Energy Efficiency Administration and Business Incentives

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Regulatory Assistance Project

RAP, a non-profit organization formed in 1992, provides workshops and education assistance to state govt officials on electric utility regulation. RAP is funded by foundations, US EPA & US DOE.

Richard Sedano was Commissioner of the Vermont Department of Public Service, 1991-2001

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Topics for Planned for Discussion Today

- Administration of Energy Efficiency Programs
- Business Incentives that Support and Discourage Energy Efficiency

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Bigger Topic for Today

- How to make energy efficiency work as a utility system resource as well as possible?
  - Is Iowa's objective "procuring all cost-effective energy efficiency?"
  - Can EE administration be more effective?
  - Can utility support for EE become part of its fiber?

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Energy Efficiency Administration Models

- Utility Administration
- State Administration
- Third Party Administration
- There can also be a hybrid or divided structure

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Which Way Is Inherently Better?

- Respectfully, this is the wrong question
- All ways can work well, or fail badly
  - Experience suggests state administration is most prone to problems
- One way might be better given local details
  - Politics (utility leverage or its absence)
  - Utility motivation
  - Experience, other factors

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How to evaluate an administrative structure?

- Compatibility with Policy Goals
- Accountability and Oversight
- Administrative Effectiveness
- Transition Issues (if a change is being considered)

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Key indicators of success for energy efficiency

- Commitment
  - Yes, EE is a permanent, stable activity and political and key sectors are supportive
  - Yes, EE funding will be secure and sufficient
- Coherence
  - Yes, responsible entities are coordinating, not in conflict
  - Yes, statutes and local regulations are sympathetic, not in conflict

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Third Party Administration: What is it?

- First, remember: IUB today is responsible for overseeing 100% of money consumers pay for utility service
  - This is good
  - Will third party be overseen by IUB?
  - Or will it be somehow separate?

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Third Party Administration: What is it?

- A special purpose entity
  - Free standing
  - Part of a larger organization
    - Non profit or for profit
- Mission: Energy Efficiency
  - For electric end uses?
  - For utility fuel (electric and gas) end uses?
  - For all end uses (propane, fuel oil, etc.)?
  - Including on site renewables (>>zero net energy)?
  - Including on site generation of all kinds?

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Third Party Administration: What is it?

- Relationship with utility commission
  - Franchise – an energy efficiency utility
    - Perhaps time limited, as with cable TV franchise
  - Contract – permanent contractor (Oregon)
  - Contract – clear authority to replace contractor (Vermont)
  - Something else

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Third Party Administration: What is it?

- Staffing
  - Internal staff meets most needs?
  - Contractor management?
    - Can utilities be contractors?
- Funding
  - Statewide/multi-utility funds pooled
- Equity
  - Rigid allocation of services by customer class, and perhaps by geography
  - Loose allocation
  - Overlay high value EE targets, based, for example, on value of avoiding T&D

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Third Party Administration: What is it?

- Utility integration
  - Negative (utility continues to push uneconomic end uses like electric heat)
  - None
  - Customer service cooperation
  - Shared customer account records
  - Utility planning integrates EE work
    - Vermont System Planning Committee

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Third Party Administrator Characteristics

	Oregon	Vermont
Structure	Free Standing	Part of larger organization
Mission	Energy efficiency (electric/ gas) for utility territory > 25K customers + renewables	Energy efficiency for electric (now expanding to unregulated end uses)
Relation with commission	Permanent contract	6 year contract
Staffing	Large staff	Large staff

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Vermont Story

- Successful switch to third party admin (2000)
- Prior years marked by regulatory strife
  - Largest IOU received ROE penalty for EE performance
- Utilities relieved
- Customers happy, everyone gets credit
- Without constant disputes, innovation allowed to flourish

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Third Party Administration: Why switch?

- Statewide Energy Efficiency branding
- Energy efficiency incompatible with utility mission or hard to regulate
  - Protracted strife in utility rate cases
  - Decoupling, other reforms rejected
- Demonstrated quality problem with utility administration

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Business Incentives and Energy Efficiency

- Neutralizing the Throughput Incentive
  - Traditional utility regulation connects utility sales to utility profits and fixed cost recovery, discouraging energy efficiency
- Affirmative Incentives to Promote Energy Efficiency
  - Making energy efficiency as attractive or more attractive compared with other utility investments

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Solutions to the Throughput Incentive

- Decoupling
- Lost Revenue Adjustment
- Shift Cost Recovery to Customer Charge
- Live with it (most popular answer)

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Decoupling

- Rewrites the way utility relates to its customers
- Rewrites the way utility makes money
- Rewrites the way utility performance is measured (internally and externally)

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Decoupling Seeks to Align Public and Private Interests

- Let's assume energy efficiency is a good thing for the state and the service area
- Without being naïve about this, maximizing this alignment:
  - Increases the chance that the utility will act naturally in support of energy efficiency
    - Beyond programs (DG, codes, standards, etc.)
  - Reduces likely incidence of conflict

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Context for Decoupling

- All forms of regulation offer incentives
- Utilities can be expected to respond to the incentives they are given
  - What drives profitability?
  - Management/staff pay structure
- If incentives are poorly designed, expect poor results

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Why Decouple?

- Negate the throughput incentive
  - Traditional regulation drives a utility to favor consumption
    - To increase profits
    - To create a financial cushion against contingencies
    - To assure revenues cover fixed costs, including debt
    - All utilities, including coops and munis, experience the throughput incentive
- Policies should, instead, align utility profit motives with acquisition of clean resources

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Utility Financial Structures Enhance Power of Incentives

- Production costs vary with sales, but…
- Few non-production costs vary with sales
  - So, increased sales increase profits
  - Conversely, decreased sales decrease profits
- Profits highly sensitive to changes in revenues
- The effect may be quite powerful…

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Assumptions for Hypothetical Utility: Non-Production Costs

Operating Expenses	$160,000,000
Rate Base	$200,000,000
Tax Rate	35.00%

Debt	55.00%	8.00%	4.40%	2.86%	$8,800,000	$5,720,000
Equity	45.00%	11.00%	4.95%	7.62%	$9,900,000	$15,230,769
Total	100.00%			10.48%		

Operating Expenses	$160,000,000
Debt	$5,720,000
Equity	$15,230,769
Total	$180,950,769
Allowed Return on Equity	$9,900,000

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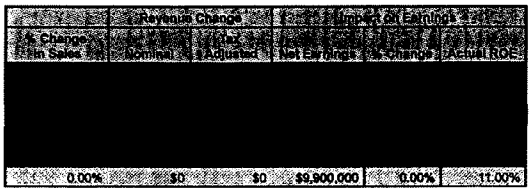
How Changes in Sales Affect Earnings



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Important elements of a decoupling plan

- Fresh cost of service
  - Including a cost of equity reflecting utility risk profile with decoupling
- Reasonable duration
  - At least 3 years, no more than 5
- Performance indicators
  - Service
  - Energy efficiency

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How Decoupling Works, Generally - 1

- Set utility cost of service in a rate case, as usual
  - Rate is based on allowed costs and assumed sales
  - Decoupling probably changes utility risk profile, and this change should be reflected in the cost of service (details later)

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How Decoupling Works, Generally - 2

- Recognize that utility is entitled to recover these costs (prudence standard applies, as usual)
- Actual Sales (kWhs) will be above or below level assumed in rate case
  - Energy efficiency (and other demand resources) will diminish sales from what they otherwise would have been

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How Decoupling Works, Generally - 3

- In order to collect the revenue previously approved given the change in sales, the rate is adjusted from time to time
  - Adjustment can be as frequent as monthly (my recommendation), and as infrequent as annually

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Alternatives: Three ways to set revenue

- Allowed Revenue: The amount found in the rate case remains until the next rate case
- Revenue per Customer: Recognize that customer count is the driver for non-production utility costs, allow revenue to be proportionate to customer count
- Recognize other trends: For example, if average residential consumption is rising over time due to societal factors, this can be factored in also

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Managing Decoupling

- Customers see periodic rate changes
  - Communication: customers can "get it"
  - Rate changes smaller that fuel adjust clause
  - More frequent changes tend to minimize magnitude and can become routine
  - Plan can cap rate change within a timeframe (i.e. rates will not rise or fall more than X% in any 12 month period)
    - Cost recovery trued up later

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How can it go wrong

- Set it and forget it
  - Regulation still important, but different
- Overlook performance indicators
  - Do not encourage destructive cost cutting
- Double down
  - If plan rate changes trend sharply up, don't put off actual adjustments in hopes that luck will change
- Bad design
  - Overlooking important cost drivers that are likely to emerge during the plan period will create a problem that may be hard to solve
  - Applying plan to only non-fuel cost part of the cost of service is more likely to be successful

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Decoupling is not about prices

- Decoupling does not change the way rates are set
  - The split between customer charges and usage charges remains
  - IUB can move toward time sensitive prices
- Decoupling does lead to rate adjustments up and down to true up revenues

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Defining The Terms of Decoupling

- **Full** Decoupling
  - Any variation in sales, due to conservation, weather, economic cycle, or other causes results in an adjustment (true-up) of collected utility revenues with allowed revenues
- **Partial** Decoupling
  - Any variation in sales, due to conservation, weather, economic cycle, or other causes results in a partial true-up of utility revenues (e.g., 90% of lost margins recovered)
- **Limited** Decoupling
  - Only specified causes of variation result in rate adjustments, e.g.,
    - (A) Only variations due to weather are subject to the true-up (i.e., actual year revenues (sales) are adjusted for their deviation from weather-normalized revenues). This is simply a weather adjustment clause
    - (B) Variations due all other factors (e.g., economy, end-use efficiency) except weather are included in the true-up
    - (C) Some combination of the above

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The Decoupling Calculation

- Utility Target Revenue Requirement determined with traditional rate case
  - By class & by month (or other period coinciding with how often decoupling adjustment is made)
- Each future period *will have* different *actual* unit sales than Test Year
- The difference (positive or negative) is flowed through to customers by adjusting Price for that period (see Post Rate Case Calculation)

Periodic Decoupling Calculation	
From the Rate Case	
Target Revenues	$10,000,000
Test Year Unit Sales	100,000,000
Price	$0.100/Unit
Post Rate Case Calculation	
Actual Unit Sales	99,000,000
Target Revenues (from above)	$10,000,000
Required Total Price	$0.10101/Unit
Decoupling Price "Adjustment"	$0.00101/Unit

Revenue Per Customer Decoupling

- Recognizes that, between rate cases, a utility's costs change mostly as a function of the number of customers served
- For each volumetric price, a "revenue per customer" average can be calculated from the rate case test year data used to set prices

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How RPC Decoupling Changes Allowed Revenues

- In any future period, the Target Revenue for any given volumetric price (i.e. demand charge or energy rate) is derived by multiplying the RPC value from the rate case by the then-current number of customers
- Distinct calculations for each rate class

Periodic Decoupling Calculation	
From the Rate Case	
Target Revenues	$10,000,000
Test Year Unit Sales	100,000,000
Price	$0.10/Unit
Number of Customers	200,000
Revenue Per Customer (RPC)	$50.00
Post Rate Case Calculation	
Number of Customers	200,500
Target Revenues ($50 X 200,500)	10,025,000
Actual Unit Sales	99,000,000
Required Total Price	$0.101768/Unit
Decoupling Price "Adjustment"	$0.001768/Unit

Changes To The RPC To Reflect Utility-Specific Conditions

- Inflation and Productivity Adjustment
  - Allowed RPC changes over time to reflect inflation (increase) and productivity (decreases)
- Separate RPC for Existing and New Customers
  - If new customers have higher or lower usage than existing customers, the RPC can be separately calculated for each
    - The "MacMansion effect"

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Risks Affected or Managed by Decoupling

- Weather
- Economic
- Regulatory Lag
- Implications for financial & business risk of utility

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What is weather risk?

- Weather risk is the risk that:
  - For the utility, revenues change on account of changes in weather
  - For the customer, bills change on account of changes in weather
    - The "commodity" portion of revenues and bills with always have weather risk for consumer (but not necessarily for the utility)
- If you receive more (or less) revenues or pay less (or more) in customer bills because of weather, then you face weather risk

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Decoupling Also Decouples Revenues From Weather

- Because Target Revenues are determined using weather-normalized values, decoupling eliminates effect of weather on utility net revenues.
- **Myth:** Decoupling "shifts" weather risk from utility to customer
- **Reality:** Utility and customer take (or avoid) weather risk together. For every weather-related decoupling price increase, there is equally likely to be a weather-related decoupling decrease

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Economic Risk

- Like weather, changes in economic conditions can change sales volume
- Decoupling has the effect of eliminating this risk as well because price adjustments are driven by actual sales

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Regulatory Lag and Full Decoupling

- Costs recovered by utility were found just and reasonable in last rate case
- Because prices are periodically adjusted to reflect changes in sales for any reason, decoupling reduces regulatory lag
- Cost of capital implications (next slides)
- Should have effect of reducing lumpiness of price changes that occur in periodic full rate cases

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Benefit of a One-Step Improvement in the Risk Profile

- S&P Indicates that a 1-step reduction in the Business Risk Profile means about a 3% lower equity capitalization ratio is needed to maintain the same bond rating

S&P Required Equity Capitalization

Risk Profile	BBB Rating	A Rating
3	35% - 45%	45% - 50%
2	32% - 42%	42% - 48%
Difference	3%	2.5%

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How a Lower Equity Ratio Produces Lower Rates

Without Decoupling	Ratio	Cost	Weighted With-Tax Cost of Capital
Equity	46%	11.0%	7.82%
Debt	54%	6.0%	2.66%
Weighted Cost			10.48%
Revenue Requirement: $1 Billion Rate Base			$ 104,800,000
With Decoupling			
Equity	42%	11.0%	7.11%
Debt	58%	6.0%	3.02%
Weighted Cost			10.13%
Revenue Requirement: $1 Billion Rate Base			$ 101,280,000
Savings Due to Decoupling Cost of Capital Benefit:			$ 3,520,000

A Lower Equity Ratio Does Not Mean A Lower ROE

- A lower equity ratio still means the utility earns the same return on equity. It simply has fewer shares of stock (and more bonds) making up its capital structure
- In the previous example, the ROE was 11%, and the cost of debt was 8%, reflecting an identical rate of profit, and an identical bond rating (and interest cost)

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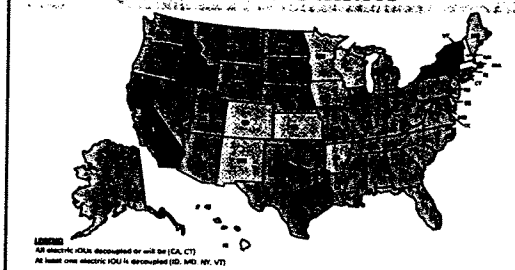
Decoupling Status: Electric Utilities



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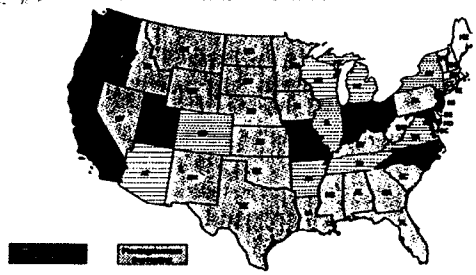
Decoupling Status: Gas Utilities



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Thanks for your attention…

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Additional Information

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Learn More

- Energy Efficiency Policy Toolkit
  - http://raponline.org/Pubs/General/EfficiencyPolicyToolkit3-1-06.pdf
- Profits & Progress Through Least-cost Planning
  - http://www.raponline.org/Pubs/General/Pandplcp.pdf
- Profits and Progress Through Distributed Resources
  - http://www.raponline.org/showpdf.asp?PDF_URL=Pubs/General/ProfitsandProgressdr.pdf
- Performance-based Regulation For Distribution Utilities
  - http://www.raponline.org/Pubs/General/DiscoPBR.pdf
- Performance-Based Regulation in a Restructured Electricity Industry
  - http://www.synapse-energy.com/Downloads/pbr-naruc.doc
- ACEEE
  - http://www.aceee.org

51

Sources

- AZ:
  - Decision 67744 in Docket E-01345A-05-0816, page 20 and paragraph 45 of the Settlement: Use "search" function at http://edocket.azcc.gov/
- CT:
  - Conservation and Load Management Plan 2008, Docket 07-10-03, October 2007: http://www.dpuc.state.ct.us/dockcurr.nsf/[illegible]/$FILE/FINAL%20[illegible]%20ELECT%20PLAN.pdf.
  - Final Decision for Docket 07-10-03: http://www.dpuc.state.ct.us/dockcurr.nsf/[illegible]?OpenDocument

52

Sources

- MN: ACEEE Description of MN incentives: http://aceee.org/pubs/u061.pdf?cfid=808004&cftoken=98549903
- Statutes:
  - http://www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=STAT_CHAP_SEC&year=2007&section=216B.16
  - http://www.revisor.leg.state.mn.us/bin/getpub.php?pubtype=STAT_CHAP_SEC&year=2007&section=216B.241
- VT: EEU Contract:
  - http://www.state.vt.us/psb/EEU/2006-2008Contract/2006-2008EEUContract.htm

53

Sources

- MA :
  - Commission Order: http://www.mass.gov/Eoca/docs/dtc/electric/06-34/5807dpuorder.pdf
  - ACEEE: http://www.aceee.org/pubs/u061.htm
- NV:
  - Nevada Administrative Code 704.9523 (3)(e)(4): http://www.leg.state.nv.us/NAC/NAC-704.html#NAC704Sec9523
  - NAC 704.9484 (3)(c): http://www.leg.state.nv.us/NAC/NAC-704.html#NAC704Sec9484

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Additional Plan References

- CA
  - www.epa.gov/cleanrgy/pdf/keystone/prusnekpresentation.pdf
  - www.cpuc.ca.gov/published/final_decision/15019.htm
- MD
  - www.energetics.com/madri/pdfs/timmerman_101105.pdf
  - www.bge.com/vcmfiles/bge/files/rates%20and%20tariffs/gas%20service%20tariff/brdr_3.doc
- OR
  - www.raponline.org/pubs/general/oregonpaper.pdf
  - www.advisorinsight.com/pub/indexes/600_mi/nwn_ir.htm
  - www.nwnatural.com/cms300/uploadedfiles/24190ai.pdf
  - http://apps.puc.state.or.us/orders/2002ords/02-633.pdf
- NJ:
  - www2.njresources.com/news/trans/newsrept.asp?year=2005

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