

# The Business of Utilities

APPA Institute for Facilities Management

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AIA  
Continuing  
Education  
Provider

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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

## [ Revenue ]

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

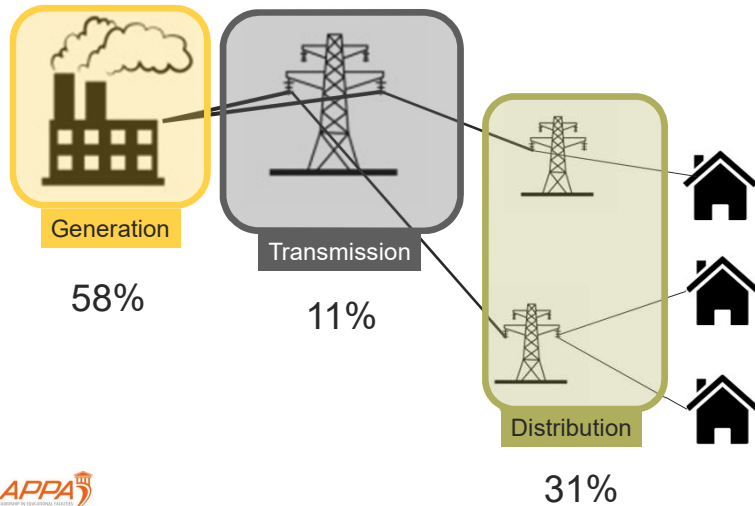
# [ Expenses ]

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



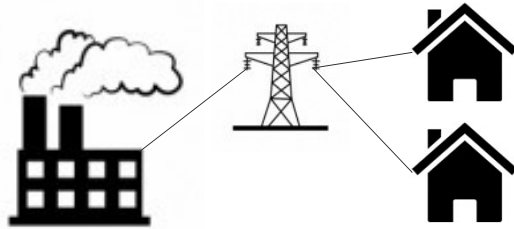
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# [ Cost Breakdown ]



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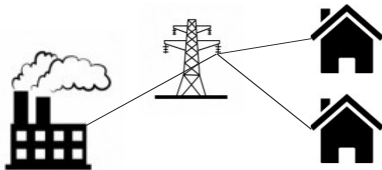
# [ APPA Electric Co. ]



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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

# [ Electric Bill – each campus ]

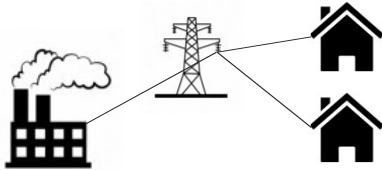
		Facilities Management 721 Main Street Orlando, FL
Rate		5A
Service Charge		\$2,000,000
Demand Charge @ \$10/kW		\$3,000,000
Energy Charge		
On-Peak Energy Charge @ \$0.10/kWh		\$2,500,000
Off-Peak Energy Charge @ \$0.05/kWh		\$1,500,000
Total		\$9,000,000

The Service and Demand Charges recover the fixed costs of providing service to this customer class

# [ 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 ]



Facilities Management  
 721 Main Street  
 Orlando, FL

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

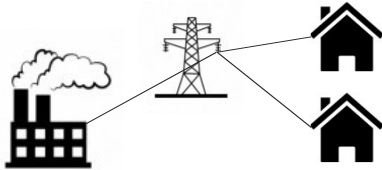
Total \$9,000,000

Energy Charges recover the variable costs – the cost to make the power

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# [ Ideal Rate Structure ]

Rate base: \$100M



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

## Customer Bills

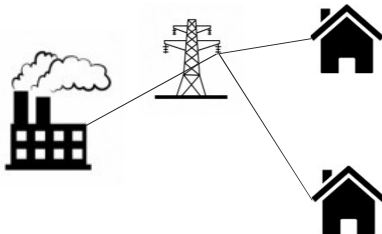
- Fixed revenue: \$10M
- Variable revenue: \$8M
- **Total Revenue: \$18M**

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



# [ 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**



# [ 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



# [ Typical Electric Bill ]



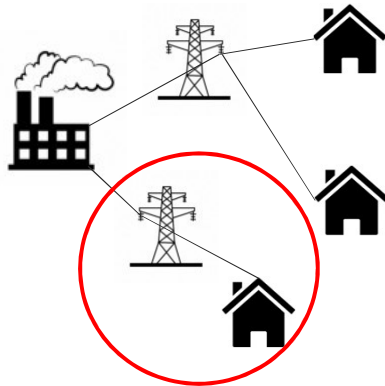
Facilities Management  
 721 Main Street  
 Orlando, FL

Rate	5A
Service Charge	\$1,000,000
Demand <b>300,000 kW</b> @ \$10/kW	\$3,000,000
<b>Energy Charge</b>	
On-Peak <b>25,000,000 kWh</b> @ \$0.120/kWh	\$3,000,000
Off-Peak <b>30,000,000 kWh</b> @ \$0.0667/kWh	\$2,000,000
<b>Total</b>	<b>\$9,000,000</b>



# [ New Customer ]

Rate base: \$120M



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

## Customers Bills

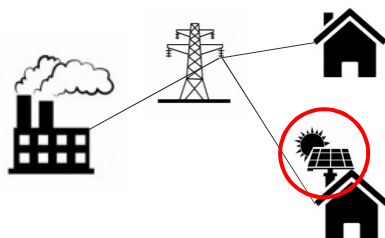
- Fixed revenue: \_\_\_\_\_
- Variable revenue: \_\_\_\_\_
- **Total Revenue:** \_\_\_\_\_
- Revenue: \_\_\_\_\_
- Operating expenses: \_\_\_\_\_
- Interest expense: \_\_\_\_\_
- **Company Profit:** \_\_\_\_\_



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# [ 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**



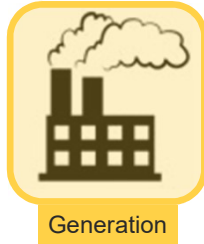
# [ Opportunities ]

Generation      Transmission      Distribution

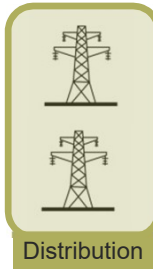
Legislative/Regulatory      Consumption



# [ Opportunities - DIY ]



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



- Electricity
- Water



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# [ Opportunities ]



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



## 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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