DR as a Reliability Resource for Grid De-carbonization

A National Summit On Smart Grid and Climate Change
October 13, 2015
Overview

- DR is a Proven Reliability Resource
- Clean Power Plan
- Demand Response Reduces Carbon Emissions
- Demand Response Should be Incorporated in all State Plans
Demand Response is a Proven Reliability Tool

• Demand Response has grown to provide over 27,000 MW of Capacity in the competitive wholesale energy markets.*

• According to PJM, during the Polar Vortex, demand response resources, while not required, “respond[ed] and assisted in maintaining the reliability of the system.”**

• PJM also stated “The total amount of demand response provided during the Polar Vortex was larger than most generating stations.”***

* US Demand Response Market Outlook 2014, GreenTech Media, GTM Research
Clean Power Plan

• Draft CPP Rule Issued in June 2014
  • Draft included four building blocks, including “Demand Side Energy Efficiency”.
  • Demand Response not specifically included in Building Blocks.
  • AEMA and its members met with EPA officials to discuss specifically including Demand Response into its final rule.
  • Commissioned a study by Navigant to quantify emissions reductions from Demand Response.
  • Included hard data with formal comments to EPA.

• Final CPP Rule released in August 2015
  • Demand Response included explicitly in final rule.
“In this interconnected system, system operators, whose decisions, protocols, and actions, to a significant extent, dictate the operations of individual EGUs and large ensembles of EGUs, must reliably balance supply and demand using available generation and demand-side resources, including EE, demand response and a wide range of low- and zero-emitting sources. These resources are managed to meet the system needs in a reliable and efficient manner.”

Clean Power Plan final rule, page 84
Demand Response Reduces Carbon Emissions

• Four pathways for DR to reduce carbon emissions
  • Direct
    • Load Reduction
    • Ancillary Services
  • Indirect
    • Increases level of renewables penetration
    • Competitive economics of DR force changes in system-wide fuel mix

• Navigant Conclusions:
  • Deployment of DR can yield > 1% carbon reduction through Direct pathways.
  • Deployment of DR can yield > 1% carbon reduction through Indirect pathways.
Demand Response Should be in State Plans

• Several environmental initiatives constraining traditional generation assets (one factor driving the creation of this conference).
• DR is a proven reliability resource
• Deployment of DR has now been shown to reduce emissions
• DR is a tool that facilitates deployment of renewable resources by changing the load profile in response to intermittent resources.
• Costs of DR, while not discussed here, are declining.
• From a state’s perspective, this is win-win-win.
• Deploy DR to facilitate compliance with CPP goals.
Follow Up?

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