

# Energy Efficiency, RTOs, and Regional Transmission Planning

Jeff Schlegel

ACEEE: Energy Efficiency as a Resource  
June 10, 2003

## Outline

- FERC's goals, intent, and focus
- SMD and energy efficiency expectations
- RTOs: three main priorities for EE
  - Regional transmission planning
  - Resource adequacy
  - Regional demand response resources
- Implications and observations
- Will the markets work for EE resources?
- What to keep an eye on

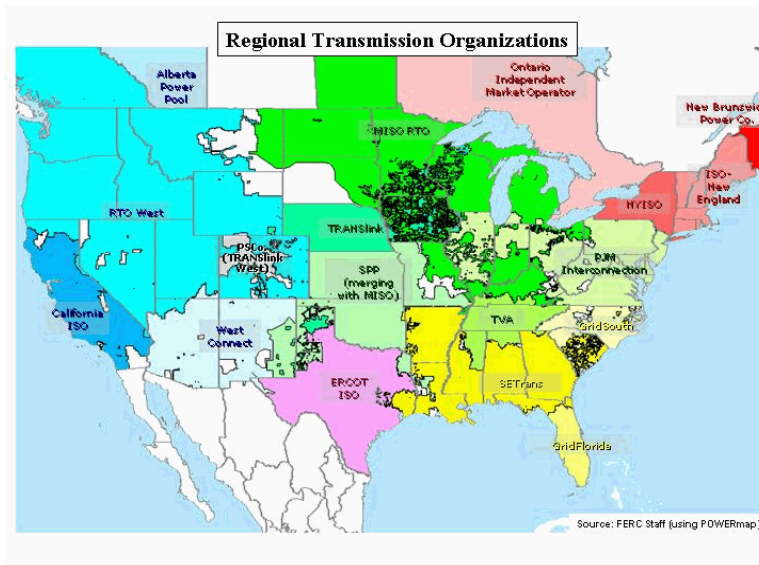
2

## FERC's Goals and Intent

- Our goals continue to be reliable, reasonably priced electric service for all customers; sufficient electric infrastructure; transparent markets with fair rules for all market participants; stability and regulatory certainty for customers, the electric power industry, and investors; technological innovation; and efficient use of the nation's resources.
- Under the Final Rule, we intend to focus on the formation of regional transmission organizations (RTOs) and on ensuring that all RTOs and independent system operators (ISOs) have good wholesale market rules in place.

FERC White Paper: Wholesale Power Market Platform; April 28, 2003

3



4

## FERC's Focus

- “It’s all about the customers and providing customer value” (FERC Commissioner Nora Mead Brownell, Western Energy Summit, Phoenix, April 11, 2003)
- Focus on *wholesale* power market platform (“SMD core” or “SMD lite”), because of concerns regarding FERC overstepping its jurisdiction
- FERC is leaving more up to the regions and states (more than what was stated in the SMD NOPR in July 2002)
- Strongly advocates demand response to limit supplier market power, enhance reliability and resource adequacy, and limit price volatility

5

## FERC View of Market Intervention

- Wholesale electricity markets do not automatically structure themselves with fair behavioral rules, provide a level playing field for market participants, effectively monitor themselves, check the influence of market power, mitigate prices that are unlawful, or fix themselves when broken.

FERC White Paper: Wholesale Power Market Platform; April 28, 2003

6

## Hopes of EE Advocates for SMD

- *System* planning, not just *transmission* planning
- Effective regional planning and coordination
- Comparable, meaningful opportunities for EE in:
  - Regional system expansion planning and investment
  - Relief of persistent congestion
  - Resource adequacy
  - Distribution system expansion
- Regional funding for demand resources
- EE included as a demand response resource
- *All of these hopes have not been realized*

7

## Energy Efficiency and Regional Transmission Planning

- The RTO or ISO will assess the impact of these [transmission expansion] proposals in the regional transmission plan. In addition, the RTO or ISO may assess the need for transmission enhancements in view of opportunities for energy efficiency, demand response, and new generation technologies, consistent with the policy direction of the regional state committee on these issues.

FERC White Paper: Wholesale Power Market Platform, Appendix A; April 28, 2003

8

## **EE and Resource Adequacy**

- Having sufficient available resources (generation, transmission, energy efficiency, demand response) is central to ensuring that wholesale power prices are just and reasonable and that service is reliable.
- Each regional state committee will be asked to determine the approach for resource adequacy across the entire region.

FERC White Paper: Wholesale Power Market Platform, Appendix A; April 28, 2003

9

## **Demand Response Resources**

A broad definition of demand response:

- Shorter-term demand response (load management and curtailment) including economic and price responsive load programs (e.g., ISO-NE load response)
- Pricing and metering
- Energy efficiency load reductions as longer-term demand response
- All aspects of markets (energy, capacity, ancillary services, contingency, etc.)

10

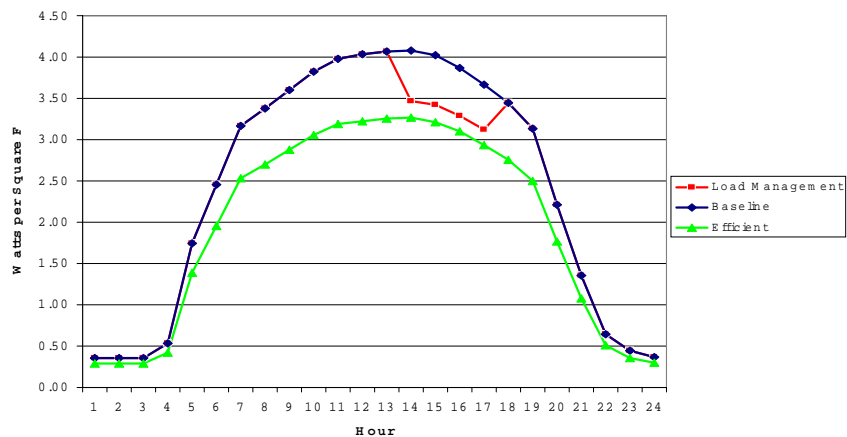
## Example: Two Scenarios

- Illustrative only – other scenarios possible
  - Existing large commercial office building
  - Albany, NY (8760 hr load shape data)
  - Peak load and load shape on summer day
1. Energy efficiency measures for lighting and cooling that reduced load by 20%
  2. Load management (DR) as 4 hour curtailment load reduction of 15% by reducing lighting and HVAC load (no BUG)

11

## Energy Efficiency Compared to Load Management (4 hr curtailment)

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



12

## **Complementary and Integrated Approaches: EE and STDR**

- Integrate shorter-term DR and EE programs into complementary offerings
  - Fully utilize DR enabling technologies for both EE and shorter-term DR
  - Promote effective facility O&M
  - Comprehensive and coordinated marketing programs and information
  - Coordinated management and delivery

13

## **Implications and Observations**

- Technology installed for shorter-term DR may be used for energy efficiency, which is good...
- ...but doing so impacts the customer baseline, and the ability to curtail load further, therefore reducing the level of shorter-term demand response in the future (and customer payments)
- The market rules do not value all load reductions comparably (i.e., equitably based on benefits and costs, while considering the differences in the resources)
- Resources aren't equal so equal treatment isn't expected, but comparable treatment should be (i.e., resource parity, combined with least cost)
- Mismatch between system value, customer value, and the integrated value of energy efficiency

14

## **Evolving Concepts of Demand Response**

- Shorter-term and longer-term (EE)
- Event driven vs investment driven
- Response to call or response to price
- Geographically targeted vs broadcast
- Demand only vs on-site generation
  
- Deployable: energy efficiency, building codes and equipment standards
- Dispatchable: in response to an ISO call (emergency or reliability programs)
- Scheduled: load bidding into day-ahead markets

15

## **New England Demand Response Initiative (NEDRI)**

- **Goal:** Increase demand response to balance markets
- **Objective:** Devise an effective long-term strategy for demand responsiveness, including shorter-term load response and longer-term energy efficiency investments
- **Depth:** Propose coordinated policies and programs for wholesale, wires, and retail
- **Facilitated stakeholder process:**
  - About 40 participants: ISO-NE, 6 state PUCs, state air regulators, DOE, EPA, market participants, and advocates
- **Sponsors:** ISO-NE, DOE, EPA, FERC, and NECPUC

16

## **NEDRI EE Recommendations\***

- System Benefit Charge (SBC) Funds and Ratepayer Support for Energy Efficiency
- Principles for Effective Energy Efficiency Programs and Portfolios
- Minimum Energy Efficiency Standards for Appliances and Equipment
- Building Energy Codes
- Enhanced Regional Coordination for Demand-Side Resources
- Complementary and Integrated Options for Energy Efficiency and Shorter-Term Demand Response
- Comparable or Equal Treatment for Energy Efficiency in Power Delivery Systems (as one of several demand response resources)

\*DRAFT recommendations; final NEDRI meeting on June 18 & 19

17

## **Challenges and Next Steps**

- Customer world vs system operator world
- Reduce market barriers and risks to increase customer participation, or have a fairly small demand response (and much larger market power for suppliers)
- EE as longer-term demand response
- Market rules that value all load reductions in some comparable manner (resource parity)
- Capacity credits in addition to energy market

18

## **Will Regional Markets “Work” for Energy Efficiency Resources?**

- Doubtful, at least in near term
- Markets are de-integrated (compared to integrated value of EE), and focused on shorter-term or dispatchable resources
- Significant institutional barriers
- At a minimum, a long transition
- Therefore, it is essential to continue to intervene to achieve cost-effective EE
- Public policies and programs are a must

19

## **What to keep an eye on...**

- Shouldn't ignore the RTO process – some potential opportunities, plus major risks
- RTO formation and governance (who participates besides transmission owners)
- RTO authority, scope, and focus
- Regional state committees
- Regional transmission (system) planning, congestion management/relief, resource adequacy, and demand response

20