

City of Nixa Nixa, Missouri

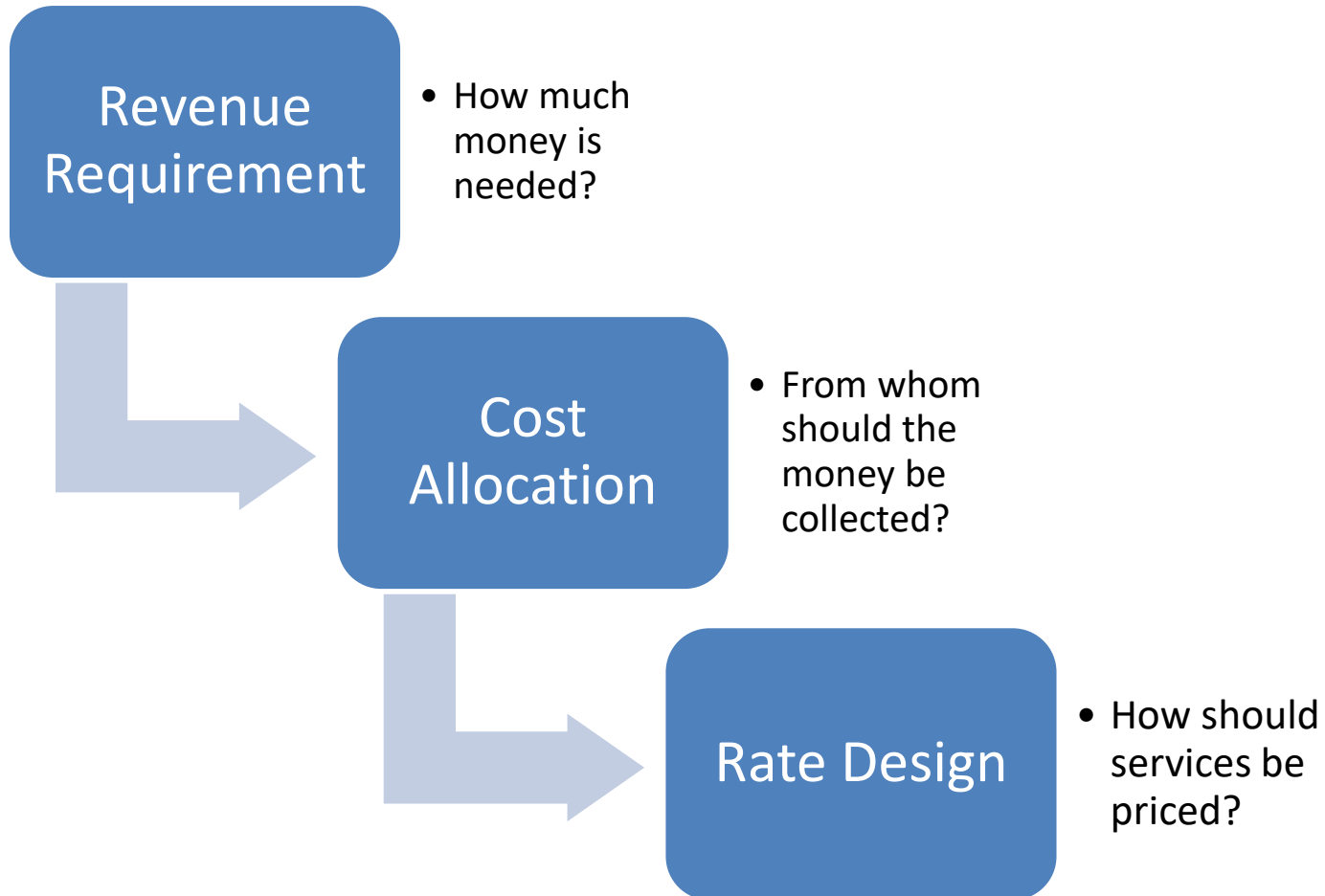
Electric Cost of Service Study
October 4, 2021

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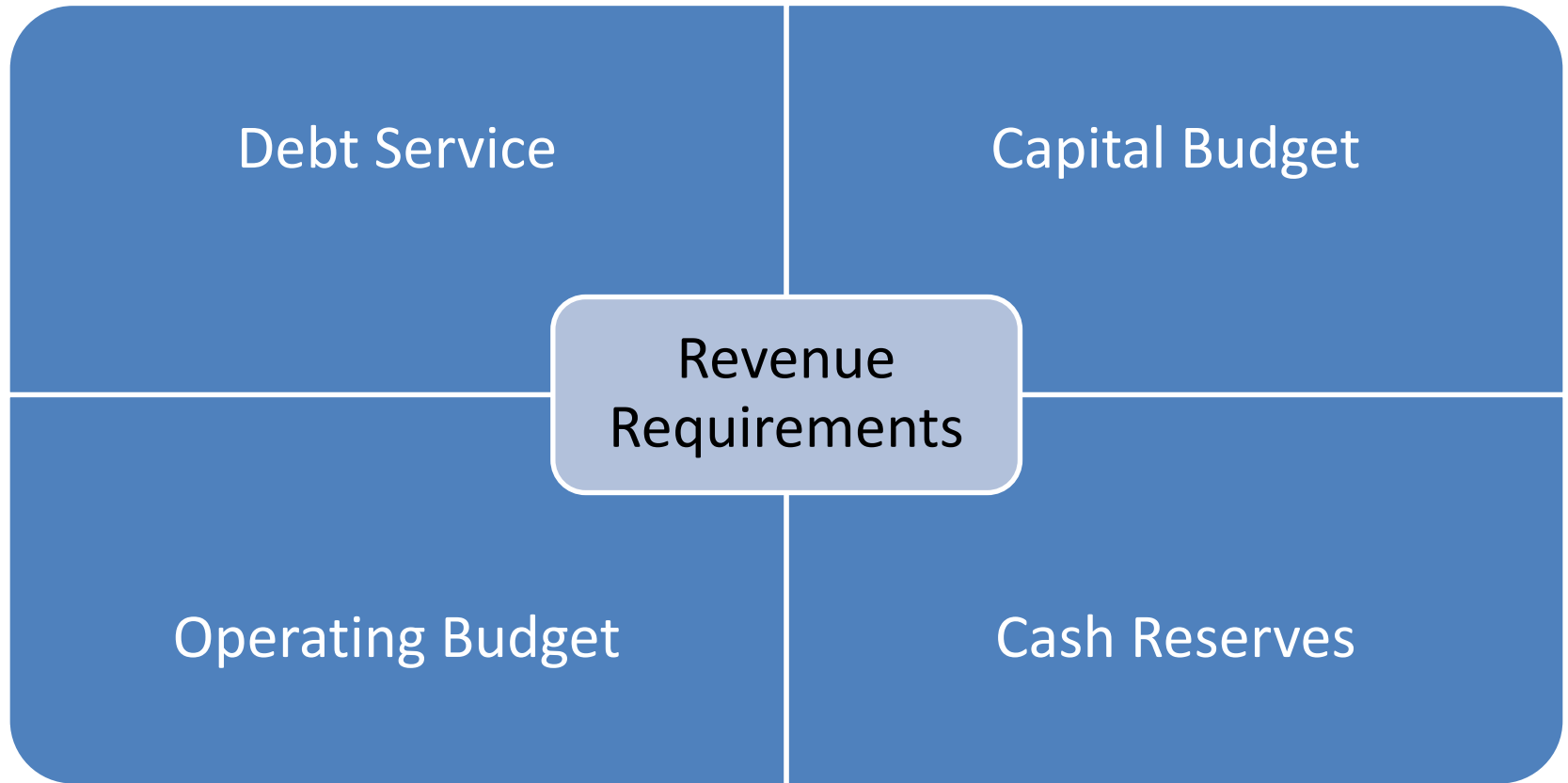
Modified and presented to City Council by Doug Colvin



Rate Study Elements



Revenue Requirement

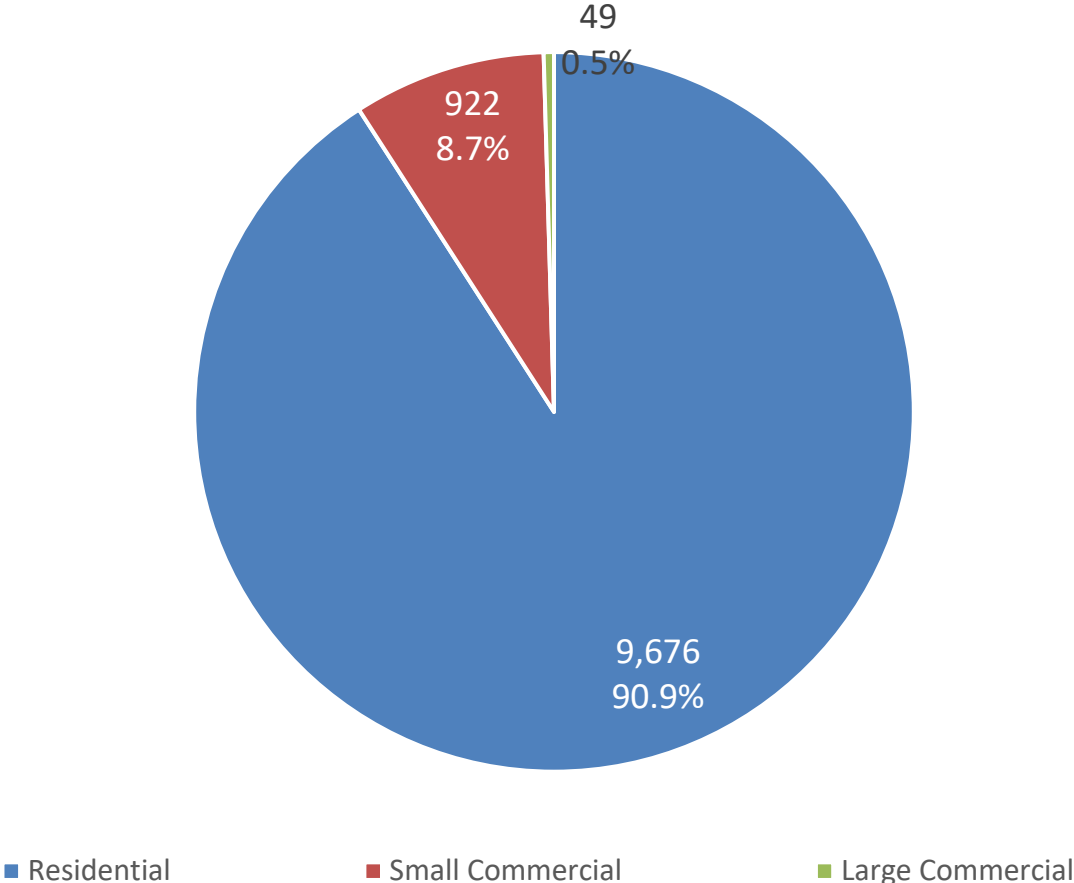


Cost of Service Focus and Considerations

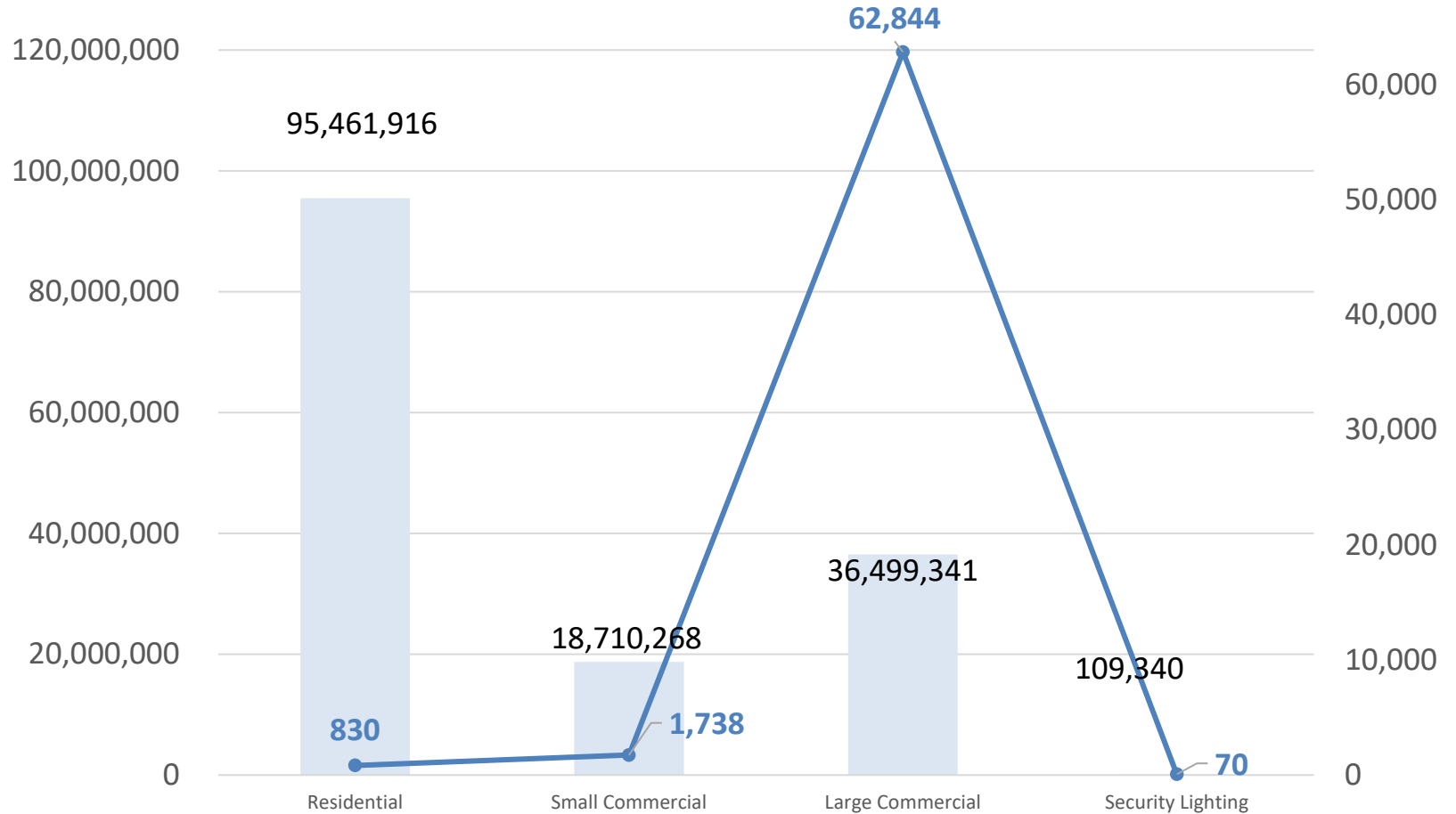
- Principal:
 - To match the costs of providing service to customer classes and to design rates to equitably recover costs
- Considerations:
 - Maintain revenue adequacy
 - Use fair and equitable cost allocations
 - Use practical rate and billing formats
 - Maximize customer understanding and acceptance



Number of Year-End Customers



Test Year Consumption



Purchase Power Costs

| <u>Account Description</u> | <u>Test Year Expense</u> | <u>Forecast Expense</u> |
|----------------------------------------------|------------------------------|-----------------------------|
| Demand Charges | \$3,320,127 | \$1,761,815 |
| Energy Charges | \$5,548,810 | \$5,437,059 |
| Transmission Charges | <u>\$1,958,479</u> | <u>\$2,034,024</u> |
| Total Wholesale Power Costs | <u>\$10,827,416</u> | <u>\$9,232,897</u> |
| Percent Increase | | -15.5% |
| Total kWh Purchased | 171,090,400 | 171,090,400 |
| Total kWh Sold | 150,730,865 | 150,730,865 |
| Total Wholesale Power Costs \$/kWh Purchased | \$0.06328 | \$0.05397 |
| Total Wholesale Power Costs \$/kWh Sold | \$0.07183 | \$0.06125 |

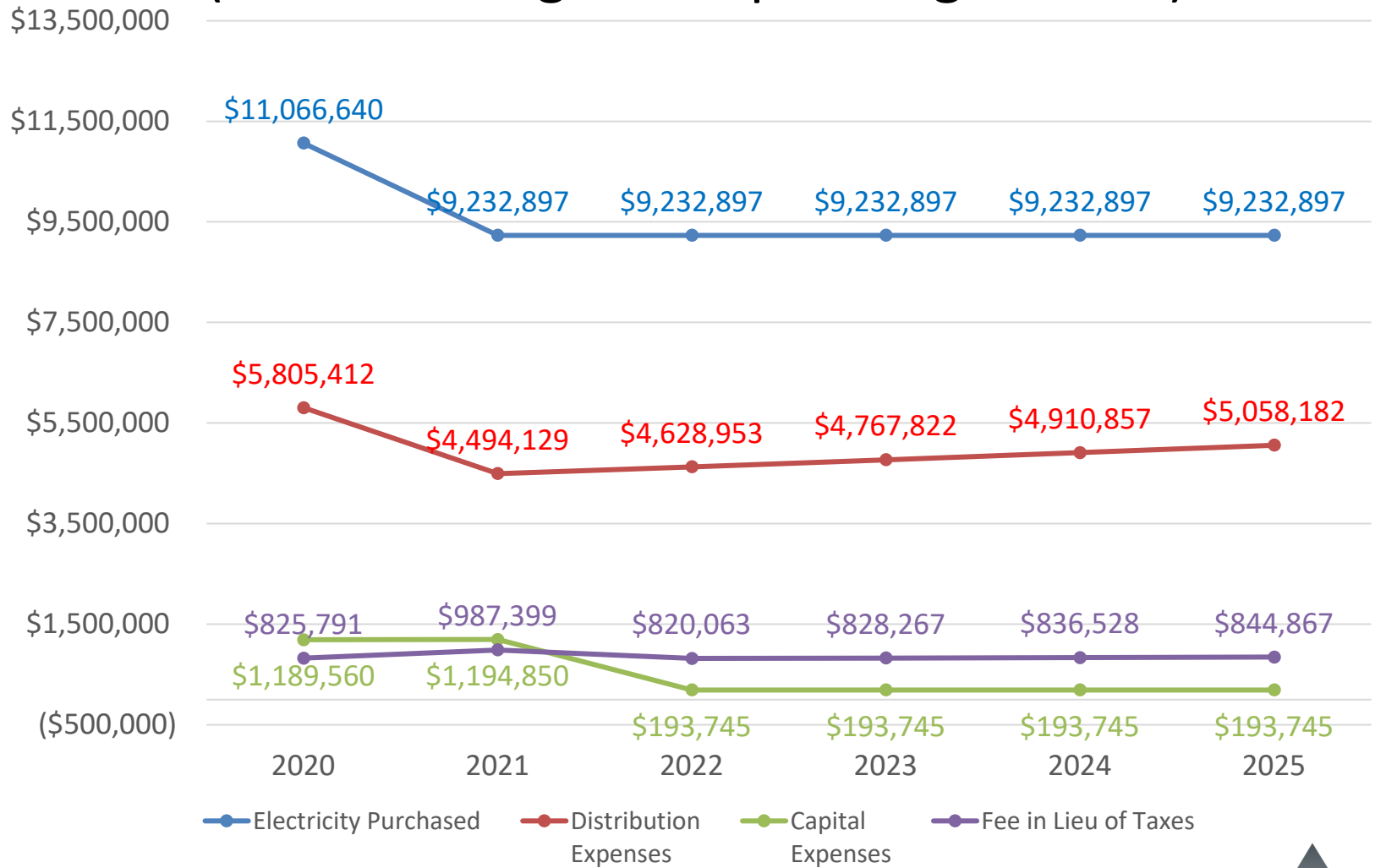


Revenue From Electric Sales Summary

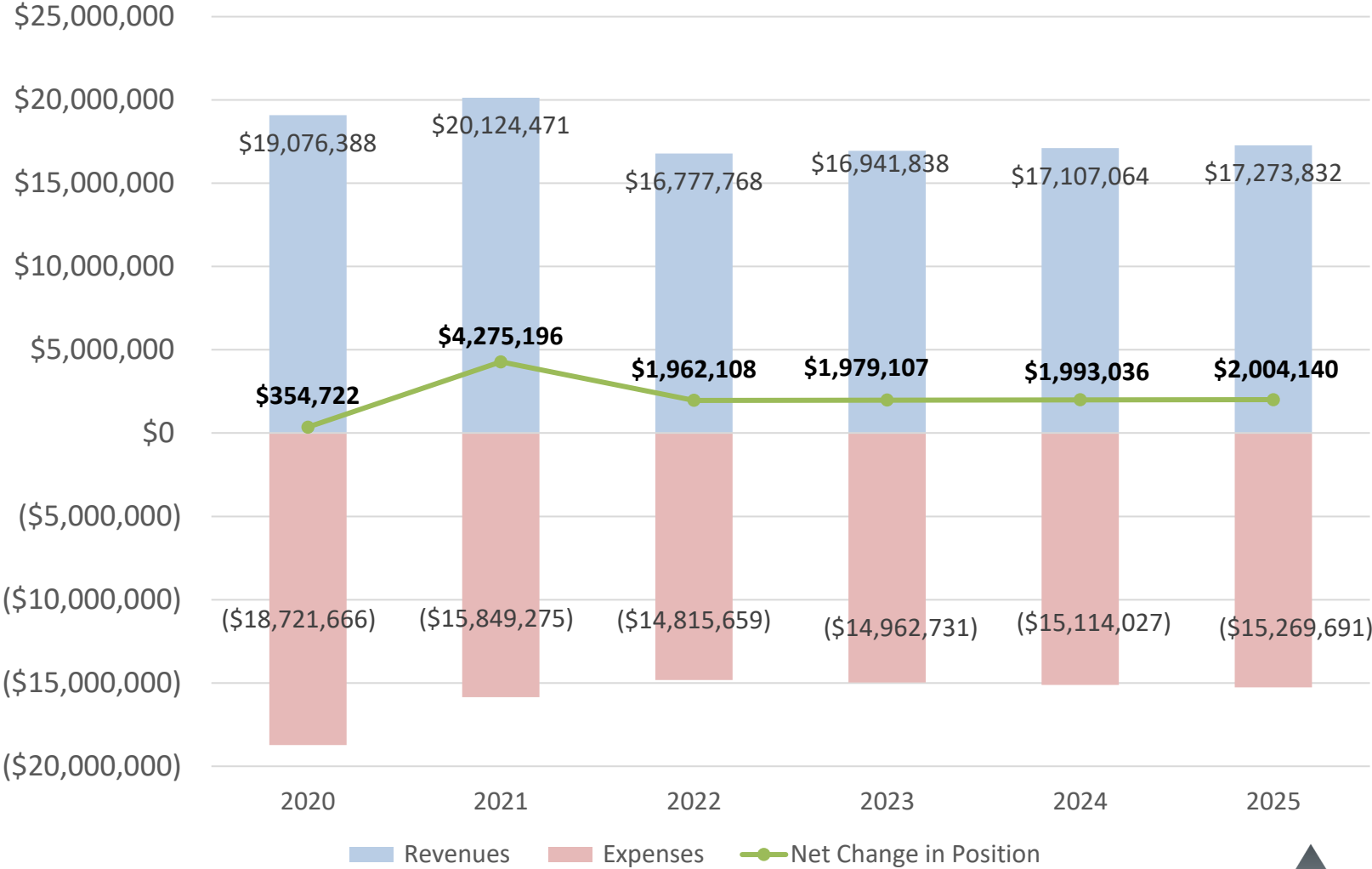
| <u>Rate</u> | <u>2021 Revenue</u> | <u>2022 Revenue</u> | <u>2023 Revenue</u> | <u>2024 Revenue</u> | <u>2025 Revenue</u> |
|------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Residential | <u>\$13,271,757</u> | <u>\$11,210,811</u> | <u>\$11,322,565</u> | <u>\$11,435,275</u> | <u>\$11,548,939</u> |
| <i>Dollar Change</i> | | (\$2,060,946) | \$111,755 | \$112,710 | \$113,664 |
| <i>Percent Change</i> | | -15.5% | 1.0% | 1.0% | 1.0% |
| Small Commercial 1 ph | <u>\$1,264,667</u> | <u>\$1,052,751</u> | <u>\$1,063,302</u> | <u>\$1,073,948</u> | <u>\$1,084,688</u> |
| <i>Dollar Change</i> | | (\$211,916) | \$10,552 | \$10,646 | \$10,740 |
| <i>Percent Change</i> | | -16.8% | 1.0% | 1.0% | 1.0% |
| Small Commercial 3 ph | <u>\$1,205,703</u> | <u>\$999,970</u> | <u>\$1,009,994</u> | <u>\$1,020,111</u> | <u>\$1,030,346</u> |
| <i>Dollar Change</i> | | (\$205,732) | \$10,024 | \$10,117 | \$10,235 |
| <i>Percent Change</i> | | -17.1% | 1.0% | 1.0% | 1.0% |
| Large Commercial | <u>\$1,186,135</u> | <u>\$975,860</u> | <u>\$985,733</u> | <u>\$995,613</u> | <u>\$1,005,603</u> |
| <i>Dollar Change</i> | | (\$210,275) | \$9,873 | \$9,881 | \$9,990 |
| <i>Percent Change</i> | | -17.7% | 1.0% | 1.0% | 1.0% |
| Industrial | <u>\$2,022,023</u> | <u>\$1,547,536</u> | <u>\$1,563,188</u> | <u>\$1,578,843</u> | <u>\$1,594,694</u> |
| <i>Dollar Change</i> | | (\$474,487) | \$15,652 | \$15,655 | \$15,851 |
| <i>Percent Change</i> | | -23.5% | 1.0% | 1.0% | 1.0% |
| Primary | <u>\$784,098</u> | <u>\$590,911</u> | <u>\$596,892</u> | <u>\$602,874</u> | <u>\$608,928</u> |
| <i>Dollar Change</i> | | (\$193,187) | \$5,981 | \$5,982 | \$6,054 |
| <i>Percent Change</i> | | -24.6% | 1.0% | 1.0% | 1.0% |
| Security Lighting | <u>\$13,589</u> | <u>\$23,430</u> | <u>\$23,664</u> | <u>\$23,899</u> | <u>\$24,133</u> |
| <i>Dollar Change</i> | | \$9,841 | \$234 | \$234 | \$234 |
| <i>Percent Change</i> | | 72.4% | 1.0% | 1.0% | 1.0% |
| Totals | <u>\$19,747,971</u> | <u>\$16,401,268</u> | <u>\$16,565,338</u> | <u>\$16,730,564</u> | <u>\$16,897,332</u> |
| <i>Dollar Change</i> | | (\$3,346,703) | \$164,071 | \$165,225 | \$166,768 |
| <i>Percent Change</i> | | -16.9% | 1.0% | 1.0% | 1.0% |



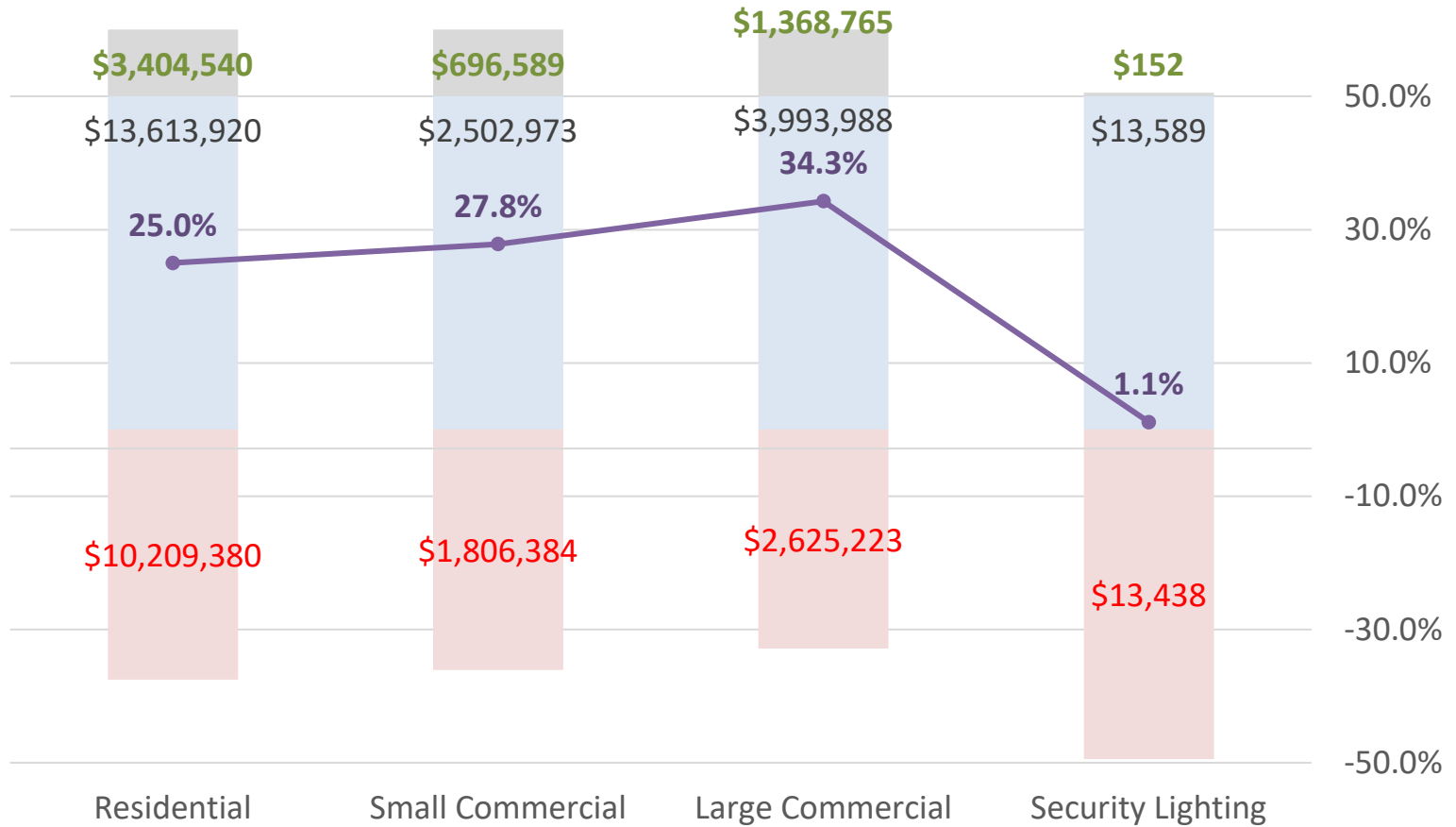
Expense Breakdown by Year (Not Including Non-Operating Income)



Cash Basis Income Statement Summary



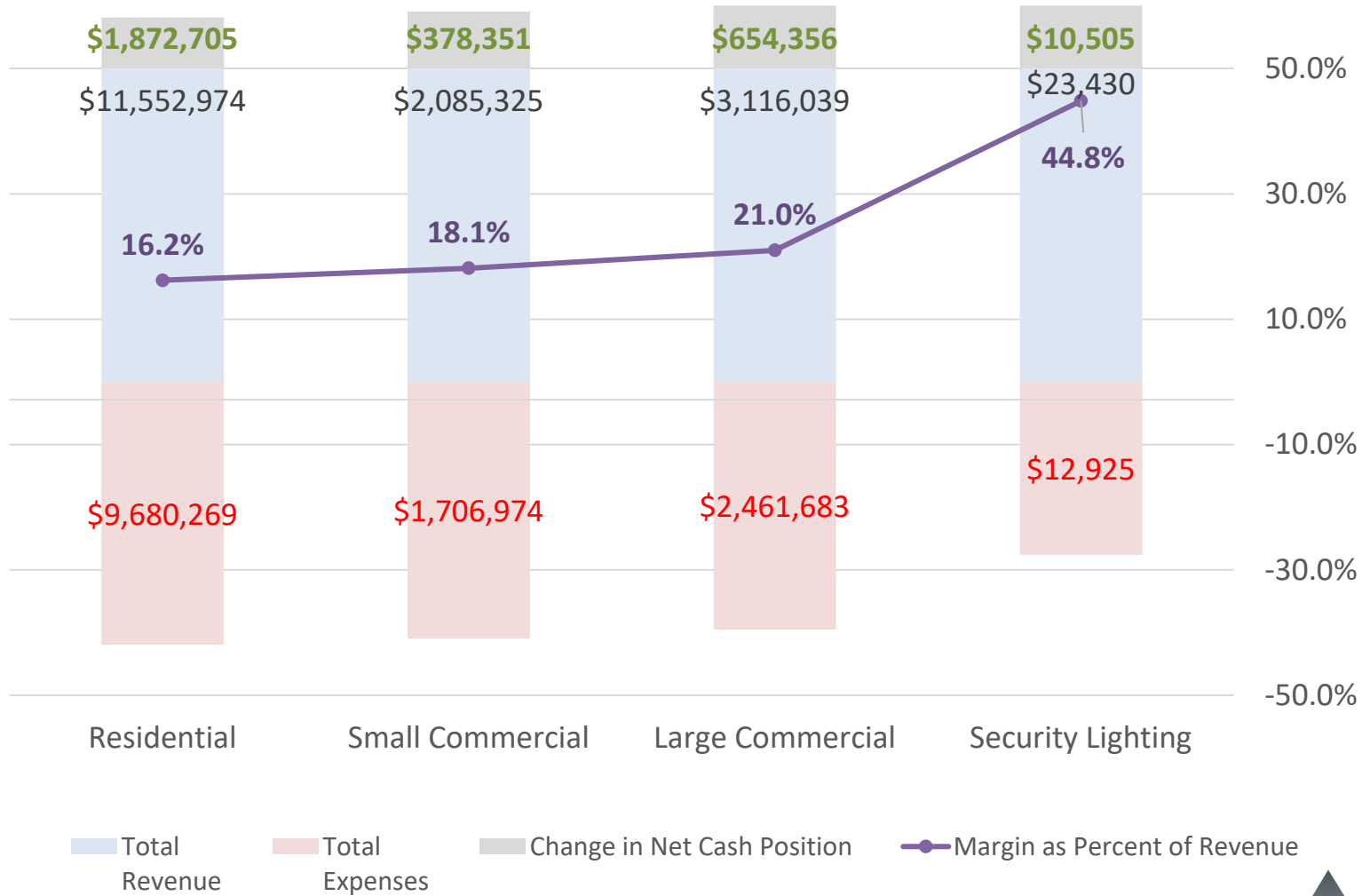
Cost of Service Summary at Present Rates



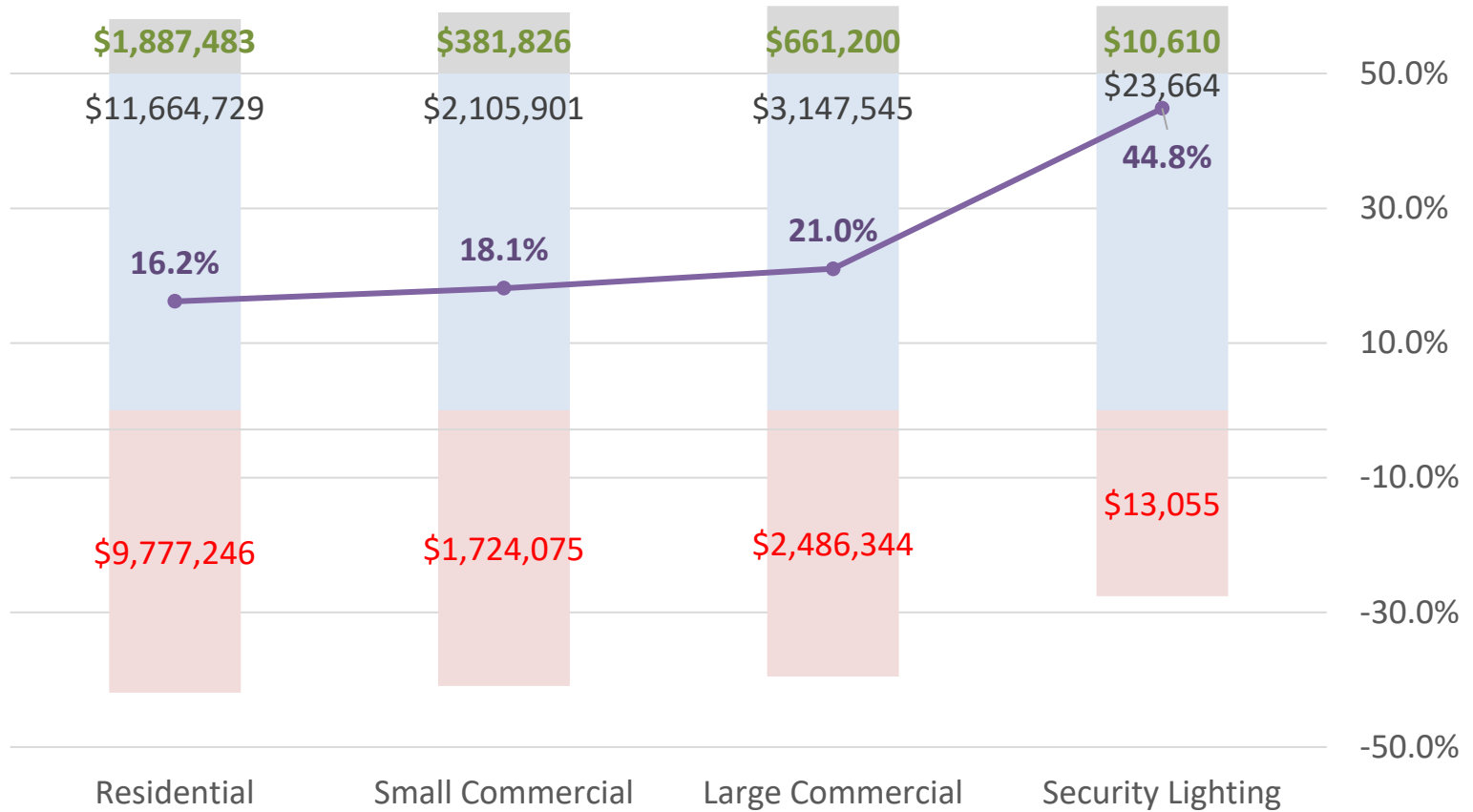
■ Total Revenue
 ■ Total Expenses
 ■ Change in Net Cash Position
 ● Margin as Percent of Revenue



Cost of Service Summary at Proposed 2022 Rates



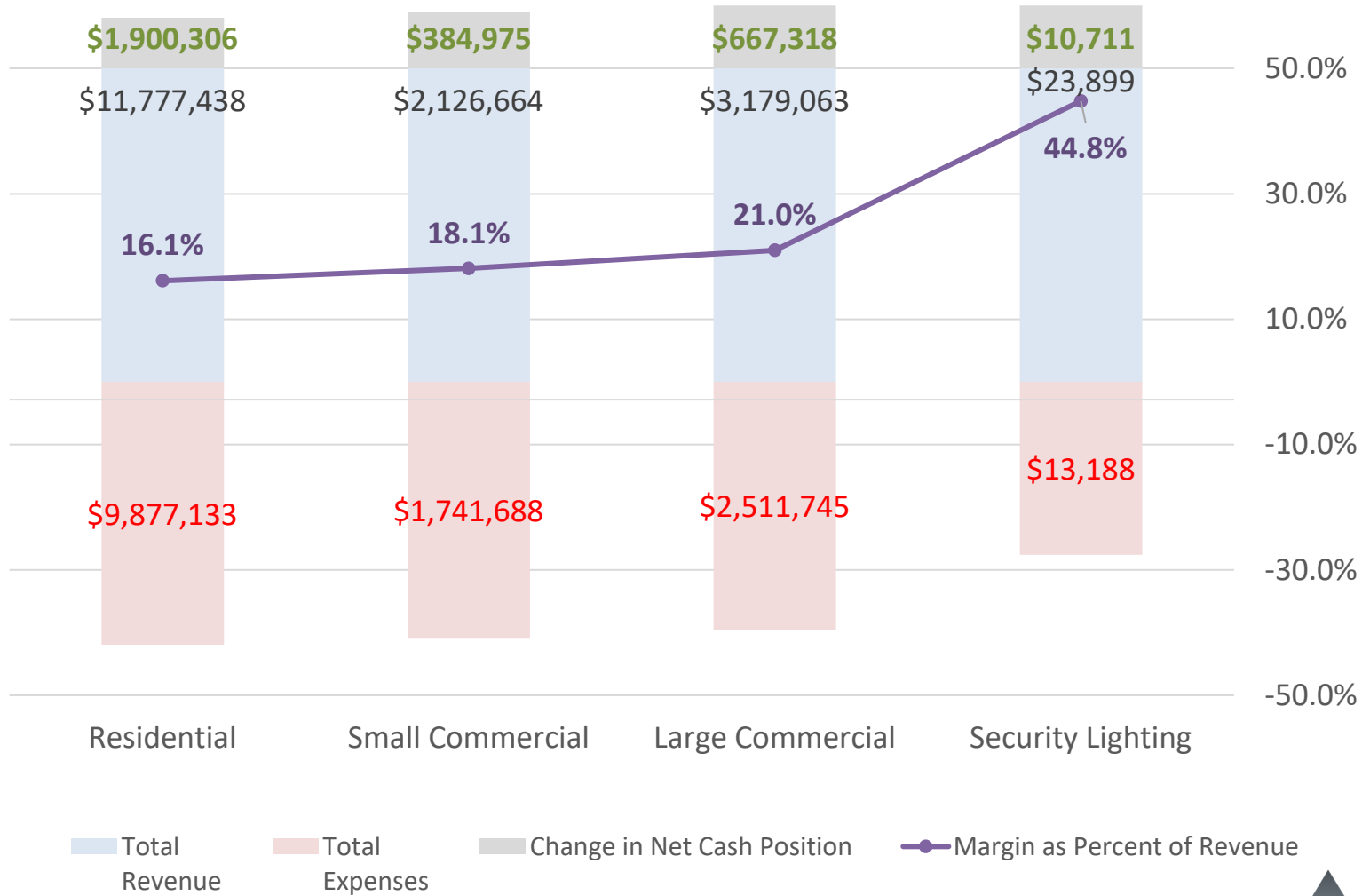
Cost of Service Summary at Proposed 2023 Rates



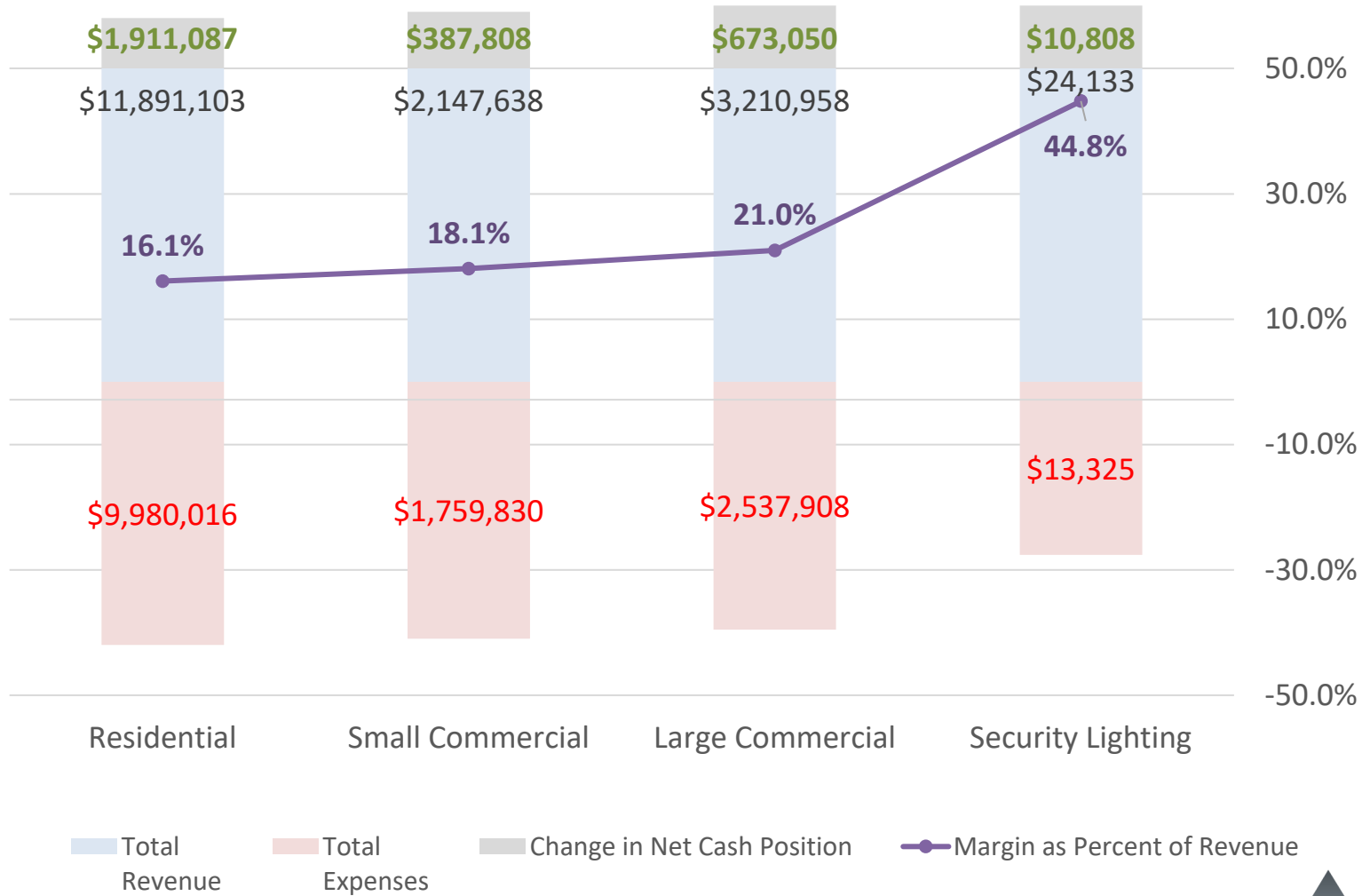
■ Total Revenue
 ■ Total Expenses
 ■ Change in Net Cash Position
 ● Margin as Percent of Revenue



Cost of Service Summary at Proposed 2024 Rates



Cost of Service Summary at Proposed 2025 Rates



Rate Design

- Objective:
 - Develop rates adequate to recover revenue requirements
- How are these accomplished?
 - Review suitability of existing rate form
 - Design cost of service rates
 - Examine impact of cost-of-service rates on individual customers and customer classes
 - Design practical alternative rate structures, if necessary
 - Examine impact of alternative rates



Summary of Existing and Proposed Rates

| Residential | 2021 | 2022 | 2023 | 2024 | 2025 |
|--------------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Service Availability (\$/Mo) | \$10.00 | \$15.00 | \$15.15 | \$15.30 | \$15.45 |
| First 1,000 kWh (\$/kWh) | \$0.12782 | \$0.09937 | \$0.10036 | \$0.10136 | \$0.10237 |
| Excess kWh (\$/kWh) | \$0.12322 | \$0.09937 | \$0.10036 | \$0.10136 | \$0.10237 |
| Small Commercial | | | | | |
| Availability -1Ø Phase (\$/Mo.) | \$10.00 | \$15.00 | \$15.15 | \$15.30 | \$15.45 |
| Availability -3Ø Phase | \$21.00 | \$33.00 | \$33.33 | \$33.66 | \$34.00 |
| First 1,400 kWh (\$/kWh) | \$0.12782 | \$0.09874 | \$0.09973 | \$0.10073 | \$0.10174 |
| Excess kWh (\$/kWh) | \$0.12249 | \$0.09874 | \$0.09973 | \$0.10073 | \$0.10174 |
| Large Commercial (75 to 149 kW) | | | | | |
| Service Availability | \$175.00 | \$200.00 | \$202.00 | \$204.02 | \$206.06 |
| All kW Demand | \$6.50 | \$7.75 | \$7.83 | \$7.91 | \$7.99 |
| All kWh | \$0.09248 | \$0.06755 | \$0.06823 | \$0.06891 | \$0.06960 |



Summary of Existing and Proposed Rates

| Industrial (150 kW and Over) | 2021 | 2022 | 2023 | 2024 | 2025 |
|-----------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Service Availability | \$175.00 | \$200.00 | \$202.00 | \$204.02 | \$206.06 |
| All kW Demand | \$7.75 | \$7.75 | \$7.83 | \$7.91 | \$7.99 |
| All kWh | \$0.08753 | \$0.06260 | \$0.06323 | \$0.06386 | \$0.06450 |
| Primary (300 kW and Above) | | | | | |
| Service Availability | \$600.00 | \$600.00 | \$606.00 | \$612.06 | \$618.18 |
| All kW Demand | \$8.75 | \$7.75 | \$7.83 | \$7.91 | \$7.99 |
| All kWh | \$0.08753 | \$0.06260 | \$0.06323 | \$0.06386 | \$0.06450 |
| Private Outdoor Lighting | | | | | |
| All Lights | \$8.70 | \$15.00 | \$15.15 | \$15.30 | \$15.45 |



Residential Service Billing Comparison

| <u>No. of Bills</u> | <u>Avg. No. of Cust.</u> | <u>kWh Usage</u> | <u>Existing Revenue</u> | <u>Proposed Revenue</u> | <u>Increase Amount</u> | <u>Increase Percent</u> |
|---------------------|--------------------------|------------------|-------------------------|-------------------------|------------------------|-------------------------|
| 11,594 | 966 | 104 | \$23.29 | \$25.33 | \$2.04 | 8.8% |
| 11,594 | 966 | 323 | \$51.29 | \$47.10 | (\$4.19) | -8.2% |
| 11,594 | 966 | 439 | \$66.11 | \$58.62 | (\$7.49) | -11.3% |
| 11,594 | 966 | 539 | \$78.89 | \$68.56 | (\$10.33) | -13.1% |
| 11,594 | 966 | 644 | \$92.32 | \$78.99 | (\$13.32) | -14.4% |
| 11,594 | 966 | 763 | \$107.53 | \$90.82 | (\$16.71) | -15.5% |
| 11,594 | 966 | 910 | \$126.32 | \$105.43 | (\$20.89) | -16.5% |
| 11,594 | 966 | 1,095 | \$149.53 | \$123.81 | (\$25.72) | -17.2% |
| 11,594 | 966 | 1,364 | \$182.67 | \$150.54 | (\$32.13) | -17.6% |
| 11,596 | 966 | 2,034 | \$265.23 | \$217.12 | (\$48.11) | -18.1% |



Small Commercial 1Ø Service Billing Comparison

| <u>No. of Bills</u> | <u>Avg. No. of Cust.</u> | <u>kWh Usage</u> | <u>Existing Revenue</u> | <u>Proposed Revenue</u> | <u>Increase Amount</u> | <u>Increase Percent</u> |
|---------------------|--------------------------|------------------|-------------------------|-------------------------|------------------------|-------------------------|
| 852 | 71 | 14 | \$11.79 | \$16.38 | \$4.59 | 39.0% |
| 852 | 71 | 95 | \$22.14 | \$24.38 | \$2.24 | 10.1% |
| 852 | 71 | 212 | \$37.10 | \$35.93 | (\$1.16) | -3.1% |
| 852 | 71 | 344 | \$53.97 | \$48.97 | (\$5.00) | -9.3% |
| 852 | 71 | 470 | \$70.08 | \$61.41 | (\$8.67) | -12.4% |
| 852 | 71 | 634 | \$91.04 | \$77.60 | (\$13.44) | -14.8% |
| 852 | 71 | 881 | \$122.61 | \$101.99 | (\$20.62) | -16.8% |
| 852 | 71 | 1,264 | \$170.16 | \$139.81 | (\$30.35) | -17.8% |
| 852 | 71 | 2,003 | \$260.68 | \$212.78 | (\$47.90) | -18.4% |
| 848 | 71 | 5,076 | \$637.09 | \$516.20 | (\$120.89) | -19.0% |



Small Commercial 3Ø Service Billing Comparison

| <u>No. of Bills</u> | <u>Avg. No. of Cust.</u> | <u>kWh Usage</u> | <u>Existing Revenue</u> | <u>Proposed Revenue</u> | <u>Increase</u> | |
|---------------------|--------------------------|------------------|-------------------------|-------------------------|-----------------|----------------|
| | | | | | <u>Amount</u> | <u>Percent</u> |
| 247 | 21 | 35 | \$25.47 | \$36.46 | \$10.98 | 43.1% |
| 247 | 21 | 257 | \$53.85 | \$58.38 | \$4.53 | 8.4% |
| 247 | 21 | 603 | \$98.08 | \$92.54 | (\$5.54) | -5.6% |
| 247 | 21 | 1,073 | \$157.76 | \$138.95 | (\$18.81) | -11.9% |
| 247 | 21 | 1,662 | \$229.91 | \$197.11 | (\$32.80) | -14.3% |
| 247 | 21 | 2,392 | \$319.33 | \$269.19 | (\$50.14) | -15.7% |
| 247 | 21 | 3,467 | \$451.00 | \$375.33 | (\$75.67) | -16.8% |
| 247 | 21 | 5,128 | \$654.46 | \$539.34 | (\$115.12) | -17.6% |
| 247 | 21 | 7,881 | \$991.67 | \$811.17 | (\$180.50) | -18.2% |
| 243 | 20 | 15,467 | \$1,920.88 | \$1,560.21 | (\$360.67) | -18.8% |



Energy Cost Adjustment - ECA

- Energy Cost Adjustment or ECA is a formula used to capture potential cost changes realized from wholesale power purchases.
- An ECA does not take into effect increases in other operations.
- An ECA is computed annually and is listed on the billing separately, adjusting the total bill up or down based on changes in wholesale power cost from the previous year.



ECA Example

EXAMPLE: \$0.05397 is the current cost of wholesale power. The next years cost rose to \$0.05512 or a difference of \$0.0012.

$$.05512 - .05397 = .0012$$

$$\text{Kwh used} \times \$0.0012 = \text{Billing Adjustment}$$

So, a customer using 985 kWh for the month the ECA adjustment on the bill would be \$1.18.





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