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New England Power Grid Summer Outlook: Adequate Electricity Supplies Expected

Holyoke, MA—April 26, 2016—Under normal weather and power system conditions, New England is expected to have the electricity resources it needs to meet consumer demand this summer, according to ISO New England Inc., the operator of the region's bulk power system and wholesale electricity markets. Although electricity supplies are expected to be sufficient, construction work on the region's natural gas pipeline infrastructure will limit delivery of natural gas to some power plants and require them to obtain fuel from different sources.

Work on Spectra Energy's Algonquin Incremental Market (AIM) natural gas pipeline expansion project is scheduled to take place between April and November. If New England electricity supplies become tight this summer because of a combination of high demand for electricity and natural gas delivery limitations to power plants, ISO New England could use operating procedures to maintain continued power system reliability. Consumer demand for electricity is highest in New England during the summer because of air conditioning use.

"As the grid operator, ISO New England has to manage power system conditions reliably every day of the year despite multiple uncertainties," said Vamsi Chadalavada, executive vice president and chief operating officer of ISO New England. "During March, April, and May, when consumer demand is typically lower, New England's power plant and transmission owners schedule equipment outages to 'tune up' their equipment before the peak summer season. At the same time, starting in April, natural gas pipeline outages will also occur. Although electricity supplies should be sufficient, ISO New England will continue to monitor real-time system conditions and gas pipeline outage schedules closely throughout the spring, summer and fall months."

2016 summer peak demand forecast

This summer, under normal weather conditions of about 90 degrees Fahrenheit (°F), electricity demand is forecasted to peak at 26,704 MW megawatts (MW). Extreme summer weather, such as an extended heat wave of about 94°F, could push demand up to 29,042 MW. These forecasts take into account the demand-reducing effect of 1,839 MW of energy-efficiency (EE) measures acquired through the Forward Capacity Market.

New England has different types of capacity resources it can use when demand for power reaches its highest point: generators that produce electricity, such as nuclear, oil, coal, natural gas, hydro, biomass, and wind; demand-response resources that can be activated to reduce their energy use; and power imported into New England from New York and Canada.

Through the Forward Capacity Market, approximately 29,734 MW of generating resources have an obligation to be available this summer. Some resources' capability to produce power is greater than their capacity supply obligation, and these resources typically offer the additional megawatts into the energy market when demand for power is peaking and spot energy prices rise. If all generating resources in New England were operating at full output, the total amount of power would be approximately 30,247 MW.

About 557 MW of demand-response resources and about 1,062 MW of net electricity imports also have supply obligations to be available to meet this summer's peak demand.

Natural gas pipeline status

Natural gas pipeline companies typically schedule maintenance and construction during the spring and summer months when demand for gas is low. These pipeline outages decrease the total amount of natural gas that can be delivered into the region and, under some conditions, can affect the ability of gas-fired generators to get fuel. ISO New England is communicating with natural gas pipeline companies in preparation for the scheduled pipeline outages this spring and summer.

Because the AIM project is in addition to the summer pipeline maintenance conducted annually, ISO New England will be working with the gas industry to monitor gas transmission capability, in particular because natural gas deliveries coming from the west of New England will be limited this summer. During these time periods, natural gas-fired power plants will need to source their fuel from other points on the system.

Transmission system upgrades

Upgrades to the region's transmission system offer improvements to the flow of electricity throughout New England this summer. Sections of the Interstate Reliability Project (IRP), which is a part of the New England East-West Solution (NEEWS), went into service during the past year and will enhance transfers between Connecticut and Rhode Island, as well as improve the flow of electricity moving east to west and west to east in New England.

Solar resources

The exponential growth of solar photovoltaic resources in the region is adding to the complexity of operating the grid, especially during the summer months. As of 2016, more than 1,300 MW (nameplate capacity) of "behind-the-meter" solar facilities are currently installed throughout New England. Because these solar resources are not connected to the high-voltage power system operated by ISO New England, the challenge is determining how much power they will produce, and where and when it will be produced. When these resources are producing power for the houses or businesses where they're located, the ISO New England control room sees a reduction in overall demand on the high-voltage power system. Especially on clear sunny days, electricity output from these resources can help offset the use of other generation during the afternoon peak demand period; however, when the sun sets, electricity output from solar resources falls off rapidly, which presents additional operational challenges. This reduction in demand has been factored into the 2016 summer peak forecast.

Operating procedures to maintain reliability

ISO New England has well-established operating procedures in place to maintain grid reliability in the event of an unexpected power plant or transmission line outage, an extended heat wave that causes consumer demand to spike, fuel supply issues that affect the amount of electric generation available, potential environmental constraints on oil-fired generation if run frequently, or a combination of these factors. These procedures include calling on demand-response resources to curtail their energy use, importing emergency power from neighboring regions, and asking businesses and residents to voluntarily conserve energy.

Last summer, demand for power peaked on July 20, 2015, at 24,398 MW. The all-time record for peak demand was set on August 2, 2006, when demand reached 28,130 MW after a prolonged heat wave.

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. iso-ne.com/isoexpress @isonewengland I isonewswire.com iso-ne.com/isotogo