Revenue Regulation in the US: Mid-Term Report

Harvard Electricity Policy Group
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Utility Financial Structures
Enhance Power of Incentives

- Few non-production costs vary with sales in the short run
  - So, increased sales go to the bottom line
  - Conversely, decreased sales come out of the bottom line
- Customers and utility exposed to 100% of deviation from assumed sales
- Company’s risk/reward mitigated by income taxes
- High leverage means that utility profits represent relatively small share of total cost of capital
  - Revenue changes on the margin only affect profit
  - This makes profits highly sensitive to changes in revenues
- The effect may be quite powerful…
- Note: This discussion focuses on the wires-only element of the business. This assumes generation is either competitive or handled through other means (FACs).
## How Changes in Sales Affect Earnings

<table>
<thead>
<tr>
<th>% Change in Sales</th>
<th>Revenue Change</th>
<th>Impact on Earnings</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Pre-tax</td>
<td>After-tax</td>
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<tr>
<td>5.00%</td>
<td>$9,047,538</td>
<td>$5,880,900</td>
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<tr>
<td>4.00%</td>
<td>$7,238,031</td>
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<td>$1,176,180</td>
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<tr>
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**Actual ROE**

**% Change**

**Net Earnings**

**Revenue Change**

**Impact on Earnings**

**Pre-tax**

**After-tax**

**% Change in Sales**
Revenue-Sales Decoupling

- Breaks the mathematical link between sales volumes and revenues

- Objective is to make revenue levels immune to changes in sales volumes
  - This is a **revenue** issue more than a **pricing** issue
  - Volumetric pricing and other rate design (e.g., TOU) may be “tweaked” in presence of decoupling, but essentials of pricing structures need not be changed because of decoupling

- Not intended to decouple customers’ bills from their individual consumption
  - This is the rate design issue
Does Decoupling Create an Incentive for Energy Efficiency?

➢ By itself, no
  – It simply removes a barrier, a disincentive
  – Under decoupling, EE is neither profitable nor unprofitable
  – Note: Aside from California and a couple of other states, decoupling is a relatively new phenomenon in the electric sector in the US
    • Christensen report on NW Natural Gas was the first (only?) independent analysis of decoupling for regulators
    • It’s still a little early to make final judgments about its effect on utility behavior
That said, some judgments anyhow:

– Revenue regulation reduces or eliminates the effect of changes in sales on the utility’s finances
– If EE is an objective, decoupling must be accompanied by an explicit commitment to EE investment
– Performance incentives for desired behavior may make sense
  • What is the business model for utility-delivered EE?
– Decoupling makes sense as a matter of economic efficiency
  • Traditional (price-based) regulation inhibits a company from supporting investment in and use of least-cost energy resources, when they are most efficient, and encourages the company to promote incremental sales, even when they are wasteful
Some Experience

- PacifiCorp’s first experience with decoupling was ended in 2002 after Oregon PUC staff argued that it did not result in increased EE investment by the utility.
- In this decade, NW Natural Gas made decoupling a condition of its willingness to contribute funds to the Energy Efficiency Trust of Oregon.
- GMP found that revenue stability through partial decoupling (earnings collar and sharing) significantly reduced management’s preoccupation with sales—greater focus on customer service:
  - 50 basis point reduction in ROE for reduced risk
  - Support for increased EE (through Efficiency Vermont):
    - Savings from avoided distribution investment
    - Additional revenues from increased off-system sales (sharing mechanism in the fuel-adjustment clause)
Some Experience

- **Washington**
  - UTC concluded that, since only about half of the EE savings in Avista’s service territory are related to EE programs, the “decoupling” mechanism should recover only 45% of the revenue shortfalls.
  - No cost-of-capital or capital structure adjustment to reflect reduced risk, because they only gave them half the decoupling they asked for.

- **Wisconsin**
  - 2009 Settlement in Wisconsin Public Service case called for decoupling (with annual true-ups), increased investment in EE (from 2% to 3.5% of revenues over three year), and reduced customer charges
  - No ROE or capital structure adjustment, but instead a flat $2.1 million reduction in the cost of service each year of the program
Issues

➢ Risk Reduction
  – Full decoupling: sales, weather, economic risks all eliminated—*for both customers and utility*
  – Partial decoupling: Reintroduces some measure of risk related to sales volume
  – Recognizing the risk reduction
    • ROE adjustments or capital structure adjustments?

➢ Regulatory lag
  – Reduced or eliminated—depends on the means by which revenue reconciliation achieved
    • BG&E current month reconciliation: no lag whatsoever
  – Who benefits, who loses?
Issues

➢ Rate design
  – Straight-fixed variable pricing as an alternative to decoupling
    • Ohio gas utilities
    • Equity and other concerns with SFV
      – $5.00/month + $0.10/kWh = $105/month for 1,000 kWh
      – $55/month + $0.05/kWh = $105/month for 1,000 kWh
    • Wires, pipes are fixed in short run, not in the long
    • Pricing at SRMC or LRMC?
      – You’ve got to pay for the “fixed” costs. The question is: how do you want to pay for them?

➢ Averch-Johnson Effect
  – Decoupling does not eliminate the incentive to increase rate base
  – Good planning is still a critical need
EE Performance Incentives

- Shared Savings: Earnings based on percentage of “net” benefits (resource savings minus costs) or avoided costs of EE, often tied to a minimum threshold of kWh/kW reductions
- Management Fee: Earnings based on percentage of program costs if manager achieves or exceeds goals – e.g., energy/capacity savings, participation or installation levels, reductions in administrative costs
  - Avista decoupling links percentage recovery of decoupling deferral to percentage achievement of EE goals. Structured this way, the decoupling mechanism does create an incentive for performance
- Standard Performance Contracting: Incentive payments per kWh and kW of savings from installed measures, under standardized terms
- ROE bonus on amortized EE costs

EE Evaluation, Monitoring, and Verification

- “Net” v. “Gross”
  - What can the utility (program administrator) do that can be counted v. what can the PA do that will result in lots of energy efficiency?
  - Performance indicators for both?
Some Concluding Thoughts

- Ratemaking policy should align utilities’ profit motives with public policy goals
  - All regulation is incentive regulation
  - Design of the decoupling mechanism matters
    - What are the drivers of the utility’s costs in the short run (i.e., the rate case horizon)?

- Decoupling, by itself, does not address all concerns
  - EE requirements, performance incentives, rate design, EM&V, etc., must all be dealt with explicitly