

Demand Response: Achieving measurable results and poised for more success

Encouraging developments suggest that demand response (DR) is achieving measurable results and is on a path to realize even more of its potential:

- In 2003, ISO NE turned to DR for relief of SWCT's transmission bottleneck and generation shortfall and DR delivered: DR providers quickly supplied over 200 MW of reliable capacity to the grid
- In 2005, ISO NE turned to DR again for relief of potential winter 2005/2006 natural gas shortfalls and DR delivered again: DR providers supplied over 300 MW of new, reliable capacity throughout New England in less than 6 weeks
- CA has engaged in a series of regulatory proceedings to expand DR activity in the state
- CT has embraced DR as an effective and proactive way to mitigate FMCCs
- PJM is incorporating DR as a fully integrated resource in its markets
- NW utilities are actively considering DR in their resource procurement activities
- Other utilities and system operators around the country are increasingly considering DR in their resource mix in response to mounting generation shortfalls and transmission bottlenecks
- Federal Energy Policy Act 2005 increases interest and expectations
- Finally, countries outside the US are embracing DR as viable component of their resource mix

DR has significant potential to positively impact two different aspects of the electricity market:

1. ***DR as capacity***: DR is a better economic alternative than building power plants to meet every MW of demand and related reserve margins of 15%
 - The US has built and installed 948 GW of generating capacity to meet today's peak demand of only 697 GW
 - DR accounts for about 1% of the capacity resource mix, and this proportion has decreased by about 1/3 since 1996
 - 1% of the hours of the year increase the capacity needs of our electricity system by 10% -- DR that's focused on these 1% of the hours can significantly reduce the system's overall capacity needs
2. ***DR as a price volatility hedge***: DR provides a real-time physical hedge to counter-balance energy market price spikes, minimizing market power while increasing market liquidity
 - Price spikes are not as much of a challenge as high prices
 - End users interest and ability to participate in real time energy markets is very different than their ability to be a system capacity resource

What is needed for DR to realize more of its potential, especially with DR as capacity?

- Appreciate and match the needs of both the operators and the end-users, not one or the other:
 - System Operators
 - Need resources to be reliable: i.e., penalties for non-performance
 - Need near real-time status of curtailment: i.e., DR-in-progress feedback through technology-enabled systems
 - Need to pay appropriately for value delivered: i.e., accurate, meaningful baselines
 - Need resources available when majority of challenges occur: i.e., curtailment during peak load periods
 - Need resources brought on line quickly as problems evolve: i.e., quick and substantive deployments

- End Users
 - Need reasonable, meaningful event triggers
 - Need reasonable, meaningful economic rewards
 - Need program and/or market stability
- Value DR within appropriate market structures or through RFP's: DR helps meet peak needs, provides operating reserves, and increases reliability, this has value for the system akin to generation and should be compensated accordingly
 - Make the responsibility for resource adequacy clear: we seem stuck in a morass of change; we've headed away from the traditional regulatory model into to a patchwork quilt of alternative regulatory structures with no clear regulatory trajectory
 - Level the playing field: DR should have functional parity with other resources

One suggestion – a DR Portfolio Standard

- DR does not need subsidies to realize its potential
- Consider a DR Portfolio Standard (DRPS) akin to a Renewable Portfolio Standard (RPS) whereby every utility and system operator is required to meet 5% of its peak load with DR or to explain why it cannot meet this standard
- A DRPS would assure that the markets increase their receptivity to DR so that DR's maximum economic value can be achieved on merit alone, not prevented by traditional practices and not requiring subsidies

EnerNOC Overview:

EnerNOC is a successful developer of new demand response resources in the United States. In the past two years and within some of the most constrained areas of California, New York, and New England, EnerNOC has enabled more than 200 MW of demand response capacity at approximately 500 client sites. EnerNOC's business model has won the confidence of both supply and demand side customers as well as the regulatory community who embraces our technology-enabled full-service DR solutions. EnerNOC's customers include SBC Communications, AT&T, General Electric, IBM, nine national and regional grocery chains, MIT, Adelphi, the State of Connecticut, and over a dozen municipalities, as well as utilities such as Southern California Edison, National Grid and NStar. We work in markets operated by ISO-NE, NYISO, and PJM, and we are a certified Demand Reserves Partnership (DRP) Provider in California.

The "NOC" in EnerNOC stands for Network Operations Center. The NOC solves problems for end-use customers and the grid simultaneously by allowing EnerNOC to remotely monitor and control energy assets (e.g., lights, HVAC, generators) 24 hours a day, 7 days a week, 365 days a year. The NOC integrates real-time market prices and market capacity requirements, which, in turn, allows EnerNOC's operations team to react immediately on behalf of customers in response to price and other grid signals.

EnerNOC is also a member of the Demand Response and Advanced Metering Coalition (DRAM).