

Kaysville City Power Board

Rate Study and Recommendations

November 2, 2017



Contents

Background

Rate Making Overview

- Revenue Requirement Makeup
- Cost-to-Serve and Rate Design

Model Results

Recommendations Summary

Next Steps



Mission Statement

“Kaysville City Power and Light’s mission is to safely provide reliable electricity with superior customer service at a competitive price to the residents and businesses in Kaysville City.”

Power Board - Background

February 7, 2017

-First Meeting

June 6, 2017

- Preliminary Rate Model Review

August 1, 2017

- Rate Model Review – Commercial and industrial classes added

October 3, 2017

- Commission approves schedule to submit results to Council and hold public meetings

April 4, 2017

- Mission Statement approved
-Rate-Making Framework Presented

June 27, 2017

-Rate Model Review – Residential Class

September 5, 2017

-Commission approved calculation of residential, commercial, and industrial model results



Rate Making Overview

Step 1

Revenue Requirement

Determine the total amount of expense/cash needs.

- O&M
- + Depreciation
- + Future Capital needs
- + Repayment of debt
- = Total Revenue Requirements



Step 2

Cost-of-Service

Allocate the revenue requirement to specific customer classes (residential, commercial, industrial, etc.)



Step 3

Rate Design

Rates are designed for each customer class to collect that classes portion of the revenue requirement. The sum of the revenue from each class equals the total revenue requirement of the utility.

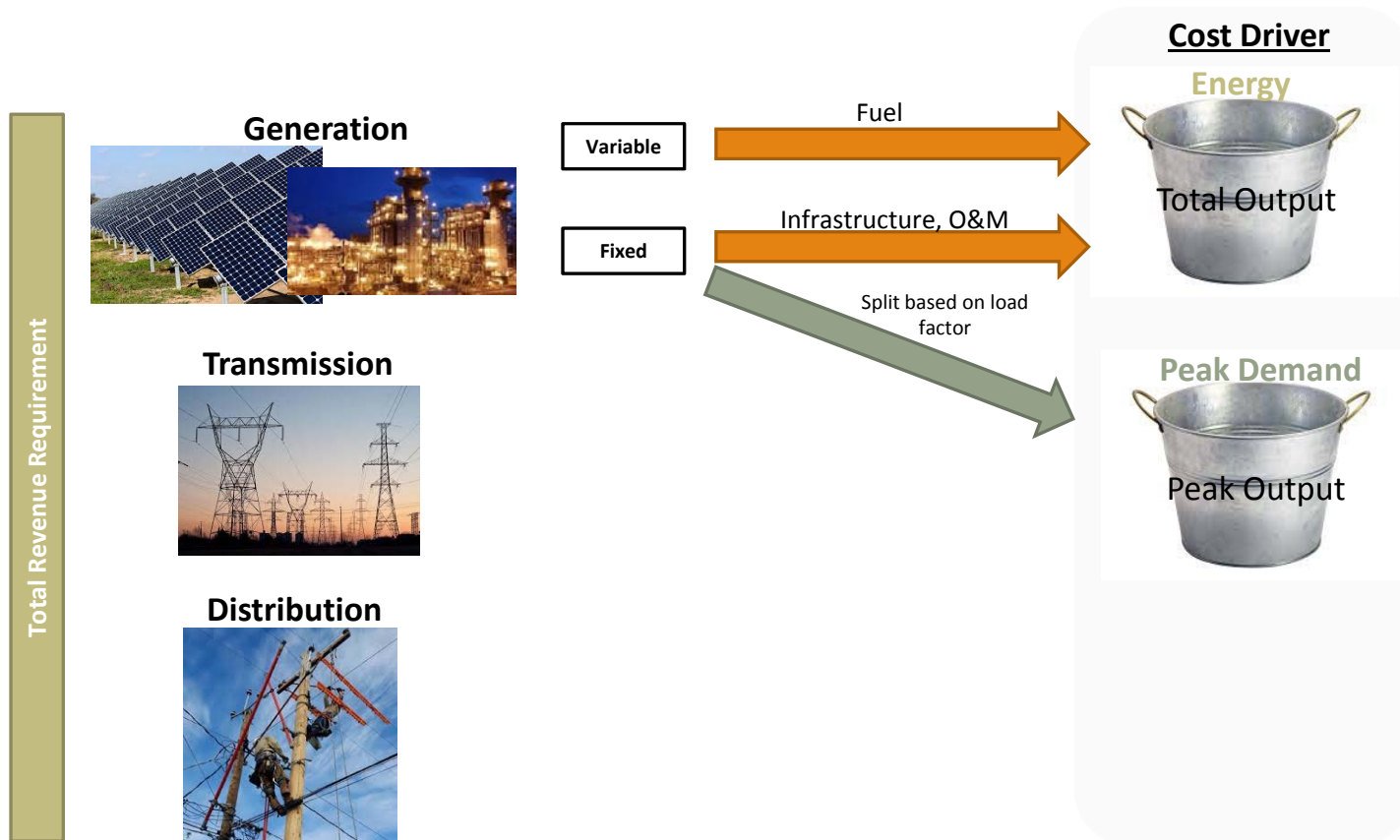


Step 1 – Revenue Requirement Makeup

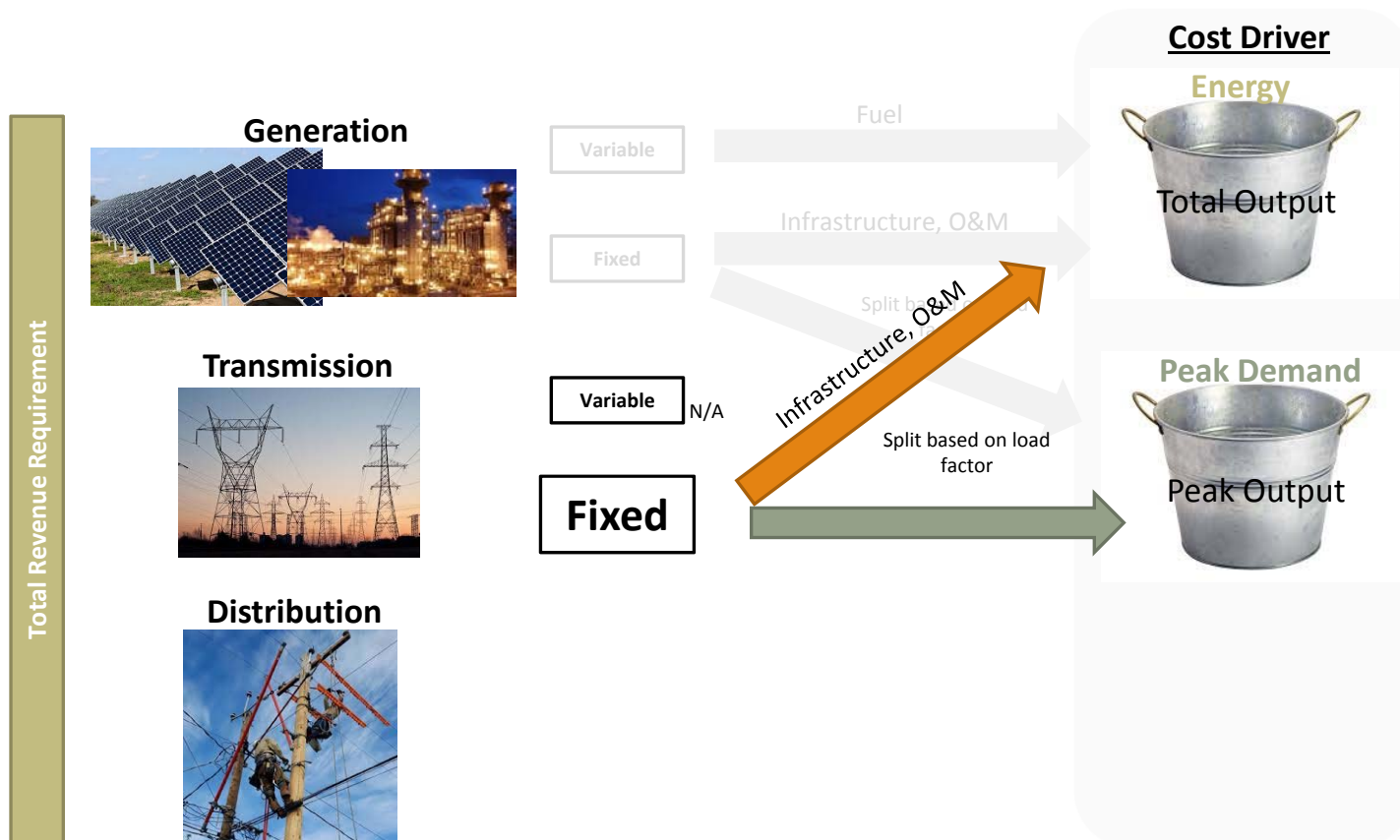


Total Revenue Requirement

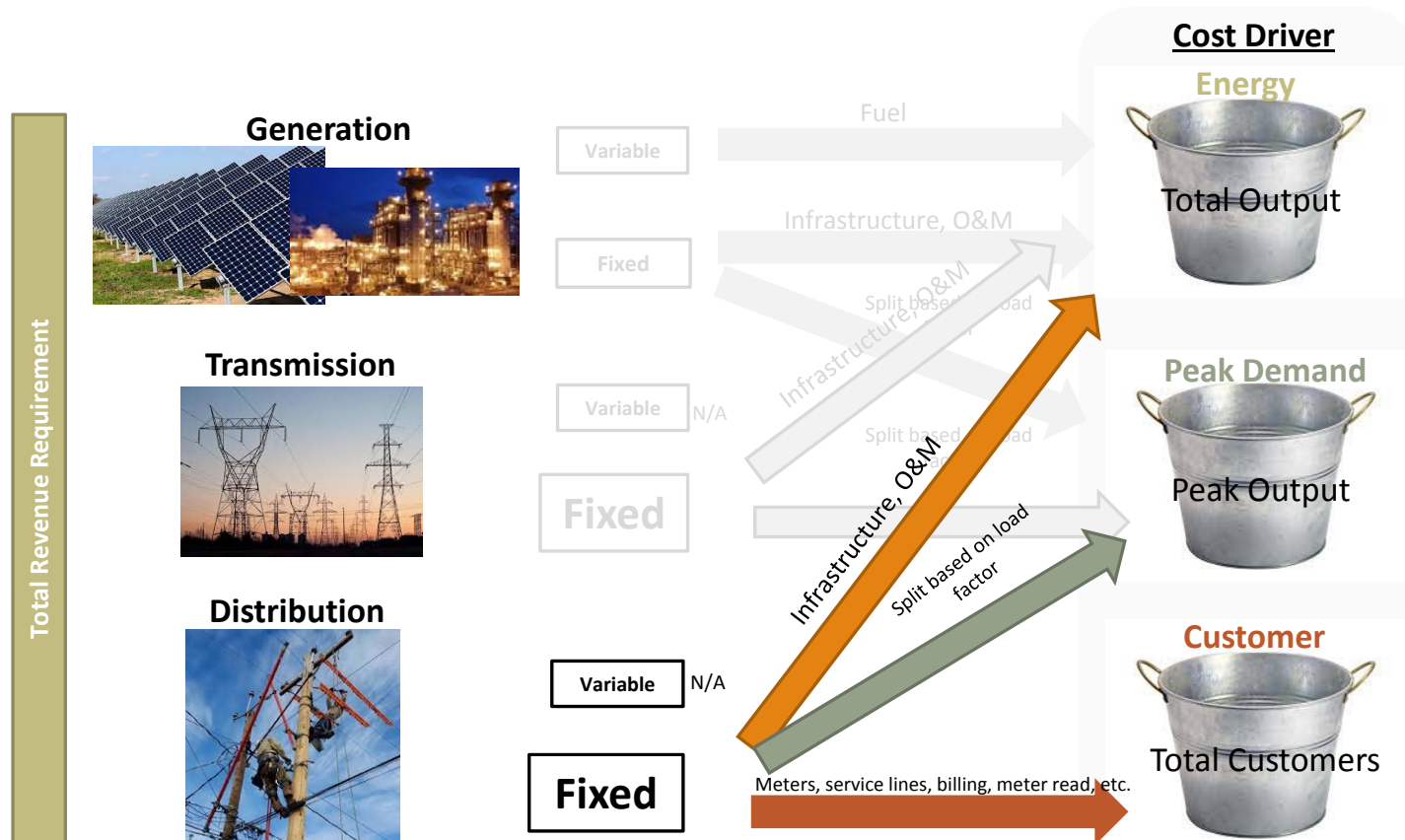
Steps 2 and 3: Cost-to-Serve and Rate Design



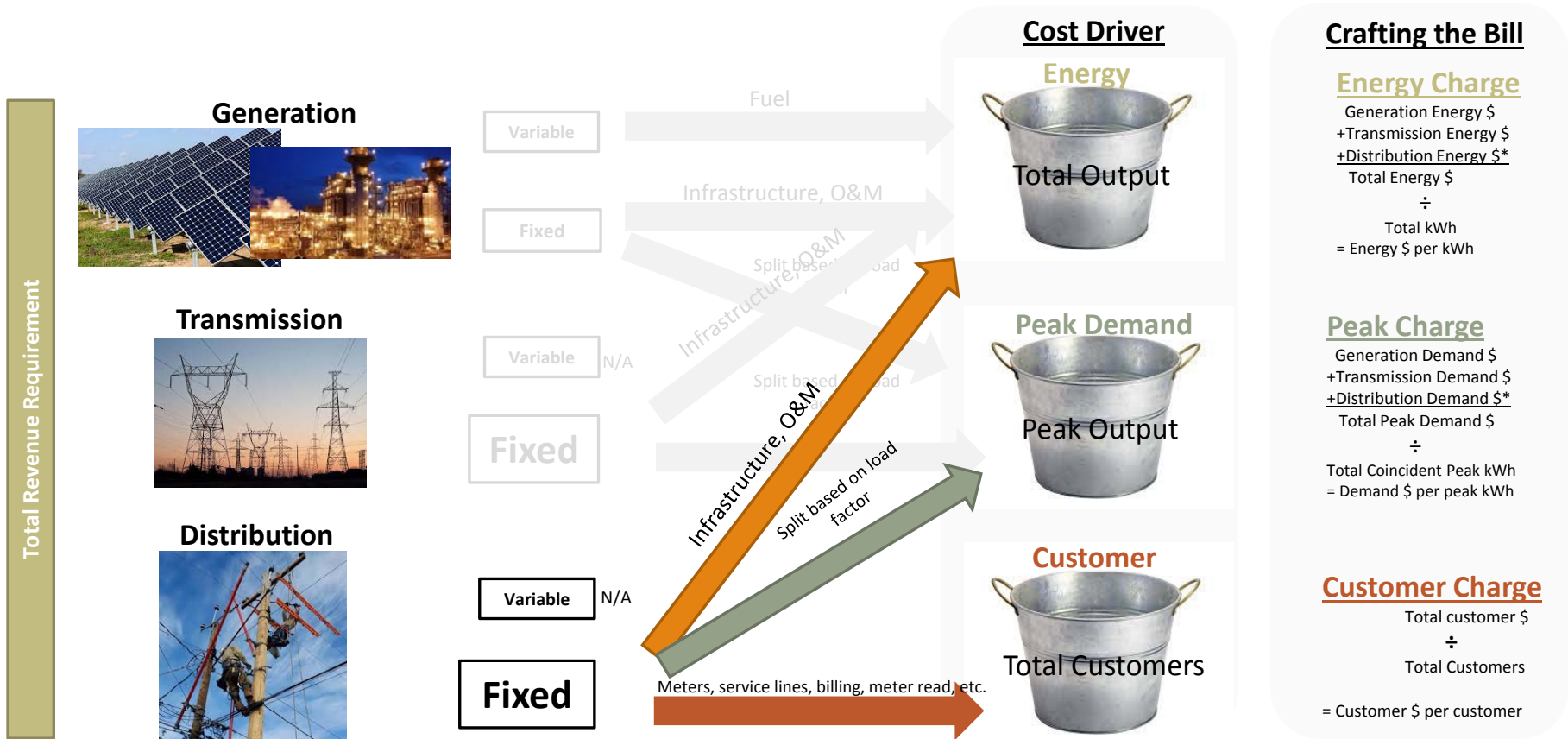
Cost-to-Serve and Rate Design



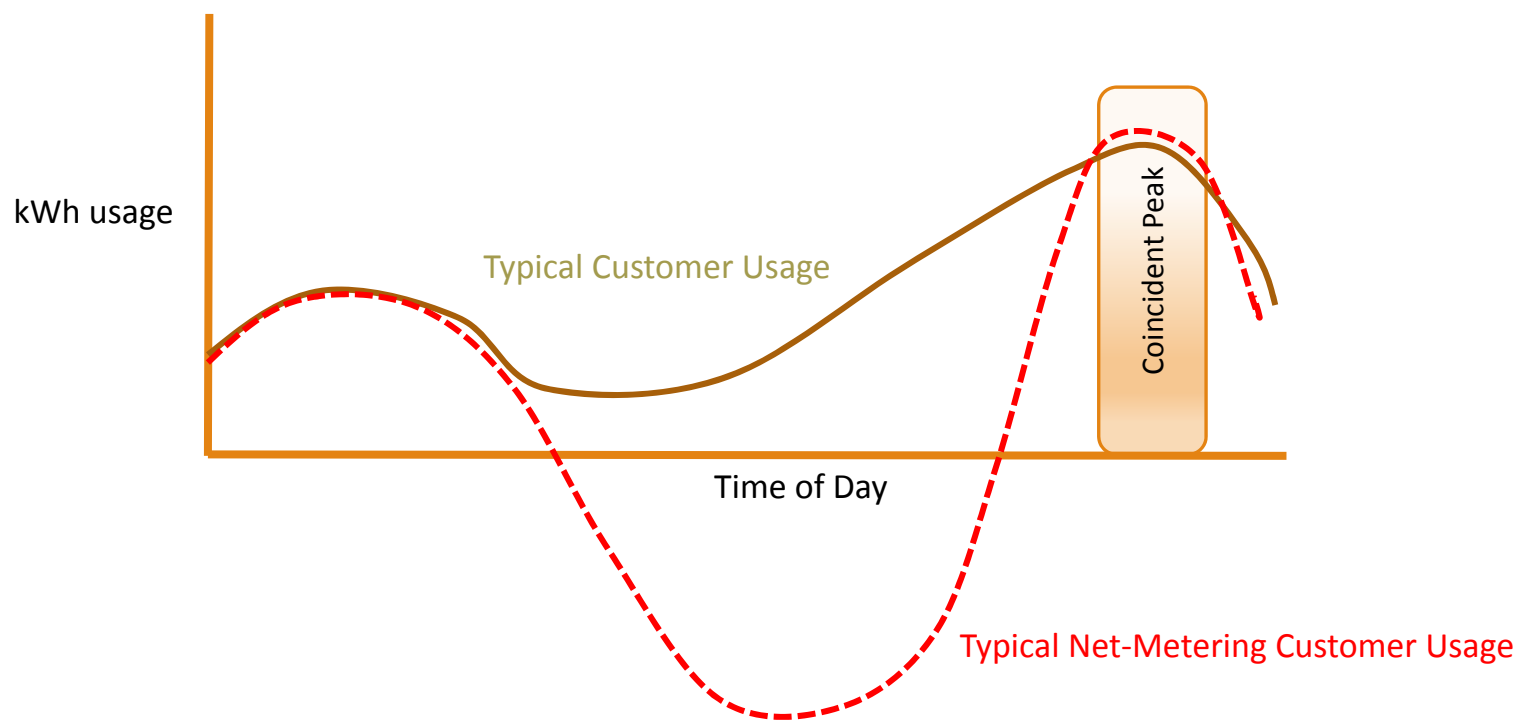
Cost-to-Serve and Rate Design



Cost-to-Serve and Rate Design



Example: Net Metering Cost-to-Serve and Rate Design



Example: Net-Metering Cost-to-Serve and Rate Design

Scenario: Customer offsets total usage while net-metering, but peak usage remains unchanged

Total Revenue Requirement



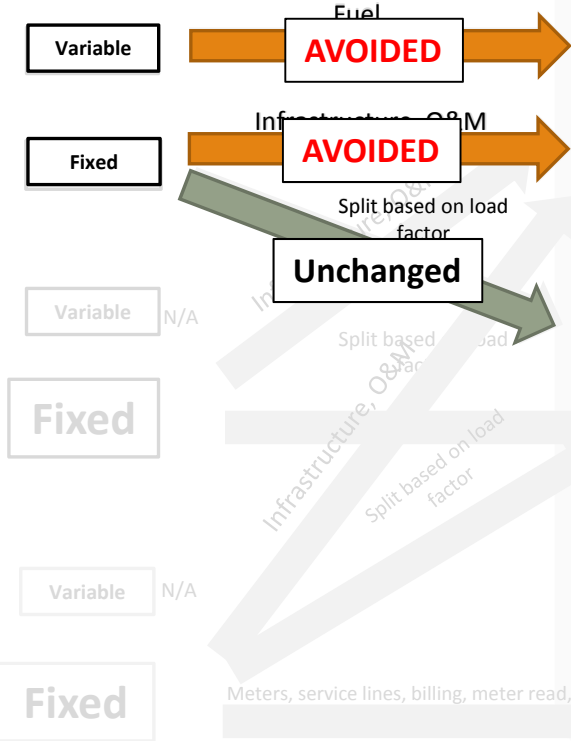
Generation



Transmission



Distribution



Crafting the Bill

Energy Charge

Generation Energy \$
 +Transmission Energy \$
+Distribution Energy \$*
 Total Energy \$

÷

Total kWh
 = Energy \$ per kWh

Peak Charge

Generation Demand \$
 +Transmission Demand \$
+Distribution Demand \$*
 Total Peak Demand \$

÷

Total Coincident Peak kWh
 = Demand \$ per peak kWh

Customer Charge

Total customer \$

÷

Total Customers

= Customer \$ per customer



Example: Net-Metering Cost-to-Serve and Rate Design

Scenario: Customer offsets total usage while net-metering, but peak usage remains unchanged

Total Revenue Requirement



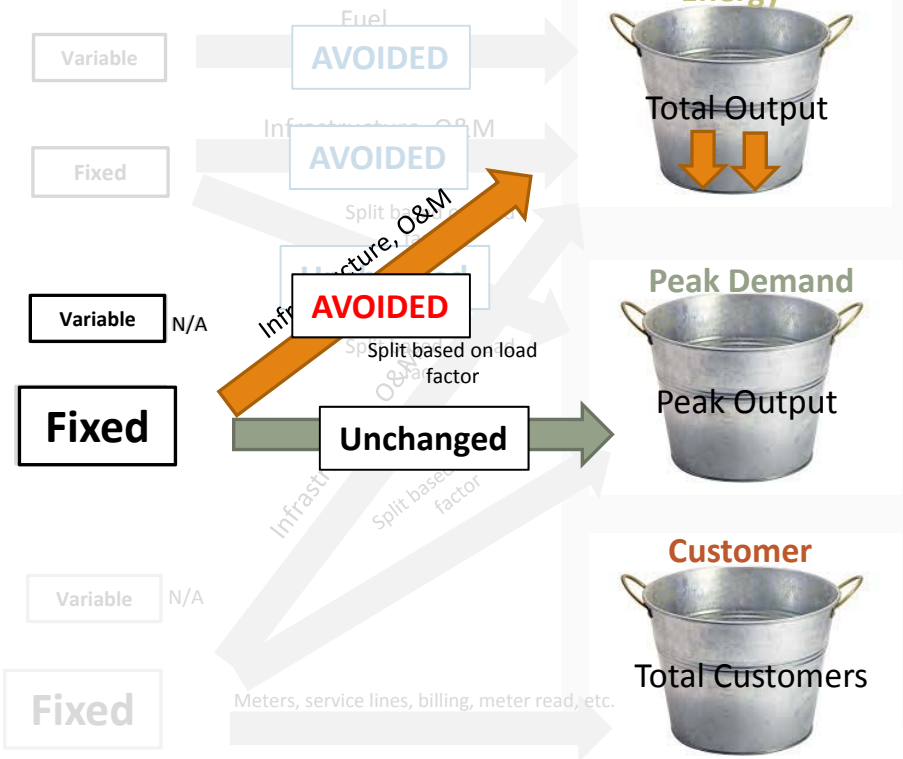
Generation



Transmission



Distribution



Crafting the Bill

Energy Charge

Generation Energy \$
 +Transmission Energy \$
 +Distribution Energy \$*
 Total Energy \$
 ÷
 Total kWh
 = Energy \$ per kWh

Peak Charge

Generation Demand \$
 +Transmission Demand \$
 +Distribution Demand \$*
 Total Peak Demand \$
 ÷
 Total Coincident Peak kWh
 = Demand \$ per peak kWh

Customer Charge

Total customer \$
 ÷
 Total Customers
 = Customer \$ per customer



Example: Net-Metering Cost-to-Serve and Rate Design

Scenario: Customer offsets total usage while net-metering, but peak usage remains unchanged

Total Revenue Requirement



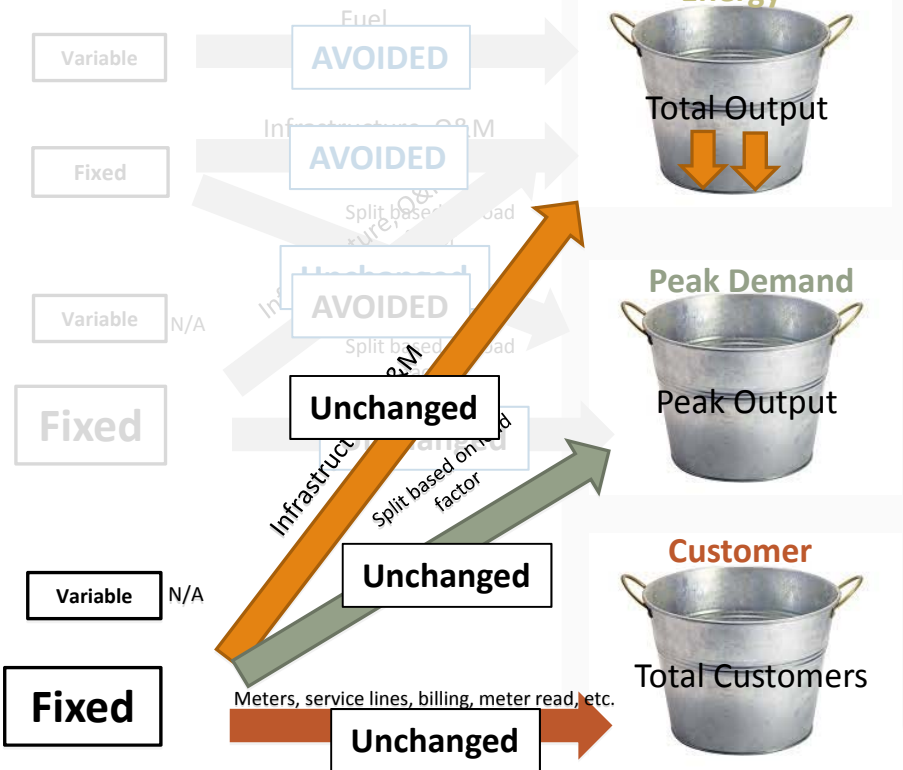
Generation



Transmission



Distribution



Crafting the Bill

Energy Charge

Generation Energy \$
 +Transmission Energy \$
 +Distribution Energy \$*
 Total Energy \$
 ÷
 Total kWh
 = Energy \$ per kWh

Peak Charge

Generation Demand \$
 +Transmission Demand \$
 +Distribution Demand \$*
 Total Peak Demand \$
 ÷
 Total Coincident Peak kWh
 = Demand \$ per peak kWh

Customer Charge

Total customer \$
 ÷
 Total Customers
 = Customer \$ per customer



Study Results – Revenue Requirement

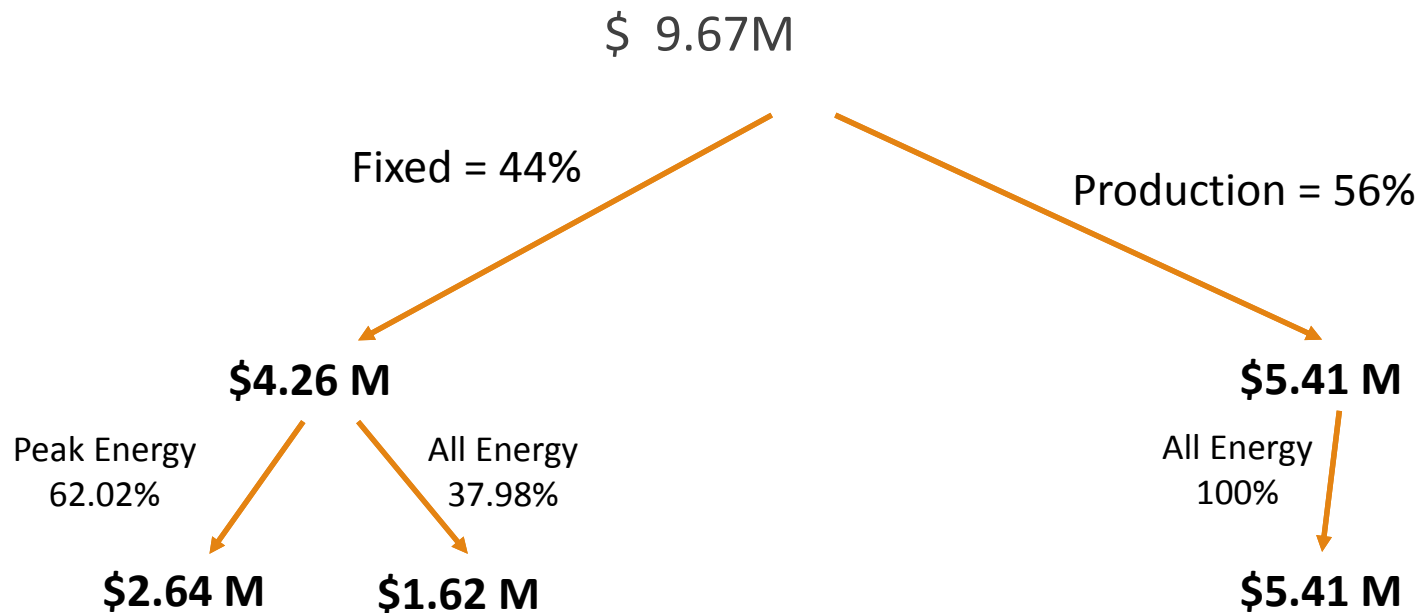
Ongoing operations:	\$14.06M
Long-term Capital Plan:	\$ 0.36M
Cash Reserve Policy	<u>\$ 0.28M</u>
Total Revenue Requirement:	\$14.70M

Functionalized:

Generation and Transmission:	\$ 9.67M
Distribution (KW related):	\$ 3.91M
Distribution (Customer Related):	<u>\$ 1.12M</u>
Total Revenue Requirement:	\$14.70M

Study Results – Cost-of-Service

Generation and Transmission:

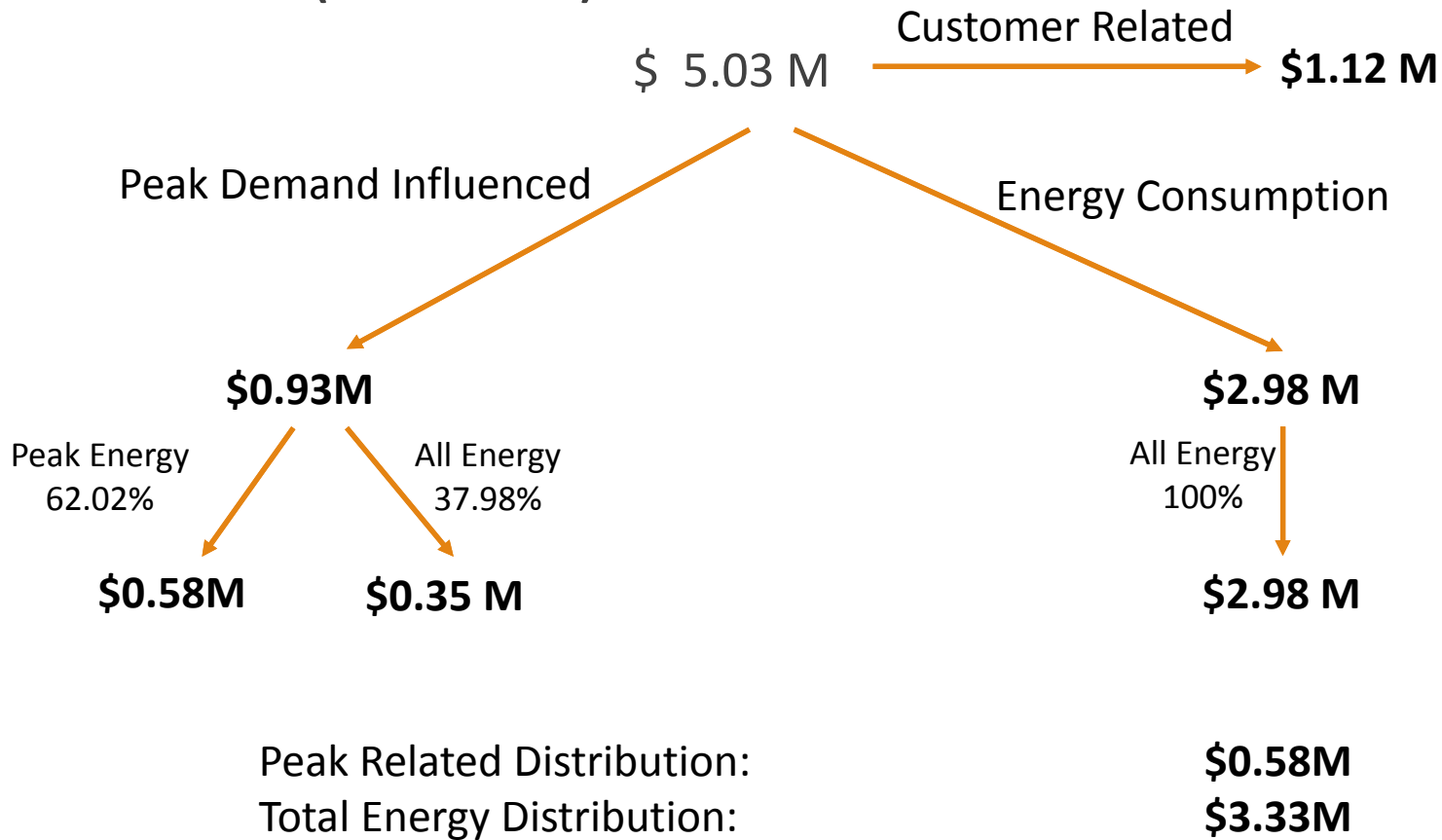


Peak Related Generation and Transmission: **\$2.64M**
Total Energy Generation and Transmission: **\$7.03M**



Study Results – Cost-of-Service

Distribution (KW Related)



Study Results – Cost-of-Service

Distribution (Customer Related) - \$ 1.12 M

- Driven by customer count (not kwh demand)
- Includes items such as meter, service drop, billing, customer service, etc.

Class	Total Cost	Customers
Residential	\$850,337	8,858
Commercial A	\$ 25,509	193
Commercial B	\$ 60,294	387
Commercial C	\$136,821	193
Industrial	\$ 1,080	1

Study Results – Cost-of-Service

Summary

Total Peak Related Costs:	\$ 3.22 M
Total Energy Related Costs:	\$10.40 M
<u>Total Customer Related Costs:</u>	<u>\$ 1.07 M</u>
Total:	\$14.70 M

Allocated to classes based on characteristics such as customer count, peak usage, and total energy usage:

Final Class Cost of Service	<u>Energy</u>	<u>Peak</u>	<u>Customer</u>	<u>Total</u>
Residential	\$6,558,151	\$2,056,121	\$850,337	\$9,464,609
Commercial – A (0-9kw)	\$185,478	\$58,899	\$25,509	\$269,886
Commercial – B (9-38kw)	\$612,890	\$194,052	\$60,294	\$867,236
Commercial – C (>38kw)	\$2,737,910	\$864,678	\$136,821	\$3,739,409
Total Commercial	\$3,536,278	\$1,117,629	\$222,624	\$4,876,531
Industrial	\$147,535	\$46,602	\$1,080	\$195,216
Streetlights	\$145,473			\$145,473
Arealights	\$14,430			\$14,430
Total	\$10,401,866	\$3,220,351	\$1,074,041	\$14,696,259

Study Results – Rate Design

Residential Rate Design – Time-of-Use (when AMI is available)

Total Energy Related Costs:	\$6.56M
<u>Total billed kwh forecast:</u>	<u>97.5M kwh</u>
Total Energy Rate	\$0.06725
Solar Credit (excludes distribution)	\$0.04599
Total Peak Related Costs:	\$3.22M
<u>Total billed peak usage (5pm-9pm):</u>	<u>26.77M kwh</u>
Additional Peak Rate:	\$0.07680
Additional Solar Credit (excludes distribution)	\$0.06300
Customer Charge:	\$8.00

Study Results – Rate Design

Residential Rate Design – Schedule A Proposal (until AMI is available)

Tier 1 Rate (0-1,000 kwh): **\$0.08613**

Tier 2 Rate: (all over 1,000 kwh): **\$0.09717**

Customer Charge: **\$8.00**

\$3.37/month impact (or 4%) on a typical customer

Solar Credit **\$0.06608 (for future customers)**

\$3.93/month decrease (or 5%) in solar credits versus today's solar rate design. The Power Board recommends no changes for current customers until 2033.



Schedule A to Time-of-Use Transition

Little to no change for typical residential customers

- Impact depends on how significantly peak usage varies from “average”
- Example: Higher relative peak use will result in higher bill.

Solar Transition:

Schedule A will apply to customers who install solar panels after proposal becomes effective.

- Current solar customers remain on full net-metering rate until 2033

When time-of-use is implemented, a typical solar customers annual credit for backfed energy will go from \$833/year (approximately 80% of annual bill) to \$659/year (or approximately 62% of annual bill).

The Power Board recommends providing a “bill calculator” tool to provide complete billing transparency during transition.

Study Results – Rate Design

Commercial A (Up to 9kw demand)

Tier 1 rate (0-1000kwh): \$0.08084

Tier 2 rate (1001-9000): \$0.05838

Tier 3 rate (Above 9000): \$0.04260

Customer Charge: \$11.00

No Demand Charge

Results in 3-5% impact on annual bill



Study Results – Rate Design

Commercial B (9kw to 38kw demand)

Tier 1 rate (0-1000kwh): \$0.08084

Tier 2 rate (1001-9000): \$0.05838

Tier 3 rate (Above 9000): \$0.04260

Customer Charge: \$13.00

Demand Charge: \$11.59

Results in 3-5% impact on annual bill



Study Results – Rate Design

Commercial C (Above 38kw demand)

Tier 1 rate (0-1000kwh):	\$0.08084
Tier 2 rate (1001-9000):	\$0.05838
Tier 3 rate (Above 9000):	\$0.04260
Customer Charge:	\$59.00
Demand Charge:	\$11.59 through 2018
◦ Full cost in 2019 (currently \$14.49)	

Results in 3-5% impact on annual bill



Study Results – Rate Design

Industrial class

All KWH:	\$0.03338
Customer Charge:	\$90.00
Power Charge:	\$9.00 through 2018
◦ \$11 in 2019	
◦ Full cost (currently \$13.28) in 2020	

Results in 5% increase in annual bill



Results Summary

New rates for residential, commercial, and industrial customers

Schedule A transition period until time-of-use implemented

Grandfather current solar customers until 2033

All future solar customers subject to schedule A and eventual time-of-use rates.

Provide bill calculation tool for all schedule A customers who will be moved to time-of-use rate design

Looking Forward

The Commission is hosting two open-houses in November regarding the rate study and results for the public to attend.

The Commission proposes the Council consider these recommendations in its December City Council meeting for a January 1, 2018 effective date.



Questions?

