

Energy Efficiency & Utility Profits: Do Your Incentives Need Alignment?

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About The Regulatory Assistance Project

- Non-profit organization formed in 1992 by former utility regulators
- Funded by:
 - The Energy Foundation
 - US DOE and
 - US EPA
- Provides workshop and educational assistance to regulators and other government agencies



Traditional Regulation: Provides Strong Disincentives for Energy Efficiency

- Utility revenues and profits are linked to unit sales (kW, kWh, therms, etc.)
- Loss of sales due to successful implementation of energy efficiency will lower utility profitability
- The effect may be quite powerful...



Assumptions for A Sample Utility

| Assumptions | | | | | | |
|--------------------------|---------------|-----------|--------------------|--------------|--------------------|--------------|
| Operating Expenses | \$160,000,000 | | | | | |
| Rate Base | \$200,000,000 | | | | | |
| Tax Rate | 35.00% | | | | | |
| Cost of Capital | % of Total | Cost Rate | Weighted Cost Rate | | Dollar Amount | |
| | | | Pre-tax | After-Tax | Pre-Tax | After-Tax |
| Debt | 55.00% | 8.00% | 4.40% | 2.86% | \$8,800,000 | \$5,720,000 |
| Equity | <u>45.00%</u> | 11.00% | 4.95% | <u>7.62%</u> | \$9,900,000 | \$15,230,769 |
| Total | 100.00% | | | 10.48% | | |
| Revenue Requirement | | | | | | |
| Operating Expenses | \$160,000,000 | | | | | |
| Debt | \$5,720,000 | | | | | |
| Equity | \$15,230,769 | | | | | |
| Total | \$180,950,769 | | | | | |
| Allowed Return on Equity | \$9,900,000 | | | | | |



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% |



A Change in Approach Is Needed

- “Throughput” incentive is at odds with a requirement to invest in cost-effective energy efficiency
- Policies should, instead, align utilities’ profit motives with acquisition of all cost-effective energy efficiency
- Decoupling & profit incentives, coupled with strong regulatory and legislative policy support and industry leadership are a part of the solution



New Mexico: Example of Clear Policy Direction

- It serves the public interest to support public utility investments in cost-effective energy efficiency and load management by removing any regulatory disincentives that may exist and allowing recovery of costs for reasonable and prudently incurred expenses of energy efficiency and load management programs
- The commission shall identify any disincentives or barriers that may exist for public utility expenditures on energy efficiency and load management and, if found, ensure that they are eliminated in order that public utilities are financially neutral in their preference for acquiring demand or supply-side utility resources



Approaches to Address Utility Incentives for Energy Efficiency

- Decoupling utility revenues from sales volume
- Lost Revenue/Expense Recovery
 - Adjustment that tracks the implementation of energy efficiency and uses statistical means to determine lost revenues
 - Recovery of net lost revenue can be contingent on achieving certain energy efficiency program goals
 - Alternatively, recovery of “program expenses”
- Providing positive incentives for meeting efficiency goals



Revenue-Profit Decoupling: What is it?

- Breaks the mathematical link between sales volumes and profits
- Objective is to make profits levels immune to changes in sales volumes
 - This is a revenue issue
 - This is not a pricing issue
 - Volumetric pricing approaches need not be changed
- Not intended to decouple customers bills from consumption (another topic for another day)



Revenue Decoupling: The Basic Concept

- Most effective method to decouple sales & profits
- Basic Revenue-Profit Decoupling:
 - Utility “base” revenue requirement determined with traditional rate case
 - Each future period has a calculable “allowed” revenue requirement
 - Differences between the allowed revenues and actual revenues are tracked on an average use per customer or other basis
 - The difference (positive or negative) is flowed back to customers in a small adjustment to unit rates



Decoupling Examples:

- Maryland – Gas Utilities
- North Carolina – Gas Utilities
- California – 3 IOUs Electric & Gas Utilities
- Oregon – Northwest Natural Gas
- New Jersey (NJNG – Awaiting order approving proposal)
- Utah (Questar proposed)



Decoupling: Maryland Baltimore Gas & Electric

- Decoupling mechanism for residential and general service gas customers
- Straight revenue-per-customer method
- Based on prior rate case test year for base revenue per customer
- Monthly adjustment mechanism similar to traditional fuel and purchase power adjustments
- MADRI Model Rate Rider starting point



Maryland:

How BG&E Decoupling Works

- Allowed Revenues = Test Year Average Use per Customer X No. of Customers X Delivery Price
- Adjustment to Delivery Price = Allowed Revenues - Actual Revenues ÷ Estimated Sales
- Any difference between actual and estimated sales is reconciled in a future month
- Calculated separately for each class
- Calculation of the billing adjustment are filed monthly with the Public Service Commission



Decoupling: North Carolina

An Interesting Read

- North Carolina's three major gas utilities have decoupling mechanism
- Expressed importance of highly volumetric rate structures and lower fixed customer charges
- Rejected some arguments against decoupling
- Good overall discussion of policy framework for decoupling



North Carolina: Approaches Rejected

- Rejected higher fixed charge approach as unpopular with customers
- Rejected Attorney General's argument that proposal would penalize customers for conserving



North Carolina: Customers & Shareholders

- “Different usage patterns and tariffs of industrial customers” provide good cause to exclude class from mechanism
- Approved as an experimental tariff limited to no more than 3 years
- Required utility contribution toward conservation programs (e.g. \$500,000 per year for Piedmont)
- Required utility to work with the Attorney General and the Public staff to develop appropriate and effective conservation programs to assist its residential and commercial customers



Decoupling: North Carolina

Rationale for Decoupling

- Recognized conservation has potential for financial harm to the utility and its shareholders
- Cited number of benefits: Improved opportunities for conservation of energy resources, savings for customers, downward pressure on wholesale gas prices, helping utility recovery of margin and a reasonable return
- Decoupling better aligns interests of Company and customers with respect to conservation
- Commission on Shareholder Risk: “In a period of declining per-customer usage, a mechanism that decouples recover of margin from usage, without requiring the utility to file frequent rate cases or increase unpopular fixed charges, clearly reduces shareholder risk.”



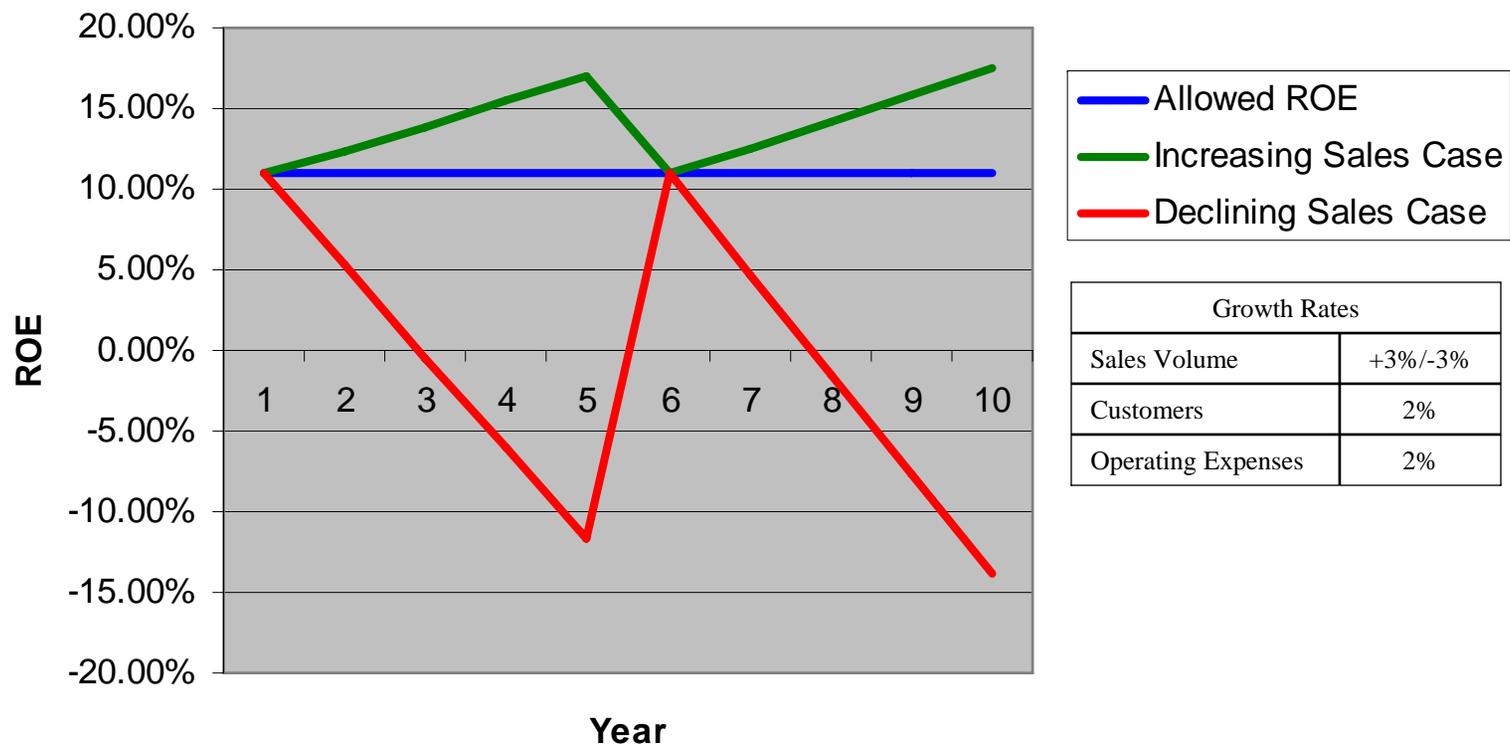
Which Brings Us To: A Policy Tale of Two Utilities

- Rising revenue-per-customer utilities:
 - Experience rising earnings between rate cases
 - Typical of many electric utilities
- Declining revenue-per-customer utilities:
 - Experience declining earnings between rate cases
 - Typical of many gas utilities
- Under reasonable assumptions, not symmetric between rising and declining cases
- Usually driven by differences in the average consumption between new and old customers
- Policy question: Should decoupling be “profit neutral” relative to future such profit expectations?



What Happens to ROE Under Traditional Regulation?

Actual ROE vs. Allowed ROE





California Decoupling Basics

- Part of an aggressive and comprehensive policy framework designed to deploy cost-effective energy efficiency
- Covers SDG&E/SocCalGas, PG&E and SCE
- Tracks difference between allowed revenues and actual revenues
- Trued up each year to that year's authorized revenues
- Revenue requirements are adjusted each year for inflation
- Each utility has individual mechanisms for determining annual revenue requirements



California Case Specifics: Company Plan Features

- Southern California Edison
 - Citing:
 - Poor financial health of company
 - Changed circumstances since such adjustments were rejected (20 years ago)
 - Commission approved “non-test year” revenue requirement adjustments
 - Implemented revenue balancing account for over- under-collections of revenue adjustment
- San Diego Gas & Electric and SoCalGas
 - Each year’s revenue requirement is determined by the previous year’s base margin adjusted by CPI
 - Minimum and maximum authorized adjustments (in 3%-4% range)
 - Balancing account for adjustment collections
 - Sharing mechanism



California: SDG&E/SoCalGas Shareholder & Customer Sharing

| Earnings Band | Shareholders | Ratepayers |
|---------------|--------------|------------|
| 0 - 50 | 100% | 0% |
| 51 - 100 | 75% | 25% |
| 101 - 125 | 35% | 65% |
| 126 - 150 | 45% | 55% |
| 151 - 175 | 55% | 45% |
| 176 - 200 | 65% | 35% |
| 201 - 300 | 75% | 25% |
| Over 300 | Suspension | |



Pacific Gas & Electric

- Separate Distribution and Generation mechanisms:
 - DRAM (Distribution revenue adjustment mechanism) and
 - UGBA (Utility Generation Balancing Account) revenue adjustment mechanisms
- Allowed revenues: annual CPI-based attrition adjustments for 2004-2006, with following minimums and maximums:

| Year | Min | Max |
|------|-------|-------|
| 2004 | 2.00% | 3.00% |
| 2005 | 2.25% | 3.25% |
| 2006 | 3.00% | 4.00% |



Decoupling: Oregon Northwest Natural Gas

- Defers and subsequently amortizes 90 percent of the margin differentials in the residential and commercial customer groups
- Average customer margin-per-therm calculation
- Calculated Monthly
- Places weather risk on utility



MADRI Model Rule

- Used BG&E Rate Rider as starting point
- Model Rule is product of collaborative stakeholder process
- Available at: <http://www.raponline.org/Feature.asp?select=78>
- Tracks on demand and energy basis
- Currently 60 day lag between consumption & recovery – may present rate design issue
- Lag can be eliminated with a “use and file” approach
- As written, places weather risk on customer – but this is not a policy position *per se*



Lost Revenue/Expense Approaches

- Kentucky
- Nevada



Lost Revenue/Expense Approaches: Kentucky

- Allows lost revenue recovery for both electric and gas DSM programs.
- Recovery mechanisms are determined on a case-by-case basis
- Utilities can recover
 - Full costs of commission-approved demand-side management programs and
 - Revenues lost
 - Incentives designed to provide financial rewards to the utility for implementing cost-effective demand-side management programs



Lost Revenue/Expense Recovery Approaches: Nevada

- Utility required to track and separate costs
- For Commission approved action plan programs, utility may recover labor, overhead, materials, incentives paid to customers, advertising, marketing and evaluation



Positive Incentives

- Arizona
- Connecticut
- Massachusetts
- New Hampshire
- Nevada
- Vermont



Positive Incentives: APS Performance Incentives

- Funding for DSM
 - Base rates (\$10 million per year) and
 - Through implementation of an adjustor (average of \$6 million per year)
- APS recovers performance incentive for DSM program results
 - Share of the net economic benefits (benefits minus costs),
 - Maximum of 10% of DSM spending
 - Credits against test year base revenue requirement
 - Low income bill assistance
- APS was obligated to spend \$13 million in 2005 on DSM projects.



Positive Incentives: Connecticut Performance Incentives

- Utilities managing conservation & load management programs are eligible for “performance management fees,” tied to performance goals approved by the ECMB and DPUC, including lifetime energy savings and demand savings, and other measures
- Incentives are available for a range of outcomes from 70-130% of pre-determined goals.
- 2004 utilities collectively reached 130% of their energy savings goals, and 124% of their demand savings goals.
- Received performance management fees of \$5.27 million
- 2006 joint budget anticipates \$2.9 million in performance incentives.



Positive Incentives: Massachusetts Performance Incentives

➤ NSTAR

- After-tax shareholder incentive of five percent
- Level of performance bounded from 75 percent to 110 of design level performance
- Regulatory finding: Incentives must be large enough to promote good program management, but small enough to leave almost all of the energy efficiency funds to directly serve customers



Positive Incentives: Minnesota Performance Incentives

- 1999 – Utilities receive a percentage of total net benefits when performance levels are met or exceeded
- Net Benefits are calculated by subtracting each utility's program costs from the avoided costs resulting from each utility's Conservation Improvement Plan (CIP) investment
- Avoided cost estimates (\$/kw,\$/kWh) saved remain constant for the duration of approved biennial CIP



Positive Incentives: New Hampshire Performance Incentives

- Two separate incentives
- Cost-effectiveness incentive
 - Utility must achieve Actual to Projected Cost-Effectiveness ratio of 1.0 or higher
 - Incentive is 4% of Planned Energy Efficiency Budget multiplied by the ratio of Actual Cost-Effectiveness to Planned Cost-Effectiveness
- Energy Savings incentive
 - Utility must achieve 65% of planned energy savings
 - Incentive is 4% of Planned Energy Budget, multiplied by ratio of Actual Energy Savings to Planned Energy Savings
- Maximum incentive in each sector (residential and commercial/industrial) is 12%
- Sectors are calculated separately



Positive Incentives: Nevada Incentives

- DSM Incentive: Bonus rate of return for DSM investments 5% higher than authorized rates of return for supply investments
- Critical Facilities Incentive: Facilities may be designated “critical” for reliability, diversity of supply- and demand-side resources, development of renewable resources, fulfilling statutory mandates and/or retail price stability
- Incentives for critical facilities may include:
 - Enhanced return on equity on facility over its life
 - CWIP treatment
 - Creation of “regulatory asset” account



Positive Incentives: Vermont Performance Incentives

- Incentive in effect for 2000-2002
- Efficiency is responsibility of Efficiency Vermont, the state's "Energy Efficiency Utility" (EEU)
- EEU receives performance incentives for meeting or exceeding specific goals in contract between Vermont's Public Service Board (PSB) and EEU
- Incentive categories:
 - Program Results Incentives (electricity savings & resource benefits)
 - Market Effects Incentives (significant market transformation)
 - Activity Milestones Incentive (exemplary performance for rapid start-up and/or infrastructure development)
- Incentives capped at \$795,000 over three years



Thanks for your attention

- Website: www.raonline.org
- E-mail: rapwayne@aol.com
- RAP Efficiency Policy Toolkit:
<http://www.raonline.org/Pubs/General/EfficiencyPolicyToolkit.pdf>