

Impacts of Demand Response programs on wholesale markets

I first started exploring this question, "why does PJM have so much demand response program participation, whereas MISO doesn't," early on during my MISO career. I think it was apparent after some research that states in PJM are de-regulated and have a retail choice. Plus, PJM has a 3-year forward capacity market called "Reliability Pricing Model," which provides an incentive for future capacity needs. States in MISO footprint are vertically integrated and have no retail choice except for Illinois. MISO has a voluntary capacity auction, not a forward capacity market.

That was the main reason why I started paying attention to a report released around this time of the year from the Federal Energy Regulatory Commission (FERC), called "Assessment of Demand Response and Advanced Metering." You can find past reports [here](#) on the FERC website. Last year's report released in November, compared to previous reports mostly released in December.

The critical table, in my opinion, from the 2018 FERC report in Table 3-3, that summarizes Demand Resource Participation in RTO/ISO Demand Response Programs.

RTO/ISO	2016		2017		Year-on-Year Change	
	Demand Resources (MW)	Percent of Peak Demand ⁸	Demand Resources (MW)	Percent of Peak Demand ⁸	MW	Percent
CAISO	1,480 ¹	3.2%	1,293 ⁹	2.6%	-187	-12.6%
ERCOT	2,536 ²	3.6%	3,009 ¹⁰	4.3%	473	18.6%
ISO-NE	703 ³	2.7%	684 ¹¹	2.9%	-19	-2.7%
MISO	10,721 ⁴	8.9%	11,682 ¹²	9.7%	961	9.0%
NYISO	1,373 ⁵	4.3%	1,353 ¹³	4.6%	-20	-1.4%
PJM	9,836 ⁶	6.5%	9,520 ¹⁴	6.5%	-316	-3.2%
SPP	0 ⁷	0.0%	0 ⁷	0.0%	0	0.0%
Total	26,649	5.3%	27,541	5.6%	892	3.4%

As you see from this table, MISO has almost 10% of peak demand participation from Demand resources in 2017. There is a reason behind that. If you take the same table from the 2017 report that summarizes 2016 data (thank you FERC for keeping the table number constant across the years!)

RTO/ISO	2015		2016	
	Demand Resources (MW)	Percent of Peak Demand ⁸	Demand Resources (MW)	Percent of Peak Demand ⁸
California ISO (CAISO)	2,160 ¹	4.4%	1,997 ⁹	4.3%
Electric Reliability Council of Texas (ERCOT)	2,100 ²	3.0%	2,253 ¹⁰	2.9%
ISO New England (ISO-NE)	2,696 ³	11.0%	2,599 ¹¹	10.2%
Midcontinent Independent System Operator (MISO)	10,563 ⁴	8.8%	10,721 ¹²	8.9%
New York Independent System Operator (NYISO)	1,325 ⁵	4.3%	1,267 ¹³	3.9%
PJM Interconnection (PJM)	12,866 ⁶	9.0%	9,836 ¹⁴	6.5%
Southwest Power Pool (SPP)	0 ⁷	0%	0 ⁷	0%
Total ISO/RTO	31,710	6.6%	28,673	5.7%

You see that ISO-NE had that top spot of 10% peak demand participation from Demand resources. So, you are wondering what happened? As you might guess, FERC staff has changed the way they account for these demand response resource participation in wholesale markets.

Reading footnote 53 from the 2018 report, "reflect the registration of demand response resources (but not energy efficiency resources) in wholesale demand response programs. This applies in particular to ISO-NE, where energy efficiency resources make up a large portion of demand resources participating in the market. Additionally, figures for CAISO reflect demand resource participation in wholesale demand response products rather than in retail programs, as reported previously. In NYISO, figures include demand resources participating in the ancillary services market. Finally, because the data source previously used for ERCOT is no longer available, Commission staff has estimated demand resource participation based on ERCOT's 2016 and 2017 Annual Reports of Demand Response."

I am looking forward to the 2019 report to check if the FERC staff has changed the methodology again. Or, if MISO continues to maintain the top spot among its peer group of ISO/RTOs around demand resource participation.