Jefferson County Public Utility District

Board of Commissioners Meeting

Cost-of-Service Update

Presented by:
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November 10, 2020

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Presentation Overview

- **Recap**
- **Cost-of-service results**
  - Electric
  - Water
- **Next steps**
- **Questions / discussion**

Recap

- **Study commenced April 2020**
- **Board presentations:**
  - » July 13, 2020 to discuss rate setting fundamentals and study goals & objectives
  - » August 18, 2020 to discuss preliminary revenue requirement results and scenarios
  - » September 23, 2020 to finalize revenue requirement analysis
  - » October 27, 2020 to review pole attachment fees
- **Board selected revenue requirements:**

Electric - 3.00% Rate Increase in 2021	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Average Monthly Residential Bill	**$114.22**	**$117.65**	**$125.88**	**$130.29**	**$134.85**	**$137.54**	**$140.30**	**$143.10**	**$143.10**	**$143.10**	**$143.10**
$ / Mo. Difference		***$3.43***	***$8.24***	***$4.41***	***$4.56***	***$2.70***	***$2.75***	***$2.81***	***$0.00***	***$0.00***	***$0.00***
Meets Op. Rsrv Target w/out Line-of-Credit	X	X	X	X	X	X	X	✓	✓	✓	✓
Annual Rate Increases	0.00%	3.00%	7.00%	3.50%	3.50%	2.00%	2.00%	2.00%	0.00%	0.00%	0.00%

Notes: Residential bill is based on 1,000 kWh of monthly energy usage

Water - $7 Base Rate Increase in 2021	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Average Monthly Residential Bill	**$37.83**	**$44.83**	**$52.00**	**$60.32**	**$64.40**	**$68.74**	**$73.38**	**$78.34**	**$83.62**	**$89.27**	**$95.29**
$ / Mo. Difference		***$7.00***	***$7.17***	***$8.32***	***$4.07***	***$4.35***	***$4.64***	***$4.95***	***$5.29***	***$5.64***	***$6.03***
Self Sustaining	X	X	X	X	X	X	✓	✓	✓	✓	✓
Meets Op. Rsrv Target w/out Line-of-Credit	✓	✓	✓	X	X	X	X	X	X	X	✓
Annual Rate Increases	0.00%	16.03%	16.00%	16.00%	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%
Total Debt Proceeds	$ 5,000,000	$ -	$ 1,485,260	$ -	$ 1,300,000	$ -	$ 1,250,000	$ -	$ -	$ 7,230,000	$ -

Notes: Sewer Kala Point rate is aligned w/ standard sewer rate in 2022. Sewer rates increased by $7 in 2021. Subsequent years follow Water percent increases. | Residential bill is based on 4,200 gallons of monthly usage.

Overview of Rate Setting Process

Fiscal Policies – Set the Management Foundation

Step 1:
Revenue Requirement
(defining overall needs)

- Revenue
- Debt
- Reserves
- O&M
- Capital

Today's Focus

Step 2:
Cost of Service
(equity evaluation)

- Define Customer Classes
- Allocate Costs

Step 3:
Design Rates
(collect target revenue)

- Fixed Charges
- Variable Charges

Legal Authority for Rate Setting

- **RCW 54.24.080**
- (1) The commission of each district which shall have revenue obligations outstanding shall have the power and shall be required to establish, maintain, and collect rates or charges for electric energy and water and other services, facilities, and commodities sold, furnished, or supplied by the district. The rates and charges shall be fair and, except as authorized by RCW 74.38.070 and by subsections (2) and (3) of this section, nondiscriminatory, and shall be adequate to provide revenues sufficient for the payment of the principal of and interest on such revenue obligations for which the payment has not otherwise been provided and all payments which the district is obligated to set aside in any special fund or funds created for such purpose, and for the proper operation and maintenance of the public utility and all necessary repairs, replacements, and renewals thereof.
- (3) In establishing rates or charges for water service, commissioners may in their discretion consider the achievement of water conservation goals and the discouragement of wasteful water use practices.

Cost of Service Overview

- **Defines equitable shares of cost responsibility by customer class**
- **Allocates total utility cost by function & classification**

Water Utility Classifications	Electric Utility	
	Functions	Classifications
• Customer	• Generation	• Demand
• Meters & Services	• Transmission	• Energy
• Base Demand (avg. use)	• Distribution	• Customer
• Peak Demand (peak use)		
• Fire Protection		

- **Develops allocation factors using customer facility requirements and usage characteristics**
- **Allocates costs to customer classes**

Electric Utility

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Functionalization

- **What is it?**
  - » Arrangement of costs according to functions performed by the utility
- **Ideally to be performed utilizing uniform system of accounts for plant and operating expenses (RUS/FERC)**

Production
310-337
500-557

Transmission
350-359
560-574

Distribution
360-374
580-598

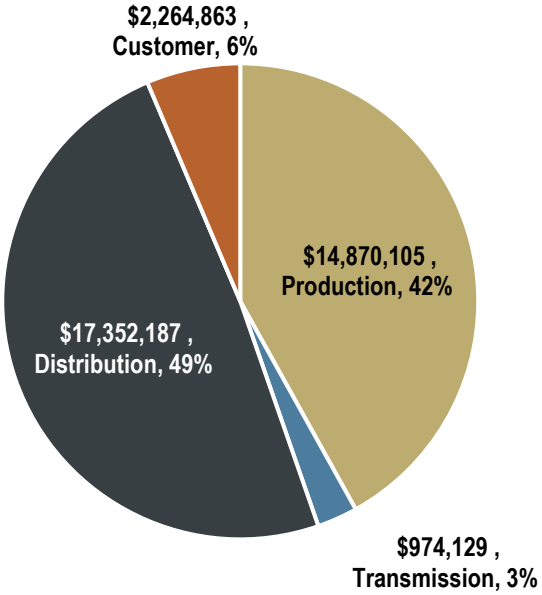
Customer
901-917

Functionalization

Utility Plant in Service	Functions of Service			
	Production	Transmission	Distribution	Customer
Transmission		✓		
Distribution			✓	
General		✓	✓	
% Share	*0.00%*	*9.29%*	*90.71%*	*0.00%*

Revenue Requirement	Functions of Service			
	Production	Transmission	Distribution	Customer
Purchased Power	✓			
Transmission		✓		
Distribution - Operations	✓		✓	
Distribution - Maintenance			✓	
Customer Accounts Expense				✓
Customer Service & Information				✓
Administrative & General	✓	✓	✓	✓
Taxes	✓	✓	✓	✓
Debt Service		✓	✓	
Non-Rate Revenues & Adjustments		✓	✓	✓
% Share	*41.93%*	*2.75%*	*48.93%*	*6.39%*

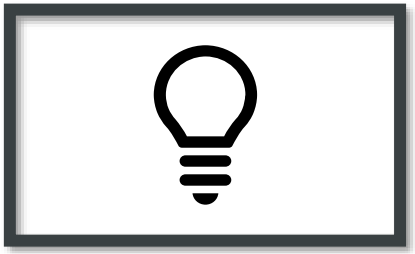
Total 2021 Revenue Requirement - $35,461,283



Classification of Cost Pools

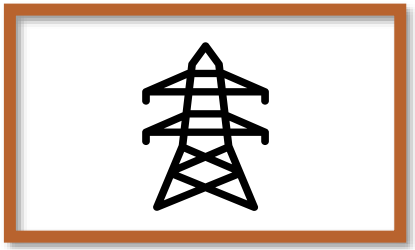
- **What is it?**
  - » Establishes a rational relationship between functions (activities) and costs
  - » Identifies statistics to allocate cost of service to rate classes

Energy



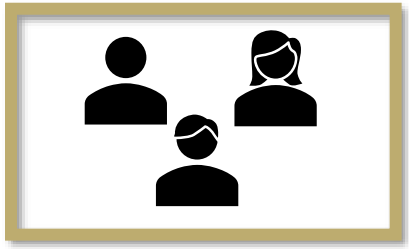
Costs that vary with the total consumption (flow) of the electricity over a specified period of time. Measured in kilowatt-hours (kWh)

Demand



Costs predicated upon the maximum rate of use required at one point in time. Demand may be coincident or non-coincident to the system peak demand. Demand is measured in kilowatts (kW)

Customer



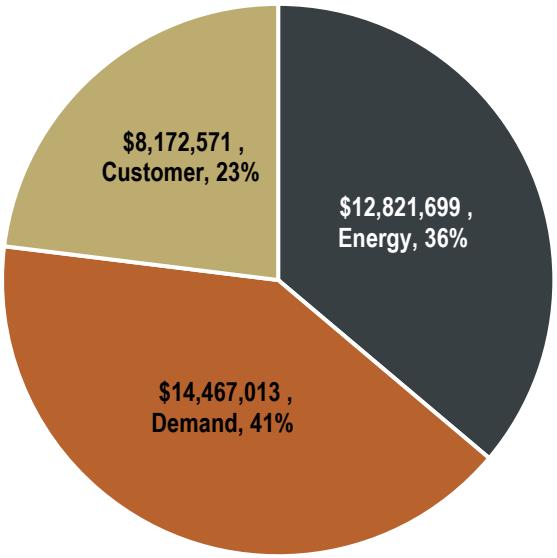
Fixed costs associated with having a customer on the system. These costs vary with the addition or deletion of customers, and not consumptive use – metering / billing / account services / backbone infrastructure requirements

Classification

Utility Plant in Service	Classification		
	Demand	Energy	Customer
Transmission	✓		
Distribution			
Land	✓		
Substations	✓		
Poles / Towers / Fixtures	✓		✓
OH/UG Lines	✓		✓
Transformers	✓		✓
Meters			✓
Services			✓
General	✓		✓
% Share	*61.76%*	*0.00%*	*38.24%*

Revenue Requirement	Classification		
	Demand	Energy	Customer
Purchased Power	✓	✓	
Transmission	✓		
Distribution - Operations	✓	✓	✓
Distribution - Maintenance	✓		✓
Customer Accounts Expense			✓
Customer Service & Information			✓
Administrative & General	✓	✓	✓
Taxes	✓	✓	✓
Debt Service	✓		✓
Non-Rate Revenues & Adjustments	✓		✓
% Share	*40.80%*	*36.16%*	*23.05%*

Total 2021 Revenue Requirement - $35,461,283



Classes of Service

- **Classes of Service**
  - Residential
  - Residential - Discount
  - General Service (<=50kW)
  - Small Demand (>50 - <=350kW)
  - Large Demand (>350 kW)
  - Primary General Service
  - Irrigation
  - Interruptible Primary Schools
  - Lighting (Street & Area)

- **PT Mill evaluated based on contract terms**

PT Mill

- **Mill customer treated on a standalone basis**
- **Analysis assumed PUD serves demands based on current contractual agreement**
- **Cost-of-service analysis justifies current contract rates**
  - » No change needed to existing contract
- **Additional analysis warranted if PUD takes on Mill as a full load retail customer**

Allocation Factors

- **Cost allocation**
  - » Based upon demand customer classes place on the system

Class	Demand			Energy	Customer		
	Coincident Peak	Non-Coincident Peak		Total Energy	Accounts	Accounting Weighted	M&S Weighted
		Primary	Secondary				
Residential	66.78%	69.93%	75.68%	66.55%	84.33%	79.59%	80.16%
Residential - Discount	2.30%	2.54%	2.75%	2.29%	2.94%	2.77%	2.79%
General Service	13.35%	11.01%	11.92%	14.45%	11.20%	15.74%	15.43%
Small Demand General Service	6.61%	5.48%	5.93%	6.88%	0.37%	0.70%	1.22%
Large Demand General Service	3.82%	3.23%	3.50%	4.72%	0.04%	0.07%	0.13%
Primary General Service	4.43%	4.75%	0.00%	3.49%	0.05%	0.10%	0.18%
Irrigation/Drainage	0.01%	0.05%	0.05%	0.01%	0.01%	0.01%	0.03%
Interruptible Primary Schools	2.59%	2.85%	0.00%	1.45%	0.02%	0.04%	0.06%
Lighting	0.11%	0.16%	0.18%	0.17%	1.03%	0.98%	0.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

Notes: M&S = Meters & Services

Cost-of-Service Results

Customer Class	2021 Existing	2021 COSA	Difference $	Difference %
Residential	$ 23,413,686	$ 25,728,368	$ 2,314,682	9.9%
Residential - Discount	524,046	982,304	458,258	87.4%
General Service	4,957,838	4,679,617	(278,221)	-5.6%
Small Demand General Service	2,204,691	1,809,219	(395,472)	-17.9%
Large Demand General Service	1,426,288	1,120,972	(305,316)	-21.4%
Primary General Service	1,246,917	670,799	(576,118)	-46.2%
Irrigation/Drainage	1,844	8,098	6,254	339.2%
Interruptible Primary Schools	446,817	315,403	(131,415)	-29.4%
Lighting	206,303	146,503	(59,799)	-29.0%
Total	**$ 34,428,430**	**$ 35,461,283**	**$ 1,032,853**	**3.0%**

- **±5.0% of average is within cost-of-service (industry standard)**
  - » Residential, Residential – Discount, & Irrigation can increase towards cost-of-service
  - » All other classes can decrease towards cost-of-service

Rate Phase-In Example

- **Consider phasing-in cost-of-service over multiple years**
- **Example – 3-year phase-in**

Annual Rate Increases	2021	2022	2023	2024
Residential	5.48%	10.70%	5.36%	3.50%
Residential - Discount	5.48%	10.70%	5.36%	3.50%
General Service	2.00%	2.00%	2.00%	3.50%
Small Demand General Service	-3.00%	-3.00%	-3.00%	3.50%
Large Demand General Service	-4.50%	-4.50%	-4.50%	3.50%
Primary General Service	-16.00%	-16.00%	-16.00%	3.50%
Irrigation/Drainage	72.00%	72.00%	72.00%	3.50%
Interruptible Primary Schools	-7.50%	-7.50%	-7.50%	3.50%
Lighting	-7.50%	-7.50%	-7.50%	3.50%
Total	**3.00%**	**7.00%**	**3.50%**	**3.50%**

- **Alternative phase-in options**
  - » Longer phase-in duration
  - » No rate decreases, classes grow into rates
  - » Cap increases at double system average

Board Policy Questions

- **Move towards cost-of-service?**
  - » All in one year?
  - » Phase-in?

Water Utility

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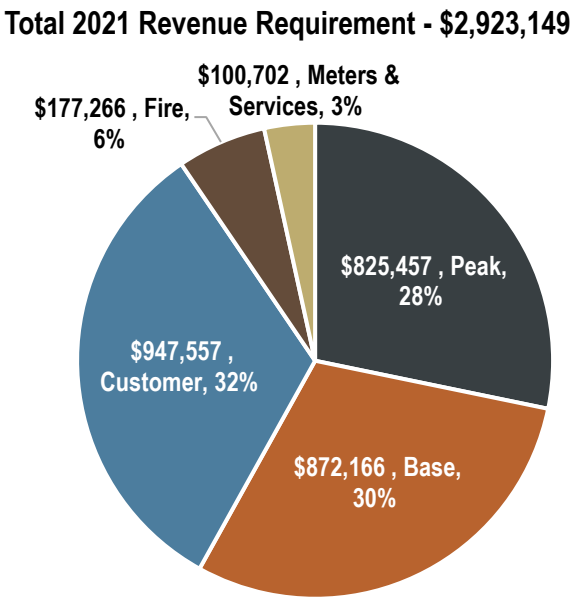
Functionalization & Classification

Utility Plant in Service	Functions/Classifications of Service				
	Customer	Meters & Services	Base	Peak	Fire
Supply/ Treatment			✓	✓	
Storage			✓	✓	✓
Pumping			✓	✓	✓
Transmission & Distribution	✓		✓	✓	✓
Hydrants					✓
Meters & Services		✓			
General	✓	✓	✓	✓	✓
% Share	*36.26%*	*5.06%*	*14.45%*	*31.70%*	*12.53%*

Revenue Requirement	Functions/Classifications of Service				
	Customer	Meters & Services	Base	Peak	Fire
Purchased Power			✓		
Distribution - Operations	✓	✓	✓	✓	✓
Distribution - Maintenance	✓	✓	✓	✓	✓
Customer Accounts Expense	✓				
Customer Service & Information	✓				
Administrative & General	✓	✓	✓	✓	✓
Taxes	✓	✓	✓	✓	✓
Debt Service	✓	✓	✓	✓	
Non-Rate Revenues & Adjustments	✓	✓	✓	✓	✓
% Share	*32.42%*	*3.44%*	*29.84%*	*28.24%*	*6.06%*

Summary of Cost Classification



Peak	Costs associated with meeting incremental peak demands
Base	Costs associated with meeting average demands
Customer	Fixed costs that do not vary with meter size or usage including (e.g. utility billing)
Fire	Costs related to direct fire protection (hydrants) and oversizing facilities for fire flow (mains, reservoirs, etc.)
Meters & Services	Costs associated with installation, maintenances, and repairs of meters and services

Classes of Service

- **One system approach**

- **Classes of Service**
  - » Residential
  - » Residential - Discount
  - » Commercial

Allocation Factors

- **Cost allocation**
  - » Based upon demand customer classes place on the system

Class	Customer Accounts	M&S MSEs	Base Gallons	Peak Gallons[1]	Fire Accounts[2]
Residential	90.29%	86.78%	73.49%	72.60%	75.57%
Residential - Discount	3.22%	3.12%	2.32%	2.02%	2.70%
Commercial	6.49%	10.10%	24.20%	25.38%	21.74%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**

1. Weighted based on class specific peaking factors

2. Weighted based on fire flow requirements

Cost-of-Service Results

Customer Class	2021		Difference	
	Existing	COSA	$	%
Residential	$ 2,030,249	$ 2,317,075	$ 286,827	14.1%
Residential - Discount	38,449	75,293	36,844	95.8%
Commercial	450,535	530,781	80,245	17.8%
Total	**$ 2,519,233**	**$ 2,923,149**	**$ 403,915**	**16.0%**

- **±5.0% of average is within cost-of-service (industry standard)**
  - » Residential & Commercial are within cost-of-service
  - » Residential – Discount customers are currently being subsidized
- **No cost-of-service adjustments warranted**
  - » Across the board rate adjustments based on system average

Next Steps – Electric Rate Design

Class of Service	Basic Charge (per month)		Energy Charge (per kWh)			Demand Charge	Reactive Power
	Single Phase	Three Phase	0-600 kWh	601+kWh	all kWh	all kW	per kVARh
Residential	$ 18.50	$ 27.00	0.0882	0.1070	n/a	n/a	n/a
General Service	18.50	34.00	n/a	n/a	0.1007	n/a	n/a
Small Demand	60.00		n/a	n/a	0.0852	5.50	0.00283
Large Demand	110.00		n/a	n/a	0.0757	9.00	0.00281
Primary Demand	300.00		n/a	n/a	0.0747	8.50	0.00106
Interruptible Primary (Schools)	300.00		n/a	n/a	0.0702	$5.50 - $9.50	0.00300
Seasonal Irrigation	30.00		n/a	n/a	0.0687	n/a	n/a

Cost-of-Service Unit Costs	Basic Charge (per month)	Energy Charge (per kWh)	Demand Charge (per kW)
Residential	$32.48	$0.0422	$7.47
General Service	39.78	0.0422	8.78
Small Demand	62.99	0.0422	13.38
Large Demand	62.99	0.0422	14.23
Primary Demand	62.99	0.0408	4.78
Interruptible Primary (Schools)	62.99	0.0408	6.11
Seasonal Irrigation	57.39	0.0422	69.61

- **Current rate design considerations**
  - » Align unit costs with cost-of-service?
  - » Review residential tiered block rates?
  - » Roll power factor adjustment into demand charge?
  - » Other?

Next Steps – Electric Rate Design (continued)

- **Future rate design considerations – requires AMI meters**
  - » Time of use rates
  - » Residential demand rates
  - » Electric Vehicle rates

Next Steps – Water Rate Design

Base Fee (per month)		2020
Residential	$	25.65
Commercial		
3/4"	$	25.65
1"		61.40
1.5"		120.00
2"		191.29
3"		357.00
4"		593.80
6"		1,184.50
8"		1,894.00

Volume Fee (per 100 gal)		2020
Residential		
Tier 1 (0-5,000gal)	$	0.29
Tier 2 (5,001-10,000gal)		0.40
Tier 3 (10,000-30,000gal)		0.54
Tier 4 (30,001+gal)		1.00
Commercial		
All use	$	0.40

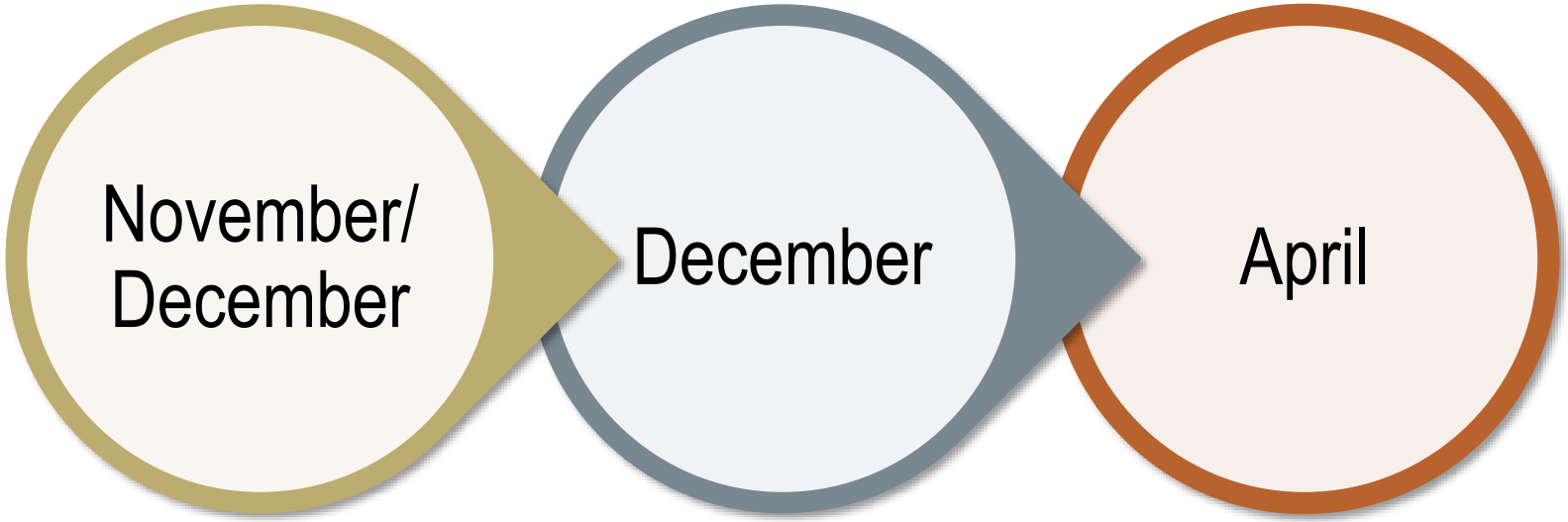
Notes:

1. Discount rates available.
2. Kala Point rates available.

Sewer		2020
Standard Rate	$	30.80
Kala Point		20.00
Low Income		21.56

- **Rate design considerations**
  - » One system approach to all rate structures
    - – Phase-in Kala Point towards standard rates
  - » Separate capital surcharge?
  - » Differentiate residential rates by meter size?
    - – All current residential meter sizes pay same rate
  - » Modify residential tiers?

Next Steps



- Cost of service & rate design
- Present final results to Board
- Rates implemented

Review meetings with Board and Staff

Thank you!
Questions?

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Appendix

Glossary of Terms

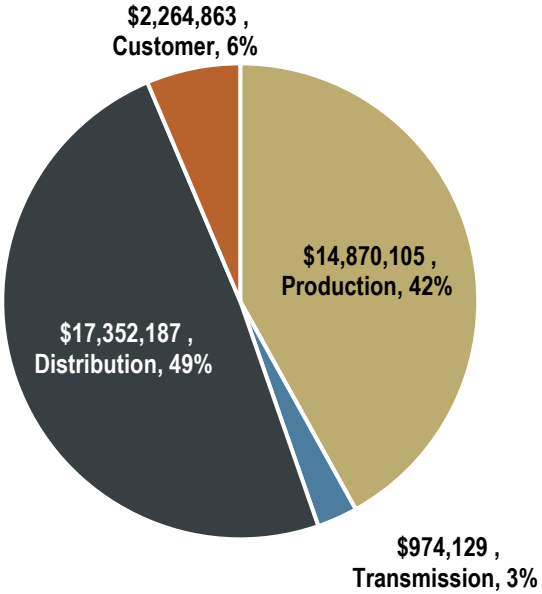
- A&G – administrative and general
- BPA – Bonneville Power Administration
- CIP – capital improvement program
- COSA – cost-of-service analysis
- DSC – debt service coverage
- kWh – kilowatt hours
- kW – kilowatt
- O&M – operating & maintenance
- M&S – meters & services
- PUD – public utility district
- RCW – revised code of Washington
- R&R – renewal and replacement
- TIER – time interest earned ratio

Functionalization - Electric

Utility Plant in Service	Functions of Service			
	Production	Transmission	Distribution	Customer
Transmission	$ -	$ 9,034,072	$ -	$ -
Distribution	-	-	88,190,033	-
General	-	411,054	4,012,679	-
Total	**$ -**	**$ 9,445,125**	**$ 92,202,712**	**$ -**
% Share	*0.00%*	*9.29%*	*90.71%*	*0.00%*

Revenue Requirement	Functions of Service			
	Production	Transmission	Distribution	Customer
Purchased Power	$ 13,799,827	$ -	$ -	$ -
Transmission	-	55,971	-	-
Distribution - Operations	12,123	-	2,031,680	-
Distribution - Maintenance	-	-	3,756,431	-
Customer Accounts Expense	-	-	-	1,476,191
Customer Service & Information	-	-	-	27,804
Administrative & General	5,116	34,469	2,639,582	660,825
Taxes	1,053,039	35,905	905,924	160,388
Debt Service	-	554,865	5,416,072	-
Non-Rate Revenues & Adjustments	-	292,918	2,602,497	(60,345)
Total	**$ 14,870,105**	**$ 974,129**	**$ 17,352,187**	**$ 2,264,863**
% Share	*41.93%*	*2.75%*	*48.93%*	*6.39%*

Total 2021 Revenue Requirement - $35,461,283

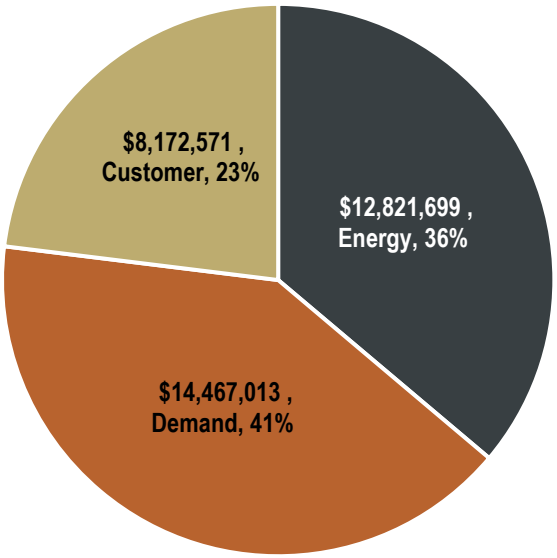


Classification - Electric

Utility Plant in Service	Classification		
	Demand	Energy	Customer
Transmission	$ 9,034,072	$ -	$ -
Distribution	-	-	-
Land	506,658	-	-
Substations	11,998,829	-	-
Poles / Towers / Fixtures	4,675,162	-	6,426,313
OH/UG Lines	28,112,795	-	12,981,842
Transformers	5,511,096	-	7,223,703
Meters	-	-	2,348,472
Services	-	-	8,062,431
General	2,731,697	-	1,692,035
Total	**$ 62,570,309**	**$ -**	**$ 38,734,795**
% Share	*61.76%*	*0.00%*	*38.24%*

Revenue Requirement	Classification		
	Demand	Energy	Customer
Purchased Power	$ 1,901,140	$ 11,898,855	$ -
Transmission	55,965	-	-
Distribution - Operations	1,284,834	10,453	748,482
Distribution - Maintenance	2,962,674	-	793,688
Customer Accounts Expense	-	-	1,476,336
Customer Service & Information	-	-	27,807
Administrative & General	1,964,677	4,411	1,370,918
Taxes	805,865	907,979	441,421
Debt Service	3,687,005	-	2,283,782
Non-Rate Revenues & Adjustments	1,804,853	-	1,030,137
Total	**$ 14,467,013**	**$ 12,821,699**	**$ 8,172,571**
% Share	*40.80%*	*36.16%*	*23.05%*

Total 2021 Revenue Requirement - $35,461,283



Functionalization & Classification - Water

Utility Plant in Service	Functions/Classifications of Service				
	Customer	Meters & Services	Base	Peak	Fire
Supply/ Treatment	$ -	$ -	$ 1,989,772	$ 2,633,931	$ -
Storage	-	-	805,400	755,830	418,510
Pumping	-	-	504,262	667,510	310,403
Transmission & Distribution	8,363,156	-	33,321	3,253,073	1,083,187
Hydrants	-	-	-	-	1,077,112
Meters & Services	-	1,166,726	-	-	-
General	276,477	38,571	110,177	241,672	95,514
Total	**$ 8,639,634**	**$ 1,205,297**	**$ 3,442,932**	**$ 7,552,015**	**$ 2,984,726**
% Share	*36.26%*	*5.06%*	*14.45%*	*31.70%*	*12.53%*

Revenue Requirement	Functions/Classifications of Service				
	Customer	Meters & Services	Base	Peak	Fire
Purchased Power	$ -	$ -	$ 160,650	$ -	$ -
Distribution - Operations	189,714	43,058	295,390	380,603	65,540
Distribution - Maintenance	188,211	22,997	126,195	164,226	49,485
Customer Accounts Expense	226,874	-	-	-	-
Customer Service & Information	-	-	-	-	-
Administrative & General	395,090	39,727	345,661	326,173	69,736
Taxes	40,505	4,305	37,282	35,286	7,578
Debt Service	490,694	62,459	289,719	428,386	140,940
Non-Rate Revenues & Adjustments	(583,531)	(71,844)	(382,731)	(509,217)	(156,013)
Total	**$ 947,557**	**$ 100,702**	**$ 872,166**	**$ 825,457**	**$ 177,266**
% Share	*32.42%*	*3.44%*	*29.84%*	*28.24%*	*6.06%*

Residential – Discount Customers

- **Policy to charge less for certain residential customers**
- **Who should pay for the reduced rates?**
  - » Table below demonstrates redistribution to all other customer classes based on proportional totals of cost-of-service

Customer Class	2021		Difference	
	Existing	COSA	$	%
Residential	$ 23,413,686	$ 26,026,681	$ 2,612,995	11.16%
Residential - Discount	524,046	582,530	58,484	11.16%
General Service	4,957,838	4,733,876	(223,963)	-4.52%
Small Demand General Service	2,204,691	1,830,196	(374,495)	-16.99%
Large Demand General Service	1,426,288	1,133,970	(292,318)	-20.50%
Primary General Service	1,246,917	678,577	(568,341)	-45.58%
Irrigation/Drainage	1,844	8,192	6,348	344.32%
Interruptible Primary Schools	446,817	319,060	(127,758)	-28.59%
Lighting	206,303	148,202	(58,101)	-28.16%
Total	**$ 34,428,430**	**$ 35,461,283**	**$ 1,032,853**	**3.00%**