Proceedings – DR Symposium III

MADRI

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Purpose of the DR Roadmap

- Tool for collaboration of the wholesale and retail markets to develop demand response
- Uses 5 key functions to organize an integrated wholesale/retail effort to support demand response
- Check list of wholesale and retail "to dos" identified through the collaborative process
- Record of wholesale and retail market accomplishment of requirements memorialized in the DR Roadmap

From Guide to Action

- The items and actions identified on the wholesale side of the DR Roadmap can only be accomplished through the PJM stakeholder process and FERC review
- The items and actions identified on the retail side of the DR Roadmap can only be accomplished through the regulatory review process established by each state, municipality and cooperative

Evolution of Demand Response to Price Responsive Demand

- Interruptible load was DR 1.0
  - No response at all to prices, but response as the LSE/EDC needed it as a capacity resource only
  - Treats DR effectively as a supply-side resource from a planning perspective
- Current wholesale/retail paradigm is DR 2.0
  - Responses to wholesale market prices with activity at the wholesale level as both a capacity and energy resource
  - Little integration and coordination with actions at retail level as CBL and wholesale prices are treated as a proxy for a dynamic retail rate
  - DR still treated as a supply-side resource
- Price Responsive Demand is DR 3.0
  - Integrates and coordinates wholesale and retail needs and activities through AMI and dynamic rates
  - Treats DR as a demand-side resource in considering capacity and energy needs

Adding Price Responsive Demand to the DR Roadmap

- Identify key Price Responsive Demand concepts set forth in the March 9, 2009 white paper by Ott and Centolella
- Use the analogue of the existing DR Roadmap to organize the key elements of the white paper
- Obtain critical review and input from state commissions and consumer advocates
- Use the DR Roadmap as a starting point for further collaboration at the Demand Response Symposium

Price Responsive Demand in the Retail Market

- Dynamic prices that produce predictable and measurable changes in usage
- Meters capable of recording usage on an hourly or sub-hourly basis
- Automation that implements customer usage decisions in response to dynamic prices
- Communication of price/quantity data to PJM by Load Serving Entities
- Energy and capacity obligations of Load Serving Entities that take account of Price Responsive Demand

Price Responsive Demand in the Wholesale Market

- Document the price/quantity data provided by LSEs in a Forecast Demand Response Curve
- Use Forecast Demand Response Curves:
  - to improve accuracy of load forecast and system dispatch both DA and RT
  - to inform the planning & capacity procurement
- Implement Scarcity Pricing through an Operating Reserve Demand Curve framework
- Develop penalties/consequences for LSEs that exceed capacity entitlements during emergency events

DR Roadmap: Supply Side AND Demand Side Options for Demand Response

- Demand Response Roadmap more complete in that it provides options for load reduction capability to participate in the market as:
  - Demand Response, a resource that competes with generation and merchant transmission in the energy, capacity, DASR, synchronized reserve and regulation markets; or
  - Price Responsive Demand that changes the quantity of energy consumed and capacity required in response to dynamic prices

DR Roadmap: Supply Side AND Demand Side Options for Demand Response (*cont.*)

- MADRI Commissions' statement of support for the DR Roadmap
  - "The MADRI commissions strongly support the use of all cost effective demand response to reduce capacity and energy costs, assure reliability, and improve the competiveness of PJM administered markets. MADRI encourages PJM to develop a roadmap for fully recognizing retail demand response initiatives in the states"

Proceedings – Successful PRD

- Objective
  - Reveal price elasticity
  - Curtail load growth
  - Level out spikes in energy consumption
- Process – integration of PRD must be done "in a way that is understandable, fair, and cost-effective for customers, DR technologists, CSPs, regulators, legislators and others across the board" (pg. 5)

Proceedings – Risks to Successful PRD

- Billing system issues
- Standardized "plug and play" in-home devices, appliances and control systems
- Customer interface
- Stranded costs caused by equipment or software obsolescence
- Different regulatory/legislative decisions in the region that confuse/frustrate customers
- Accurate price/quantity data for dispatch and load forecasts

Proceedings – PRD Risk Mitigation

- Billing system improvements
- Robust customer support and education that clearly communicates costs and benefits of dynamic pricing
- Solutions that address equipment and software obsolescence
- Regulatory/legislative initiatives that support PRD
- Solutions that ensure the accuracy of data used for dispatch and load forecasts