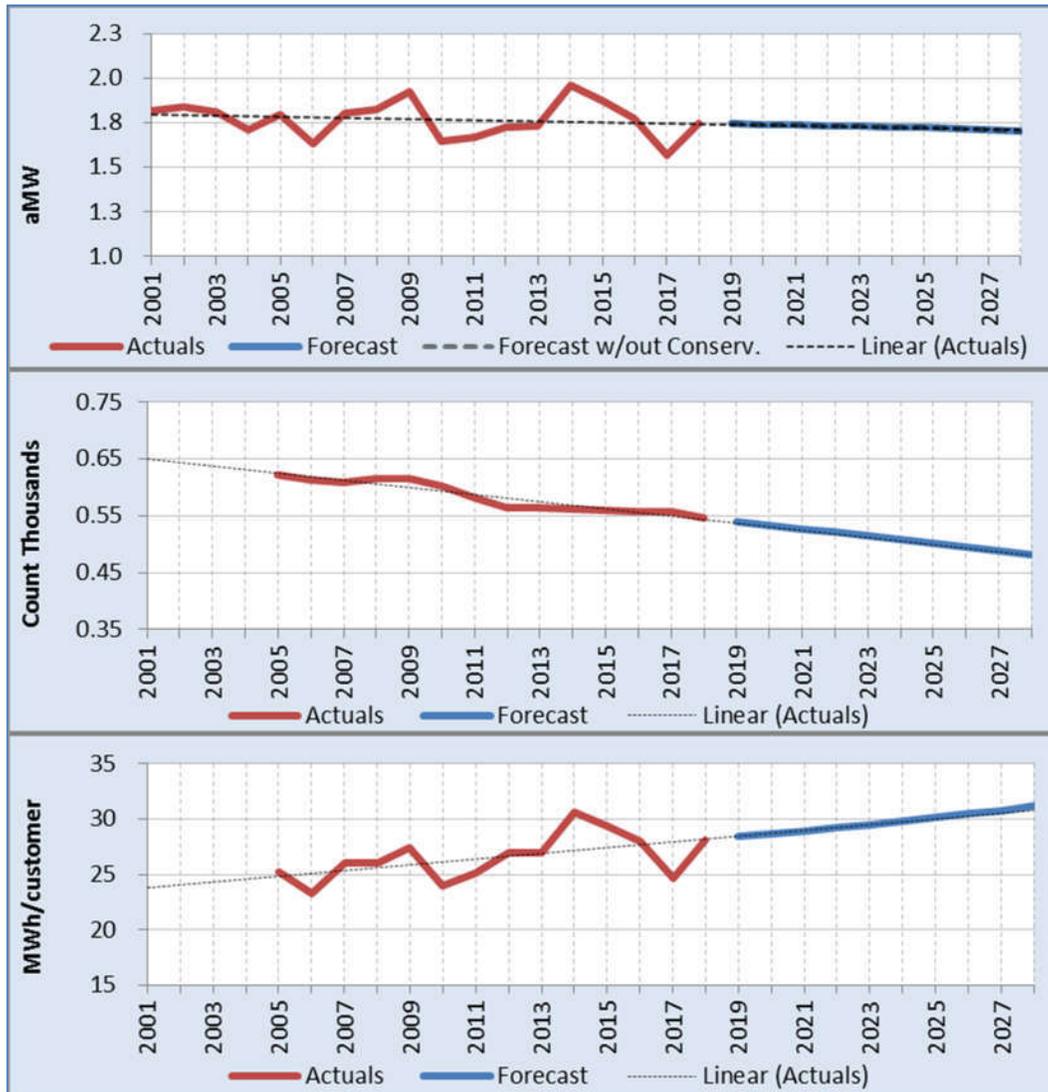


Figure 5-6 – Small Irrigation forecast of retail load, customers and usage per customer

**Table 5-6 – Small Irrigation forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	15,951	#N/A	1.82	-5.45%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	16,119	#N/A	1.84	1.05%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	15,873	#N/A	1.81	-1.52%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	15,071	#N/A	1.72	-5.31%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	15,724	#N/A	1.80	4.62%	#N/A	#N/A	622	#N/A	#N/A	25.270
2006	14,305	#N/A	1.63	-9.03%	#N/A	#N/A	614	-8	-1.34%	23.301
2007	15,849	#N/A	1.81	10.79%	#N/A	#N/A	607	-7	-1.07%	26.096
2008	16,043	#N/A	1.83	0.95%	#N/A	#N/A	615	8	1.33%	26.068
2009	16,884	#N/A	1.93	5.53%	#N/A	#N/A	615	-1	-0.09%	27.460
2010	14,446	#N/A	1.65	-14.44%	#N/A	#N/A	602	-13	-2.09%	23.997
2011	14,607	#N/A	1.67	1.11%	#N/A	#N/A	582	-20	-3.35%	25.104
2012	15,165	#N/A	1.73	3.54%	#N/A	#N/A	563	-19	-3.28%	26.948
2013	15,211	#N/A	1.74	0.58%	#N/A	#N/A	564	1	0.19%	26.978
2014	17,209	#N/A	1.96	13.13%	#N/A	#N/A	563	-1	-0.22%	30.589
2015	16,425	#N/A	1.87	-4.56%	#N/A	#N/A	560	-3	-0.46%	29.330
2016	15,597	#N/A	1.78	-5.30%	#N/A	#N/A	558	-3	-0.45%	27.977
2017	13,754	#N/A	1.57	-11.57%	#N/A	#N/A	557	-1	-0.15%	24.708
2018	15,312	#N/A	1.75	11.32%	#N/A	#N/A	546	-11	-1.98%	28.060
2019	#N/A	15,330	1.75	0.12%	15,330	1.75	540	-6	-1.13%	28.414
2020	#N/A	15,297	1.74	-0.48%	15,297	1.74	533	-6	-1.16%	28.687
2021	#N/A	15,259	1.74	0.02%	15,259	1.74	527	-6	-1.17%	28.954
2022	#N/A	15,221	1.74	-0.25%	15,221	1.74	521	-6	-1.19%	29.229
2023	#N/A	15,184	1.73	-0.24%	15,184	1.73	514	-6	-1.22%	29.517
2024	#N/A	15,147	1.72	-0.51%	15,147	1.72	508	-6	-1.25%	29.818
2025	#N/A	15,110	1.72	0.03%	15,110	1.72	501	-7	-1.30%	30.135
2026	#N/A	15,073	1.72	-0.25%	15,073	1.72	495	-7	-1.31%	30.460
2027	#N/A	15,035	1.72	-0.25%	15,035	1.72	488	-7	-1.35%	30.800
2028	#N/A	14,998	1.71	-0.52%	14,998	1.71	482	-7	-1.37%	31.149
<b>AARG %<sup>1</sup> (2019-2023)</b>			<b>-0.24%</b>							
<b>AARG %<sup>1</sup> (2019-2028)</b>			<b>-0.27%</b>							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.7 Large Irrigation

The forecast for large irrigation retail load in 2019 is 46.5 aMW, a decrease of 0.42% under the 2018 actual of 46.7 aMW. The forecast for large irrigation is expected to remain relatively flat over the ten year forecast period, with no incremental conservation and no additional customers. See **Figure 5-7** and **Table 5-7** for more detail.

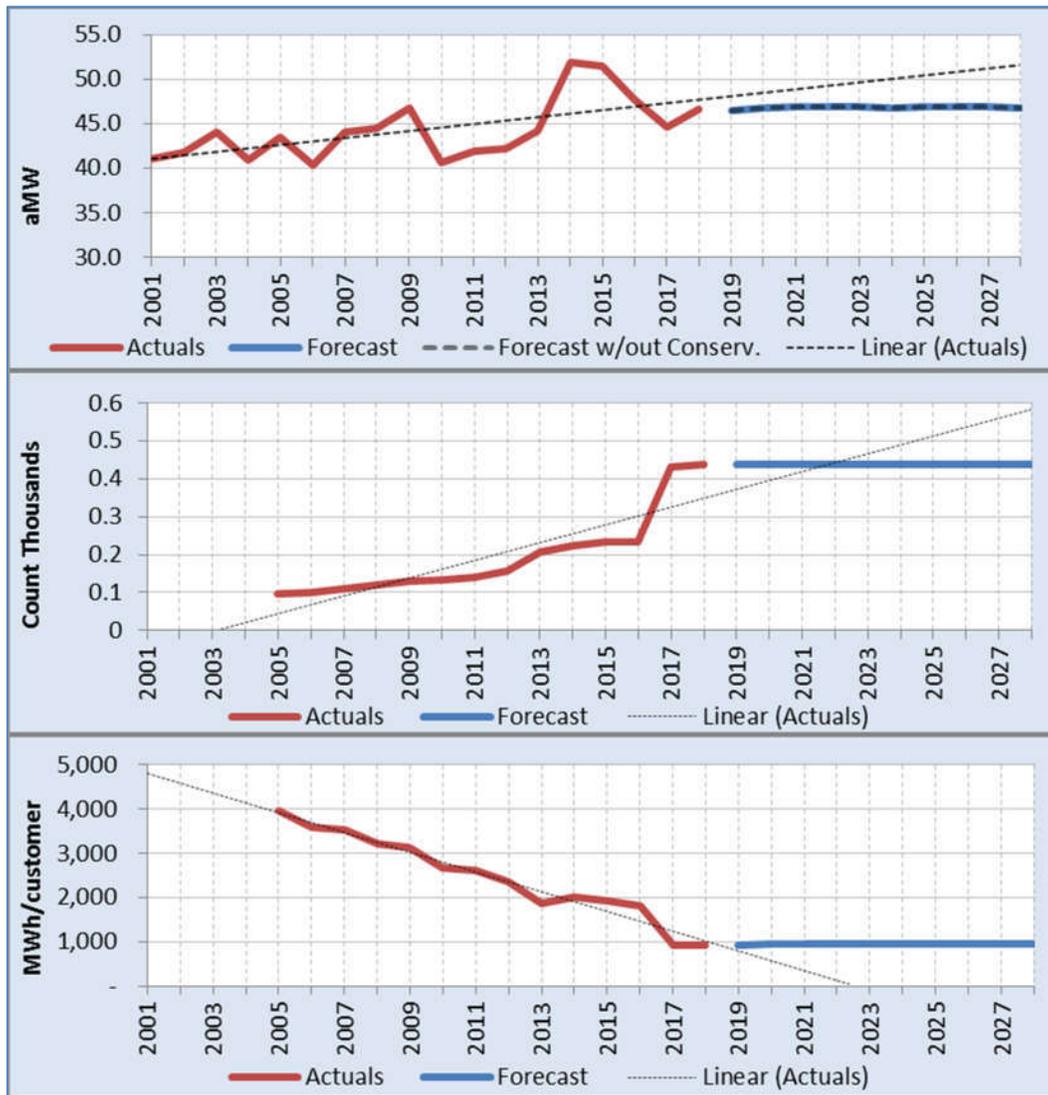


Figure 5-7 – Large Irrigation forecast of retail load, customers and usage per customer

**Table 5-7 – Large Irrigation forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	359,731	#N/A	41.07	-2.20%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	366,431	#N/A	41.83	1.86%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	385,995	#N/A	44.06	5.34%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	360,292	#N/A	41.02	-6.91%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	381,927	#N/A	43.60	6.30%	#N/A	#N/A	96	#N/A	#N/A	3,978.407
2006	353,743	#N/A	40.38	-7.38%	#N/A	#N/A	99	3	2.69%	3,588.264
2007	386,402	#N/A	44.11	9.23%	#N/A	#N/A	110	11	11.16%	3,526.102
2008	391,389	#N/A	44.56	1.01%	#N/A	#N/A	121	12	10.80%	3,223.518
2009	410,386	#N/A	46.85	5.14%	#N/A	#N/A	131	10	7.89%	3,132.715
2010	356,875	#N/A	40.74	-13.04%	#N/A	#N/A	134	3	2.23%	2,664.906
2011	367,393	#N/A	41.94	2.95%	#N/A	#N/A	140	6	4.54%	2,624.234
2012	370,573	#N/A	42.19	0.59%	#N/A	#N/A	158	18	12.86%	2,345.402
2013	387,408	#N/A	44.22	4.83%	#N/A	#N/A	208	50	31.86%	1,859.559
2014	455,435	#N/A	51.99	17.56%	#N/A	#N/A	225	17	7.92%	2,025.654
2015	451,777	#N/A	51.57	-0.80%	#N/A	#N/A	234	9	3.97%	1,932.736
2016	419,588	#N/A	47.77	-7.38%	#N/A	#N/A	233	-1	-0.36%	1,801.453
2017	392,051	#N/A	44.75	-6.31%	#N/A	#N/A	430	197	84.72%	911.216
2018	409,299	#N/A	46.72	4.40%	#N/A	#N/A	437	6	1.49%	937.326
2019	#N/A	407,565	46.53	-0.42%	407,565	46.53	437	0	0.08%	932.644
2020	#N/A	411,045	46.79	0.58%	411,045	46.79	437	0	0.00%	940.607
2021	#N/A	411,035	46.92	0.27%	411,035	46.92	437	0	0.00%	940.584
2022	#N/A	411,035	46.92	0.00%	411,035	46.92	437	0	0.00%	940.584
2023	#N/A	411,035	46.92	0.00%	411,035	46.92	437	0	0.00%	940.584
2024	#N/A	411,045	46.79	-0.27%	411,045	46.79	437	0	0.00%	940.607
2025	#N/A	411,035	46.92	0.27%	411,035	46.92	437	0	0.00%	940.584
2026	#N/A	411,035	46.92	0.00%	411,035	46.92	437	0	0.00%	940.584
2027	#N/A	411,035	46.92	0.00%	411,035	46.92	437	0	0.00%	940.584
2028	#N/A	411,045	46.79	-0.27%	411,045	46.79	437	0	0.00%	940.607
<b>AARG %<sup>1</sup> (2019-2023)</b>			0.21%							
<b>AARG %<sup>1</sup> (2019-2028)</b>			0.06%							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.8 Street Lighting

The forecast for street lighting retail load in 2019 is 0.29 aMW, the same as 2018. The five and ten year average annual rates of growth are -1.60% and -1.66% respectively. Expected conversions to LED lighting may accelerate the load decrease, but no adjustments were made to account for this possibility. The forecast does not include any conservation and expects no additional customers. New street lighting installations are typically metered and would be classified as small general service. See **Figure 5-8** and **Table 5-8** for more detail.

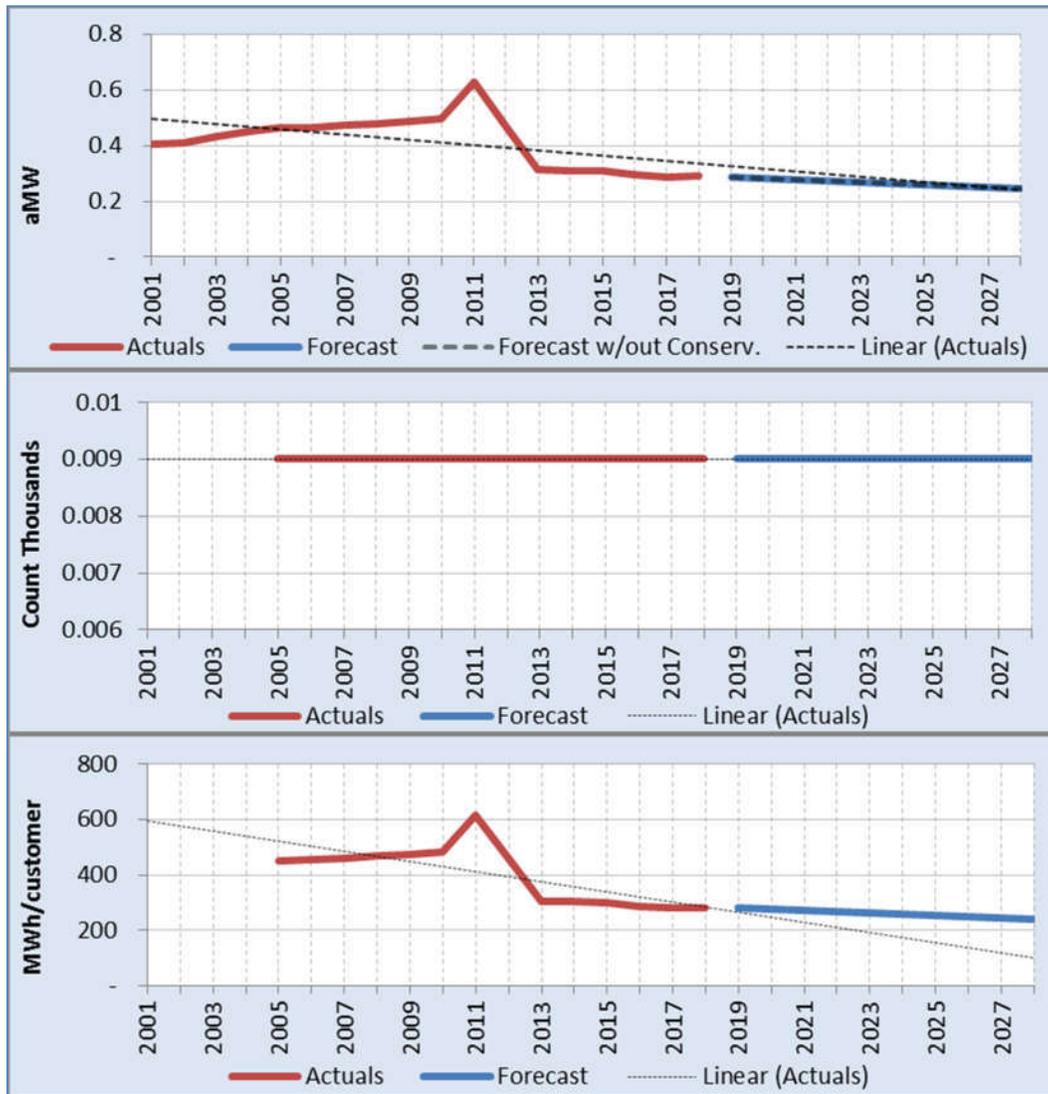


Figure 5-8 – Street Lighting forecast of retail load, customers and usage per customer

**Table 5-8 – Street Lighting forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	3,547	#N/A	0.40	1.55%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	3,593	#N/A	0.41	1.30%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	3,807	#N/A	0.43	5.94%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	3,957	#N/A	0.45	3.66%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	4,067	#N/A	0.46	3.06%	#N/A	#N/A	9	#N/A	#N/A	451.882
2006	4,084	#N/A	0.47	0.41%	#N/A	#N/A	9	0	0.00%	453.740
2007	4,151	#N/A	0.47	1.66%	#N/A	#N/A	9	0	0.00%	461.266
2008	4,218	#N/A	0.48	1.33%	#N/A	#N/A	9	0	0.00%	468.669
2009	4,268	#N/A	0.49	1.46%	#N/A	#N/A	9	0	0.00%	474.203
2010	4,339	#N/A	0.50	1.68%	#N/A	#N/A	9	0	0.00%	482.159
2011	5,532	#N/A	0.63	27.48%	#N/A	#N/A	9	0	0.00%	614.671
2012	4,136	#N/A	0.47	-25.43%	#N/A	#N/A	9	0	0.00%	459.597
2013	2,751	#N/A	0.31	-33.31%	#N/A	#N/A	9	0	0.00%	305.647
2014	2,721	#N/A	0.31	-1.10%	#N/A	#N/A	9	0	0.00%	302.278
2015	2,704	#N/A	0.31	-0.62%	#N/A	#N/A	9	0	0.00%	300.405
2016	2,589	#N/A	0.29	-4.50%	#N/A	#N/A	9	0	0.00%	287.682
2017	2,535	#N/A	0.29	-1.83%	#N/A	#N/A	9	0	0.00%	281.642
2018	2,537	#N/A	0.29	0.10%	#N/A	#N/A	9	0	0.00%	281.920
2019	#N/A	2,520	0.29	-0.68%	2,520	0.29	9	0	0.00%	279.997
2020	#N/A	2,489	0.28	-1.51%	2,489	0.28	9	0	0.00%	276.511
2021	#N/A	2,441	0.28	-1.63%	2,441	0.28	9	0	0.00%	271.262
2022	#N/A	2,401	0.27	-1.65%	2,401	0.27	9	0	0.00%	266.793
2023	#N/A	2,363	0.27	-1.60%	2,363	0.27	9	0	0.00%	262.511
2024	#N/A	2,330	0.27	-1.64%	2,330	0.27	9	0	0.00%	258.920
2025	#N/A	2,285	0.26	-1.69%	2,285	0.26	9	0	0.00%	253.849
2026	#N/A	2,245	0.26	-1.72%	2,245	0.26	9	0	0.00%	249.477
2027	#N/A	2,206	0.25	-1.76%	2,206	0.25	9	0	0.00%	245.090
2028	#N/A	2,173	0.25	-1.77%	2,173	0.25	9	0	0.00%	241.409
<b>AARG %<sup>1</sup> (2019-2023)</b>			<b>-1.60%</b>							
<b>AARG %<sup>1</sup> (2019-2028)</b>			<b>-1.66%</b>							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.9 Security Lighting

The forecast for security lighting retail load in 2019 is 0.12 aMW, the same as 2018 and is expected to remain flat over the ten year forecast period, with no incremental conservation and no additional customers. See **Figure 5-9** and **Table 5-9** for more detail.

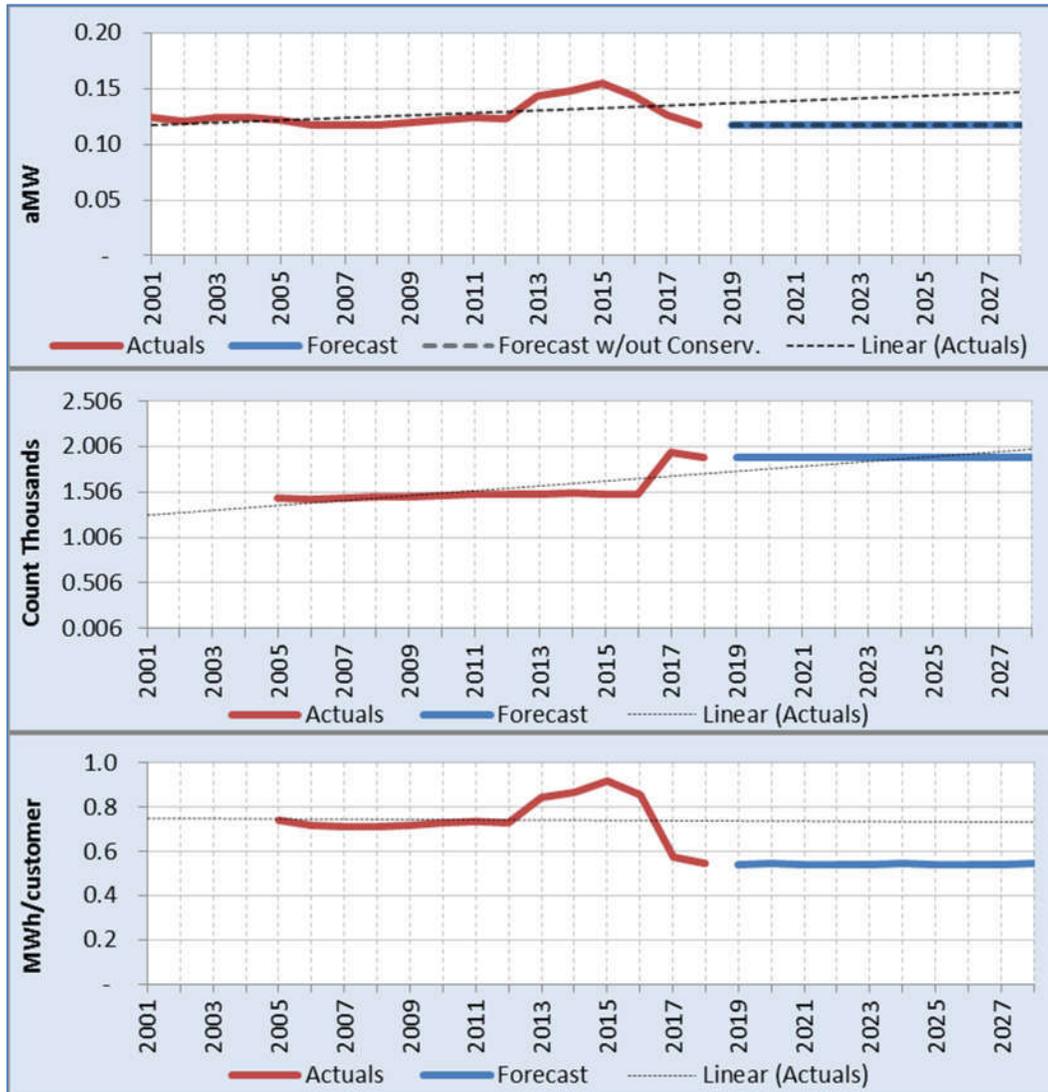


Figure 5-9 – Security Lighting forecast of retail load, customers and usage per customer

**Table 5-9 – Security Lighting forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	1,086	#N/A	0.12	1.92%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	1,055	#N/A	0.12	-2.87%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	1,094	#N/A	0.12	3.71%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	1,091	#N/A	0.12	-0.51%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	1,066	#N/A	0.12	-1.99%	#N/A	#N/A	1,440	#N/A	#N/A	0.741
2006	1,025	#N/A	0.12	-3.92%	#N/A	#N/A	1,429	-11	-0.76%	0.717
2007	1,028	#N/A	0.12	0.29%	#N/A	#N/A	1,440	11	0.79%	0.714
2008	1,036	#N/A	0.12	0.52%	#N/A	#N/A	1,451	11	0.75%	0.714
2009	1,045	#N/A	0.12	1.19%	#N/A	#N/A	1,453	2	0.13%	0.720
2010	1,068	#N/A	0.12	2.22%	#N/A	#N/A	1,468	15	1.05%	0.728
2011	1,087	#N/A	0.12	1.72%	#N/A	#N/A	1,482	14	0.95%	0.733
2012	1,084	#N/A	0.12	-0.56%	#N/A	#N/A	1,480	-1	-0.10%	0.732
2013	1,257	#N/A	0.14	16.34%	#N/A	#N/A	1,488	7	0.50%	0.845
2014	1,297	#N/A	0.15	3.12%	#N/A	#N/A	1,493	5	0.34%	0.869
2015	1,364	#N/A	0.16	5.19%	#N/A	#N/A	1,482	-11	-0.75%	0.921
2016	1,263	#N/A	0.14	-7.64%	#N/A	#N/A	1,476	-6	-0.39%	0.856
2017	1,112	#N/A	0.13	-11.72%	#N/A	#N/A	1,943	467	31.61%	0.573
2018	1,028	#N/A	0.12	-7.60%	#N/A	#N/A	1,888	-55	-2.82%	0.544
2019	#N/A	1,028	0.12	0.00%	1,028	0.12	1,892	4	0.23%	0.543
2020	#N/A	1,031	0.12	0.04%	1,031	0.12	1,892	0	0.00%	0.545
2021	#N/A	1,028	0.12	-0.04%	1,028	0.12	1,892	0	0.00%	0.543
2022	#N/A	1,028	0.12	0.00%	1,028	0.12	1,892	0	0.00%	0.543
2023	#N/A	1,028	0.12	0.00%	1,028	0.12	1,892	0	0.00%	0.543
2024	#N/A	1,031	0.12	0.04%	1,031	0.12	1,892	0	0.00%	0.545
2025	#N/A	1,028	0.12	-0.04%	1,028	0.12	1,892	0	0.00%	0.543
2026	#N/A	1,028	0.12	0.00%	1,028	0.12	1,892	0	0.00%	0.543
2027	#N/A	1,028	0.12	0.00%	1,028	0.12	1,892	0	0.00%	0.543
2028	#N/A	1,031	0.12	0.04%	1,031	0.12	1,892	0	0.00%	0.545
<b>AARG %<sup>1</sup> (2019-2023)</b>			0.00%							
<b>AARG %<sup>1</sup> (2019-2028)</b>			0.00%							

1) AARG % = Annual Average Rate of Growth Percentage

## 5.10 Unmetered Flats

The forecast for unmetered flats retail load in 2019 is 0.35 aMW, about the same as 2018. The five and ten year average annual rates of growth are 0.62% and 0.63% respectively. The ten year forecast does not include any conservation. The forecast for the average annual customer count is an increase of 1 customer per year. See **Figure 5-10** and **Table 5-10** for more detail.

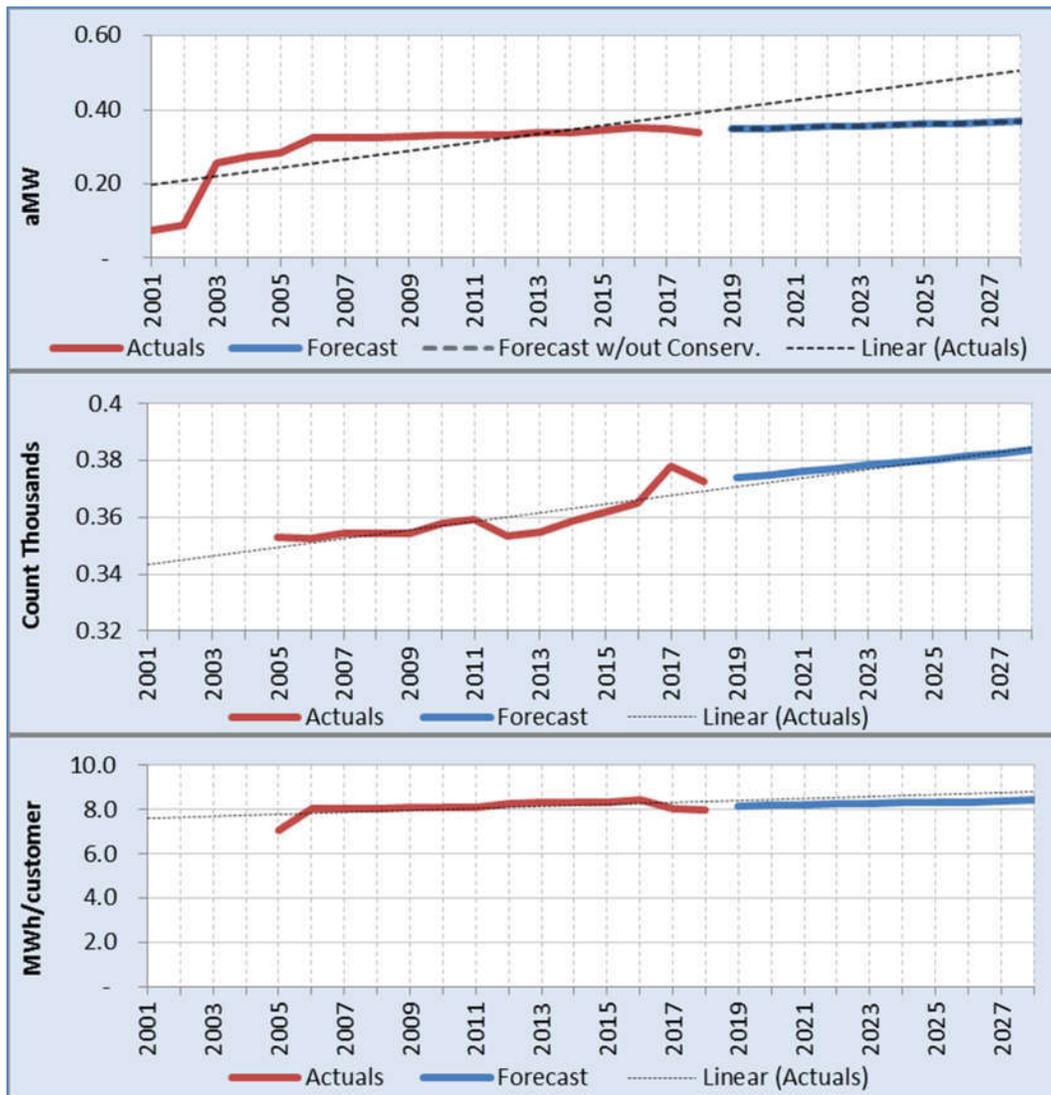


Figure 5-10 – Unmetered Flats forecast of retail load, customers and usage per customer

**Table 5-10 – Unmetered Flats forecast of retail load, customers and usage per customer**

Calendar Year	Historical Energy (MWh)	Forecast Energy (MWh)	Average Power (aMW)	Average Power % Change	Forecast without Conservation (MWh)	Forecast without Conservation (aMW)	Average Customer Count	Customer Count Change	Customer Count % Change	Usage Per Customer (MWh)
2001	651	#N/A	0.07	2.47%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	784	#N/A	0.09	20.35%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	2,254	#N/A	0.26	187.61%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	2,390	#N/A	0.27	5.74%	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	2,492	#N/A	0.28	4.56%	#N/A	#N/A	353	#N/A	#N/A	7.064
2006	2,833	#N/A	0.32	13.70%	#N/A	#N/A	353	0	-0.05%	8.035
2007	2,846	#N/A	0.32	0.47%	#N/A	#N/A	354	2	0.47%	8.035
2008	2,848	#N/A	0.32	-0.21%	#N/A	#N/A	354	0	-0.05%	8.044
2009	2,875	#N/A	0.33	1.22%	#N/A	#N/A	354	0	0.07%	8.114
2010	2,896	#N/A	0.33	0.72%	#N/A	#N/A	358	3	0.94%	8.096
2011	2,909	#N/A	0.33	0.46%	#N/A	#N/A	359	1	0.40%	8.101
2012	2,928	#N/A	0.33	0.36%	#N/A	#N/A	353	-6	-1.60%	8.286
2013	2,964	#N/A	0.34	1.50%	#N/A	#N/A	355	1	0.38%	8.356
2014	2,981	#N/A	0.34	0.57%	#N/A	#N/A	359	4	1.13%	8.310
2015	3,023	#N/A	0.35	1.41%	#N/A	#N/A	362	3	0.91%	8.352
2016	3,083	#N/A	0.35	1.72%	#N/A	#N/A	365	3	0.83%	8.448
2017	3,044	#N/A	0.35	-0.98%	#N/A	#N/A	378	13	3.59%	8.054
2018	2,975	#N/A	0.34	-2.28%	#N/A	#N/A	372	-6	-1.48%	7.988
2019	#N/A	3,053	0.35	2.62%	3,053	0.35	374	2	0.40%	8.164
2020	#N/A	3,080	0.35	0.62%	3,080	0.35	375	1	0.27%	8.215
2021	#N/A	3,091	0.35	0.62%	3,091	0.35	376	1	0.29%	8.220
2022	#N/A	3,110	0.36	0.62%	3,110	0.36	377	1	0.29%	8.247
2023	#N/A	3,129	0.36	0.62%	3,129	0.36	378	1	0.29%	8.275
2024	#N/A	3,158	0.36	0.63%	3,158	0.36	379	1	0.29%	8.326
2025	#N/A	3,169	0.36	0.63%	3,169	0.36	380	1	0.29%	8.332
2026	#N/A	3,189	0.36	0.64%	3,189	0.36	382	1	0.31%	8.359
2027	#N/A	3,209	0.37	0.64%	3,209	0.37	383	1	0.28%	8.388
2028	#N/A	3,239	0.37	0.64%	3,239	0.37	384	1	0.28%	8.441
<b>AARG %<sup>1</sup> (2019-2023)</b>			0.62%							
<b>AARG %<sup>1</sup> (2019-2028)</b>			0.63%							

1) AARG % = Annual Average Rate of Growth Percentage

## Appendix A

### 6. Appendix A – Summary Tables

# Appendix A

**Table 6-1 – Total system historical and forecast of annual load, losses and peak demand**

Calendar Year	Total Retail Load (aMW)			+ BPUD T&D <sup>1</sup> System Losses (%)		= Total Load at BPA Point-of-Delivery (aMW)			+ BPA Trans. <sup>2</sup> Loss Returns (%)		= Total Power Supply Requirement (aMW)			System Peak Hourly Demand (MW)		
	Low	Base	High	aMW	%	Low	Base	High	aMW	%	Low	Base	High	Low	Base	High
2001	179.2	179.2	179.2	8.6	4.6%	187.8	187.8	187.8	#N/A	#N/A	#N/A	#N/A	#N/A	352.0	352.0	352.0
2002	181.2	181.2	181.2	5.9	3.2%	187.1	187.1	187.1	#N/A	#N/A	#N/A	#N/A	#N/A	374.0	374.0	374.0
2003	180.5	180.5	180.5	6.2	3.3%	186.7	186.7	186.7	#N/A	#N/A	#N/A	#N/A	#N/A	384.2	384.2	384.2
2004	181.8	181.8	181.8	5.5	3.0%	187.4	187.4	187.4	#N/A	#N/A	#N/A	#N/A	#N/A	382.2	382.2	382.2
2005	182.9	182.9	182.9	4.5	2.4%	187.5	187.5	187.5	#N/A	#N/A	#N/A	#N/A	#N/A	366.5	366.5	366.5
2006	177.6	177.6	177.6	5.3	2.9%	182.9	182.9	182.9	#N/A	#N/A	#N/A	#N/A	#N/A	373.3	373.3	373.3
2007	183.5	183.5	183.5	6.7	3.5%	190.2	190.2	190.2	#N/A	#N/A	#N/A	#N/A	#N/A	384.3	384.3	384.3
2008	186.7	186.7	186.7	7.3	3.8%	194.0	194.0	194.0	#N/A	#N/A	#N/A	#N/A	#N/A	396.9	396.9	396.9
2009	197.1	197.1	197.1	6.2	3.1%	203.3	203.3	203.3	#N/A	#N/A	#N/A	#N/A	#N/A	402.1	402.1	402.1
2010	181.8	181.8	181.8	7.0	3.7%	188.9	188.9	188.9	#N/A	#N/A	#N/A	#N/A	#N/A	392.1	392.1	392.1
2011	188.2	188.2	188.2	6.2	3.2%	194.3	194.3	194.3	#N/A	#N/A	#N/A	#N/A	#N/A	379.5	379.5	379.5
2012	187.3	187.3	187.3	5.8	3.0%	193.1	193.1	193.1	3.5	1.8%	196.7	196.7	196.7	394.0	394.0	394.0
2013	193.7	193.7	193.7	8.7	4.3%	202.4	202.4	202.4	3.3	1.6%	205.7	205.7	205.7	414.5	414.5	414.5
2014	203.3	203.3	203.3	5.1	2.4%	208.4	208.4	208.4	3.5	1.7%	211.9	211.9	211.9	430.5	430.5	430.5
2015	198.4	198.4	198.4	7.5	3.6%	205.9	205.9	205.9	3.4	1.7%	209.3	209.3	209.3	429.5	429.5	429.5
2016	192.9	192.9	192.9	7.4	3.7%	200.3	200.3	200.3	3.2	1.6%	203.4	203.4	203.4	425.1	425.1	425.1
2017	203.8	203.8	203.8	7.1	3.4%	210.9	210.9	210.9	3.2	1.5%	214.1	214.1	214.1	426.0	426.0	426.0
2018	198.7	198.7	198.7	5.9	2.9%	204.7	204.7	204.7	3.2	1.6%	207.9	207.9	207.9	419.0	419.0	419.0
Forecast	Low	Base	High	aMW	%	Low	Base	High	aMW	%	Low	Base	High	Low	Base	High
2019	192.9	201.5	210.0	6.7	3.3%	199.7	208.2	216.7	4.0	1.9%	203.6	212.1	220.7	405.7	425.6	445.4
2020	193.9	202.5	211.1	6.8	3.3%	200.7	209.3	217.9	4.0	1.9%	204.7	213.3	221.8	408.2	428.1	448.0
2021	194.6	203.3	211.9	6.8	3.3%	201.4	210.0	218.7	4.0	1.9%	205.4	214.0	222.7	409.1	429.1	449.0
2022	195.2	203.8	212.5	6.8	3.3%	202.0	210.6	219.3	4.0	1.9%	206.0	214.6	223.3	409.8	429.9	449.9
2023	195.6	204.3	213.0	6.8	3.3%	202.4	211.1	219.8	4.0	1.9%	206.4	215.1	223.8	410.4	430.5	450.5
2024	195.9	204.7	213.4	6.8	3.3%	202.8	211.5	220.3	4.0	1.9%	206.8	215.5	224.3	410.9	431.1	451.2
2025	196.4	205.2	214.0	6.8	3.3%	203.2	212.0	220.8	4.0	1.9%	207.2	216.0	224.8	411.5	431.7	451.9
2026	196.7	205.6	214.4	6.9	3.3%	203.6	212.5	221.3	4.0	1.9%	207.6	216.5	225.3	412.0	432.3	452.5
2027	197.2	206.1	214.9	6.9	3.3%	204.0	212.9	221.8	4.0	1.9%	208.1	217.0	225.9	412.6	432.9	453.2
2028	197.6	206.5	215.4	6.9	3.3%	204.5	213.4	222.3	4.1	1.9%	208.5	217.5	226.4	413.2	433.6	454.0

1) BPUD T&D = Benton P.U.D. Transmission & Distribution; Forecast loss factor is equal to the 10-year historical average.

2) BPA Trans. = Bonneville Power Administration Transmission; Forecast loss factor is per-Schedule 9 of BPA's Open Access Transmission Tariff (OATT).

# Appendix A

**Table 6-2 – Historical & BASE case forecast of annual retail load (aMW) by customer class**

Calendar Year	Residential	Small General	Medium General	Large General	Large Industrial	Small Irrigation	Large Irrigation	Street Lights	Security Lights	Unmetered Flats	Total System	Annual % Change
2001	70.5	12.9	19.0	25.2	8.1	1.8	41.1	0.4	0.1	0.1	179.2	#N/A
2002	71.0	12.9	18.7	25.1	9.2	1.8	41.8	0.4	0.1	0.1	181.2	1.13%
2003	69.0	12.9	19.4	25.8	6.6	1.8	44.1	0.4	0.1	0.3	180.5	-0.44%
2004	70.7	13.2	19.1	27.3	7.9	1.7	41.0	0.5	0.1	0.3	181.8	0.76%
2005	71.1	13.1	18.7	27.7	6.1	1.8	43.6	0.5	0.1	0.3	182.9	0.62%
2006	72.2	12.9	18.3	27.0	4.3	1.6	40.4	0.5	0.1	0.3	177.6	-2.92%
2007	73.6	13.1	18.9	25.5	5.6	1.8	44.1	0.5	0.1	0.3	183.5	3.31%
2008	75.9	13.2	19.3	25.6	5.4	1.8	44.6	0.5	0.1	0.3	186.7	1.75%
2009	82.4	13.9	20.0	26.6	4.4	1.9	46.8	0.5	0.1	0.3	197.1	5.56%
2010	74.7	13.0	19.5	25.0	6.3	1.6	40.7	0.5	0.1	0.3	181.8	-7.74%
2011	78.5	13.5	20.0	23.9	7.5	1.7	41.9	0.6	0.1	0.3	188.2	3.49%
2012	76.0	13.6	20.0	24.7	8.0	1.7	42.2	0.5	0.1	0.3	187.3	-0.46%
2013	79.7	14.0	20.2	25.0	8.0	1.7	44.2	0.3	0.1	0.3	193.7	3.41%
2014	79.5	14.2	20.8	25.9	8.2	2.0	52.0	0.3	0.1	0.3	203.3	4.98%
2015	76.0	13.9	20.8	25.8	7.6	1.9	51.6	0.3	0.2	0.3	198.4	-2.43%
2016	75.3	13.9	20.5	25.4	7.4	1.8	47.8	0.3	0.1	0.4	192.9	-2.79%
2017	86.7	14.7	21.3	26.3	7.7	1.6	44.8	0.3	0.1	0.3	203.8	5.66%
2018	79.6	14.3	20.9	27.2	7.5	1.7	46.7	0.3	0.1	0.3	198.7	-2.48%
2019	82.9	14.3	21.1	26.5	7.6	1.7	46.5	0.3	0.1	0.3	201.5	1.38%
2020	83.6	14.4	21.2	26.4	7.6	1.7	46.8	0.3	0.1	0.4	202.5	0.52%
2021	84.2	14.4	21.2	26.3	7.6	1.7	46.9	0.3	0.1	0.4	203.3	0.37%
2022	84.8	14.4	21.3	26.2	7.6	1.7	46.9	0.3	0.1	0.4	203.8	0.28%
2023	85.3	14.4	21.3	26.1	7.6	1.7	46.9	0.3	0.1	0.4	204.3	0.22%
2024	86.0	14.5	21.4	26.0	7.6	1.7	46.8	0.3	0.1	0.4	204.7	0.19%
2025	86.4	14.5	21.4	25.8	7.6	1.7	46.9	0.3	0.1	0.4	205.2	0.24%
2026	86.9	14.5	21.5	25.7	7.6	1.7	46.9	0.3	0.1	0.4	205.6	0.21%
2027	87.5	14.5	21.5	25.6	7.6	1.7	46.9	0.3	0.1	0.4	206.1	0.22%
2028	88.1	14.5	21.5	25.4	7.6	1.7	46.8	0.2	0.1	0.4	206.5	0.22%
<b>AARG %<sup>1</sup> 2019-2023</b>	<b>0.72%</b>	<b>0.23%</b>	<b>0.31%</b>	<b>-0.36%</b>	<b>0.00%</b>	<b>-0.24%</b>	<b>0.21%</b>	<b>-1.60%</b>	<b>0.00%</b>	<b>0.62%</b>	<b>0.35%</b>	
<b>AARG %<sup>1</sup> 2019-2028</b>	<b>0.68%</b>	<b>0.16%</b>	<b>0.24%</b>	<b>-0.45%</b>	<b>0.00%</b>	<b>-0.27%</b>	<b>0.06%</b>	<b>-1.66%</b>	<b>0.00%</b>	<b>0.63%</b>	<b>0.27%</b>	

1) AARG % = Annual Average Rate of Growth Percentage

## Appendix A

**Table 6-3 – HIGH case forecast of annual retail load (aMW) by customer class**

Calendar Year	Residential	Small General	Medium General	Large General	Large Industrial	Small Irrigation	Large Irrigation	Street Lights	Security Lights	Unmetered Flats	Total System
2019	86.8	14.8	21.8	27.2	7.6	1.8	49.2	0.3	0.1	0.3	210.0
2020	87.6	14.8	21.9	27.2	7.6	1.8	49.5	0.3	0.1	0.4	211.1
2021	88.2	14.9	22.0	27.1	7.6	1.8	49.6	0.3	0.1	0.4	211.9
2022	88.8	14.9	22.0	27.0	7.6	1.8	49.6	0.3	0.1	0.4	212.5
2023	89.4	14.9	22.1	26.9	7.6	1.8	49.6	0.3	0.1	0.4	213.0
2024	90.0	14.9	22.1	26.7	7.6	1.8	49.5	0.3	0.1	0.4	213.4
2025	90.5	14.9	22.2	26.6	7.6	1.8	49.6	0.3	0.1	0.4	214.0
2026	91.1	15.0	22.2	26.4	7.6	1.8	49.6	0.3	0.1	0.4	214.4
2027	91.7	15.0	22.2	26.3	7.6	1.8	49.6	0.3	0.1	0.4	214.9
2028	92.4	15.0	22.3	26.2	7.6	1.8	49.5	0.2	0.1	0.4	215.4
<b>AARG %<sup>1</sup> 2019-2023</b>	<b>0.73%</b>	<b>0.24%</b>	<b>0.32%</b>	<b>-0.35%</b>	<b>0.00%</b>	<b>-0.24%</b>	<b>0.20%</b>	<b>-1.60%</b>	<b>0.00%</b>	<b>0.62%</b>	<b>0.35%</b>
<b>AARG %<sup>1</sup> 2019-2028</b>	<b>0.69%</b>	<b>0.17%</b>	<b>0.25%</b>	<b>-0.44%</b>	<b>0.00%</b>	<b>-0.27%</b>	<b>0.06%</b>	<b>-1.66%</b>	<b>0.00%</b>	<b>0.63%</b>	<b>0.28%</b>

1) AARG % = Annual Average Rate of Growth Percentage

**Table 6-4 – LOW case forecast of annual retail load (aMW) by customer class**

Calendar Year	Residential	Small General	Medium General	Large General	Large Industrial	Small Irrigation	Large Irrigation	Street Lights	Security Lights	Unmetered Flats	Total System
2019	79.0	13.9	20.4	25.7	7.6	1.7	43.8	0.3	0.1	0.3	192.9
2020	79.7	13.9	20.5	25.7	7.6	1.7	44.1	0.3	0.1	0.4	193.9
2021	80.3	13.9	20.5	25.6	7.6	1.7	44.2	0.3	0.1	0.4	194.6
2022	80.8	14.0	20.6	25.5	7.6	1.7	44.2	0.3	0.1	0.4	195.2
2023	81.3	14.0	20.6	25.3	7.6	1.7	44.2	0.3	0.1	0.4	195.6
2024	81.9	14.0	20.7	25.2	7.6	1.6	44.1	0.3	0.1	0.4	195.9
2025	82.3	14.0	20.7	25.1	7.6	1.7	44.2	0.3	0.1	0.4	196.4
2026	82.8	14.0	20.7	24.9	7.6	1.6	44.2	0.3	0.1	0.4	196.7
2027	83.3	14.0	20.7	24.8	7.6	1.6	44.2	0.3	0.1	0.4	197.2
2028	83.9	14.0	20.8	24.7	7.6	1.6	44.1	0.2	0.1	0.4	197.6
<b>AARG %<sup>1</sup> 2019-2023</b>	<b>0.71%</b>	<b>0.21%</b>	<b>0.30%</b>	<b>-0.37%</b>	<b>0.00%</b>	<b>-0.24%</b>	<b>0.23%</b>	<b>-1.60%</b>	<b>0.00%</b>	<b>0.62%</b>	<b>0.34%</b>
<b>AARG %<sup>1</sup> 2019-2028</b>	<b>0.67%</b>	<b>0.14%</b>	<b>0.23%</b>	<b>-0.46%</b>	<b>0.00%</b>	<b>-0.27%</b>	<b>0.07%</b>	<b>-1.66%</b>	<b>0.00%</b>	<b>0.63%</b>	<b>0.27%</b>

1) AARG % = Annual Average Rate of Growth Percentage

## Appendix A

**Table 6-5 – Total System historical BASE case forecast of MONTHLY and annual retail load (aMW)**

Calendar Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2001	196.3	186.2	157.4	159.9	191.3	216.5	234.0	208.1	190.2	140.4	132.3	138.1	179.2
2002	174.7	174.8	155.8	172.8	184.3	208.9	249.3	240.7	169.9	133.5	159.2	150.0	181.2
2003	164.5	165.0	139.7	147.9	183.3	239.3	256.4	237.7	185.5	144.1	141.0	159.2	180.5
2004	202.1	175.1	147.2	165.0	177.0	211.2	260.8	231.8	178.4	138.6	146.1	147.1	181.8
2005	188.8	165.8	163.5	168.1	177.3	229.3	255.6	251.2	170.2	124.0	134.7	164.2	182.9
2006	167.3	162.9	155.4	151.7	177.2	221.6	250.4	233.4	171.8	131.1	135.0	171.0	177.6
2007	182.2	185.4	148.3	155.5	187.7	235.0	254.1	236.0	187.5	127.6	143.7	158.6	183.5
2008	176.4	188.5	147.5	182.2	191.7	228.2	262.4	234.6	177.5	149.1	127.3	174.0	186.7
2009	201.8	185.2	161.9	172.6	209.5	258.3	267.4	250.3	187.6	144.4	142.3	181.6	197.1
2010	191.9	157.1	150.6	180.6	175.6	204.6	253.5	250.5	167.1	133.4	129.5	183.6	181.8
2011	186.4	180.8	156.1	173.6	174.5	221.0	247.3	253.8	209.0	136.1	136.1	182.3	188.2
2012	190.0	188.1	145.8	165.4	205.4	207.7	245.0	258.7	197.4	141.2	146.8	155.2	187.3
2013	185.8	187.3	150.1	167.3	206.6	234.1	274.0	249.5	186.1	148.6	148.8	184.3	193.7
2014	194.0	207.4	161.0	184.7	210.4	265.2	283.5	255.1	199.3	161.9	145.4	172.1	203.3
2015	178.8	178.2	148.2	181.5	201.0	288.8	296.2	248.9	197.7	154.4	136.6	168.9	198.4
2016	191.6	175.0	145.0	193.5	205.2	257.1	258.1	249.9	190.4	143.8	135.2	168.4	192.9
2017	228.0	221.2	169.4	160.9	191.5	266.3	289.6	261.5	193.4	148.1	148.5	167.1	203.8
2018	194.5	177.9	163.2	170.5	210.0	260.7	285.1	263.1	191.1	146.0	148.8	171.1	198.7
<b>Min. 2001-2018</b>	<b>164.5</b>	<b>157.1</b>	<b>139.7</b>	<b>147.9</b>	<b>174.5</b>	<b>204.6</b>	<b>234.0</b>	<b>208.1</b>	<b>167.1</b>	<b>124.0</b>	<b>127.3</b>	<b>138.1</b>	<b>177.6</b>
<b>Avg. 2009-2018</b>	<b>194.3</b>	<b>185.8</b>	<b>155.1</b>	<b>175.1</b>	<b>199.0</b>	<b>246.4</b>	<b>270.0</b>	<b>254.1</b>	<b>191.9</b>	<b>145.8</b>	<b>141.8</b>	<b>173.4</b>	<b>194.5</b>
<b>Max. 2001-2019</b>	<b>228.0</b>	<b>221.2</b>	<b>169.4</b>	<b>193.5</b>	<b>210.4</b>	<b>288.8</b>	<b>296.2</b>	<b>263.1</b>	<b>209.0</b>	<b>161.9</b>	<b>159.2</b>	<b>184.3</b>	<b>203.8</b>
2019	207.6	183.4	164.1	177.6	206.5	261.4	285.0	259.7	192.5	154.7	144.5	178.0	201.5
2020	208.7	184.3	165.2	178.8	207.9	263.3	286.7	261.0	193.3	155.1	145.1	178.9	202.5
2021	210.0	185.3	165.9	179.3	208.3	263.8	287.3	261.7	193.9	155.5	145.7	179.8	203.3
2022	211.0	186.2	166.4	179.7	208.6	264.2	287.8	262.3	194.3	155.8	146.2	180.6	203.8
2023	212.0	187.0	166.9	180.0	208.8	264.4	288.3	262.9	194.7	156.0	146.5	181.3	204.3
2024	212.9	187.7	167.4	180.3	208.9	264.7	288.7	263.4	195.0	156.2	146.8	182.0	204.7
2025	213.9	188.5	167.8	180.6	209.1	265.0	289.1	263.9	195.4	156.4	147.2	182.7	205.2
2026	214.8	189.2	168.3	180.9	209.2	265.2	289.4	264.4	195.7	156.5	147.5	183.4	205.6
2027	215.8	190.0	168.7	181.2	209.4	265.5	289.9	264.9	196.0	156.7	147.8	184.1	206.1
2028	216.8	190.8	169.3	181.5	209.7	265.8	290.3	265.5	196.4	157.0	148.2	184.8	206.5

# Appendix A

Table 6-6 – 2019 BASE case forecast of MONTHLY and annual retail load (aMW) by customer class

Customer Class	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Small Irrigation	0.0	0.0	0.6	1.5	2.9	3.6	4.3	3.9	2.7	1.3	0.1	0.0	1.7
Large Irrigation	0.3	0.4	12.9	43.5	82.5	122.5	129.0	89.3	44.3	26.1	3.7	0.3	46.5
Residential	133.8	113.8	86.7	68.4	56.6	65.2	77.8	87.3	71.1	55.7	72.3	107.5	82.9
Small General	16.9	15.4	13.1	12.3	12.6	14.2	15.5	16.9	15.2	12.6	12.4	14.8	14.3
Medium General	22.5	21.1	18.7	19.1	19.4	21.1	22.1	23.8	22.3	21.1	20.7	21.2	21.1
Large General	25.5	24.6	23.6	24.3	25.2	26.4	27.8	29.6	29.0	29.0	27.0	25.6	26.5
Large Industrial	7.8	7.3	7.9	7.8	6.7	7.8	7.7	8.2	7.2	8.1	7.6	7.7	7.6
Street Lights	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Security Lights	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Unmetered Flats	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
<b>System Total</b>	<b>207.6</b>	<b>183.4</b>	<b>164.1</b>	<b>177.6</b>	<b>206.5</b>	<b>261.4</b>	<b>285.0</b>	<b>259.7</b>	<b>192.5</b>	<b>154.7</b>	<b>144.5</b>	<b>178.0</b>	<b>201.5</b>

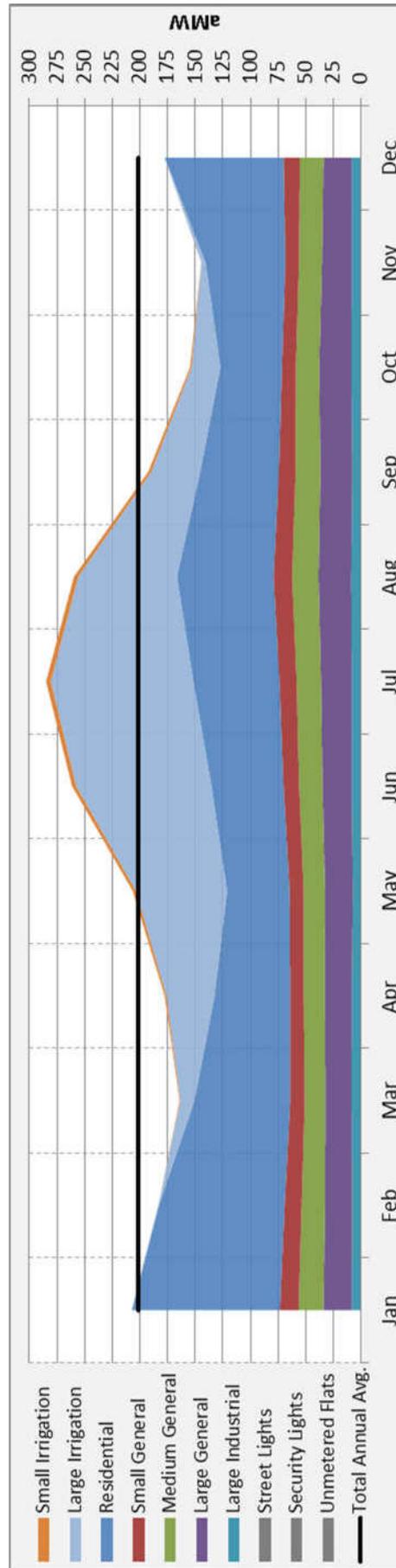


Figure 6-1 – 2019 BASE case forecast of MONTHLY and annual retail load (aMW) by customer class

# Appendix A

**Table 6-7 – Historical and forecast of annual average number of customers by customer class**

Calendar Year	Residential	Small General	Medium General	Large General	Large Industrial	Small Irrigation	Large Irrigation	Street Lights	Security Lights	Unmetered Flats	Total System	Annual % Change
2001	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	36,963	4,144	637	122	3	622	96	9	1,440	353	44,389	#N/A
2006	37,418	4,169	636	126	3	614	99	9	1,429	353	44,855	1.05%
2007	37,969	4,295	654	128	3	607	110	9	1,440	354	45,570	1.59%
2008	38,855	4,385	676	131	3	615	121	9	1,451	354	46,601	2.26%
2009	39,220	4,460	695	134	3	615	131	9	1,453	354	47,074	1.01%
2010	39,687	4,503	718	135	3	602	134	9	1,468	358	47,616	1.15%
2011	40,201	4,553	732	136	3	582	140	9	1,482	359	48,197	1.22%
2012	40,645	4,610	747	142	3	563	158	9	1,480	353	48,710	1.07%
2013	41,321	4,682	746	144	3	564	208	9	1,488	355	49,519	1.66%
2014	41,758	4,741	754	148	3	563	225	9	1,493	359	50,052	1.08%
2015	42,375	4,828	758	151	3	560	234	9	1,482	362	50,761	1.42%
2016	43,157	4,915	768	157	5	558	233	9	1,476	365	51,642	1.74%
2017	43,870	4,977	782	160	5	557	430	9	1,943	378	53,109	2.84%
2018	44,550	4,972	803	162	5	546	437	9	1,888	372	53,744	1.19%
2019	45,303	5,029	822	165	5	540	437	9	1,892	374	54,575	1.55%
2020	45,941	5,100	835	168	5	533	437	9	1,892	375	55,295	1.32%
2021	46,562	5,172	849	171	5	527	437	9	1,892	376	56,000	1.27%
2022	47,171	5,243	862	175	5	521	437	9	1,892	377	56,692	1.24%
2023	47,771	5,313	875	178	5	514	437	9	1,892	378	57,373	1.20%
2024	48,372	5,383	889	181	5	508	437	9	1,892	379	58,055	1.19%
2025	48,977	5,453	902	185	5	501	437	9	1,892	380	58,742	1.18%
2026	49,584	5,524	916	188	5	495	437	9	1,892	382	59,430	1.17%
2027	50,189	5,594	929	191	5	488	437	9	1,892	383	60,117	1.16%
2028	50,794	5,665	942	194	5	482	437	9	1,892	384	60,803	1.14%
<b>AARG %<sup>1</sup> 2019-2023</b>	<b>1.34%</b>	<b>1.38%</b>	<b>1.60%</b>	<b>1.94%</b>	<b>0.00%</b>	<b>-1.18%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.28%</b>	<b>1.26%</b>	
<b>AARG %<sup>1</sup> 2019-2028</b>	<b>1.28%</b>	<b>1.33%</b>	<b>1.54%</b>	<b>1.85%</b>	<b>0.00%</b>	<b>-1.26%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.29%</b>	<b>1.21%</b>	

1) AARG % = Annual Average Rate of Growth Percentage

# Appendix A

**Table 6-8 – Historical and BASE case forecast of annual usage per customer (kWh) by customer class**

Calendar Year	Residential	Small General	Medium General	Large General	Large Industrial	Small Irrigation	Large Irrigation	Street Lights	Security Lights	Unmetered Flats	Total System	Annual % Change
2001	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2002	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2003	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2004	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
2005	16,845	27,681	257,456	1,989,519	17,761,932	25,270	3,978,407	451,882	741	7,064	36,102	#N/A
2006	16,896	27,033	252,197	1,881,465	12,485,305	23,301	3,588,264	453,740	717	8,035	34,683	-3.93%
2007	16,971	26,785	252,449	1,742,392	16,348,383	26,096	3,526,102	461,266	714	8,035	35,270	1.69%
2008	17,151	26,364	250,938	1,715,052	15,920,098	26,068	3,223,518	468,669	714	8,044	35,189	-0.23%
2009	18,402	27,260	252,179	1,747,302	12,969,692	27,460	3,132,715	474,203	720	8,114	36,673	4.22%
2010	16,499	25,201	238,032	1,618,900	18,454,887	23,997	2,664,906	482,159	728	8,096	33,451	-8.79%
2011	17,113	25,989	239,841	1,539,795	21,803,603	25,104	2,624,234	614,671	733	8,101	34,201	2.24%
2012	16,436	25,902	235,713	1,532,625	23,525,055	26,948	2,345,402	459,597	732	8,286	33,777	-1.24%
2013	16,890	26,256	237,601	1,520,385	23,267,593	26,978	1,859,559	305,647	845	8,356	34,265	1.44%
2014	16,687	26,213	241,411	1,531,617	23,956,495	30,589	2,025,654	302,278	869	8,310	35,589	3.87%
2015	15,705	25,165	240,990	1,496,196	22,313,962	29,330	1,932,736	300,405	921	8,352	34,239	-3.79%
2016	15,333	24,796	235,059	1,421,334	12,922,450	27,977	1,801,453	287,682	856	8,448	32,804	-4.19%
2017	17,316	25,933	238,050	1,443,218	13,416,822	24,708	911,216	281,642	573	8,054	33,612	2.46%
2018	15,648	25,113	227,956	1,472,877	13,199,344	28,060	937,326	281,920	544	7,988	32,392	-3.63%
2019	16,033	24,936	224,817	1,408,143	13,396,717	28,414	932,644	279,997	543	8,164	32,339	-0.16%
2020	15,992	24,737	222,673	1,380,215	13,431,877	28,687	940,607	276,511	545	8,215	32,173	-0.51%
2021	15,843	24,396	219,320	1,346,380	13,396,717	28,954	940,584	271,262	543	8,220	31,797	-1.17%
2022	15,749	24,111	216,499	1,315,032	13,396,717	29,229	940,584	266,793	543	8,247	31,496	-0.95%
2023	15,650	23,819	213,620	1,285,174	13,396,717	29,517	940,584	262,511	543	8,275	31,191	-0.97%
2024	15,610	23,601	211,340	1,258,222	13,431,877	29,818	940,607	258,920	545	8,326	30,969	-0.71%
2025	15,455	23,248	208,023	1,226,438	13,396,717	30,135	940,584	253,849	543	8,332	30,596	-1.20%
2026	15,360	22,968	205,280	1,198,615	13,396,717	30,460	940,584	249,477	543	8,359	30,305	-0.95%
2027	15,270	22,700	202,685	1,171,543	13,396,717	30,800	940,584	245,090	543	8,388	30,025	-0.92%
2028	15,243	22,516	200,826	1,149,314	13,431,877	31,149	940,607	241,409	545	8,441	29,834	-0.64%
<b>AARG %<sup>1</sup> 2019-2023</b>	<b>-0.60%</b>	<b>-1.14%</b>	<b>-1.27%</b>	<b>-2.26%</b>	<b>0.00%</b>	<b>0.96%</b>	<b>0.21%</b>	<b>-1.60%</b>	<b>0.00%</b>	<b>0.34%</b>	<b>-0.90%</b>	
<b>AARG %<sup>1</sup> 2019-2028</b>	<b>-0.56%</b>	<b>-1.13%</b>	<b>-1.25%</b>	<b>-2.23%</b>	<b>0.03%</b>	<b>1.03%</b>	<b>0.09%</b>	<b>-1.63%</b>	<b>0.03%</b>	<b>0.37%</b>	<b>-0.89%</b>	

1) AARG % = Annual Average Rate of Growth Percentage





# Capital Requirements Plan

Tab 9



**Capital Requirements Plan - Combined  
Summary -2020 Budget**

Capital Category	Year (amounts in constant year dollars)						
	2019		2020		2021		2023
	Original Budget	Amended Budget	Budget	Budget	2021	2022	2023
Transmission	\$2,431,753	\$2,279,695	\$620,328	\$3,266,495	\$551,313	\$2,713,037	
Distribution	12,967,832	16,786,954	12,792,141	11,035,330	7,746,906	11,039,206	
Broadband	1,353,454	1,353,454	2,101,128	1,070,468	1,072,468	1,050,468	
General Plant	1,758,875	2,099,652	620,800	2,143,755	1,332,000	800,000	
IT	1,001,179	702,806	1,158,469	1,488,948	1,268,884	800,000	
Capitalized Interest	262,100	262,100	-	-	-	-	
<b>Grand Total</b>	<b>19,775,193</b>	<b>23,484,661</b>	<b>17,292,866</b>	<b>19,004,996</b>	<b>11,971,571</b>	<b>16,402,711</b>	
Contributions in Aid	(2,065,153)	(2,878,155)	(1,801,775)	(1,728,275)	(1,728,275)	(21,775)	
<b>Net Capital</b>	<b>\$17,710,040</b>	<b>\$20,606,506</b>	<b>\$15,491,091</b>	<b>\$17,276,721</b>	<b>\$10,243,296</b>	<b>\$16,380,936</b>	

**Capital Requirements Plan  
Transmission**

Project Name	Year (amounts in constant year dollars)									
	2019		2020		2021		2022		2023	
	Original Budget	Amended Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget
Poles & Fixtures, Misc Repairs	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000
Switch Upgrade/Additions	154,651	154,651	148,000	148,000	148,000	148,000	148,000	148,000	-	-
WO# 511679 - BPA Interconnection-Southridge Sub/Line Tap	1,429,255	1,429,255	-	-	-	-	-	-	-	-
BPA McNary 115 kV Point of Delivery	550,000	550,000	-	-	-	-	-	-	-	-
Equipment Overhead Allocation	130,789	130,789	-	-	-	-	-	-	-	-
WO# 503229 - Transmission Line-Sunset Rd to Dallas Rd	95,813	-	-	-	-	138,313	138,313	2,448,037	-	-
Transmission Misc.	56,245	-	-	-	-	-	-	-	-	-
WO# 511742 - Transmission Line-Phillips to Spaw	-	-	253,128	3,103,495	-	-	-	-	-	-
WO# XXXXXX - Hedges 115kV Metering Point	-	-	204,200	-	-	-	-	-	-	-
WO# 534224 - Transmission Line-Hwy 240 to Edison Sub	-	-	-	-	-	250,000	250,000	-	-	-
WO# XXXXXX - Mabton to Prosser Tie	-	-	-	-	-	-	-	-	125,000	125,000
WO# XXXXXX - Transmission Line-Klickitat to Horse Heaven Tie	-	-	-	-	-	-	-	-	-	-
<b>Grand Total</b>	<b>\$2,431,753</b>	<b>\$2,279,695</b>	<b>\$620,328</b>	<b>\$3,266,495</b>	<b>\$551,313</b>	<b>\$551,313</b>	<b>\$2,713,037</b>			

Capital Requirements Plan  
Distribution

Project Group	Project	Project Name	Year (amounts in constant year dollars)					
			2019 Original Budget	2019 Amended Budget	2020 Budget	2021	2022	2023
Capacity & Reliability	23 - Substations	Substation Misc. Aux Equip, Relays/Controls	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
		WOH 552659 - Chevron Power Transformer Change Out	489,218	474,512	87,331	-	-	-
		WOH 559337 - Benton City Substation Upgrade	1,546,629	1,976,951	-	-	-	-
		WOH 511761 - New Substation Bay - Orchard View #2	1,030,522	1,030,522	-	-	-	-
		WOH 562731 - Riverfront Power Ximr LTC Retrofit	335,374	254,615	-	-	-	-
		WOH 560191 - Teague Farms Sunheaven #1 Substation Upgrades	204,375	127,862	-	-	-	-
		WO #517279 - Circuit Switcher Addition - Highlands #2	159,578	214,341	-	-	-	-
		WOH 559429 - Nine Canyon Harmonic Analysis	50,000	50,000	-	-	-	-
		WOH XXXXXX - Prosser Animal Fence	49,950	49,950	-	-	-	-
		WOH 575512 - Umatilla Ridge Battery Bank	14,709	14,709	-	-	-	-
		WOH 556460 - 735 Meter install at Sunheaven #2 Substation Bay 1	13,395	8,708	-	-	-	-
		WOH 559423 - 735 Meter install at Prior #4 Substation	10,000	10,000	-	-	-	-
		WOH 564613 - Ximr & Feeder Relay Upgrade - Ely #2	85,000	-	85,000	-	-	-
		WOH 520249 - Feeder Position Addition - Phillips P8R	35,604	-	36,024	-	-	-
		WOH XXXXXX - 735 Meter install at H2F4 Substation	10,000	-	9,999	-	-	-
		WOH XXXXXX - 735 Meter install at H2F3 Substation	9,999	-	9,999	-	-	-
		WOH XXXXXX - 735 Meter install at Sandpiper Substation	9,999	-	9,999	-	-	-
		WOH 554914 - 735 Meter install at Sunheaven #1 Substation	9,999	-	-	-	-	-
		WOH 570993 - Brinkley Rd. Water Main (Southridge Substation)	-	121,945	-	-	-	-
		WOH 530724 - Berrian Sub SKV Breaker Addition	-	53,160	-	-	-	-
		WOH 557111 - Nine Canyon - CAP Improvements	-	49,999	-	-	-	-
		WOH 550259 - PMH-10 Replacement at Orchard View Substation	-	42,217	-	-	-	-
		WOH XXXXX-Cap Banks-River-System Subs	-	16,218	-	-	-	-
		542165 - V5 & V8 Breaker Replacement	-	10,353	-	-	-	-
		WOH 524028 - 735 Meter install & Ground Grid Repair Paterson #1 Substation	-	4,390	-	-	-	-
		WOH 554911 - 735 Meter install at Prior #3 Substation	-	2,209	-	-	-	-
		WOH 554910 - 735 Meter install at Prior #2 Substation	-	1,619	-	-	-	-
		WOH 507586 - Leslie Road Substation	-	(47,080)	-	-	-	-
		WOH XXXXXX - Southridge Substation	-	-	2,076,801	-	-	-
		WOH XXXXXX - Control House Addition & Batteries-Gum Street	-	-	160,834	-	-	-
		WOH XXXXXX - Ximr & Feeder Relay Upgrade-Gum Street	-	-	87,308	-	-	-
		WOH XXXXXX - Highlands Battery Bank	-	-	16,760	-	-	-
		WOH XXXXXX-Hedges Substation Upgrades	-	-	-	1,220,000	-	-
WOH XXXXX- Prosser Bay #2 CS & Diff Addition	-	-	-	200,000	-	-		
WOH XXXXXX- Prosser Bay #1 CS & Diff Addition	-	-	-	85,000	-	-		
WOH XXXXX- Relay Upgrades River Front Substation	-	-	-	75,000	-	-		
WOH XXXXXX - Feeder Relay Upgrades-Vista Bay 2	-	-	-	75,000	-	-		
WOH XXXXXX - Feeder Relay Upgrades Vista Bay 1	-	-	-	50,000	-	-		
WOH XXXXXX - Sunset Road Animal Fence	-	-	-	15,000	-	-		
WOH XXXXXX - Zephyr Heights Battery Bank Replacement	-	-	-	-	250,000	-		
WOH XXXXXX - Angus Feeder Breaker & Relay Replacement	-	-	-	-	15,000	-		
WOH XXXXXX - Kennewick Battery Bank Replacement	-	-	-	-	-	2,100,000		
WOH XXXXXX- New Edison Street Substation	-	-	-	-	-	50,000		
WOH XXXXXX - Phillips Animal Fence	-	-	-	-	-	15,000		
WOH XXXXXX - River Front Battery Bank Replacement	-	-	-	-	-	15,000		
<b>23 - Substations Total</b>			<b>4,089,351</b>	<b>4,492,200</b>	<b>2,605,055</b>	<b>1,945,000</b>	<b>2,190,000</b>	
22 - Scada	17 - Dist. System Improvement	Substation RTU & radio communications upgrades	49,999	49,999	62,500	50,000	50,000	50,000
		Distribution automation regulator SCADA	189,000	280,800	136,500	-	-	-
		Distribution automation for voltage optimization	98,000	98,000	-	-	-	-
		Fiber to Substations & Line Devices	72,249	-	64,140	19,617	19,617	19,617
		WOH#566834 - Fiber to H2F2 Reservoir Substation	-	33,321	-	-	-	-
		WOH#565157 - Fiber to Irigro Substation	-	29,188	-	-	-	-
WOH#566818 - Fiber to Spaw Substation	-	26,125	-	-	-	-		
WOH#566836 - Fiber to Phillips Hill Top	-	15,807	-	-	-	-		
<b>22 - Scada Total</b>		<b>409,248</b>	<b>553,240</b>	<b>263,140</b>	<b>69,617</b>	<b>69,617</b>	<b>69,617</b>	
Dist System Improvements			357,891	357,891	535,656	315,489	315,489	
WOH 550802 - DNR Teague Farms Booster Station			635,069	635,069	-	-	-	

Capital Requirements Plan  
Distribution

Project Group	Project	Project Name	Year (amounts in constant year dollars)							
			2019 Original Budget	2019 Amended Budget	2020 Budget	2021	2022	2023		
Capacity & Reliability	17 - Dist. System Improvement	WOH 505932 - Orchard View Bay #2 Feeder Getaways	201,250	528,580	-	-	-	-	-	
		WOH 545101 - BPA Clearance Issue Raimer St.	1,194,210	1,548,035	535,656	3,15,489	315,489	-	-	
	17 - Dist. System Improvement Total	Land & Land Rights	100,000	243,759	-	-	-	-	-	
		Land & Land Rights Total	100,000	243,759	349,999	-	-	-	-	
	9 - Dist. 5 Year Plan	Land & Land Rights	WOH 503528 - Voltage Optimization - Kennewick	524,801	224,803	306,002	-	-	-	-
			WOH 555217 - Prosser-4 River Crossing Reconductor	375,000	52,253	-	-	-	-	-
			WOH 523432 - POS #112 - Orchard View North Feeder	360,435	518,388	-	-	-	-	-
			WOH 505924 - VIS-1 to VIS-6, UG tie across W Quinalt Ave	93,308	93,308	-	-	-	-	-
			POS #102 - HED-4 Getaway Reconductor	63,423	63,423	-	-	-	-	-
			WOH XXXXX BEC-2, reliability & sectionalizing	49,171	49,171	-	-	-	-	-
WOHXXXXX - POS#103 Benton City Switches			24,001	24,001	-	-	-	-	-	
POS #106 - Reconductor 3/0 ACSR from L329A to 7th St along Stacy Ave			31,262	31,262	-	-	-	-	-	
WOH - XXXXXX - POS #111 - RTA-3 Reconductors #2 EPRU to 4/0 EPRU and #2 EPRU to 1/0 EPRU			15,538	15,538	-	-	-	-	-	
POS #108 - ZEH-1 Reconductor 1/0 EPRU to 4/0 EPRU			9,758	9,758	-	-	-	-	-	
WOH XXXXX POS #110 - RTA-2 Reconductor #2 EPRU to 1/0 EPRU	8,034	8,034	-	-	-	-	-			
WOH XXXXX POS #109 - LES-3 Reconductor #2 EPRU to 1/0 EPRU	7,651	7,651	-	-	-	-	-			
WOH 545813 HED-2, reliability & sectionalizing	27,205	27,205	-	-	-	-	-			
WOH XXXXX HED - 4 Reconductor 3/0 ACSR, Perkins Rd.	-	415,000	-	-	-	-	-			
WOH XXXXX BEC-3, new feeder to east to tie with SSR-1	-	372,000	-	-	-	-	-			
WOH XXXXX HED - 4 Reconductor #6, Bernath Rd.	-	327,000	-	-	-	-	-			
WOH XXXXX ZEH-4, new OH tie to GUM-4 at Game Farm Rd.	-	115,999	-	-	-	-	-			
RTA-3, extend UG west along Sagebrush Rd	-	168,023	-	-	-	-	-			
RTA-1, extend OH from Reata Rd south	-	46,043	-	-	-	-	-			
WOHXXXXX - POS#104 ORV-2 to ORV-5 switch	-	10,500	-	-	-	-	-			
WOHXXXXX - POS#107 RVF-1 to PSR-1 Switch	-	10,500	-	-	-	-	-			
WOH XXXXX - Voltage Optimization - Future	-	500,000	-	-	-	-	-			
WOH XXXXX HED-2, recon #266.8, Finley Rd	-	245,000	-	-	-	-	-			
WOH XXXXX PHI-8, new feeder north to Cochrane	-	217,224	-	-	-	-	-			
WOH XXXXX GUM - 4 Reconductor #4 ACSR, Game Farm Rd.	-	200,000	-	-	-	-	-			
WOH XXXXX HED-3, Reconductor #4 Terrill Rd.	-	156,000	-	-	-	-	-			
WOH XXXXX GUM-4, dbi cir on 36th, recon 3/0 on Oak St	-	137,000	-	-	-	-	-			
WOH XXXXX GUM - 4 Reconductor #4 ACSR, Oak St.	-	135,000	-	-	-	-	-			
WOH XXXXX GUM-4, new OH tie HED-3, Game Farm to Terrill	-	91,000	-	-	-	-	-			
WOH XXXXX HIG-4, recon. 3/0, W. 10th Ave.	-	85,000	-	-	-	-	-			
WOH XXXXX ZEH-3, recon. 1/0 to serve GUM-3	-	80,000	-	-	-	-	-			
POS #105 - KEN-9 Reconductor 3/0 ACSR along Washington St	-	64,800	-	-	-	-	-			
WOH XXXXX ELY-8, recon. 3/0, near Ely St.	-	36,000	-	-	-	-	-			
WOH XXXXX SSR-3, relocate and recon. OH line	-	-	-	-	-	-	-			
WOH XXXXX GUM-4, HED-3, recon. 3/0, Bowles Rd.	-	-	-	-	-	-	-			
WOH XXXXX KEN-8, convert OH to UG across fairgrounds	-	-	-	-	-	-	-			
WOH XXXXX ZEH-1, new OH line and UG tie with E7	-	-	-	-	-	-	-			
WOH XXXXX RTA-2, Recon. Badger Rd. Btwn L766A & L80R	-	-	-	-	-	-	-			
POS #113 - ELY-2 Reconductor 3/0 ACSR along Garfield St	-	-	-	-	-	-	-			
9 - Dist. 5 Year Plan Total		1,562,381	1,124,793	1,771,067	1,590,224	356,800	1,664,100			
Capacity & Reliability Total		7,355,190	7,942,027	5,524,917	3,920,330	1,031,906	4,239,206			
Customer Growth	13 - Dist. Irrigation Facilities	DIST IRR FACILITIES	80,002	80,002	-	-	-	-		
		17 - Dist. System Improvement	80,002	80,002	-	-	-	-		
		13 - Dist. Irrigation Facilities Total	80,002	80,002	-	-	-	-		
Capacity & Reliability Total	17 - Dist. System Improvement	WOH 528855 - Vista Field Phase #1 Feeder	-	659,267	-	-	-	-		
		WOH 560140 - Orchard View South Park #2	-	528,580	-	-	-	-		
		WOH 531050 - Leslie Road Feeder Getaways (West)	-	312,070	-	-	-	-		
		WOH 560911 - OV North Clear Water to Vista Field RR Crossing	-	308,105	-	-	-	-		
		WOH 569812 - Existing Feeder Relocation Vista Field.	-	94,310	-	-	-	-		
		WOH 532564 - W Metaine Ave COK Road Widening-Underground	-	56,669	-	-	-	-		
WOH XXXXX - Southridge Sub Feeder Getaways	-	-	547,000	-	-	-	-			
WOH XXXXX - Edison Street Sub Feeder Getaways	-	-	-	400,000	-	-	-			

Capital Requirements Plan  
Distribution

Project Group	Project	Project Name	Year (amounts in constant year dollars)				
			2019 Original Budget	2019 Amended Budget	2020 Budget	2023	
Customer Growth	17 - Dist. System Improvement Total			1,959,001	547,000	400,000	
	20 - Service Poles	Service Poles	20,000	40,000	20,000	20,000	20,000
	20 - Service Poles Total		20,000	40,000	20,000	20,000	20,000
	30 - Sum Base Growth	Dist Base Growth	1,452,993	1,952,995	2,019,392	2,000,000	2,000,000
	30 - Sum Base Growth Total		1,452,993	1,952,995	2,019,392	2,000,000	2,000,000
	42 - Service Work	Services, Set Xfirms, Run Secondary	2,016,132	2,660,704	2,293,332	2,250,000	2,250,000
	42 - Service Work Total		2,016,132	2,660,704	2,293,332	2,250,000	2,250,000
	Customer Growth	WO# 573548 - Prior #3 Step-Up Upgrade		43,668			
	Customer Growth Total			43,668			
	Land & Land Rights	Title Reports for Construction Projects New Permits (Crossing, Etc.) County Recording Fees - Easements			2,500 10,000 5,000		
Land & Land Rights Total			17,500				
Customer Growth Total			3,569,127	6,736,370	4,897,224	4,670,000	4,270,000
General Plant	Meters	Meters	200,000	200,000	200,000	200,000	200,000
General Plant Total			200,000	200,000	200,000	200,000	200,000
Other	19 - NESC Standards Compliance	JU - NESC Compliance Program	258,500	258,500	250,000	250,000	125,000
Other	19 - NESC Standards Compliance Total		258,500	258,500	250,000	250,000	125,000
Other	Equipment Overhead Allocation		292,211	292,208	350,000		
Other	Anticipated Carry Over		(730,000)	(730,000)	(425,000)		
Other Total			(437,789)	(437,792)	(75,000)		
Other Total			(179,289)	(179,292)	175,000	250,000	125,000
Repair & Replace	23 - Substations	WO# XXXXX - Vista Substation CMU Fence (Center Pkwy)					250,000
Repair & Replace	23 - Substations Total						250,000
Repair & Replace	12 - Dist. Cable Replacement Projects	Repair & Replacement - Cable	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Repair & Replace	12 - Dist. Cable Replacement Projects Total		1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Repair & Replace	14 - Dist. Other Maintenance	Repair & Replacement - Other Trouble Orders	265,000	265,000	265,000	265,000	265,000
Repair & Replace	14 - Dist. Other Maintenance Total		218,857	218,857	190,000	190,000	190,000
Repair & Replace	16 - Dist. Pole Replacement	WO# XXXXX - Distribution Pole Replacement	38,947	38,947	40,000	40,000	40,000
Repair & Replace	16 - Dist. Pole Replacement Total		38,947	38,947	40,000	40,000	40,000
Repair & Replace	17 - Dist. System Improvement	WO# XXXXX - BPA Clearance Issue 10th Ave. WO# XXXXX - BPA Clearance Issue Demoss Rd.		35,046			
Repair & Replace	17 - Dist. System Improvement Total			65,045			
Repair & Replace Total			2,022,804	2,087,849	1,995,000	1,995,000	2,205,000
Grand Total			\$12,967,832	\$16,786,954	\$12,792,141	\$11,035,330	\$7,746,906

**Capital Requirements Plan  
Broadband**

Project Name	Year (amount in constant year dollars)								
	2019		2020		2021		2022		2023
	Original Budget	Amended Budget	Budget	Budget	2021	2022	2023	2023	
Fiber Customer Connects LEC 2	\$600,000	\$600,000	\$600,000	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	
Fiber Backbone & Laterals	250,000	250,000	217,500	250,000	250,000	250,000	250,000	225,000	
NoaNET NCS and District Labor	192,468	192,468	198,628	200,468	200,468	202,468	202,468	205,468	
Fiber Customer Connects - LEC 1	75,000	75,000	100,000	100,000	100,000	100,000	100,000	100,000	
WO#559986 - Backbone System Electronics	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	
WO#560002 - Premise Electronics	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	
Fiber Conduit	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	
Airflow Spoiler Project	65,986	65,986	-	-	-	-	-	-	
Advanced Wireless/Small Cell	-	-	815,000	-	-	-	-	-	
<b>Grand Total</b>	<b>\$1,353,454</b>	<b>\$1,353,454</b>	<b>\$2,101,128</b>	<b>\$1,070,468</b>	<b>\$1,070,468</b>	<b>\$1,072,468</b>	<b>\$1,050,468</b>	<b>\$1,050,468</b>	

**Capital Requirements Plan  
General Plant**

Project	Project Name	Year (amount in constant year dollars)				
		2019 Original Budget	2019 Amended Budget	2020 Budget	2021	2022
Facilities	CT Plant Demolition	\$150,000	\$150,000	\$0	\$0	\$0
	Asphalt Drive Through and West Parking Lot	140,000	140,000	-	-	-
	Asphalt Replacement and Pavement Crack Seal	40,000	60,000	-	-	-
	Rebuild HP 1 Admin HVAC	7,500	7,500	-	-	-
	HVAC Lebiert Humidifier Replacement Admin	5,000	5,000	-	-	-
	Paint - Operations Dock Area	15,000	-	15,000	-	-
	Pole Yard Gate - Operations	20,000	-	-	20,000	-
	Prosser Security Upgrade	7,000	-	-	-	-
	Chiller/Boiler	-	286,300	-	-	-
	Roof Replacement - Admin	-	250,000	-	-	-
	Transfer Switch for HVAC Upgrade at Admin	-	20,000	-	-	-
	Stucco Building	-	20,000	-	-	-
	Heat Pump #5 Replacement	-	7,500	-	-	-
	Camera System Upgrade - Operations	-	-	10,000	-	-
	Rebuild HP 7 at Admin	-	-	7,000	-	-
	Rebuild HP 2 - at Admin	-	-	7,000	-	-
	Dist System Improvements/Projected Capital Facilities	-	-	-	200,000	200,000
	Back Up Generator - Admin	-	-	-	300,000	-
	Asphalt Replacement Admin South Parking Lot	-	-	-	160,000	-
	Carpet Replacement - Customer Service Lobby	-	-	-	30,000	-
Back up Generator - Operations	-	-	-	-	400,000	
<b>Facilities Total</b>		<b>384,500</b>	<b>946,300</b>	<b>39,000</b>	<b>710,000</b>	<b>200,000</b>
Transportation	Digger Derrick - Line Truck	340,000	340,000	-	-	-
	Foreman Truck	115,000	115,000	-	-	-
	Meter Shop Extended Cab	50,000	50,000	-	-	-
	Meter Shop - Thumper Truck	40,000	40,000	-	-	-
	F-150 Crew Cab Truck	32,000	32,000	-	-	-
	Utility Tree Coordinator Truck	32,000	32,000	-	-	-
	Line Truck - Prosser	340,000	-	340,000	-	-
	Transformer Shop Van (Vehicle 204)/Equipment	-	40,295	-	-	-
	Pick up for Assistant Supt of Transmission and Dist	-	40,000	-	-	-
	Electric Vehicle	-	38,682	-	-	-
	Snowmobiles (2) for Winter Outage Restoration	-	22,000	-	-	-
	Vehicle 90 Engine Replacement	-	20,000	-	-	-
Trailer for Snowmobiles	-	13,000	-	-	-	

**Capital Requirements Plan  
General Plant**

Project	Project Name	Year (amount in constant year dollars)					
		2019 Original Budget	2019 Amended Budget	2020 Budget	2021	2022	2023
Transportation	Locator Truck	-	-	40,000	-	-	-
	High Capacity Digger Derrick	-	-	-	800,000	-	-
	Overhead Puller	-	-	-	180,000	-	-
	Small Bucket Truck for Emergency Standby	-	-	-	90,000	-	-
	Bucket Truck - Prosser	-	-	-	-	400,000	-
	Foreman Truck - Prosser	-	-	-	-	-	120,000
	Dump Truck	-	-	-	-	-	50,000
	Projected Transportation Equipment	-	-	-	-	-	30,000
<b>Transportation Total</b>		<b>949,000</b>	<b>782,977</b>	<b>380,000</b>	<b>1,070,000</b>	<b>600,000</b>	<b>500,000</b>
Other	Communications Equipment/800 MHz Radios	5,000	5,000	40,000	5,000	5,000	5,000
	Projected Capital Equip - Ops	5,000	5,000	5,000	5,000	5,000	5,000
	Misc. Construction Capital Expense - Line Department	67,500	67,500	67,500	-	-	-
	Pole Stubbing	10,000	10,000	10,000	-	-	-
	Misc. Construction Capital Expense - Transformer Shop	10,000	10,000	10,000	-	-	-
	Off the Dock/Construction Labor	180,000	180,000	-	-	-	-
	Drone Purchase	65,000	65,000	-	-	-	-
	Transformer Gas Tester	15,000	15,000	-	-	-	-
	Substation Battery Tester	6,475	6,475	-	-	-	-
	Spider Reel	6,400	6,400	-	-	-	-
	Doble Relay Test Set	55,000	-	55,000	-	-	-
	Light Plant	-	-	14,300	-	-	-
	Projected Capital Equip - Line	-	-	-	25,000	45,000	45,000
	D6 Dozer	-	-	-	210,000	-	-
	Meter Test Standard	-	-	-	60,000	-	-
	TTR and Winding Resistance Tester	-	-	-	26,000	-	-
	CT Verification Tester	-	-	-	25,000	-	-
Micro Ohm Tester	-	-	-	7,755	-	-	
Fault Locator	-	-	-	-	-	52,000	
Projected Capital - Transformer Shop	-	-	-	-	-	25,000	
Projected Capital - Meter Shop	-	-	-	-	-	20,000	
<b>Other Total</b>		<b>425,375</b>	<b>370,375</b>	<b>201,800</b>	<b>363,755</b>	<b>132,000</b>	<b>100,000</b>
<b>Grand Total</b>		<b>\$1,758,875</b>	<b>\$2,099,652</b>	<b>\$620,800</b>	<b>\$2,143,755</b>	<b>\$1,332,000</b>	<b>\$800,000</b>

Capital Requirements Plan  
Information Technology

Project	Project Name	Year (amounts in constant year dollars)									
		2019		2020		2021		2022		2023	
		Original Budget	Amended Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget
Enterprise Applications	iVUE Enhancements	\$54,253	\$72,253	\$121,310	\$54,253	\$54,253	\$54,253	\$54,253	\$54,253	\$54,253	
	SCADA Data Forwarding License	24,968	-	-	-	-	-	-	-	-	
	SCADA Archive Reporting License	19,563	-	-	-	-	-	-	-	-	
	SCADA Historian	-	117,943	23,077	-	-	-	-	-	-	
	Sag10 Software Purchase	-	14,300	-	-	-	-	-	-	-	
	SCADA Historian Enhancements	-	-	-	115,592	-	-	-	-	-	
	TRIM Upgrade	-	-	-	59,489	-	-	-	-	-	
WindMill Upgrade	-	-	-	17,854	-	-	-	-	-		
<b>Enterprise Applications Total</b>		<b>98,784</b>	<b>204,496</b>	<b>144,387</b>	<b>247,188</b>	<b>54,253</b>	<b>54,253</b>	<b>54,253</b>	<b>54,253</b>		
Data Analytics/Business Intelligence	Purchase and Implement ETL Tool	73,290	20,000	25,000	-	-	-	-	-		
	Purchase Database Licenses for Data Warehouse	40,000	-	-	-	-	-	-	-		
	Purchase and Implement IPaaS Services	-	-	-	-	-	96,000	-	-		
	Purchase and Implement Big Data Storage	-	-	-	-	-	84,425	-	-		
<b>Data Analytics/Business Intelligence Total</b>		<b>113,290</b>	<b>20,000</b>	<b>25,000</b>	<b>-</b>	<b>180,425</b>	<b>-</b>	<b>-</b>			
Operational Technology	Communications Monitors/TV Purchase	55,114	-	-	53,012	-	-	-	-		
	TGB Replacement	-	-	213,211	-	-	-	-	-		
<b>Operational Technology Total</b>		<b>55,114</b>	<b>-</b>	<b>213,211</b>	<b>53,012</b>	<b>-</b>	<b>-</b>	<b>-</b>			
Network Infrastructure	UCS Blade Server purchase	130,299	130,299	130,299	250,000	500,000	-	-	-		
	Windows Datacenter Licenses	18,975	18,975	22,975	20,000	-	-	-	-		
	Nexus Switch (Prosser) Upgrade	53,881	53,881	63,881	-	-	-	-	-		
	Network Switch Purchase	28,729	28,729	48,729	-	-	-	-	-		
	SCADA Network Switch Purchase	11,738	11,738	11,738	-	-	-	-	-		
	Wireless Access Equipment for Substations	9,788	9,788	9,788	-	-	-	-	-		
	Purchase Optics for Prosser Alternate Data Path	70,273	70,273	-	-	-	-	-	-		
	Configuration Manager Purchase/Upgrade	58,773	58,773	-	-	-	-	-	-		
	Cisco ASA Firewall/Device Manager	22,559	22,559	-	-	-	-	-	-		
	Firewalls (Prosser) purchase	10,899	10,899	-	-	-	-	-	-		
	Veeam purchase	7,221	7,221	-	-	-	-	-	-		
	SSD Shelf (Kennewick) Purchase	107,221	-	-	-	-	-	-	-		
	Load Balancer Eval and Purchase	96,762	-	-	200,000	-	-	-	-		
	Fiber Level 3 pop to Prosser Butte	40,120	-	-	-	-	-	-	-		
	Substation Routers	34,221	-	-	-	-	-	-	-		
	Audio Visual Equipment (Commission Room Update)	21,311	-	-	-	252,537	-	-	-		
	ESXi Purchases	11,221	-	-	-	-	-	-	-		
	Headend Router	-	55,175	-	-	-	-	-	-		
	Physical Security Audit Recommendations Phase 1	-	-	292,415	350,500	-	-	-	-		
	External DMZ hosts	-	-	68,892	-	-	-	-	-		
C-Series UCS	-	-	32,462	-	-	-	-	-			

Capital Requirements Plan  
Information Technology

Project	Project Name	Year (amounts in constant year dollars)									
		2019		2020		2021		2022		2023	
		Original Budget	Amended Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget	Budget
Network Infrastructure	Video Accelerator Cards	-	-	31,599	-	-	-	-	-	-	
	MPLS Substations	-	-	17,175	-	-	-	-	-	-	
	Video Accelerator	-	-	15,800	-	-	-	-	-	-	
	Large Format Scanner	-	-	11,868	-	-	-	-	-	-	
	Structured Cabling	-	-	10,725	-	-	-	-	-	-	
	Network Management Server	-	-	7,525	-	-	-	-	-	-	
	SAN Purchase	-	-	-	-	83,490	-	510,000	-	-	
	Tape drive backup	-	-	-	-	32,221	-	-	-	-	
	Big Data Storage Array	-	-	-	-	-	-	-	24,206	-	
	MFPs ( Pwr mgt. & Opss)	-	-	-	-	-	-	-	-	-	
<b>Network Infrastructure Total</b>		<b>733,991</b>	<b>478,310</b>	<b>775,871</b>	<b>1,188,748</b>	<b>1,034,206</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
Other	Adjustment to Annual Minimum of \$800,000	-	-	-	-	-	-	-	-	745,747	
<b>Other Total</b>		<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>745,747</b>	
<b>Grand Total</b>		<b>\$1,001,179</b>	<b>\$702,806</b>	<b>\$1,158,469</b>	<b>\$1,488,948</b>	<b>\$1,268,884</b>	<b>\$1,268,884</b>	<b>\$800,000</b>	<b>\$800,000</b>	<b>\$800,000</b>	

Capital Requirements Plan  
Capital Contributions

Project Group	Project Name	Year (amounts in constant year dollars)					
		2019 Original Budget	2019 Amended Budget	2020 Budget	2021	2022	2023
Broadband	Advanced Wireless/Small Cell	\$0	\$0	(\$73,500)	\$0	\$0	\$0
<b>Broadband Total</b>		-	-	<b>(73,500)</b>	-	-	-
Capacity & Reliability	WO# 550802 - DNR Teague Farms Booster Station	(635,069)	(802,245)	-	-	-	-
	WO# 559429 - Nine Canyon Harmonic Analysis	(50,000)	(50,000)	-	-	-	-
	WO# 560191 - Teague Farms Sunheaven #1 Substation Upgrades	(204,375)	-	-	-	-	-
	WO# 570993 - Brinkley Rd. Water Main (Southridge Substation)	-	(21,500)	-	-	-	-
<b>Capacity &amp; Reliability Total</b>		<b>(889,444)</b>	<b>(873,745)</b>	-	-	-	-
Customer Growth	Dist Base Growth	(1,096,209)	(1,596,209)	(1,644,000)	(1,644,000)	(1,644,000)	(1,644,000)
	WO# 528855 - Vista Field Phase #1 Feeder	-	(264,758)	-	-	-	-
	WO# 573548 - Prior #3 Step-Up Upgrade	-	(43,668)	-	-	-	-
	WO# 569812 - Existing Feeder Relocation Vista Field.	-	(15,500)	-	-	-	-
<b>Customer Growth Total</b>		<b>(1,096,209)</b>	<b>(1,920,135)</b>	<b>(1,644,000)</b>	<b>(1,644,000)</b>	<b>(1,644,000)</b>	<b>(1,644,000)</b>
Other	JU - NESC Compliance Program	(62,500)	(62,500)	(62,500)	(62,500)	(62,500)	(62,500)
	Angus Franklin - Tower Upgrade (Contract 95-23-01)	(17,000)	(21,775)	(21,775)	(21,775)	(21,775)	(21,775)
<b>Other Total</b>		<b>(79,500)</b>	<b>(84,275)</b>	<b>(84,275)</b>	<b>(84,275)</b>	<b>(84,275)</b>	<b>(84,275)</b>
<b>Grand Total</b>		<b>(\$2,065,153)</b>	<b>(\$2,878,155)</b>	<b>(\$1,801,775)</b>	<b>(\$1,728,275)</b>	<b>(\$1,728,275)</b>	<b>(\$1,728,275)</b>





# Power Supply Plan

**Tab 10**



Public Utility District No. 1 of Benton County

# Power Supply Plan

2020



## Contributors

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<b>Kevin Galke</b>	Manager, Analytics	The Energy Authority
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## EXECUTIVE SUMMARY

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The Power Supply Plan is prepared annually to determine the District's energy requirements and resources establishing the power supply budget for the upcoming year. Looking five years out, the Power Supply Plan is developed using information from several sources, including the District's Ten Year Load and Customer Forecast Report 2019-2028 (Resolution No. 2500 adopted by the Commission on May 7, 2019), the current Bonneville Power Administration (BPA) Slice/Block Agreement (which contains load-specific information and requirements for each fiscal year), updated BPA power and transmission rates, the District's load/resource balance, forward market prices, historical and forecasted weather data, and Washington State renewable energy requirements. Its purpose is to provide background, highlight key data assumptions and synthesize conclusions for the District's 2020 power supply budget.

The District purchases energy from several resources with more than 85% purchased from BPA. The District also purchases 50 MW of capacity from the Frederickson 1 Generating Station, a combined cycle natural-gas-fired combustion turbine project near Tacoma, Washington, 3 aMW of renewable energy from the Nine Canyon Wind Project, 3 aMW of renewable energy from the White Creek Wind Project in Eastern Washington, and nearly 1 aMW from the Packwood Hydroelectric Project. Given these resources and the District's expected load, energy is expected to be sufficient, on average, for the next five years.

Power Management staff worked with The Energy Authority (TEA) to develop a list of fixed cost power supply assumptions for 2020-2024, which were reviewed by the District's Risk Management Committee prior to inclusion in this updated plan. These power supply assumptions will be covered in detail in the following chapters. The fundamental assumptions of the District's power supply budget are as follows:

- Based on the District's updated load forecast adopted in May 2019 – included in Section I
- BPA rate escalation assumptions: (BPA fiscal year is October 1 through September 30)
  - FY2020-21: Actual BP-20 rates
  - FY2022/FY2024: 4.0% increase in Power and 4.0% increase in Transmission rates
- District's Rate Period High Water Mark (RHWM) is 200.214 aMW in FY2020 and is assumed to be this value through the study period. BPA will update the RHWM as part of the BP-22 rates.
- BPA spill costs are included in the power rates. The U.S. District Court for the District of Oregon ordered increased spill at eight Federal Columbia River Power System dams on the lower Columbia and Snake rivers for the 2018 spring fish passage season. BPA and its stakeholders agreed to continue the increased spill in 2019 and 2020, with 2020 spill assumed to 125% Total Dissolved Gas (TDG). This spill is anticipated to continue for the 2021-24 spring fish passage season. However, a new biological opinion is planned to be issued in 2020 as part of the court ordered National Environmental Policy Act (NEPA) analysis.
- The District uses Monte Carlo analysis to set its annual power supply budget. Specifically, the stochastic model simulates the distribution of annual power cost by generating a thousand scenarios of the variable inputs including: Slice generation, load, power prices and gas prices. Using these results, the District sets its 2020 budget at the 25<sup>th</sup> percentile (i.e., the probability of meeting budget is 75%) net power cost, and the 50<sup>th</sup> percentile for forecasting years beyond 2020.

**Table 1** below shows net power costs using the 25<sup>th</sup> and 50<sup>th</sup> percentile scenarios for 2020-2024. Monthly, the District’s Risk Management Committee reviews expected loads compared to expected energy output to ensure the District is well positioned to maximize the value of energy surpluses and to mitigate the risk of energy shortages and fluctuating market prices.

Percentile	2020	2021	2022	2023	2024
<b>25%</b>	\$84,018,704	\$83,224,019	\$84,487,145	\$86,114,325	\$88,128,451
<b>50%</b>	\$81,976,450	\$80,909,819	\$82,004,332	\$83,581,301	\$85,369,567
<b>Budget vs Expected (25% - 50%)</b>	\$2,042,254	\$2,314,200	\$2,482,813	\$2,533,024	\$2,758,884

TABLE 1 – ANNUAL BUDGET NET POWER COST PERCENTILES

## SECTION I: LOAD FORECAST

The District load forecast used for the power supply budget is based on the Ten Year Load and Customer Forecast Report 2019-2028 adopted by the Commission (Resolution 2500) on May 7, 2019. The annual wholesale load forecast is shaped monthly based on the average observed actuals over the previous three years. The monthly load forecast is then split between heavy load hours (HLH) and light load hours (LLH) as displayed in **Figure 1**. The five-year load projection forecasts a 0.35% average annual rate of growth as illustrated below in **Figure 2**.

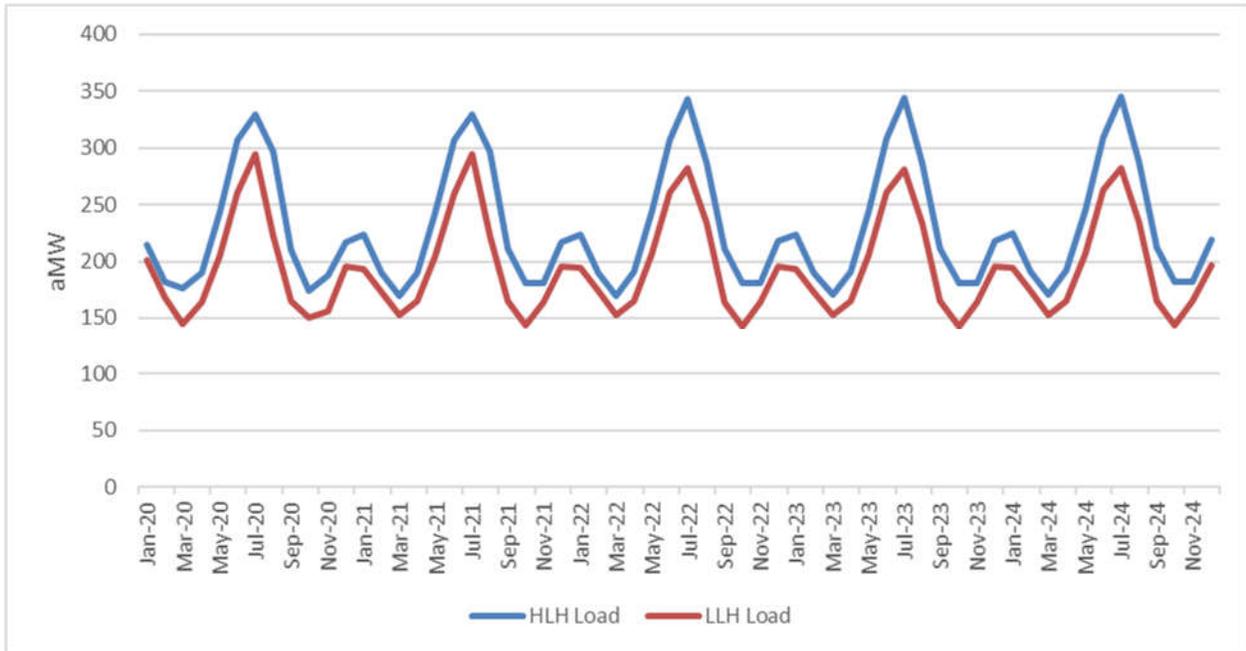


FIGURE 1 - BPUD HLH AND LLH LOADS

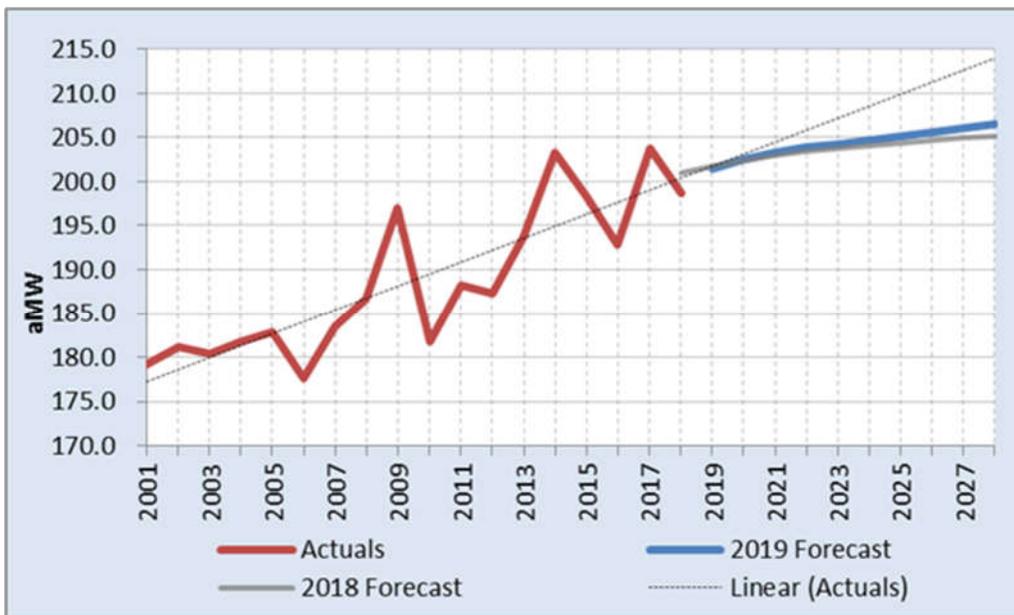


FIGURE 2 – AVERAGE ANNUAL RATE OF LOAD GROWTH

## SECTION II: DISTRICT RESOURCES

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The District sources its power requirements through purchases from BPA, as well as from several non-federal sources of power. This section describes the District's current and expected resources over the five-year period, 2020-2024.

### BPA RESOURCES

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The District's Power Sales Agreement with BPA is the single largest source of power to the District. The Slice/Block Product provides for the combined purchase of two distinct power services for the District based on the actual generation shape of the Federal Columbia River Power System (FCRPS). As a Block purchaser, the District receives Firm Requirements Power on a flat monthly block basis. As a Slice purchaser, the District accepts the risk of fluctuations in actual federal system output and accepts responsibility for managing its percentage share of the federal system output to serve its load. There is no guarantee that the amount of Slice output made available, combined with Firm Requirements Power made available under the Block Product, shall be sufficient to meet the District's load obligations, be it hourly, daily, weekly, monthly, or annually.

Under the Slice Product, the District will receive 1.36792% of the FCRPS output (Slice customers in aggregate are purchasing approximately 23% of the FCRPS in FY2020). This allocation is adjusted down slightly from its initial Slice percentage of 1.38126% by the Slice Percentage Adjustment Ratio (SPAR) of 0.99034. The SPAR is adjusted every two years based on new resources that are added to the BPA system to meet new BPA customer needs. Slice is paired with the Tier 1 Block Product to meet additional demand up to the Rate Period High Water Mark (RHWM) of 200.214 aMW.

The critical Slice allocation for FY2020 is 96.494 aMW; however, actual Slice generation is dependent upon actual water flows through the FCRPS. The District contracts with TEA to schedule, manage and optimize the Slice Product to maximize the value of the expected output. Tier 1 Block is distributed as a fixed annual amount, which is shaped to monthly load according to BPA Block Shaping Factors. The block shaping factors were determined based on the District's monthly load shape in FY2010. The Tier 1 Block amounts and the block shaping factors are shown in **Table 2** and **Table 3**. As part of the BPA agreement, the District agrees to meet its load with its own resources and market purchases beyond the contracted BPA products. Currently, annual loads are forecasted to be higher than the District's BPA RHWM by 7.797 aMW.

The majority of the BPA power costs to the District are captured by the Composite Customer Charge, which is a function of the District's FY2020 Tier 1 Cost Allocator (TOCA) of 2.85022% and the BPA Composite Rate. BPA Costs are outlined in **Table 17 - Cost per MWh from BPA** later in the document.

Month	2020	2021	2022	2023	2024
<b>(aMW unless otherwise noted)</b>					
January	107.7	110.1	107.8	110.1	108.4
February	86.4	91.4	89.6	91.4	90.0
March	79.7	81.4	79.8	81.4	80.2
April	88.5	90.5	88.6	90.5	89.1
May	107.7	110.1	107.8	110.1	108.4
June	130.3	133.1	130.4	133.1	131.1
July	153.0	156.4	153.2	156.4	154.0
August	132.2	135.1	132.4	135.1	133.1
September	91.1	93.1	91.2	93.1	91.7
October	81.3	79.7	81.3	80.1	81.3
November	89.1	87.3	89.1	87.7	89.1
December	101.3	99.3	101.3	99.8	101.3
Block Total (aMW)	104.2	105.8	104.5	105.9	105.0
Block Total (MWh)	914,935	926,616	915,847	927,649	919,619

TABLE 2 - TIER 1 BLOCK AMOUNTS

Month	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Block Shaping Percentage	6.5	6.9	8.1	8.8	6.6	6.5	7.0	8.8	10.3	12.5	10.8	7.2

TABLE 3 - MONTHLY BLOCK SHAPING PERCENTAGES

The U.S. District Court for the District of Oregon ordered increased spill at eight Federal Columbia River Power System dams on the lower Columbia and Snake rivers for the 2018 spring fish passage season. BPA and its stakeholders agreed to continue the increased spill in 2019 and 2020, with 2020 spill assumed to 125% Total Dissolved Gas (TDG). This spill is anticipated to continue for the 2021-24 spring fish passage season. However, a new biological opinion is planned to be issued in 2020 as part of the court ordered National Environmental Policy Act (NEPA) analysis.

## NON-BPA RESOURCES

In addition to open market purchases, Benton PUD has five non-BPA resources: Frederickson 1 Generating Station, Nine Canyon Wind Project, LL&P Wind Energy, Inc. at White Creek, White Creek Wind I Project, and the Packwood Hydroelectric Project.

### FREDERICKSON 1 GENERATING STATION

Benton PUD entered into an agreement for the purchase of 50 MW of contract capacity at a 7.1 MMBtu per megawatt hour heat rate from the Frederickson 1 Generating Station combined cycle combustion turbine (CCCT) plant located near Tacoma, WA. Each day, the District has the right, but not the obligation, to purchase output from Frederickson. The decision to buy from Frederickson is based on a comparison of the spot price of power to the variable cost of generation. The plant, which reached

commercial operation in September 2002, will need 8,520 MMBtu of gas per day for the District’s share of its 24x7 operation and 5,680 MMBtu of gas per day for HLH operation. (There is an additional charge of approximately \$5,000 for each start-up that is charged for HLH only operation.) **Figure 3** below illustrates the lifecycle of power generated from Frederickson from fuel to market.

## Converting Fuel to Electricity

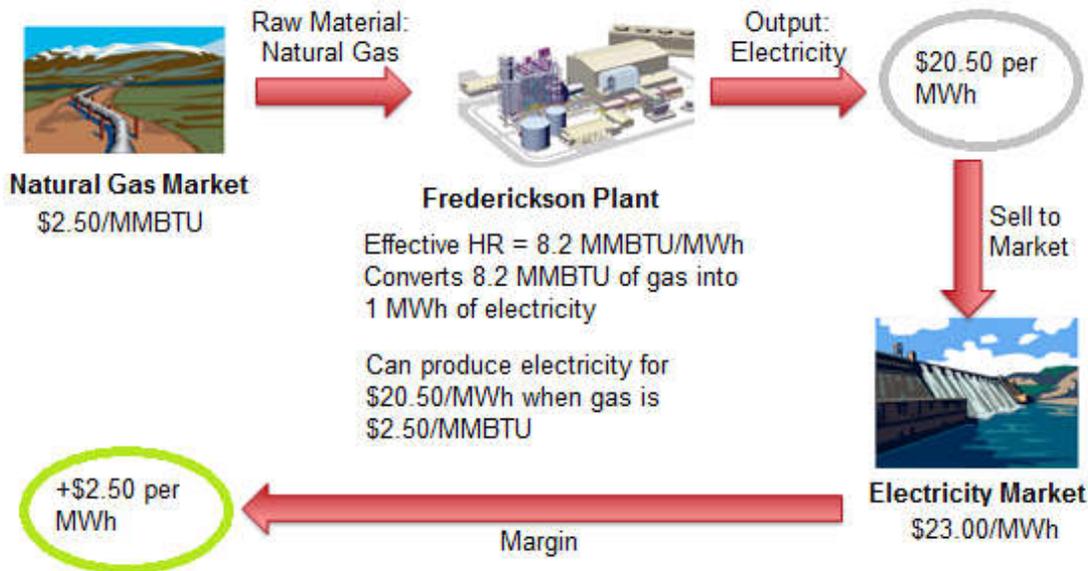


FIGURE 3: THERMAL CONVERSION OF FUEL TO ELECTRICITY

Benton PUD, along with Grays Harbor PUD and Franklin PUD, are purchasing contract capacity under separate but substantially similar agreements. Together, the three PUDs have contract rights to 125 MW of the plant’s total 249 MW capacity. Up to 40% of the plant capacity may be displaced regardless of the dispatch decisions of Puget Sound Energy, who controls the dispatch of the remaining 124 MW of the plant. (i.e., output of plant may be reduced in LLH to capture better economics since prices in HLH tend to be higher); however, the heat rate may increase to a maximum of 7.952 MMBtu. **Table 4** shows the District’s fixed costs for Frederickson.

The power purchase agreement is set up as a tolling arrangement. The District will purchase and deliver gas to the fuel receipt point just across the Canadian border at Huntingdon. The plant is responsible to transport the gas from Huntingdon, and to burn the gas and deliver power to the point of delivery on the BPA grid at the South Tacoma substation. TEA is the District’s appointed agent for fuel management services for this plant. **Table 4** shows the Annual Volumetric Cost escalating in 2020-2022, which is due to the increased dispatch of the plant based on forward market conditions (i.e., results in an increase of the plant’s capacity factor).

Benton PUD is actively monitoring both federal and state regulatory policies regarding Green House Gas emissions to determine the physical and financial implications each policy could have on economically dispatching the Frederickson 1 Generating Station. The WA legislature passed SB5116 in 2019 and is

named the Clean Energy Transformation Act (CETA). CETA requires power supplies to be 80% non-carbon emitting by 2030 and 100% by 2045. CETA is not anticipated to impact Frederickson costs before the contract expires.

Year	Annual Fixed Cost	Annual Volumetric Cost	Total Annual Cost	YoY Increase
2020	\$ 7,968,083	\$ 1,941,383	\$ 9,909,466	6%
2021	\$ 8,026,976	\$ 1,976,534	\$ 10,003,510	1%
2022*	\$ 5,381,955	\$ 1,453,684	\$ 6,835,639	-32%
2023	\$0	\$0	\$0	N/A
2024	\$0	\$0	\$0	N/A

\*Partial year costs as Frederickson PPA expires August 2022

TABLE 4 - FREDERICKSON FIXED COSTS

### NINE CANYON WIND PROJECT

The Nine Canyon Wind Project is situated on dry land wheat farms approximately eight miles southeast of Kennewick, WA in the Horse Heaven Hills. The District began purchasing renewable energy from Phase I of the project in 2002, when a Power Purchase Agreement was signed with Energy Northwest, a State of Washington Joint Operating Agency (JOA), for 3 MW of generating capacity for a commitment continuing through June 30, 2023. This purchase produces about 1 aMW of energy, at \$56.91 per MWh in 2020. On October 30, 2006, the District signed an Amended and Restated Agreement with Energy Northwest, and the other purchasers, which extended the term of the Agreement through July 1, 2030 (with rights to extend the agreement in additional five-year terms).

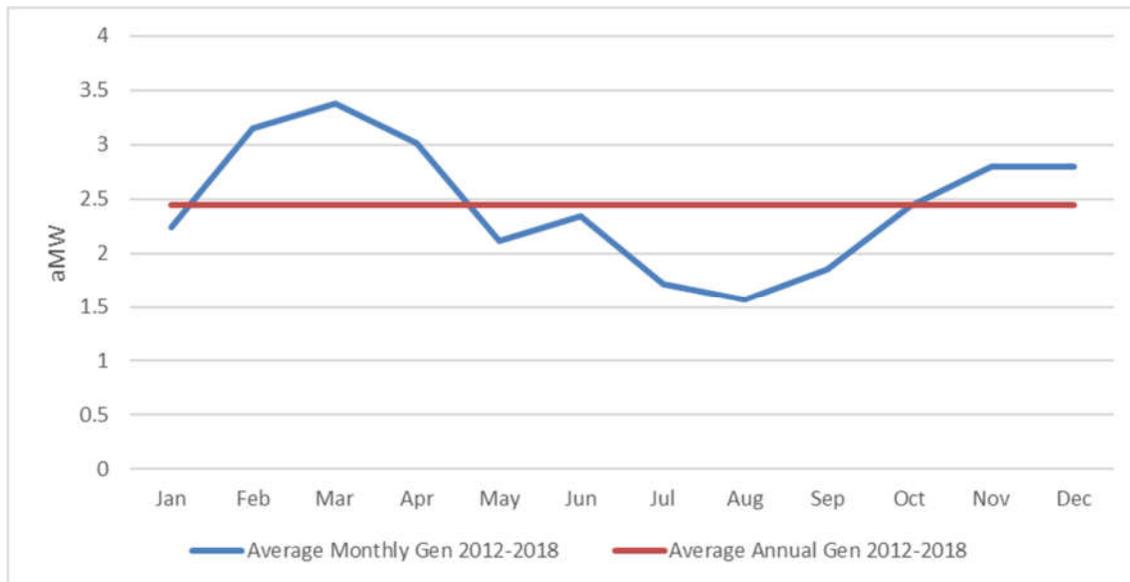


FIGURE 4 – NINE CANYON AVERAGE MONTHLY GENERATION (2012-2018)

In 2008, the District contracted to purchase an additional 6 MW (approximately 2 aMW) of energy from Phase III of the project. The cost of Phase III is \$76.17 per MWh in 2020. Although Nine Canyon Wind provides an intermittent source of energy, there is no material difference in the amount of energy the

District receives from month to month. **Figure 4** displays the District’s share of the actual monthly generation from the Nine Canyon Wind Project for the period January 2012 through December 2018.

The average cost of Phase I and Phase III is forecasted to be \$69.75 per MWh in 2020.

**Table 5** is the annual cost of output purchased from each phase. In addition to these costs, the District incurs a \$14,000 transmission cost each month.

Nine Canyon Wind Project is a renewable energy source with Environmental Attributes that qualify under the State of Washington’s Energy Independence Act (EIA) and will help the District meet its renewable energy requirement under this Act.

Year	Phase I Cost (\$/MWh)	Phase III Cost (\$/MWh)	Total Cost per MWh	Phase I Cost per Month	Phase III Cost per Month	Total Annual Cost
2020	\$56.91	\$76.17	\$69.75	\$41,547	\$111,206	\$1,833,036
2021	\$56.91	\$76.17	\$69.75	\$41,547	\$111,206	\$1,833,036
2022	\$56.91	\$76.17	\$69.75	\$41,547	\$111,206	\$1,833,036
2023	\$42.69	\$76.17	\$65.01	\$31,161	\$111,206	\$1,708,404
2024	\$26.32	\$76.17	\$59.55	\$19,216	\$111,206	\$1,565,064

TABLE 5 - NINE CANYON WIND COSTS

#### LL&P WIND ENERGY, INC. AT WHITE CREEK

In 2007 Benton PUD entered into a 20-year contract with Lakeview Light & Power (LL&P Wind Energy, Inc.) to purchase 3 MW of capacity from the White Creek Wind Project located near Goldendale, WA. This purchase produces approximately 1 aMW of power. The cost of the renewable energy is estimated to be \$65.91 per MWh in 2020, and costs escalate by 2% each year of the contract. **Table 6** is a breakdown of the project’s fixed cost assumptions through 2024.

White Creek Wind Project is a renewable energy source with Environmental Attributes that qualify under the State of Washington’s EIA and will help the District meet its renewable energy requirement under this Act.

Year	Est. Cost per MWh	Cost per Month	Annual Cost	YoY Increase
2020	\$65.91	\$48,114	\$577,372	2%
2021	\$67.23	\$49,077	\$588,919	2%
2022	\$68.57	\$50,058	\$600,697	2%
2023	\$69.94	\$51,056	\$612,674	2%
2024	\$71.34	\$52,078	\$624,938	2%

TABLE 6 - LL&P WIND ENERGY, INC. AT WHITE CREEK COSTS

#### WHITE CREEK WIND I

Benton PUD signed an agreement to purchase 6 MW from the White Creek Wind I Project capacity for a period of 19 years, with the option to purchase part of the project beginning in 2017 and each year thereafter. To date, the District has not elected to exercise this option and does not anticipate exercising the option in 2020. This purchase produces approximately 2 aMW of energy. Benton PUD paid Klickitat PUD (a project owner) a lump sum for the capital component. The total generation cost is estimated at

\$62.78 per MWh in 2020. Capital costs are fixed, and O&M costs escalate between 2-4% each year through 2024. **Table 7** below is a breakdown of the fixed cost assumptions for this project. **Figure 5** displays the District’s share of the actual monthly generation from both White Creek Wind purchase agreements for the period January 2012 through December 2018.

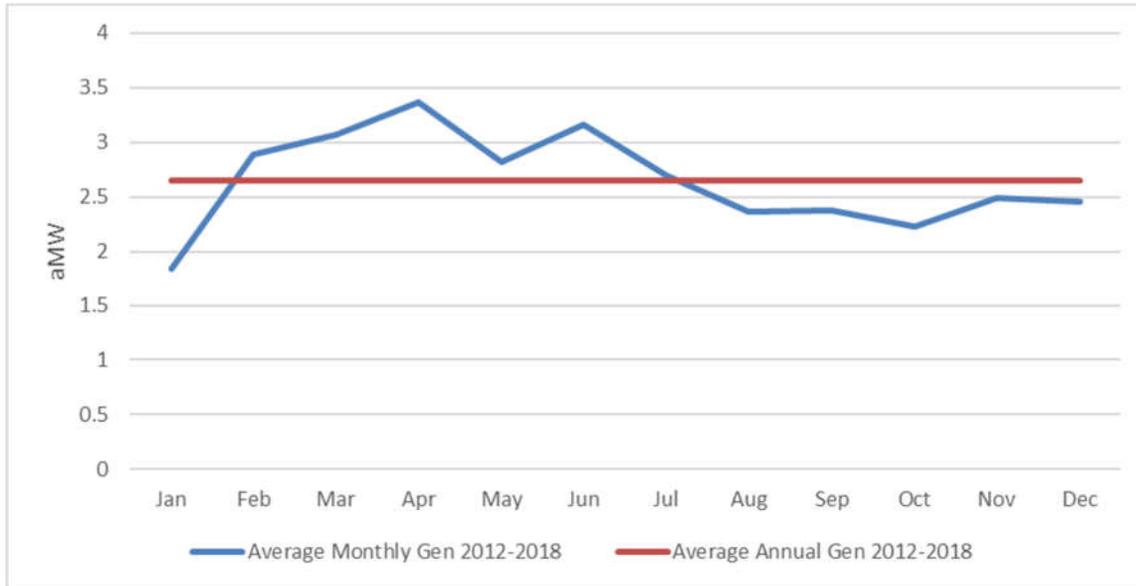


FIGURE 5 – WHITE CREEK AVERAGE MONTHLY GENERATION (2012-2018)

White Creek Wind Project is a renewable energy source with Environmental Attributes that qualify under the State of Washington’s EIA and will help the District meet its renewable energy requirement under this Act.

Year	Capital Cost per MWh	O&M Cost per MWh	Annual O&M Cost	Annual Fixed Cost	Total Annual Cost
2020	\$62.78	\$29.77	\$521,576	\$578,400	\$1,099,976
2021	\$63.68	\$30.58	\$537,223	\$578,400	\$1,115,623
2022	\$64.60	\$31.58	\$553,339	\$578,400	\$1,131,739
2023	\$65.54	\$32.53	\$569,940	\$578,400	\$1,148,340
2024	\$66.52	\$33.51	\$587,038	\$578,400	\$1,165,438

TABLE 7 - WHITE CREEK WIND | COSTS

### PACKWOOD LAKE HYDROELECTRIC PROJECT

The Packwood Lake Hydroelectric Project (Packwood) is a hydroelectric generating facility with a nameplate capacity of 26.125 MW that is owned and operated by Energy Northwest, a State of Washington Joint Operating Agency (JOA). The project is located 5 miles east of Packwood, WA in Gifford Pinchot National Forest. Project participants include Benton PUD, Clallam PUD, Clark County PUD, Ferry County PUD, Franklin PUD, Kittitas PUD, Klickitat PUD, Lewis PUD, Mason PUD No. 3, Skamania PUD, Snohomish PUD, and Wahkiakum PUD.

Benton PUD owns a 14% share of the output from the Packwood Hydroelectric Project, equating to approximately 3.66 MW of generation capacity. The expected average output from Packwood is approximately 1 aMW. **Table 8** shows the fixed cost assumptions for the District’s share of the

Packwood Hydroelectric Project. Energy Northwest recently released a long range plan summary projecting project costs through 2027 and highlighted an increase in costs of 3% annually through the study period. This project does not qualify as a renewable resource under State of Washington’s EIA.

Year	Cost per MWh	Cost per Month	Annual Cost
2020	\$46.09	\$33,643	\$403,718
2021	\$47.47	\$34,652	\$415,830
2022	\$48.89	\$35,692	\$428,305
2023	\$50.36	\$36,763	\$441,154
2024	\$51.87	\$37,866	\$454,388

TABLE 8 - PACKWOOD HYDROELECTRIC PROJECT FIXED COSTS

## TRANSMISSION

The District has a Point to Point Transmission agreement with BPA Transmission Services. The firm annual demand is 423 MW. Fixed costs for Long-Term Point to Point Transmission are budgeted at \$9.4 million in 2020. The District is expecting a 4% increase in transmission rates in FY2022. The District is projected to be long transmission for most hours of the year in 2020, as can be seen in **Figure 6** and **Table 9**. Net sales of surplus transmission are projected to be \$900,000 per year in 2020-2024.

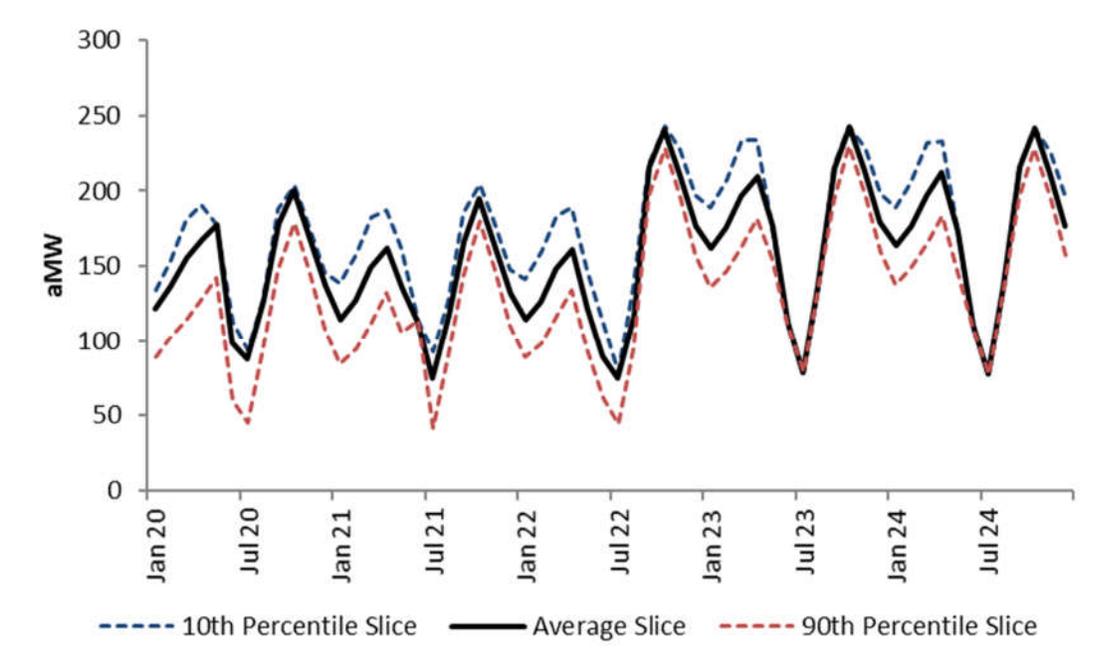


FIGURE 6 - BENTON PUD 2020-2024 LONG-TERM HLH FIRM TRANSMISSION SURPLUS, NET OF LOAD & RESOURCES

Resource Availability	BPA	Nine Canyon	White Creek	Packwood	Frederickson
2020-2024 Average	227.0	3.0	2.7	1.5	25.0
Min	199.0	3.0	2.4	0.1	0.0
Median	228.0	3.0	2.7	1.4	50.0
LTF Transmission Rights	408.0	9.0	6.0	0.0	0.0

TABLE 9 - BENTON PUD TRANSMISSION SNAPSHOT (ANNUAL AMW)

## SECTION III: LOAD/RESOURCE BALANCE

This section examines the District’s ability to meet its load with current resources under several Slice generation scenarios, with and without Frederickson included as a resource. The goal is to identify any capacity issues and the likelihood that they will occur.

### MONTHLY LOAD/RESOURCE BALANCE: 2020

The following portion of the analysis examines the District’s monthly load/resource balance 50<sup>th</sup> percentile Slice generation scenarios. The scenario assumes expected loads. The District’s load/resource balance is examined including Frederickson (when it is economically prudent to dispatch in order to meet load), and excluding Frederickson altogether. The net positions shown are the District’s hedged financial net positions (i.e., net of forward purchases and sales already executed).

#### EXPECTED SLICE GENERATION SCENARIO

The figures below show the District’s load/resource balance under an expected (50<sup>th</sup> percentile) Slice generation scenario with expected loads. **Figure 7** shows BPA’s expected FCRPS generation under a 50<sup>th</sup> percentile Slice scenario showing that Slice varies substantially by month/season. The District’s load exceeds its share of Slice output at certain times of the year.

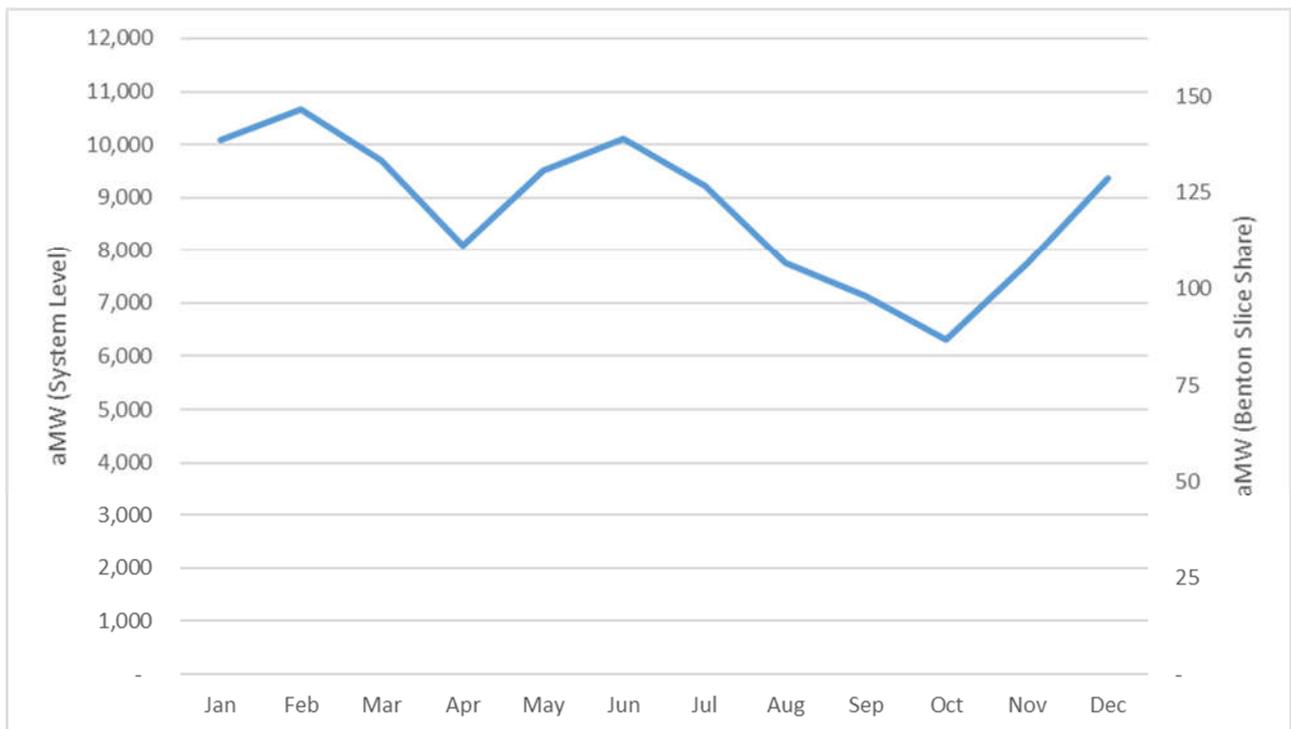


FIGURE 7 - EXPECTED 2020 MONTHLY SLICE GENERATION

Monthly, the District’s Risk Management Committee reviews expected loads compared to expected energy output to ensure the District is well positioned to maximize the value of energy surpluses and to

mitigate the risk of energy shortages and fluctuating market prices. **Figure 8** shows the District’s hedged load/resource balance, given expected loads and with Frederickson economically dispatched in 2020. With Frederickson, the District has sufficient resources in 2020. **Figure 9** excludes Frederickson as a resource, leading to HLH deficits in the June-September period and LLH deficits in July-August period. The District actively manages the excess surplus and deficits to optimize value and reduce costs to customers through price risk mitigation.

Note that hedges associated with the Frederickson delta hedging program have been excluded from **Figure 8**. The delta hedging program uses financial hedges to optimize the value of the Frederickson asset but do not impact the District’s actual physical position.

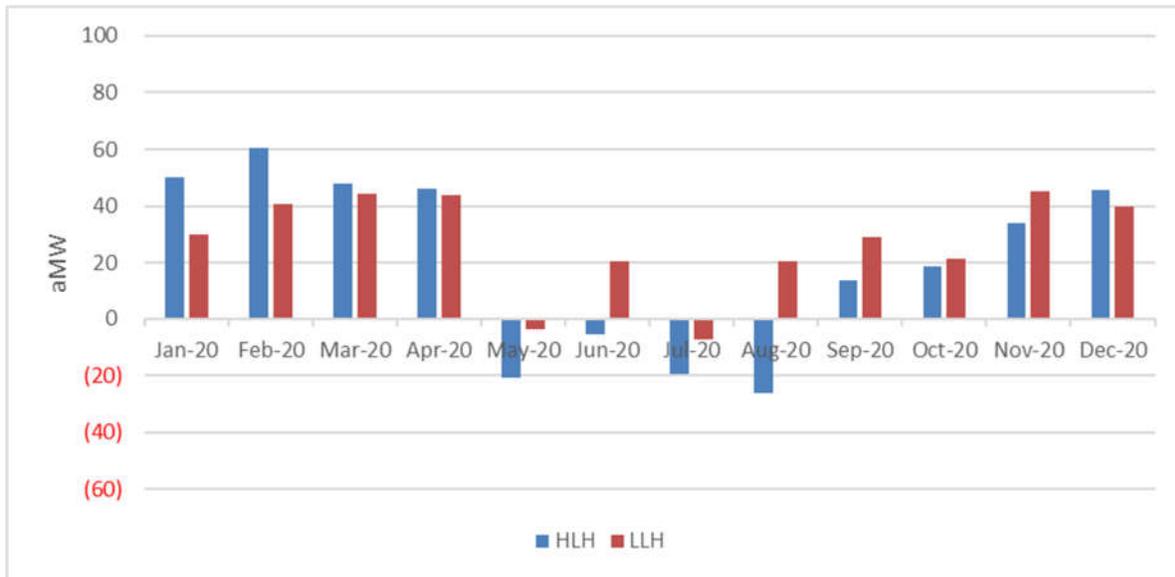


FIGURE 8 – HEDGED PORTFOLIO NET POSITION, 50<sup>TH</sup> PERCENTILE SLICE, EXPECTED LOAD, FREDERICKSON ECONOMICALLY DISPATCHED



FIGURE 9 - HEDGED PORTFOLIO NET POSITION, 50<sup>TH</sup> PERCENTILE SLICE, EXPECTED LOAD, FREDERICKSON EXCLUDED

## CAPACITY STUDY

District staff regularly reviews seasonal capacity positions to ensure that sufficient physical/financial power is secured to endure peaking events. Throughout the year the District carries a surplus, on average. Like other utilities located East of the Cascades with agricultural loads, the District faces the greatest risk of deficit capacity in the summer, while generally maintaining adequate capacity the remainder of the year. Regional capacity is generally more available during the summer than the winter for a couple of main reasons. First, low air conditioning penetration (though rising) in the region's load centers (Seattle and Portland) keeps demand low during periods of high temperature. Second, the load centers are generally winter peaking utilities, which strains the region's generation capacity. The purpose of this study is to analyze the District's load/resource balance under extreme load conditions in the winter and summer.

The District's maximum energy needs typically occur on hot summer days when air conditioning and irrigation loads are peaking. The District performed a capacity study to determine the District's loads and resources on a peak summer day. Peak demand days are not well defined, and in this case District staff determined an appropriate planning scenario by analyzing the temperature that produced the single highest average HLH load each year between 2011 and 2018. The planning scenario was created by assuming that the load during future peak periods will fall within this range. On the hottest of those days, maximum temperatures reach upwards of 109°F. While significantly warmer than average, it is a near guarantee that the District experiences temperatures in excess of 100°F every year. Temperatures have also hit or exceeded 105°F in 3 of the last 6 years. It is important for District staff to understand its energy position for a near annual event.

During this period, average HLH loads reached upwards of 385aMW. The hydro system also has the ability to generate more power during periods of high demand. The Slice generation assumption was based on output from The Energy Authority's Slice Water Routing Simulator (SWRS). The summer peak generation

value is assumed to be 12,000MW during a normal summer and 10,000MW during a dry summer, equating to the District’s share of total generation of about 295MW and 267MW, respectively, from all BPA resources. **Figure 10** displays the District’s available resources during a peaking event against a range of loads. The temperature and load range represents the hottest day of each year between 2012 and 2018 and the average HLH load reached during that period.

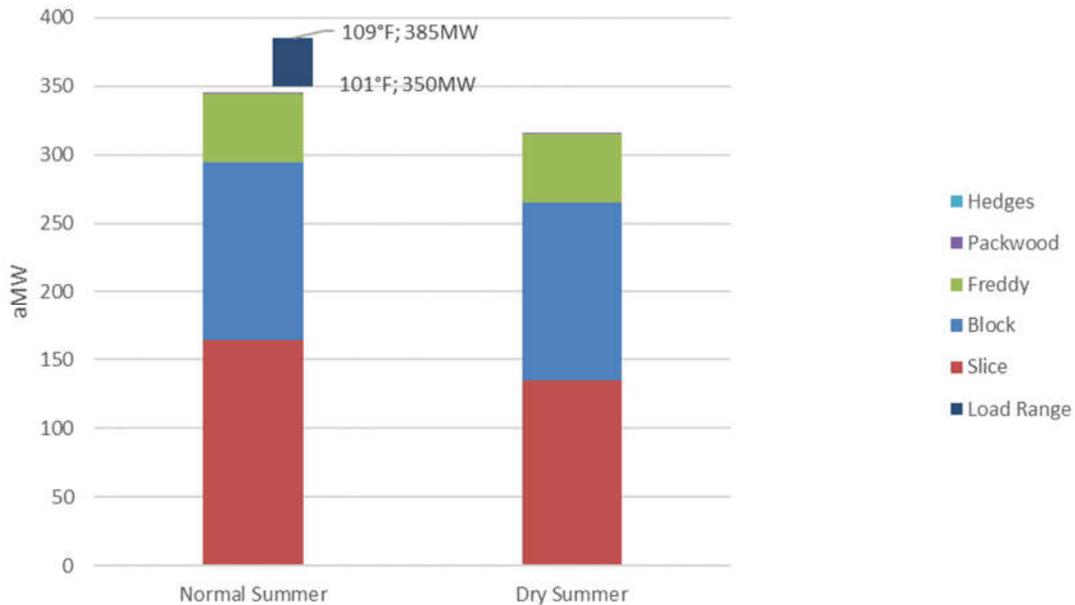


FIGURE 10: SUMMER PEAKING LOADS AND RESOURCES

The District is forecasted to be between 5MW and 40MW short of meeting its loads during a summer peak event in a normal summer. That deficit increases by an additional 40MW in poor water conditions. District staff decided to purchase an average of 50MW swaps for summer HLH periods to serve as financial protection against high prices.

Relative to the summer, a wider range of winter low temperatures were observed in the last 8 years, from an annual low of -7°F to 11°F. The result is that the range of loads is also more variable, as displayed in **Figure 11**.

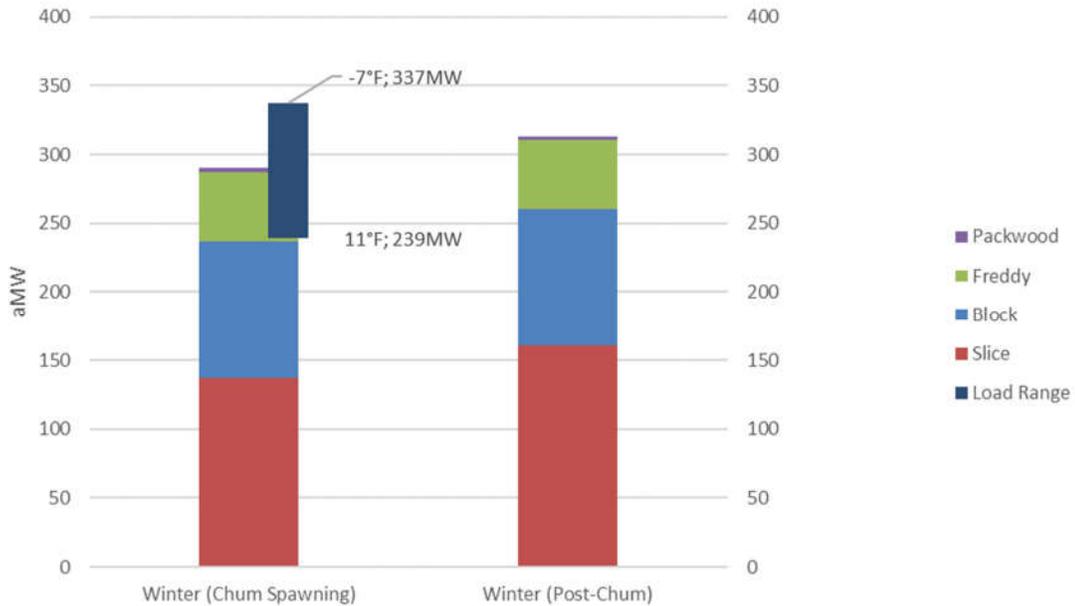


FIGURE 11: WINTER PEAKING LOADS AND RESOURCES

District staff has historically utilized two separate tools to manage against cold weather events: outright power purchases and options. Outright power purchases are preferred when the temperature is colder or water conditions are worse than average. During average water and temperature conditions, the District is traditionally long during the winter. Purchasing power to protect against a 1 in 2 or worse peak event increases the surplus position, and thus increases risk. Utilizing options, however, provides the District with an insurance policy. It gives the District the right, but not the obligation, to purchase power at a predetermined price in exchange for a smaller upfront option premium per MWh (total premium can be significant depending on the volume purchased).

### ANNUAL LOAD/RESOURCE BALANCE: 2020-2024

The following section examines the District’s average load/resource balance on an annual basis from 2020-2024. Note in **Table 10** that load will exceed critical slice plus block by 8 aMW in BPA’s FY20, increasing to over 10 aMW in BPA’s FY24. As shown below, the District’s other resources make up for this deficit.

	BPA FY20	BPA FY21	BPA FY22	BPA FY23	BPA FY24
<b>Total Retail Load</b>	208.929	210.007	210.507	210.998	211.296
<b>New Resources</b>	0.000	0.000	0.000	0.000	0.000
<b>Specified Resources</b>	0.918	0.918	0.918	0.918	0.918
<b>Preliminary Net Requirements</b>	208.011	209.088	209.588	210.079	210.377
<b>CHWM</b>	204.282	204.282	204.282	204.282	204.282
<b>RHWM</b>	200.214	200.214	200.214	200.214	200.214
<b>Lessor of PNR or RHWM</b>	200.214	200.214	200.214	200.214	200.214
<b>Above RHWM Load</b>	7.797	8.874	9.374	9.865	10.163

TABLE 10- ANNUAL LOAD/RESOURCE BALANCE, 2020-2024

**Figure 12** and **Figure 13** show that, on average, the District has sufficient energy to meet its load for the next five years. Despite having surplus energy on average, the District will be deficit energy at times due to low Slice generation, high demand, or a combination of the two. The District will actively manage its load/resource balance to optimize the value of its surplus energy while mitigating price risk during deficit periods through short-term and long-term market hedges.

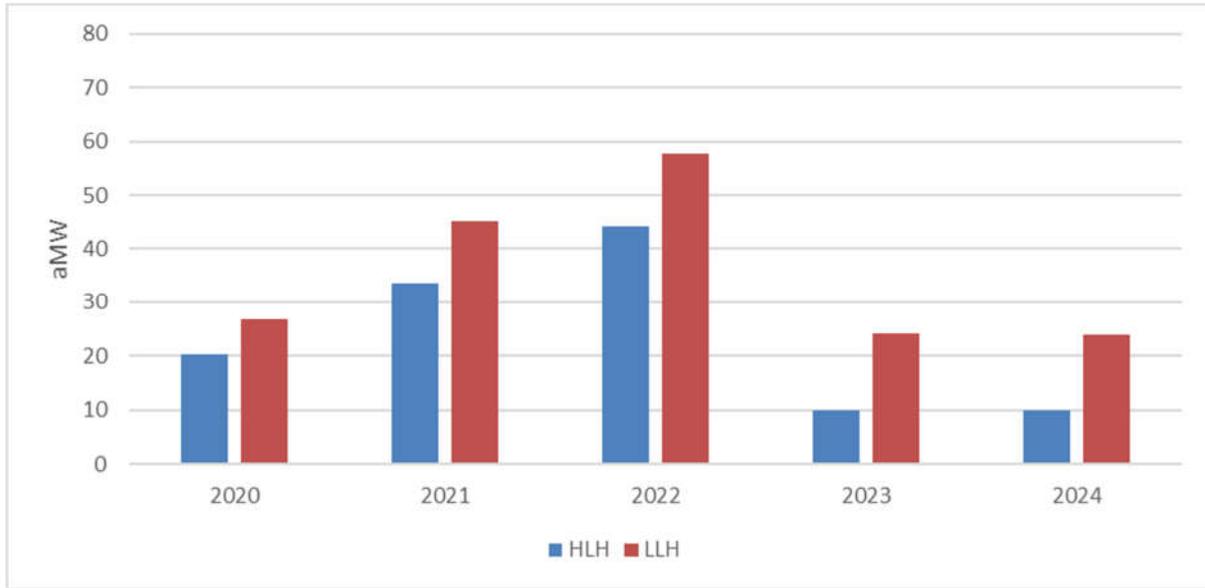


FIGURE 12 – 2020-2024 ANNUAL NET POSITION, 50<sup>TH</sup> PERCENTILE SLICE, EXPECTED LOAD, FREDERICKSON ECONOMICALLY DISPATCHED

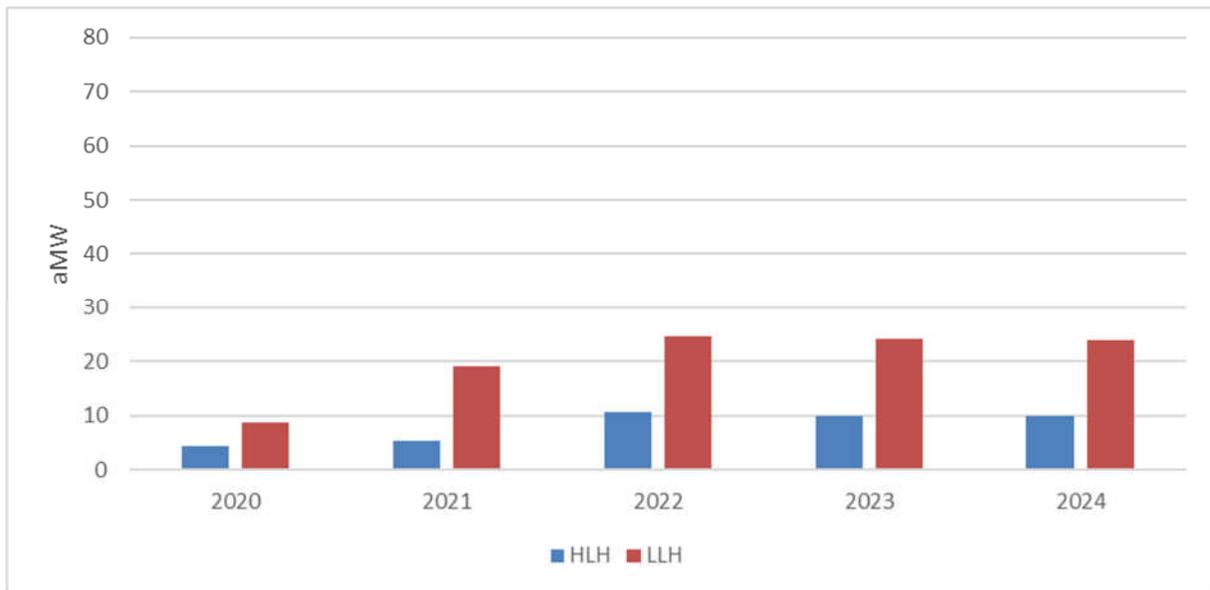


FIGURE 13 – 2020-2024 ANNUAL NET POSITION, 50<sup>TH</sup> PERCENTILE SLICE, EXPECTED LOAD, FREDERICKSON EXCLUDED

## RENEWABLE LOAD/RESOURCE BALANCE: 2020-2024

The District has three resources that qualify as renewable energy sources under EIA. In order to comply with the EIA, the District must meet the following target with qualifying renewable energy, or renewable energy credits (RECs):

- At least fifteen percent of its two-year average load by January 1, 2020, and each year thereafter

As can be observed in **Table 11**, it's anticipated that the District will have sufficient renewable resources to meet EIA requirements through 2024.

As shown in **Table 12**, in addition to the District's qualifying renewable resources, the District also entered into an agreement with Emerald City Renewables (previously Biofuel) to purchase approximately 33,000 RECs per year beginning 2016 through 2025. On September 18, 2013, the Washington Department of Commerce issued an opinion that the Biofuels landfill gas plant would qualify as a renewable distributed-generation (DG) facility under the state's Energy Independence Act, passed as Initiative 937 in 2006. DG facilities are awarded a bonus REC in addition to each generated REC, meaning the EIA qualifying quantity of the Emerald City Renewable contract RECs are 66,000 per year. The District also contracted to purchase unbundled RECs from the Idaho Wind Partners for output from the Yahoo Creek Wind Park, LLC from 2015 through 2024. For planning purposes, the District assumes a delivery of 35,003 RECs per year through the end of the contract; however, the output from Yahoo Creek can fluctuate due to the variability of wind. On September 11, 2018, the Commission approved a firm contract with 3Degrees Group Inc. to purchase 60,000 RECs per year starting in 2019 through 2028. Additionally, on September 10, 2019, the Commission approved a firm contract with RPS Advisors to supply 40,000 RECs per year starting in 2020 through 2029. If RECs are under-delivered during a year, the District may rely on the market to secure the requisite EIA compliant RECs.

Year	Prior 2-yr Avg Load (aMW)	RPS %	RPS	White Creek	Nine Canyon	BPA RECs	REC Purchases	REC Net Position
2020	200.1	15%	30.0	3.0	2.7	3.9	22.9	2.5
2021	202.0	15%	30.3	3.0	2.7	3.9	22.9	2.2
2022	202.9	15%	30.4	3.0	2.7	3.9	22.9	2.1
2023	203.6	15%	30.5	3.0	2.7	3.9	22.9	2.0
2024	204.1	15%	30.6	3.0	2.7	3.9	22.9	1.9

TABLE 11 - RENEWABLE LOAD/RESOURCE NET POSITION

Due to poor wind conditions in 2019, the District can expect to be approximately 2 aMW under contracted values by the end of the year. Since the above contracts were signed, the environment has changed (curtailments from BPA and aging equipment) which has reduced overall generation. Buying long mitigates the losses from the poor wind years, increasing curtailments, and the expiration of contracts starting in 2024.

Year	Emerald City Renewables	Idaho Wind Partners	3Degrees	RPS Advisors
2020	33,000/\$10.55	35,003/\$6.75	60,000/\$5.90	40,000/\$5.50
2021	33,000/\$11.08	35,003/\$6.75	60,000/\$5.90	40,000/\$5.50
2022	33,000/\$11.64	35,003/\$6.75	60,000/\$5.90	40,000/\$5.50
2023	33,000/\$12.22	35,003/\$6.75	60,000/\$5.90	40,000/\$5.50
2024	33,000/\$12.83	35,003/\$6.75	60,000/\$5.90	40,000/\$5.50

Note: Actual Generation trending lower than contracts

TABLE 12 - REC PURCHASES

As the District ramps up to the 15% REC requirement in 2020, the passage of the 2019 Clean Energy Transformation Act (CETA), SB 5116, allows the District to use BPA Incremental Hydro RECs as of January 1, 2020. BPA Incremental RECS are required to be used in the year they are generated.

## SECTION IV: BUDGETING

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### FINANCIAL MODEL ASSUMPTIONS

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This section outlines the major cost and revenue assumptions made in the Financial Model and used in the development of the District's budget.

#### FIXED COST ASSUMPTIONS

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The following assumptions were developed by Benton PUD Power Management staff and The Energy Authority (TEA), and reviewed by Benton PUD Risk Management Committee. Assumptions are for the five-year period, FY 2020-2024. Assumptions are updated at least annually. Note: fiscal year (FY) refers to the BPA fiscal year which runs from October 1 through September 30.

#### BPA FIXED COSTS, RATES & ESCALATION ASSUMPTIONS

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- **BPA Composite Charge:** This charge is designed to collect revenue for BPA based on the majority of its costs. It is based on the District's Tier One Cost Allocator (TOCA) and the BPA Composite rate. TOCA is calculated as the lesser of the District's Net Requirements (NR) and Rate Period High Water Mark (RHWM), divided by the sum of all of BPA's customer's RHWM. The RHWM is 200.214 aMW in FY2020. The NR is 208.011 aMW for FY2020. The RHWM is the limiting factor in FY2020-2024 when accounting for expected future load growth. The FY2020 TOCA is 2.85022% and the Composite Charge is \$1,980,553/TOCA%/month. The Composite Charge is forecast to increase by 4.0% in FY2022 to \$2,059,775/TOCA%/month. The total Composite charge in CY2020 is expected to be \$67,740,141.
- **Non-Slice Charge:** This charge is actually a credit. It is designed to return to customers certain BPA credits, primarily their wholesale sales revenues. It is based on the District's Non-Slice TOCA (NSTOCA) and the Non-Slice BPA Rate. The NSTOCA is the difference between the District's TOCA (2.85022%) and its Slice percentage (1.36792%). In FY2020, NSTOCA is 1.48230%. The Non-Slice Rate is (\$200,365)/NSTOCA %/month in FY2020. The Non-Slice Charge is expected to be the same in FY2022. The total credit in CY 2020 is expected to be (\$3,562,257).
- **BPA Cost Recovery Adjustment Charge (CRAC):** BPA rates have the provision for an adjustment to the base rates if BPA is projecting end of year reserve for risk levels lower than \$0M. BPA is expected to end FY2019 with \$185M. The likelihood of a CRAC triggering in FY2020 is 0%.
- **Financial Reserve Policy (FRP) Surcharge:** BPA added the FRP surcharge in the BP-20 rate case. It is a provision to add \$30M to rates if power reserves for risk are below 60 days cash on hand. FRP may increase to \$40M in BP-22 and beyond, if needed to reach 60 days. The FRP surcharge is expected to trigger and add approximately \$639,000 in CY2020 and about \$800,000 in CY2021 and CY2022.
- **Slice True-Up:** Energy Northwest's long term debt was restructured during FY2014-16, resulting in Slice True-Up credits for FY2014-17. While the refinancing is not expected to change the overall cost of the debt, it back-end loaded the debt such that Slice costs are

expected to be lower in the near term and higher in the long term. BPA does not project any future refinancing opportunities in 2020. Since BPA has a track record of underspending their budgets, no Slice True-Up is budgeted for FY2020-24.

- **Load Shaping Charge:** Under the TRM, the Load Shaping Charge only applies to load following and block products. The Composite and Non-Slice Rates assume that customers receive monthly diurnal BPA power based on the monthly diurnal critical water shape of the FCRPS, which is how power is provided under the Slice product. Since the District takes the block product, it is subject to the load shaping charge. In some months, its block energy will be greater than its share of critical FCRPS and some months it will be less. The monthly diurnal difference will be multiplied by the BPA load shaping rate to determine the load shaping charge. The load shaping rate is BPA's rate case estimate of the Mid-C market. The charge is a credit of \$428,011 in CY2020. A pattern of larger credits in the even years followed by smaller credits in the odd years will continue due to the Columbia Generating Station (CGS) refueling outage falling in the odd years. The size of the FCRPS is smaller due to the outage, but the District is still able to purchase its total RHW or NR.
- **Long-Term Point-to-Point Transmission Cost:** Fixed at \$9,390,600 in CY2020. Staff is planning for a 4% rate increase for FY2022.
- **Load Regulation Cost:** \$239,245 in CY2019 and jumps to \$900,784 in CY2020. The large increase is due to a BPA decision to recover all the cost of service in this rate. There is a similar reduction in the power rates as a result. The Load Regulation rate is planning for a 4% increase in FY2022.
- **Operating Reserves – Spinning:** \$598,742 in CY2020. Staff is planning for a 4% increase in FY2022. Spinning Reserves are 3% of total transmission schedules for generation and 3% of schedules for load.
- **Operating Reserves – Supplemental:** \$522,722 in CY2020. Staff is planning for a 4% increase in FY2022. Similar to spinning reserves, supplemental reserves are 3% of total transmission schedules for generation and 3% of schedules for load.
- **Energy Imbalance/UAI:** \$100,000 per year. Imbalance charges are based on the difference between scheduled and actual load and assuming random error. The sum should theoretically be close to zero over a long period. Unauthorized increases (UAI) are the result of scheduling errors and an amount is budgeted to cover operational errors.
- **GTA Wheeling Credit, Net:** \$2,885 per year.
- **Reliability Coordinator Charges:** \$163,992 per year.
- **Short-Term Firm/Non-Firm Transmission Costs:** This captures the cost of transmission from White Creek Wind to Rock Creek Substation and market purchases during periods where the District's transmission needs are greater than its long-term firm contracted quantity (i.e. during spring runoff months). The cost is forecasted to be \$77,976 in CY2020.

- **Irrigation Mitigation Credit:** This credit is received each year from May through September. It is computed based on the energy values in Ex. D of the BPA Contract and a rate of \$11.11 per MWh resulting in \$3,547,037 in CY2020. **Table 13** displays the monthly credit that the District receives.

May	June	July	August	September
(\$590,112)	(\$835,953)	(\$988,830)	(\$698,185)	(\$355,897)

TABLE 13 - IRRIGATION MITIGATION CREDIT AMOUNTS

- **Net Cost of Conservation:**

Year	BPA EEI Allocation	Cost of Conservation	Net Cost of Conservation
2020	\$(2,516,125)	\$2,859,918	\$343,793
2021	\$(1,284,952)	\$1,907,565	\$622,613
2022	\$(2,516,125)	\$3,002,675	\$486,550
2023	\$(1,284,952)	\$2,002,704	\$717,752
2024	\$(2,516,125)	\$3,152,569	\$636,444

TABLE 14 - ANNUAL CONSERVATION COST (CREDIT), NET

- **BPA Prepay Credit:** The District entered into an agreement with BPA to prepay for the future delivery of power consistent with the existing Slice/Block Power Sales Agreement, except that payment provisions would be revised to reflect the prepayment. The District made a lump-sum up-front payment of \$6.8 million to receive a total of \$9.3 million in credits through September 2028. The variance between the total paid and the credits received results in a credit of \$13,348 per month for the remainder of the term.

## OTHER COSTS

- **Benton PUD Internal Costs:** This is \$880,058 in 2020, increasing to \$990,514 by 2024.
- **The Energy Authority (TEA)** provides power, fuel, and risk management services to the District. The fee that TEA charges the District for these services is broken into two components:
  - Ongoing services where the level of effort is reasonably predictable. Examples of the types of services include scheduling, tagging, trading, month-end settlement, and risk management reporting and RMC meeting attendance. An annual fee of \$1,651,058 annually is budgeted for Scheduling and Risk Management Services in 2020. The fixed price is assumed to increase by 3% annually thereafter.
  - An estimated charge for consulting services equal \$178,231 for CY2020 and \$128,942 for CY2021. An IRP is assumed to be undertaken in 2020.
    - Consulting expenditures are for non-recurring work items, and/or work items where the level of effort is more difficult to predict. Consulting charges are billed at TEA’s hourly billing rates multiplied by actual hours worked. The consulting charge also includes charges for third-party vendors such as attorneys and some consulting work that is contracted through TEA in support of the District’s and possibly others’ power and risk management requirements. The charge includes preparation of an Integrated Resource Plan in 2020, 2022, and 2024.

## NON BPA RESOURCE COSTS

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- **Hedging costs:** \$350,000 per year is budgeted for option premiums in 2020-2021. The amount increases to \$600,000 in 2022 to account for the expiration of the Frederickson contract at the end of August. Additional purchases of call options are anticipated to make up for the reduction in generation capacity. The option premium budget increases to \$3,350,000 in 2023-24 to account for capacity purchases for the first full years without Frederickson.
- **Frederickson:** The monthly Frederickson payment totals roughly \$665,000. The primary components of this charge include a monthly capacity payment of \$385,500 fixed for the life of the contract, a fixed O&M charge of approximately \$179,840 per month that escalates by approximately 3.0% per year, and a pipeline capacity charge of about \$100,000 per month. Volumetric charges vary based on the plant's actual dispatch.
- **White Creek Wind 1:** \$1,099,976 in 2020. Costs escalate by approximately 1.4% in subsequent years.
- **LL&P Wind:** \$577,372 in 2020. Costs escalate by 2% per year.
- **Nine Canyon Wind Phases 1 & 3:** \$2,002,584 in 2020 including transmission. Costs are fixed through 2023.
- **Packwood:** \$403,718 in 2020 and escalates about 3% per year.

## FIVE YEAR BUDGET PROPOSAL

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The District uses Monte Carlo analysis to set its annual budget. The Stochastic Model allows the District to review the possible range of future financial outcomes by subjecting the portfolio to a thousand randomly generated Slice generation, price and load scenarios. The District selects the 25<sup>th</sup> percentile net power cost from the Stochastic Model outputs as its annual budget in year 1 (2020), and the 50<sup>th</sup> percentile net power cost as the budget in years 2-5 (2021-2024). **Table 15** is the summary power cost information associated with the District's budget for 2020-2024. **Section V:** Monte Carlo Analysis explains the Stochastic Model in more detail, as well as provides further results related to budgeting.

**Benton PUD  
Financial Model**

	2020	2021	2022	2023	2024
<b>I. FIXED COSTS</b>					
<b>BPA COSTS</b>					
Tier 1					
Composite	\$67,740,141	\$68,417,543	\$70,449,747	\$71,154,244	\$73,267,737
Non-Slice	(\$3,562,257)	(\$3,562,257)	(\$3,562,257)	(\$3,562,257)	(\$3,562,257)
Slice True-up/CRAC	\$639,458	\$784,794	\$823,094	\$617,321	\$0
Load Shaping	(\$428,011)	(\$202,440)	(\$368,990)	(\$182,152)	(\$302,996)
Other BPA					
REP Refund	\$0	\$0	\$0	\$0	\$0
BPA Power Prepay Credit	(\$161,256)	(\$161,256)	(\$161,256)	(\$161,256)	(\$161,256)
Irrigation Mitigation	(\$3,468,978)	(\$3,468,978)	(\$3,468,978)	(\$3,468,978)	(\$3,468,978)
Conservation	(\$2,516,125)	(\$1,284,952)	(\$2,516,125)	(\$1,284,952)	(\$2,516,125)
Transmission					
Long-Term PTP	\$9,390,600	\$9,484,506	\$9,766,224	\$9,863,886	\$10,156,873
Short-Term PTP	\$77,976	\$77,976	\$77,976	\$77,976	\$77,976
Load Regulation	\$900,784	\$909,288	\$940,276	\$950,383	\$984,640
Operating Reserves -- Spinning	\$598,742	\$610,840	\$618,505	\$579,449	\$600,081
Operating Reserves -- Supplemental	\$522,722	\$533,283	\$539,975	\$505,878	\$523,890
Energy Imbalance UAI	\$99,996	\$99,996	\$99,996	\$99,996	\$99,996
GTA Delivery Charge	\$2,885	\$2,800	\$2,741	\$2,696	\$48,415
Non-BPA Transmission Purchases; WECC/Peak Fees	\$163,992	\$163,992	\$163,992	\$163,992	\$163,992
PTP Resales	(\$900,000)	(\$900,000)	(\$900,000)	(\$900,000)	(\$900,000)
NON BPA RESOURCE COSTS					
Frederickson	\$7,968,083	\$8,026,976	\$5,381,955	\$0	\$0
White Creek	\$1,677,347	\$1,703,074	\$1,732,437	\$1,761,014	\$1,790,376
Nine Canyon	\$2,002,584	\$2,002,584	\$2,002,584	\$1,877,952	\$1,734,612
Packwood	\$403,718	\$415,830	\$428,305	\$441,154	\$454,388
OTHER POWER COSTS					
Internal Costs and WECC fees	\$880,058	\$906,460	\$933,654	\$961,664	\$990,514
TEA Scheduling & Risk Management	\$1,651,058	\$1,700,590	\$1,751,608	\$1,804,156	\$1,858,280
TEA Consulting	\$178,231	\$128,942	\$189,085	\$136,794	\$200,600
Cost of Conservation	\$2,859,918	\$1,907,565	\$3,002,675	\$2,002,704	\$3,152,569
Option Premium	\$350,000	\$350,000	\$600,000	\$3,350,000	\$3,350,000
REC PPAs	\$1,152,400	\$1,169,890	\$1,188,370	\$1,207,510	\$1,227,640
<b>II. VARIABLE COSTS</b>					
<b>RESOURCE VARIABLE COSTS</b>					
Frederickson					
Volumetric Charges	\$1,941,383	\$1,976,534	\$1,453,684	\$0	\$0
Spot Gas	\$2,351,213	\$3,425,447	\$4,223,016	\$0	\$0
Forward Gas Purchases	\$4,760,646	\$2,868,994	\$0	\$0	\$0
Forward Gas Sales	(\$970,060)	\$0	\$0	\$0	\$0
Forward Power Purchases	\$1,181,134	\$0	\$0	\$0	\$0
Forward Power Sales	(\$7,929,891)	(\$5,372,921)	\$0	\$0	\$0
Spot Power HLH	(\$2,370,640)	(\$5,271,808)	(\$5,857,760)	\$0	\$0
Spot Power LLH	(\$1,651,484)	(\$2,799,697)	(\$3,321,310)	\$0	\$0
BALANCING MARKET					
HLH Sales	(\$2,007,418)	(\$2,722,659)	(\$3,430,682)	(\$3,539,843)	(\$3,529,712)
HLH Purchases	\$1,579,544	\$1,843,100	\$1,922,817	\$1,919,886	\$1,925,901
LLH Sales	(\$1,022,537)	(\$2,232,652)	(\$2,751,695)	(\$2,835,442)	(\$2,848,119)
LLH Purchases	\$247,747	\$154,497	\$50,670	\$37,526	\$50,530
FORWARD MARKET					
Sales HLH	(\$314,160)	(\$495,520)	\$0	\$0	\$0
Sales LLH	(\$631,625)	(\$280,543)	\$0	\$0	\$0
Purchases HLH	\$630,784	\$0	\$0	\$0	\$0
Purchases LLH	\$0	\$0	\$0	\$0	\$0
<b>NET POWER COST</b>	<b>\$84,018,704</b>	<b>\$80,909,818</b>	<b>\$82,004,332</b>	<b>\$83,581,301</b>	<b>\$85,369,567</b>

TABLE 15 - FIVE YEAR BUDGET PROPOSAL

## 2019 VS. 2020 BUDGET VARIANCE

The 2020 net power supply budget decreased approximately 2% relative to the 2019 budget, which is summarized in **Table 16**. The most significant year-over-year changes are net conservation costs and purchased transmission. Despite an increase in the expected cost for conservation, net conservation costs decreased as a result of a significant increase of the credit in even-numbered years. Transmission costs increased as a result of the BPA Record of Decision (ROD) for the BP-20 rate case.

**Table 17** shows the change in the cost per MWh from BPA.

	2019 Budget	2020 Budget	% Change
<b>BPA Purchased Power</b>	\$61,828,025	\$60,759,098	-2%
<b>Other Purchased Power</b>	\$27,193,264	\$29,747,463	9%
<b>Net Conservation</b>	\$1,236,670	\$343,793	-72%
<b>Purchased Transmission and Ancillaries</b>	\$12,985,509	\$13,586,986	5%
<b>Gross Power Supply</b>	\$103,243,468	\$104,437,341	1%
<b>Less: Sales for Resale</b>	(\$17,181,671)	(\$20,418,637)	19%
<b>Net Power Supply</b>	\$86,061,797	\$84,018,704	-2%

TABLE 16 - POWER SUPPLY BUDGET VARIANCE SUMMARY

	2019 Budget	2020 Budget	% Change
<b>BPA Power Cost</b>	\$61,828,025	\$60,759,098	-2%
<b>BPA Transmission Cost</b>	\$10,374,305	\$10,857,697	5%
<b>MWh from BPA</b>	1,897,175	1,884,735	-1%
<b>BPA Power Cost per MWh</b>	\$32.59	\$32.24	-1%
<b>Transmission Cost per MWh</b>	\$5.47	\$5.76	5%

TABLE 17 - COST PER MWH FROM BPA

Increased load, though a smaller factor, also contributes to the increase in purchased power costs. In addition to power costs, I-937 compliance costs are also increasing as a result of additional REC purchases to show forward 2020 compliance.

**Table 17** compares the detailed 2020 power supply budget to the 2019 budget.

**Benton PUD**  
**Financial Model**

	2019 Budget	2020 Budget	\$ Change	% Change
<b>I. FIXED COSTS</b>				
<b>BPA COSTS</b>				
Tier 1				
Composite	\$73,108,871	\$67,740,141	(\$5,368,730)	-7.3%
Non-Slice	(\$5,275,255)	(\$3,562,257)	\$1,712,998	-32.5%
Slice True-up/CRAC	\$207,226	\$639,458	\$432,232	208.6%
Load Shaping	(\$281,396)	(\$428,011)	(\$146,614)	52.1%
Other BPA				
REP Refund	(\$2,098,232)	\$0	\$2,098,232	-100.0%
BPA Power Prepay Credit	(\$161,256)	(\$161,256)	\$0	NO CHANGE
Irrigation Mitigation	(\$3,671,933)	(\$3,468,978)	\$202,955	-5.5%
Conservation	(\$1,141,500)	(\$2,516,125)	(\$1,374,625)	120.4%
Transmission				
Long-Term PTP	\$9,328,800	\$9,390,600	\$61,800	0.7%
Short-Term PTP	\$212,749	\$77,976	(\$134,773)	-63.3%
Load Regulation	\$239,245	\$900,784	\$661,539	276.5%
Operating Reserves – Spinning	\$738,407	\$598,742	(\$139,664)	-18.9%
Operating Reserves – Supplemental	\$611,435	\$522,722	(\$88,714)	-14.5%
Energy Imbalance UAI	\$100,000	\$99,996	(\$4)	0.0%
GTA Delivery Charge	\$14,400	\$2,885	(\$11,515)	-80.0%
Non-BPA Transmission Purchases;				
WECC/Peak Fees	\$29,269	\$163,992	\$134,723	460.3%
PTP Resales	(\$900,000)	(\$900,000)	\$0	NO CHANGE
<b>NON BPA RESOURCE COSTS</b>				
Frederickson	\$7,728,568	\$7,968,083	\$239,515	3.1%
White Creek	\$1,650,855	\$1,677,347	\$26,492	1.6%
Nine Canyon	\$2,002,578	\$2,002,584	\$6	0.0%
Packwood	\$391,961	\$403,718	\$11,758	3.0%
<b>OTHER POWER COSTS</b>				
Internal Costs and WECC fees	\$892,474	\$880,058	(\$12,416)	-1.4%
TEA Scheduling & Risk Management	\$1,589,664	\$1,651,058	\$61,394	3.9%
TEA Consulting	\$121,540	\$178,231	\$56,691	46.6%
Cost of Conservation	\$2,378,170	\$2,859,918	\$481,748	20.3%
Option Premium	\$350,000	\$350,000	\$0	NO CHANGE
REC PPAs	\$807,900	\$1,152,400	\$344,500	42.6%
<b>II. VARIABLE COSTS</b>				
<b>RESOURCE VARIABLE COSTS</b>				
Frederickson				
Volumetric Charges	\$1,355,032	\$1,941,383	\$586,351	43.3%
Spot Gas	\$754,464	\$2,351,213	\$1,596,749	211.6%
Forward Gas Purchases	\$3,866,616	\$4,760,646	\$894,030	23.1%
Forward Gas Sales	\$0	(\$970,060)	(\$970,060)	100.0%
Forward Power Purchases	\$0	\$1,181,134	\$1,181,134	100.0%
Forward Power Sales	(\$5,761,611)	(\$7,929,891)	(\$2,168,281)	37.6%
Spot Power HLH	(\$932,496)	(\$2,370,640)	(\$1,438,144)	154.2%
Spot Power LLH	(\$434,020)	(\$1,651,484)	(\$1,217,465)	280.5%
<b>BALANCING MARKET</b>				
HLH Sales	(\$5,118,660)	(\$2,007,418)	\$3,111,242	-60.8%
HLH Purchases	\$4,984,983	\$1,579,544	(\$3,405,439)	-68.3%
LLH Sales	(\$2,819,269)	(\$1,022,537)	\$1,796,732	-63.7%
LLH Purchases	\$2,059,793	\$247,747	(\$1,812,046)	-88.0%
<b>FORWARD MARKET</b>				
Sales HLH	(\$684,000)	(\$314,160)	\$369,840	-54.1%
Sales LLH	(\$531,616)	(\$631,625)	(\$100,009)	18.8%
Purchases HLH	\$348,040	\$630,784	\$282,744	81.2%
Purchases LLH	\$0	\$0	\$0	NO CHANGE
<b>NET POWER COST</b>	<b>\$86,061,797</b>	<b>\$84,018,704</b>	<b>(\$2,043,093)</b>	<b>-2.4%</b>

TABLE 18 – 2020 DETAILED POWER SUPPLY COST COMPARISON

<b>Budget Item</b>	<b>Notes</b>								
1. Composite Charge	7.3% decrease in 2020 costs from 2019 due to final ROD for BPA Power BP-20 rate change, beginning October 2019								
2. Non-Slice Charge	32.5% reduction in 2020 costs from 2019 due to final ROD for BPA Power BP-20 rate change, beginning October 2019								
3. Slice True-up/CRAC	208.6% increase in 2020 costs from 2019 due to the assumption of a Financial Reserve Policy (FRP) Surcharge								
4. Load Shaping Charge	52% increase in 2020 credit vs 2019 credit due to no CGS refueling outage								
5. Conservation Credit	Conservation Credit increased by \$1,374,625 from 2019. Odd year conservation credit is generally less than even year credits because the District's allocation of the BPA rate period (2 years) funding is exhausted.								
6. Long-Term PTP	0.7% increase in 2020 costs over 2019 due to final ROD for BPA Transmission TC-20 rate change, beginning October 2019								
7. Cost of Conservation	Cost of Conservation is up \$481,748 from 2019 budget, conservation budgets follow the cycle of conservation credits: greater in even years, less in odd years. Net Cost of Conservation is down \$892,877.								
8. Frederickson	Margins from Frederickson operations are forecasted to be \$2,687,699, an increase of almost 100% from the 2019 budget. This is due to an increase in projected Frederickson dispatch and active Delta Hedging of the plant. O&M costs are projected to increase by 3% in July 2020.								
9. Balancing Market	The Slice generation assumption for 2020 is lower relative to the 2019 budget.								
	<table border="1"> <thead> <tr> <th><b>Year</b></th> <th><b>Avg. Slice Generation</b></th> </tr> </thead> <tbody> <tr> <td><b>2019 Budget</b></td> <td>112.5</td> </tr> <tr> <td><b>2020 Budget</b></td> <td>110.4</td> </tr> <tr> <td><b>Delta</b></td> <td>-2.1</td> </tr> </tbody> </table>	<b>Year</b>	<b>Avg. Slice Generation</b>	<b>2019 Budget</b>	112.5	<b>2020 Budget</b>	110.4	<b>Delta</b>	-2.1
<b>Year</b>	<b>Avg. Slice Generation</b>								
<b>2019 Budget</b>	112.5								
<b>2020 Budget</b>	110.4								
<b>Delta</b>	-2.1								
10. Forward Market	The District has approximately 12% of its net Slice length hedged with forward contracts for calendar year 2020.								

## 2020 PURCHASED MWHs BY MONTH

Purchased MWhs	January	February	March	April	May	June	July	August	September	October	November	December	Total
<b>BPA</b>													
Slice HLH	56,833	57,224	54,413	45,672	51,523	56,524	51,743	44,051	38,879	36,821	40,695	52,918	587,296
Slice LLH	38,425	37,364	36,771	26,727	37,825	35,772	34,723	27,460	24,089	19,993	28,485	34,869	382,504
Block HLH	44,807	34,541	33,140	36,830	43,083	54,192	63,646	54,990	36,425	35,126	34,201	42,151	513,131
Block LLH	35,328	25,560	26,050	26,914	37,052	39,602	50,182	43,357	29,140	25,368	30,015	33,234	401,804
<b>Total BPA Purchases</b>	<b>175,393</b>	<b>154,689</b>	<b>150,374</b>	<b>136,143</b>	<b>169,483</b>	<b>186,090</b>	<b>200,294</b>	<b>169,859</b>	<b>128,533</b>	<b>117,308</b>	<b>133,397</b>	<b>163,172</b>	<b>1,884,735</b>
<b>Other Power</b>													
Frederickson HLH	20,800	20,000	20,800	20,800	-	20,800	20,800	20,800	20,000	21,600	19,200	20,800	226,400
Frederickson LLH	16,400	14,800	16,350	15,200	-	15,200	16,400	16,400	16,000	15,600	16,850	16,400	175,600
White Creek Wind HLH	1,248	1,200	1,248	1,248	1,200	1,248	1,248	1,248	1,200	1,296	1,152	1,248	14,784
White Creek Wind LLH	984	888	981	912	1,032	912	984	984	960	936	1,011	984	11,568
Nine Canyon Wind HLH	1,179	1,059	1,279	1,125	1,089	1,097	1,023	987	942	1,131	1,088	1,182	13,181
Nine Canyon Wind LLH	930	784	1,006	822	936	801	807	778	754	817	954	932	10,321
Packwood HLH	598	493	517	602	970	1,076	907	452	551	28	711	664	7,568
Packwood LLH	472	365	406	440	834	787	715	356	441	20	624	524	5,982
Balancing Market HLH	-	-	-	-	8,266	2,333	8,161	10,844	-	-	-	-	29,605
Balancing Market LLH	-	-	-	-	1,212	-	2,434	-	-	-	-	-	3,646
Interruptible Purchases HLH	6,656	6,000	2,912	7,904	6,000	3,744	1,664	5,408	3,600	3,456	5,760	7,904	61,008
Interruptible Purchases LLH	5,248	4,440	2,289	5,776	5,160	2,736	1,312	4,264	2,880	2,496	5,055	6,232	47,888
Swaps HLH - Slice	-	-	-	-	-	-	6,240	6,240	6,000	-	-	-	18,480
Swaps HLH - Thermal	8,320	8,000	8,320	-	-	-	-	-	-	-	-	-	24,640
Swaps LLH - Thermal	6,560	5,920	6,540	-	-	-	-	-	-	-	-	-	19,020
<b>Total Other Power Purchases</b>	<b>69,394</b>	<b>63,949</b>	<b>62,648</b>	<b>54,829</b>	<b>26,699</b>	<b>50,734</b>	<b>62,693</b>	<b>68,761</b>	<b>53,328</b>	<b>47,379</b>	<b>52,405</b>	<b>56,870</b>	<b>669,691</b>
<b>TOTAL PURCHASES</b>	<b>244,788</b>	<b>218,638</b>	<b>213,022</b>	<b>190,972</b>	<b>196,182</b>	<b>236,824</b>	<b>262,987</b>	<b>238,620</b>	<b>181,861</b>	<b>164,687</b>	<b>185,801</b>	<b>220,042</b>	<b>2,554,425</b>
<b>Less</b>													
<b>Sales for Resale</b>													
Balancing Market HLH	20,780	24,207	19,924	19,219	-	-	-	-	5,605	8,132	12,988	18,909	129,764
Balancing Market LLH	9,828	12,114	14,530	13,379	-	6,210	-	6,757	9,230	6,655	15,178	13,028	106,909
Interruptible Sales HLH	6,656	6,000	2,912	7,904	6,000	3,744	1,664	5,408	3,600	3,456	5,760	7,904	61,008
Interruptible Sales LLH	5,248	4,440	2,289	5,776	5,160	2,736	1,312	4,264	2,880	2,496	5,055	6,232	47,888
Swaps HLH - Slice	4,160	4,000	4,160	-	-	-	-	-	-	-	-	-	12,320
Swaps LLH - Slice	6,560	8,880	9,810	1,520	1,720	1,520	-	-	-	-	-	-	30,010
Swaps HLH - Thermal	20,800	20,000	20,800	8,320	8,000	8,320	16,640	16,640	16,000	12,960	11,520	12,480	172,480
Swaps LLH - Thermal	16,400	14,800	16,350	6,080	6,880	6,080	9,840	9,840	9,600	9,360	10,110	9,840	125,180
<b>Total Sales for Resale</b>	<b>90,432</b>	<b>94,440</b>	<b>90,775</b>	<b>62,198</b>	<b>27,760</b>	<b>28,610</b>	<b>29,456</b>	<b>42,909</b>	<b>46,915</b>	<b>43,059</b>	<b>60,611</b>	<b>68,394</b>	<b>685,558</b>
<b>Losses/Imbalance</b>													
Losses HLH	1,884	1,940	1,821	1,476	1,056	1,534	1,439	1,283	1,170	1,169	1,320	1,693	17,785
Losses LLH	1,298	1,342	1,420	966	930	1,016	1,019	894	873	732	1,092	1,166	12,747
<b>Total Losses</b>	<b>3,182</b>	<b>3,282</b>	<b>3,241</b>	<b>2,442</b>	<b>1,986</b>	<b>2,550</b>	<b>2,458</b>	<b>2,178</b>	<b>2,043</b>	<b>1,901</b>	<b>2,412</b>	<b>2,858</b>	<b>30,532</b>
<b>TOTAL SALES/LOSSES</b>	<b>93,614</b>	<b>97,722</b>	<b>94,016</b>	<b>64,639</b>	<b>29,746</b>	<b>31,160</b>	<b>31,914</b>	<b>45,087</b>	<b>48,958</b>	<b>44,959</b>	<b>63,022</b>	<b>71,252</b>	<b>716,090</b>
<b>NET PURCHASES</b>	<b>151,173</b>	<b>120,916</b>	<b>119,006</b>	<b>126,332</b>	<b>166,436</b>	<b>205,664</b>	<b>231,074</b>	<b>193,534</b>	<b>132,902</b>	<b>119,728</b>	<b>122,779</b>	<b>148,790</b>	<b>1,838,335</b>
<b>WA \$/MWh Secondary Sales</b>													
ATC	\$ 32.32	\$ 30.04	\$ 26.12	\$ 16.02	\$ 16.35	\$ 24.14	\$ 40.78	\$ 37.27	\$ 28.61	\$ 27.78	\$ 27.85	\$ 32.45	\$ 28.47

TABLE 19 – 2020 PURCHASED MWHs BY MONTH

## SECTION V: MONTE CARLO ANALYSIS

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### STOCHASTIC MODEL OVERVIEW/ASSUMPTIONS

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The District faces a number of unknown variables that have a significant impact on its bottom line. Some variables, such as customer demand for energy, can be reasonably forecasted based on historical trends. Other variables (such as energy and natural gas prices, as well as hydro generation) cannot be accurately forecasted. This is fundamental to the concept of risk management; if it were possible to consistently forecast prices and the weather, there would be little to no risk for the District to manage.

Uncertainty about these key variables translates into uncertainty about the District's financial well-being. The District aims to manage its power supply portfolio so that the cost of supplying power (net power cost) is as low as possible. However, variability in supply, demand and price can result in dramatic changes in net power cost and net margins from year to year. Extreme conditions could threaten the financial viability of the PUD. The District, therefore, sets a conservative budget, maintains financial reserves and actively hedges its portfolio to guard against negative outcomes.

The purpose of the Stochastic Model is to define the distribution of possible outcomes. Specifically, the model generates the distribution of annual power cost by simulating thousands of scenarios of Slice generation, load, and power and gas prices. Once this has been accomplished, the modeled results can be used in a variety of ways. For example, the results can be used to quantify the likelihood of meeting budget at a given time, or to identify the variables that the District faces the greatest exposure to and perform sensitivity analysis. Furthermore, by highlighting possible unforeseen risks, the District is able to identify and test hedging strategies using the Stochastic Model. After hedges have been put in place their effectiveness can be tracked, by comparing the current portfolio's net power cost distribution with an unhedged portfolio's net power cost distribution.

STOCHASTIC MODEL RESULTS – NET POWER COST: 2020-2024

Table 20 shows the District’s annual net power cost for 2020-2024 at different probabilities of occurrence. Figure 14 show the distribution of net power cost for 2020-2024, with the budget in each year plotted for reference.

Percentile	2020	2021	2022	2023	2024
5%	\$87,823,729	\$87,373,951	\$88,100,399	\$90,775,779	\$92,322,732
10%	\$85,942,937	\$85,662,129	\$86,690,981	\$88,928,316	\$90,725,294
15%	\$85,246,275	\$84,767,735	\$85,915,545	\$87,562,225	\$89,751,795
20%	\$84,492,324	\$83,925,643	\$85,165,095	\$86,675,705	\$88,700,217
25%	\$84,018,704	\$83,224,019	\$84,487,145	\$86,114,325	\$88,128,451
30%	\$83,498,942	\$82,744,083	\$83,910,500	\$85,501,313	\$87,533,655
35%	\$83,102,240	\$82,308,164	\$83,369,265	\$85,015,376	\$86,936,984
40%	\$82,774,773	\$81,853,379	\$82,836,853	\$84,579,530	\$86,319,007
45%	\$82,358,449	\$81,364,956	\$82,437,786	\$83,979,793	\$85,824,292
50%	\$81,976,450	\$80,909,819	\$82,004,332	\$83,581,301	\$85,369,567
55%	\$81,579,374	\$80,490,670	\$81,464,810	\$83,161,657	\$84,957,603
60%	\$81,195,943	\$80,002,971	\$81,008,895	\$82,665,665	\$84,458,529
65%	\$80,764,665	\$79,489,862	\$80,553,496	\$82,172,174	\$84,000,759
70%	\$80,319,923	\$79,067,983	\$79,877,434	\$81,587,286	\$83,367,035
75%	\$79,974,747	\$78,527,240	\$79,325,026	\$81,212,706	\$82,821,164
80%	\$79,340,697	\$77,907,428	\$78,759,121	\$80,619,830	\$82,125,904
85%	\$78,691,600	\$77,111,157	\$78,079,559	\$79,958,018	\$81,368,111
90%	\$77,730,271	\$76,250,708	\$77,120,813	\$79,100,336	\$80,563,108
95%	\$76,594,370	\$74,712,070	\$75,401,816	\$77,711,828	\$79,019,585

TABLE 20 - ANNUAL NET POWER COST PERCENTILES

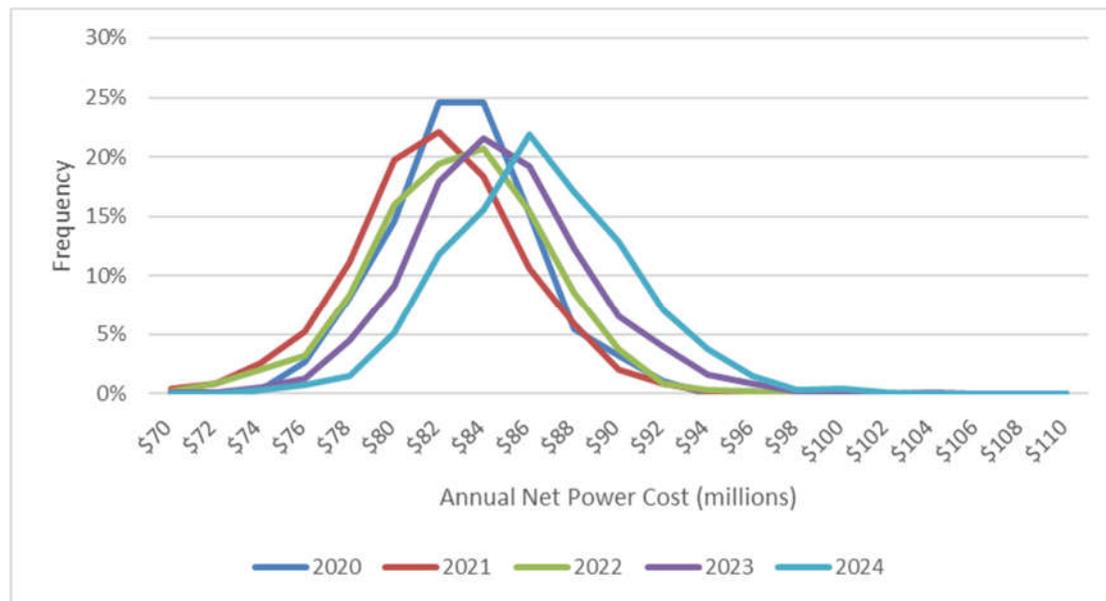


FIGURE 14 – NET POWER COST DISTRIBUTION

## STOCHASTIC OUTPUTS

The District is exposed to a number of unknown variables that ultimately have a significant impact on its bottom line. The Stochastic Model generates the range of outcomes, thereby making it possible to drill down on poor financial outcomes in order to determine what scenarios are most detrimental to the District. This section examines the stochastic outputs from the Stochastic Model that were used in the budgeting and financial reserves sections above. **Figure 15** shows the various components of the Stochastic Model and how each flows through to produce the financial metrics important to the District.

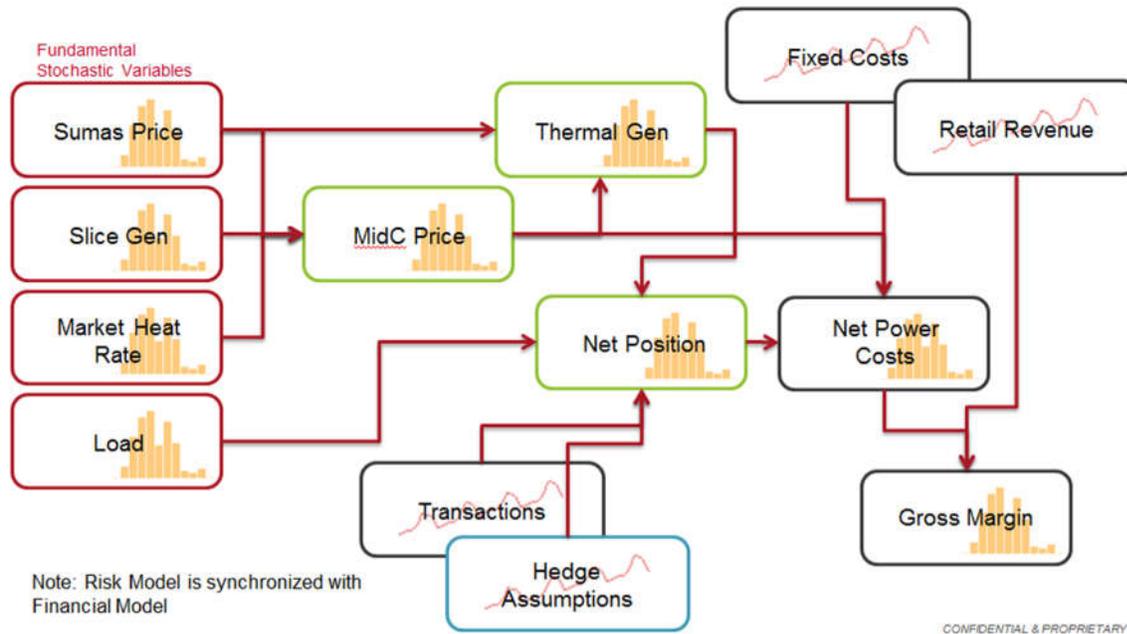


FIGURE 15 - RISK MODEL COMPONENTS FLOW-CHART

## LOADS

The Load Model is based on the District's load forecast. Monthly load volatility is derived by analyzing historical loads and is used to parameterize the model. The Load Model also accounts for interactions between load and other variables in the Stochastic Model. For example, if there is found to be a correlation between price and the District's load, the model will be parameterized to capture that relationship. The load scenarios generated by the model are used in conjunction with the Slice generation scenarios to arrive at the District's net position in each iteration. **Figure 16** shows the 10<sup>th</sup> and 90<sup>th</sup> percentile (i.e., 90% and 10% likelihood of greater loads) HLH load outputs relative to the HLH load forecast used to develop the 2020 budget. **Figure 17** shows the 10<sup>th</sup> and 90<sup>th</sup> percentile LLH load outputs relative to the LLH load forecast used to develop the 2020 budget.

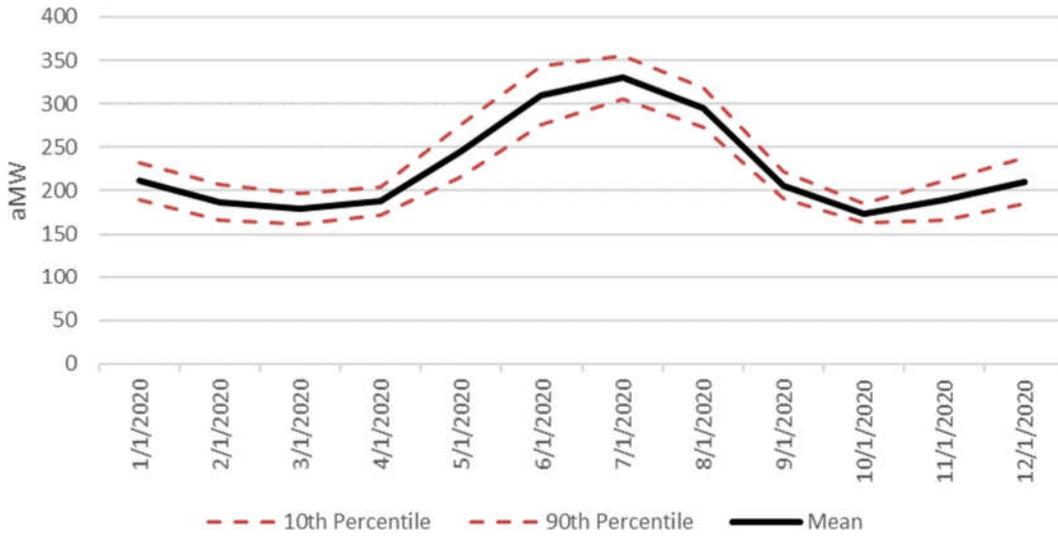


FIGURE 16 - STOCHASTIC MODEL OUTPUT: 2020 HLH LOADS

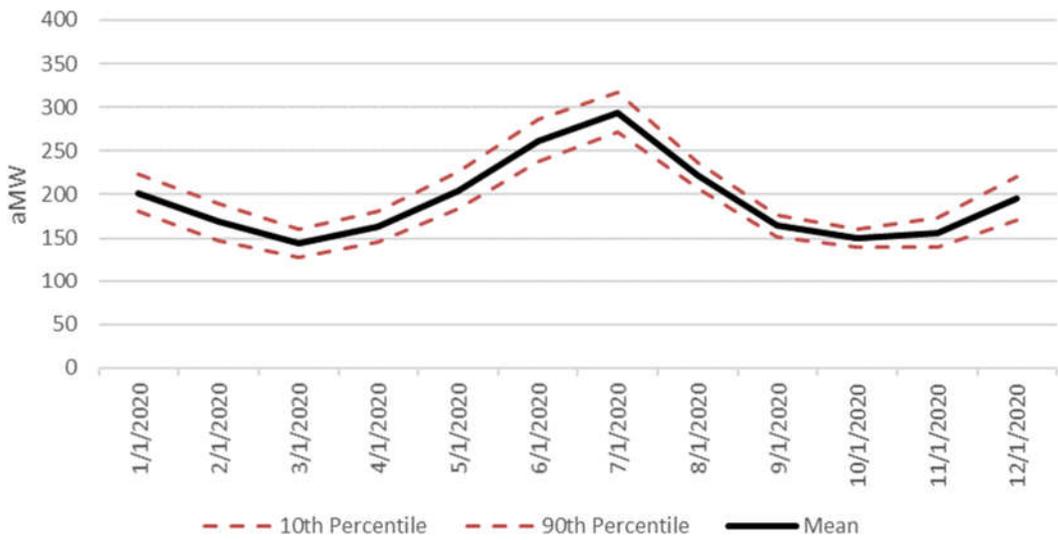


FIGURE 17 - STOCHASTIC MODEL OUTPUT: 2020 LLH LOADS

## SLICE

One of the major components of the Stochastic Model is the Slice Model. Each run of the Model generates a new Slice generation scenario. Slice scenarios are parameterized based on 70 years of historical Slice generation to ensure the modeled outputs behave realistically. The Slice Model breaks down generation into five primary components:

1. Variable hydro generation:
  - a. Big federal projects (4,000-16,000 MW)
  - b. Smaller hydro independents (150-900 MW)
2. CGS (1,100 MW)
3. Miscellaneous generation (60-100 MW)
4. System obligations (0-1,000 MW)
5. HLH/LLH allocations based on observed historical shaping capabilities

Stochastic model slice outputs are shown in **Figure 18** below along with the District's budget Slice assumption.

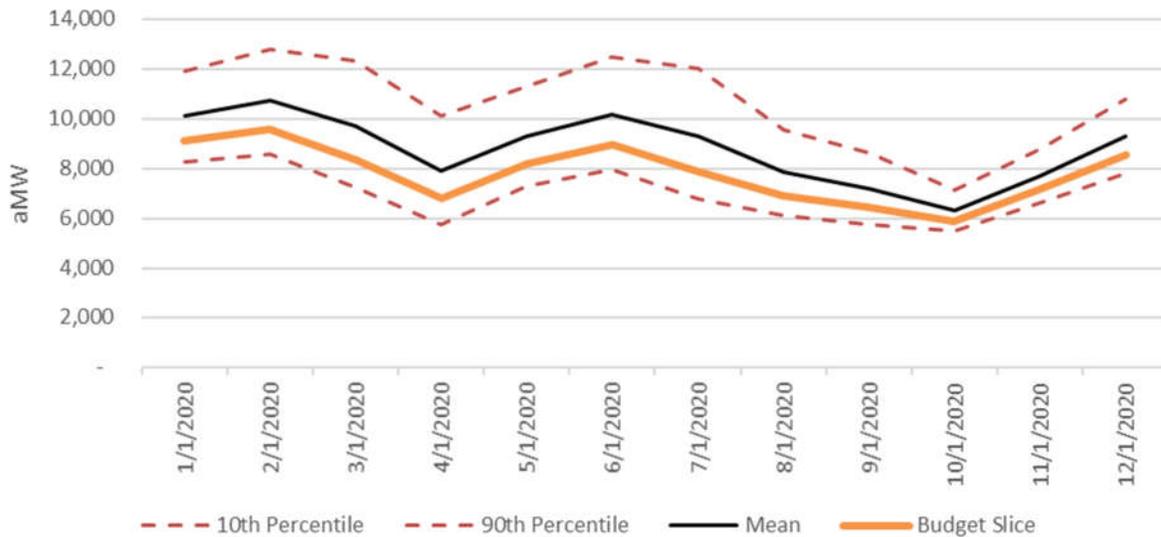


FIGURE 18 - STOCHASTIC MODEL OUTPUT: 2020 SLICE GENERATION

## GAS PRICES

Natural gas plants are the marginal source of generation in the Northwest; therefore, gas prices are a key driver of power price in the region. The Gas Price Model results in a distribution around forward prices based on historical volatility. Gas prices from the model are used with heat rates to arrive at simulated power prices – this process is expanded upon in the next section. **Figure 19** shows the average Sumas gas price distribution from the Stochastic Model relative to the gas price assumed in the 2020 budget.

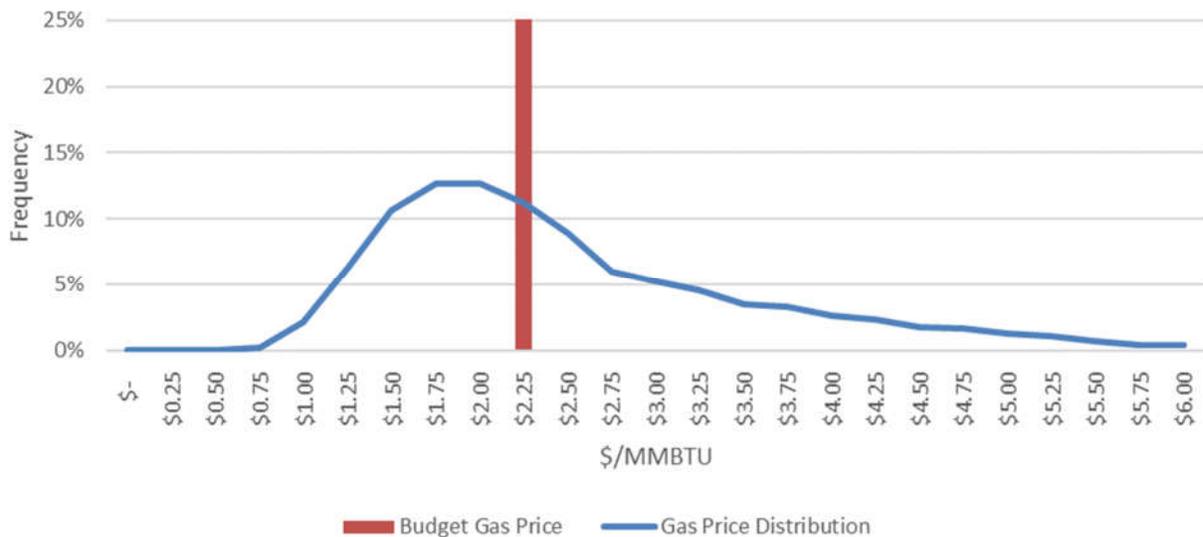


FIGURE 19 - STOCHASTIC MODEL OUTPUT: 2020 GAS PRICE DISTRIBUTION

## HEAT RATE

Heat Rate is a measure of a power plant’s efficiency in converting fuel to electricity, expressed as the number of British thermal units (Btu) required to generate a kilowatt hour (kWh) of electricity. In the stochastic model gas prices are generated and parameterized based on historical volatility. Market heat rates are then derived using Aurora XMP power forecasting software, by correlating market heat rates with Slice generation and WECC transmission constraints. This accounts for the fact that the effect of high gas prices can be partially offset by robust hydro generation and vice versa. Market heat rates generated by Aurora are fed into the Model and applied to simulated gas prices to arrive at simulated market power prices. **Figure 20** and **Figure 21** show the average HLH and LLH heat rate distribution from the stochastic model relative to the 2019 HLH and LLH heat rate budget assumption. The stochastic model projects a very long tail for HLH heat rate distributions. This is an artifact of the model capturing and reflecting market behavior from the summer of 2018, when power prices reached the triple digits with gas prices remaining in the \$2/MMBTU range. Though it is anomalous for market heat rates to exceed the heat rate of even the most inefficient thermal units, it is not unprecedented and reflects scarcity pricing.

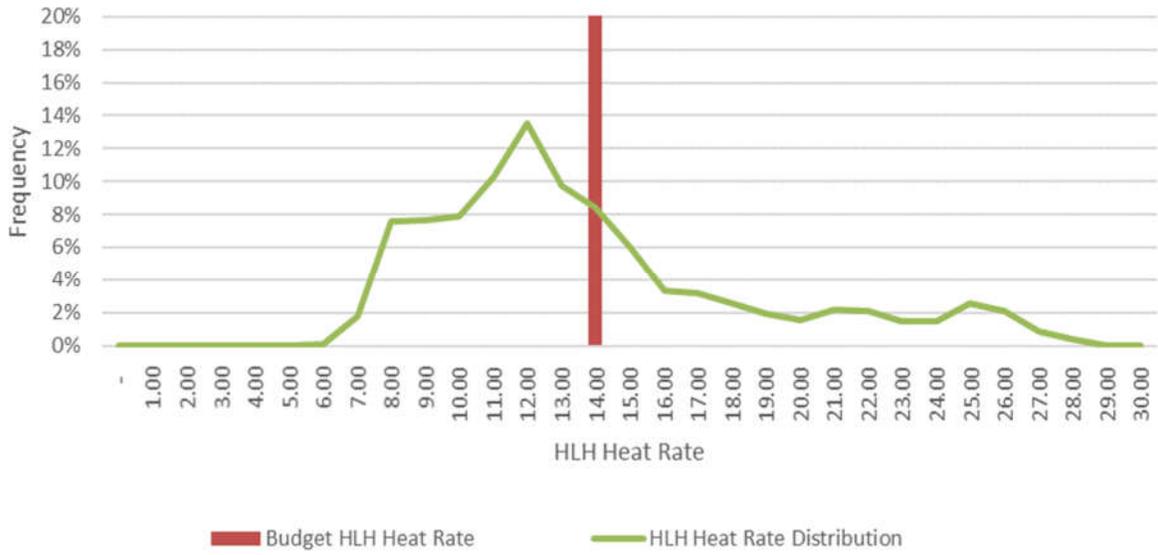


FIGURE 20 - STOCHASTIC MODEL OUTPUT: 2020 HLH HEAT RATE DISTRIBUTION

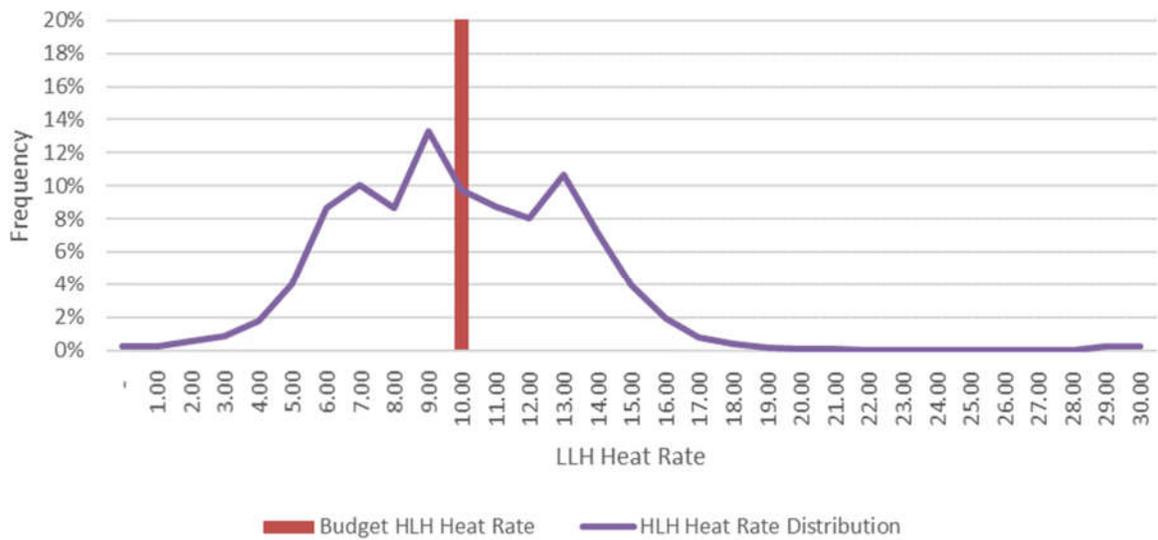


FIGURE 21 - STOCHASTIC MODEL OUTPUT: 2020 LLH HEAT RATE DISTRIBUTION

## PRICE

Power prices are a function of gas price and market heat rate in the Stochastic Model. The Price Model has been parameterized so that prices behave realistically relative to gas price and Slice generation outputs in each iteration. Simulated power prices of each iteration are used to calculate the cash flows from buying and selling, deficit and surplus power. **Figure 22** and **Figure 23** show the average HLH and LLH power price distribution from the stochastic model relative to the 2020 HLH and LLH budget price assumptions.

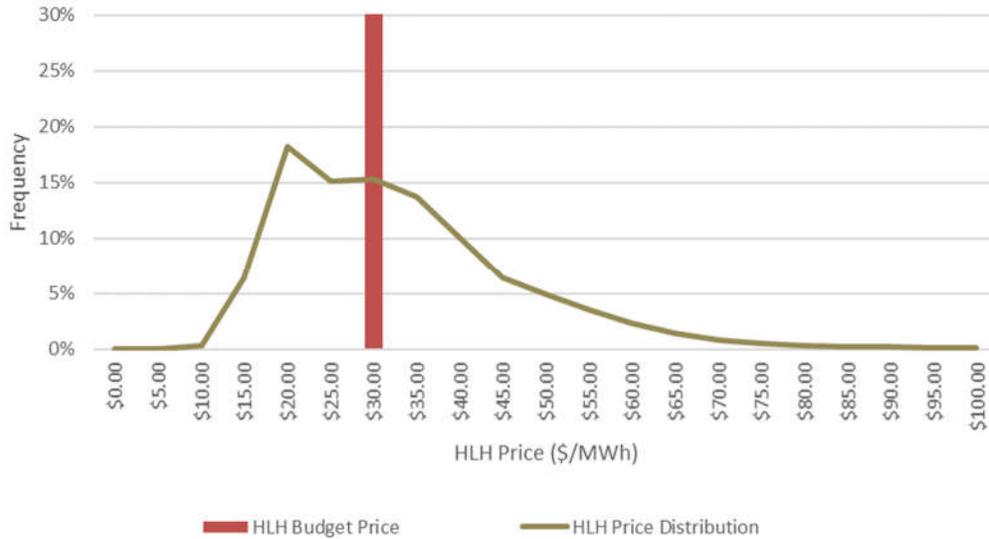


FIGURE 22 - STOCHASTIC MODEL OUTPUT: 2020 HLH POWER PRICE DISTRIBUTION

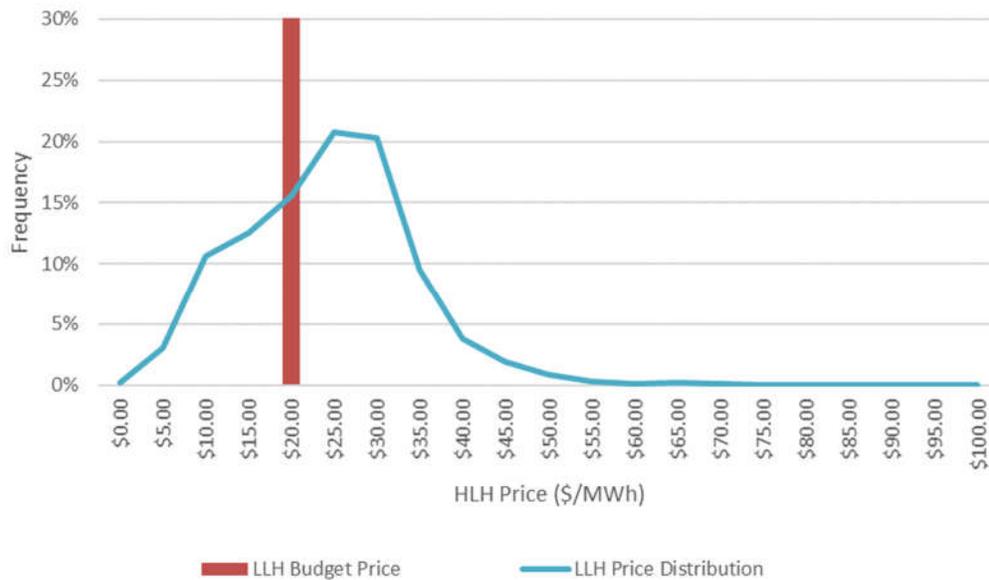


FIGURE 23 - STOCHASTIC MODEL OUTPUT: 2020 LLH POWER PRICE DISTRIBUTION