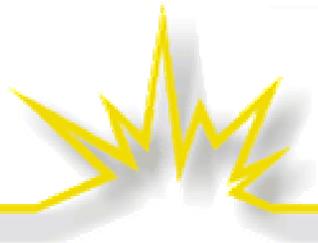


Regulatory Responses to Increasing Natural Gas Prices

Natural Gas Outlook Workshop
Arkansas Public Service Commission
Richard Sedano

September 21, 2004



The Regulatory Assistance Project

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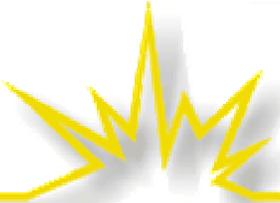


Introduction

Regulatory Assistance Project

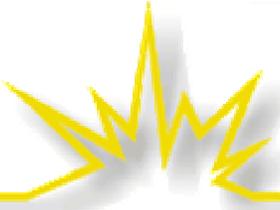
RAP is a non-profit organization, formed in 1992, that provides workshops and education assistance to state government officials on electric utility regulation. RAP is funded by the Energy Foundation, the US EPA and the US DOE.

Richard Sedano was Commissioner of the Vermont Department of Public Service, 1991-2001, and presently serves on the Montpelier Planning Commission



Trends (aside from rising commodity prices)

- Wholesale electricity increasingly market driven
 - ❖ Market-based rates
 - ❖ Merchant power
 - ❖ SPP an RTO: reliability coordinator AND wholesale market administrator
- Inherent risk from electric growth
 - ❖ Need for new resources, facilities
 - ❖ Exposure to commodity prices increases
 - ❖ Reliability, Air Quality challenges



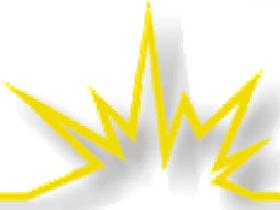
Resource Issues for Arkansas

- Ann. Growth rate for energy (92-01): 4.3%
- Utilities have resource responsibility
 - ❖ Competitive resource acquisition
 - ❖ Starting place: a lot of coal, some nuclear, hydro, small amount of gas
- What will the next resources be?



Focus on Marginal Costs

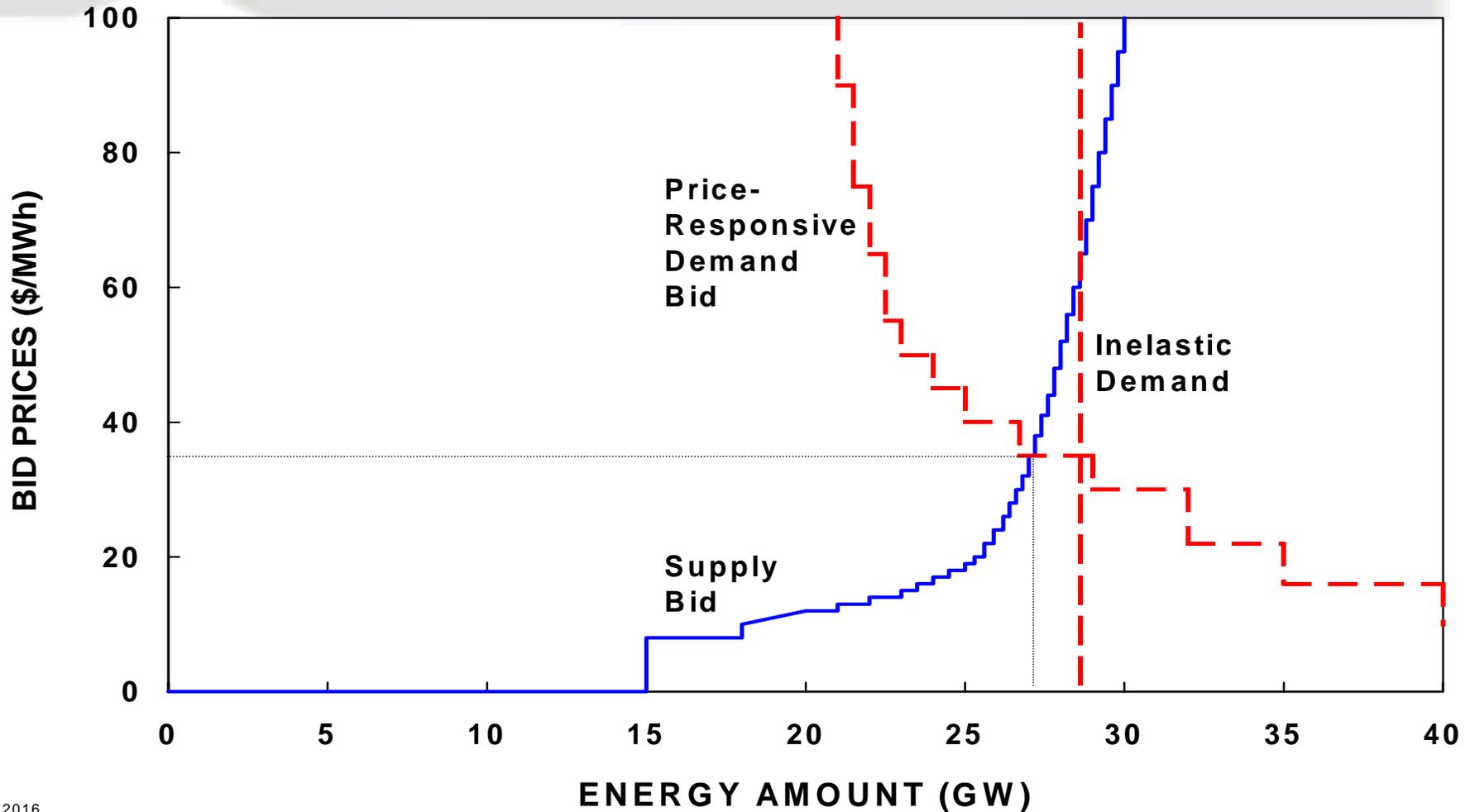
- Where will Arkansas get its next resources to support demand growth?
 - ❖ Natural gas no longer the “fuel of choice”
 - ❖ Coal is popular again, but its costs are higher than we have been used to
 - ◆ Plants that address Carbon concerns will be even more expensive
- Targeted energy efficiency, a form of demand response, can control growth, slow needs

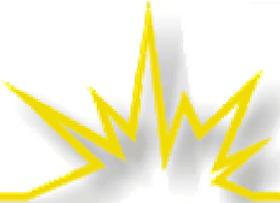


Demand Response

- Customers agree to curtail for a price
- A wholesale strategy that operates at retail
 - ❖ With vertically integrated companies, this is not complicated
 - ❖ Throughput incentive a problem (not as much as with energy efficiency) since demand response reduces sales and net income
 - ❖ With a disaggregated companies, organizing demand response can be complex

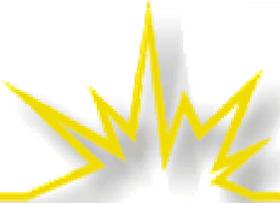
Markets Are the Meeting of Supply and Demand





Demand Response Program Overview

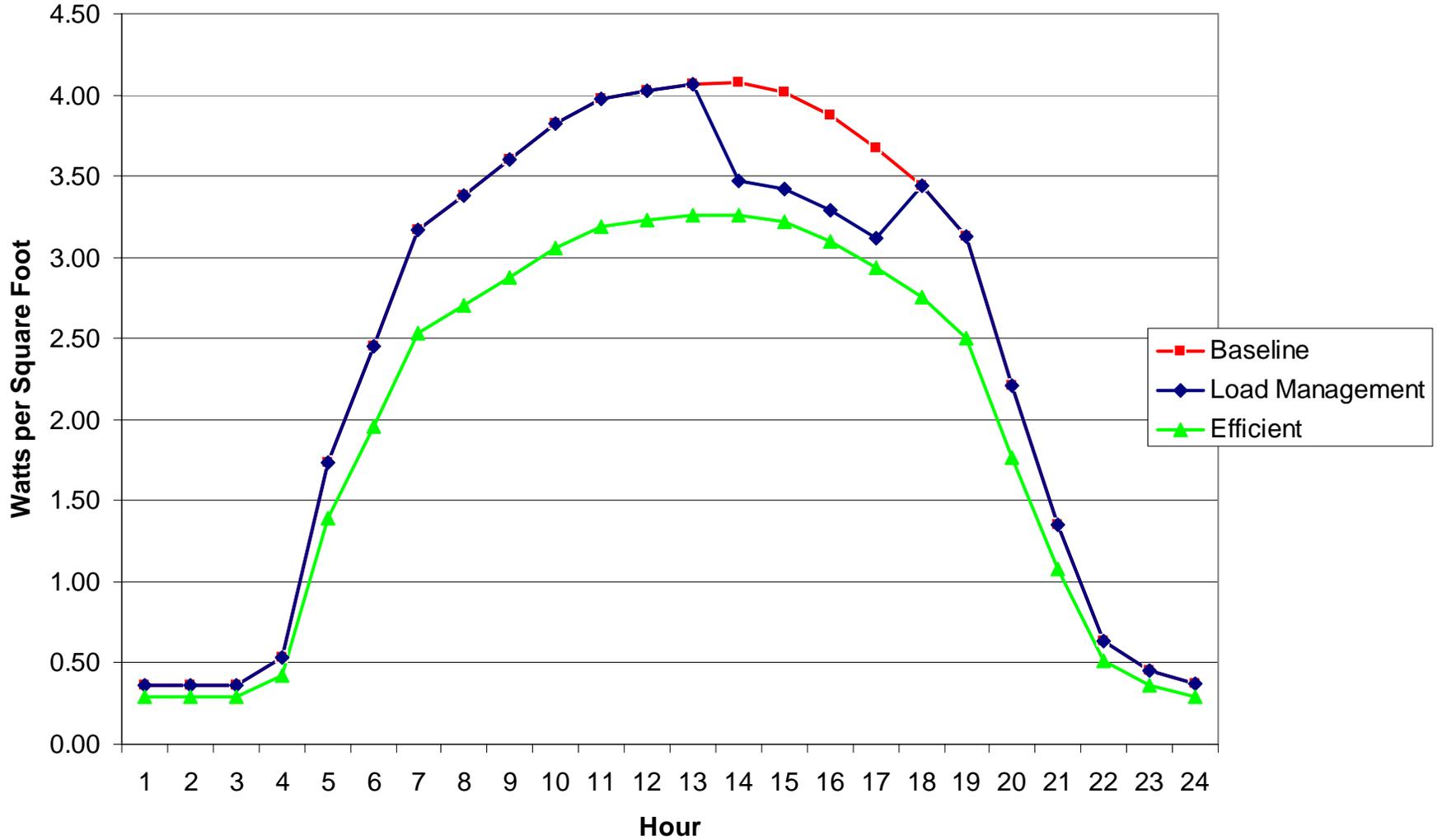
- Emergency
 - ❖ Reliability driven, more of a commitment
- Price driven
 - ❖ Less of a commitment, depending on rules
- Results
 - ❖ Some use is shifted
 - ❖ Some use is replaced by back up generation
 - ❖ Some use is curtailed



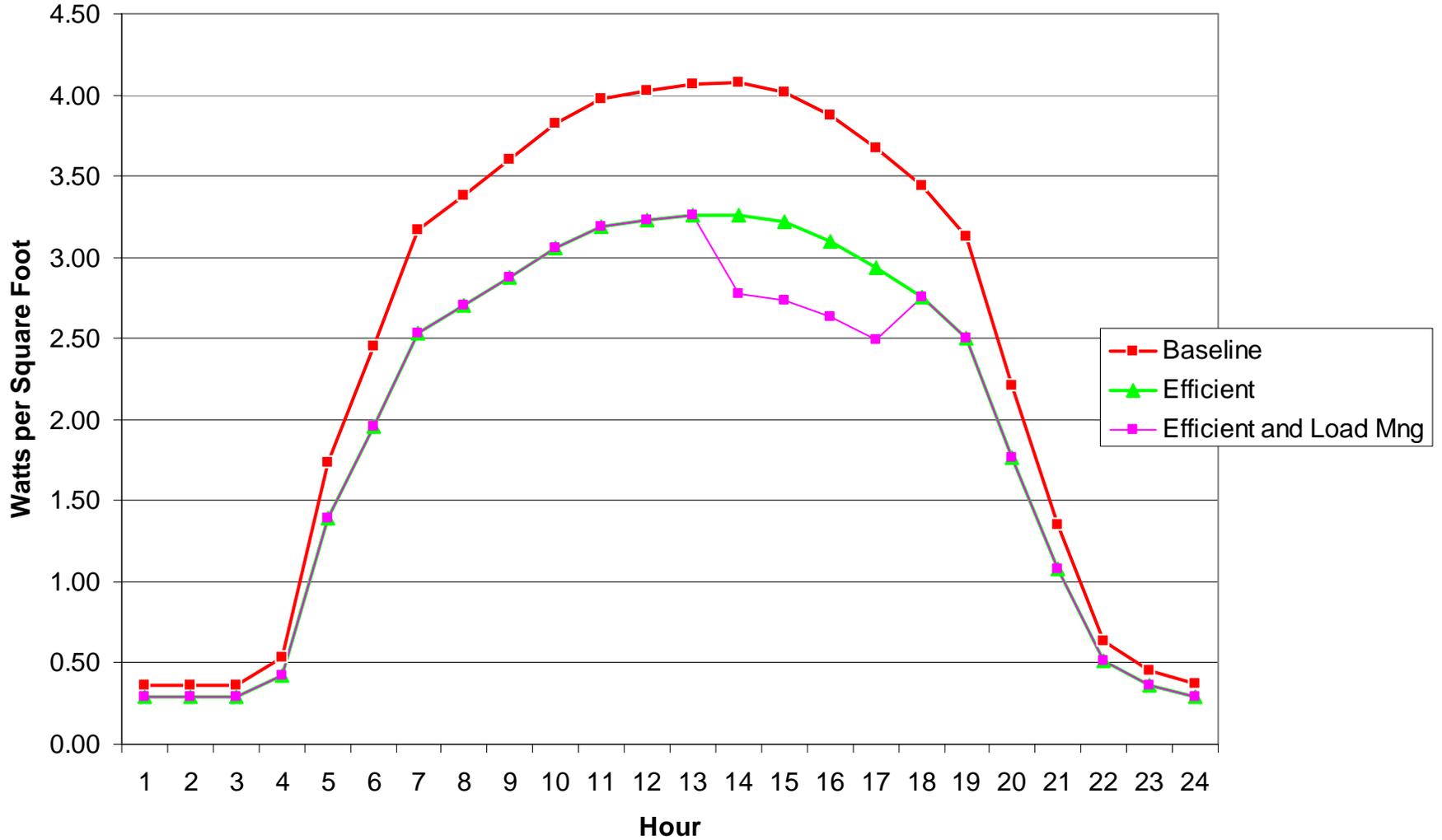
Demand Response: A Customer Solution

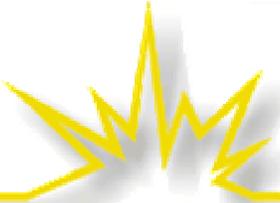
- Target customers
 - ❖ Manufacturers, office buildings
- Mass Market
 - ❖ Thermostats with radio controls
- Energy efficiency and distributed generation are longer term customer responses
- Customer choice w/o retail competition

Combined Commercial Cooling and Lighting Loadshape Baseline, Load Management (STDR), and Energy Efficiency



Combined Commercial Cooling and Lighting Loadshape Baseline, Load Management (STDR), and Energy Efficiency





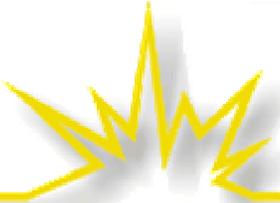
Paying for Demand Response

- How are other resources paid for?
 - ❖ Transmission, generation, opportunity energy, ancillary services
- For demand response to work well, funding should be consistent with competitive resources
 - ❖ This is not typical, but is on the agenda of forming RTOs



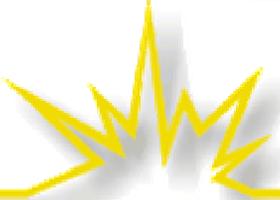
Demand Response: Benefits

- Dispatchable, when most needed
 - ❖ And caps prices with enough volume
- Slow need for peak, T&D resources
- Provides equivalent to non-spinning 10 minute and 30 minute reserves
- Lowers high market clearing prices
- Engages key customers in grid solutions
 - ❖ Especially if targeted to greatest value



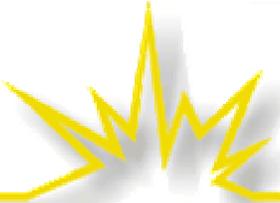
Demand Response: Ancillary Issues

- Air quality for back-up generation
 - ❖ Eligibility standard
- Capacity payment for firm promise to curtail
 - ❖ Conditioning customers
- Bidding system (plus) to recognize DR value
 - ❖ Day ahead, day of
 - ❖ Bid rules and data (notice, duration, penalty)
 - ❖ Communications and metering
- Time differentiated rates and advanced metering
- Regional consistency in regional market



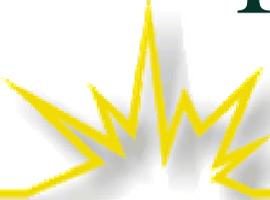
Practical Considerations

- Identifying customers
- Communications
- Follow through
- Regional consistency, utilities, and vendors
- Utility Motivation
 - ❖ The “throughput incentive” and “decoupling”



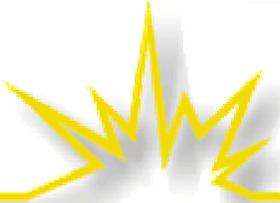
Utility Incentive Issues

- Clearly there is value to align the public interest with the utility interest
 - ❖ Credit to utilities that make this alignment a priority
- Question: to what extent is this realistic, and what changes are needed to accomplish this alignment?



Performance Based Regulation Revenue Cap

- Objective: Sever relationship between electric sales and net income
- A different way to regulate the whole company designed to align consumer and company interests to the maximum degree



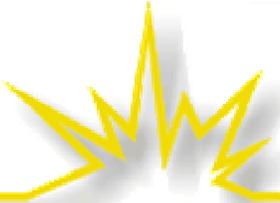
Revenue Cap: How It Works

- Cap on distribution company revenues
- Cap is computed at beginning of first year as average revenue requirement per customer (RPC)
- Allowed revenues at end of year computed as RPC times number of customers.
- RPC adjusted in following years for inflation, productivity, and other factors
- Rates set as usual: per kW and per kWh
- Utility and customers both have incentive to be efficient



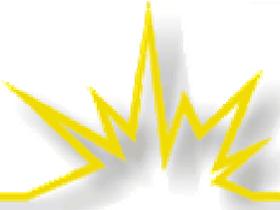
ERAM or ACE

- Electric Revenue Adjustment Mechanism
- Accounting Correction for Efficiency
 - ❖ Calculate lost net income from avoided sales due to demand side activities
 - ❖ Add the revenue to cost of service
 - ❖ Book and defer between rate cases
 - ❖ Amortize over a period set by regulator



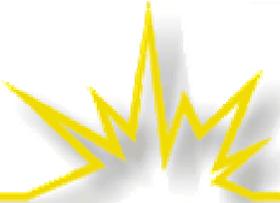
ERAM / ACE Characteristics

- Direct effect on throughput incentive
- Can be extended to non-EE investments
- Important to resolve annual calculations
- Calculations can be cumbersome and subject to dispute
- Commission retains role of supervising expenses and can disallow as with any cost category



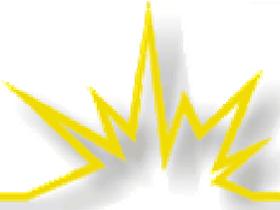
Incentives

- Forces articulation of measures of success
 - ❖ Indicators represent success for consumers
 - ❖ Bonus level should stretch the company
 - ❖ Useful role for a collaborative to propose incentives
- Focuses company on success
 - ❖ Get the Bonus!
 - ❖ Use in Employee Compensation
- Amount can approximate likely ERAM result, yet is a very different calculation



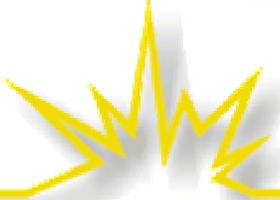
Incentives: An Example

- \$10 million annual program budget
- 5% (\$500K) held back for shareholder incentive
- 5 performance indicators, \$100K for each
- Failure to win bonus means money goes back into program budget
- Sample indicators: total energy saved, total MW saved, penetration of an Energy Star appliance, whole building EE agreements with school districts, number of building operators trained



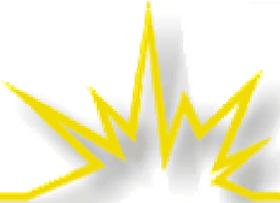
EE as a Resource

- Less costly than other resources
 - ❖ States are procuring EE at 2.5-3.0 cents/kWh
- Avoids risk associated with other resources
 - ❖ Siting? Fuel prices? Environment/Carbon regulation?
- A useful way to accomplish diversity
 - ❖ More time for renewables, surprises, to emerge
- Based on planning that looks for **ALL resources** (refer to RAP's *Efficient Reliability, Portfolio Mgt.*)



Conclusion

- Active demand side is essential to a working market, especially if we value stability in the face of volatile commodity prices.
- Demand response (along with energy efficiency and distributed generation) is a key policy – regulators should be sure it works
- Marginal energy and capacity defines value of demand response, not current rates
- Demand response works with energy efficiency

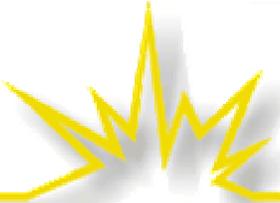


Thanks for your attention

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❖ <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.*



For more information...

New England Demand Response Initiative

web link at www.raponline.org

Posted: NEDRI Report and Recommendations; Framing Papers and Memos on Demand Response and policy options;

“Efficient Reliability: The Critical Role of Demand-Side Resources in Power Systems and Markets”

(NARUC June 2001)

“Revealing the Value of Demand Response: Regulatory & Market Options” (EPRI December 2003)

