

# EEA RATE STRUCTURE CHANGE QUESTION & ANSWER FORUM

April 8, 2021

RATE CLASSES (WHAT THEY ARE AND WHY WE USE THEM)

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graph TD; A[RATE CLASSES (WHAT THEY ARE AND WHY WE USE THEM)] --> B[RATE DEVELOPMENT AND DESIGN]; B --> C[WHAT IS CHANGING]; C --> D[EXAMPLES];
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RATE DEVELOPMENT AND DESIGN

WHAT IS CHANGING

EXAMPLES

TOPICS

# RATE CLASSES

- ▶ What are they?
- ▶ Why are they needed?
  - ▶ Balance fairness with practicality
    - ▶ Cost causation principle
    - ▶ Total fairness = 17,000 rates!
    - ▶ Easiest way =  $\text{Total Expenses} / \text{Total \# Customers} = \text{Your Bill}$
    - ▶ Compromise by grouping similar services into a manageable number of rate classes

# RATE CLASS EXAMPLE


Substation



● = Residence

▲ = Business

# EEA'S RETAIL RATE CLASSES

- ▶ Residential (R1)
  - ▶ General Service Single-Phase (C1)
  - ▶ General Service Three-Phase (C3)
  - ▶ Irrigation Single-Phase (IR1)
  - ▶ Irrigation Three-Phase (IR3)
  - ▶ Large Power (Primary – LP4, Secondary – LP3)
  - ▶ Transmission Service (TR)
  - ▶ Lighting (Street and Security)
- 

# RATE DEVELOPMENT AND DESIGN

## Goals

1. Fair
2. Adequate Revenue
3. Appropriate Price Signals
4. Understandable

# RATE DEVELOPMENT AND DESIGN

- ▶ Collect Data
  - ▶ Expenses
  - ▶ Energy Use
- ▶ Classify Expenses
- ▶ Allocate Expenses to Rate Classes
- ▶ Identify Billing Determinants
- ▶ Calculate Billing Determinants to Recover Revenue Requirement

Expense Categories	2018 Retail	Cost Classifications							
		Purchased Power		Distribution Demand		Customer		Lighting	
	Total \$\$	%	\$\$	%	\$\$	%	\$\$	%	\$\$
Power Generation	\$3,926			100%	\$3,926				
Purchased Power	\$20,726,440	100%	\$20,726,440						
Transmission	\$77,797			100%	\$77,797				
Distribution Operation	\$2,561,520			41.4%	\$1,059,244	57.4%	\$1,470,797	1.2%	\$31,479
Distribution Maintenance	\$1,841,314			49.4%	\$908,692	49.4%	\$909,642	1.2%	\$22,981
Customer Accounts	\$993,770					100%	\$993,770		
Customer Service	\$496,597					100%	\$496,597		
Administrative and General	\$1,735,576			34.7%	\$602,039	64.4%	\$1,117,080	0.9%	\$16,457
Depreciation and Amortization	\$2,977,096			42.5%	\$1,266,422	56.6%	\$1,683,794	0.9%	\$26,880
Taxes	\$2,599			42.2%	\$1,097	56.9%	\$1,480	0.8%	\$22
<b>Total</b>	<b>\$31,416,635</b>	<b>65.97%</b>	<b>\$20,726,440</b>	<b>12.47%</b>	<b>\$3,919,217</b>	<b>21.24%</b>	<b>\$6,673,158</b>	<b>0.31%</b>	<b>\$97,819</b>
Proforma Labor Adjustments	132,541				42,449		88,327		1,765
Less: Misc. Service Revenues	(297,916)				(294,633)				(3,283)
<b>Total Pro Forma</b>	<b>\$31,251,260</b>	<b>66.32%</b>	<b>\$20,726,440</b>	<b>11.73%</b>	<b>\$3,667,033</b>	<b>21.64%</b>	<b>\$6,761,486</b>	<b>0.31%</b>	<b>\$96,301</b>

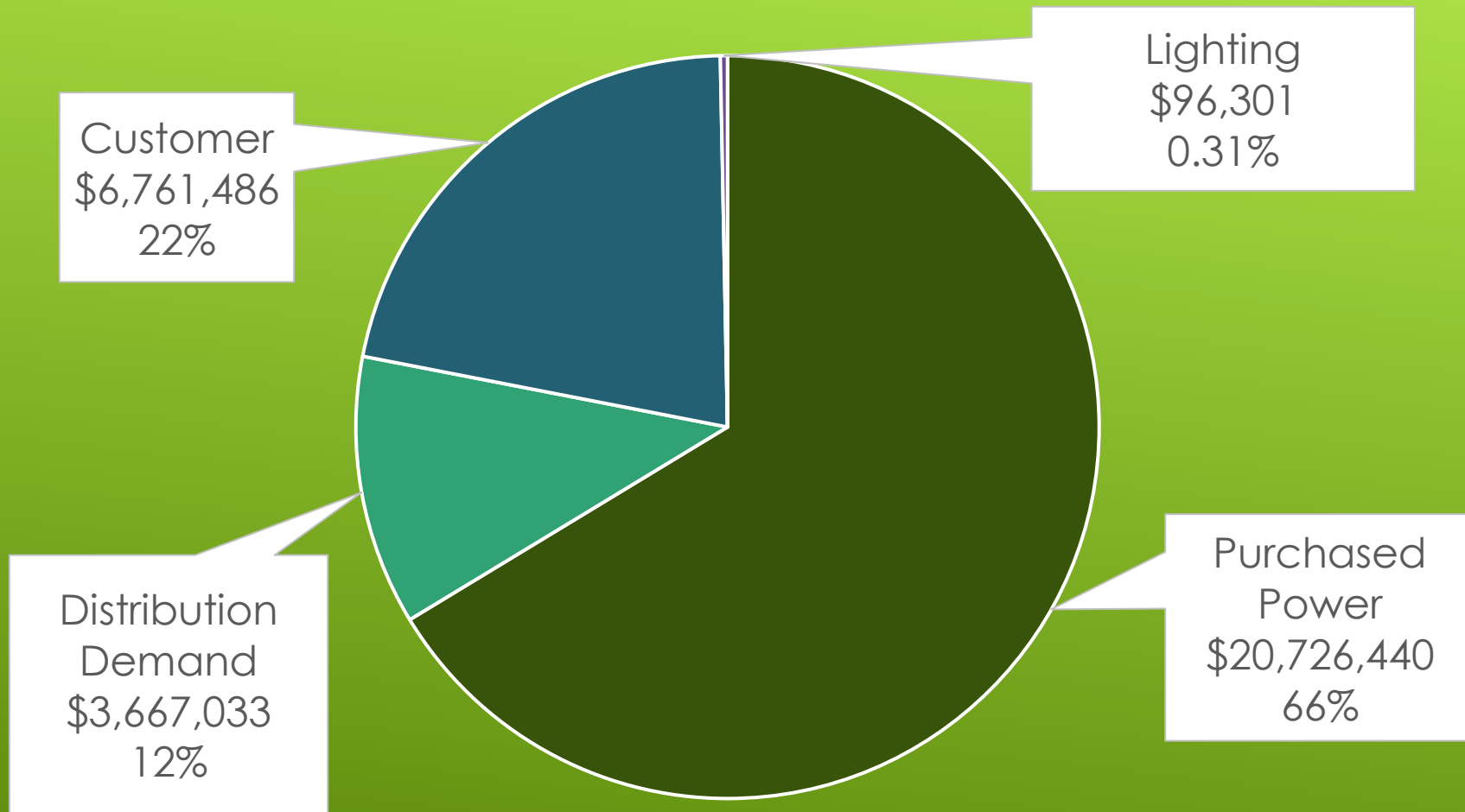


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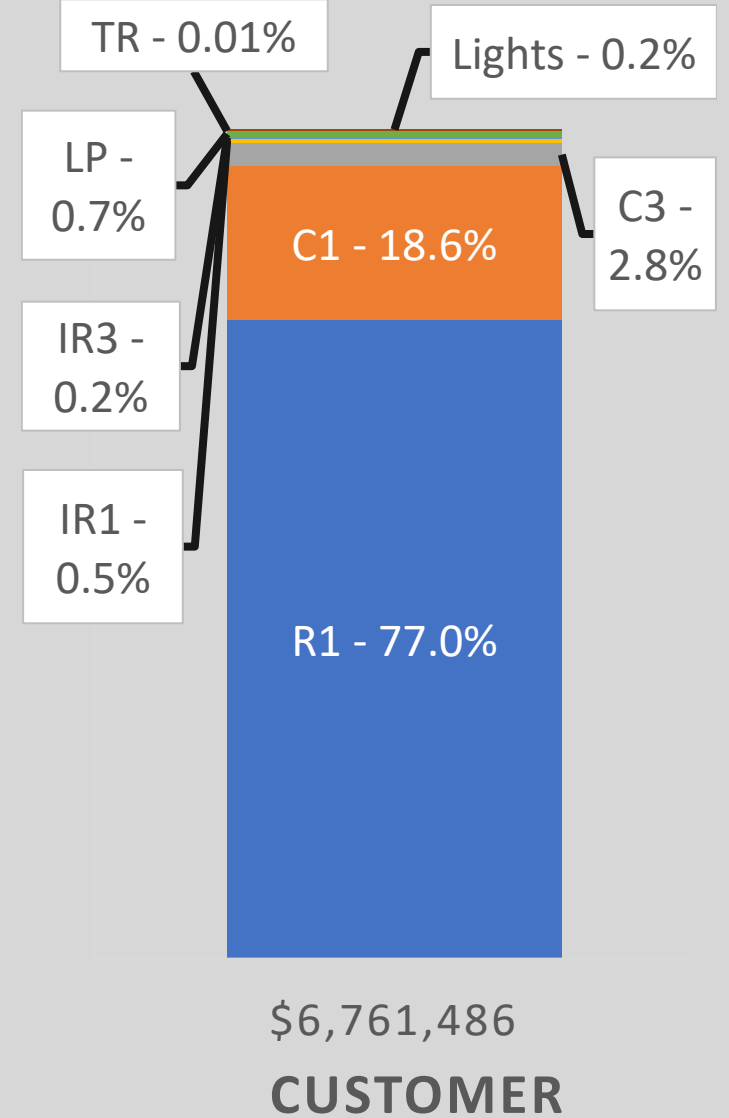
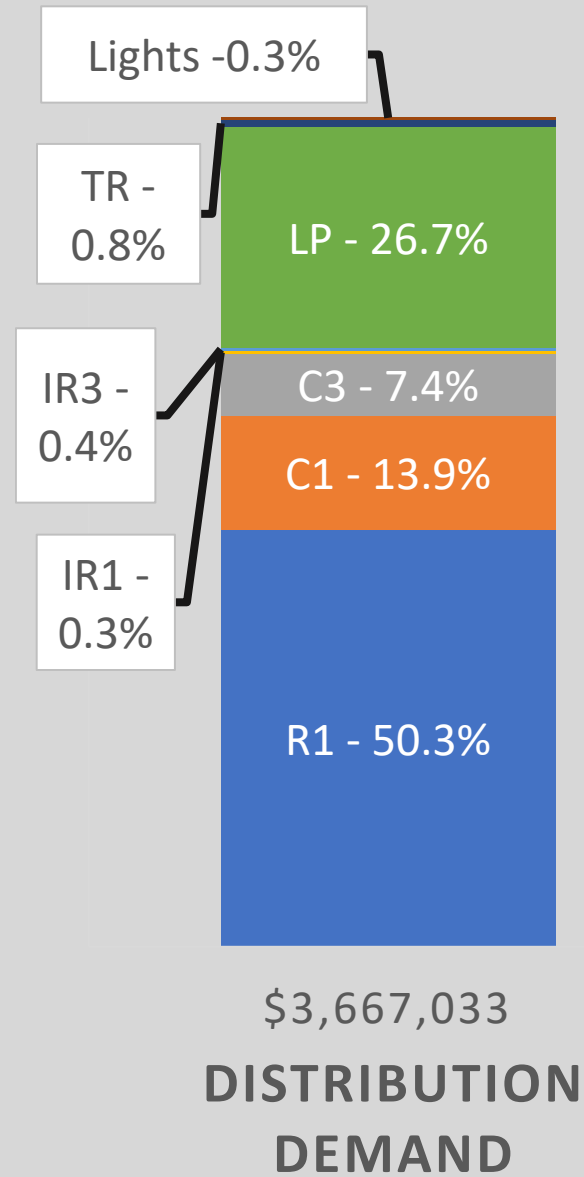
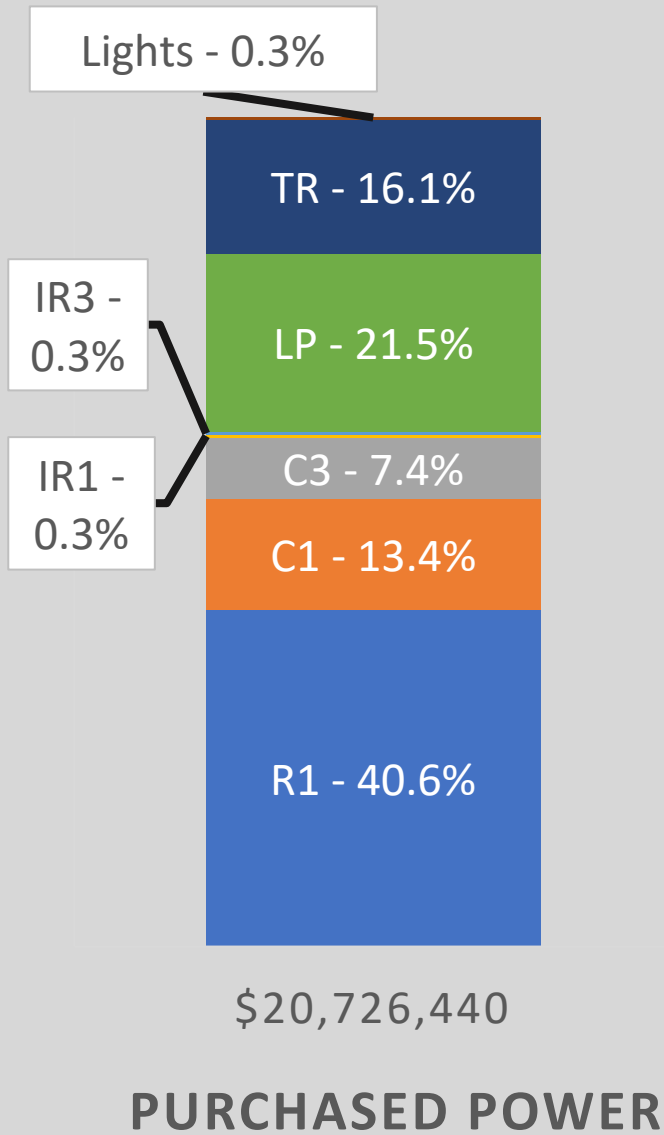
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# CLASSIFY EXPENSES



2018 Pro Forma Retail Expenses = \$31,251,260

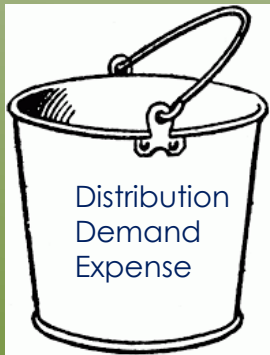
# ALLOCATE EXPENSES TO EACH RATE CLASS - Graphs



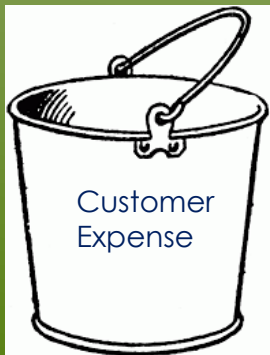
# “BUCKET-OLOGY” AND BILLING DETERMINANTS



$$\frac{\text{Purchased Power Expense} + \text{Distribution Demand Expense}}{\text{Forecast kWh Energy Sales}} = \$/\text{kWh Energy Charge}$$



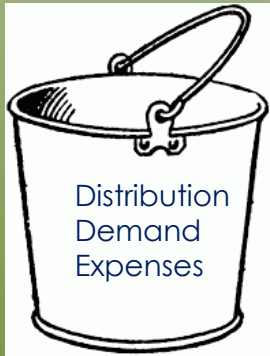
$$\frac{\text{Customer Expense}}{\# \text{ Customers X 12 Months}} = \text{Monthly Charge}$$



# “BUCKET-ODOLOGY” AND BILLING DETERMINANTS



$$\frac{\text{TS On-Peak Energy Expenses} + \text{TS Demand Expenses} + \text{Line Loss}}{\text{Forecast On-Peak kWh Sales}} = \text{\$/kWh On-Peak Energy Charge}$$



$$\frac{\text{TS Off-Peak Energy Expenses} + \text{Line Loss}}{\text{Forecast On-Peak kWh Sales}} = \text{\$/kWh Off-Peak Energy Charge}$$



$$\frac{\text{Distribution Demand Expenses}}{\text{Forecast Max Demand kW}} = \text{\$/kW Max Demand Charge}$$



$$\frac{\text{Customer Expense}}{\text{\# Customers X 12 Months}} = \text{Monthly Charge}$$

Average Usage	
	Qty
GAC	1
kWh	700
PCA	700
Demand	3.25

EEA	
Cost	Total
\$ 32.00	\$ 32.00
\$0.095990	\$ 67.19
\$0.008220	\$ 5.75
\$ -	\$ -
<b>Total Bill</b>	<b>\$ 104.95</b>

LPEA	
Cost	Total
\$ 21.50	\$ 21.50
\$0.125600	\$ 87.92
\$ -	\$ -
\$ 1.50	\$ 4.88
<b>Total Bill</b>	<b>\$ 114.30</b>

SMPA	
Cost	Total
\$ 21.00	\$ 21.00
\$0.134725	\$ 94.31
\$ -	\$ -
\$ -	\$ -
<b>Total Bill</b>	<b>\$ 115.31</b>



Low Usage	
	Qty
GAC	1
kWh	350
PCA	350
Demand	2

EEA	
Cost	Total
\$ 32.00	\$ 32.00
\$0.095990	\$ 33.60
\$0.008220	\$ 2.88
\$ -	\$ -
<b>Total Bill</b>	<b>\$ 68.47</b>

LPEA	
Cost	Total
\$ 21.50	\$ 21.50
\$0.125600	\$ 43.96
\$ -	\$ -
\$ 1.50	\$ 3.00
<b>Total Bill</b>	<b>\$ 68.46</b>

SMPA	
Cost	Total
\$ 21.00	\$ 21.00
\$0.134725	\$ 47.15
\$ -	\$ -
\$ -	\$ -
<b>Total Bill</b>	<b>\$ 68.15</b>

High Usage	
	Qty
GAC	1
kWh	2000
PCA	2000
Demand	6.5

EEA	
Cost	Total
\$ 32.00	\$ 32.00
\$0.095990	\$191.98
\$0.008220	\$ 16.44
\$ -	\$ -
<b>Total Bill</b>	<b>\$ 240.42</b>

LPEA	
Cost	Total
\$ 21.50	\$ 21.50
\$0.125600	\$251.20
\$ -	\$ -
\$ 1.50	\$ 9.75
<b>Total Bill</b>	<b>\$ 282.45</b>

SMPA	
Cost	Total
\$ 21.00	\$ 21.00
\$0.134725	\$269.45
\$ -	\$ -
\$ -	\$ -
<b>Total Bill</b>	<b>\$ 290.45</b>

# DEFINITIONS

## ▶ Time of Use Rate

- ▶ Energy use over time
- ▶ Measured in kilowatt hours (kWh)
- ▶ On-Peak versus Off-Peak Energy
  - ▶ On-peak will be 12:00 Noon to 10:00 PM Monday through Saturday
  - ▶ This matches the Tri-State peak period for EEA

## ▶ Demand Charge

- ▶ Energy use without the time component
- ▶ Measured in kilowatts (kW)
- ▶ Peak versus Maximum Demand
  - ▶ Peak is the member's contribution to EEA's peak demand on Tri-State's system
  - ▶ Maximum is the member's highest 15-minute average demand on EEA's system during the billing period

# WHAT IS CHANGING

## Current Residential Rate

- Grid Access Charge  
\$32.00
- Energy Charge  
\$0.09599/kWh
- Power Cost Adjustment  
\$0.00822/kWh


## TOU Demand Residential Rate

- ▶ Grid Access Charge  
\$32.00
- ▶ On-Peak Energy Charge  
\$0.15115/kWh
- ▶ Off-Peak Energy Charge  
\$0.04428/kWh
- ▶ Demand Charge  
\$2.74/kW
- ▶ Power Cost Adjustment  
\$0.00/kWh

## All Energy Residential Rate

- ▶ Grid Access Charge  
\$38.00
- ▶ Energy Charge  
\$0.09599/kWh
- ▶ Power Cost Adjustment  
\$0.00822/kWh

# HOW MIGHT IT CHANGE MY BILL?

- ▶ What are the major electric appliances in your home?
  - ▶ When do you use power?
  - ▶ Do you “multi-task”?
  - ▶ Most members will see less than a \$10/month increase or decrease
- 

# HOW MUCH DEMAND DOES AN APPLIANCE CREATE?



Hot Water Heater  
3.8 - 6 kW



4 ft base board heater 0.8 kW  
8 ft base board heater 1.6 kW



Microwave  
0.8 - 1.6 kW



Gas Forced Air Furnace Fan  
0.4 - 0.8 kW



Range 5 - 7.5 kW



Electric Dryer  
3.8 - 5.5 kW



TV 0.3 kW

# AVERAGE LOAD FACTOR EXAMPLE

## Current Residential Rate

▶ Grid Access Charge	\$32.00
▶ 600 kWh @ \$0.09599/kWh	\$57.59
▶ PCA 600 kWh @ \$0.00822/kWh	\$4.93
▶ Total	\$94.52

Increase \$0.19 or 0.2%

## TOU Demand Residential Rate

▶ Grid Access Charge	\$32.00
▶ On-Peak 210 kWh@ \$0.15115/kWh	\$31.74
▶ Off-Peak 390 kWh@ \$0.04428/kWh	\$17.27
▶ Demand 5 kW@ \$2.74/kW	\$13.70
▶ Power Cost Adjustment	\$0.00
▶ Total	\$94.71

# LOW LOAD FACTOR EXAMPLE

## Current Residential Rate

▶ Grid Access Charge	\$32.00
▶ 300 kWh @ \$0.09599/kWh	\$28.80
▶ PCA 300 kWh @ \$0.00822/kWh	\$2.47
▶ Total	\$63.27

## TOU Demand Residential Rate

▶ Grid Access Charge	\$32.00
▶ On-Peak 105 kWh@ \$0.15115/kWh	\$15.87
▶ Off-Peak 195 kWh@ \$0.04428/kWh	\$8.63
▶ Demand 4 kW@ \$2.74/kW	\$10.96
▶ Power Cost Adjustment	\$0.00
▶ Total	\$67.46

Increase of \$4.19 or 6.6%



# HIGH LOAD FACTOR EXAMPLE

## Current Residential Rate

▶ Grid Access Charge	\$32.00
▶ 2200 kWh@\$0.09599/kWh	\$211.18
▶ PCA 2200 kWh@ \$0.00822/kWh	\$18.08
▶ Total	\$261.26

## TOU Demand Residential Rate

▶ Grid Access Charge	\$32.00
▶ On-Peak 770 kWh@ \$0.15115/kWh	\$116.39
▶ Off-Peak 1430 kWh@ \$0.04428/kWh	\$63.32
▶ Demand 10 kW@ \$2.74/kW	\$27.40
▶ Power Cost Adjustment	\$0.00
▶ Total	\$239.11

Decrease of \$22.15 or 8.5%

# NET METERING EXAMPLE

## Current Residential Rate


▶ Grid Access Charge	\$32.00
▶ 0 kWh@\$0.09599/kWh	\$0.00
▶ PCA 0 kWh@ \$0.00822/kWh	\$0.00
▶ Total	\$32.00

## TOU Demand Residential Rate

▶ Grid Access Charge	\$32.00
▶ On-Peak 0 kWh@ \$0.15115/kWh	\$0.00
▶ Off-Peak 0 kWh@ \$0.04428/kWh	\$0.00
▶ Demand 5 kW@ \$2.74/kW	\$13.70
▶ Power Cost Adjustment	\$0.00
▶ Total	\$45.70

Increase of \$13.70 or 42.8%

# WHAT'S A MEMBER TO DO?

- ▶ Think about when you use power and if you can change to more off-peak use
  - ▶ Think about how many large appliances you use at the same time and if you can spread those tasks out
  - ▶ Think about how to conserve and be more efficient
  - ▶ Most members will have an option to choose an “all energy” rate but it will have a higher Grid Access Charge
- 

# AVERAGE LOAD FACTOR USING 10% LESS ON-PEAK (60 KWH LESS) EXAMPLE

## Current Residential Rate

▶ Grid Access Charge	\$32.00
▶ 600 kWh @ \$0.09599/kWh	\$57.59
▶ PCA 600 kWh @ \$0.00822/kWh	\$4.93
▶ Total	\$94.52


**35% On-Peak use was an Increase \$0.19 or 0.2%**

25% On-Peak use is a Decrease of \$6.22 or 6.6%

## TOU Demand Residential Rate

▶ Grid Access Charge	\$32.00
▶ On-Peak 150 kWh@ \$0.15115/kWh	\$22.67
▶ Off-Peak 450 kWh@ \$0.04428/kWh	\$19.93
▶ Demand 5 kW@ \$2.74/kW	\$13.70
▶ Power Cost Adjustment	\$0.00
▶ Total	\$88.30

# WHERE DO WE GO FROM HERE?

- ▶ You will start seeing TOU usage on your bill soon
  - ▶ We will provide tools to help you decide what rate is best
  - ▶ The default rate is the TOU Demand rate. You will be allowed to choose the All Energy Rate in July and August if you desire.
  - ▶ You will have a second chance!
- 

THANK YOUR FOR COMING!

Andy Carter (970) 564-4489 [andy.carter@eea.coop](mailto:andy.carter@eea.coop)

A decorative graphic consisting of several parallel white lines of varying lengths, slanted upwards from left to right, located in the bottom right corner of the slide.