



ISO New England Outlook

A wholesale electricity
industry update

December 2009

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Weather Outside Frightful?

ISO-NE System Operations Is Prepped and Ready

New Englanders have a love-hate relationship with winter. The snow can be lovely and winter sports are fun. But the season comes with its share of hassles, like driving on icy roads or preventing frozen water pipes in our homes.

On the bulk power grid, the challenges of extreme cold-weather conditions can impair the ability of the grid to provide a reliable supply of electricity to New England's residents and businesses. Pete Brandien, Vice President of System Operations, gives *ISO New England Outlook* a quick rundown on how his department takes on winter.



What does System Operations do to prepare for winter?

The System Operations department prepares for the winter season in much the same way we prepare for summer. During these two seasons, we experience higher demand than other times of year, and both seasons can cause unique conditions on the bulk power system. Therefore, we take extra steps and have special procedures to stay on top of winter's unique system conditions and to manage their impact on reliability.

What are some of these unique system conditions?

One example is the high demand for natural gas in New England during the winter months. Many homes in the region use natural gas as their primary fuel source for home heating. Simultaneously, natural gas fuels about 38% of New England's power production capacity. Temporary supply or gas-delivery constraints potentially can affect regional gas-fired generators.

Another example would be the impact severe winter weather has on the operation of transmission equipment. The transmission system has many breakers and bus sections filled with a gas that has important insulating properties. When the temperature drops below -10 degrees Fahrenheit, these properties weaken, and additional measures need to be taken to keep the gas and equipment above -10 degrees. Similarly, some circuit breakers use air for arc quenching during the opening phase of operation; low temperatures can result in frozen air lines and forced outages.

What special steps and procedures does winter require?

ISO New England follows detailed operating procedures to oversee the day-to-day reliability of the bulk power grid. If we experience a prolonged cold spell, high electricity use, and unexpected outages of power plants or major transmission lines, the system operator can request assistance from neighboring power grids, draw upon reserves, ask companies participating in demand-side resource programs to temporarily reduce electricity consumption, and ask the public to conserve electricity voluntarily. We also have procedures that address specific cold-weather conditions.

• *Continued on page 6*

Winter May Seem Ominous, but ISO-NE Forecast Is Positive



From President and CEO
Gordon van Welie ●●●

One needs only to think back to the 2008 ice storms or the January 2004 cold snap to appreciate the toll blistering winter weather can have on power system infrastructure.

Fortunately, ISO New England's outlook for this winter is good. Our winter peak demand forecast of 22,100 megawatts (MW) is lower than last year's forecast by 930 MW, or 4.2%.

The lower forecast recognizes the current economic recession and reflects improvements in forecast methodologies.

In addition, New England's power generators have the capacity necessary to meet the peak electricity demand that we expect this winter, and the strong participation by demand-side resources in the region can significantly reduce power consumption if needed (see related article at right). Last winter, about 560 MW of demand resources helped lower consumption over the peak.

A serious concern not long ago, New England's natural gas supplies are now in better shape than ever, with ample storage and supply forecasted to meet both home heating demand and to fuel much of New England's power generating fleet.

The wild card in New England is always the weather. But even if we experience extreme conditions, ISO New England has many steps it can take to keep the lights on.

This issue of the newsletter sums up ISO New England's winter forecast and the actions we and others in the industry take to prepare for and get through this season.

I wish you safe and happy holidays. I look forward to working with you in 2010. ●●●

ISO-NE Projects Adequate Power Resources to Meet Winter Electricity Demand

With healthy levels of generation, demand response and energy efficiency, ISO New England projects that the six-state region will have sufficient resources to meet the expected demand for electricity this winter.

Forecasts by ISO New England indicate that peak demand for electricity could reach 22,100 MW this winter. Last winter, demand peaked at 21,022 MW in New England on December 8, 2008, at a temperature of 18 degrees Fahrenheit (°F)—a comparatively balmy temperature when compared to the historical average of 6.8°F at the hour of each year's winter peak, as compiled over the last two decades in New England. Had the temperature on December 8, 2008, fallen to the historical average, demand would have risen to an estimated 22,190 MW.

In the event of a prolonged cold snap with temperatures hovering around 0°F, the six-state demand for electric energy could climb to a new high of about 22,850 MW. The record for wintertime peak electric demand in New England is 22,818 MW, set on January 15, 2004, when regional temperatures averaged 0°F. The all-time New England record peak occurred on August 2, 2006, when demand reached 28,130 MW. One megawatt of electricity can serve about 1,000 homes.

The region is expected to have about 36,300 MW of capacity available this winter, including 2,520 MW of demand-side resources, such as energy efficiency, load management, and emergency generation. If supplies get tight, these demand-response resources can be called on to reduce their consumption of electricity from the grid. ●●●

ISO-NE Passes RTO Independence Audit

A recent audit by the Federal Energy Regulatory Commission found that ISO New England is in full compliance with all federal requirements for Regional Transmission Organization (RTO) independence. FERC regulations require independence audits after each RTO achieves that designation. RTOs such as ISO New England must demonstrate that employees and members of the Board of Directors have no financial interest in any company doing business in New England's wholesale electricity markets and that the ISO's decision-making process is independent of control by any market participant or class of participants. Learn more in the [October 27 press release](#). ●●●

U.S. Natural Gas Storage at Record Levels

NGA Says New England In Great Shape for Winter

U.S. natural gas storage is at record levels and natural gas production is continuing at a positive pace, even in the face of lower demand this year. For New England, the new Canaport liquefied natural gas (LNG) facility located in neighboring New Brunswick and the expansion of and upgrades to the Maritimes & Northeast (M&N) gas pipeline in eastern Canada and Maine, along with other improvements at several other regional pipelines, have boosted the supply of natural gas available to the region.

As Thomas M. Kiley, President and CEO of the Northeast Gas Association (NGA), recently told the ISO Planning Advisory Committee, “we’re in good shape to meet the demands for natural gas as we enter the winter heating season. We have a far more robust system than we had a few years ago, particularly with the Canaport addition and the expansion of the M&N pipeline, as well as other system enhancements.”

Kiley met with ISO New England’s stakeholders to provide a regional update on the winter outlook for natural gas, which fuels about 38% of the region’s electric power capacity. The two industries work together to address any temporary supply or delivery constraints that could potentially affect regional gas-fired generators, especially in winter when natural gas is in high demand for residential and commercial heating in New England.

Through the Electric/Gas Operations Committee (EGOC), the regional natural gas and electricity industries have developed communications protocols and conducted cross-industry education and training. The NGA and ISO New England participate in the EGOC, as do the New York Independent System Operator and the PJM Interconnection, the regional transmission organization for the mid-Atlantic states.

Kiley also noted that many regional gas-fired generators opt for “non firm” natural gas contracts that can be interrupted on a peak winter day in the event that more natural gas is needed for “firm” or primary customers (e.g., home heating). ISO New England’s new Forward Capacity Market may provide the financial incentives for those generators to procure firm gas contracts or add the ability to switch to another fuel.

Other contributors to the positive gas supply outlook in New England include recent upgrades to the Tennessee, Algonquin, and Iroquois interstate pipelines, the Northeast Gateway LNG facility, which went commercial in spring 2008 in the waters off Gloucester, MA, and the new Millennium Pipeline across southern New York, which became operational last December. This line has the potential to tap into the large natural gas basin in the Appalachian region known as the “Marcellus shale.”

Nationally, as of December 3, the U.S. had 3,889 billion cubic feet (Bcf) of natural gas in storage, which is a new record.●●●

Get It In Print: RSP Executive Summary

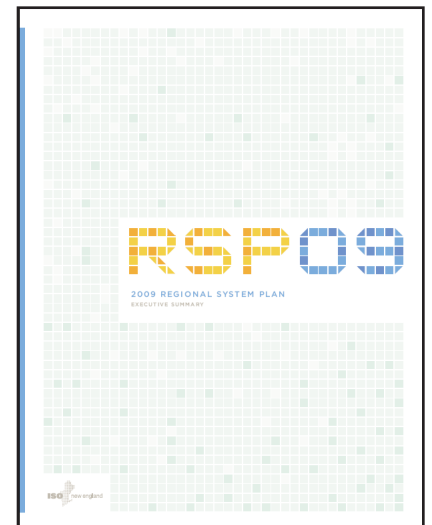
Everything You Need to Know About New England’s System Needs

ISO New England has published a hard-copy booklet of the Executive Summary of the *2009 Regional System Plan* (RSP09).

Each year, the ISO prepares this comprehensive, 10-year plan that reports on the status of the bulk electric power system in the six states. It defines areas where improvements are needed, outlines regional challenges and opportunities, and describes initiatives underway to address the power grid’s needs over the coming 10 years. Each RSP is a snapshot in time, and the results are revisited as needed based on the latest available information. The plan is developed in a year-long, collaborative process that includes state regulators and other government entities, transmission owners, end users, market participants, and other stakeholders.

RSP09, which was released on October 16, forecasts that the region is likely to have sufficient capacity to meet electricity demand through 2018 and shows that, while more needs to be done, transmission upgrades and resource additions in recent years have bolstered the power system’s ability to deliver a reliable supply of electricity to New England’s residents and businesses.

To order a copy of the printed Executive Summary, send an e-mail to info@iso-ne.com. You can also download the full 171-page report from the ISO’s Web site.●●●



Resource Owners Stay Ahead of Seasonal Challenges

Learning from the '08 Ice Storm

By many accounts, last December's ice storm was the worst in over a decade. As the Massachusetts Municipal Wholesale Electric Company (MMWEC) points out, that experience underscores the importance of winter preparedness.

"We all stand to benefit this year from the lessons learned by the public power utilities that suffered the brunt of the 2008 ice storm," said David Tuohey, MMWEC's Director of Communications and External Affairs. "Municipal utilities have worked together over the past year to improve emergency response procedures and all aspects of communication, from coordinating activities with community officials to delivering critical information to customers."

In preparing for winter, public power ensures that generating facilities are in top operating condition; distribution systems are well maintained; stocks of wire, transformers, and other equipment are adequate and easily accessible; roles and responsibilities of utility employees are clearly defined; activities with other local



emergency response officials are coordinated; and procedures to document emergency activities are updated.

In addition, the Northeast Public Power Association's Mutual Aid Program has undergone improvements. This program enables neighboring public power companies to band together and jointly aid recovery from system emergencies. As a result, New England's public power utilities all are better prepared to maintain reliable service during emergency conditions.

Preparation Is Year-Round

It also takes year-round efforts to maintain the transmission system so that it can withstand or recover from winter storms, summer storms, lightning strikes, and other inclement weather. Utilities conduct regular system inspections and maintenance; manage vegetation growth in transmission rights-of-way; and schedule seasonal transmission line outages for maintenance and repair work.

"Across our entire electricity system, we participate in drills for system emergencies such as severe winter storms so that when they hit, we are trained to immediately react and respond," said

Deborah Drew, principal media relations specialist for National Grid.

"Transmission is the backbone of the electricity network upon which our customers depend for good service and which make restoration efforts vital."

When emergencies do occur, prompt communication and action are critical. Built into National Grid's emergency procedures are system-wide communications, with a representative from the transmission team acting as a liaison to the company's overall Emergency Operations Center. In this way, accurate information is shared quickly. Working together, these teams can monitor weather conditions, assess possible impacts and, when problems do arise, establish the appropriate emergency response and implementation plan unique to that storm or emergency.

"Before a winter storm or other system emergency, the transmission team deploys staff and materials to areas predicted to be hardest hit to expedite the repair and restoration of assets and activities at the transmission level," added Drew.

With proper preparation and constant attention to update procedures and practices from lessons learned, the proactive efforts of New England's resource owners help steady the system to weather any storm. ●●●

Gaining Global Perspectives

In mid-October, 84 representatives from 24 different countries gathered in Boston, Mass., for day one of a three-day conference to explore the role power exchanges play and the challenges they face in operating electricity markets around the world.

The annual event is held by the Association of Power Exchanges (APEX), an international organization formed to facilitate the development of competitive electricity markets and information-sharing among its membership. ISO New England, an APEX member, organized this year's conference, which focused on the ways in which energy market operations can assimilate initiatives like climate change policy, renewable energy development, demand response, and the prospect of a smart grid environment.

Speakers included Garry Brown, Chairman of the New York State Public Service Commission (pictured right). All presentations are available in full on the 2009 APEX Conference Web site. ●●●



FERC's Moeller Speaks with Consumer Liaison Group

CLG's Third Meeting Focuses on Transmission and Renewables



Although relatively new, New England's Consumer Liaison Group (CLG) has already attracted FERC's attention.

At a December 10 meeting in Boston, Mass., Commissioner Philip D. Moeller (pictured) met with approximately 50 CLG members representing state offices of consumer advocates and attorneys general, industry market participants, large industrial and

commercial consumers, and chambers of commerce.

Moeller touched on timely topics, such as transmission planning, cap-and-trade federal legislation, and national Renewable Portfolio Standards. In addition, Commissioner Moeller discussed FERC's proposed policy statement on smart grid—the investment in new technologies that will help make the transmission grid more efficient—and spoke on related cyber-security issues.

Commissioner Moeller also listened to and addressed the CLG's concerns on the cost of building transmission to access remote renewable resources, particularly resources coming from the Midwest. While not advocating for any particular plan, Moeller emphasized that because of current renewable-resource

requirements within New England, and potential ones at the federal level, new transmission will inevitably need to be built, whether to access resources from the West or from within New England.

Also on hand, Steve Rourke, ISO's Vice President of System Planning, gave the group an overview of the ISO's regional planning process and how the process takes into account transmission development, market solutions, and nontransmission alternatives in considering solutions to power system needs.

In addition, Steve explained the process New England uses for allocating the cost of building transmission. To help CLG members understand how future transmission investment will affect consumer retail bills, Steve reviewed the New England transmission owners' forecast for future transmission rates (2010-2013) and highlighted current projects that will be funded through these rates.

The previous CLG meeting in October covered the concepts of wholesale pricing and the differentiation between wholesale and retail costs. The CLG plans to meet quarterly in 2010 and will address various consumer issues. [Meeting materials](#) are available on the ISO's Web site. You can learn more about how and why the CLG was formed in the [September 2009 issue](#) of *ISO New England Outlook*. ●●●

ISO-NE's Third Forward Capacity Auction Procured Resources Needed at Minimum Price

More than 40,995 megawatts (MW) of new and existing demand- and supply-side resources competed in the seven-round Forward Capacity Auction on October 5 and 6, 2009, to supply the 31,965 MW needed three years hence.

"The results from our third regional capacity auction demonstrate the competitive market's effectiveness in addressing future reliability needs," said Vamsi Chadalavada, Senior Vice President and Chief Operating Officer of ISO New England. Chadalavada also noted that a stakeholder group has been considering several changes aimed at creating a more efficient market and auction design. "We've made progress in assessing the aspects of the auction that are working well and identifying areas that may need enhancement," Chadalavada said.

The Forward Capacity Market was developed by ISO New England, the six New England states, and industry stakeholders to promote investment in power system resources. Under the FCM, ISO New England projects the needs of the power system three years in advance and then holds an annual auction to purchase sufficient resources to satisfy the future regional requirements.

Read more about the type and location of resources secured through the ISO's third FCA in the [November 2 press release](#). ●●●

Winter prep...Continued from page 1

What are the winter procedures?

Before winter, we implement Master/Local Control Center (MLCC) Operating Procedure No. 16 that requires transmission companies to perform specific assessments and preparation of their equipment to minimize outages and maintain reliability during extreme cold periods.

System Operations also typically reduces the scheduling of transmission and generation outages during the winter because of the season's higher risk for forced or unexpected outages (learn more about the ISO's outage scheduling function in the May 2009 issue of ISO New England Outlook).

Throughout winter, we pay close attention to weather forecasts, fuel source availability, and the conditions on the New England system. Should prolonged frigid weather and fuel constraints occur and we experience an "energy emergency," the ISO will implement Operating Procedure 21 (OP 21). This procedure helps the ISO identify and address fuel-supply constraints; raise awareness of

possible energy constraints due to limited fuel supplies among New England consumers, market participants, state officials, and regional and national regulators; and allow the timely implementation of generation and load relief available under OP 4 (Action During a Capacity Deficiency) and OP 7 (Action In an Emergency).

The ISO also may implement Appendix H to Market Rule 1, which was developed as a result of the January 2004 Cold Snap. In the event of extreme cold weather, the ISO will coordinate with the natural gas pipeline companies to assess conditions that may affect the availability of fuel for gas-fired generation. To give generators time to secure their fuel supply, Appendix H allows the ISO to shift the day-ahead electricity market bidding schedule.

The ISO communicates regularly with regional natural gas officials throughout the winter to share information on any situations that could potentially affect

natural gas supplies or regional gas-fired generators to ensure and maintain power system reliability (learn more about this collaboration on page 3).

Do you foresee anything unique about this upcoming winter?

We see several factors helping System Operations through this winter: the forecast for peak demand this winter is lower than last year's forecast, and recent additions and improvements in natural gas supply within and outside New England have expanded the sources of this fuel for our region's natural gas-fired generators (see related article on page 3).

However, each winter is unique. We can forecast conditions to the best of our ability, but when you boil it down, living with New England weather is always a challenge. The best strategy is to be prepared, and we have the procedures, practices, and expertise in place to address a wide variety of circumstances. ●●●

ISO New England is the independent, not-for-profit corporation responsible for reliably operating New England's 32,000-megawatt bulk electric power generation and transmission system, by overseeing and ensuring the fair administration of the region's \$12 billion wholesale electricity markets, and by managing comprehensive regional electric power planning.



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