

# RTO Pricing: Implications for Energy Efficiency

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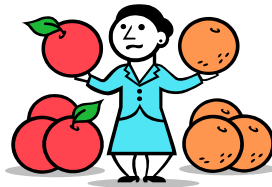
## Introduction

- **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 and the US DOE.
  
- Richard Sedano was Commissioner of the Vermont Department of Public Service 1991-2001



## Wholesale ||| Retail

- What does **wholesale pricing policy** have to do with **retail activity**?



## Wholesale – Retail Connections

- Congestion
- Resource Investment
- Demand Response





## Congestion

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- Remote generation trying to serve a (growing) population center
- Transmission lines are taxed and upgrades are hard
- Apparently less economic resources deployed to serve customers in load center
- **Improve economics of customer resources**



## Resource Investment

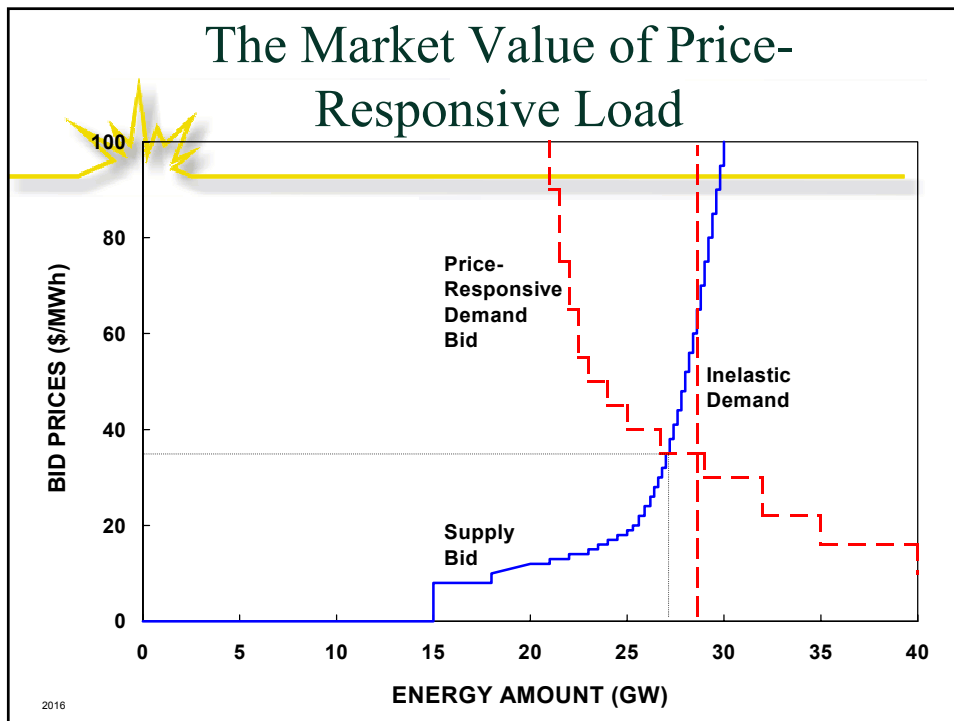
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- System planning: traditional system solutions are large transmission and generation
- Customer resources are increasingly viable
- **Remove bias from investment incentives**



## Demand Response

- Wholesale providers of power can bid up real time prices in certain circumstances
- Customers don't like result of higher wholesale prices, especially where high costs are deferred and passed back
- **Give customers a reason and a way to engage in the market and stop real time price increases**





## Planning Ties It Together

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- Industry restructuring – divestiture
- Default package disconnect
- Portfolio Management -- risk
- Resource adequacy – defining enough
- Transmission siting – alternatives define need
- Multi-state government cooperation



## Value

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- Resource adequacy is a relationship between supply and demand
- Compensation should track for all resources: parity (this is not status quo)
- Assure that we don't misallocate investment
- Retail rates must enable electricity market to reveal value and to benefit providers of valuable service



## NEDRI

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- New England Demand Response Initiative
  - ❖ Proposition: Regional Price Response Programs can make the wholesale market work better
    - ◆ Improve reliability
    - ◆ Reduce capital costs
    - ◆ Prevent market power
    - ◆ Improve air quality
  - ❖ What is keeping demand response programs from happening?



## FERC, RTOs, and States: Working Together

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- Facilitated stakeholder process
  - ❖ ISO-NE, 6 state PUCs, DOE , EPA, state air directors,
  - ❖ Market participants and advocates
- Breadth and depth
  - ❖ Examine market and policy barriers to price-responsive load, EE, DG -- top to bottom look
  - ❖ Propose coordinated policies and programs for wholesale, retail, and wires



## Four Themes

- Demand response -- time dimension
  - ❖ DR Includes short-term responses (load management) AND long-term response (embedded efficiency) responses
- Links in the market chain
  - ❖ Wholesale market rules, transmission tariffs, retail rate design
- Strip out barriers:
  - ❖ Reveal the value of demand-side resources to **customers**
  - ❖ Align **utility** profits with cost-effective actions
  - ❖ Ask: “what is the profitable **business model** for this activity?”
- Challenge to FERC AND the States:
  - ❖ Eliminate barriers to demand response at wholesale, transmission, distribution, and retail



## Demand Response: Five Substantive Areas

- Price-response in wholesale markets
- Reliability programs: ancillary services and emergency curtailments
- Transmission: rates & investment plans
- Retail tariffs (and metering) and rules
- Efficiency resources at wholesale and retail



## The Value Proposition

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- How to identify and release the full value of distributed energy resources?
  - ❖ Demand response
  - ❖ Distributed generation
  - ❖ Energy efficiency
- Wholesale market reform provides an opportunity.




## Energy Efficiency

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- Long term demand response
  - ❖ Customers choose energy efficiency as a value compared with consumption
  - ❖ Affects all hours
  - ❖ Stabilizes markets
    - ◆ Slow growth and need for more facilities
    - ◆ Dampens spikes and market power opportunity
- Comparability or Parity with other resources





## Wholesale barriers to load management and efficiency

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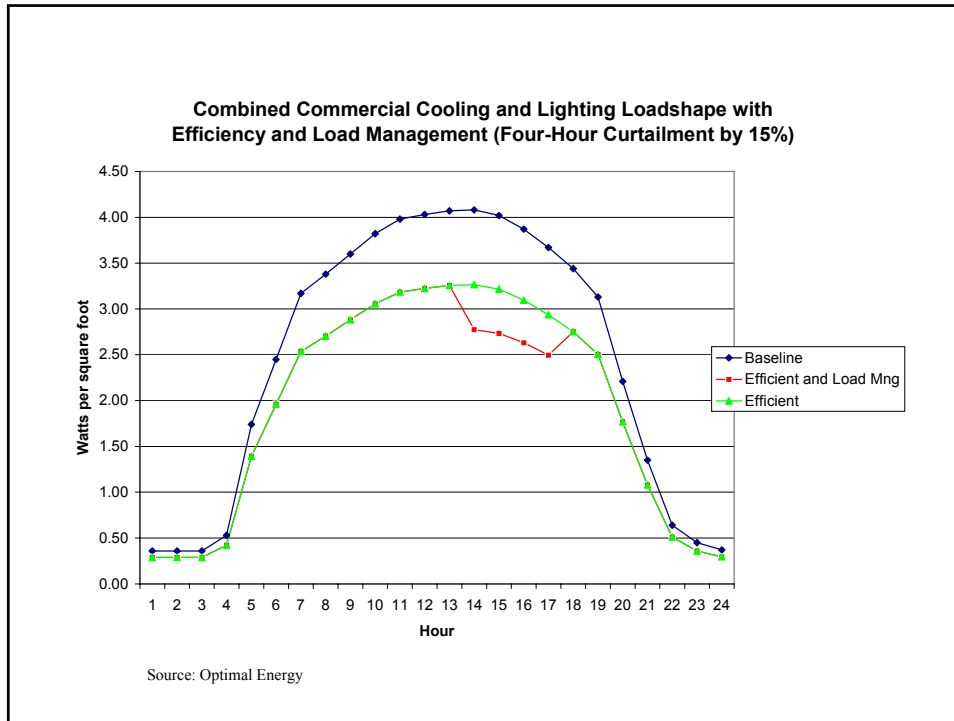
- Supply-only bidding
- Load profiling by pools and RTOs
- Reliability rules and practices excluding demand-side resources
- Uplift for wires and turbines
- **Transmission pricing and expansion policies can undercut low-cost demand-side resources**



## Retail barriers to efficiency and load response

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- Averaged rates and default service plans block price signals, slow innovation
- Disco rate designs promote throughput
- Uniform buy-back rates don't include premium for avoided distribution costs
- Utility as gatekeeper vs. utility as facilitator
  - ❖ Can customers or their agents sell directly into wholesale markets?
- Metering traditions, costs and standards



## Energy Efficiency Recommendations - 1

- Maintain or increase SBC funding for EE
  - ❖ Markets are not enough
  - ❖ Potential remains large
  - ❖ Demand reduction a priority
  - ❖ Target sensitive sub-regions
  - ❖ Include all customers
  - ❖ Parity for costs and benefits for all customers



## Energy Efficiency Recommendations – 2, 3

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- State Appliance and Equipment Efficiency Standards
- Coordinate efforts among the states
- Federal standards rulemaking
  
- Building Energy Codes



## Energy Efficiency Recommendation - 4

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- Regional coordination of Energy Efficiency
  - ❖ Planning
  - ❖ Programs in common
  - ❖ Research, program evolution
  - ❖ If a regional state council forms, EE could be part of its agenda
- States maintain current authority
  - ❖ Idea is to improve service and outcomes



## Energy Efficiency Recommendation - 5

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- Full use of demand response technologies promotes energy efficiency
  - ❖ Apply market transformation lessons to
    - ◆ Dimmers
    - ◆ HVAC controls
    - ◆ industrial process controls
    - ◆ Piping and wiring design
  - ❖ Promote building O&M



## Energy Efficiency Recommendation - 6

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- Energy Efficiency is a resource in ISO system planning
- Energy Efficiency is a resource in ISO system congestion management
- Apply capacity market to energy efficiency
  - ❖ Verified savings produces value that should be recognized
  - ❖ Resource adequacy policy at FERC now



## The Challenge of Transmission Planning

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- **FERC:** RTO has Transmission planning responsibility
- **NTGS:** “Regional planning processes must consider transmission and non-transmission alternatives when trying to eliminate bottlenecks.”
- **Challenges:** (a) integrated analysis in a de-integrated industry (b) transmission system is regional, but siting decisions and transmission alternatives are local
- **How can the RTOs weigh alternatives?**



## Transmission expansion- Demand-side issues

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- **Efficient Reliability Decision Rule -**
  - ❖ A least cost “hard look” at proposed socialized costs
- **“Open Season” for transmission upgrades and their alternatives**
  - ❖ Expose proposed grid enhancements to marketplace alternatives
- **State transmission siting rules**
  - ❖ Recognize regional needs , but
  - ❖ Consider demand-side options in determining what those needs really are



## Efficient Reliability Decision Rule

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- ▶ **Before "socializing" the costs of a proposed reliability-enhancing investment through uplift or tariff, PUCs and FERC should first require a showing:**
  - that the relevant market is fully open to demand-side as well as supply resources;
  - that the proposed investment is the lowest cost, reasonably-available means to correct a remaining market failure; and
  - that benefits from the investment will be widespread, and thus appropriate for broad-based funding.

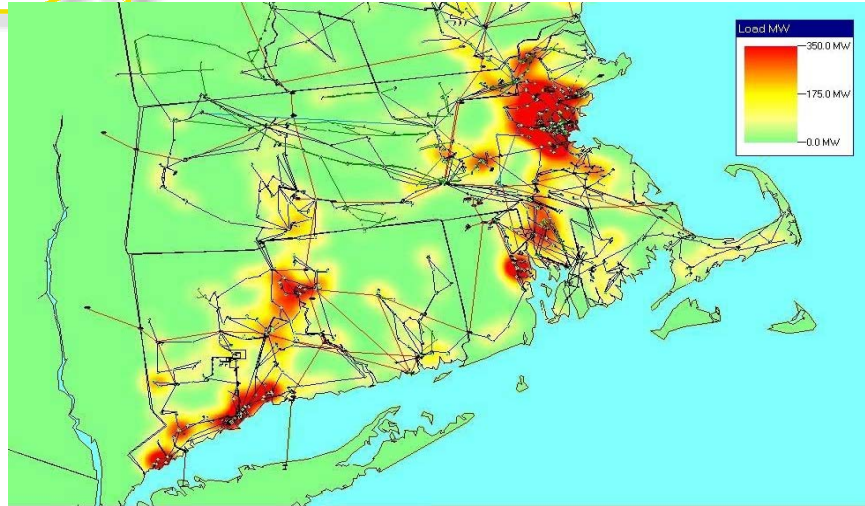


## For more information

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- “Efficient Reliability: The Critical Role of Demand-Side Resources in Power Systems and Markets”
  - ❖ Richard Cowart, Published by NARUC June 2001
- “Demand-Side Resources and Regional Power Markets: A Roadmap for FERC”
  - ❖ Richard Cowart, RTO Futures, September 2001
- New England Demand Response Initiative
  - ❖ web link at [www.raabassociates.org](http://www.raabassociates.org)
- **papers posted at [www.raponline.org](http://www.raponline.org)**

## The geography of congestion



Load Densities - Southern New England