Valuing Energy Efficiency in Wholesale Electricity Markets

AESP Brown Bag Lunch Series
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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

Some Goals of Regulation

- Fairness
  - Between utility and customers
  - Among customers
- Equity (does not mean equal)
- Least cost (long term or short term?)
- Environmental soundness (sometimes)
- Reliable, safe, responsive service

Persistent Investment Bias Built into Regulation

- Traditional Response to Growth
  - Power Lines
  - Power Plants
  - Gas Pipelines
- Efficiency often marginalized -- budgeted as a social program, rather than invested as a resource

Persistent Investment Bias Built into Regulation

- Wholesale Electricity Market Rules
  - Large grid investments rolled into rates
  - Tariffs do not compensate demand resources for reliability and risk-reduction
  - Aggregating should be easier
  - Regional planning : “Transmission Expansion”
    - Regional planners not confident in demand resource
  - Still in flux

Persistent Investment Bias Built into Regulation

- Regulatory Structure
  - **Throughput Incentive** discourages efficiency
  - Lack of **efficiency programs** in many states
    - Or **incentives** for good EE performance
  - **Average rates** mask high value locations
  - **Rate caps**, lack of **real time rate** opportunity mask high value opportunities
  - Lack of **long term** perspective

Wholesale Venues

- FERC
- RTO/ISOs
  - ISO-New England, PJM (Mid-Atlantic), MISO (Midwest), NY-ISO, CA ISO
- Regional Reliability
  - Adequacy
  - Stability
  - Resiliency to grid failures

FERC

- Open to all source resource planning and acquisition
  - Evident in some NE-ISO orders, others
- Unlikely to go out of its way to order it
- Likely to approve proposals, especially stipulations, that include all resources

RTO/ISOs

- Roles
  - Assure reliability through **operations** and **planning**
  - Operate electricity markets
- RTO/ISOs approaches to resources
  - Set rules, hands off, let market participants drive everything
  - Set rules, market participants act, RTO/ISO acts to plug resource holes as needed.
  - RTO/ISO routinely solicits resource to address system issues

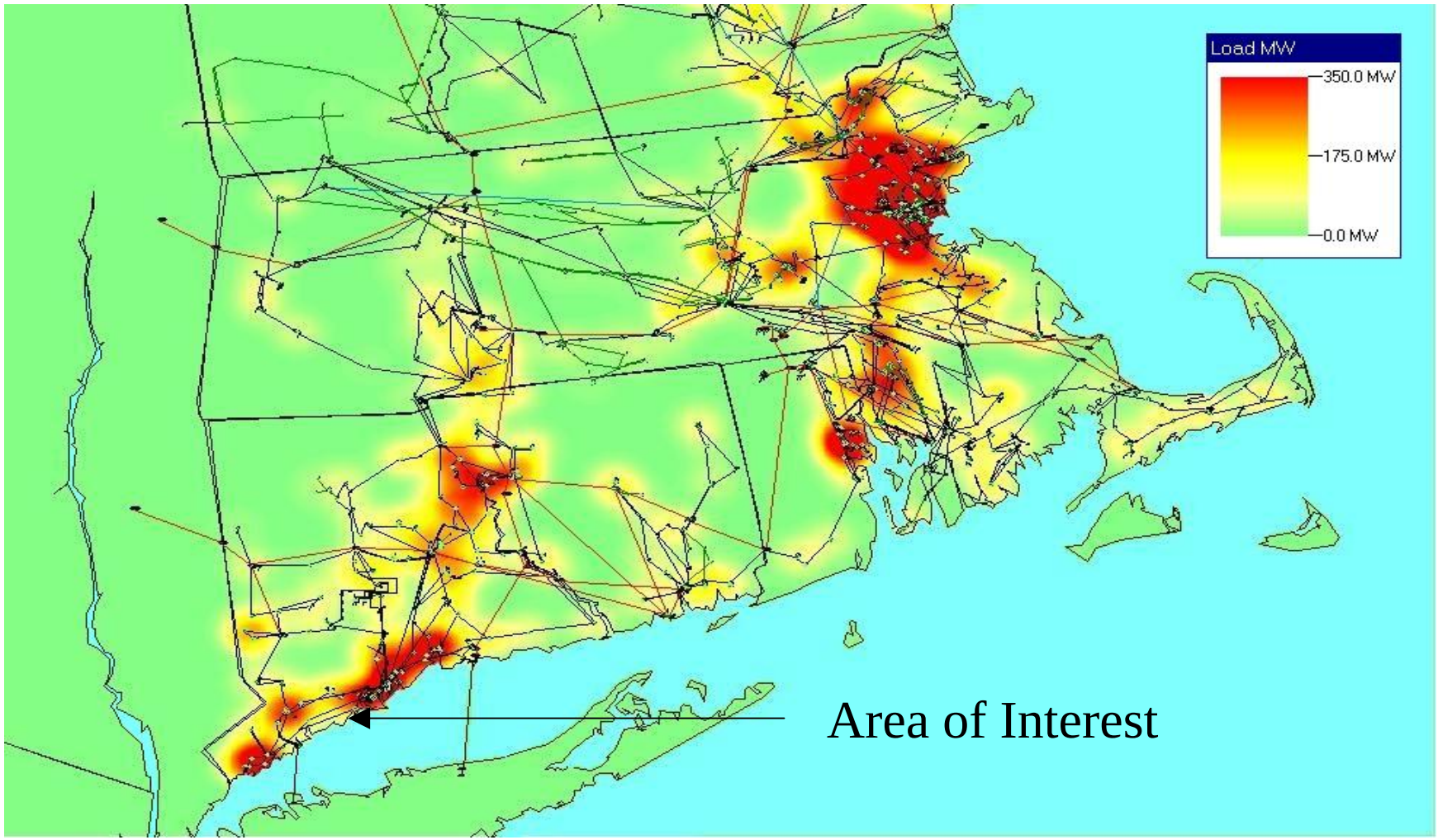
Wholesale Opportunities

- Southwest Connecticut All Resource Bid
  - Addressing severe congestion with reliability implications – a multi-year problem
  - In 2004: All resources solicitation by ISO-NE
    - Energy efficiency bid is selected

Outcome: Energy Efficiency will be paid for out of New England wholesale revenues for the first time.

Is this a one-time *exception*, or a *pilot*?

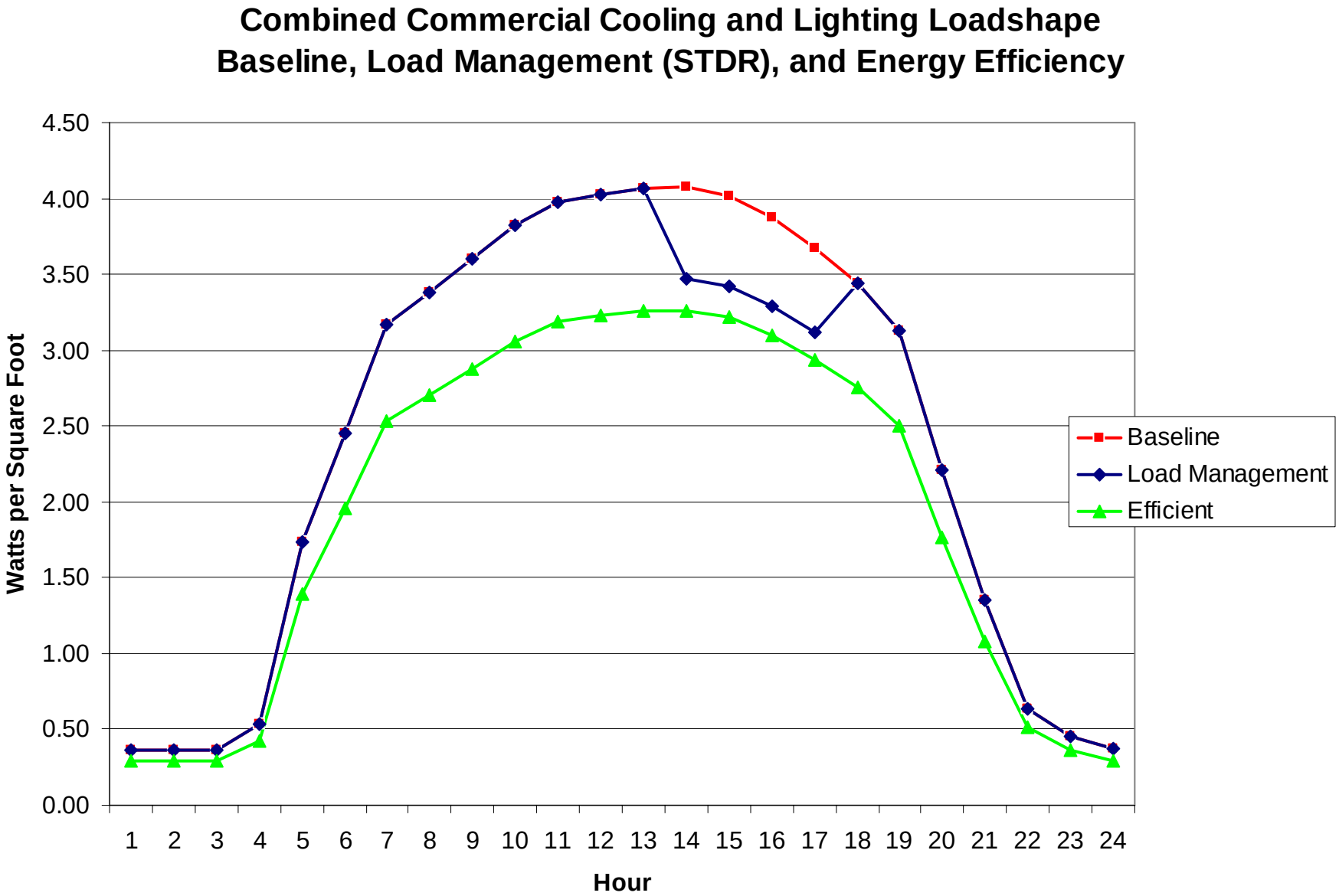
The geography of congestion



Load Densities - Southern New England

Wholesale Opportunities

- PJM *Market Window* address economic congestion through market solutions in its new "Economic Planning Process."
- But EE remains on the outside looking in: "Market-based solutions could take several forms including generation, merchant transmission, distributed generation or load-response programs."
- There will be a workgroup process later this year at which the role demand resources will be tested.


Combined Commercial Cooling and Lighting Loadshape
Baseline, Load Management (STDR), and Energy Efficiency
Watts per Square Foot
4.50
4.00
3.50
3.00
2.50
2.00
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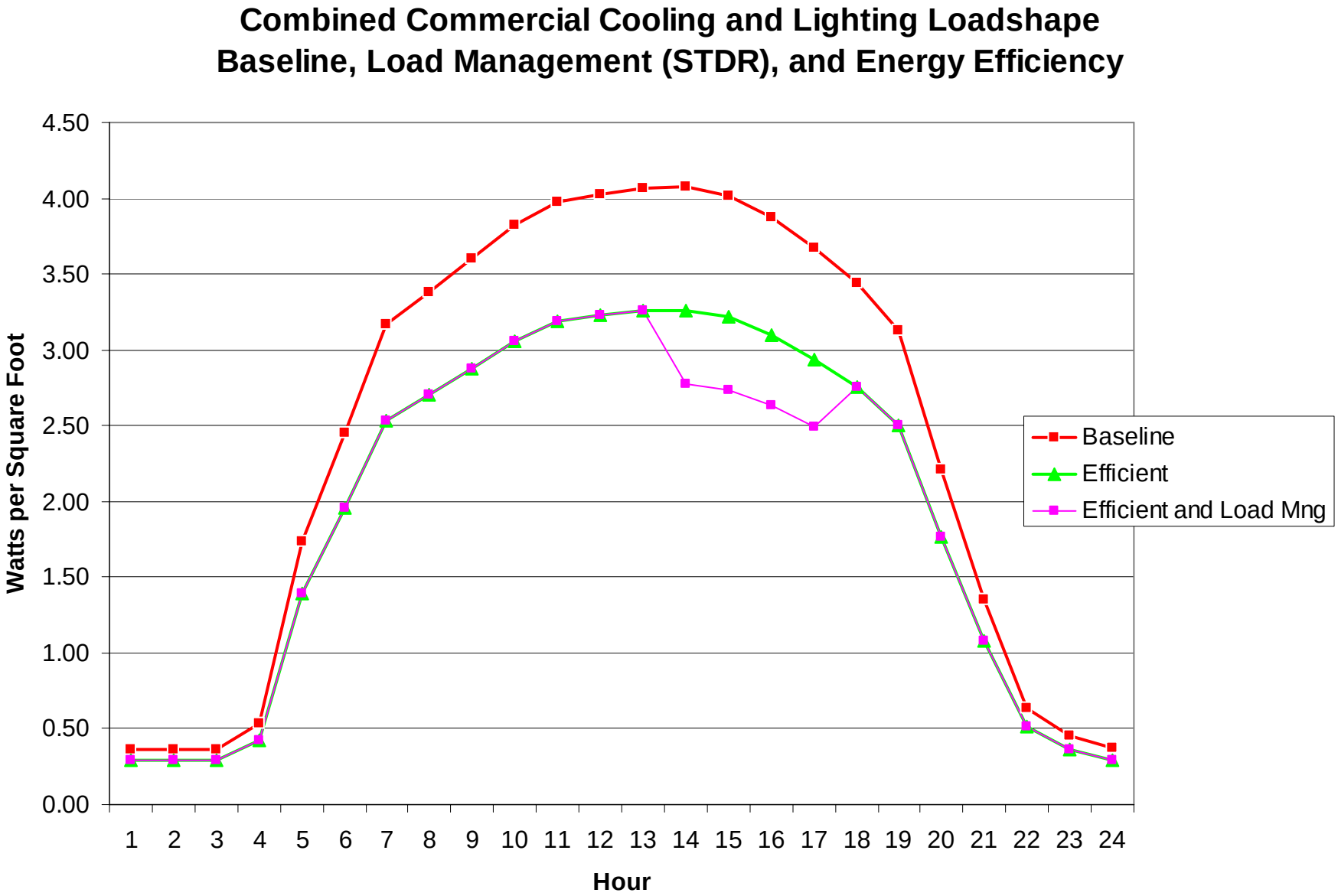
Hour
Baseline
Load Management
Efficient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Baseline
Efficient
Efficient and Load Mng

Wholesale Opportunities

- MidWest ISO (MISO)
  - *MISO Transmission Expansion Plan 2003-2007*: "The Plan is to consider all market perspectives, including demand-side options, generation location, and transmission expansion." (pg 6)
  - But this first MISO plan did no independent assessment of EE potential to solve T problems.

MISO Footprint

Wholesale Opportunities

- Bonneville Power Administration:
  - "Non-transmission alternatives, such as conservation, demand response, distributed generation, and better siting of large generators can defer or reduce the need for transmission."
    – Brian Silverstein, BPA Network Planning 9/9/03
  - Open to pilot programs to test value of different alternatives, including efficiency

Wholesale/Retail Opportunities

- California all requirements procurement process
  - Utilities responsible for all resources
  - Throughput incentive resolved
  - Performance incentives under development
  - Efficiency has opportunity to compete
- SDG&E: "The plan for energy efficiency will achieve 1.1 million megawatt hours (MWh) of energy reduction and 176 Megawatts (MW) of peak load reduction over the next five years. This is almost 70 percent above the energy savings projected from current Public Goods Charge (PGC) funded programs over the same time frame…. SDG&E fully supports an approach to resource planning that takes into account all demand side resources before looking to supply side resources." Anne Smith, testimony to CPUC, April 15, 2003

Wholesale/Retail Opportunities

- Integrated Resource Planning
  - States are beginning to look at avoided distribution costs, especially in newly developed areas, and finding EE and other distributed resources more valuable.
  - States that abandoned IRP are beginning to bring it back

Institutional Issues

- Who pays, who implements and how to capture economic value of measures
- Lack of transparency in transmission planning
- Lack of incentives to do comprehensive forecasting
- Lost revenues for transmission provider and distribution utilities
- Inaccurate peak-load price signals for energy and T&D customers
- Uncertainty about “reliability” of EE measures

Trends

- Progress seems to be regionally differentiated
  - Potential in West with recent Schwarzeneggar/Richardson alliance
- Regional State Committees may influence public interest grid planning and investment
- What may be the influence of
  - CA procurement process? Siting Challenges?
  - 2003 Blackout? Regional State Committees?
  - High Oil and Gas prices? Security Concerns?
  - Removal of Rate Caps in Competition States?
  - Climate Change Mitigation, Trading

RAP is Prescribing

- Portfolio Management by retail supplier
  - Manage risk affirmatively
  - Minimum EE with incentives and added EE as a resource
- Break throughput incentive
  - With performance based regulation
- Distribution level planning with all resources
- All resources attracted by ISO to address reliability and congestion at wholesale

Resources to Keep Up

- Regional Energy Efficiency Organizations
  - NEEP, MEEA, SWEEP, NWCC
- ACEEE
- RAP
- State/Regional advocacy organizations
  - For example: CLF, NRDC, ELPC, WRA
- State PUCs, Energy Offices, EE administrators, including utilities

Thanks for your attention

- rapsedano@aol.com
- 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.***