



**[ The Business of Utilities ]**

APPA Institute for Facilities Management

Jeff Zumwalt

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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**[ Overview ]**

- Example of how utility companies make money
- Review a sample utility bill and tariff
- Discuss strategies to reduce utility expenses

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## [ Revenue ]

- **Rate base** – amount invested in the “system” by utility company
- **Rate of return** – the percentage the utility company earns on the rate base



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## [ Expenses ]

- **Variable expenses** – fuel, maintenance, chemicals, etc.
- **Fixed expenses** – debt service, rent, insurance, dues, etc.



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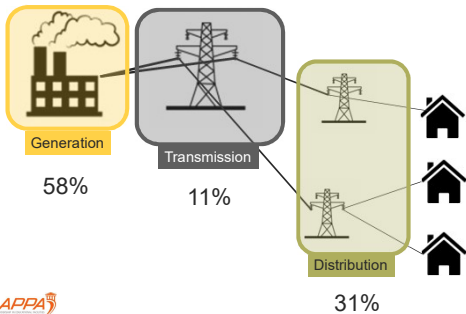
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## [ Cost Breakdown ]



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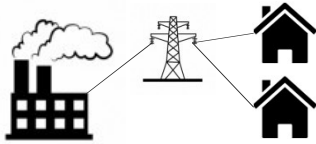
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# [ APPA Electric Co. ]



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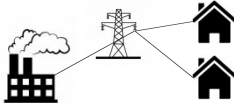
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# [ APPA Electric Co. ]

- Rate base: \$100M
- 10% Rate of return: \$10M
  - Variable expenses: \$8M
  - Total Cost Recovery: \$18M



Each Campus  
 Demand = 300,000 kW  
 On-Peak Energy = 25,000,000 kWh  
 Off-Peak Energy = 30,000,000 kWh



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# [ Electric Bill – each campus ]



Facilities Management  
 721 Main Street  
 Orlando, FL

Rate	5A
Service Charge	\$2,000,000
Demand Charge @ \$10/kW	\$3,000,000

Energy Charge	
On-Peak Energy Charge @ \$0.10/kWh	\$2,500,000
Off-Peak Energy Charge @ \$0.05/kWh	\$1,500,000

Total	\$9,000,000
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# [ Electric Bill – each campus ]

<b>APPA</b>		Facilities Management 721 Main Street Orlando, FL	<p>The Service and Demand Charges recover the fixed costs of providing service to this customer class</p>
Rate	5A		
Service Charge	\$2,000,000		
Demand Charge @ \$10/kW	\$3,000,000		
<b>Energy Charge</b>			
On-Peak Energy Charge @ \$0.10/kWh	\$2,500,000		
Off-Peak Energy Charge @ \$0.05/kWh	\$1,500,000		
<b>Total</b>	<b>\$9,000,000</b>		

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# [ APPA Electric Co. ]

Rate base: \$100M

- 10% Rate of return: \$10M
- Variable expenses: \$8M
- Total Cost Recovery: \$18M

Customer Bills

- Fixed revenue: \$10M

Each Campus  
Demand = 300,000 kW  
On-Peak Energy = 25,000,000 kWh  
Off-Peak Energy = 30,000,000 kWh

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# [ Electric Bill – each campus ]

<b>APPA</b>		Facilities Management 721 Main Street Orlando, FL	<p>Energy Charges recover the variable costs – the cost to make the power</p>
Rate	5A		
Service Charge	\$2,000,000		
Demand Charge	\$3,000,000		
<b>Energy Charge</b>			
On-Peak Energy Charge @ \$0.10/kWh	\$2,500,000		
Off-Peak Energy Charge @ \$0.05/kWh	\$1,500,000		
<b>Total</b>	<b>\$9,000,000</b>		

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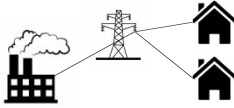
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# Ideal Rate Structure

Rate base: \$100M

- 10% Rate of return: \$10M
- Variable expenses: \$8M
- Total Cost Recovery: \$18M



Customer Bills

- Fixed revenue: \$10M
- Variable revenue: \$8M
- Total Revenue: \$18M

Each Campus  
Demand = 300,000 kW  
On-Peak Energy = 25,000,000 kWh  
Off-Peak Energy = 30,000,000 kWh




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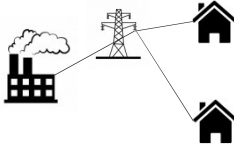
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# Ideal Rate Structure

Rate base: \$100M

- 10% Rate of return: \$10M
- Variable expenses: \$8M
- Total Cost Recovery: \$18M



Customer Bills

- Fixed revenue: \$10M
- Variable revenue: \$8M
- Total Revenue: \$18M

- Revenue: \$18M
- Operating expenses: (\$8M)
- Interest expense: (\$4M)
- Company Profit: \$6M




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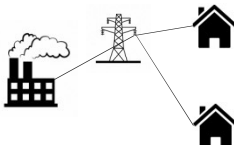
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# Typical Rate Structure

Rate base: \$100M

- 10% Rate of return: \$10M
- Variable expenses: \$8M
- Total Cost Recovery: \$18M



Customers Bills

- Fixed revenue: \$8M
- Variable revenue: \$10M
- Total Revenue: \$18M

- Revenue: \$18M
- Operating expenses: (\$8M)
- Interest expense: (\$4M)
- Company Profit: \$6M

Each Campus  
Demand = 300,000 kW  
On-Peak Energy = 25,000,000 kWh  
Off-Peak Energy = 30,000,000 kWh



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# [ Typical Electric Bill ]

		Facilities Management 721 Main Street Orlando, FL
Rate	5A	
Service Charge		\$1,000,000
Demand 300,000 kW @ \$10/kW		\$3,000,000
Energy Charge		
On-Peak 25,000,000 kWh @ \$0.120/kWh		\$3,000,000
Off-Peak 30,000,000 kWh @ \$0.0667/kWh		\$2,000,000
Total		\$9,000,000

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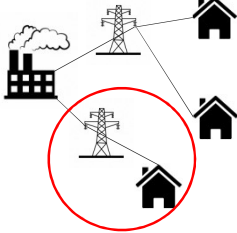
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# [ New Customer ]

Rate base: \$120M



- 10% Rate of return:
- Variable expenses: \_\_\_\_\_
- Total Cost Recovery: \_\_\_\_\_

Customers Bills

- Fixed revenue: \_\_\_\_\_
- Variable revenue: \_\_\_\_\_
- Total Revenue: \_\_\_\_\_

- Revenue: \_\_\_\_\_
- Operating expenses: \_\_\_\_\_
- Interest expense: \_\_\_\_\_
- Company Profit: \_\_\_\_\_

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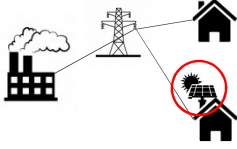
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# [ Customer Adds Renewables ]

Rate base: \$100M



- 10% Rate of return:
- Variable expenses: \_\_\_\_\_
- Total Cost Recovery: \_\_\_\_\_

Customers Bills

- Fixed revenue: \_\_\_\_\_
- Variable revenue: \_\_\_\_\_
- Total Revenue: \_\_\_\_\_

- Revenue: \_\_\_\_\_
- Operating expenses: \_\_\_\_\_
- Interest expense: \_\_\_\_\_
- Company Profit: \_\_\_\_\_

Campus with Renewables  
 Demand = 300,000 kW  
 On-Peak Energy = 0 kWh  
 Off-Peak Energy = 30,000,000 kWh

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## [ Company Adds Renewables ]

Rate base: **\$120M**

- 10% Rate of return: **\$12M**
- Variable expenses: **\$8M**
- Total Cost Recovery: **\$20M**

Customers Bills

- Fixed revenue: **\$8M**
- Variable revenue: **\$12M**
- Total Revenue: **\$20M**

- Revenue: **\$20M**
- Operating expenses: **(\$8M)**
- Interest expense: **(\$5M)**
- Company Profit: **\$7M**

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## [ Opportunities ]

Generation      Transmission      Distribution

Legislative/Regulatory      Consumption

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## [ Opportunities - DIY ]

- Electricity - Cogeneration
- Electricity - Solar
- Water - University owned well

- Electricity
- Water

Generation      Distribution

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# [ Opportunities ]



Legislative/Regulatory

- Monitor and shape new laws
- Participate in the regulatory arena
- Join a "large-user" group to share these costs



Consumption

- **Demonstrate Savings**
- Maintenance and operations?
- Design and Construction?
- Administration and Management?
- UEM?



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# [ The Business of Utilities ]

Questions, Comments, Observations  
Sign-in Sheet & Evaluations



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THIS CONCLUDES THE AMERICAN  
INSTITUTE OF ARCHITECTS CONTINUING  
EDUCATION SYSTEMS COURSE



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