

Okanogan County Public Utility District |
July 24, 2017

2017 Equity Management Plan and Rate Design Study



ECONOMICS

STRATEGY

STAKEHOLDERS

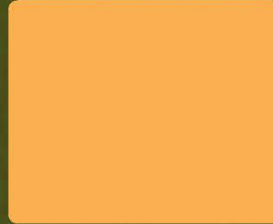
SUSTAINABILITY



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Agenda

- Review of the equity management plan (EMP) process
- Review results of 2017 EMP
- Review of rate setting process
- Review 2017 rate proposal



2017 Equity Management Plan

Equity Management Plan

- Spreadsheet-based model
- Projects District's financial performance over a 10-year period
- Equity management plan is used to evaluate
 - Financial metrics
 - Relative equity and debt levels
 - Debt financing options and long-term cost impacts
 - Available cash balances
 - Review of necessary rate adjustments over time
- Allows analysis of alternative scenarios

Key Factors in the EMP Analysis

- Model Inputs
 - Power supply assumptions
 - Load forecast
 - Operating expenses
 - Capital improvements
- Model Outputs
 - Equity levels / Equity ratio
 - Debt Service Coverage Ratios (DSC)
 - Times Interest Earned Ratios (TIER)
 - Cash reserves
 - Rate adjustments

Use of EMP in Ratemaking Process

- Used to estimate a utility's specific costs and revenues
- Evaluate possible shortfalls between projected costs and revenues
- Helpful in evaluating the need for current and future rate changes in order to:
 - Meet financial covenants
 - Review tradeoffs between debt and rate financed capital improvements
 - Understand need for near and long-term rate adjustments
- Allows for analysis of alternative future variations and uncertainty in key factors impacting utility

Four EMP Scenarios Reviewed

Based on Board's input, four EMP options reviewed:

1. Additional CIP spending (2018-2019) based on \$7.5 million debt issuance in 2017
2. Additional CIP spending (2018-2020) based on \$10.0 million debt issuance in 2017
3. Debt issuance of \$35.0 million in 2021 for Enloe Dam
4. Additional CIP spending (2018-2019) based on \$10.0 million debt issuance in 2018 and \$35.0 million debt issuance in 2021 for Enloe Dam

Key Factors Influencing Board Decision

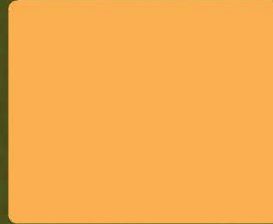
Board mentioned the following factors in evaluating and prioritizing EMP options:

1. Routine capital spending at current levels to continue
2. Identified significant capital projects (2018-2019):
 - Ophir to Okanogan Transmission Line (\$5.0 million)
 - Tonasket Substation Improvements (\$4.0 million)
 - Ellisforde/Whitestone Transformer Replacement (\$1.0 million)
3. Now is a good time to borrow funds for capital additions

EMP Option 4 Selected by Board

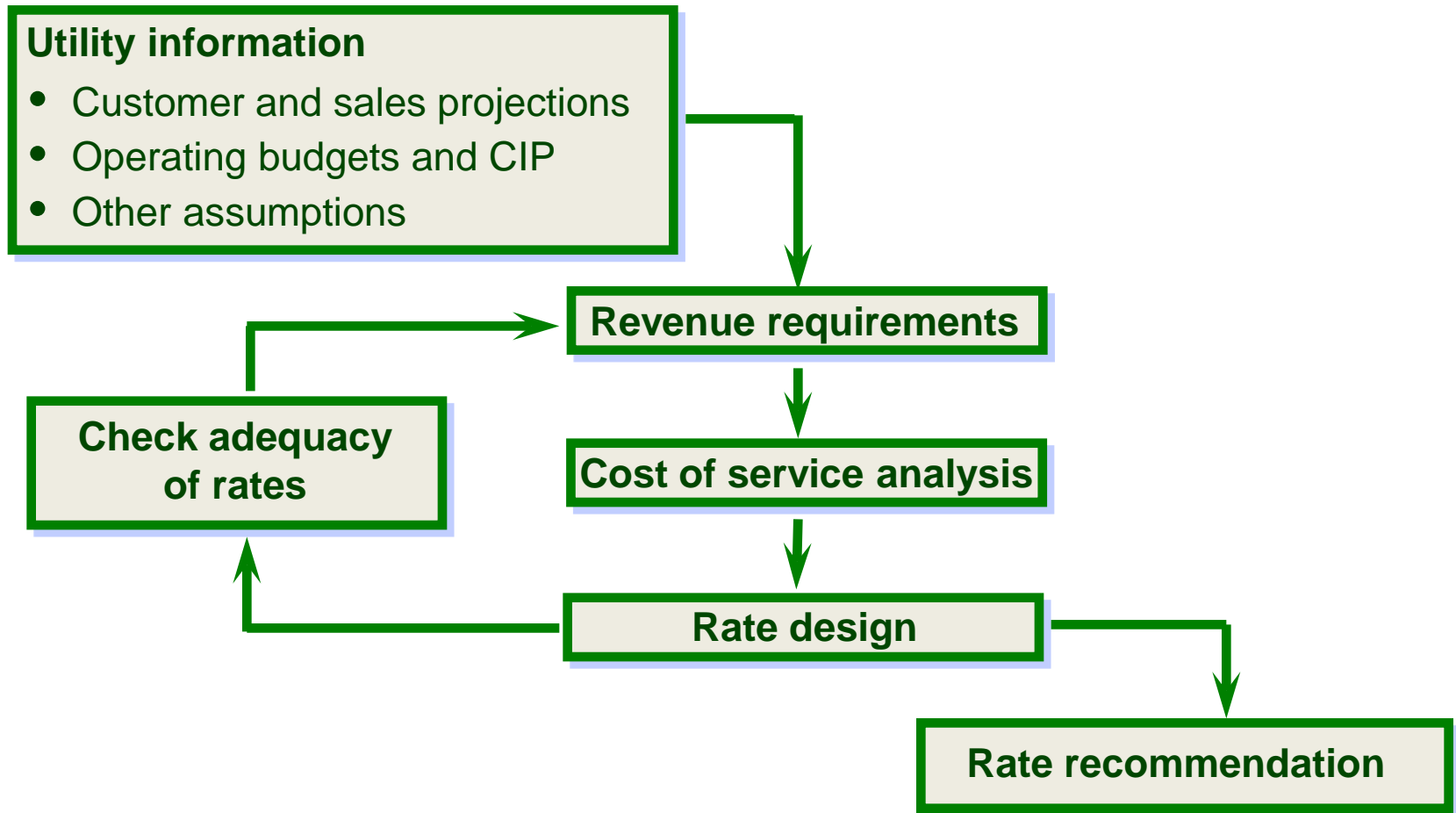
Key Elements of District's 2017 EMP:

1. Additional CIP spending (2018-2019) based on \$10.0 million debt issuance in 2018 and possible \$35.0 million debt issuance in 2021 for Enloe Dam
2. Impacts of one time 2% rate increase on September 1, 2017 reviewed
3. With use of \$2.4 million of Rate Stabilization Fund in 2017
4. District meets key financial targets for 2017.



Review of the Rate Setting Process

Steps in Electric Utility Ratemaking



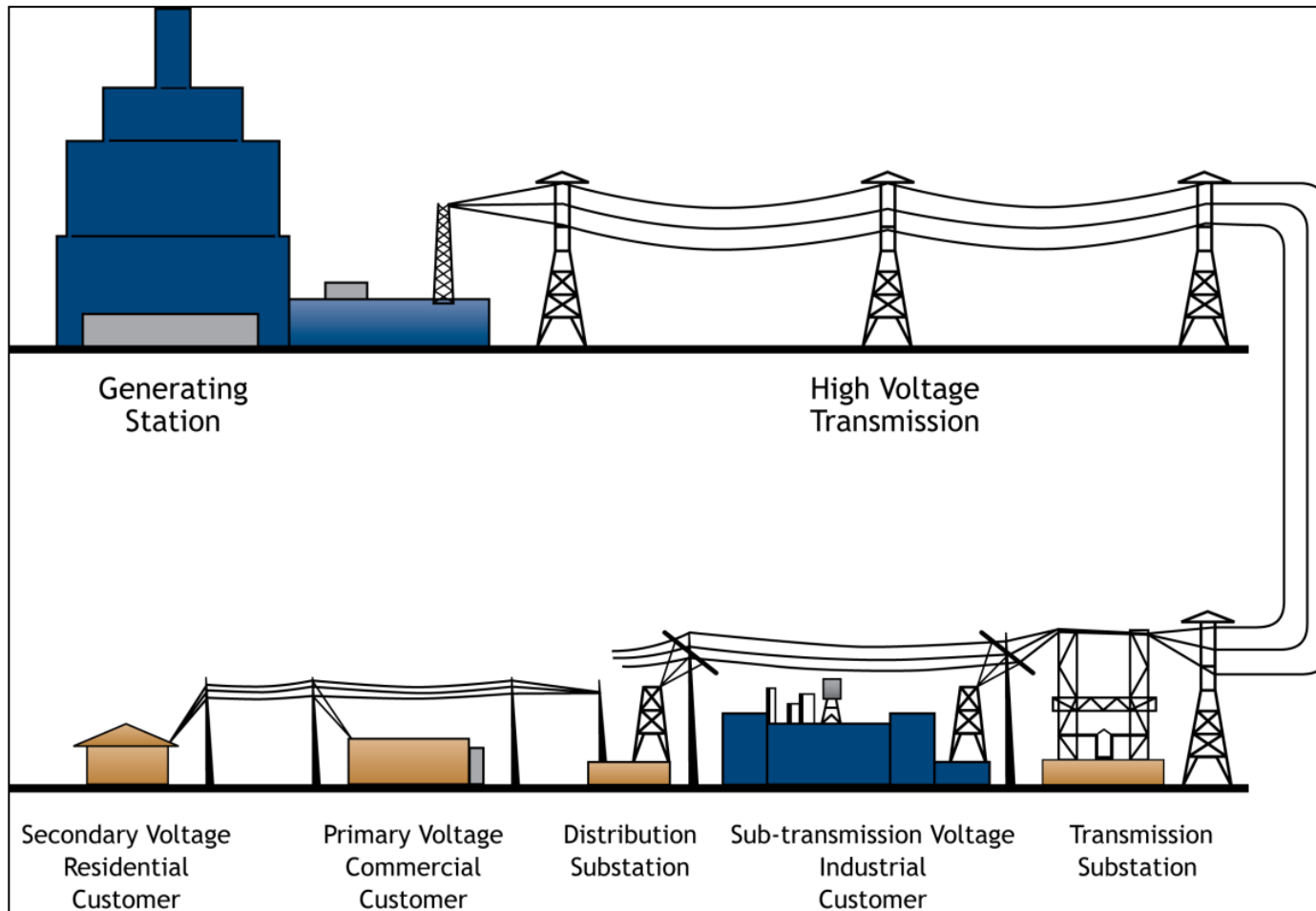
Revenue Requirements

- Determines the overall level of revenue needed to provide electric service
- Items included in the revenue requirement:
 - Operation and maintenance costs
 - Other operating costs (e.g., taxes)
 - Interest expense
 - Depreciation
 - Other income (e.g., interest earnings)
 - Margins

Cost of Service

- Cost-of-service (COS) equals total cost of providing utility service to groups of similar customers or customer classes
- COS analysis is the process of classifying and allocating a utility's revenue requirements to customer classes
- Complicated, data intensive but conceptually not difficult

Typical Electric Utility System



Principles Used in Rate Design

- Promote revenue stability for the utility
- Reflect the cost of providing services
- Easily understood by customers
- Promote rate continuity over time
- Fair, equitable and non-discriminatory test
- Easy to administer
- Promote efficient use of electricity
- Meet and reflect District's policy objectives

Summary of Current Rates

Rates	Residential	Small General Service
Basic Charge (\$/month)	\$35.00	\$40.00
Energy Charge:	>2,000 kW: \$0.04486 >2,000 kW: \$0.06513	\$0.05450
Demand Charge (\$/kW)	n/a	\$5.50 (All kW/month when ≥ 50 kW)
COPA (\$/kWh)	\$0.00560	\$0.00560

Summary of Current Rates

Rates	Large General Service	Primary Industrial Service
Basic Charge (\$/month)	\$20.00	\$80.00
Energy Charge (\$/kWh)	\$0.04646	\$0.03728
Demand Charge (\$/kW)	\$5.50	\$7.00
Minimum Demand (kW)	50	1,000
Minimum Demand Charge (\$/month)	\$275	\$7,000
COPA (\$/kWh)	\$0.00560	\$0.00560

Summary of Current Rates

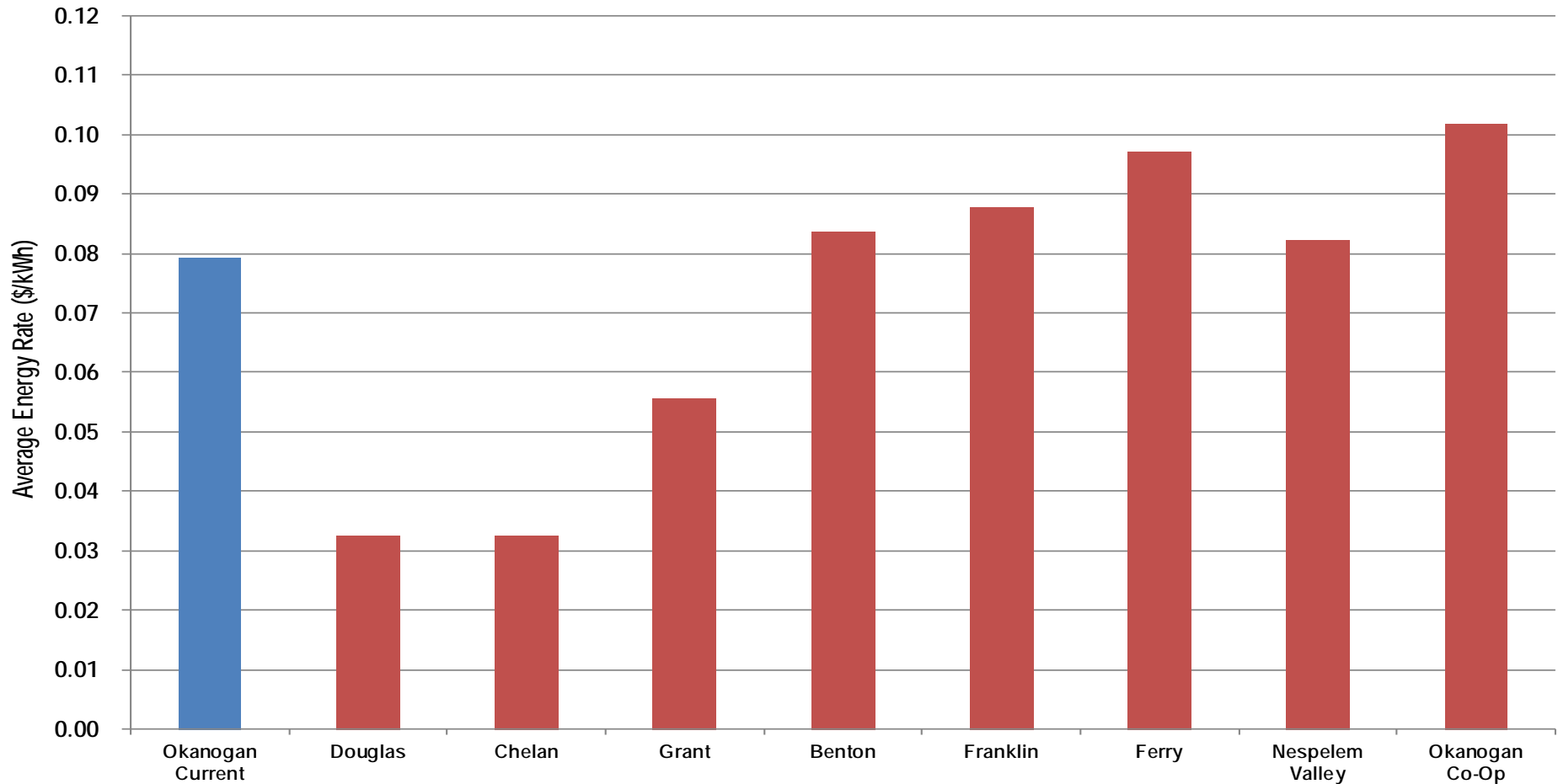
Rates	Irrigation Services	Frost Control
Basic Charge	\$15.00/month	\$120.00/year
Energy Charge: Seasonal (\$/kWh)	\$0.04450	\$0.03324
Energy Charge: Inter-Seasonal (\$/kWh)	\$0.07004	\$0.07004
Demand Charge (\$/kW)	\$4.00 (All kW)	\$4.50 (All kW)
COPA (\$/kWh)	\$0.00560	\$0.00560

Summary of Current Rates

Rates	Street Lighting
8,000 Lumen (\$/lamp/month)	\$7.20
22,000 Lumen (\$/lamp/month)	\$10.90

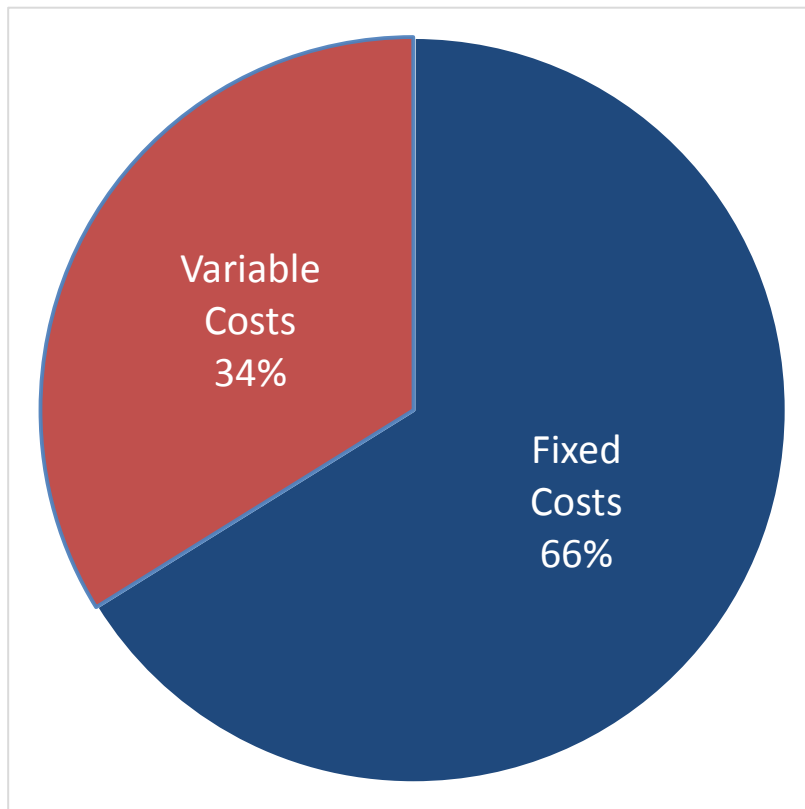
Comparison with Other Utilities

Average Energy Rate Comparison
Residential Customer Class
1,400 kWh Usage

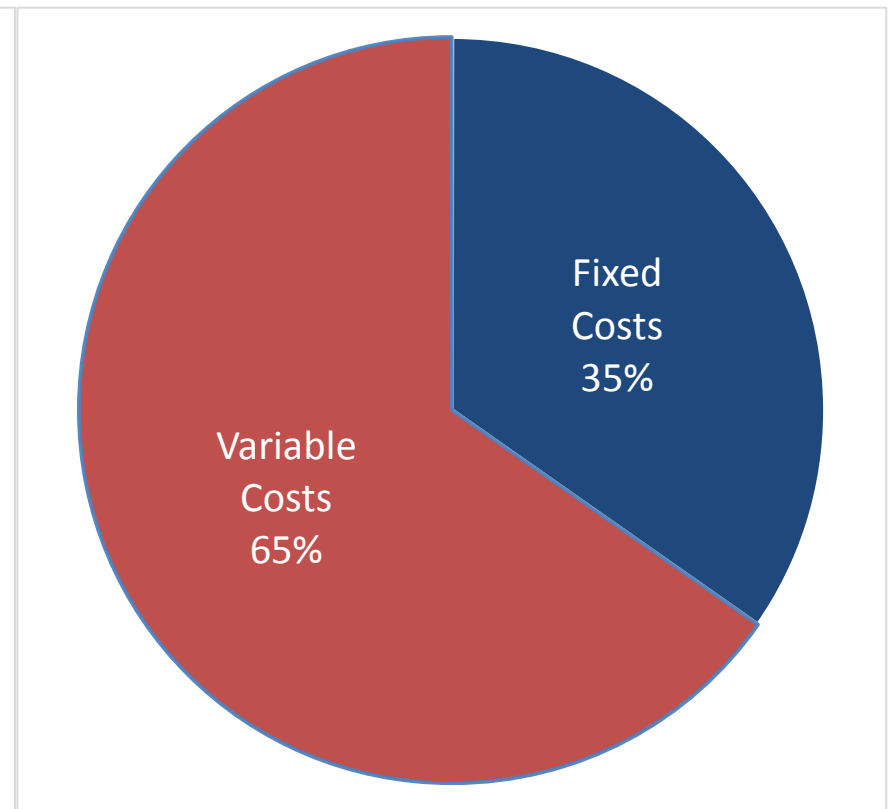


2013 Study Comparison of Residential Costs and Revenues

Costs



Revenues



Several Rate Changes Considered

- Combining Small and Large General Service Classes?
- Zero-basing COPA by including charge into Energy Charges?
- Simplify rates to represent Basic, Energy, and Power Charges (including COPA)?
- Adjusting class rates toward COS levels?
- Others?

Proposed Rate Changes

Overall Rate Change	Large General Service (LGS)	Small General Service (SGS)
Overall Increase 2%	No minimum demand charge	No change to the demand charge or threshold
Across the board increase	Only charged for kW used	Annual review of customers exceeding 50 kW demand
Relative increase to all rate components	Low usage kW customers no longer impacted by minimum demand charge	Increase energy charge - offset revenue from elimination of minimum demand charge in LGS
		Results in moderately above-average increase (~4%)

Summary of Proposed Rates

Rates	Residential	Small General Service
Basic Charge (\$/month)	\$36.00	\$41.00
Energy Charge:	>2,000 kW: \$0.04565 >2,000 kW: \$0.06648	\$0.05715
Demand Charge (\$/kW)	n/a	\$5.70 (All kW/month when ≥ 50 kW)
COPA (\$/kWh)	\$0.00560	\$0.00560

Summary of Proposed Rates

Rates	Large General Service	Primary Industrial Service
Basic Charge (\$/month)	\$21.00	\$82.00
Energy Charge (\$/kWh)	\$0.04725	\$0.03800
Demand Charge (\$/kW)	\$5.70 (All kW)	\$7.20 (All kW)
Minimum Demand (kW)	n/a	1,000
Minimum Demand Charge (\$/month)	n/a	\$7,200
COPA (\$/kWh)	\$0.00560	\$0.00560

Summary of Proposed Rates

Rates	Irrigation Services	Frost Control
Basic Charge	\$15.00/month	\$122.00/year
Energy Charge: Seasonal (\$/kWh)	\$0.04550	\$0.03365
Energy Charge: Inter-Seasonal (\$/kWh)	\$0.07160	\$0.07160
Demand Charge (\$/kW)	\$4.10 (All kW)	\$4.60 (All kW)
COPA (\$/kWh)	\$0.00560	\$0.00560

Summary of Proposed Rates

- **Street Lighting:**
 - No increase in rates
 - Changing to LED lights will lower costs so no increase recommended

Proposed Residential Bill Impact

Schedule No. 2 - Residential

kWh per month	No. of Customers	% of Total	Cum. % of Total		Bill at Current Rates	Cents per kWh	Bill at TY 2017 Proposed	Amount Change	Percent Change
0	632	3.6%	3.6%		\$35.00		\$36.00	\$1.00	2.9%
100	1,064	6.1%	9.8%		40.05	40.05	41.13	1.08	2.7%
200	654	3.8%	13.6%		45.09	22.55	46.25	1.16	2.6%
300	633	3.7%	17.2%		50.14	16.71	51.38	1.24	2.5%
500	729	4.2%	25.3%		60.23	12.05	61.63	1.40	2.3%
700	838	4.8%	34.7%		70.32	10.05	71.88	1.55	2.2%
900	831	4.8%	44.4%		80.41	8.93	82.13	1.71	2.1%
1,000	828	4.8%	49.2%	Avg.	85.46	8.55	87.25	1.79	2.1%
1,500	536	3.1%	68.1%		110.69	7.38	112.88	2.19	2.0%
2,000	333	1.9%	79.7%		135.92	6.80	138.50	2.58	1.9%
2,500	558	3.2%	86.9%		171.29	6.85	174.54	3.26	1.9%
3,000	374	2.2%	91.6%		206.65	6.89	210.58	3.93	1.9%
4,000	151	0.9%	96.6%		277.38	6.93	282.66	5.28	1.9%
4,250	119	0.7%	97.2%		295.06	6.94	300.68	5.62	1.9%
4,500	98	0.6%	97.8%		312.75	6.95	318.70	5.96	1.9%
4,750	74	0.4%	98.2%		330.43	6.96	336.72	6.29	1.9%
5,000	60	0.3%	98.6%		348.11	6.96	354.74	6.63	1.9%
6,500	14	0.1%	99.6%		454.21	6.99	462.86	8.66	1.9%
>10,000	8	0.0%	100.0%		701.76	7.02	715.14	13.38	1.9%

Proposed Small General Service Bill Impact

Schedule No. 3A - Small General Service

kWh per month	No. of Customers	% of Total	Cum. % of Total	kW per Month	Load Factor	Bill at		Bill with			Bill with		
						Current Rates	Cents per kWh	Proposed Rate Change	Amount Change	Percent Change	Proposed Rate Increase	Amount Change	Percent Change
0	152	6.80%	6.8%	0.0	28.6%	\$40.00		\$40.00	\$0.00	0.0%	\$41.00	\$1.00	2.5%
250	464	20.75%	27.5%	1.2	28.6%	55.03	22.01	55.40	0.38	0.7%	56.69	1.66	3.0%
500	213	9.54%	37.1%	2.4	28.6%	70.05	14.01	70.80	0.75	1.1%	72.38	2.33	3.3%
750	168	7.53%	44.6%	3.6	28.6%	85.08	11.34	86.20	1.13	1.3%	88.06	2.99	3.5%
1,000	144	6.42%	51.0%	4.8	28.6%	Avg. 100.10	10.01	101.60	1.50	1.5%	103.75	3.65	3.6%
1,500	228	10.20%	61.2%	7.2	28.6%	130.15	8.68	132.40	2.25	1.7%	135.13	4.97	3.8%
2,000	159	7.12%	68.4%	9.6	28.6%	160.20	8.01	163.20	3.00	1.9%	166.50	6.30	3.9%
3,000	91	4.08%	77.6%	14.4	28.6%	220.30	7.34	224.80	4.50	2.0%	229.25	8.95	4.1%
4,000	60	2.69%	83.5%	19.2	28.6%	280.40	7.01	286.40	6.00	2.1%	292.00	11.60	4.1%
5,000	38	1.70%	87.4%	24.0	28.6%	340.50	6.81	348.00	7.50	2.2%	354.75	14.25	4.2%
7,500	21	0.94%	93.2%	36.0	28.6%	490.75	6.54	502.00	11.25	2.3%	511.63	20.88	4.3%
10,000	11	0.48%	96.5%	48.0	28.6%	641.00	6.41	656.00	15.00	2.3%	668.50	27.50	4.3%
13,000	12	0.53%	98.2%	62.4	28.6%	1,164.30	8.96	1,183.80	19.50	1.7%	1,212.22	47.92	4.1%
15,000	6	0.25%	98.8%	72.0	28.6%	1,337.26	8.92	1,359.76	22.50	1.7%	1,392.41	55.14	4.1%
20,000	2	0.10%	99.6%	95.9	28.6%	1,769.69	8.85	1,799.69	30.00	1.7%	1,842.87	73.19	4.1%
30,000	4	0.18%	100.0%	143.9	28.6%	2,634.53	8.78	2,679.53	45.00	1.7%	2,743.81	109.28	4.1%

Proposed Large General Service Bill Impact

Schedule No. 3B - Large General Service

kWh per month	No. of Customers	% of Total	Cum. % of Total	kW per Month	Load Factor	Bill at		Bill with Proposed			Bill with Proposed		
						Current Rates	Cents per kWh	Rate Change	Amount Change	Percent Change	Rate Increase	Amount Change	Percent Change
0	5	1.7%	1.75%	0.0	46.3%	\$295.00		\$20.00	-\$275.00	-93.2%	\$21.00	-\$274.00	-92.9%
1,000	10	3.5%	5.28%	3.0	46.3%	347.06	34.71	88.33	-258.73	-74.6%	90.71	-256.35	-73.9%
5,000	9	3.3%	16.66%	14.8	46.3%	555.30	11.11	361.63	-193.67	-34.9%	369.54	-185.76	-33.5%
10,000	7	2.6%	29.67%	29.6	46.3%	815.60	8.16	703.27	-112.33	-13.8%	718.08	-97.52	-12.0%
15,000	29	10.5%	40.20%	44.4	46.3%	1,075.90	7.17	1,044.90	-31.00	-2.9%	1,066.62	-9.28	-0.9%
20,000	21	7.9%	48.08%	59.2	46.3%	Avg. 1,386.53	6.93	1,386.53	0.00	0.0%	1,415.17	28.63	2.1%
25,000	17	6.4%	54.50%	73.9	46.3%	1,728.17	6.91	1,728.17	0.00	0.0%	1,763.71	35.54	2.1%
30,000	16	5.8%	60.29%	88.7	46.3%	2,069.80	6.90	2,069.80	0.00	0.0%	2,112.25	42.45	2.1%
50,000	7	2.5%	73.73%	147.9	46.3%	3,436.34	6.87	3,436.34	0.00	0.0%	3,506.41	70.08	2.0%
75,000	3	1.0%	82.42%	221.8	46.3%	5,144.51	6.86	5,144.51	0.00	0.0%	5,249.12	104.61	2.0%
100,000	3	1.0%	87.54%	295.8	46.3%	6,852.67	6.85	6,852.67	0.00	0.0%	6,991.83	139.15	2.0%
200,000	2	0.8%	95.64%	591.5	46.3%	13,685.35	6.84	13,685.35	0.00	0.0%	13,962.65	277.30	2.0%
300,000	1	0.4%	97.94%	887.3	46.3%	20,518.02	6.84	20,518.02	0.00	0.0%	20,933.48	415.46	2.0%
400,000	2	0.6%	99.69%	1,183.0	46.3%	27,350.69	6.84	27,350.69	0.00	0.0%	27,904.30	553.61	2.0%
425,000	1	0.3%	100.00%	1,257.0	46.3%	29,058.86	6.84	29,058.86	0.00	0.0%	29,647.01	588.15	2.0%

Proposed Industrial Bill Impact

Schedule No. 4 - Primary Industrial Service

kWh per month	No. of Customers	kW per Month	Load Factor	Bill at Current Rates	Cents per kWh	Bill at TY 2017 Proposed	Amount Change	Percent Change
25,000	0	68	50.0%	\$8,152	32.61	\$8,372	\$220	2.7%
100,000	0	274	50.0%	11,368	11.37	11,642	274	2.4%
200,000	0	548	50.0%	15,656	7.83	16,002	346	2.2%
300,000	0	822	50.0%	19,944	6.65	20,362	418	2.1%
350,000	1	1,189	40.3%	23,411	6.69	23,903	492	2.1%
400,000	0	1,096	50.0%	24,903	6.23	25,412	509	2.0%
500,000	0	1,370	50.0%	31,109	6.22	31,745	636	2.0%
700,000	0	1,918	50.0%	43,521	6.22	44,410	890	2.0%
800,000	0	2,192	50.0%	49,726	6.22	50,743	1,016	2.0%
850,000	1	1,722	50.0%	48,582	5.72	49,540	958	2.0%
900,000	0	2,466	50.0%	55,932	6.21	57,075	1,143	2.0%
1,000,000	0	2,740	50.0%	62,138	6.21	63,408	1,270	2.0%
1,500,000	0	4,110	50.0%	93,167	6.21	95,071	1,904	2.0%
2,000,000	0	5,479	50.0%	124,196	6.21	126,734	2,538	2.0%
2,500,000	0	6,849	50.0%	155,225	6.21	158,397	3,172	2.0%
3,000,000	0	1,776	50.0%	141,150	4.70	143,667	2,517	1.8%

Proposed Irrigation Bill Impact

Schedule No. 6 - Irrigation

kWh per month	No. of Customers	% of Total	Cum. % of Total	kW per Month	Load Factor		Bill at Current Rates	Cents per kWh	Bill at TY 2017 Proposed	Amount Change	Percent Change
0	270	22.0%	22.0%	0	38.2%		\$15.00		\$15.00	\$0.00	0.0%
500	227	18.6%	40.6%	2	38.2%		47.22	9.44	47.90	0.68	1.4%
1,000	89	7.3%	47.8%	4	38.2%		79.44	7.94	80.80	1.36	1.7%
1,500	70	5.7%	53.5%	5	38.2%	Avg.	111.67	7.44	113.70	2.04	1.8%
3,000	40	3.3%	65.1%	11	38.2%		208.33	6.94	212.41	4.08	2.0%
4,000	30	2.5%	70.6%	14	38.2%		272.78	6.82	278.21	5.43	2.0%
5,000	23	1.9%	74.6%	18	38.2%		337.22	6.74	344.01	6.79	2.0%
7,000	16	1.3%	80.7%	25	38.2%		466.11	6.66	475.62	9.51	2.0%
10,000	11	0.9%	86.2%	36	38.2%		659.44	6.59	673.03	13.59	2.1%
25,000	111	9.1%	95.3%	90	38.2%		1,626.10	6.50	1,660.07	33.97	2.1%
40,000	22	1.8%	97.0%	143	38.2%		2,592.76	6.48	2,647.11	54.34	2.1%
55,000	9	0.7%	97.7%	197	38.2%		3,559.43	6.47	3,634.15	74.72	2.1%
70,000	6	0.5%	98.3%	251	38.2%		4,526.09	6.47	4,621.19	95.10	2.1%
100,000	3	0.2%	98.7%	359	38.2%		6,459.41	6.46	6,595.27	135.86	2.1%
130,000	2	0.2%	99.0%	466	38.2%		8,392.73	6.46	8,569.35	176.62	2.1%
145,000	2	0.1%	99.2%	520	38.2%		9,359.40	6.45	9,556.39	197.00	2.1%
160,000	1	0.0%	99.2%	574	38.2%		10,326.06	6.45	10,543.43	217.38	2.1%
175,000	1	0.0%	99.3%	628	38.2%		11,292.72	6.45	11,530.48	237.76	2.1%
190,000	1	0.0%	99.3%	681	38.2%		12,259.38	6.45	12,517.52	258.13	2.1%
205,000	1	0.0%	99.3%	735	38.2%		13,226.04	6.45	13,504.56	278.51	2.1%
220,000	1	0.0%	99.4%	789	38.2%		14,192.71	6.45	14,491.60	298.89	2.1%
>250,000	7	0.6%	100.0%	897	38.2%		16,126.03	6.86	16,465.68	339.65	2.1%

Proposed Frost Control Bill Impact

Schedule No. 7 - Frost Control

Annual kWh	No. of Customers	% of Total	Cum. % of Total	Annual kW per Customer		Bill at Current Rates	Cents per kWh	Bill at TY 2017 Proposed	Amount Change	Percent Change
0	24	15.9%	15.9%	0.0		\$120.00		\$122.00	\$2.00	1.7%
100	27	17.9%	33.8%	20.8		217.58	217.58	221.71	4.12	1.9%
200	15	9.9%	43.7%	64.9		419.79	209.89	428.36	8.57	2.0%
300	7	4.6%	48.3%	107.1		613.49	204.50	626.32	12.83	2.1%
400	13	8.6%	57.0%	99.0	Avg.	581.11	145.28	593.17	12.07	2.1%
500	10	6.6%	63.6%	71.2		460.00	92.00	469.33	9.33	2.0%
750	11	7.3%	70.9%	82.3		519.33	69.24	529.87	10.53	2.0%
1,000	9	6.0%	76.8%	100.2		609.58	60.96	622.01	12.43	2.0%
2,000	7	4.6%	92.7%	72.3		522.84	26.14	532.88	10.05	1.9%
3,000	3	2.0%	95.4%	124.2		795.50	26.52	811.15	15.65	2.0%
4,000	1	0.7%	97.4%	78.0		626.18	15.65	637.62	11.44	1.8%
5,000	1	0.7%	98.0%	159.6		1,032.18	20.64	1,052.18	20.00	1.9%
6,000	1	0.7%	98.7%	169.4		1,115.52	18.59	1,136.92	21.40	1.9%
7,000	0	0.0%	99.3%	0.0		391.88	5.60	396.75	4.87	1.2%
8,000	0	0.0%	99.3%	0.0		430.72	5.38	436.00	5.28	1.2%
9,000	0	0.0%	100.0%	0.0		469.56	5.22	475.25	5.69	1.2%
>10,001	0	0.0%	100.0%	0.0		508.44	5.08	514.54	6.10	1.2%



Questions?