RAP Energy solutions for a changing world

The Basics of Decoupling, A Superior Solution to the Throughput Incentive and remarks on EE Performance Incentives

NCSL Webinar

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Introducing RAP and Rich

- RAP is a non-profit organization providing technical and educational assistance to government officials on energy and environmental issues. RAP staff have extensive utility regulatory experience. RAP technical assistance to states is supported by US DOE, US EPA and foundations.
  - Richard Sedano directs RAP's US Program. He was commissioner of the Vermont Department of Public Service from 1991-2001 and is an engineer.

Outline

- Why do Decoupling
- How basic Decoupling works
- Key choices states and utilities make in implementing Decoupling
- Alternatives to Decoupling
- Performance Incentives

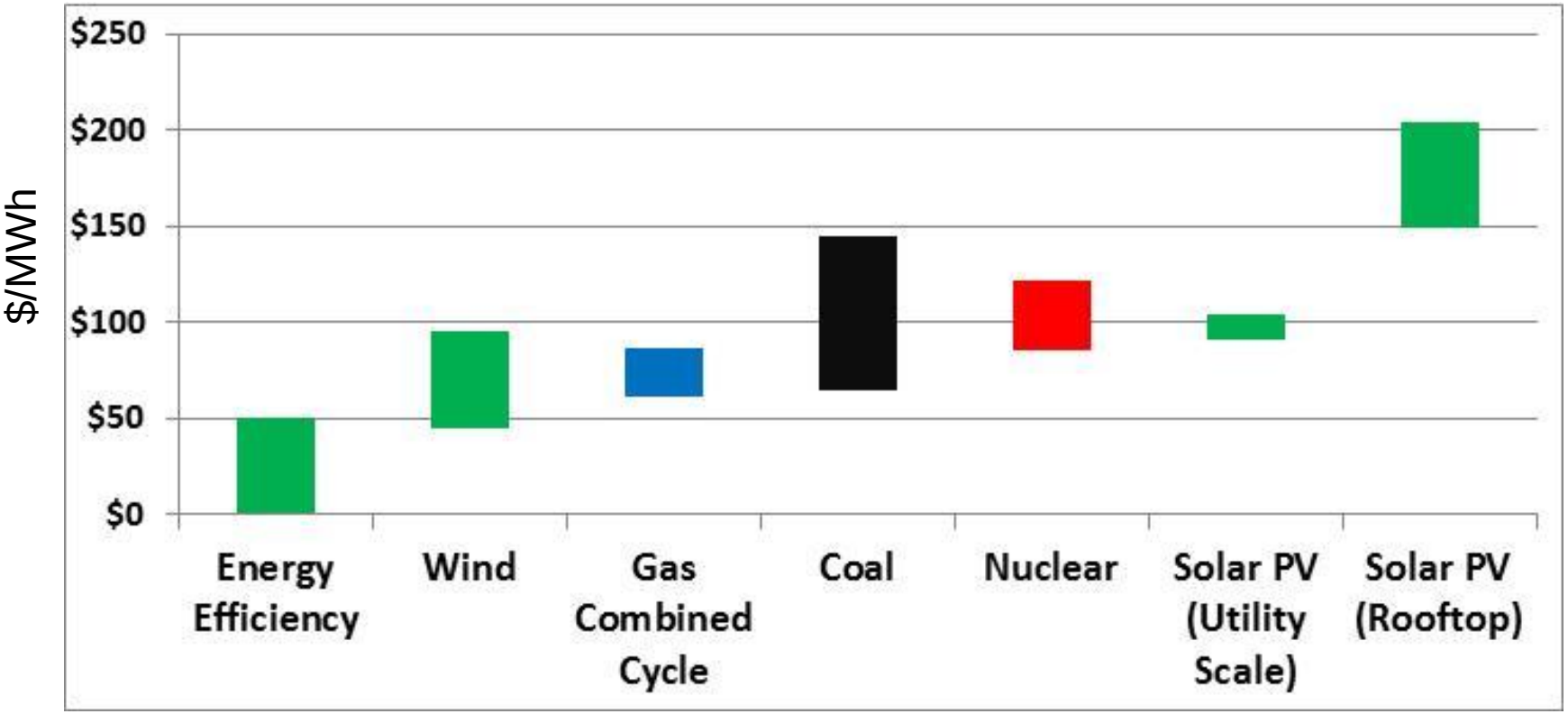
If the answer is decoupling, what is the question?

- Traditional regulation motivates a utility
  - to increase sales, and
  - to resist reducing sales
  - This is the '**throughput incentive**'

Is there something wrong with the throughput incentive?

- There are many reasons why utility sales might go up or down, but **what should the utility motivation be**?
- Aligning utility incentives with the public interest to the maximum degree
  - Public interest appears to be in conflict with the throughput incentive
  - An aggressive EERS is likely to be in conflict with the throughput incentive

Energy Efficiency Is the Lowest Cost Resource



Source: Lazard, 2014

How Changes in Sales Affect Earnings: It's Significant

	Revenue Change		Impact on Earnings		
% Change in Sales	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%

Deeper: What's the Problem with the Throughput Incentive?

- Utility rate designs recover embedded fixed (investment and labor) costs in the kWh charge
- If sales decline, revenue declines, if sales increase, revenue increases
- EE, DG, other policies reduce sales …
  - Not just what utility does, but markets do too
  - Plus other reasons sales change (weather)
- **Decoupling** is a tool to address the throughput incentive

At a high level, what does decoupling do?

- Decoupling is a regulatory mechanism to ensure that utilities have a reasonable opportunity to collect roughly the same revenues that they would under conventional regulation, independent of changes in sales volume **for which the regulator wants them to be indifferent**.

What does decoupling do?

- Adjusts rates (prices) and usually revenues between rate cases
- Relies on found revenue requirement
- When sales deviate from rate case assumption, rate is adjusted to collect calculated revenue
  - Basis can reflect changes owing to trends or forecasted events, an added level of complexity

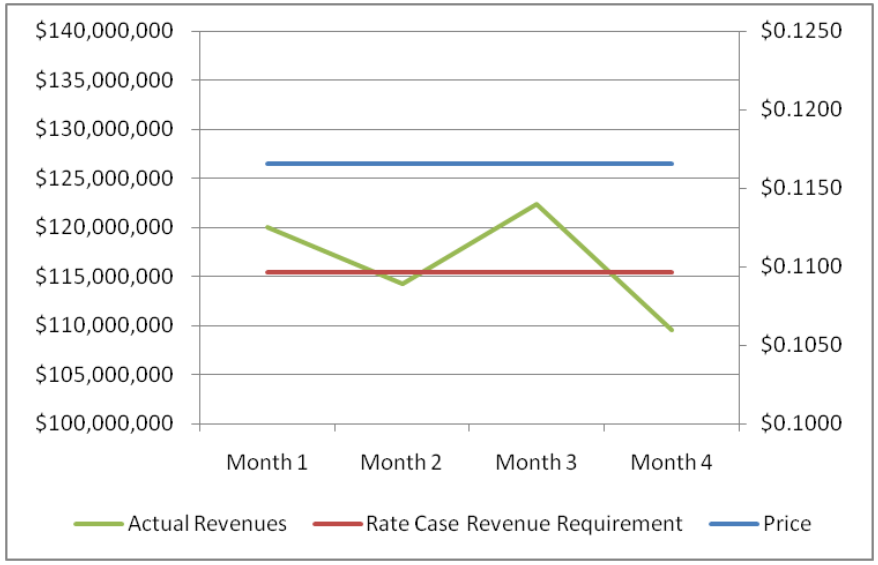
Revenue Regulation: a more descriptive term for what we are doing

Comparing Decoupling with Traditional Regulation

- Traditional regulation sets prices and lets revenues rise and fall with sales volumes
- Most utility costs, other than power supply vary little in the short run with respect to sales
- If prices are set to recover non-power costs by volume, then lower/higher sales means lower/higher revenues (and profits)
- Decoupling resets revenues to recover target non-power costs by adjusting the price

A Well-Designed Decoupling Mechanism Provides Predictable Revenue Independent of Sales

Traditional Regulation: Constant Price = Fluctuating Revenues/Bills



Revenues = Price * Sales

Decoupling: Precise Revenue Recovery = Fluctuating Prices

Price = Target Revenue ÷ Sales

Simple Calculations: Basic Regulation

- Rate Base x Rate of Return = Return
- Return + Operating Expenses + Taxes = Revenue Requirement
- Revenue Requirement / Sales (kWh) = Rates ($/kWh)

Traditional Rate of Return Revenue Requirement

- Rate Base (value of assets)
- x Rate of Return (set by PUC)
  - Debt and Equity (assume 50-50)
- = Return
- + Operating Expenses and Taxes
- = Revenue Requirement

- $20,000,000
- x 8.0%
  - (10% for equity, 6% for debt)
- $ 1,600,000
- $ 8,400,000
- $10,000,000

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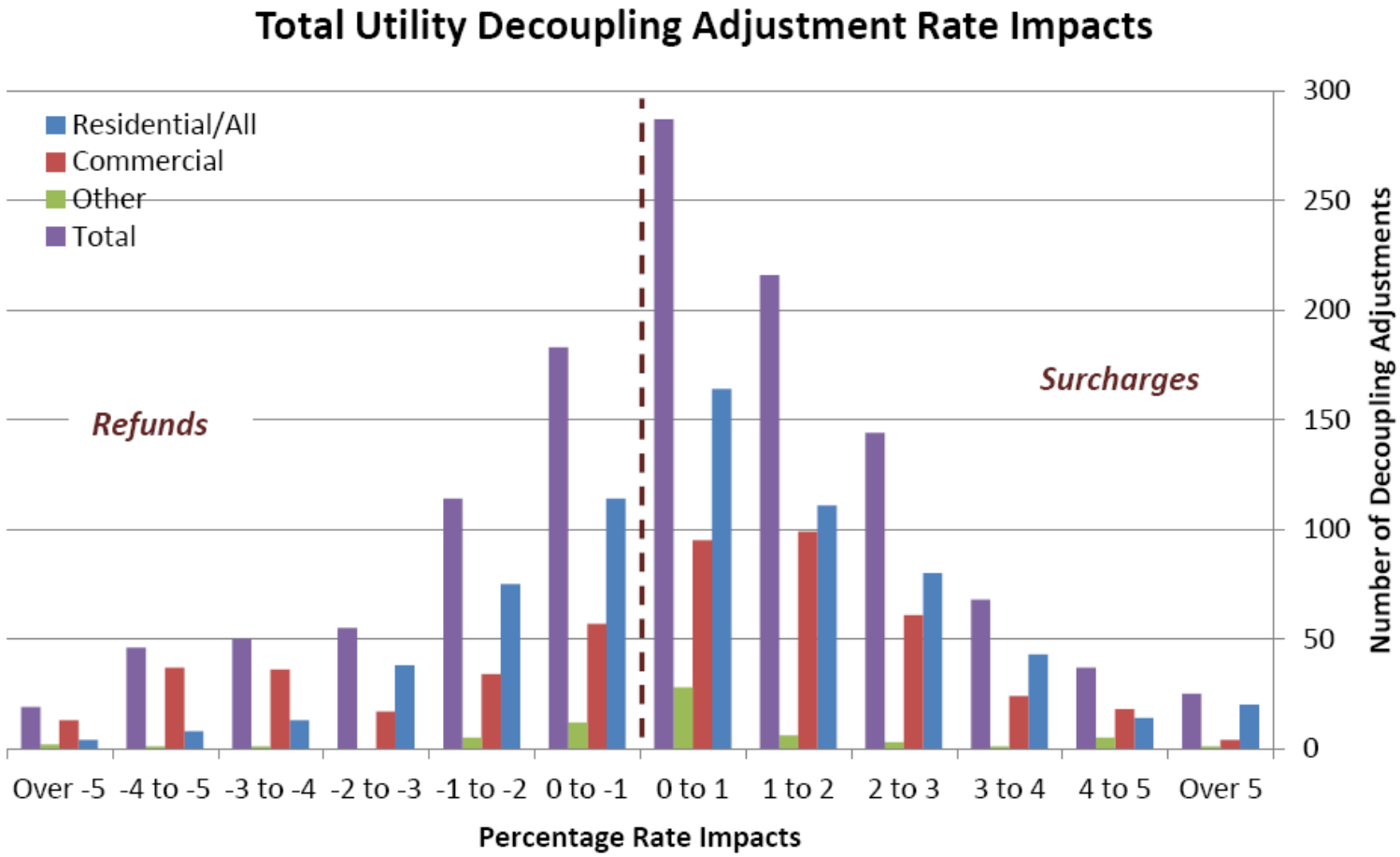
The Decoupling Calculation

- 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	$	0.10000
Post Rate Case Calculation		
Actual Unit Sales		99,500,000
Required Total Price	$	0.1005025
Decoupling Price	$	0.0005025

No change in target revenue

Decoupling Rate Adjustments Have Generally Been Small



Pamela Morgan

Design Goal for Decoupling

- Over time, utility revenues track what frequent rate cases would have produced
  - Note emphasis on revenues
  - Because over the term of the decoupling mechanism, non-power costs do not change that much
- Works best if decoupling becomes the norm

Decoupling Downsides

- Rates change more frequently (generally < power cost adjustment riders) and outside a general rate case
- Great success with EE and DG will increase rates, even as total costs may ⬇⬇
  - Note that EE participants tend to save far more than rates tend to rise
- PUC, others unfamiliar with decoupling
- Delays rate cases, which can be illuminating

Some Consumer Protections for Decoupling

- Minimum EE Performance
- Symmetry of design
- Requirement of periodic rate cases to adjust rates
- Cap on rate increase amount permissible in any given year
- Reductions in equity capitalization ratio to reflect reduced earnings volatility

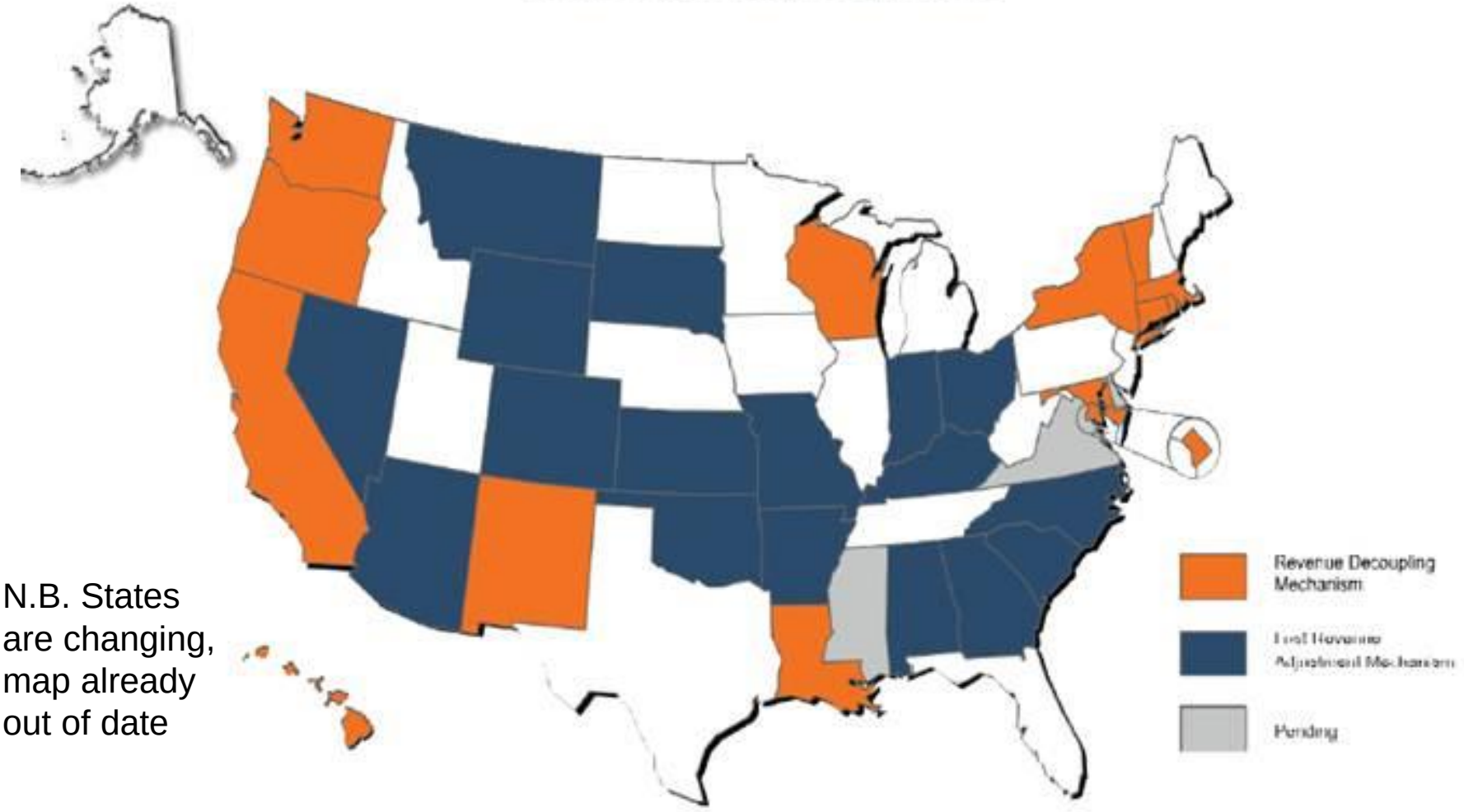
Some Decoupling Choices Regulators Are Asked to Make

- Apply to non-power costs or all costs?
- Frequency of rate adjustments? Annual, monthly
- Limits on rate adjustments, disposition of deferrals
- Assessing the changing risk of the firm?
- Factor in weather?
- Allow revenue to change (per Customer, forecast)?
- Include industrial customers?
- Trigger for next decoupling mechanism?
- Overlay performance?
- What to do with earnings above and below target ROE?
- Other public interest progress

Some Other Solutions to the Throughput Incentive

- Frequent Rate Cases
- Forecasted Revenue Requirements
  - Future test year, for multiple years
- Lost Revenue Adjustments
- Recover more revenue in the monthly customer charge (and less in volume)
- Third party administrator for EE

Lost Revenue Adjustment & Revenue Decoupling Mechanisms for Electric Utilities by State



N.B. States are changing, map already out of date

Utility Performance Incentives for Energy Efficiency

Are there incentives in utility regulation?

- Always

Are the Incentives Explicit?

- Yes, look at how utilities make money
- In traditional utility regulation, net income flows from
  - Return on **invested capital**
  - Margins on **sales growth** between rate cases
    - Because incremental sales revenue > marginal cost
    - Decoupling removes this
- Utilities are good at "playing the game" offered by regulation, whatever the rules

Are the Incentives Intentional?

- No, not in most states
- More thought could go into whether utility incentive practice **aligns** with public policy
  - Or how utilities can better support the public interest
  - Sometimes, utilities are candidates to "pass through" public policy because it is easier than legislating and taxing

Routine Regulation

- Do next year what we did last year
  - Safe
  - Adequate

Undifferentiated Earnings

- Earnings come to the utility whether it is serving actual public policy goals (which might be coincident with traditional regulation), or not
  - Investment in the system is vital, of course
  - If you think resource constraints (**air**, **land**, **water**) are important, current practice is a problem (ask: why should CFO care?)
- How to be **strategic** about utility earnings?

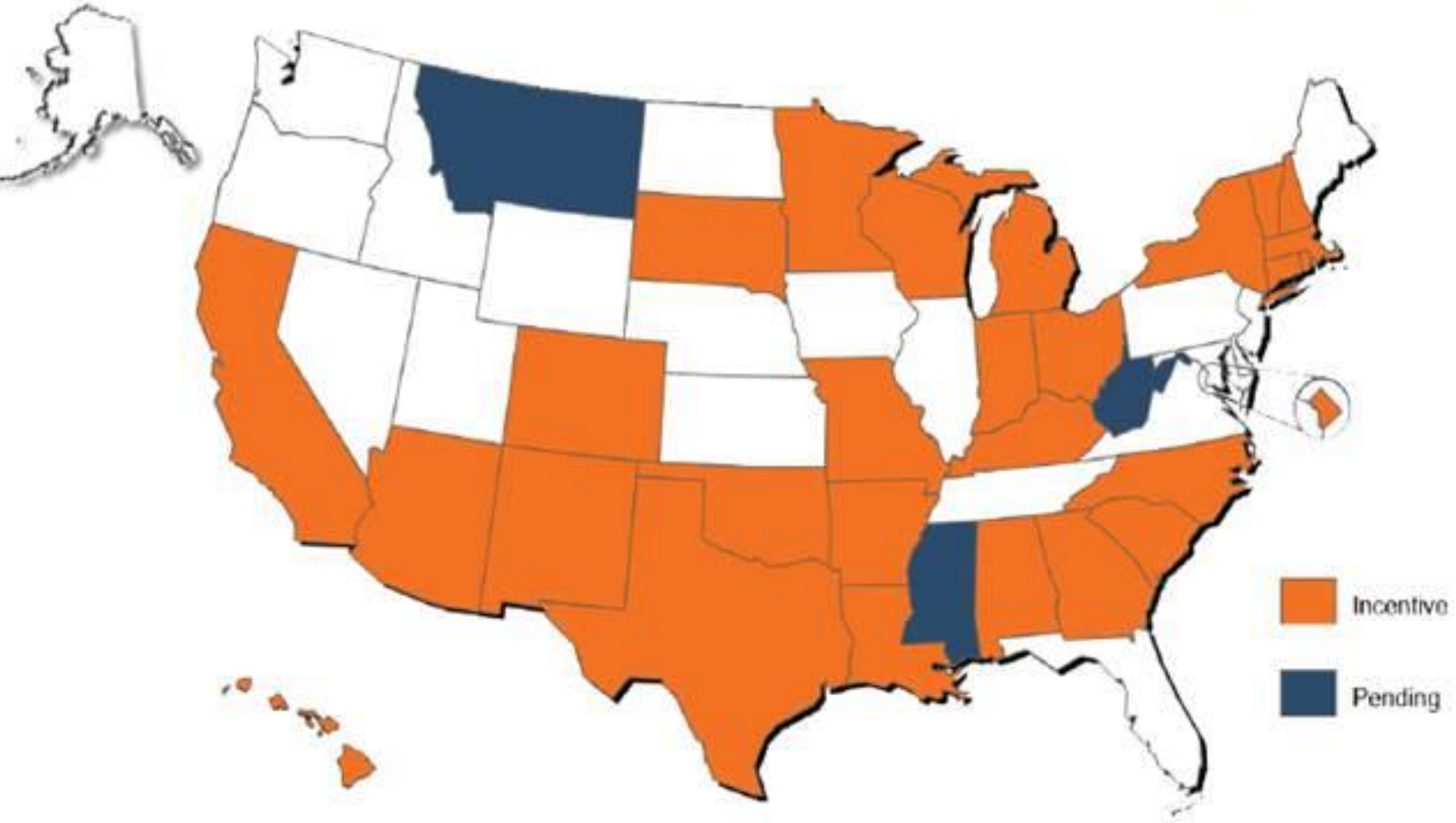
Traditional Regulation of Energy Efficiency and Performance Incentives

- Established view: If EE is good for customers, no added incentive for utilities is necessary
- Alternative views:
  - EE can be based on **"compliance"** (good) or on **"innovation"** and **"inspiration"** (better >> best)
  - EE, a priority, competes for utility capital and management attention with investments that earn and benefit from attractive incentive

Financial Incentives for Energy Efficiency: Methods

- Return on Equity Bonus
- Performance Bonus
- Shared Saving
- Shared Avoided Cost

EE Performance Incentives for Electric Efficiency Providers by State



Decoupling Resources

- Revenue Regulation and Decoupling: A Guide to Theory and Application
- Decoupling Case Studies: Revenue Regulation Implementation in 6 States
- A Decade of Decoupling for US Energy Utilities: Rate Impacts, Designs and Observations

About RAP

The Regulatory Assistance Project (RAP) is a global, non-profit team of experts that focuses on the long-term economic and environmental sustainability of the power sector. RAP has deep expertise in regulatory and market policies that:

- Promote economic efficiency
- Protect the environment
- Ensure system reliability
- Allocate system benefits fairly among all consumers

Learn more about RAP at www.raponline.org

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