

# LANE-SCOTT ELECTRIC COOPERATIVE

## 2023 Test Year Cost of Service & Rate Analysis

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# IMPORTANCE

## COST OF SERVICE STUDY PROCESS

- Defensible
- Meets state requirements, but more important is defensible to members
- Reproducible results
- If a consistent methodology used over time, studies track changes.
- Financially Sound
  - Balances the needs of the cooperative against member impact
- Non-Discriminatory and Fair
- Cutting corners by adopting rates not based on cost of service may put ALL cooperatives at risk of increased regulation
- Lane Scott's COSS has been prepared in accordance with regulatory standards

# COST OF SERVICE PROCESS

## COST OF SERVICE STUDY PROCESS

### 1. Define System Revenue Requirement

Do we need a rate increase and, if so, how much?

### 2. Define Class Revenue Requirement

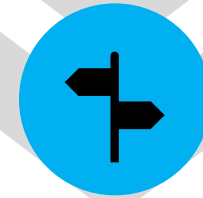
How are each of the rate classes performing?

### 3. Define Customer Revenue Requirement

How do we recover our costs through rates and from whom?

### 4. Coordinate Rate Design & Line Extension

### 5. Monitor & Analyze System Performance



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# STEP ONE: DEFINE THE SYSTEM REVENUE REQUIREMENT

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DO WE NEED A RATE INCREASE...AND IF SO, HOW MUCH?

# OPERATING EXPENSES

## NORMAL YEAR

- Select a “Test Year”
  - Twelve months ending December 31, 2023
- Create a “Normalized Year” or “Rate Year”
  - Typically called “Adjusted Test Year”
  - Developed by making adjustments to the chosen test year
- Primary Concerns in making adjustments to test year:
  - Proper matching of expenses and billing units
  - Cost, billing units and resulting unit rates are forward looking
  - Unit rates reflect “normal” conditions
- Data can be supported if it is:
  - Known, measurable and continuing in nature

# FORECASTING THE REVENUE REQUIREMENT

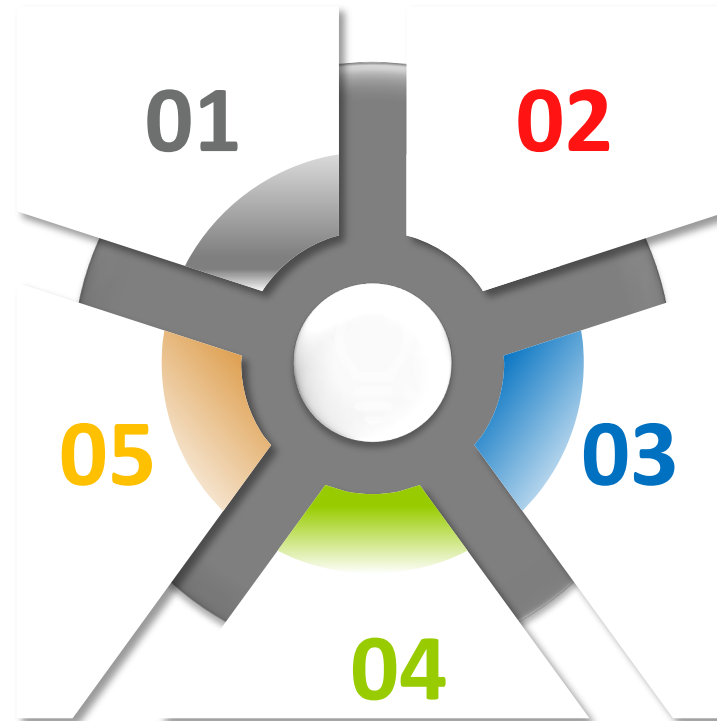
## KEY DRIVERS

### 1. OPERATING EXPENSES

Rates must produce sufficient levels of cash to cover operating expenses and provide sufficient margin to realize financial objectives.

### 5. PAY CAPITAL CREDITS

Rates must produce sufficient levels of cash to cover capital credit payments to members based on the Boards desired rotation cycle while also maintaining equity objectives.



### 4. MAINTAIN CASH GENERAL FUNDS

Rates must produce sufficient levels of cash to maintain or build general funds reserves and maintain liquidity objectives.

### 2. PLANT ADDITIONS ~ EQUITY OBJECTIVE

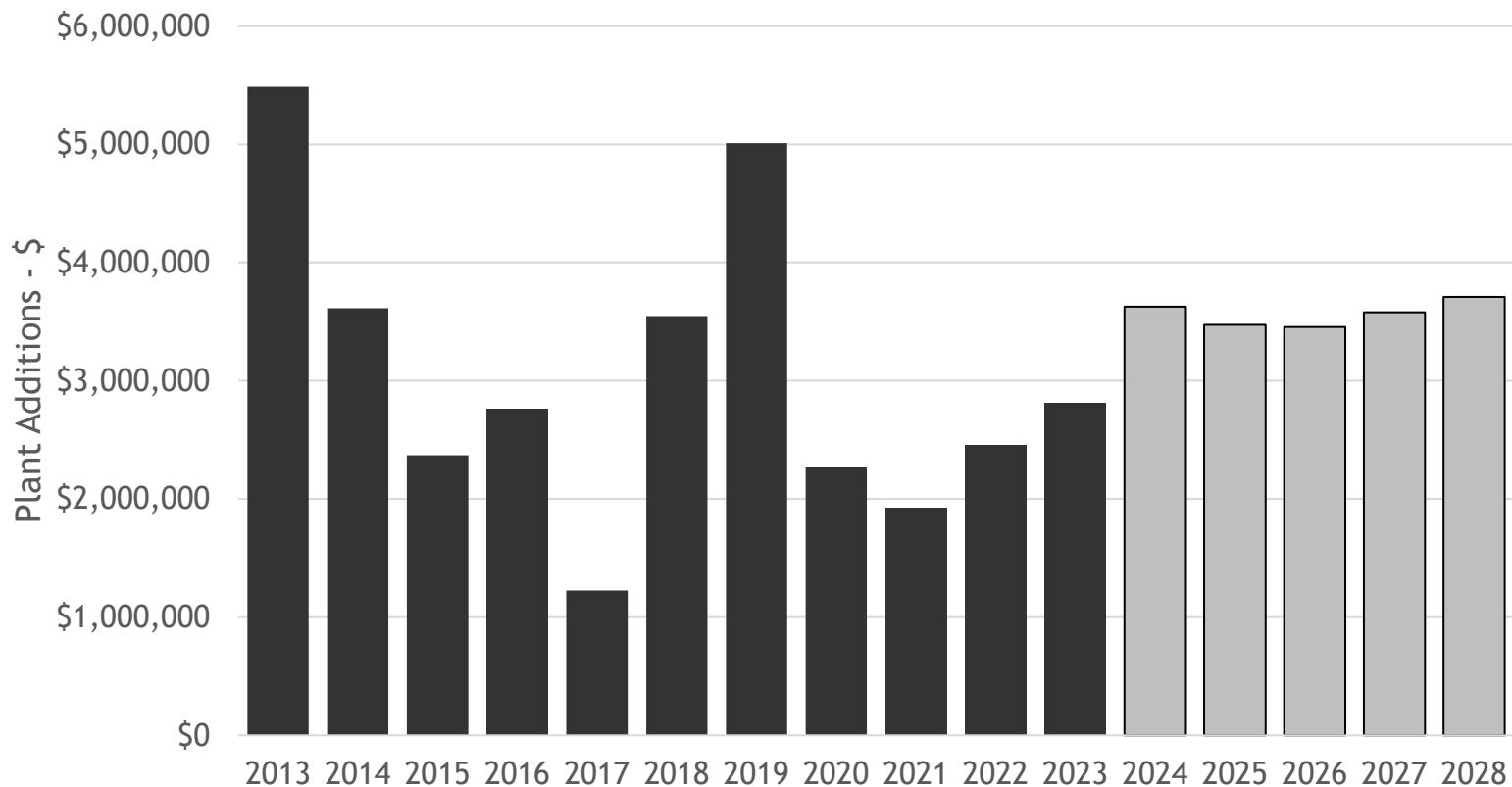
Rates must produce sufficient levels of cash to pay for capital expenditures. CAPEX cash requirements is dependent upon the Board's desired equity objective, capital credits refund objectives and current equity level.

### 3. MEET LENDER REQUIREMENTS

Rates must produce sufficient levels of cash to maintain key operating ratios as prescribed in the Cooperative's debt covenants.

# PLANT ADDITIONS

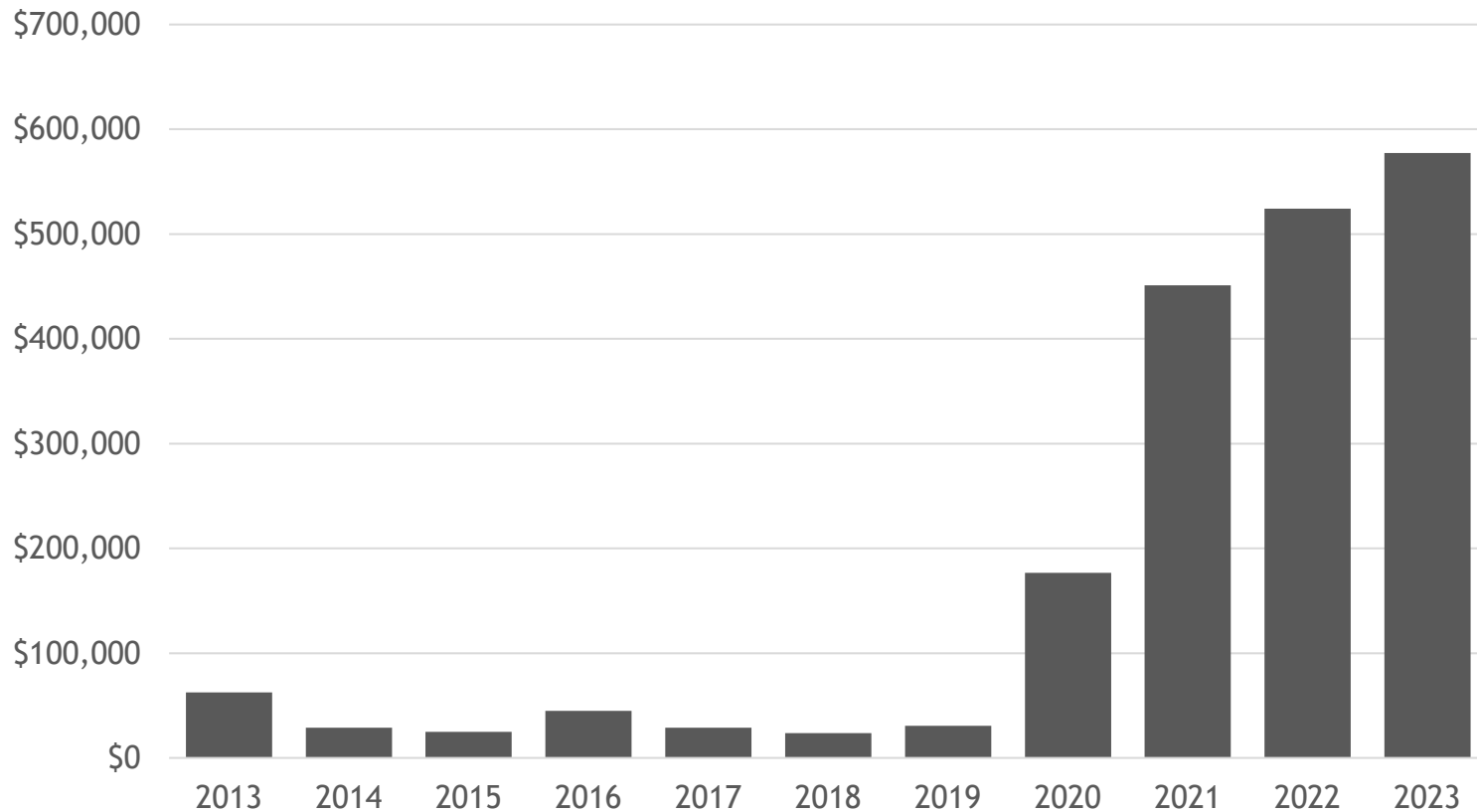
## THE REVENUE REQUIREMENT



- Paying for anticipated plant additions
  - Contributions from members based on cooperative line extension policy
  - Cash
  - Debt
- Borrowing source
  - Many cooperatives adopt a balance between
    - cash - generated by higher rates and paid by existing members through rates and/or reduced capital credit refunds
    - debt - paid by future members through increased interest expense and reduced capital credits allocations
- Remodel of 1PH and 3PH
- Repairs and updates to Dighton building

# CAPITAL CREDITS

## THE REVENUE REQUIREMENT



- Margins assigned to members.
  - Must be allocated and may be refunded using a variety of methods.
- Importance
  - Must balance LTD against borrowing from past and current members (retained capital credits) as a source of cash
  - The capital credit objective is the determination of the amount of cash refunded to members – not the amount allocated to them from margins

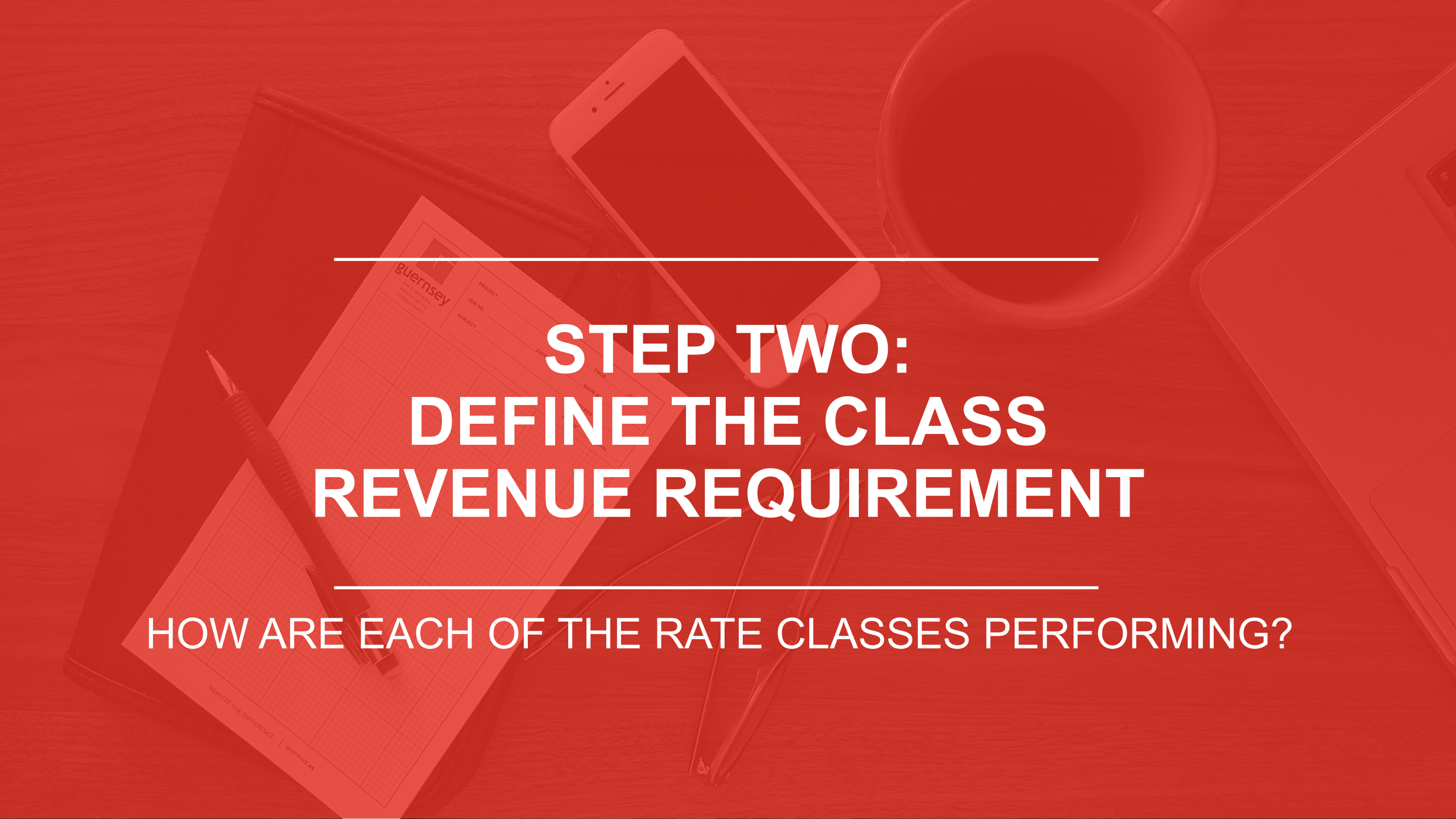
Years	Est. Annual \$
35	\$385,000
30	\$449,000
25	\$538,000
20	\$673,000



# REVENUE REQUIREMENT

## ONE YEAR FINANCIAL FORECAST

Cash Requirement		Development of Cash-General Fund Level	
Plant Additions	\$ 3,628,415	Total Utility Plant in Service	\$ 64,093,019
Desired Percent Cash Financed	40.00%	Cash-General Funds	\$ 156,966
Cash Requirement for Plant	<u>\$ 1,451,366</u>	Special Deposits	125
Capital Credit Retirements	\$ 517,501	Temporary Investments	6,596,459
Principal Payments	2,309,236	Other Investments & Special Funds	450,962
Cash to Attain Desired Level	0	Total	<u>\$ 7,204,512</u>
Cash Requirement for Capital Credits & Debt	<u>\$ 2,826,737</u>	Estimated Days of Cash	141.82 Days
Total Cash Requirement	<u>\$ 4,278,103</u>	Cash as % of Plant	11.24%
Operating Margins (Adjusted)	\$ (165,522)	Desired Cash Level	<u>\$ 7,204,512</u>
Plus: Depreciation & Other Non-Cash Expenses	2,050,702	Estimated Days of Cash	141.82 Days
Other Income/Capital Credits Cash	821,990	Cash as % of Plant	11.24%
Net Cash from Operations	<u>\$ 2,707,170</u>	Desired Total Increase in Cash Level	\$ 0
Annual Additional Cash Required	<u>\$ 1,570,933</u>	Years to Increase	3
Proposed Rate Change	<u>\$ 1,570,933</u>	Desired Annual Cash Increase	<u>\$ 0</u>
Equity Excluding Est G&T Patronage Capital	\$ 13,466,625		
Retirement Amount	517,501		
Retirement Cycle - Years	<u>26.02</u>		



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# STEP TWO: DEFINE THE CLASS REVENUE REQUIREMENT

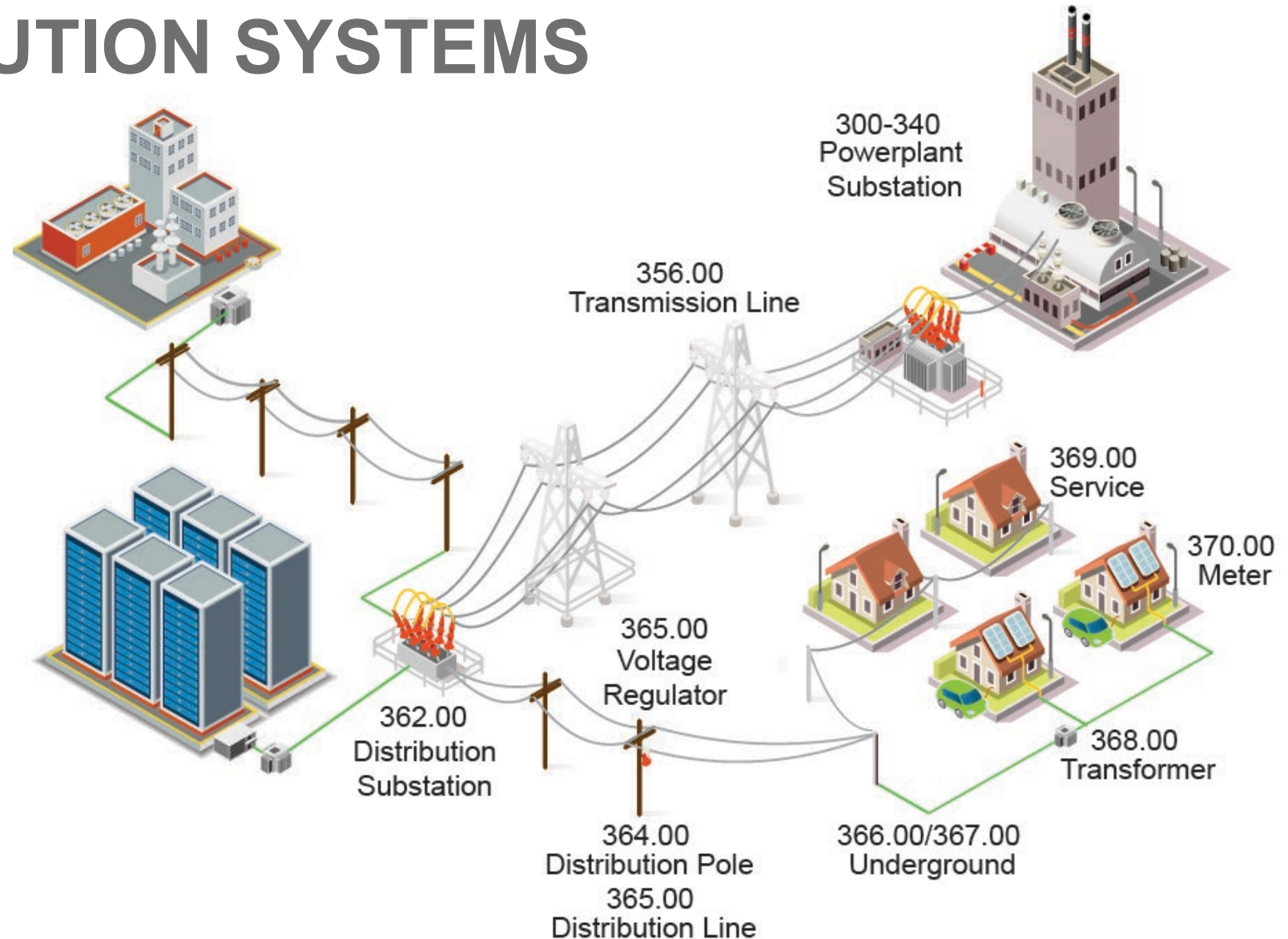
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HOW ARE EACH OF THE RATE CLASSES PERFORMING?

# TYPICAL DISTRIBUTION SYSTEMS

## ALLOCATING PLANT

- Allocate plant investment to each rate class
  - Based upon their use of the system and the facilities required to serve them
  - Use Load Data (Sum of Delivery Point NCP)
- Expenses follow the plant allocation
- Identify Minimum System Cost



# COST ALLOCATION SUMMARY

## EXISTING RATES

<u>Account</u>	<u>Total</u>	<u>RESIDENTIAL</u>	<u>GS SMALL</u>	<u>GS LARGE</u>	<u>Irri No Ctrl</u>	<u>LRG IND</u>	<u>Dighton</u>	<u>Lighting</u>
Rate Base	43,229,647	10,837,671	18,862,730	6,324,457	2,920,050	3,574,227	553,736	156,772
Operating Revenues	17,823,540	2,987,951	6,013,580	4,020,481	1,115,979	2,902,247	676,252	107,046
Operating Expenses	16,808,003	3,193,243	6,055,122	3,144,289	1,173,565	2,378,721	666,990	196,070
Return	1,015,537	-205,291	-41,541	876,191	-57,585	523,526	9,261	-89,023
Rate of Return	2.349 %	-1.894 %	-0.220 %	13.854 %	-1.972 %	14.647 %	1.673 %	-56.785 %
Relative ROR	1.000	-0.806	-0.094	5.898	-0.839	6.235	0.712	-24.172
Interest	1,181,059	294,957	514,980	172,856	79,802	97,933	14,401	6,127
Operating Margins	-165,522	-500,248	-556,522	703,335	-137,387	425,592	-5,139	-95,151
Margin as % Revenue	-0.929 %	-16.742 %	-9.254 %	17.494 %	-12.311 %	14.664 %	-0.760 %	-88.888 %
Operating TIER	0.860	-0.696	-0.081	5.069	-0.722	5.346	0.643	-14.528
<b>Revenue Deficiencies</b>								
Uniform ROR = 5.983093	1,570,932	853,719	1,170,116	-497,793	232,294	-309,676	23,868	98,403
Deficiency % Rev	8.814 %	28.572 %	19.458 %	-12.381 %	20.815 %	-10.670 %	3.530 %	91.926 %
Uniform % Mar = 7.246451	1,570,932	772,767	1,069,817	-444,181	235,307	-232,101	58,374	110,948
Deficiency % Rev	8.814 %	25.863 %	17.790 %	-11.048 %	21.085 %	-7.997 %	8.632 %	103.645 %

# COMPONENTS OF EXPENSES

## POWER COST AND SYSTEM WIRES

### Lane-Scott Distribution Wires

- Distribution Wires Capacity-Related
  - Transmission
  - Substation
  - Backbone
  - General Demand
- Distribution Wires Customer-Related
  - Distribution Wires Customer
  - Metering
  - Meter Reading
  - Billing and Records
  - Customer Services
  - Revenue

### Power Supply

- Purchased Power Capacity
  - Purchased Power Demand-Related
  - Delivery
- Purchased Power Energy

# UNBUNDLED COSTS

WITH UNIFORM RATE OF RETURN

Accounts	Total	RESIDENTIAL	GS SMALL	GS LARGE	Irri No Ctrl	LRG IND
Average Consumers	5,674	2,282	2,957	175	254	3
kWh Sold	169,582,274	23,768,240	52,765,848	35,978,136	8,852,968	38,204,550
Metered kW		183,337	142,535	109,458	33,223	79,735
Billing kW/HP		0	0	127,573	7,815	79,919
<b>PUR PWR DEMAND</b>	<b>5,353,962</b>	<b>794,769</b>	<b>1,555,046</b>	<b>1,270,849</b>	<b>470,740</b>	<b>884,946</b>
Monthly Cost per Cons	78.63	29.02	43.82	605.17	154.44	24,581.84
Average Cost per kWh	0.031571	0.033438	0.029471	0.035323	0.053173	0.023163
Cost per Metered kW		4.34	10.91	11.61	14.17	11.10
Cost per Billing kW/HP		0.00	0.00	9.96	60.24	11.07
<b>PUR PWR ENERGY</b>	<b>4,518,988</b>	<b>640,659</b>	<b>1,422,273</b>	<b>968,810</b>	<b>238,627</b>	<b>1,005,908</b>
Monthly Cost per Cons	66.37	23.40	40.08	461.34	78.29	27,941.88
Average Cost per kWh	0.026648	0.026954	0.026954	0.026928	0.026954	0.026330
Cost per Metered kW		3.49	9.98	8.85	7.18	12.62
Cost per Billing kW/HP		0.00	0.00	7.59	30.53	12.59
<b>WIRES DEMAND</b>	<b>6,350,859</b>	<b>1,352,235</b>	<b>2,639,091</b>	<b>1,121,788</b>	<b>463,094</b>	<b>676,724</b>
Monthly Cost per Cons	93.27	49.38	74.37	534.18	151.93	18,797.88
Average Cost per kWh	0.037450	0.056893	0.050015	0.031180	0.052309	0.017713
Cost per Metered kW		7.38	18.52	10.25	13.94	8.49
Cost per Billing kW/HP		0.00	0.00	8.79	59.26	8.47
<b>TOTAL CUSTOMER</b>	<b>3,170,664</b>	<b>1,054,008</b>	<b>1,567,287</b>	<b>161,241</b>	<b>175,813</b>	<b>24,993</b>
Monthly Cost per Cons	46.57	38.49	44.17	76.78	57.68	694.25
Average Cost per kWh	0.018697	0.044345	0.029703	0.004482	0.019859	0.000654
Cost per Metered kW		5.75	11.00	1.47	5.29	0.31
Cost per Billing kW/HP		0.00	0.00	1.26	22.50	0.31

Power Cost is considered a pass-thru

- Does not contribute to the Cooperatives margins

Lane-Scott's fixed costs:

- Based capacity requirements
- Based on average Customer Cost

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**STEP THREE:  
DETERMINE THE INDIVIDUAL  
REVENUE REQUIREMENT**

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HOW COSTS ARE RECOVERED FROM INDIVIDUAL MEMBERS

# PROPOSED RATES

## SUMMARY OF RATE CHANGE

	Average Consumers	kWh Sold	Adjusted Revenue	Proposed Revenue		
				Proposed	Prop. \$	% Prop.
Residential Total	3,363	25,817,574	3,445,915	3,816,395	370,480	10.75%
Irrigation	254	8,852,968	1,113,253	1,196,556	83,303	7.48%
GS Small Total	1,876	50,716,514	5,501,172	6,164,335	663,163	12.05%
GS Large Total	175	35,978,136	4,018,409	4,279,505	261,096	6.50%
City of Dighton	3	9,335,382	676,223	698,501	22,278	3.29%
Large Industrial	3	38,204,550	2,902,051	3,061,664	159,614	5.50%
Lighting	13	677,150	106,915	118,418	11,503	10.76%
Total	5,687	169,582,274	17,763,938	19,335,375	1,571,437	8.85%
Other Revenue			59,602	59,602	0	0.00%
Total Revenue			17,823,540	19,394,977	1,571,437	8.82%



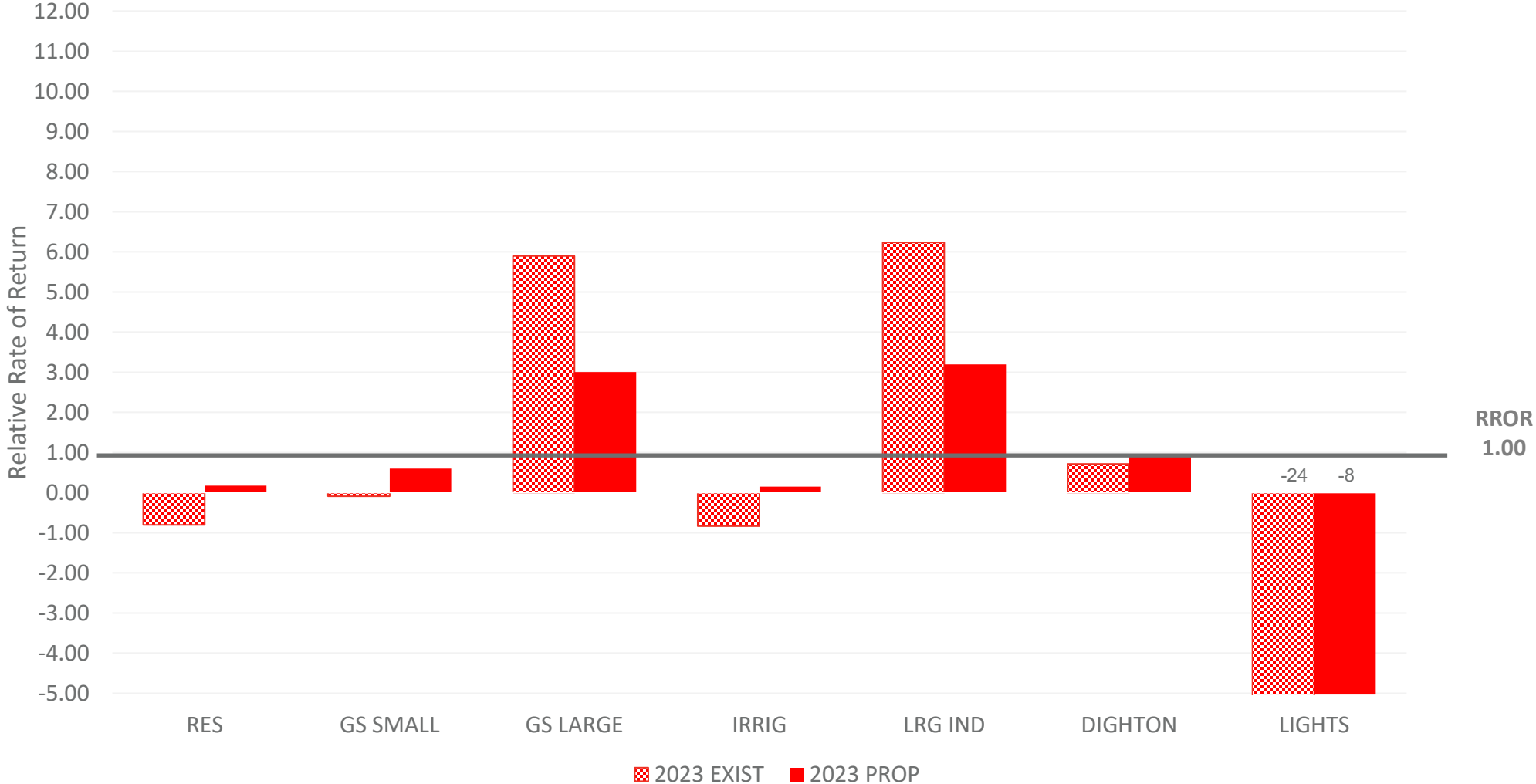
# PROPOSED RATES

## SUMMARY OF RATE CHANGE

	Average Consumers	kWh Sold	Adjusted Revenue	Proposed Revenue		% Prop.
				Proposed	Prop. \$	
Residential	2,227	23,584,544	2,928,799	3,244,242	315,442	10.77%
Residential Space Heat	0	0	0	0	0	
Residential - Religious Org.	8	81,560	10,240	11,412	1,172	11.44%
Seasonal	47	102,136	25,357	28,022	2,666	10.51%
Non-Domestic	1,060	2,042,010	473,727	524,665	50,938	10.75%
Irrigation - No Control	254	8,852,968	1,113,253	1,196,556	83,303	7.48%
General Service Small	614	7,184,442	900,416	1,025,843	125,426	13.93%
GS Small - Farm	90	1,316,161	156,782	178,940	22,158	14.13%
GS Small - Govt	141	1,197,636	163,062	187,535	24,474	15.01%
GS Small - Oil Well	997	40,735,863	4,241,622	4,726,283	484,662	11.43%
GS Small - School	10	53,774	8,620	9,971	1,351	15.67%
GS Small - Religious Org.	24	228,638	30,670	35,763	5,092	16.60%
General Service Large	77	12,232,324	1,531,961	1,642,780	110,819	7.23%
GSL >50 KVA	26	4,008,464	637,615	695,174	57,559	9.03%
GSL - Govt	8	466,574	80,384	87,352	6,968	8.67%
GSL - Oil Well (PM)	3	1,150,460	94,711	98,536	3,825	4.04%
GSL - Oil Well	38	9,688,339	837,233	871,421	34,189	4.08%
GSL - Oil Well >50 KVA	11	6,888,034	630,543	662,556	32,013	5.08%
GSL - School	6	1,362,168	161,416	172,764	11,347	7.03%
GSL - Religious Org.	6	181,773	44,545	48,922	4,376	9.82%
City of Dighton	3	9,335,382	676,223	698,501	22,278	3.29%
Large Industrial	1	9,582,150	734,751	773,413	38,662	5.26%
Large Industrial (PM)	2	28,622,400	2,167,299	2,288,251	120,952	5.58%
Fairgrounds & Athletic Fields	7	7,324	2,317	2,581	264	11.39%
Idle Service	14	0	5,475	5,473	(2)	-0.04%
Village Street Lights	13	677,150	106,915	118,418	11,503	10.76%
Total	5,687	169,582,274	17,763,938	19,335,375	1,571,437	8.85%
Other Revenue			59,602	59,602	0	0.00%
Total Revenue			17,823,540	19,394,977	1,571,437	8.82%

# RELATIVE RATE OF RETURN

EXISTING VS PROPOSED



# RATE CRITERIA

## EVALUATING RATES

- Fair / non-discriminatory
- Minimal customer impact
- Competitive
- Proper pricing signal
- Understandable
- Encourage proper usage

# RATE CHANGE SUMMARY

## EVALUATING RATES

- Residential – 10.75%
  - Increase Customer Charge
  - Implement Demand Charge
  - Increase Energy Charge
    - Less of an increase than would have been necessary without demand charge
- General Service Small – 12.05%
  - Increase Customer Charge
  - Implement Demand Charge
  - Increase Energy Charge
    - Less of an increase than would have been necessary without demand charge
- Irrigation – 7.48%
  - Increase to Annual Horsepower Charge
  - Increase to Energy Charge

# RATE CHANGE SUMMARY (cont.d)

## EVALUATING RATES

- General Service Large – 6.5%
  - Increase Demand Charge
  - Slight increase to Energy Charge
- City of Dighton – 3.29%
  - Increase Customer Charge
  - Increase Demand Charge
  - Decrease Energy Charge
- Large Industrial – 5.5%
  - Increase Customer Charge
  - Increase Demand Charge
  - Decrease Energy Charge

# RATE CHANGE SUMMARY (cont.d)

## EVALUATING RATES

- Move to increase fixed cost recovery in fixed billing units
  - Increasing customer charges and adding demand charges
  - Allows cost recovery to align with cost drivers
- Pros and Cons of Demand charges
  - Pros:
    - Margins are more insulated from shifts in kWh sales
    - Closer to true cost of service
    - Allows for less of an increase to customer charges and energy charges
  - Cons:
    - Education – residential customers (typically) have only had 2-part rates
    - Wide range of impacts within a class depending on member usage
      - Low usage customers more impacted than high usage
    - Potentially difficult to administer

# RATE CHANGE SUMMARY (cont.d)

## RATE DESIGNS

	Existing	Proposed	Change
Power Cost, per kWh Sold	\$0.057874	\$0.057874	\$0.000000
PCRF Base Cost, per kWh Sold	\$0.069750	\$0.069750	\$0.000000
PCRF Factor, per kWh	(\$0.011876)	(\$0.011876)	\$0.000000
Property Tax, per kWh Sold	\$0.004718	\$0.004360	(\$0.000358)
<b>Residential</b>			
Customer Charge	\$28.00	\$30.50	\$2.50
Demand Charge, per Billing kW	\$0.00	\$0.65	\$0.65
Energy Charge, per kWh	\$0.102970	\$0.108500	\$0.005530
Heat Pump Charge, per Heat Pump	\$2.00	\$2.00	\$0.00
Heat Pump Credit, per Heat Pump kWh	(\$0.030000)	(\$0.030000)	\$0.000000
<b>Residential - Religious Org</b>			
Customer Charge	\$28.00	\$30.50	\$2.50
Demand Charge, per Billing kW	\$0.00	\$0.65	\$0.65
Energy Charge, per kWh	\$0.102970	\$0.108500	\$0.005530
<b>Seasonal</b>			
Customer Charge	\$28.00	\$30.50	\$2.50
Demand Charge, per Billing kW	\$0.00	\$0.65	\$0.65
Energy Charge, per kWh	\$0.102970	\$0.108500	\$0.005530
<b>Non-Domestic</b>			
Customer Charge	\$22.00	\$24.50	\$2.50
Demand Charge, per Billing kW	\$0.00	\$0.65	\$0.65
Energy Charge, per kWh	\$0.105630	\$0.110550	\$0.004920

# RATE CHANGE SUMMARY (cont.d)

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Property Tax, per kWh Sold	\$0.004718	\$0.004360	(\$0.000358)
<b><i>Irrigation</i></b>			
Customer Charge	\$0.00	\$0.00	\$0.00
Annual HP, per Billing HP	\$40.00	\$42.50	\$2.50
Energy Charge, per kWh	\$0.099830	\$0.107040	\$0.007210
<b><i>General Service Small</i></b>			
Customer Charge	\$28.00	\$33.00	\$5.00
Demand Charge, per Billing kW	\$0.00	\$0.65	\$0.65
Energy Charge, per kWh	\$0.107670	\$0.116870	\$0.009200
<b><i>General Service Large</i></b>			
Customer Charge	\$65.00	\$65.00	\$0.00
Annual kW, per Billing kW	\$13.00	\$15.00	\$2.00
Energy Charge, per kWh	\$0.073090	\$0.073270	\$0.000180



# RATE CHANGE SUMMARY (cont.d)

## RATE DESIGNS

	Existing	Proposed	Change
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PCRF Base Cost, per kWh Sold	\$0.069750	\$0.069750	\$0.000000
PCRF Factor, per kWh	(\$0.011876)	(\$0.011876)	\$0.000000
Property Tax, per kWh Sold	\$0.004718	\$0.004360	(\$0.000358)
<b>City of Dighton</b>			
Customer Charge	\$150.00	\$300.00	\$150.00
Annual kW, per Billing kW			
Demand kW	\$2.80	\$4.25	\$1.45
Energy Charge, per kWh	\$0.003264	\$0.002680	(\$0.000584)
Cost of Power	Direct Billed	Direct Billed	
<b>Large Industrial</b>			
Customer Charge	\$100.00	\$150.00	\$50.00
Demand Charge, per Billing kW	\$12.80	\$15.50	\$2.70
Energy Charge, per kWh			
First 250 kWh per billing kW	\$0.069200	\$0.067760	(\$0.001440)
Next 250 kWh per billing kW	\$0.056700	\$0.055260	(\$0.001440)
Over 500 kWh per billing kW	\$0.044200	\$0.042760	(\$0.001440)
<b>Large Industrial Primary</b>			
Customer Charge	\$100.00	\$150.00	\$50.00
Demand Charge, per Billing kW	\$12.80	\$15.50	\$2.70
Energy Charge, per kWh			
First 250 kWh per billing kW	\$0.069200	\$0.067760	(\$0.001440)
Next 250 kWh per billing kW	\$0.056700	\$0.055260	(\$0.001440)
Over 500 kWh per billing kW	\$0.044200	\$0.042760	(\$0.001440)
Primary Discount	2.00%	2.00%	0.00%

# RATE CHANGE SUMMARY (cont.d)

RATE DESIGNS

	Existing	Proposed	Change
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PCRF Factor, per kWh	(\$0.011876)	(\$0.011876)	\$0.000000
Property Tax, per kWh Sold	\$0.004718	\$0.004360	(\$0.000358)
<b><i>Fairgrounds and Athletic Lighting</i></b>			
Customer Charge	\$17.50	\$20.00	\$2.50
Energy Charge, per kWh	\$0.124500	\$0.131830	\$0.007330
<b><i>Idle Service</i></b>			
Customer Charge	\$31.50	\$31.50	\$0.00
Energy Charge, per kWh	\$0.000000	\$0.000000	\$0.000000