Overview of Utility Incentives

Presentation to the
Kansas Corporation Commission
Energy Efficiency Incentives Workshop
August 26, 2008

Presented by
Wayne Shirley

The Regulatory Assistance Project

50 State Street, Suite 3
Montpelier, Vermont USA 05602
Tel: 802.223.8199
Fax: 802.223.8172

27 Penny Lane
Cedar Crest, New Mexico USA 87008
Tel: 505.286.4486
E-Fax: 773.347.1512

110 B Water St.
Hallowell, Maine USA 04347
Tel: 207.623.8393
Fax: 207.623.8369

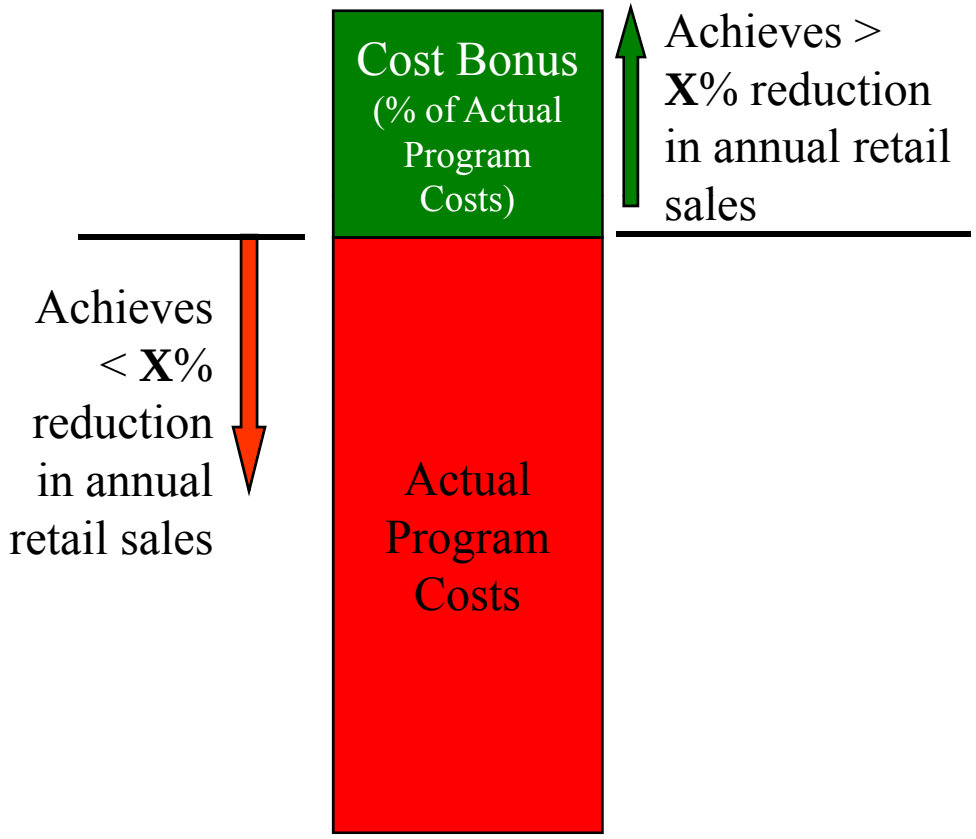
Website:
http://www.raponline.org

About RAP

- RAP is a non-profit organization providing technical and educational assistance to government officials on energy and environmental issues. RAP Principals all have extensive utility regulatory experience.
- Funded by US DOE & EPA, Energy Foundation and other foundations, and international agencies. We have worked in 40+ states and 16 nations
- RAP advises governments directly, does not appear for parties in contested cases (but may be Commission witness or adviser)
- Also provides educational assistance to stakeholders, utilities, and advocates

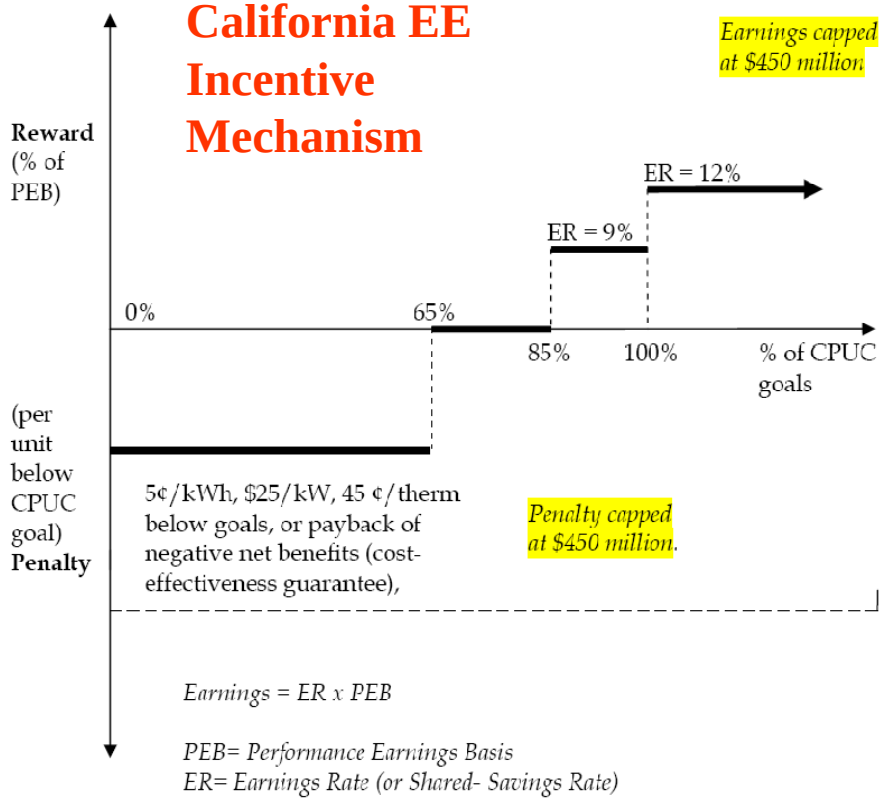
Performance Target Incentive Mechanism

- Utility able to fully recover program costs
- As an incentive, utility is rewarded an additional % of total program costs
- Incentive level typically tied to achievement of energy (and/or demand) savings goals



Shared Net Benefits Incentive Mechanism

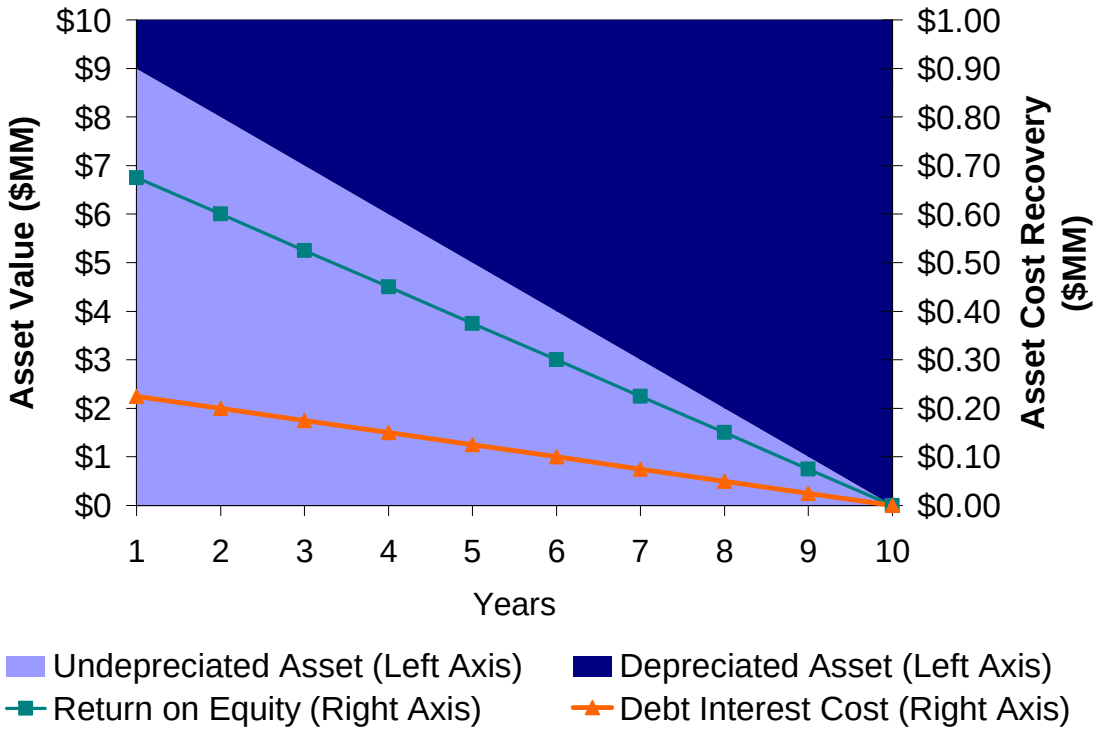
- Utility retains % of the net resource benefits of the EE program portfolio
- Incentive level typically tied to achievement of energy savings goals or level of net benefits
- Benefits are typically defined as avoided costs of energy, capacity, T&D savings, and environmental benefits (in some cases)



Source: CPUC Decision 07-09-043

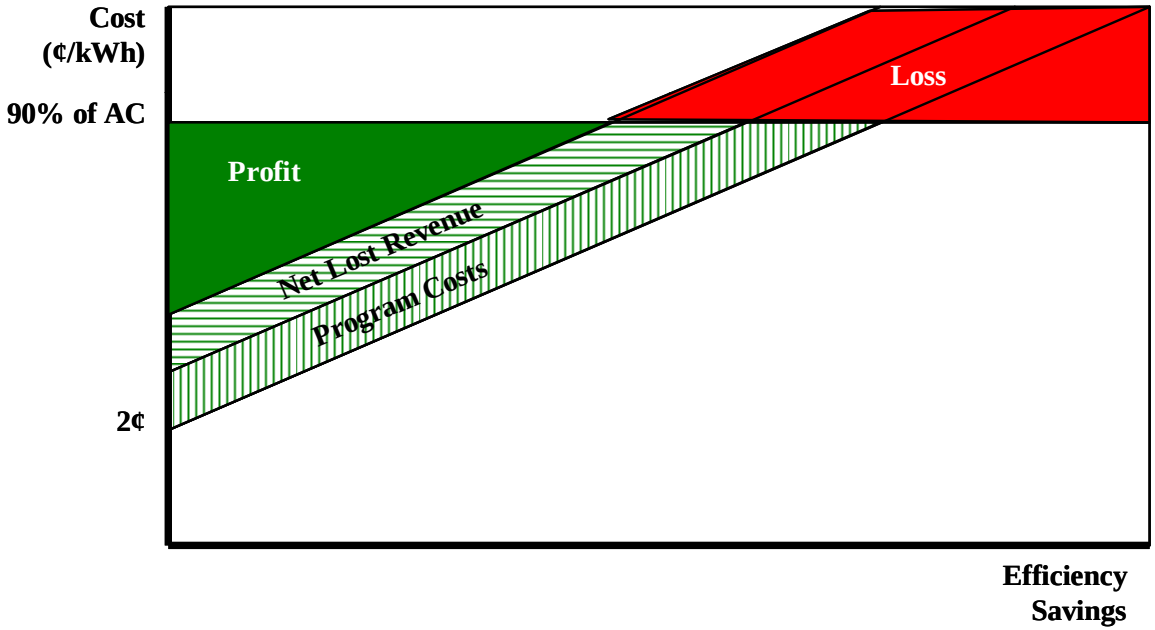
Cost Capitalization Incentive Mechanism

- Utility is able to capitalize/ratebase EE program costs (similar to supply-side assets)
- EE investment is typically amortized over avg. lifetime of EE measures
- Utility earns a return on the un-depreciated EE asset, often with a kicker to its authorized ROE



"Save-a-Watt" Incentive Mechanism

- Duke Energy proposed an incentive mechanism that values DSM demand and energy savings at 90% of their lifetime avoided costs
- Avoided "investment" in energy and capacity is amortized over lifetime of the EE measures
- Utility able to *charge* ratepayers a return on the un-depreciated avoided "investment"
- Mechanism covers program costs, any net lost revenue, and traditional incentive payment



Examples of Positive Incentives

- Arizona (Net Shared Benefits)
- Minnesota (Shared Net Benefits)
- Connecticut (Performance Target)
- Massachusetts (Performance Target)
- Vermont (Performance Target for 3rd Party Administrator)
- Nevada (Cost Capitalization)

Net Shared Benefits: Arizona, Minnesota

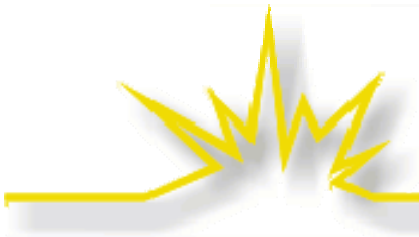
- Arizona:
  - Required funding levels >$10 million
  - Includes low income assistance
  - Utility keeps a portion of net economic benefits
  - Incentives capped at maximum of 10% of DSM budget
- Minnesota :
  - Utilities receive a percentage of net benefits energy-savings goals are met or exceeded
  - @ 150% of energy savings goal incentive ≈30% EE budget

Positive Incentives: Connecticut, Massachusetts, Vermont

- Connecticut:
  - Utilities receive "performance management fees" tied to performance goals
  - Incentives earned for outcomes from 70-130% of pre-determined goals (70% earns 2% of budget as pre-tax incentive, 80% earns 3%, and so on, up to130% which earns an 8% pre-tax incentive)
- Massachusetts:
  - Program-by-program shareholder incentives are 5% of expenses after taxes
  - Threshold performance level is 75%, and exemplary performance is set at 110% of program design (i.e. expected performance)
- Vermont:
  - Receives up to 3.5% of its budget during a three-year period
  - Incentive categories include program results (electricity savings, total resource benefits, peak summer and winter demand savings overall and in certain geographic areas) and CFL sales by grocery stores
  - Minimum performance requirement standards include class spending minimums and geographic equity

Cost Capitalization: Nevada

- DSM bonus rate of return 5% (i.e. 500 basis points) higher than returns for supply investments
- Applies to all "Critical Facilities":
  - Reliability
  - Diversity of supply- and demand-side resources
  - Development of renewable resources
  - Fulfilling statutory mandates and/or retail price stability
- Can earn bonus return on equity (above) or get CWIP treatment or creation of "regulatory asset" account



Decoupling: Mechanics and Issues

Context for Decoupling

- All forms of regulation are incentive regulation
- Utilities can be expected to respond to the incentives they are given
  - Direct relationship to profitability
  - Management pay structure
- If incentives are poorly designed, expect poor results

Utility Financial Structures Enhance Power of Incentives

- Few non-production costs vary with sales
  - So, increased sales increase profits
  - Conversely, decreased sales decrease profits
- High leverage means that utility profits represent a relatively small share of total cost of capital
  - This makes profits highly sensitive to changes in revenues
- The effect may be quite powerful…

Assumptions for Hypothetical Utility: Non-Production Costs

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	
			Nominal	Tax Adjusted	Nominal	Tax Adjusted
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%		

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

	Revenue Change		Impact on Earnings		
% Change in Sales	Nominal	Tax Adjusted	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%

Policy Framework

- "Throughput" incentive is at odds with a requirement to invest in customer-located clean energy:
  - Energy Efficiency
  - Distributed Generation/Self-generation
- Policies should, instead, align utility profit motives with acquisition of these clean resources

Revenue-Profit Decoupling: What is it?

- Breaks the mathematical link between sales volumes and profits
- Objective is to make profit levels immune to changes in sales volumes
  - This is a revenue issue
  - This is not a pricing issue
  - Volumetric pricing and other rate design (e.g. TOU) may be "tweaked" in presence of decoupling, but pricing structures need not be changed
- Not intended to decouple customers' bills from consumption

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

Revenue Decoupling: The Essential Concept

- Basic Sales-Revenue 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
    - Variety of ways of tracking differences
  - The difference (positive or negative) is flowed back to customers in a small adjustment to unit rates

Revenue Decoupling: The Basic Mechanics

- Basic Revenue-Profit Decoupling has two primary components:
  - 1) Determine a "target revenue" to be collected in a given period
    - In the simplest form of revenue decoupling (sometimes called "revenue cap" regulation), Target Revenues are always equal to Test Year Revenue Requirements
    - Other approaches have formulas to adjust Target Revenue over time
  - 2) Set a price which will collect that target revenue
    - This is the same as the last step in a traditional rate case – i.e. Price = Revenues ÷ Units

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	$0.10/Unit

RPC 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

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

Periodic Decoupling Calculation	
From the Rate Case	
Target Revenues	$10,000,000
Test Year Unit Sales	100,000,000
Price	$0.10/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

Risks Affected By Decoupling

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

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

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 in near zero sum wealth transfer (taxpayers take part of risk as well). For every weather-related decoupling price increase, there is equally likely to be a weather-related decoupling decrease
  - Wealth transfer is, therefore, a function of the vagaries of the weather – consider whether there are any public policies furthered by this phenomenon

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

Regulatory Lag

- Because prices are periodically adjusted to reflect changes in sales, decoupling has effect of reducing regulatory lag
- May have cost of capital implications
- Should have effect of reducing lumpiness of price changes that occur in periodic full rate cases

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%

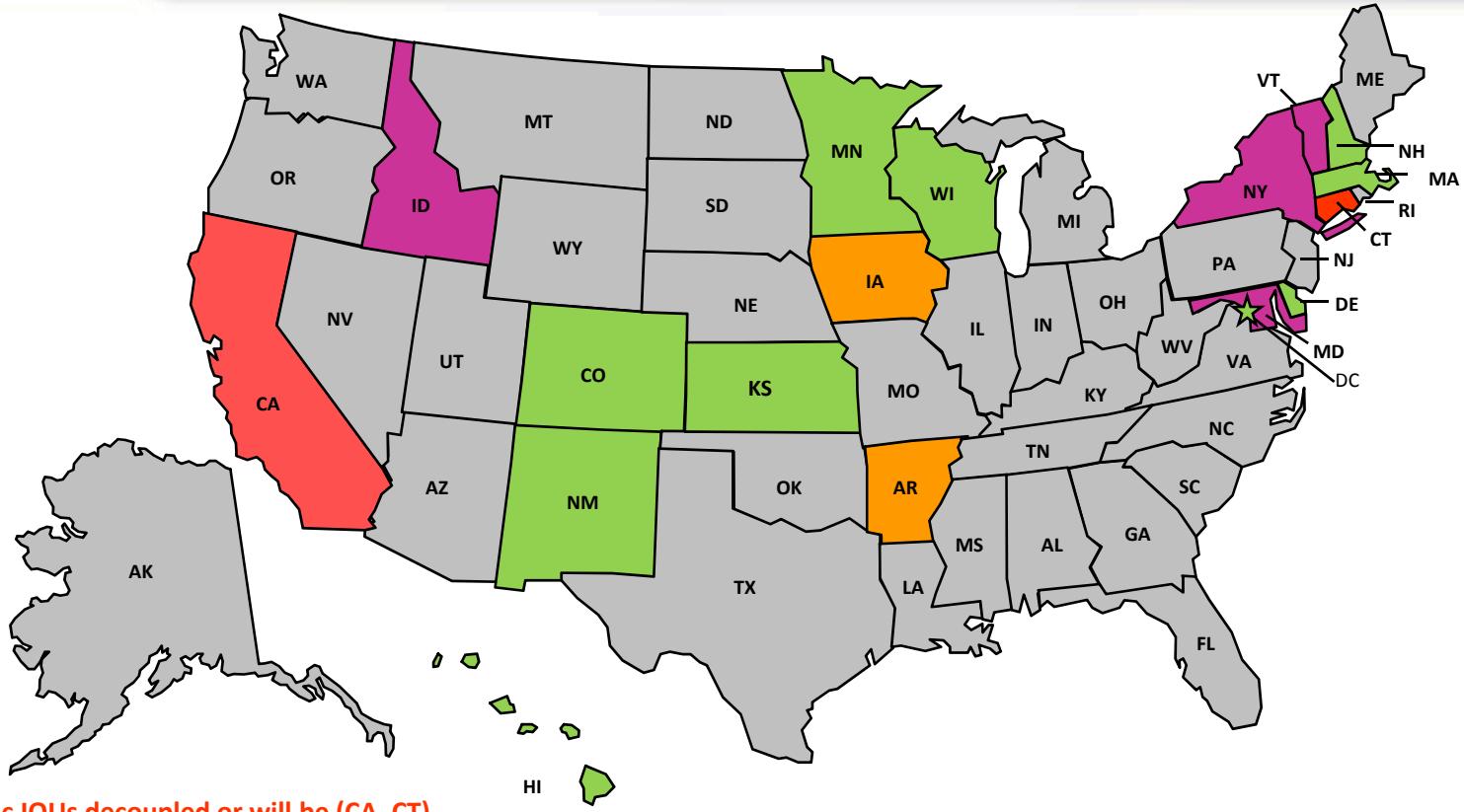
How a Lower Equity Ratio Produces Lower Rates

Without Decoupling	Ratio	Cost	Weighted With-Tax Cost of Capital
Equity	45%	11.0%	7.62%
Debt	55%	8.0%	2.86%
Weighted Cost			10.48%
Revenue Requirement: $1 Billion Rate Base			$ 104,800,000
With Decoupling			
Equity	42%	11.0%	7.11%
Debt	58%	8.0%	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)

Decoupling Status: Electric Utilities



LEGEND

All electric IOUs decoupled or will be (CA, CT)

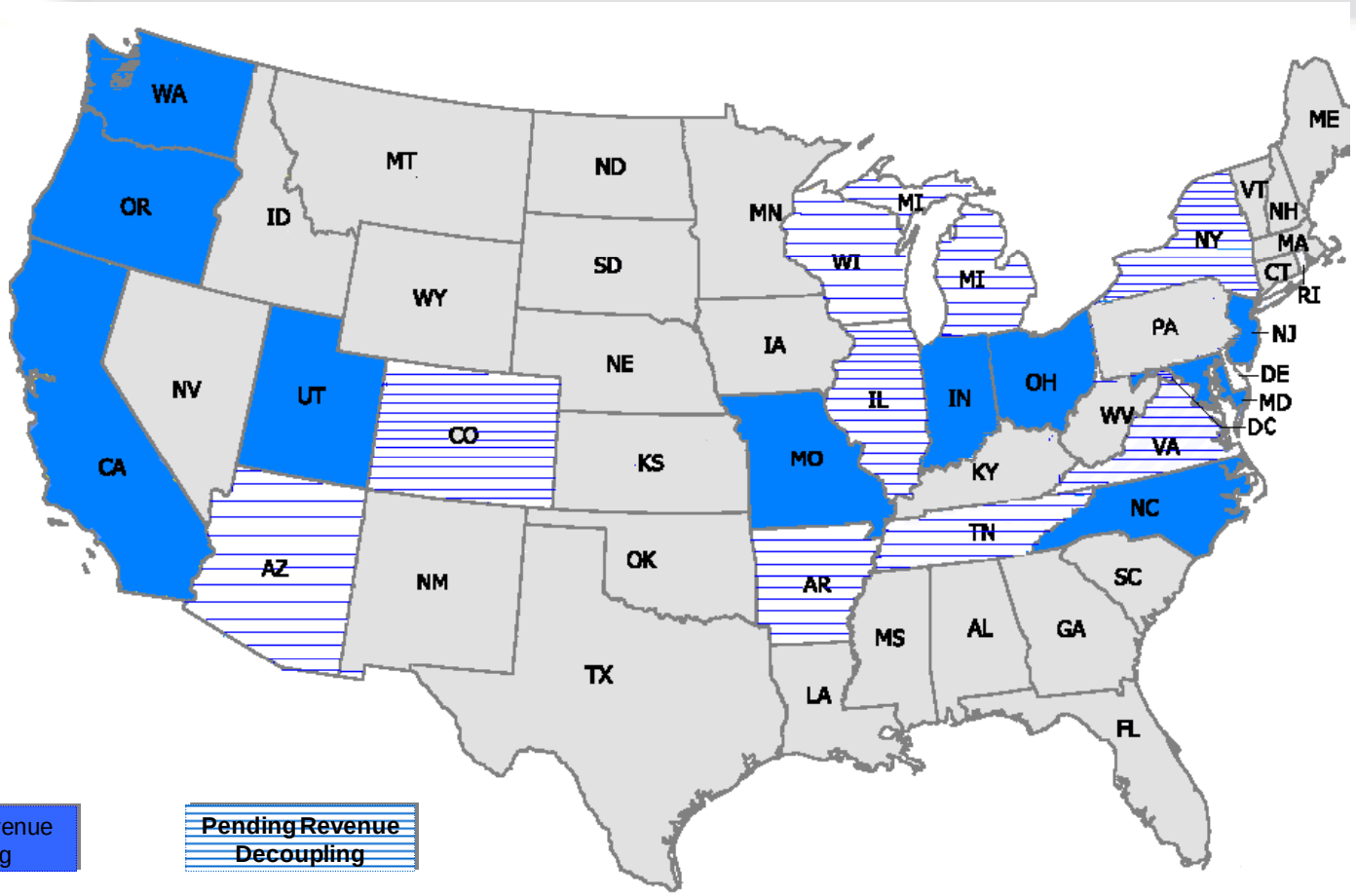
At least one electric IOU is decoupled (ID, MD, NY, VT)

States considering decoupling (docket or investigation opened, or utility has filed proposal) (CO, DC, DE, HI, KS, MA, MN, NH, NM, WI)

States where commission has indicated it will consider decoupling proposals (AR, IA)

Source: RAP April 16, 2008

Decoupling Status: Gas Utilities



Thanks for your attention…

- Website: http://www.raponline.org
- E-mail: wshirley@raponline.org
- Questions?

Additional Information

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

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/6eaf6cab79ae2d4885256b040067883b/c573a5f38efe099a85257367006c6d9d/$FILE/FINAL%202008%20ELECT%20PLAN.pdf;
  - Final Decision for Docket 07-10-03:

    http://www.dpuc.state.ct.us/dockcurr.nsf/6eaf6cab79ae2d4885256b040067883b/ea1e2ba8f3cba3858525746e006de69f?OpenDocument

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

Sources

- MA :
  - Commission Order: http://www.mass.gov/Eoca/docs/dte/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

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