

Renewables, Innovation, DR, Smart Grid and Efficiency: The Compelling Case for Competitive Electricity Markets

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The COMPETE Coalition

- 409 corporate members, including a large number of electricity customers.
- Organized in 2005 on the principle that competitive electricity markets are good for customers, the environment, and America.
- COMPETE's view: competitive electricity markets will bring innovative technologies, products and services, and customer choice, which are key to our nation's energy future.
- RTO markets provide clear wholesale price signals, efficiencies and innovations, and are a solid foundation for retail electricity markets.

Customers Say...

- “Competitive markets not only provide consumers the options that can mitigate price volatility but those markets also inherently improve reliability through regional transmission organizations on the supply side and increase efficiency and technology options on the demand side. Make no mistake about it. Competitive electricity markets are working.” Steve Elsea, Leggett & Platt, Inc.
- “We’re learning more ways to deliver efficiency savings to customers and shareholders. We’re striving to use 100 percent renewable power by looking at every possible project, biomass, wind, hydro, because the flexibility of competitive markets provides greater benefits from these sources.” Angela Beehler, Wal-Mart Stores
- “7-Eleven, Inc (SEI) continues to realize utility cost savings and cost avoidances by participating in competitive electricity markets. Informed energy decisions in deregulated markets help mitigate SEI costs and help drive the implementation of more energy effective store equipment.” Mark Morgan, 7-Eleven Inc.

Organized Market Features (RTOs / ISOs)

- Independent administration
 - Level playing field; confidence needed for investment
- Day-ahead and real time spot markets
 - Transparent prices for resource management
- Single-clearing price auction
 - Lowest cost resource selection
- Large regional scope
 - Aligns planning & operations with physics
 - Wide array of resources
- Independent monitoring
 - Behavior and rules assessments

Renewable Resources

- Wind attracted to organized markets by:
 - Clear locational prices that correctly value the energy
 - Efficient transmission pricing
 - Large regional footprint
 - Diverse resources to fill gaps when wind is calm
- RTO/ISO markets have nearly 80% of wind resources in contrast with 44% of the wind energy potential.
- Increased availability of wind was a key factor in recent price decrease in Midwest - - the greatest in the U.S. (FERC staff *Winter Outlook* citing MISO monitor)

“Competitive energy markets really offer the best environment in the U.S. for the investment and development of renewable resources” – Jeff Bladen, Gamesa Energy USA

Demand Response

- Transparent, competitive prices help operators and customers accurately value DR.
- Neutral rules attract DR providers.
- DR in organized markets displaced need for more than 23,000 MW of generation
 - Saving about \$275 million in PJM
- Most growth in incentive-based DR is in organized markets. (*Lawrence Berkeley Lab*)
- DR complements variable generation.
- DR increases operational flexibility of grid.

“It is no accident that some of the more innovative strategies that we have seen, in terms of using demand response as a way of avoiding the need for new peak generation, for avoiding the operation of high-emitting, low-efficiency peak generation, is happening in competitive markets. And likewise with renewable energy development.” -- Mark Brownstein, Environmental Defense Fund

Innovation

- Non-discriminatory rules and transparent prices attract innovative technologies.
- Beacon Power uses flywheel technology to store energy and provide regulation service.
 - One facility on ISO-New England grid
 - Plans to install larger facilities on PJM and New York ISO systems
- AES Storage uses lithium-ion battery technology to store energy and provide regulation service on PJM and California ISO systems.
- FirstEnergy is developing compressed air generator on PJM.
 - 268 MW to 2,700 MW; only 2 others in the world
- Innovative Demand Response providers are attracted to markets

“Competitive markets have provided environments that nurture and facilitate innovation, allowing companies like Beacon Power to continue pushing ahead in developing critical new technologies like flywheel energy storage.” - - Judith Judson, Beacon Power

Smart Grid

- Benefits of sophisticated communication and application tools will be maximized in organized markets.
 - Transparent, timely prices reflecting true resource cost of energy
 - Ease of participation in markets by demand side service providers and customers
- Smart Grid is aimed at changing consumer and investor behavior – to get the most “bang for the buck,” markets/price signals are critical.

Infrastructure Investment

- The U.S. needs \$1.5 trillion investment in electricity infrastructure over next 20 years.
 - \$2 trillion if include costs of limiting carbon emissions are included (estimates by Brattle Group)
- Organized markets will provide a solid platform.
 - Facilities where they are needed due to transparent prices that vary by location
 - Right type of investment (generation, wires, DR, efficiency) at the lowest cost due to market incentives and fair rules
 - Sufficient supply due to resource adequacy mechanisms
 - Market based resources shift risk to investors and away from customers

Prices

- Prices vary with market conditions, especially with significant and variable fuel input costs.
- Winter on-peak forward prices down 12% to 24% in RTO hubs (2008-2009) (FERC staff Winter Assessment).
- Retail price performance (1997-2009 per EIA data)
 - States with RTOs: up 44.8%
 - States without RTOs: up 48.9%
 - National average: up 45.8%
 - Residential rates in states with RTOs: up 2.5% when adjusted for inflation. In states w/o RTOs, up 5.7%. National average is 3.4%.

Per EIA data

Efficiency

- Market discipline and large pool of suppliers lead to lower costs.
- Price signals plus a level playing field provide the most efficient investment opportunities.
- Operational efficiency in organized markets:
 - Coal-fired heat rates improved 9.4% (1998-2007)
 - Nuclear utilization rate increased from 81% to 93% (1996-2007)
- Annual cost savings from RTO operations
 - PJM: up to \$2.3 billion
 - MISO: up to \$1.1 billion
 - Fuel adjusted energy prices down 7% to 8.5% in PJM and MISO due to operational efficiencies

Market Monitoring

- Independent professional monitors add extra level of consumer protection in RTOs.
- Behavior is monitored in real time.
- Rules and operations are assessed periodically.
- Market performance assessed against metrics to assure:
 - Market power is not exercised
 - Prices consistent with competitive markets
- Publicly available reports
- Deregulation is a misnomer – RTO markets are defined by comprehensive and specific tariffs, strict oversight, clear behavioral rules and agency enforcement.

Synergy with GHG Reduction Program

- Ultimate goal of price on carbon is fundamental change in both investor and consumer behavior, resulting in transformation of our energy economy.
- Organized markets price energy at cost of last resource increment needed to meet demand.
 - Accurate measure of resource cost
 - Efficient investment and consumption decisions
- Carbon prices would be directly reflected in these prices.
- Markets will provide best opportunities for changes in investment/consumer behavior.

“A smart cap and competitive markets for electricity add up to a huge incentive for innovation in new technologies that reduce carbon pollution.” -- Fred Krupp, Environmental Defense Fund

Ohio

- Example: auction to supply the FirstEnergy's standard offer service from June 2009 to May 2011 decreased Ohio residential customer rates 7.4% to 16%.
- Recipe for securing benefits of competitive markets is to continue developing competitive markets in all service territories.
- Remove barriers to competition.
- Provide regulatory certainty.

RTO Markets Are Performing Well

- Renewables
- Demand response
- Innovation
- Price signals
- Operational efficiencies
- Least cost resources
- Strict oversight/monitoring
- Excellent platform for retail choice, efficient investments and Smart Grid