

FERC Staff's Report on Demand Response and Advanced Metering

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The Federal Energy Regulatory Commission's Assessment of Demand Response & Advanced Metering Staff Report December 2014

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- Today's presentation will discuss:
 - Background on FERC's Annual Assessments
 - Purpose
 - Approach
 - Data Sources
 - Highlights from 2014 Assessment

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- The Energy Policy Act of 2005 requires that FERC prepare and publish an annual report, by appropriate region, that assesses demand response resources, including those available from all consumer classes, and which identifies and reviews –
 - 1) Saturation and penetration rate of advanced meters and communications technologies, devices and systems;
 - 2) Existing demand response programs and time-based rate programs;
 - 3) The annual resource contribution of demand resources;
 - 4) The potential for demand response as a quantifiable, reliable resource for regional planning purposes;

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- The Energy Policy Act of 2005 requires that FERC prepare and publish an annual report, by appropriate region, that assesses demand response resources, including those available from all consumer classes, and which identifies and reviews (*cont'd*) –
 - 5) Steps taken to ensure that, in regional transmission planning and operations, demand resources are provided equitable treatment as a quantifiable, reliable resource relative to the resource obligations of any load-serving entity, transmission provider, or transmitting party; and
 - 6) Regulatory barriers to improved customer participation in demand response, peak reduction and critical period pricing programs.

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RTO & ISO Demand Response Programs

- Eastern RTO-ISO system operators utilized demand response during Winter 2013/14 extreme weather events to balance the electric system and prevent reserve shortages.

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RTO & ISO Demand Response Programs

- Potential peak reduction from RTO and ISO demand response programs increased by 9.3 percent or 2,452 MW between 2012 and 2013, to reach a total potential peak reduction of 28,798 MW in 2013.
- The potential peak reduction from customers participating in RTO and ISO programs also increased as a percentage of total peak demand, increasing from 5.6 percent of peak demand in 2012 to 6.1 percent in 2013.

Potential peak reduction (or potential peak demand savings) refers to “the total demand savings that could occur at the time of the system peak hour assuming all demand response is called.” U.S. EIA, Form EIA-861 Instructions, Schedule 6, Part B.

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Potential Peak Reduction from U.S. ISO/RTO Demand Response Programs

RTO/ISO	2012		2013	
	Potential Peak Reduction (MW)	Percent of Peak Demand ⁸	Potential Peak Reduction (MW)	Percent of Peak Demand ⁸
California ISO (CAISO)	2,430 ¹	5.2%	2,180 ⁹	4.8%
Electric Reliability Council of Texas (ERCOT)	1,800 ²	2.7%	1,950 ¹⁰	2.9%
ISO New England, Inc. (ISO-NE)	2,769 ³	10.7%	2,100 ¹¹	7.7%
Midcontinent Independent System Operator (MISO)	7,197 ⁴	7.3%	9,797 ¹²	10.2%
New York Independent System Operator (NYISO)	1,925 ⁵	5.9%	1,307 ¹³	3.8%
PJM Interconnection, LLC (PJM)	8,781 ⁶	5.7%	9,901 ¹⁴	6.3%
Southwest Power Pool, Inc. (SPP)	1,444 ⁷	3.1%	1,563 ¹⁵	3.5%
Total ISO/RTO	26,346	5.6%	28,798	6.1%

Source: FERC, Assessment of Demand Response & Advanced Metering Staff Report, (December 2014), Table 3-3 (citing referenced data)

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Retail Demand Response Programs by NERC Region

- According to data collected by EIA, total U.S. potential peak reduction from retail demand response programs increased by 1,907 MW between 2011 and 2012 (7.2 percent).
- Demand response programs within the Western Electricity Coordinating Council (WECC) accounted for 1,253 MW of potential peak reduction or nearly two-thirds (65.7 percent) of the total increase in the U.S. between 2011 and 2012.

Potential peak reduction (or potential peak demand savings) refers to “the total demand savings that could occur at the time of the system peak hour assuming all demand response is called.”

U.S. EIA, Form EIA-861 Instructions, Schedule 6, Part B.

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Potential Peak Reduction from Retail DR Programs by NERC Region

NERC Region	Annual Potential Peak Reduction (MW)		Year-on-Year Change	
	2011	2012	MW	%
AK	28	27	-1	-3.6%
FRCC	3,360	3,306	-54	-1.6%
HI	43	42	-1	-2.1%
MRO	5,450	5,567	117	2.1%
NPCC	613	606	-7	-1.2%
RFC	5,529	5,836	307	5.6%
SERC	5,937	6,046	109	1.8%
SPP	1,215	1,323	108	8.9%
TRE	340	480	140	41.3%
WECC	4,016	5,269	1,253	31.2%
Unspecified	63	0	-63	-100.0%
Total	26,596	28,503	1,907	7.2%

Source: U.S. EIA, EIA-861 file3_2011, dsm_2012 and utility_data_2012 data files.

Note: Although some entities may operate in more than one NERC Region, EIA data have only one NERC region designation per entity. Commission staff has not independently verified the accuracy of EIA data.

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Advanced Metering

- The penetration of advanced meters continues to climb as utilities' continue their respective electric grid modernization efforts.
- According to the EIA, an additional 5.9 million advanced meters were installed and operational between 2011 and 2012, resulting in advanced meters representing almost 30 percent of all meters in the United States.
- DOE's Smart Grid Investment Grant (SGIG) program: as of March 31, 2014, approximately 15.3 out of the 15.5 million advanced meters were installed and made operational.

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Advanced Metering

- Advanced metering infrastructure facilitates several beneficial applications which can lead to improvements in operational efficiency, reliability and asset utilization. The applications include:
 - Outage detection and notification
 - Voltage monitoring
 - Enabling integration of distributed energy systems through net metering
 - Enabling the application of time-based rates

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Advanced Metering (*cont'd*)

- Some of the benefits achieved through advanced metering, customer systems, and time-based rates include:
 - Reduced electricity generation and environmental impacts
 - Expanded options for customers to manage electricity consumption and costs

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Regulatory Barriers

- The 2014 Demand Response & Advanced Metering report describe the barriers to customer participation to demand response, and details actions and progress:
 - ❑ Lack of Uniform Standards for Communicating Demand Response Pricing, Signals and Usage Information
 - ❑ Lack of Support for Enabling Technologies
 - ❑ Opportunities for Customer Education and Engagement
 - ❑ Implementing Time-based Pricing

Demand Response Information Sources at FERC



- Demand Response & Advanced Metering Webpage: Reports and datasets
 - <http://www.ferc.gov/industries/electric/indus-act/demand-response/dem-res-adv-metering.asp>
- National Assessment & Action Plan on Demand Response (National Assessment, National Action Plan, Implementation Proposal)
 - <http://www.ferc.gov/industries/electric/indus-act/demand-response/dr-potential.asp>



Thank you.

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