

Recovering Fixed Costs and Margins for Distribution Cooperatives

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Fixed Cost

- A cost that does not vary with volume, production or sales levels
- Once these costs have been incurred, the level of these costs cannot be changed and the focus shifts to cost recovery

So What's Fixed and What's Variable?

- About 65% to 75% of a distribution cooperative's costs are purchased power (generation and transmission) with the remainder being distribution costs
- Almost all distribution costs are fixed costs (fixed with a capital "F")
- Purchased power can be viewed as a variable cost to the distribution cooperative that can be reduced by altering customer usage

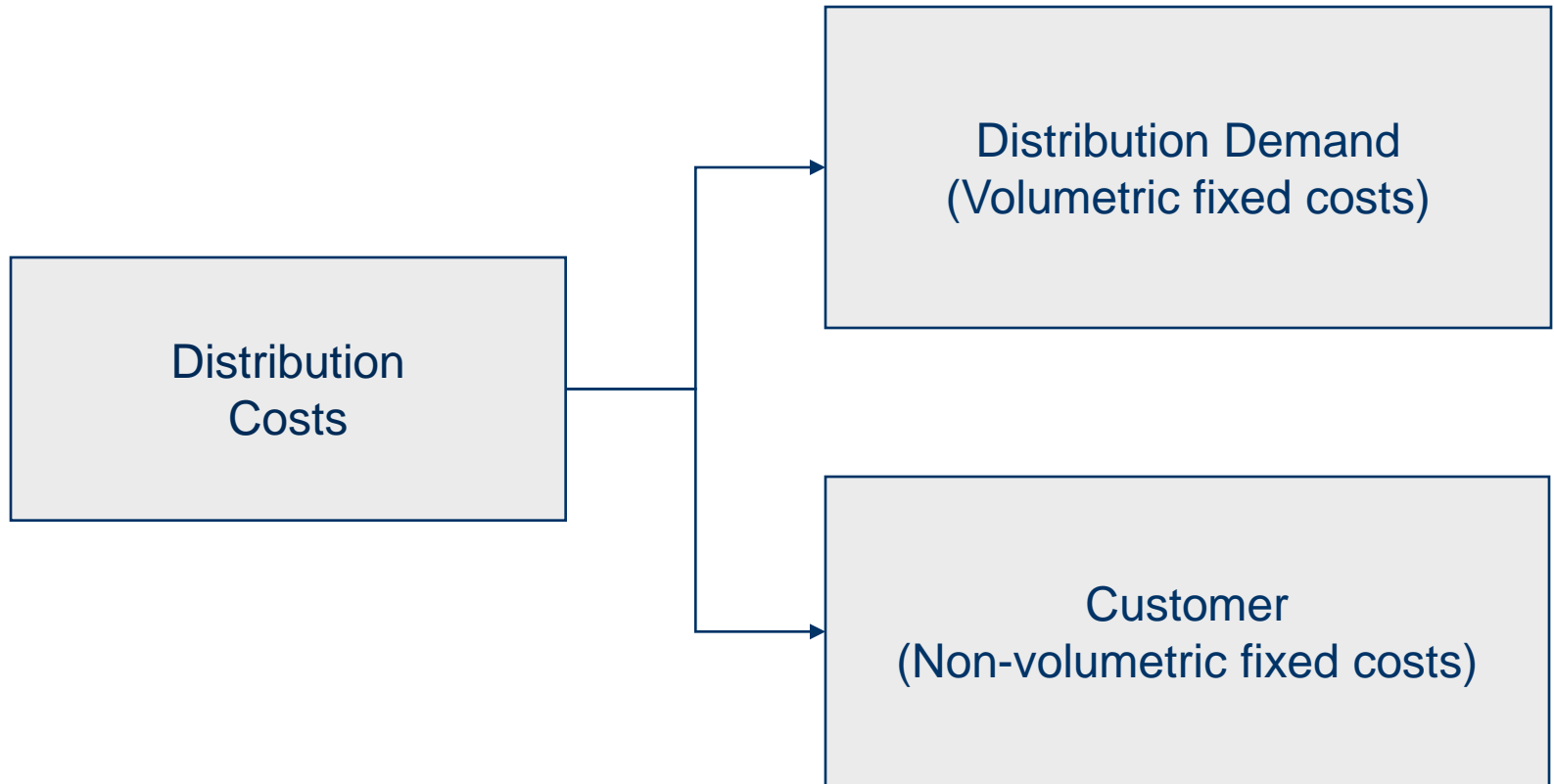
So What's Fixed and What's Variable?

- With opportunities to sell excess energy into energy markets and ability to sell excess generating capacity, what might be regarded as fixed costs for a G&T may be somewhat variable
- Fixed with a small “f”

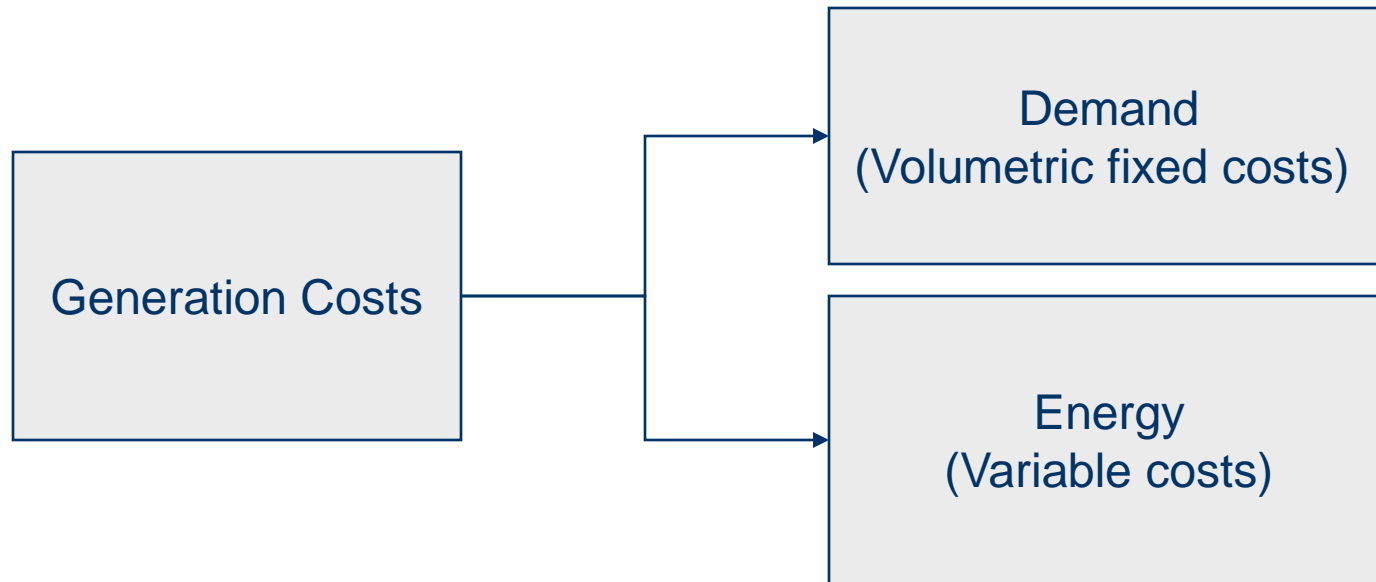
Distribution Cost Recovery

- The goal is to recover fixed distribution costs as fairly as possible from both large and smaller usage customers
 - Non-volumetric fixed costs should be recovered through a fixed charge (customer charge)
 - Volumetric fixed costs recovered through a demand charge which varies with usage (CP or NCP demand charge)

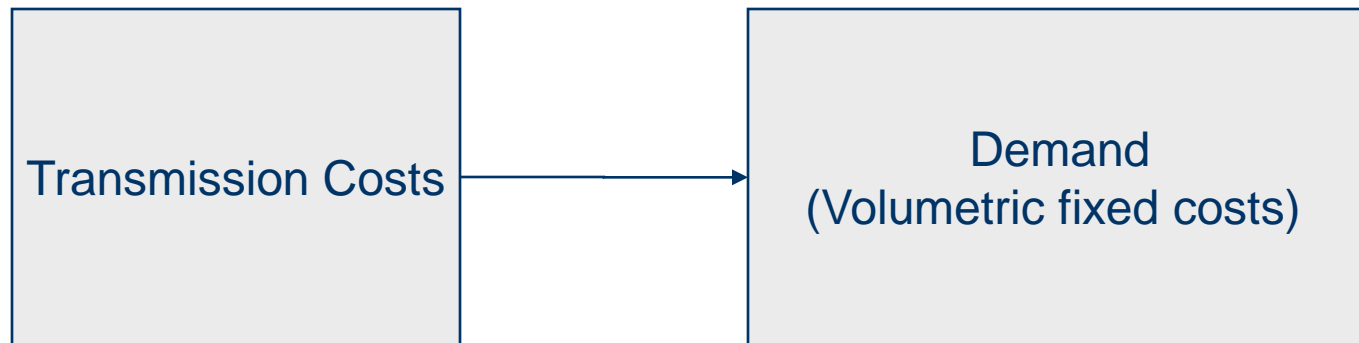
Distribution Cost Recovery



Generation Cost Recovery



Transmission Cost Recovery



Rate Design Principles

- Customers should pay the costs that they impose on the system
- Recover fixed costs through fixed charges
- Recover variable costs through variable charges
- Intra-class subsidies occur if these principles are violated

Rate Components for Recovering Fixed Costs

- Customer and facilities charges
- Purchased power demand charges
- Generation demand charges
- Transmission demand charges
- Distribution demand charges
- Power factor adjustment

Rate Components for Recovering Variable Costs

- Energy charges
- Fuel adjustment clauses

“Variabilizing” Fixed Costs

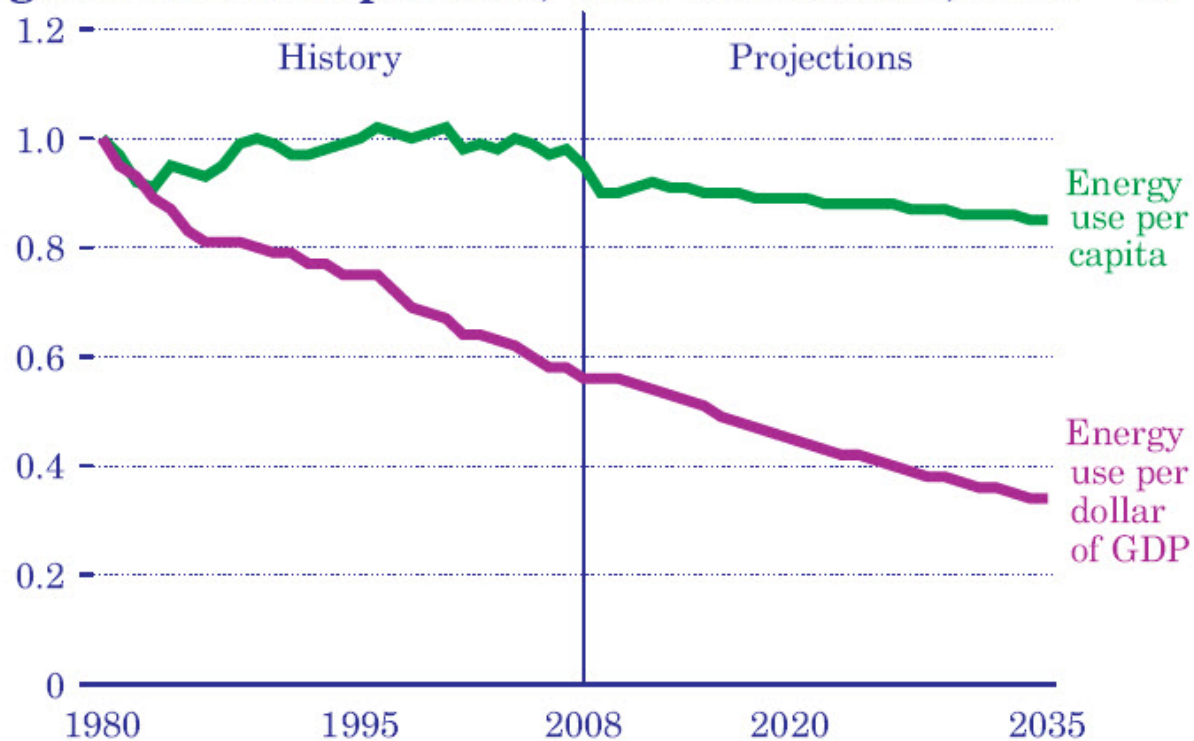
- Fixed costs recovered through kWh charge
 - Distribution demand costs recovered through kWh charge (both volumetric and non-volumetric fixed costs)
 - G&T demand charges in base rates recovered on a kWh basis
 - Power cost adjustment to recover changes in G&T demand charges assessed on a kWh basis (also causes “drift” in class rates of return over time)

“Variabilizing” Fixed Costs

- Results in intra-class subsidies
 - Customers with above average usage are paying a subsidy
 - Customers with below average usage are receiving a subsidy
- This is a problem when sales are falling or reduced relative to test year levels

DOE Annual Energy Outlook 2010

Figure 39. Energy use per capita and per dollar of gross domestic product, 1980-2035 (index, 1980 = 1)



“Fixing” Variable Costs

- Volumetric portion of distribution demand recovered through a fixed monthly customer charge (straight fixed variable rate design)
- The results in intra-class subsidies
 - Customers with below average usage are paying a subsidy
 - Customers with above average usage are receiving a subsidy

Example of “Variablizing” Fixed Costs

- Cost of service results:
 - Customer related costs are \$21.45/cust/mo.
 - Margins on customer related \$7.10/cust/mo.
\$28.55/cust/mo.
 - Distribution demand costs are \$0.02/kWh
 - Margins on dist demand is \$0.006/kWh
\$0.026/kWh

Example of “Variablizing” Fixed Costs

- Usage
 - 73,155 customer months
 - 62,363,160 kWh
- Rate design
 - \$12.00 customer charge
 - 8.36¢/kWh energy charge

Example of “Variablizing” Fixed Costs

$$\$28.55 - \$12.00 = \$16.55/\text{cust}/\text{month}$$

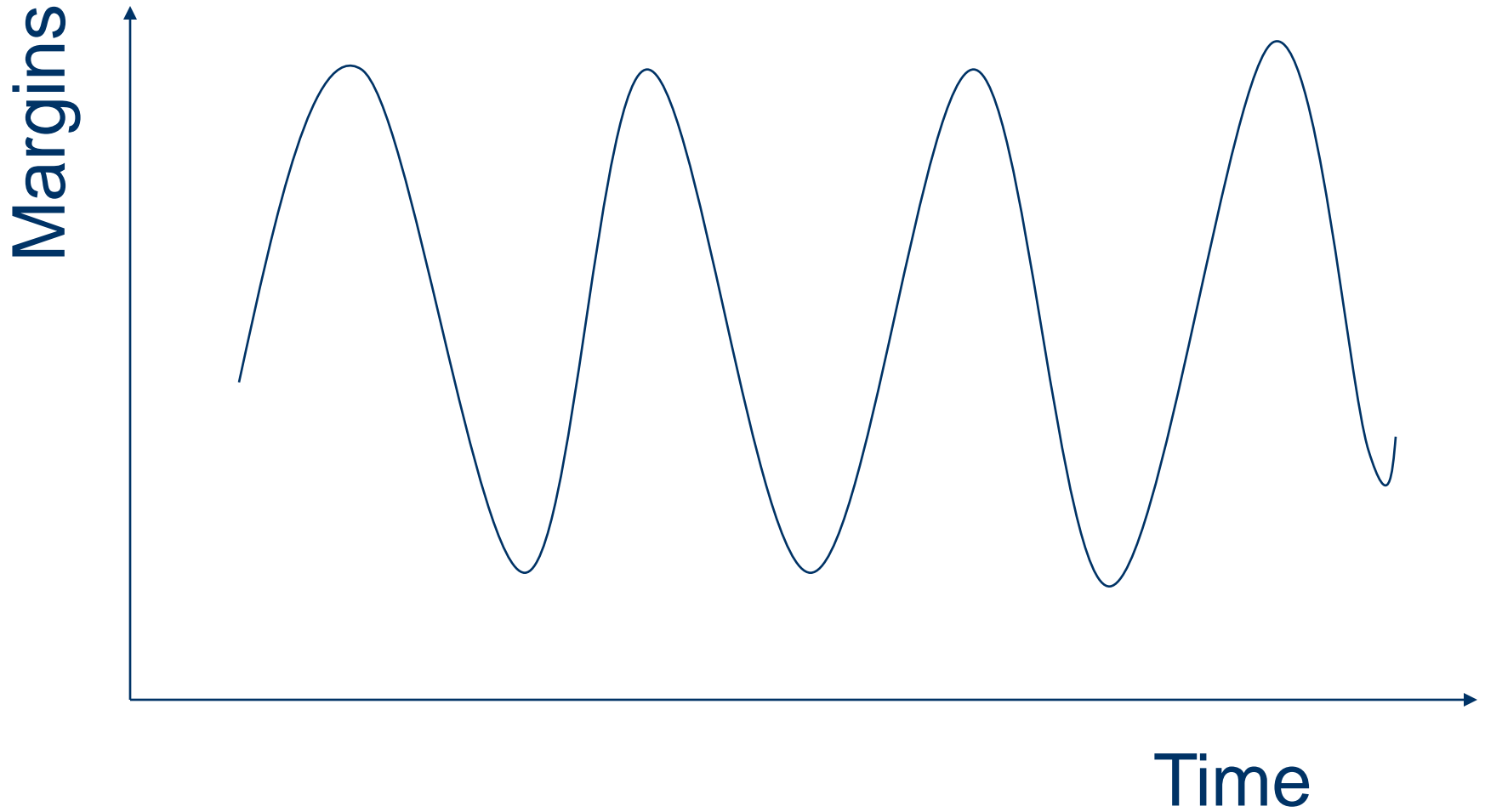
$$\$16.55 \times 73,155 = \$1,210,715 \text{ in fixed costs and margins}$$

$$\$1,210,715 / 62,363,160 \text{ kWh} = \$0.0194/\text{kWh} \text{ in fixed cost and margins recovered through energy}$$

Example of “Variablizing” Fixed Costs

- Customer charge is \$16.55 too low
- Energy charge is \$0.0194/kWh too high
 - Customers buying large amount of kWh are paying more than their fair share of fixed costs and margins (high profitability)
 - Customers buying small amount of kWh are paying less than their fair share (low or negative profitability)

Margin Variability



Recovering Fixed Costs

- Recover non-volumetric fixed costs through a fixed monthly charge
- Recover volumetric fixed costs through a charge assessed on the relevant cost driver
 - CP demand for generation demand charges
 - NCP demand for volumetric distribution demand costs
 - CP or NCP for transmission demand charges

Three-Part Rate Design

Cost of Service

Rate Design

Energy Costs
(\$ per kWh)



Energy
Charge

Demand Costs
(\$ per kW)



Demand
Charge

Customer Costs
(\$ per Customer)



Customer
Charge

Two-Part Rate Design

Cost of Service

Energy Costs
(\$ per kWh)

Demand Costs
(\$ per kWh)

Customer Costs
(\$ per Customer)

Rate Design



Energy
Charge

Customer
Charge

Problems with Distribution Cost Recovery

- Customer related non-volumetric fixed costs are not completely recovered through the customer charge for most cooperatives
 - Fixed cost and margin recovered through energy charge
 - Declining block rates
- This is a problem when kWh sales are falling (energy efficiency, conservation)
- Problem when paying for excess energy produced in net metering

Creating the Right Environment for Energy Efficiency

- Divorce the recovery of fixed distribution costs from generation and transmission costs
- No negative financial effects on the cooperative from reduced customer usage
- Enables the distribution cooperative to work aggressively with customer to reduce the purchased power portion of the customer's energy bill

Why Is Decoupling Necessary?

- The problem results from “variablizing” fixed costs so that fixed costs are recovered through sales
 - Two part rates
 - Three part rates that are “tilted” to recover fixed costs through the energy charge

The Need for Decoupling

- Between rate proceedings, utilities have a financial incentive to maintain or increase retail sales relative to historic levels that were used for calculating their base rates
- For most utilities, there is usually significant fixed cost recovery in each unit of sales
- Referred to as the “throughput incentive”

What is Decoupling?

- It eliminates the throughput incentive by breaking the link between fixed cost recovery and usage
- Decoupling should be considered at both the G&T and Distribution Cooperative levels

The Need for Decoupling

- Fixed cost recovery declines when sales are below the historic levels that were used for calculating a cooperative's base rates
- A bigger problem when significant fixed costs are recovered through kWh sales
- Because energy efficiency and conservation reduce sales, it is necessary to “decouple” fixed cost recovery from sales when pursuing these programs

A Key Issue

- How to recover the cooperative's fixed costs while preserving as much rate fairness as possible

Decoupling Mechanisms

- Method 1: Recover fixed costs through fixed charges via rate design (customer charge, CP and NCP demand charge) and variable costs through variable charges
 - Removes fixed cost from the energy charge assessed on a kWh basis
- Method 2: Define an allowed fixed cost revenue requirement with a true-up (tracker)
 - Tracker is usually assessed on a kWh basis

Method 1: Fixed Costs Recovered through Fixed Charges

- Straight fixed variable rate design - all fixed costs in the customer charge
- Cost based rates
 - Non-volumetric customer related fixed costs in customer charge
 - Volumetric distribution demand related costs, generation costs and transmission costs in demand charges
 - Energy related costs in energy charge

Maintaining Demand/Customer Split

- Customer related costs are \$20.84/cust/mo.
- Margins on customer related \$4.83/cust/mo.
- Distribution demand costs are \$0.012/kWh
- Margins on dist demand are \$0.008/kWh
- Purchased power demand is \$0.027/kWh
- Purchased power energy is \$0.024/kWh

Move All Margins to Customer Charge

- Customer related costs are \$20.84/cust/mo.
- Margins on customer related \$13.44/cust/mo.
- Distribution demand costs are \$0.012/kWh
- Purchased power demand is \$0.027/kWh
- Purchased power energy is \$0.024/kWh

Move All Distribution Fixed Cost and Margin to Customer Charge

- Customer related costs are \$34.14/cust/mo.
- Margins on customer related \$13.44/cust/mo.
- Purchased power demand is \$0.027/kWh
- Purchased power energy is \$0.024/kWh

Method 2: Decoupling Mechanism

- Define fixed cost component of rates with utilities allowed to collect any unrecovered fixed costs through a “true-up” mechanism

Questions?

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