Meeting the Opportunities and Challenges of the New England Energy Landscape

Demand Response 4-A: ISO Round-Up

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Changes in the New England Energy Landscape

- Retirements of large generation units
  - Capacity surplus is diminishing
  - Capacity prices have increased as a result
  - Retiring capacity includes coal, oil, and nuclear units
- Natural gas delivery constraints
  - Most new wholesale capacity uses natural gas
  - Inexpensive gas commodity has driven gas distribution company expansion and retail gas demand
  - Winter electricity prices are higher and more volatile
- Grid modernization
  - States have been greatly expanding energy efficiency and customer-owned distributed generation (primarily renewable resources)
  - AMI and time-varying retail rates are being considered to better integrate demand response, distributed generation, and storage (including EVs)

Opportunities and Challenges for the Current Demand Response Business Model

Current DR business model: recruit customers to interrupt real-time energy consumption in exchange for wholesale market payment; these customers become a resource to the wholesale market

- High capacity prices from generation retirements present an opportunity
  - But with no excess generation capacity:
    - Remaining capacity will be needed more often, and must be flexible and perform when dispatched
    - Less opportunity to shed (arbitrage or sell out of) capacity positions
- High energy prices from natural gas delivery constraints present an opportunity
  - But resources may be called upon to provide energy through an extended cold snap (e.g., the Polar Vortex)
- Grid modernization and AMI present an opportunity
  - But customers will want a retailer that helps them meet their specific energy needs, which could include a combination of time-based commodity, load control, efficiency, DG, and/or storage services

Meeting the Challenges

- To serve demand reliably and cost-effectively, the wholesale market must treat all resources comparably (i.e., same opportunities and obligations)
  - All resources should be subject to the same (and more stringent) performance requirements and incentives
  - Fully integrate demand response resources into all of the wholesale product markets [i.e., capacity, energy, ancillary services (regulation and operating reserves)]
- The current demand response business model must evolve
  - Requiring customers to interrupt real-time energy consumption in exchange for wholesale market payment is not a viable long-run solution
  - A more viable future for demand response is helping customers optimally manage commodity purchases, load control, energy efficiency, DG production, and energy storage
  - As grid modernization progresses, this new demand response business model will help customers adapt to a more complex energy landscape