

Regulation toward More Energy Efficiency in Southeast US

SEARUC 2010

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The Regulatory Assistance Project

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



About the Regulatory Assistance Project

- 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.
 - Richard Sedano was commissioner of the Vermont Department of Public Service from 1991-2001 and is an engineer.
- Funded by foundations and the US Department Of Energy. We have worked in nearly every state and many nations.
- Also provides educational assistance to stakeholders, utilities, advocates.



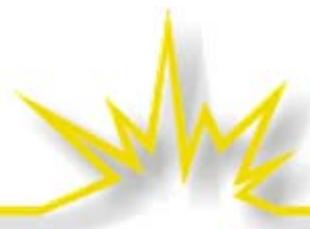
Today

- A sample from the regulatory workshops RAP delivers for PUCs on energy efficiency
- Focus is on:
 - How to move customers toward efficient choices and
 - How to address business incentives for utilities associated with delivering and supporting energy efficiency



Energy Efficiency Programs

- Increasing numbers of states have them
- Because energy efficiency doesn't just happen



Market Barriers

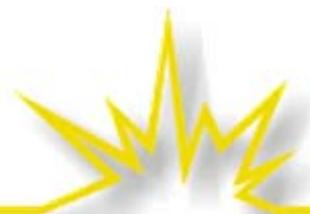
Facing Energy Efficiency

- Awareness
- Information, Knowledge, Confidence
 - Customers, stores, contractors, suppliers, etc.
- Opportunity to make a decision
- Upfront cash
- Long run cash, Financing
- Split Responsibility (the renter's dilemma, new construction, supply chains)



What is an Energy Efficiency Program?

- A business plan to address barriers to investment in cost-effective energy efficiency (with ancillary benefits)
 - Create conditions for customer to say “YES!”
 - Best program does **just** what is required to motivate action by the key decision-maker
 - Who is the decision-maker?
 - What is the problem or barrier?
 - What is the answer?



Use of Financial Incentives for Customers

- All ratepayers paying program participants to do something helpful to all: EE a resource
 - Not a give-away or promotion
- Justified by Benefit/Cost analysis
 - Cheaper than supply over long run
- Manage incentives carefully
 - Link amount to desired effect, expect to ramp down incentive as higher standard becomes ordinary, watch for new tech needing support



Delivering Energy Efficiency Through Utility Rates

- Consumers pay because there are system benefits to all from energy efficiency
 - Utilities or 3rd party administrator oversee
 - Network of implementation contractors
- Supply chain of services and products
 - Trade allies
- Leadership guides, reinforces success
- Regulators oversee progress and direction



Leadership and Clarity

- Leadership is important with energy efficiency
 - It is a departure from traditional strategies to meet energy needs. Some professionals are skeptical of energy efficiency value despite record of success.
 - It relies on investments in assets not owned or controlled by the utilities
 - To overcome “legacy friction” and apply current imperatives and lessons of success from other states, clear, unambiguous leadership is valuable

Important choice: make new system that takes time to grow and apply lessons, or fast implementation that makes mistakes?

Rates vs. Bills:

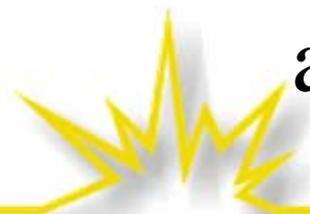
EE as a Strategic Resource

- Energy efficiency affects rates
 - Immediate increase to pay for programs
 - Long run effect on rates depends on magnitude of avoided cost
 - Significant avoided costs may lead to lower rates even with lower sales
- In the short run, energy efficiency lowers bills to participants, raises bills to non-participants



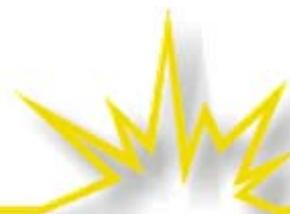
Bills vs. Total Cost: EE as a Strategic Resource

- Energy efficiency reduces total system costs
 - By definition, based on Benefit/Cost screening
 - Allows more money in general economy to go to investment, saving, fun, etc.
- Non-participants may pay more or less on their bills in the long run, depending on magnitude of avoided costs
 - Avoidable generation can be pretty expensive!



Energy Efficiency as a Cost of Service and a Resource in Leading States

- **SPENDING:** Energy efficiency programs represent 2 - 4.5% of the cost of electricity in states with significant programs
- **SAVINGS:** These are producing annual energy savings of 1 - 2% compared with sales
 - Several states on track to get to these levels of savings based on statute or commission order



Aside: Industrial Customers and Energy Efficiency

- Global competition
 - Motivates energy efficiency investments
 - Limited by internal capital requirements and internal rate of return rules (≤ 2 yr payback)
- Value to utility customers is a different perspective
 - More EE is justified by Benefit/Cost tests
 - Programs acquire this added increment
 - **Opt out** strands this resource, **self direct** can work 13



Ancillary Benefits of Energy Efficiency

➤ Environment

- The cleanest kWh is the one not used

➤ Quality, Comfort

- Efficient products and processes also tend to be of higher quality and better engineering; living and working spaces work better

➤ Economic Development

- State can use availability of EE as a quality enhancement in attracting businesses, jobs



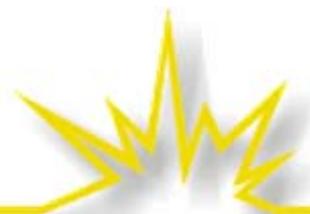
How Much Is Possible?

- A new plan by the Northwest Power and Conservation Council finds that achievable, cost-effective energy efficiency could meet 85 percent of forecasted load *growth* in the four-state region over 20-year study period
 - Pacific NW has high proportion of electricity vs. gas, high per-capita electricity use, low cooling loads, long history of efficiency
 - Results at <http://www.nwcouncil.org/energy/crac/meetings/2009/06/Default.htm>
- Technology delivering new ways to save



PUC challenges

- Statutory Direction/Foundation
- Trade off of value and cost
 - To get benefits, include costs in rates
- EE is different from other things utilities do
 - About customers
 - Markets and technologies changing, misfires
- Rules? Or just do energy efficiency in dockets?
- Regional programs (utility-utility, electric-gas)
- Leadership, get incentives right, equity, strategic resource, promote innovation not just compliance



Major EE Trends

- Whole building programs vs. widget replacement: “**Deep**” savings
- Smart grid, smart policies
- Carbon regulation, Air regulation and foundational energy policies
 - Most of these policies make sense anyway
- Improved **labels, codes** and **standards** raise the floor for new buildings and products



High Regulation Purpose: Addressing Incentives

Utility Business Incentives regarding efficiency

- Cost recovery
- Reversing the throughput incentive
- Providing performance incentives

Customer Incentives regarding efficiency

- Prices (how much can I save?)
- Programs (how easy is it to save?)



Cost Recovery

- Rate cases include EE costs
 - Forward looking (better for EE)
 - Historic
- Tariff rider for energy efficiency
 - Addresses inherent ups and downs in EE programs and their costs
 - Widely used, credited with calming effect
 - May not be authorized in your state



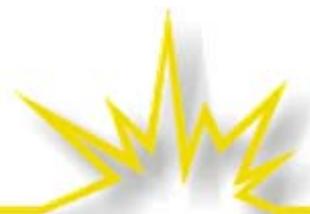
The Throughput Incentive

- Existing rates are designed to produce revenues to cover fixed costs from last rate case
- Incremental sales add or subtract to revenue available to cover fixed costs
- Utility motivations toward energy efficiency are influenced by this mathematical effect
 - Especially if EE targets are significant



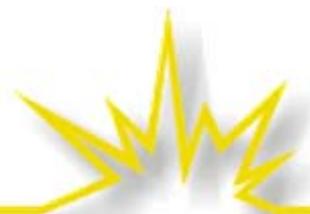
How Changes in Sales Affect Earnings

% 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%



Least-Cost Service = Most Profitable Service?

- The “throughput” incentive is at odds with public policy to supply electric power services at the lowest total cost
 - Inhibits a company from supporting investment in and use of least-cost energy efficiency resources
 - Encourages the company to promote incremental sales, even when they are more costly than measures to avoid them
- Ratemaking policy should align utilities’ profit motives with public policy goals: acquiring all cost-effective resources, whether supply or demand
- The utilities’ throughput incentive promotes inefficient outcomes, even where:
 - there is programmatic energy efficiency and
 - third-party administration of energy efficiency programs.



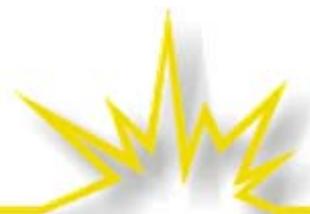
Solving the Throughput Incentive

- Utility can become indifferent to sales volume
- Decoupling
 - Revenue requirement becomes more important than rate
 - Rates reconciled periodically
- Lost revenue recovery (*ex poste*)
 - Regulatory problems in the 90s
- Change rates to recover more in customer chrg
 - Unintended consequences



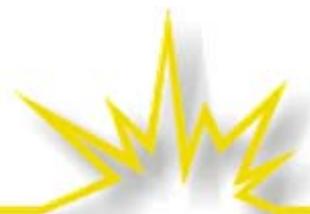
Financial Incentives

- Comparability with other uses of utility money
- Performance driven
 - Indicators should support the public interest
- Make EE important to utility management
 - But not too much either (pass front page test)



1989 NARUC Resolution

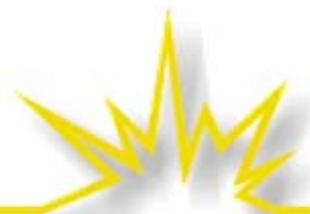
- “Reform regulation so that successful implementation of a utility’s least-cost plan is its most profitable course of action”



Resources

- [Report to Minnesota PSC on Decoupling](#)
- Presentation on Utility Incentives (contact me)
- [Smart Grid, Smart Policies IssuesLetter](#)
- [National Action Plan for Energy Efficiency](#)
 - Now State Energy Efficiency Action Network

RAP is tasked to help PUCs, so commissioners and staff can contact me if assistance would be timely.



Thanks for your attention

- rsedano@raponline.org
- <http://www.raponline.org>
- RAP Mission: *RAP is committed to fostering regulatory policies for the electric industry that encourage economic efficiency, protect environmental quality, assure system reliability, and allocate system benefits fairly to all customers.*