



# Board of Commissioners Meeting



## Cost of Service and Rate Study

April 24, 2018

Presented by:  
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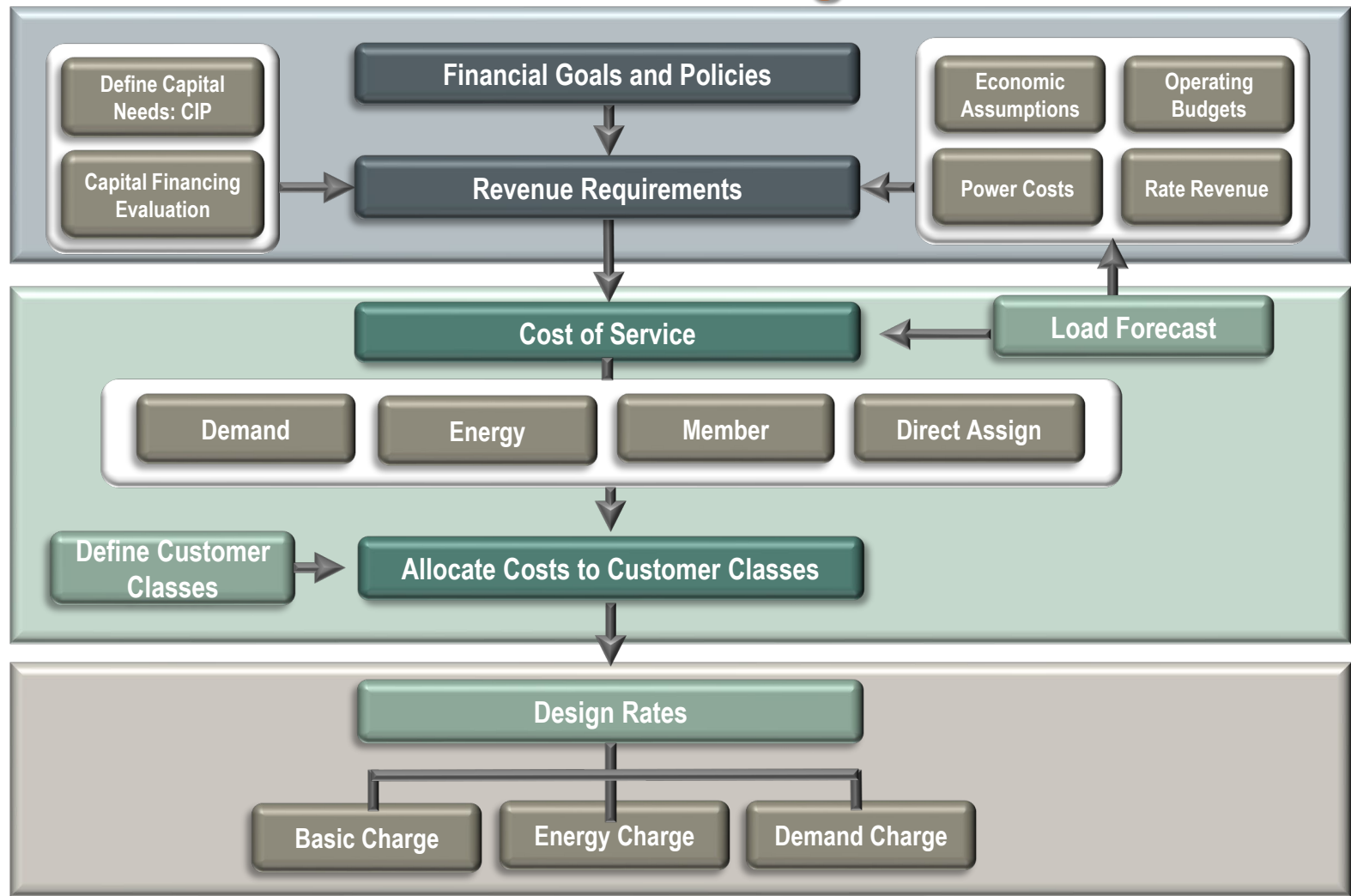
# Discussion Outline

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- ◆ **Overview of rate study process**
- ◆ **Key assumptions**
- ◆ **Summary of findings**
  - Revenue requirement
  - Cost of service
  - Rate design
- ◆ **Next steps**
- ◆ **Discussion/ Input**



# Overview of Rate Setting Process



# REVENUE REQUIREMENT



# **Revenue Requirement Overview**

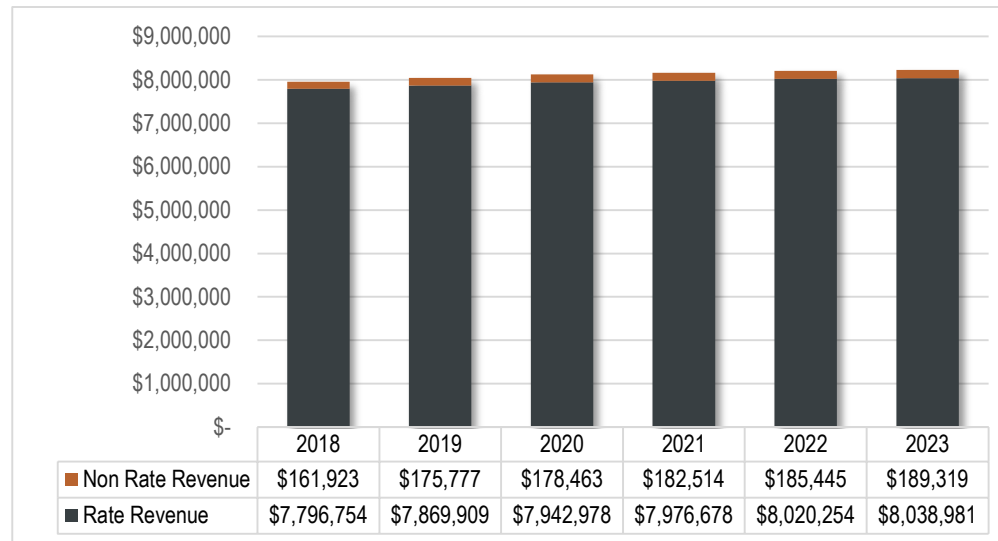
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- ◆ **Determine the amount of annual revenue necessary to fund all financial obligations**
  - Operating expenses
  - Debt service (principal & interest)
  - Capital costs and funding approach
- ◆ **Meet financial parameters and targets**
  - Target debt service coverage ratios
  - Maintain target reserve balances
- ◆ **Evaluate revenue sufficiency over multi-year period**
- ◆ **Develop rate plan to balance financial needs and minimize customer impacts**



# Key Factors: Existing Revenue

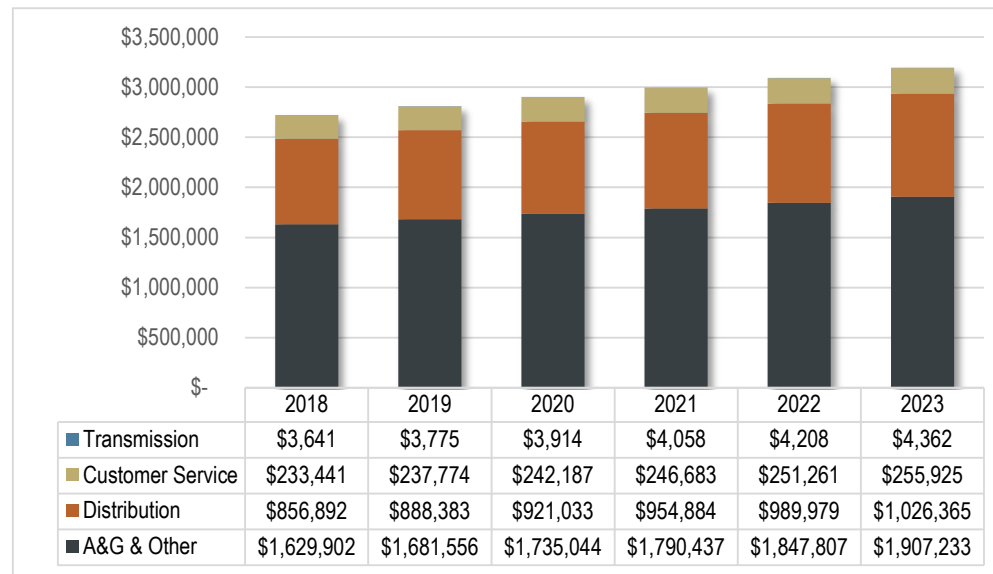
- ◆ **Focus period: 2018-2023**
  - Study projected through 2027
- ◆ **Rate revenue includes April 2018 increase to energy rates**
- ◆ **Includes non-rate revenue: pole rental charges, facility rent, interest earnings, late charges and other miscellaneous revenues (2% of revenue)**
- ◆ **Total existing revenue \$8.0 to \$8.2 million per year**





# Key Factors: Operating Expenses

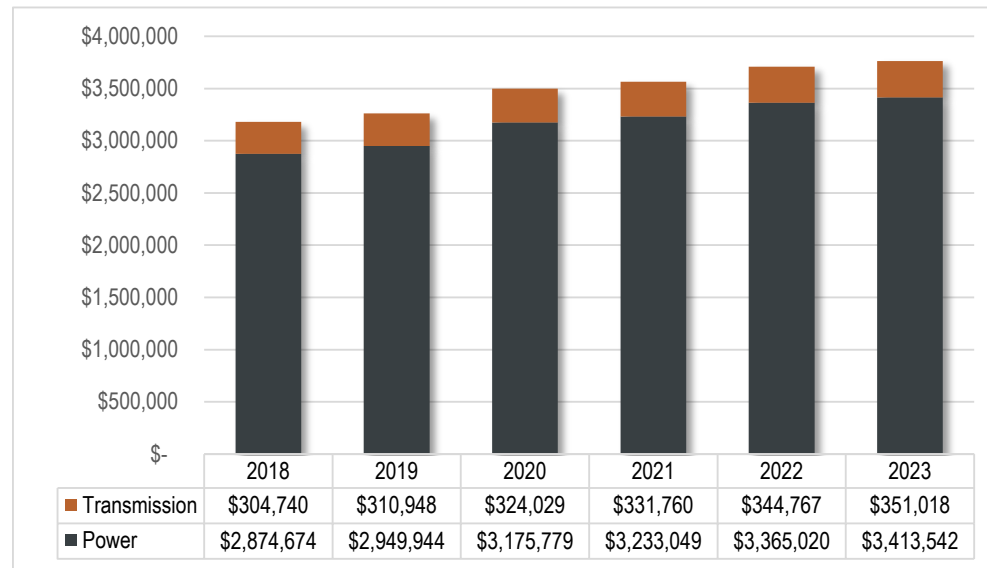
- ◆ **2018 budget used as baseline:**
  - Weighted wage and benefits inflation: 3.7%
  - Line maintenance based on 5-year actual expenses
  - Overall annual inflation: 3.2%
  - Taxes not included in expenses; assessed on top of the bill
- ◆ **Total O&M expenses \$2.7M to \$3.2M**





# Key Factors: Power

- ◆ **Power & Transmission based on load and BPA billing determinants**
  - Includes BPA FY2018 Power & Transmission actual rates
    - Does not include cost recovery adjustment clause (CRAC) or spill surcharge
  - Future increases in FY2020 and FY2022 assume:
    - Power: 5.00%; Transmission: 5.00%
  - Total power \$3.2 million - \$3.8 million per year

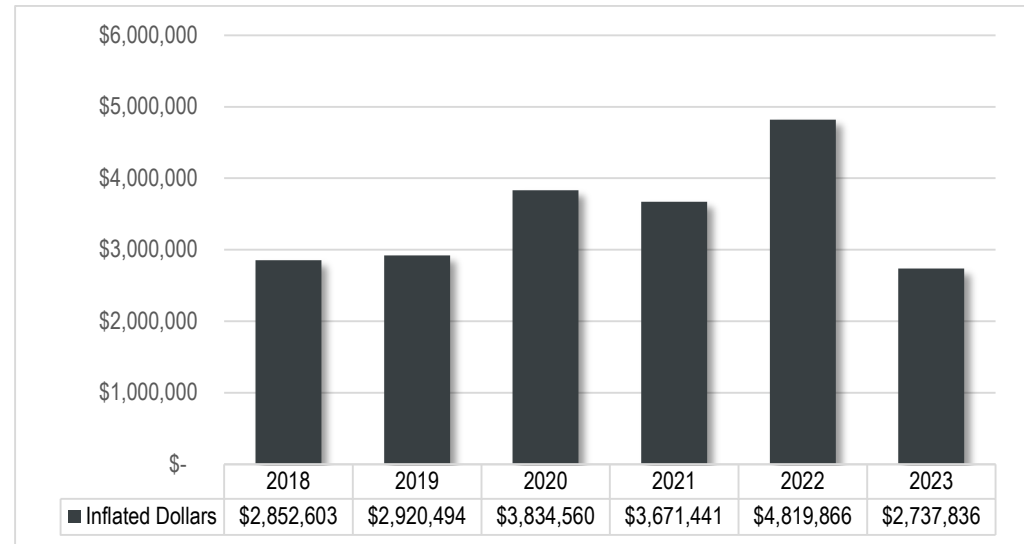






# Key Factors: Capital & Debt

- ◆ **\$20.8 million in CIP 2019-2023 funded through:**
  - Existing capital reserves
  - Revenue bonds (new debt)
  - System reinvestment funding
  - 30% of headquarters and service facilities improvements funded by water utility
    - Includes vehicle storage, warehouse and administration
- ◆ **Existing debt service in 2018: \$0.7 million – includes \$3.0 million Key Bank loan**
- ◆ **New Debt (Baseline scenario):**
  - 2018: \$3.0 million
  - 2020: \$5.0 million
  - 2022: \$4.8 million



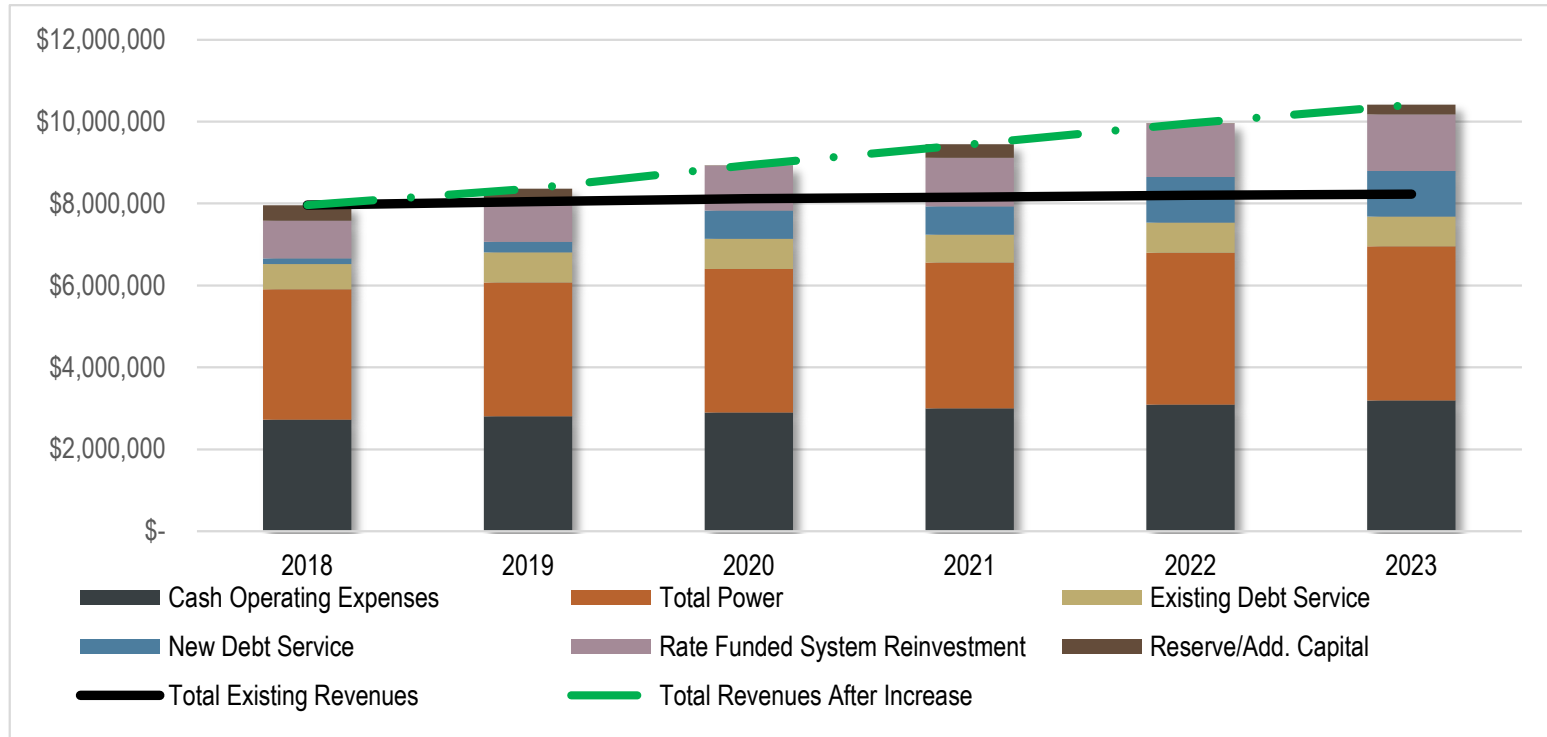


# Financial Policy Targets

Policy	Purpose	Target
<b>Operating Reserve</b>	Liquidity cushion to accommodate cyclical cash flow fluctuations	90 Days O&M & Power (\$1.5 million - \$1.7 million)
<b>Capital Contingency Reserve</b>	To meet emergency repairs, unanticipated capital, and project cost overruns	2% of Assets (\$692k - \$1.1 million)
<b>System Reinvestment Funding</b>	Promote ongoing system integrity through reinvestment in the system.	Annual Depreciation Expense (\$924k - \$1.4 million)
<b>Debt Service Coverage</b>	Compliance with existing loan/debt covenants and maintain credit worthiness for future debt issuance.	Target 1.50 Minimum Requirement 1.25



# Revenue Requirement - Baseline



Description	Existing	2019	2020	2021	2022	2023
<b>Annual Increase</b>		<b>6.00%</b>	<b>6.00%</b>	<b>5.00%</b>	<b>5.00%</b>	<b>4.00%</b>
<b>Avg. Residential Mo. Bill</b>	<b>\$ 129.72</b>	<b>\$ 137.50</b>	<b>\$ 145.75</b>	<b>\$ 153.04</b>	<b>\$ 160.69</b>	<b>\$ 167.12</b>
<b>\$ per Mo. Difference</b>		<b>\$ 7.78</b>	<b>\$ 8.25</b>	<b>\$ 7.29</b>	<b>\$ 7.65</b>	<b>\$ 6.43</b>

**Note:** assumes 1,250 kWh per month average usage.



# Scenarios for Consideration

## ◆ Scenario 1:

- Increases coverage requirement up to 2.0
- Keeps all the remaining assumptions from the Baseline

## ◆ Scenario 2:

- Caps the annual rate increase at 4.0% per year
- Reduces annual CIP in the 5-year period
  - Spreads costs out over a longer time period
- Reduces associated new debt borrowings
- Maintains 1.5 coverage requirement

Description	2019	2020	2021	2022	2023	CIP	New Debt
Baseline	6.00%	6.00%	5.00%	5.00%	4.00%	\$ 20,836,800	\$ 12,750,000
Scenario 1 (2.0 Coverage)	6.00%	6.00%	6.00%	6.00%	4.25%	20,836,800	12,750,000
Scenario 2 (4.0%, Reduced CIP)	4.00%	4.00%	4.00%	4.00%	4.00%	15,443,337	7,500,000



# Summary and Recommendations

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- ◆ **Current customer rates are not sufficient to meet ongoing obligations**
  - Capital and associated debt service
  - Power cost increases from BPA
    - **Does not include CRAC or spill assumptions**
- ◆ **Three options to consider:**
  - Baseline: \$20.8 million CIP, 1.50 coverage
  - Scenario 1: \$20.8 million CIP, 2.00 coverage
  - Scenario 2: 4.0% annual increases, \$15.4 million CIP, 1.50 coverage
    - Capital is assumed to be built over a longer period of time
- ◆ **Staff recommendation: Scenario 2**

# **COST OF SERVICE**

**(Based on Scenario 2 – 4.0% Increase)**



# **Cost of Service Objectives**

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- ◆ **An equitable distribution of cost share that considers utility specific data:**
  - Measures of usage and demand
  - Planning, engineering and design criteria
  - Facility requirements
- ◆ **Total cost by class (equity)**
- ◆ **Unit costs (\$/usage; \$/customer)**
- ◆ **Fundamental question: Do cost differences exist to serve different customer classes of service?**



# Customer Classes

Classes of Service	
Existing	Proposed
Residential	Residential Low Use Residential
General Service - 1 Phase	General Service - 1 Phase
General Service - 3 Phase	General Service - 3 Phase
	Large General Service
	Large General Service - Primary
Lighting	Lighting

- ◆ **Review of customer data identified several rate class enhancements:**
  - Separate Residential customer class into:
    - Residential
    - Low Use Residential
  - Separate General Service 3 Phase into:
    - General Service 3 Phase
    - Large General Service
    - Large General Service Primary

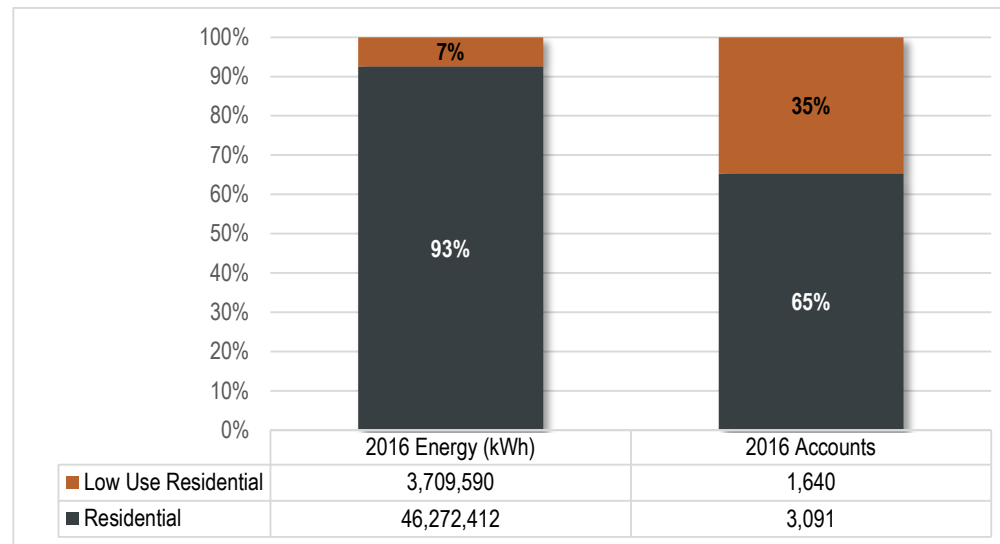




# Customer Classes - Residential

## ◆ Low-Use Residential:

- Residential customers that average 450 kWh or less per month
- Approximately 35% of residential customers meet this criteria
- Different energy and demand requirements than other residential customers





# **Customer Classes – General Service**

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- ◆ **Large and primary customers utilize the system differently**
  - Greater load factors – more efficient
  - Primary customers take care of their own secondary infrastructure after the meter
- ◆ **General Service – 3 Phase**
  - Up to 100 kW demand
- ◆ **Large Commercial Service**
  - 100kW+ kW demand
  - Four customers: Alderbrook Resort & Spa, Lucky Dog Casino, Hood Canal Grocery, and Hood Canal School District
- ◆ **Large Commercial Service – Primary**
  - One customer



# Overview of Cost of Service Process

**STEP 1:**

Functionalize Cost to Service Functions

Generation

Transmission

Distribution

Customer

**STEP 2:**

Classify Cost to Cost Pools

Demand

Energy

Customer

Revenue/Direct

**STEP 3:**

Allocate Costs to Customer Classes

Residential

Commercial

Large Commercial

Commercial Primary

**STEP 4:**

Design Rates

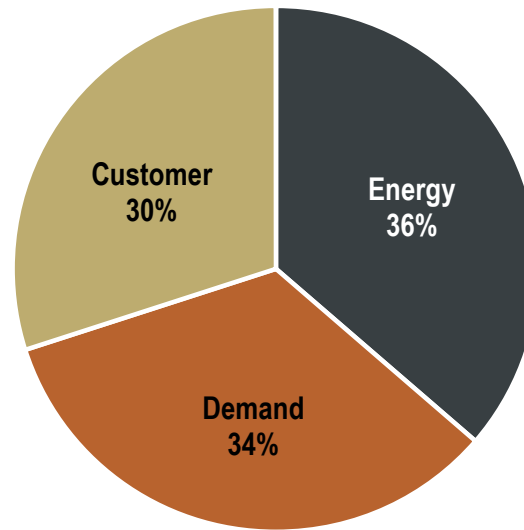
Basic Charges

Energy Charges

Demand Charges



# Summary of Cost Classification



**Energy**

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

**Demand**

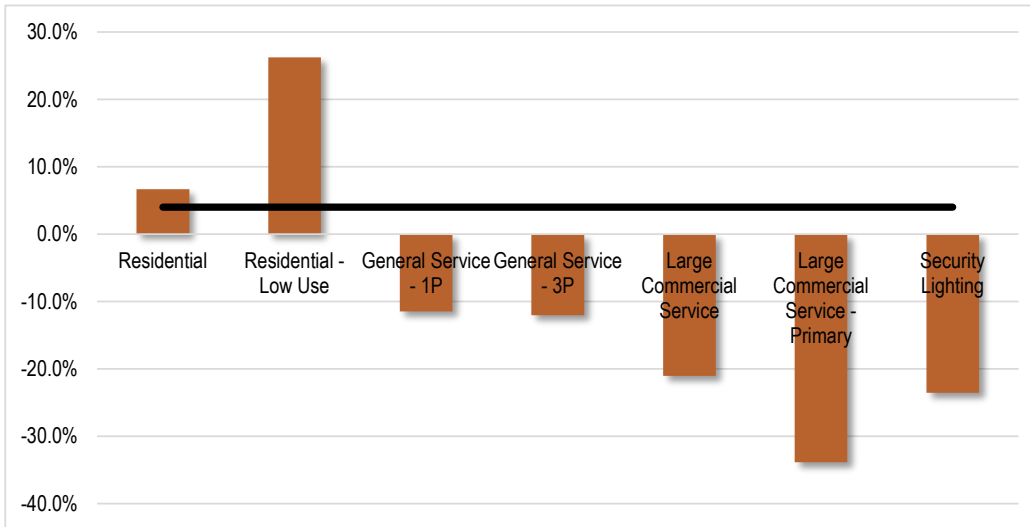
Costs predicated upon the maximum rate of use required at one point in time. Demand may be coincident or non-coincident to the system peak demand. Demand is measured in kilowatts (kW's)

**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



# Cost of Service Results



- ◆ **±5.0% of average is within Cost of Service (industry standard)**
  - Residential within COSA
  - Residential (low use) can increase towards COSA
  - Gen. Service classes can decrease towards COSA

Class	2019		Difference	
	Existing	COSA	\$	%
Residential	\$ 5,030,847	\$ 5,366,550	\$ 335,704	6.7%
Residential - Low Use	966,331	1,220,020	253,688	26.3%
General Service - 1P	955,656	846,080	(109,576)	-11.5%
General Service - 3P	426,192	374,887	(51,305)	-12.0%
Large Commercial Service	339,510	268,136	(71,373)	-21.0%
Large Commercial Service - Primary	65,163	43,114	(22,049)	-33.8%
Security Lighting	86,210	65,918	(20,292)	-23.5%
Total	\$ 7,869,909	\$ 8,184,705	\$ 314,796	4.0%



# Proposed Cost of Service Phase-In

Class	COSA Phase-In				
	2019	2020	2021	2022	2023
Residential	4.4%	4.4%	4.3%	4.2%	4.1%
Residential - Low Use	8.3%	8.3%	8.3%	8.3%	8.3%
General Service - 1P	0.7%	0.7%	0.7%	0.7%	0.7%
General Service - 3P	0.5%	0.5%	0.5%	0.5%	0.5%
Large Commercial Service	0.0%	0.0%	0.0%	0.0%	0.0%
Large Commercial Service - Primary	0.0%	0.0%	0.0%	0.0%	0.0%
Security Lighting	4.0%	4.0%	4.0%	4.0%	4.0%
<b>Total</b>	<b>4.0%</b>	<b>4.0%</b>	<b>4.0%</b>	<b>4.0%</b>	<b>4.0%</b>

## ◆ Phase in cost of service rates over five years (2019-2023)

- Classes with a reduction capped at 0.0% - grow into rate over time
- Residential, Low Use Residential, G.S. 1-Phase and G.S. 3-Phase phased-in towards cost of service by 2023
- Continue collecting and monitoring data
- Update COSA in 3-5 years or if major changes occur

# **RATE DESIGN**

**(Based on S2 COSA Phase-In)**



# Rate Design Overview

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- ◆ **Produce sufficient revenue to meet the overall financial requirements of the utility**
- ◆ **Collect target revenue level for each class of service**
- ◆ **Cost-based and equitable**
- ◆ **Convey the price signals facing the utility**
- ◆ **Meet the goals and objectives of the utility**
  - Align fixed and variable charges with cost of service based rates





# Existing Rates

Class	Existing Rates	
	Basic	kWh
Residential	\$ 33.47	\$ 0.0770
Residential - Low Use	33.47	0.0770
General Service - 1P	46.25	0.0830
General Service - 3P	51.96	0.0830
Large Commercial Service	51.96	0.0830
Large Commercial Service - Primary	33.47	0.0770
Security Lighting	11.10	-

**Note:** Includes April 2018 adjustments to kWh rate.



# Cost of Service Unit Costs

COSA Unit Costs

Description	Residential		Res - Low Use		G.S. 1 Phase		G.S. 3 Phase		Large G.S.		Primary	
Energy - \$/kWh	\$	0.0415	\$	0.0415	\$	0.0415	\$	0.0415	\$	0.0415	\$	0.0378
Demand - \$/kW	\$	6.36	\$	6.50	\$	7.16	\$	11.44	\$	10.66	\$	5.44
Customer - \$/Mo.	\$	38.94	\$	38.94	\$	38.94	\$	46.32	\$	46.32	\$	86.33
\$/kWh	\$	0.1092	\$	0.3091	\$	0.0957	\$	0.0817	\$	0.0660	\$	0.0513

## ♦ Proposed adjustments

- Phase-in basic and energy charges towards COSA

Residential	Existing	Proposed Rates				
		2019	2020	2021	2022	2023
Mo. Basic Charge - \$/Mo.	\$ 33.47	\$ 35.70	\$ 38.00	\$ 40.50	\$ 43.25	\$ 46.00
Energy Charge - \$/kWh	\$ 0.0770	\$ 0.0799	\$ 0.0828	\$ 0.0857	\$ 0.0886	\$ 0.0915
COSA Phase-In Increase %		4.4%	4.4%	4.3%	4.2%	4.1%

kWh	Existing	Monthly Bills				
		2019	2020	2021	2022	2023
500	\$ 71.97	\$ 75.65	\$ 79.40	\$ 83.35	\$ 87.55	\$ 91.75
750	91.22	95.63	100.10	104.78	109.70	114.63
1,000	110.47	115.60	120.80	126.20	131.85	137.50
1,250	129.72	135.58	141.50	147.63	154.00	160.38
1,500	148.97	155.55	162.20	169.05	176.15	183.25
2,000	187.47	195.50	203.60	211.90	220.45	229.00
3,000	264.47	275.40	286.40	297.60	309.05	320.50

\$ Difference				
2019	2020	2021	2022	2023
\$ 3.68	\$ 3.75	\$ 3.95	\$ 4.20	\$ 4.20
4.41	4.47	4.68	4.93	4.93
5.13	5.20	5.40	5.65	5.65
5.85	5.93	6.13	6.38	6.38
6.58	6.65	6.85	7.10	7.10
8.03	8.10	8.30	8.55	8.55
10.93	11.00	11.20	11.45	11.45



# Residential (Low Use)

## ♦ Proposed adjustments

- New customer class; phase-in basic charge
- Energy rate set to residential energy rate

Residential Low Use	Existing	Proposed Rates				
		2019	2020	2021	2022	2023
Mo. Basic Charge - \$/Mo.	\$ 33.47	\$ 36.93	\$ 40.71	\$ 44.87	\$ 49.43	\$ 54.38
Energy Charge - \$/kWh	\$ 0.0770	\$ 0.0799	\$ 0.0828	\$ 0.0857	\$ 0.0886	\$ 0.0915
COSA Phase-In Increase %		8.3%	8.3%	8.3%	8.3%	8.3%

kWh	Existing	Monthly Bills				
		2019	2020	2021	2022	2023
0	\$ 33.47	\$ 36.93	\$ 40.71	\$ 44.87	\$ 49.43	\$ 54.38
50	37.32	40.93	44.85	49.16	53.86	58.96
125	43.10	46.92	51.06	55.58	60.51	65.82
200	48.87	52.91	57.27	62.01	67.15	72.68
275	54.65	58.90	63.48	68.44	73.80	79.54
350	60.42	64.90	69.69	74.87	80.44	86.41
450	68.12	72.89	77.97	83.44	89.30	95.56

\$ Difference				
2019	2020	2021	2022	2023
\$ 3.46	\$ 3.78	\$ 4.16	\$ 4.56	\$ 4.95
3.61	3.93	4.31	4.71	5.10
3.82	4.14	4.52	4.92	5.31
4.04	4.36	4.74	5.14	5.53
4.26	4.58	4.96	5.36	5.75
4.47	4.80	5.18	5.58	5.97
4.76	5.09	5.47	5.86	6.26



# General Service Single Phase

- ◆ **Proposed adjustments**
  - Phase-in towards COSA

General Service 1 Phase	Existing	Proposed Rates				
		2019	2020	2021	2022	2023
Mo. Basic Charge - \$/Mo.	\$ 46.25	\$ 46.25	\$ 46.25	\$ 46.25	\$ 46.25	\$ 46.25
Energy Charge - \$/kWh	\$ 0.0830	\$ 0.0837	\$ 0.0844	\$ 0.0851	\$ 0.0858	\$ 0.0866
COSA Phase-In Increase %		0.7%	0.7%	0.7%	0.7%	0.7%

kWh	Existing	Monthly Bills				
		2019	2020	2021	2022	2023
200	\$ 62.85	\$ 62.99	\$ 63.13	\$ 63.27	\$ 63.41	\$ 63.57
800	112.65	113.21	113.77	114.33	114.89	115.53
1,300	154.15	155.06	155.97	156.88	157.79	158.83
<b>1,850</b>	<b>199.80</b>	<b>201.10</b>	<b>202.39</b>	<b>203.69</b>	<b>204.98</b>	<b>206.46</b>
2,200	228.85	230.39	231.93	233.47	235.01	236.77
3,000	295.25	297.35	299.45	301.55	303.65	306.05
5,000	461.25	464.75	468.25	471.75	475.25	479.25

\$ Difference				
2019	2020	2021	2022	2023
\$ 0.14	\$ 0.14	\$ 0.14	\$ 0.14	\$ 0.16
0.56	0.56	0.56	0.56	0.64
0.91	0.91	0.91	0.91	1.04
<b>1.29</b>	<b>1.30</b>	<b>1.29</b>	<b>1.29</b>	<b>1.48</b>
1.54	1.54	1.54	1.54	1.76
2.10	2.10	2.10	2.10	2.40
3.50	3.50	3.50	3.50	4.00



# General Service Three Phase

- ◆ **Proposed adjustments**
  - Phase-in towards COSA
  - Consider a demand kW charge in the future

General Service 3 Phase	Existing	Proposed Rates				
		2019	2020	2021	2022	2023
Mo. Basic Charge - \$/Mo.	\$ 51.96	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00
Energy Charge - \$/kWh	\$ 0.0830	\$ 0.0830	\$ 0.0834	\$ 0.0839	\$ 0.0843	\$ 0.0847
COSA Phase-In Increase %		0.5%	0.5%	0.5%	0.5%	0.5%

kWh	Existing	Monthly Bills				
		2019	2020	2021	2022	2023
1,250	\$ 155.71	\$ 157.75	\$ 158.25	\$ 158.88	\$ 159.38	\$ 159.88
2,500	259.46	261.50	262.50	263.75	264.75	265.75
3,750	363.21	365.25	366.75	368.63	370.13	371.63
5,000	466.96	469.00	471.00	473.50	475.50	477.50
10,000	881.96	884.00	888.00	893.00	897.00	901.00
20,000	1,711.96	1,714.00	1,722.00	1,732.00	1,740.00	1,748.00
40,000	3,371.96	3,374.00	3,390.00	3,410.00	3,426.00	3,442.00

\$ Difference				
2019	2020	2021	2022	2023
\$ 2.04	\$ 0.50	\$ 0.63	\$ 0.50	\$ 0.50
2.04	1.00	1.25	1.00	1.00
2.04	1.50	1.88	1.50	1.50
2.04	2.00	2.50	2.00	2.00
2.04	4.00	5.00	4.00	4.00
2.04	8.00	10.00	8.00	8.00
2.04	16.00	20.00	16.00	16.00



# Large Commercial

## ♦ Proposed adjustments

- New customer class
- Adjust rates towards COSA
- Consider a demand kW charge in the future

Large General Service	Existing	Proposed Rates				
		2019	2020	2021	2022	2023
Mo. Basic Charge - \$/Mo.	\$ 51.96	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00
Energy Charge - \$/kWh	\$ 0.0830	\$ 0.0830	\$ 0.0830	\$ 0.0830	\$ 0.0830	\$ 0.0830
COSA Phase-In Increase %		0.0%	0.0%	0.0%	0.0%	0.0%

kWh	Existing	Monthly Bills				
		2019	2020	2021	2022	2023
20,000	\$ 1,712	\$ 1,714	\$ 1,714	\$ 1,714	\$ 1,714	\$ 1,714
40,000	3,372	3,374	3,374	3,374	3,374	3,374
60,000	5,032	5,034	5,034	5,034	5,034	5,034
80,000	6,692	6,694	6,694	6,694	6,694	6,694
100,000	8,352	8,354	8,354	8,354	8,354	8,354
120,000	10,012	10,014	10,014	10,014	10,014	10,014
140,000	11,672	11,674	11,674	11,674	11,674	11,674

\$ Difference				
2019	2020	2021	2022	2023
\$ 2.04	\$ -	\$ -	\$ -	\$ -
2.04	-	-	-	-
2.04	-	-	-	-
2.04	-	-	-	-
2.04	-	-	-	-
2.04	-	-	-	-
2.04	-	-	-	-



# Large Commercial Service - Primary

- ◆ **Proposed adjustments**
  - New customer class
  - Adjust rates towards COSA
  - Consider a demand kW charge in the future

Primary	Existing	Proposed Rates				
		2019	2020	2021	2022	2023
Mo. Basic Charge - \$/Mo.	\$ 33.47	\$ 105.00	\$ 105.00	\$ 105.00	\$ 105.00	\$ 105.00
Energy Charge - \$/kWh	\$ 0.0770	\$ 0.0760	\$ 0.0760	\$ 0.0760	\$ 0.0760	\$ 0.0760
COSA Phase-In Increase %		0.0%	0.0%	0.0%	0.0%	0.0%

kWh	Existing	Monthly Bills				
		2019	2020	2021	2022	2023
55,000	\$ 4,268	\$ 4,285	\$ 4,285	\$ 4,285	\$ 4,285	\$ 4,285
60,000	4,653	4,665	4,665	4,665	4,665	4,665
65,000	5,038	5,045	5,045	5,045	5,045	5,045
<b>70,000</b>	<b>5,423</b>	<b>5,425</b>	<b>5,425</b>	<b>5,425</b>	<b>5,425</b>	<b>5,425</b>
75,000	5,808	5,805	5,805	5,805	5,805	5,805
80,000	6,193	6,185	6,185	6,185	6,185	6,185
85,000	6,578	6,565	6,565	6,565	6,565	6,565

\$ Difference				
2019	2020	2021	2022	2023
\$ 16.53	\$ -	\$ -	\$ -	\$ -
11.53	-	-	-	-
6.53	-	-	-	-
<b>1.53</b>	-	-	-	-
(3.47)	-	-	-	-
(8.47)	-	-	-	-
(13.47)	-	-	-	-





# Proposed Rates

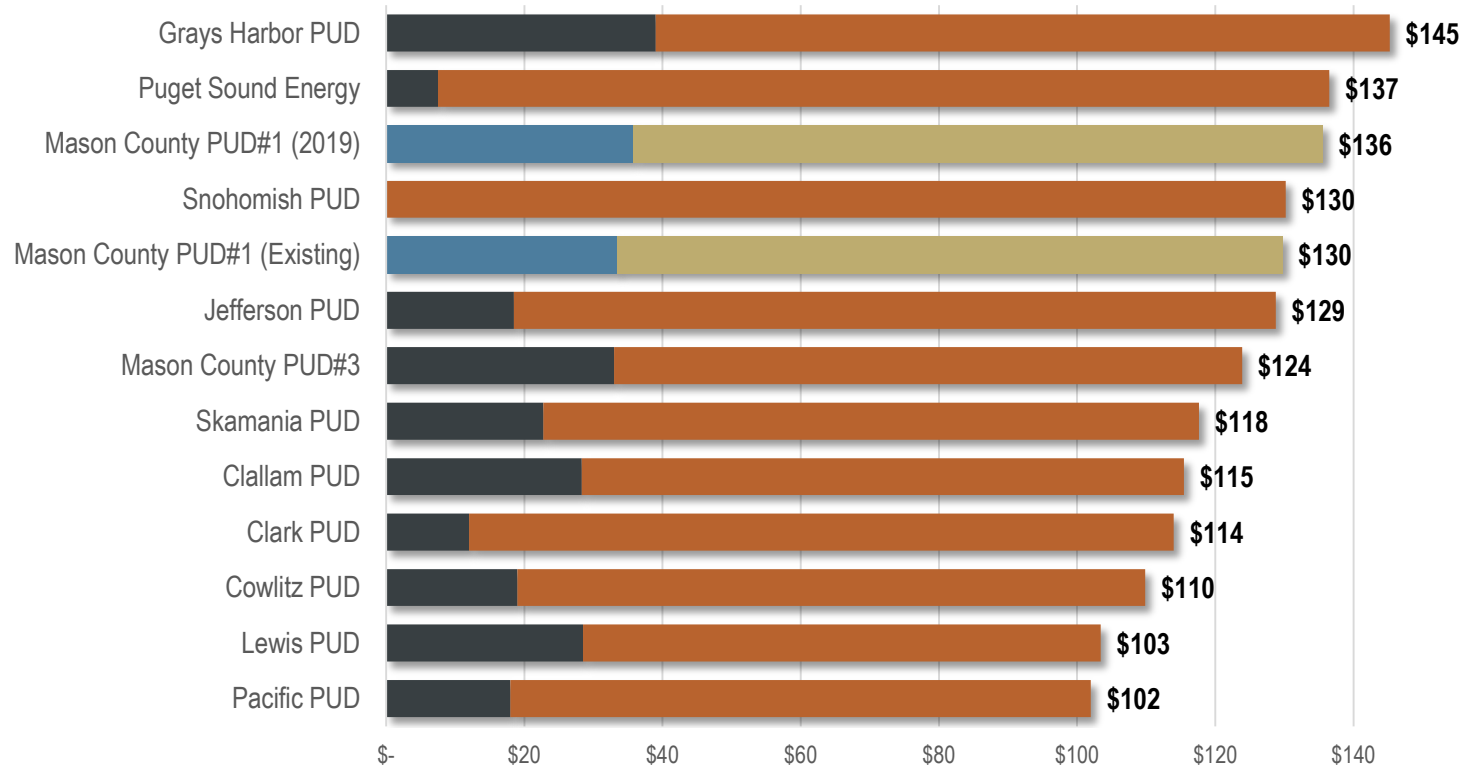
Class	Existing	Proposed Basic Charge (\$/Month)				
		2019	2020	2021	2022	2023
Residential	\$ 33.47	\$ 35.70	\$ 38.00	\$ 40.50	\$ 43.25	\$ 46.00
Residential - Low Use	33.47	36.93	40.71	44.87	49.43	54.38
General Service - 1P	46.25	46.25	46.25	46.25	46.25	46.25
General Service - 3P	51.96	54.00	54.00	54.00	54.00	54.00
Large Commercial Service	51.96	54.00	54.00	54.00	54.00	54.00
Large Commercial Service - Primary	33.47	105.00	105.00	105.00	105.00	105.00
Security Lighting (300E)	11.10	11.54	12.01	12.49	12.99	13.50
Pole Charge	2.75	2.86	2.97	3.09	3.22	3.35

Class	Existing	Proposed Energy Charge (\$/kWh)				
		2019	2020	2021	2022	2023
Residential	\$ 0.0770	\$ 0.0799	\$ 0.0828	\$ 0.0857	\$ 0.0886	\$ 0.0915
Residential - Low Use	0.0770	0.0799	0.0828	0.0857	0.0886	0.0915
General Service - 1P	0.0830	0.0837	0.0844	0.0851	0.0858	0.0866
General Service - 3P	0.0830	0.0830	0.0834	0.0839	0.0843	0.0847
Large Commercial Service	0.0830	0.0830	0.0830	0.0830	0.0830	0.0830
Large Commercial Service - Primary	0.0770	0.0760	0.0760	0.0760	0.0760	0.0760
Security Lighting (300E)	n/a	n/a	n/a	n/a	n/a	n/a
Pole Charge	n/a	n/a	n/a	n/a	n/a	n/a



# Residential Rate Survey

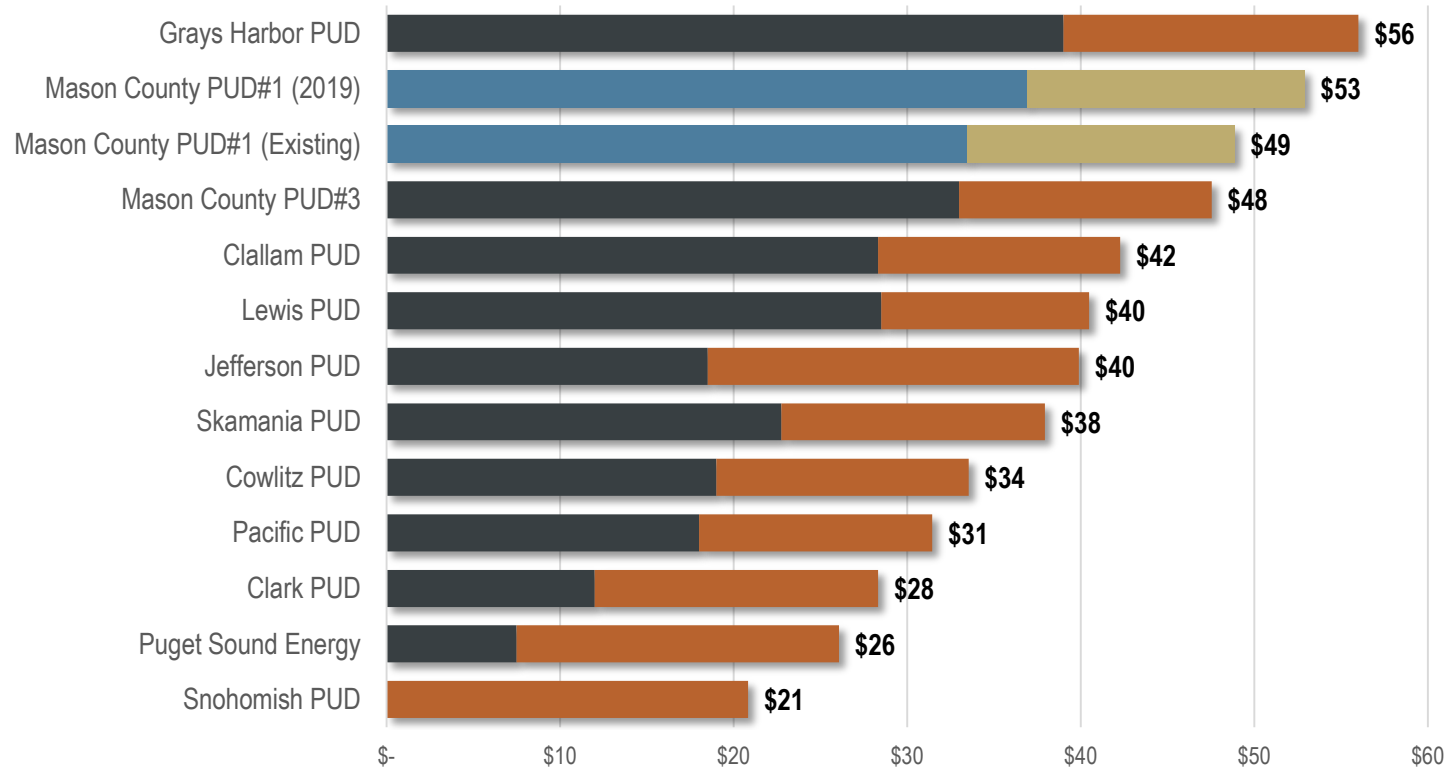
Estimated Residential Monthly Bill (Based on 1,250 kWh)





# Residential Low Use Rate Survey

Estimated Low-Use Residential Monthly Bill (Based on 200 kWh)





## Next Steps

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- ◆ **Board feedback/direction:**
  - Revenue requirement – overall increase 4.0% from 2019-2023
  - Cost of service – phase in of cost of service results
  - Rate design
- ◆ **Rates effective April 2019**



# Questions and Discussion

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