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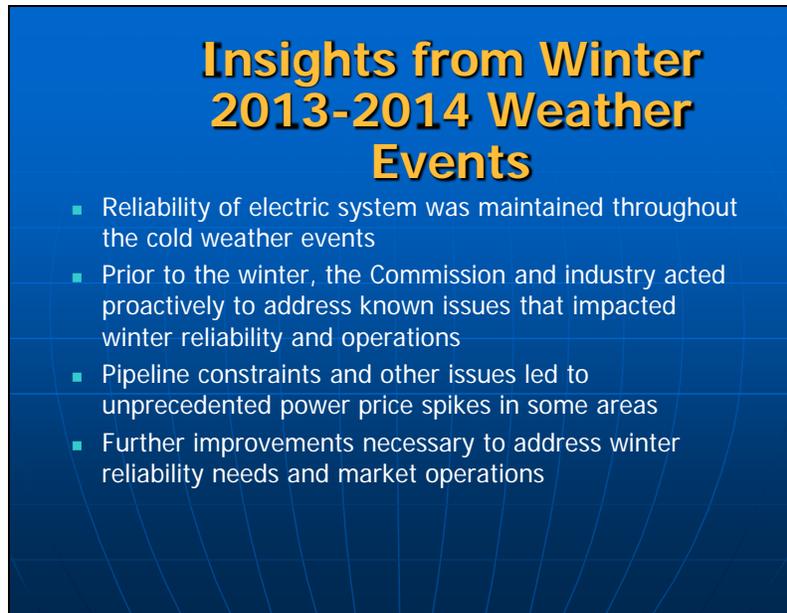


**Commission and Industry
Actions Relevant to Winter
2013-14 Weather Events**

Docket No. AD14-8

Item No: A-4
October 16, 2014

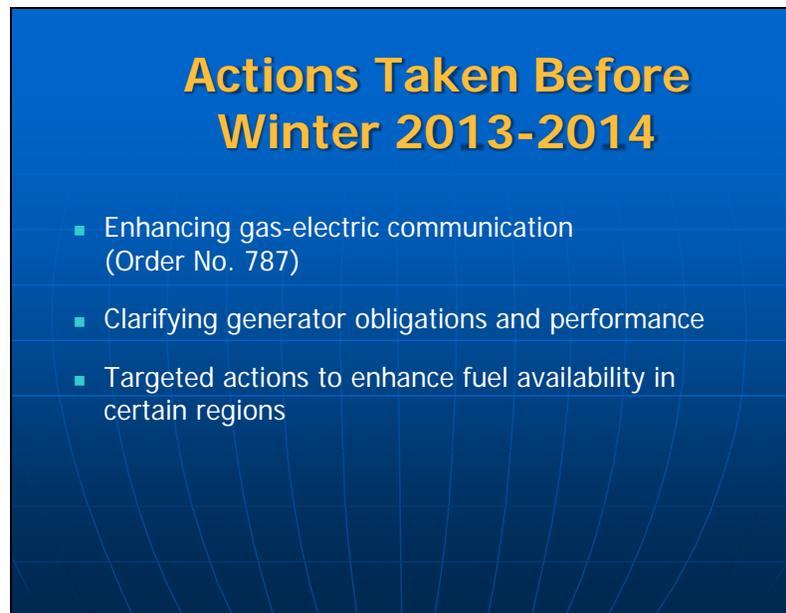
Good morning Chairman and Commissioners. Today we take the opportunity, in advance of the winter, to briefly recap the events of last winter, the actions taken in response to those events, and ongoing initiatives.



Insights from Winter 2013-2014 Weather Events

- Reliability of electric system was maintained throughout the cold weather events
- Prior to the winter, the Commission and industry acted proactively to address known issues that impacted winter reliability and operations
- Pipeline constraints and other issues led to unprecedented power price spikes in some areas
- Further improvements necessary to address winter reliability needs and market operations

In brief, sustained and at times extreme cold weather events during the 2013-2014 winter season posed significant challenges to system operators, generators, and other market participants in certain regions of the country. While the bulk power system remained stable and generally performed reliably throughout the cold weather events, the events brought to the forefront relatively recent issues of focus for the Commission as well as issues that have previously confronted the industry.



Actions Taken Before Winter 2013-2014

- Enhancing gas-electric communication (Order No. 787)
- Clarifying generator obligations and performance
- Targeted actions to enhance fuel availability in certain regions

The Commission and the industry began focusing on and taking action ahead of last winter 2013-2014 to address operational and reliability issues and concerns that were already identified. Together, these actions helped to clarify market rules and procedures and facilitate industry communication, all of which helped to ensure operational performance.

The Commission in 2012 began to raise awareness of the need for greater coordination between the electric and gas industries and has focused extensively on gas-electric interdependency issues over the last several years. Through a series of workshops held during 2012, participants identified communications between interstate natural gas pipelines and electric transmission operators as a key issue affecting system operations. Thus, on November 15, 2013, the Commission issued Order No. 787 that authorizes interstate natural gas pipeline and public utilities that own, operate, or control facilities used for the transmission of electric energy in interstate commerce to share non-public operational information to promote the reliability and integrity of their systems. During the Commission's April 1, 2014 Technical Conference to explore the impacts of the 2013-2014 winter cold weather events, several RTO and ISO representatives noted that communicating with the pipeline operators during the polar vortex was extremely helpful to maintaining system reliability. For example, MISO stated that this communication with the pipelines allowed it to receive information early so that it could take action knowing the availability of certain units.

The Commission also took a number of actions prior to last winter to address generator performance. For example, in June 2013, the Commission issued an order, in response to a request by Dominion, that directed ISO-NE to revise its tariff to allow generator cost recovery in circumstances where for reliability reasons a resource is dispatched beyond its day-ahead

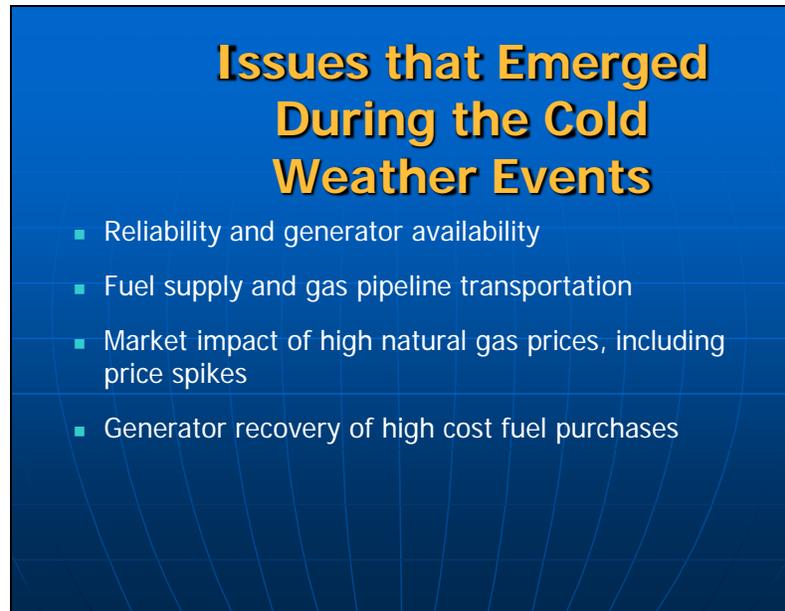
schedule or when the resource did not receive a day-ahead market schedule. This provided greater certainty to generators operating under emergency conditions.

The Commission also issued an order in August 2013, in response to a complaint filed by the New England Power Generators Association (NEPGA), clarifying that the ISO-NE tariff imposes a strict performance obligation on capacity resources and that capacity resources may not take outages based on economic decisions not to procure fuel or fuel transportation.

The Commission also approved proposals aimed at providing greater assurance of fuel availability such as ISO-NE's 2013-2014 Winter Reliability Program. This program was designed to ensure greater regional fuel diversity and fuel assurance during the winter heating season.

Commission staff made regular public reports available on a host of gas-electric coordination matters. Additionally, at the October 17, 2013 Commission meeting, the Commission invited RTOs/ ISOs to present an update on gas-electric coordination, including operational and maintenance issues. For example, NYISO noted that they completed a fuel survey of all gas-fired, oil-fired, and dual-fuel capable generators ahead of the winter and were coordinating with pipelines regarding outages and maintenance.

These actions helped to clarify market rules and procedures, which helped ensure operational performance during cold weather events.



Issues that Emerged During the Cold Weather Events

- Reliability and generator availability
- Fuel supply and gas pipeline transportation
- Market impact of high natural gas prices, including price spikes
- Generator recovery of high cost fuel purchases

Going into the winter, the RTOs/ISOs and industry were generally aware of the gas-electric interdependency issues. With the extreme and recurring cold weather, generator outages increased significantly in a number of the RTOs/ISOs. For example, as staff reported in a presentation at the April 1 technical conference (April 1 staff report), RTOs estimated generators on forced outages and derates ranged from seven to 30 percent of peak load. These outages were caused by a number of factors, including gas curtailments, fuel shortages, equipment failure, and frozen coal piles.

Despite the extreme weather conditions, firm fuel supply and transportation contracts were honored that enabled certain generator units to perform as scheduled. Many generators, however, saw extremely high fuel prices and interruptible gas transportation was often unavailable.

The high natural gas prices influenced the operating cost of generators, which consequently had a significant impact on the markets and consumer costs. According to the April 1 staff report, uplift costs for the month of January 2014 rivaled the total uplift incurred by the RTOs for an entire year. PJM, for example, reported energy uplift costs greater than \$500 million for January 2014. Additionally, record high natural gas price spikes drove up prices to electric end use customers, both in real-time and over the past year as higher wholesale electric prices were passed through in retail electric rates.

Lastly, some RTOs/ISOs and generators raised concerns at the Commission over the ability to recover the cost of fuel purchased to meet reliability needs. This included both offer cap waiver requests and complaints filed to recover fuel costs.



In the midst of the cold weather events, the Commission acted quickly to address discrete issues as they arose. For example, the Commission approved within days of filing several proposals by PJM, NYISO, and CAISO to temporarily waive bid caps that prevented generators from reflecting their full costs in offers. These actions provided greater certainty to generators participating in the markets that they could recover their actual costs of supplying energy.

In February, the Commission acted quickly to alleviate propane shortages in the Midwest and Northeast. The Commission invoked its emergency authority for the first time under the Interstate Commerce Act to direct Enterprise TE Products Pipeline to temporarily provide priority treatment to propane shipments from Mont Belvieu, Texas to the Midwest and Northeast during severe weather events. The Commission extended this priority treatment for an additional week to assist propane consumers during the shortage.

The Commission convened industry participants and regulators on April 1, 2014 to explore the impacts of the cold weather events on RTOs/ISOs and discuss actions taken to respond to those impacts. Commission staff presented its preliminary observations and analysis of the operations of the natural gas and RTO/ ISO markets during the cold weather events.

The Commission continues to address winter operational needs and longer term solutions through its orders. For example, to address concerns about generator performance and availability, in May of this year the Commission issued an order largely approving ISO-NE's "Pay for Performance" capacity market design changes, and instituting a proceeding under section 206 of the Federal Power Act to adopt energy market design changes proposed by the

New England Power Pool (NEPOOL). Together, these changes provide incentives for capacity resources to be available and meet their obligations during emergency conditions.

Addressing fuel assurance concerns this coming winter, the Commission also recently issued an order approving ISO-NE's 2014-2015 Winter Reliability Program. Similar to the 2013-2014 program, this coming winter's program also includes provisions to address risks to reliability by creating incentives for market participants to provide additional reliability services, for example incremental fuel procurement or dual-fuel switching capabilities which they would not have provided absent the Program.

The Office of Enforcement has also continued its in-depth review of market conditions during last winter's severe weather events. Felice Richter will now discuss this review.

A blue rectangular slide with a grid pattern. The title "Office of Enforcement Review" is centered at the top in a large, bold, orange font. Below the title, the text "Key Steps:" is followed by a bulleted list of five items in white font. The items describe the process of gathering information, verifying it, responding to alerts, and analyzing datasets for market manipulation.

Office of Enforcement Review

- *Key Steps:*
 - Interviewed and obtained information and data from numerous market participants, RTO/ISO staff, and market monitors
 - Verified information received
 - Responded to hotline calls and surveillance screen alerts
 - Analyzed key datasets for evidence of market manipulation

The Commission’s Office of Enforcement (OE) regularly conducts surveillance of the natural gas and electric markets to detect market manipulation and other improper conduct. Because of the extreme price spikes during the “polar vortex” events, OE conducted an extensive review in addition to its regular surveillance efforts. The objective of our review was to determine if market manipulation was a cause of historically high natural gas and electric prices. Staff also looked into whether market participants’ offer behavior took advantage of constrained conditions such as behavior meant to increase the level of uplift payments. Such behavior may constitute market manipulation even if the behavior caused high out-of-market payments rather than high clearing prices. The review team included participants from the Division of Energy Market Oversight, the Division of Investigations, and the Division of Analytics and Surveillance.

Staff’s initial focus was on understanding the market fundamentals and price anomalies including both high prices and unusual basis relationships at trading hubs. For example, there was significant attention given to the price spikes at the Transco New York trading hub, where prices rose to \$120/MMBtu on January 22, but we were also concerned that prices rose to \$40 at the Chicago trading hub in late January, since that was an unusually high price for such a well-supplied region.

After speaking with many industry participants, staff conducted extensive analyses to verify what we heard in the interviews and screen our datasets for market manipulation. Staff was able to evaluate generator offers through its access to non-public market data such as physical and virtual bids and offers, market awards, marginal cost estimates, and uplift payments provided by RTOs and ISOs under Order No. 760.. Staff was also able to look at

physical trading in light of financial derivative positions through our access to the CFTC's Large Trader Database. In some cases, we supplemented our usual datasets by obtaining additional data such as unconsummated bids/offers in the natural gas market and electric outage data that included reasons for specific generator outages.

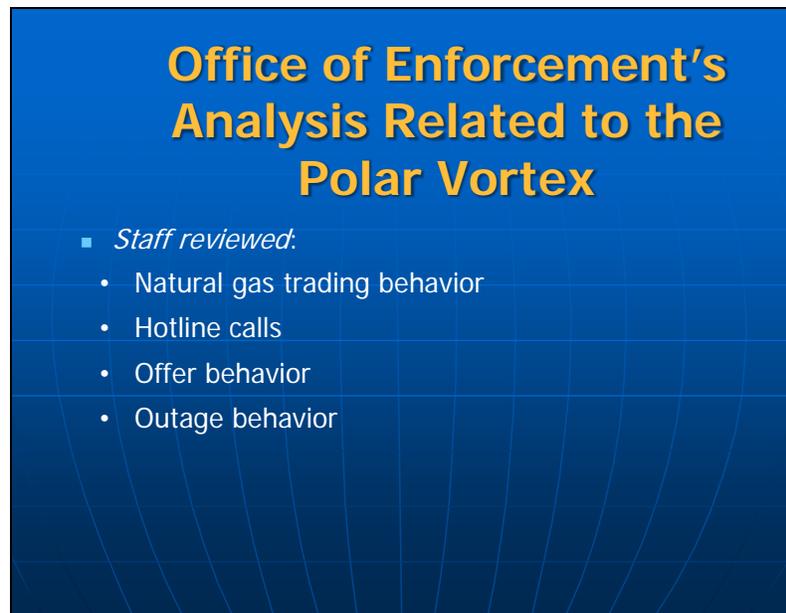
Summary of Interviews

- Reasons for high prices:
 - Extreme and universal cold
 - Unexpected winter price volatility
 - Deliverability
 - Depleted storage
 - Market psychology
 - PJM conservative operations
- Market participants raised significant concerns about gas-electric coordination issues

Staff used an interview process to better understand the cold weather events. Due to the high volatility in the market and in some cases reduced trading volumes on certain days, we did see a number of surveillance screens trip particularly for natural gas price movements in the Northeast, Mid-Atlantic, and MidCon regions prompting us to interview market participants whose trading behavior tripped our screens. We also interviewed participants that were actively trading during the price spike days and generators particularly those that were given requests to operate by PJM under its conservative operations protocols. In addition, we interviewed gas LDCs and pipelines.

Staff found there was a general consensus in the industry regarding the reasons for high natural gas prices. One reason was the extreme and universal nature of the cold weather which extended into the Southeast region. Also, market participants reported that less hedging of natural gas at the first of month price had occurred in light of certain additions of new delivery capacity into the New York area and forecasts of warmer weather than actually occurred. The reduced hedges left many entities exposed to very volatile daily prices that occurred during January and February and may have increased price volatility as entities covered short positions. The depletion of natural gas storage was also a factor. Market psychology was also important as the price spikes were unprecedented. For example, market participants feared significant price premiums and lack of adequate counterparties. Finally, PJM committed certain natural gas-fired generation in advance of the normal process to ensure natural gas availability particularly after weekends. These commitments created additional demand for natural gas during periods with already high demand.

Our interviews also revealed significant issues with gas-electric coordination, including, in some instances fundamental differences in operating practices such as the mis-alignment of the power and natural gas trading days, which created difficulties for electric generators.



Office of Enforcement's Analysis Related to the Polar Vortex

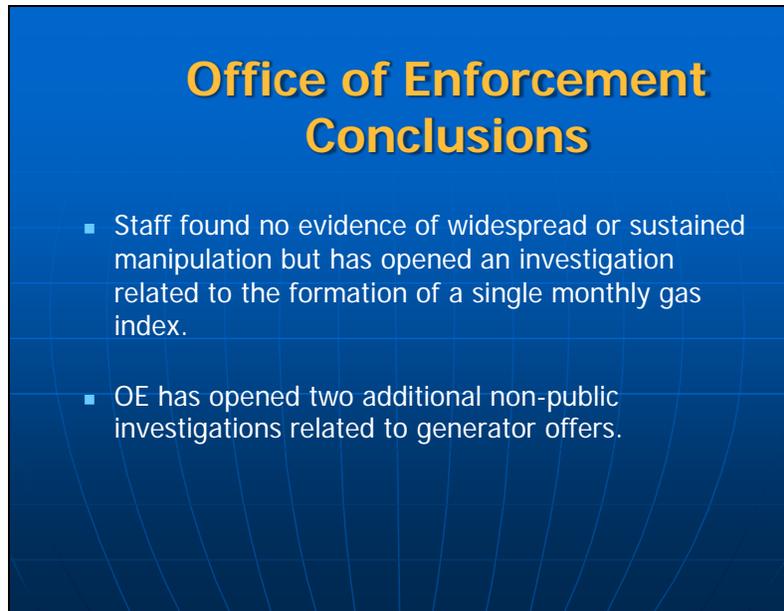
- *Staff reviewed:*
 - Natural gas trading behavior
 - Hotline calls
 - Offer behavior
 - Outage behavior

This slide reviews the areas that we included in our review. First, we responded to and evaluated alerts from our natural gas surveillance screens. We followed our usual process of responding to screen trips, which includes holding conference calls with the company to obtain its view of the trading and requesting more detail on physical trading and financial positions. With one exception which has resulted in an ongoing investigation, staff concluded that the companies contacted had valid explanations for their trading. Staff also supplemented its customary review of natural gas trading by reviewing pipeline utilization data, reviewing both consummated and unconsummated gas trading data, and looking at the trading behavior of all entities actively trading during price spike conditions in addition to those that tripped our surveillance screens. We reviewed unconsummated trading data to help explain the market psychology behind consummated trades and reveal efforts to frame prices.

As noted in the second bullet, staff responded to allegations of inappropriate behavior received via the enforcement hotline. However, we determined that the allegations did not have any merit when analyzed against the additional information available to staff.

Moving to the power sector, staff reviewed generator offer behavior and outage behavior. The high level of outages was a significant concern and occurred for many reasons. Staff evaluated data on the reasons for outages and discussed generator outages during our interview process. Staff also looked at patterns of outages across an owner's fleet to determine if economic withholding was a factor. Staff also worked with market monitors to determine if generators with capacity supply obligations might have taken outages for economic or risk management reasons rather than physical reasons.

A number of generators (particularly in PJM) were offer capped during certain periods of the polar vortex. Due to conservative operations, many of these units were compensated based on PJM rules for make whole payments or "uplift." Staff reviewed these generator offers to determine whether offers were consistent with the natural gas market. We used our access to ICE trading data and market monitor data to help us make these assessments.

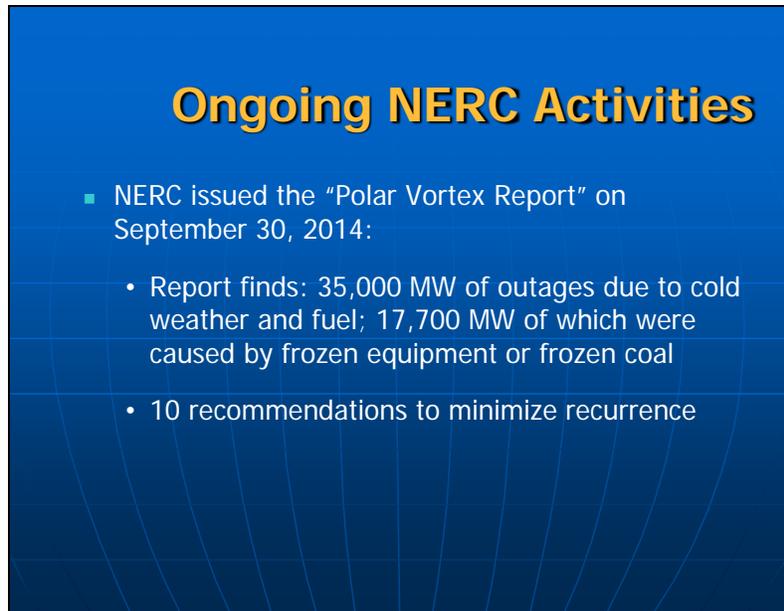
A blue rectangular slide with a grid pattern. The title "Office of Enforcement Conclusions" is centered at the top in a bold, orange font. Below the title, there are two bullet points in white text, each preceded by a small blue square. The first bullet point discusses the lack of evidence for widespread manipulation and the opening of an investigation into a gas index. The second bullet point mentions two additional non-public investigations related to generator offers.

Office of Enforcement Conclusions

- Staff found no evidence of widespread or sustained manipulation but has opened an investigation related to the formation of a single monthly gas index.
- OE has opened two additional non-public investigations related to generator offers.

Having conducted our extensive review, staff found no evidence of widespread or sustained market manipulation in either the gas or electric markets. However, OE's review did result in the opening of three informal, non-public investigations into discrete market participant actions. OE has opened an investigation related to the formation of a single monthly natural gas index. This investigation alleges downward price manipulation in order to benefit short financial derivative positions. OE has opened two additional investigations to determine whether certain generators may have improperly benefited from the constrained conditions in the electric markets through offer behavior that resulted in increased uplift payments. OE's investigation into the three open matters are at an early stage.

Finally, policy issues of concern to the Commission were a recurring theme during our interviews. These issues will be discussed after David Cole from the Office of Electric Reliability presents a summary of the reliability analysis conducted by NERC.



Ongoing NERC Activities

- NERC issued the “Polar Vortex Report” on September 30, 2014:
 - Report finds: 35,000 MW of outages due to cold weather and fuel; 17,700 MW of which were caused by frozen equipment or frozen coal
 - 10 recommendations to minimize recurrence

On September 30, NERC issued its Polar Vortex Review. The report highlights the record low temperatures and peaks loads that occurred during the event across the nation. For instance, temperatures were 23 degrees below zero in Minneapolis, Minnesota and 15 degrees in Columbia, South Carolina. The average daily temperature of the entire country was 17.9 degrees. The combined load for the impacted balancing authorities was 559,000 MW. MISO, PJM, NYISO, Southeastern RC, TVA, SPP, ERCOT, and VACs RC all set new record winter peaks. Using their Generator Availability Data (GADS), NERC found that there were over 35,000 MW of outages due to cold weather and fuel issues. 17,700 MW of those outages were caused by frozen equipment, controls, and frozen coal.

NERC’s report includes 10 recommendations to minimize recurrence, including winterization improvements, site visits, operational changes and fuel supply. The recommendations were similar to the recommendations from the FERC/NERC inquiry report on the February 2011 Southwest cold weather event.

In addition, to reinforce these recommendations, NERC and the Regional Entities are conducting webinars on preparation for severe weather. Matt Jentgen will now discuss the ongoing Commission and industry activities relevant to the cold weather events.



Ongoing RTO/ISO Activities

- RTO/ ISO findings and stakeholder engagement
- Developing recommendations and initiatives to address operational and market needs
- Areas of focus include winter preparedness, generator performance, fuel assurance, and gas-electric interdependency
 - E.g., SPP Winter Preparedness Plan, PJM Capacity Performance proposal, NYISO Fuel Assurance Initiative

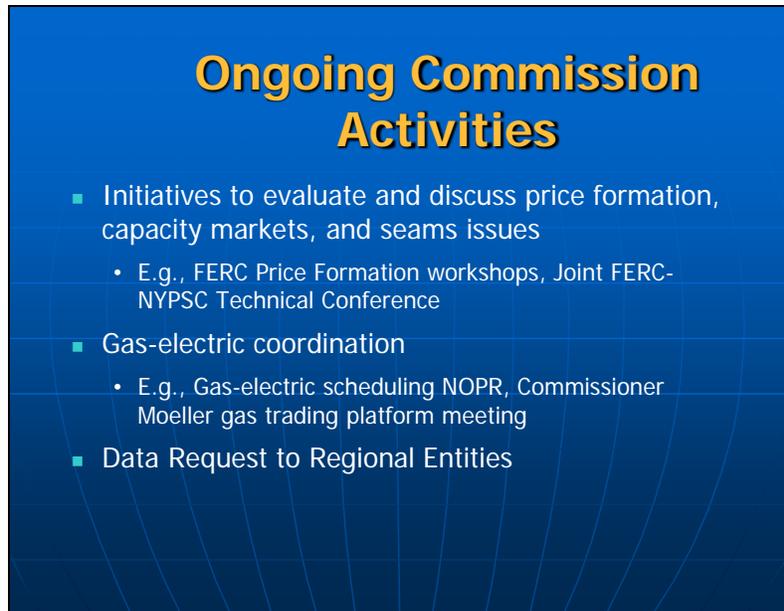
The Commission and industry are continuing to take steps to address the market and operational impacts of the Winter 2013-2014 cold weather events. First, RTOs/ISOs are developing initiatives to address lessons learned from last winter. Each RTO/ISO faced its own challenges this past winter with the polar vortex events affecting them differently.

Specifically RTOs/ISOs are making recommendations regarding how to better prepare the electric system to withstand severe winter weather events. For example, SPP intends to expand its Winter Preparedness Plan for Winter 2014-2015 to include additional gas entities. As noted previously, ISO-NE has in place a Winter Reliability Program for this upcoming winter.

RTOs/ISOs are also exploring ways to improve generator performance to ensure system reliability. PJM recently initiated a stakeholder process to develop a “Capacity Performance” product that would clarify the obligations of certain capacity resources and impose penalties for non-performance.

In addition, RTOs/ISOs are developing potential market rule changes to address fuel assurance concerns. For example, NYISO staff has recommended that the NYISO: (1) evaluate fuel assurance market rule changes; (2) improve seasonal and daily generation fuel inventory reporting requirements and daily replenishment schedules during cold weather events; and (3) work with state regulatory agencies to develop a formal process for identifying reliability needs that could be mitigated by generator emissions and/or fuel oil transportation waiver requests. NYISO recently developed a Fuel Assurance Initiative to address some of these needs.

Other RTOs/ISOs are considering gas-electric interdependency issues and resulting infrastructure needs. For instance, MISO staff working groups are currently developing recommendations to address issues such as electric-gas communication and generator outages. Recent developments include a real-time display in MISO control centers showing the status of the major pipelines in the MISO footprint and a gas pipeline notification page on its website. Numerous proposals are also being considered in New England to address the potential need for additional natural gas infrastructure. Additionally, CAISO issued a *Technical Bulletin* regarding the events of February 6, 2014 (the most challenging of the cold weather events in California this past winter) that describes the market outcomes and their interplay with natural gas conditions. CAISO recently filed with the Commission refinements to how it determines commitment costs for natural gas-fired generators.



Ongoing Commission Activities

- Initiatives to evaluate and discuss price formation, capacity markets, and seams issues
 - E.g., FERC Price Formation workshops, Joint FERC-NYPSC Technical Conference
- Gas-electric coordination
 - E.g., Gas-electric scheduling NOPR, Commissioner Moeller gas trading platform meeting
- Data Request to Regional Entities

As noted throughout this presentation, the cold weather events of the Winter of 2013-2014 highlighted a number of challenges that the Commission has been evaluating and addressing, and also focused attention on issues that require additional consideration. Throughout this year, the Commission has been analyzing its policies and engaging stakeholders to identify issues and develop solutions to address the changes necessary to improve performance during extreme winter weather events.

First, on June 19, 2014, the Commission directed its staff to convene workshops to commence a discussion with industry on existing market rules and operational practices affecting price formation issues in energy and ancillary services markets operated by RTOs/ ISOs. The June 19 Notice listed four areas of interest: uplift payments, offer price mitigation and offer price caps, scarcity and shortage pricing, and operator actions that affect prices. Commission staff held the first workshop concerning uplift payments on September 8, 2014. The second workshop will address offer price mitigation and offer price caps, and scarcity and shortage pricing, and will be held on October 28, 2014.

The Commission also actively continues its exploration of centralized capacity markets. The Joint FERC-NYPSC Technical Conference scheduled for November 5, 2014 will provide an opportunity for FERC and state colleagues to work closely on issues of mutual interest, including the role of capacity markets in attracting investment and ensuring resource adequacy, valuation of capacity resources, and lessons learned from the polar vortex events and readiness for the upcoming winter.

In addition, the Commission is continuing to move forward to address gas-electric coordination challenges. On March 20, 2014, the Commission issued a Notice of Proposed Rulemaking proposing to revise its regulations to better coordinate scheduling of natural gas and electricity markets in light of increased reliance on natural gas for electric generation, as well as to provide additional flexibility to all shippers on interstate natural gas pipelines. Through the process established in the NOPR, on September 29, NAESB filed a report notifying the Commission of the adoption of consensus NAESB Wholesale Gas Quadrant standards revising the nationwide timely, evening, and intraday nomination timeline. Comments on the NOPR, and the NAESB standards, are due November 28.

Further, on September 18, 2014, Commissioner Moeller convened a meeting to discuss ideas to facilitate and improve the way in which natural gas is traded, and explore the concept of establishing a centralized electronic information and trading platform for natural gas. Industry was invited to file written comments by October 1, 2014 on any issue that was discussed at the meeting.

Finally, as a follow-up to the April 1 technical conference and the event reports prepared by NERC and the regional entities, the Commission issued a data request to Regional Entities on 9-26-2014 in Docket No. AD11-9. The responses will assist Commission staff in better understanding the underlying circumstances of the weather-related outages and provide information on how the major issues identified in those reports are being addressed. The requested data includes, for example, questions on:

- Changes to improve awareness of generation temperature design limits
- Outreach activities to ensure preparedness for this winter, and
- Changes to seasonal planning studies to account for extreme weather and generation loss.

In addition, Office of Electric Reliability staff plan to accompany Regional Entities during some winterization site visits this fall.

This concludes our presentation. We are available to answer any questions you may have.



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