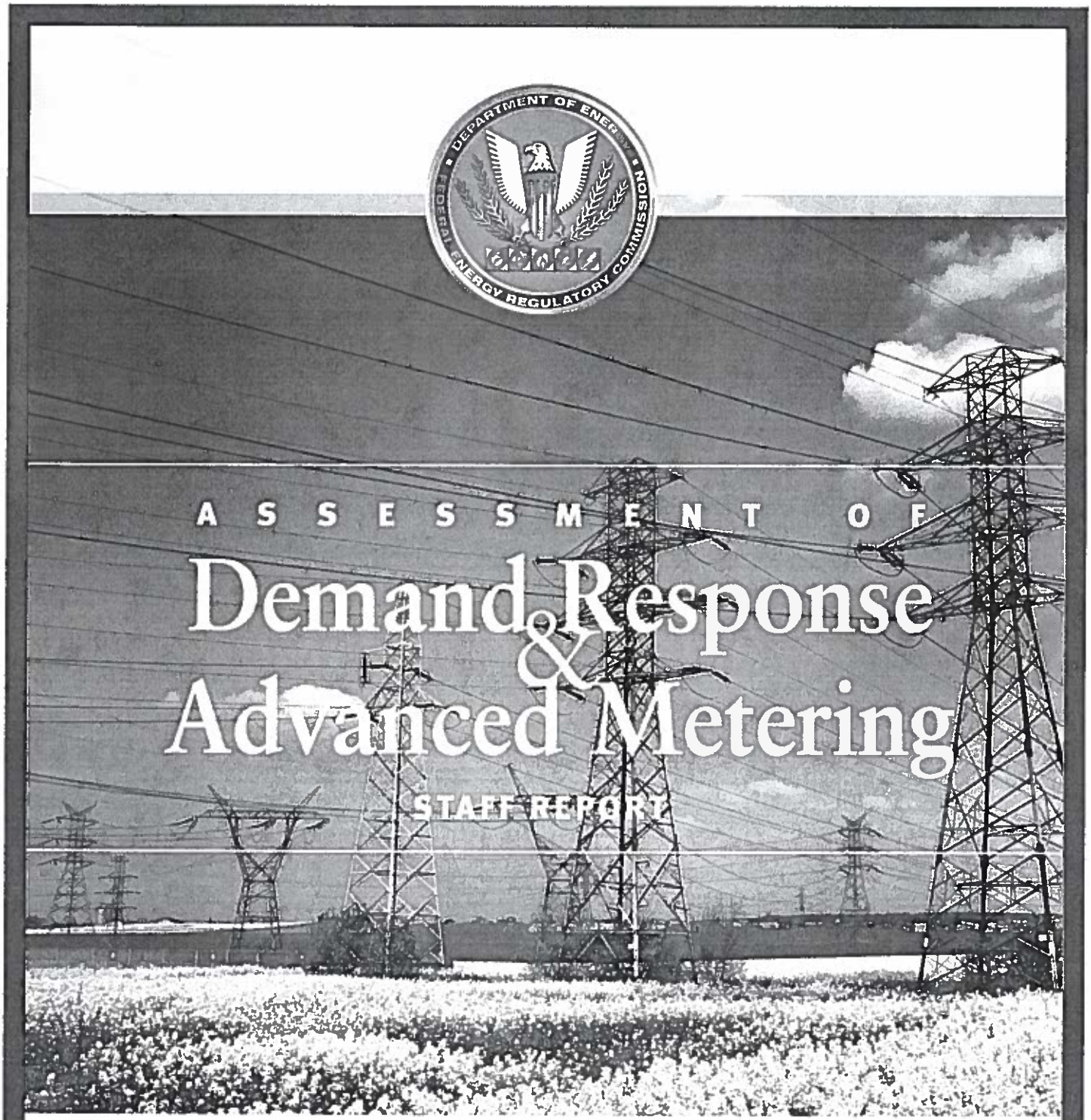

ASSESSMENT OF
Demand Response & Advanced Metering

STAFF REPORT

FEDERAL ENERGY REGULATORY COMMISSION

DECEMBER 2014

2014

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FERC Staff Report

ASSESSMENT OF DEMAND RESPONSE AND ADVANCED METERING

Pursuant to Energy Policy Act of 2005 section 1252(e)(3)

December 2014

Chapter 1: Introduction

This report is the Federal Energy Regulatory Commission staff's (Commission staff's) ninth annual report on demand response and advanced metering required by section 1252(e)(3) of EPAct 2005. It is based on publicly-available information and discussions with market participants and industry experts. Based on the information reviewed, it appears that:

- The penetration of advanced meters continues to climb.[1] According to the Energy Information Administration (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;[2]
- Potential peak reduction from demand response in the Regional Transmission Organizations (RTOs), Independent System Operators (ISOs), and Electric Reliability Council of Texas (ERCOT) markets increased by 2,451 MW to 28,503 MW from 2012 to 2013 or 9.3 percent;[3] and,
- Demand response resources made significant contributions to balancing supply and demand during the late 2013 and early 2014 extreme cold weather events and helped preserve Eastern RTO and ISO reserve levels.[4]

[1] As defined by the U.S. Energy Information Administration (EIA), Advanced Metering Infrastructure (AMI) Meters are

> "Meters that measure and record usage data at a minimum, in hourly intervals and provide usage data at least daily to energy companies and may also provide data to consumers. Data are used for billing and other purposes. Advanced meters include basic hourly interval meters and extend to real-time meters with built-in two-way communication capable of recording and transmitting instantaneous data."

See: U.S. EIA, *Form EIA-861: Annual Electric Power Industry Report Instructions, available at* http://www.eia.gov/survey/form/eia_861/instructions.pdf.

[2] U.S. EIA, *Electric Power sales, revenue, and energy efficiency Form EIA-861 detailed data files, available at* http://www.eia.gov/electricity/data/eia861/index.html.

[3] *See infra* Table 3-3 (citing referenced data).

[4] See the section below titled "Role of Demand Response during Winter 2013/2014 extreme weather events," for a complete list of references.

The report addresses the six requirements included in section 1252(e)(3) of EPAct 2005, which directs the Commission to identify and review:

(A) saturation and penetration rate of advanced meters and communications technologies, devices and systems (Chapter 2);
(B) existing demand response programs and time-based rate programs (Chapter 5);
(C) the annual resource contribution of demand resources (Chapter 3);
(D) the potential for demand response as a quantifiable, reliable resource for regional planning purposes (Chapter 4);
(E) 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 (Chapter 5); and
(F) regulatory barriers to improved customer participation in demand response, peak reduction and critical period pricing programs (Chapter 6).

Relatively low capacity prices in NYISO in recent years may have also contributed to less participation in the SCR program.[32]

Demand response enrollments in ISO-NE declined by 669 MW—nearly 25 percent—in 2013. According to published reports and analyst comments, this decline may be at least partially due to Enernoc's reduced presence in the Forward Capacity Market based on its customers' view that participation requirements out-weigh the value of participation.[33] In CAISO, according to the market monitor's report, reductions in capacity in two of SCE's programs, while partially offset by an increase in capacity in PG&E's programs, led to an overall the decline in potential peak reduction by demand response in 2013.[34]

Role of Demand Response during Winter 2013/14 extreme weather events

The January 2014 cold weather events caused numerous challenges for electricity system operators. In the eastern United States, the extreme cold weather of January 6-8 and January 17-29 resulted in high demand, generation outages, and fuel disruptions that affected electric and fuel markets. Eastern RTO/ISO system operators utilized demand response during these high load periods to balance the electric system and prevent reserve shortages.

PJM activated about 2,000 MW of demand response for several hours during the morning and evening peaks of January 7th, and over 2,500 MW for several hours on January 23rd and January 28th.[35] PJM called on demand response to address issues with transfers, transmission limits and generating unit forced outages.[36] Although demand resources were not obligated to respond during this period, close to 25 percent of registered demand response resources responded. PJM states that this experience demonstrates the year-round value of demand response.[37]
As part of its 2013-2014 Winter Reliability Program, ISO-NE gained the ability to call on demand response assets up to 10 times during the winter. Demand response resources provided 21 MW on five occasions between December 2013 and February 2014.[38] ISO-NE included demand response as a component of its 2014-2015 Winter Reliability Program.[39]

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[32] Potomac Economics, 2013 State of the Market Report for the New York ISO Markets, at 91-93 (May 2014), *available at* http://www.monitoringanalytics.com/reports/pjm_state_of_the_market/2013.shtml.

[33] Platts, Enernoc thinning position in New England forward capacity market, (Apr. 9, 2013), *available at* http://www.platts.com/latest-news/electric-power/washington/enernoc-thinning-position-in-new-england-forward-21928104; Analysis Group, Capacity Markets in the Northeast: A Preview of Comments at the FERC Technical Conference on Centralized Capacity Markets in RTOs/ISOs at 16, Tierney, (Sept. 20, 2013) *available at* http://www.ippny.org/uploads/PDF/1378921415_TierneyPresentation_Fall2013.pdf.

[34] California ISO, Dep't of Market Monitoring, *2013 Annual Report on Market Issues & Performance*, (Apr. 2014), *available at* http://www.caiso.com/Documents/2013AnnualReport-MarketIssue-Performance.pdf.

[35] FERC Office of Enforcement, Technical Conference on Winter 2013-2014 Operations and Market Performance in RTOs and ISOs, Tr. 21, (April 1, 2014).

[36] PJM, Analysis of Operational Events and Market Impacts during the January 2014 Cold Weather Events at 37, (May 8, 2014).

[37] *Id.* at 20-21.

[38] Letter from Gordon Van Welie, President, ISO-NE, to U.S. House Committee on Energy and Commerce, *ISO-New England* at 8 (April 18, 2014), *available at* http://www.iso-ne.com/pubs/pubcomm/corr/2014/2014-04-18-iso-ne-response-to-house-energy-commerce.pdf.

[39] *ISO New England, Inc.*, 148 FERC ¶ 61,179, at PP 17-18, 39 (2014).

Other RTOs also utilized demand response during the winter peak load periods. NYISO has an Emergency Demand Response Program and a Special Case Resources capacity market program available for activation in energy shortage situations.[40] Both programs were activated on January 7, 2014 and NYISO called on reductions from about 900 MW of its demand resources.[41] Demand response resources were put on notice for the New York City zone on January 27th for activation on January 28th, but ultimately were not needed to maintain reserve requirements.[42]

[40] New York ISO, Demand Response Programs, *available at* http://www.nyiso.com/public/markets_operations/market_data/demand_response/index.jsp

[41] *See*: FERC Office of Enforcement, Technical Conference on Winter 2013-2014 Operations and Market Performance in RTOs and ISOs (April 1, 2014), Transcript at 21; New York State Reliability Council, *NYISO Operations Report*, (January 2014), *available at* http://www.nysrc.org/pdf/MeetingMaterial/RCMSMeetingMaterial/RCMS%20Agenda%20170/January%202014%20Ops%20Report.pdf.

[42] Wes Yeomans, NYISO, Presentation at Technical Conference on Winter 2013-2014 Operations and Market Performance in RTOs and ISOs (April 1, 2014).