

Revenue Regulation in the US: Mid-Term Report

Harvard Electricity Policy Group

10 December 2010

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The Regulatory Assistance Project

Maine ♦ Vermont ♦ Illinois ♦ New Mexico ♦ California ♦ Oregon



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

% Change in Sales	Revenue Change		Impact on Earnings		
	Pre-tax	After-tax	Net Earnings	% Change	Actual ROE
5.00%	\$9,047,538	\$5,880,900	\$15,780,900	59.40%	17.53%
4.00%	\$7,238,031	\$4,704,720	\$14,604,720	47.52%	16.23%
3.00%	\$5,428,523	\$3,528,540	\$13,428,540	35.64%	14.92%
2.00%	\$3,619,015	\$2,352,360	\$12,252,360	23.76%	13.61%
1.00%	\$1,809,508	\$1,176,180	\$11,076,180	11.88%	12.31%
0.00%	\$0	\$0	\$9,900,000	0.00%	11.00%
-1.00%	-\$1,809,508	-\$1,176,180	\$8,723,820	-11.88%	9.69%
-2.00%	-\$3,619,015	-\$2,352,360	\$7,547,640	-23.76%	8.39%
-3.00%	-\$5,428,523	-\$3,528,540	\$6,371,460	-35.64%	7.08%
-4.00%	-\$7,238,031	-\$4,704,720	\$5,195,280	-47.52%	5.77%
-5.00%	-\$9,047,538	-\$5,880,900	\$4,019,100	-59.40%	4.47%



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



But. . .

- 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
 - $\$5.00/\text{month} + \$0.10/\text{kWh} = \$105/\text{month}$ for 1,000 kWh
 - $\$55/\text{month} + \$0.05/\text{kWh} = \$105/\text{month}$ 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



Issues

➤ 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?

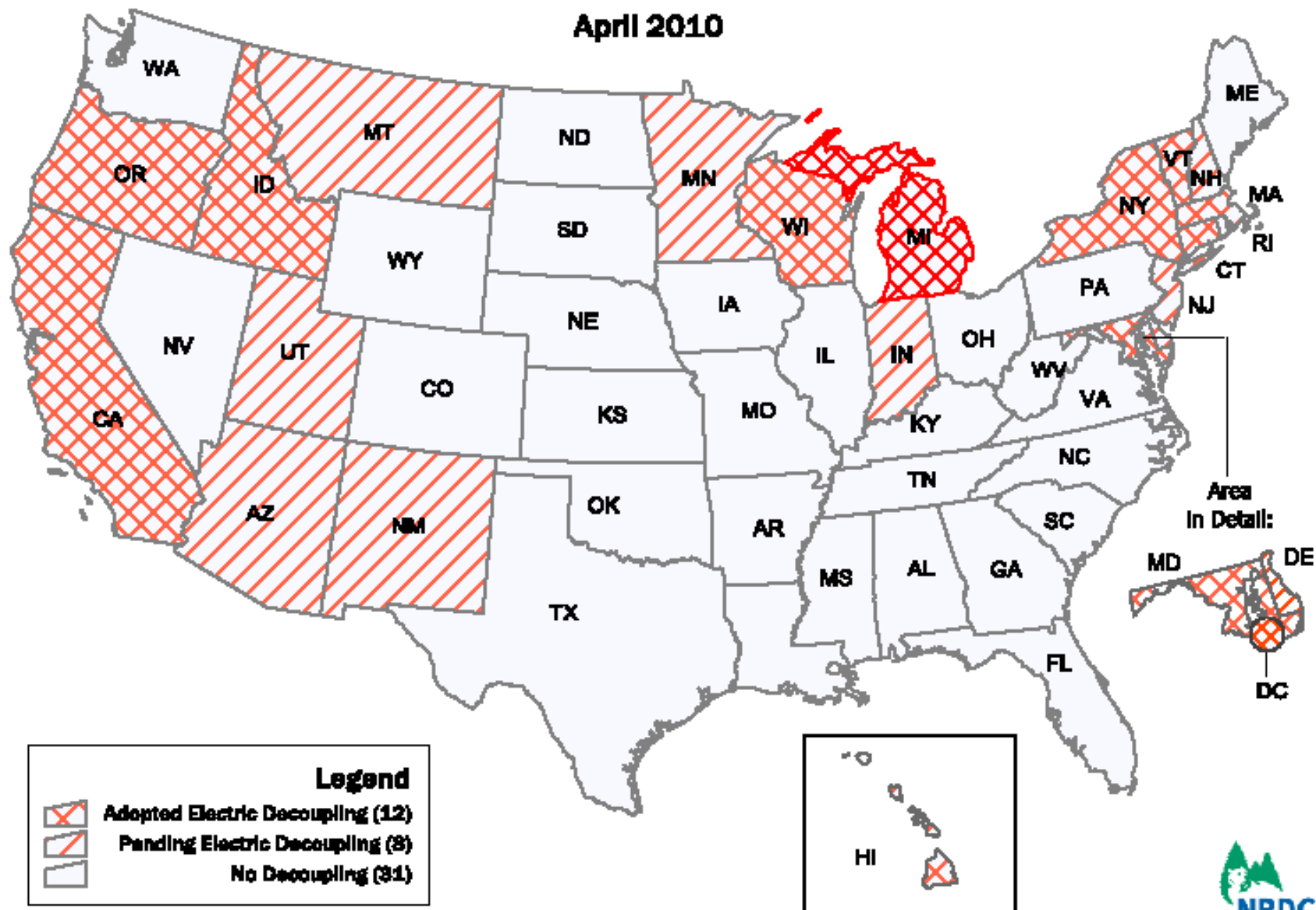


Some Concluding Thoughts

- 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

Electric Decoupling In the US

April 2010



Gas Decoupling in the US

April 2010

