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ISO New England Issues Annual Power System Plan for New England

Reports on the continuing transformation of the regional power system

Holyoke, MA—November 5, 2015—ISO New England Inc., the operator of the New England power system and wholesale electricity markets, today issued its [2015 Regional System Plan \(RSP15\)](#), the annual report that provides the foundation for long-term power-system planning in New England. *RSP15* was approved by the ISO New England board of directors today.

The comprehensive report details power system needs for the next 10 years, through 2024, and how these needs can be addressed. *RSP15* discusses:

- Forecasts of annual energy use and peak demand from 2015 to 2024
- The need for resources, including generation and demand-side resources, to meet consumer demand for power and replace retired power plants
- How the region’s power system can continue to meet these needs, including the identification of areas of the grid where resource additions or transmission upgrades would address reliability concerns
- Descriptions of transmission upgrades needed for reliability
- Coordination of New England’s planning process with those of neighboring regions
- Strategic issues facing the region, including natural gas infrastructure constraints, resource retirements, and the integration of variable energy resources, such as wind generation and photovoltaic installations

“The Regional System Plan charts the progress of the regional high-voltage power system, identifies the challenges to continued reliability, and forecasts future developments,” said Gordon van Welie, president and CEO of ISO New England Inc. “The region has invested billions in transmission improvements that have eased the flow of power around the region and significantly boosted reliability, and private developers have invested in generation and demand-side resources to compete in the wholesale marketplace and meet consumer demand for power.

“New England’s energy landscape is undergoing a dramatic transformation as oil, coal, and nuclear power plants retire, more generators are fueled by natural gas, and wind and solar resources are added to the power system,” van Welie said. “This metamorphosis is providing new opportunities but also creates challenges, including energy supply, reliability, and price issues. The ISO is addressing these challenges with changes in both operations and markets, in collaboration with the New England states, market participants, end users and consumer advocates, and neighboring regions.”

***RSP15* Highlights**

Transmission progress—From 2002 through June 2015, 634 transmission projects to address reliability needs were put into service in the six New England states. These projects represent a \$7.2 billion investment in new infrastructure that improves system reliability and reduces costly congestion on the high-voltage transmission system.

Transmission planning—As of June 2015, \$4.8 billion in transmission investment for reliability purposes was planned. Major reliability projects recently completed, underway, or in planning include the Maine Power Reliability Program; Rhode Island Reliability Project; Greater Springfield Reliability Project; Interstate Reliability Project in Connecticut and Rhode Island; Greater Hartford and Central Connecticut Reliability Project; Greater Boston Reliability Project; Pittsfield, MA, Reliability Project; Vermont/New Hampshire needs assessment; and short-term improvements that can address reliability needs

stemming from the retirement of Brayton Point Station in 2017 in Southeastern Massachusetts. Private developers have also proposed several elective transmission projects.

The ISO continues to prepare for the implementation of the Federal Energy Regulatory Commission's (FERC) Order 1000. FERC's final compliance order, issued in March 2015, requires changes to the regional and interregional transmission planning and cost-allocation processes that have been employed in New England since 2001. The ISO is developing significant new processes for competitive solicitations for transmission projects to address reliability needs that are not expected to emerge within three years, as well as planning for transmission projects to meet public policy objectives.

Long-term load forecast—With growing levels of photovoltaic (PV) and energy-efficiency (EE) resources, the 10-year forecast of demand shows the summer peak growing at 0.6% per year and no growth in total annual use of electric energy. Without PV and EE, the baseline forecast shows annual energy consumption would grow by 1% annually, and peak demand would grow by 1.3%.

Generator retirements—From 2010 to summer 2018, power plant retirements will total at least 4,050 MW. The report notes that older oil- and coal-fired and nuclear generators are at risk of retirement due to economic and environmental pressures, and these retiring resources are likely to be replaced by more natural-gas-fired power plants.

Capacity resources—The ninth [Forward Capacity Market auction \(FCA #9\)](#), held in February 2015 to secure capacity for the 2018/2019 commitment period, procured about 1,000 MW of new generation and 367 MW of new demand-side resources.

Further, as of April 2015, about 11,300 MW of resources had applied to connect to the region's high-voltage power system, though historically, the interconnection queue has had a megawatt attrition rate of 67%. *RSP15* studies of market resource alternatives show that resource additions located in the Southeast Massachusetts area, Rhode Island, and the greater Boston area of Massachusetts would provide the greatest reliability and economic benefits. Transmission projects that increase the transfer capability into these areas or improve their electrical access to economical resources, also would improve the reliability of the power system.

Natural gas and oil fuel-adequacy concerns—Significant challenges to reliability, particularly in winter, are posed by natural gas infrastructure that is inadequate to meet the growing demand for natural gas for both heating and power generation. The ISO's operational experiences over several winters, as well as numerous studies including the recently completed [Eastern Interconnection Planning Collaborative study](#), highlight these concerns. These gas pipeline constraints can also lead to wholesale market price spikes. Oil-fired generator retirements and potential emissions restrictions on the use of oil create additional concerns. Increased use of liquefied natural gas (LNG) and oil generation during the winter of 2014/2015 helped enhance reliable operations. The [Winter Reliability Program](#), first implemented for winter 2013/2014, will be needed through winter 2017/2018 to ensure that resources have the fuel needed to operate at times of system stress or high demand. The ISO continues to improve its coordination with pipeline operators and that, along with market improvements, are helping address operational challenges posed by pipeline constraints. Natural gas pipeline upgrades have also been proposed.

Solar— By the end of 2014, photovoltaic resources, including those participating in the wholesale markets as well as behind-the-meter facilities, totaled about 908 MW nameplate (nameplate refers to the total amount a resource could produce running at 100%). ISO New England's innovative, [multistate forecast of PV growth](#) projects that by the end of 2024, PV will grow to 2,500 MW and produce about 2,600 gigawatt-hours of energy that year. The growth of behind-the-meter resources, which the ISO cannot observe or dispatch, adds complexity to power system forecasting and operations. ISO New England is participating in several studies and working to develop short-term load forecasting tools for system operators.

Wind—Most New England wind projects have been built or have applied to be built in remote areas of the region where wind conditions are good, but the electrical system is weak. New England currently has 850 MW of installed wind facilities, and about 4,000 MW have been proposed. The ISO is conducting transmission system reliability assessments to identify the upgrades necessary to ensure continued power system reliability while integrating significant amounts of wind in these remote areas. The ISO has incorporated a wind forecasting tool into system operations to manage the variability of wind for reliable system operation, and plans call for further integrating wind into economic dispatch.

Interregional Planning—The ISO participates in national and interregional planning activities, developing coordinated system plans with other regions. Particularly close coordination continues with the New York ISO and PJM, the system operator for all or parts of 13 states and the District of Columbia in the mid-Atlantic region.

The Role of Planning in New England

The annual Regional System Plan is developed to meet requirements established by FERC, the North American Electric Reliability Corporation, and the Northeast Power Coordinating Council and is produced in accordance with the requirements in Attachment K of the ISO's [Open Access Transmission Tariff](#). Each RSP is a snapshot of the power system and relevant studies and forecasts at a point in time, and the results are updated as needed. The regional planning process is open and transparent and reflects input from a diverse group of regional stakeholders through the [Planning Advisory Committee](#).

The [2015 Regional System Plan](#) is available on ISO New England's website.

ABOUT ISO NEW ENGLAND

Created in 1997, ISO New England is the independent, not-for-profit corporation responsible for the reliable operation of New England's electric power generation and transmission system, overseeing and ensuring the fair administration of the region's wholesale electricity markets, and managing comprehensive regional electric power planning.



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