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## ISO New England Issues 10-Year Regional Power System Plan

*Reports on anticipated changes as the region transitions to a clean energy system*

**Holyoke, MA—November 3, 2021**—The [2021 Regional System Plan \(RSP21\)](#), the biennial report that lays the foundation for long-term power-system planning in New England, was approved by the ISO New England board of directors yesterday. RSP21 looks at the expected changes to New England’s power system through 2030 from factors driving grid transformation, including economic decisions of market participants, environmental goals developed to combat climate change, changing patterns of electricity use, and resource adequacy needed to maintain required reliability criteria.

“To assist the region as we move forward on the path to our decarbonized future, the ISO has been working to create the tools needed to manage the region’s clean energy transition successfully,” said Robert Ethier, ISO New England’s vice president of system planning. “The *2021 Regional System Plan* provides a comprehensive overview of the direction and reliability needs of our future power system. It is one of the many tools that will help inform how we advance as a region.”

ISO New England manages the planning process and development of the regional system plan through the [Planning Advisory Committee](#). This process is open and reflects the input and feedback from a diverse group of stakeholders.

*RSP21* discusses several key issues affecting the regional power system:

- **Grid transformation:** The complexity of power system operations and planning is expected to increase as more zero-carbon emitting resources become a part of region’s resource mix. ISO New England has developed state-of-the-art tools that have improved demand forecasting of behind-the-meter solar, electric vehicles, and heat pumps. New analytic and system modeling techniques continue to be developed to provide a more robust means to evaluate the state of the system.
- **Transmission development:** As New England decarbonizes not only its power system, but other sectors of its economy, transmission improvements and additions will be needed to maintain the reliability of the regional grid and support state policies to access remotely-located sources of clean energy. These new ‘inverter-based’ technologies (e.g., wind, solar photovoltaic (PV), batteries) pose physical challenges; therefore, a series of analyses and technology improvements are underway to enhance the reliable, economical, and environmental performance of the system.
- **Energy adequacy and power system reliability:** With changes to New England’s resource mix anticipated in the coming years and the uncertainty presented by extreme weather events, the ISO is examining how to meet grid reliability during and after this changeover. While the development of renewable resources, energy efficiency (EE), battery storage, imports, and continued investment in natural gas efficiency measures will alleviate reliability risks, many of these resources are, at times, energy-constrained, so changes to the transmission and distribution systems and the development of new market products and procedures are being explored to ensure power system reliability. Another top priority for ISO New England is to examine system reliability beyond the required 10-year planning horizon.
- **Extreme weather events:** The ISO has initiated a project to update the modeling of low-probability, high-impact events, including those caused by severe weather. This modeling tool will allow the industry, policy

makers, regulators, and the ISO to explore varying degrees of power system risk, assess the likelihood of these risks occurring, and determine whether and how to mitigate them.

### **RSP21 Highlights**

**Long-term load forecast**—The 10-year forecast of demand shows total *net* annual use of electric energy increasing 1.1% per year under typical weather conditions. This net amount accounts for the decrease in grid electricity use from solar PV and EE programs, and an increase in usage from the electrification of home heating and transportation. After a period of decreased winter usage, winter peak electricity use is expected to see a *net* increase 0.8% per year because of heating and transportation electrification initiatives.

**Strategic electrification**—The ISO now forecasts the future impact of the New England states' initiatives to meet greenhouse gas reduction goals through electrification of transportation and heating. These impacts are expected to add 6,080 gigawatt-hours (GWh) of annual energy consumption, 675 megawatts (MW) of peak summer demand, and 2,422 MW of peak winter demand by 2030. Beyond the current 10-year planning horizon, the increased electrification needed will likely cause the region to become a winter-peaking system.

**Capacity resources**—In the short term, sufficient resources are projected for New England to meet the resource adequacy planning criterion, assuming no new major resource retirements and the successful completion and operation of all proposed new resources that have cleared the Forward Capacity Market (FCM), although negative operable capacity margins could materialize during severe weather conditions beginning in 2024. To mitigate any shortfalls in the capacity margin, the ISO would rely on operating procedures to balance supply and demand and keep the power system reliable.

**Resource development**—The majority of projects listed in the ISO New England interconnection queue seeking to connect to the regional high-voltage power system are primarily renewable resources, particularly offshore wind, large-scale battery storage, and small-scale solar PV, coupled with battery storage. Information on the types of projects is available at <https://www.iso-ne.com/about/key-stats/resource-mix>.

**Transmission upgrades**—From 2002 through June 2021, 834 transmission project components to address reliability needs were put into service in the six New England states, representing an investment of \$11.7 billion in new infrastructure. Another \$1.1 billion is planned. In 2020, the ISO completed its first use of the competitive solution process to develop needed transmission in greater Boston as required in the Federal Regulatory Energy Commission's (FERC) [Order 1000](#).

**Studies focusing on New England's clean and reliable energy future**—The ISO, the New England states, and regional stakeholders have been exploring potential reliability and wholesale market issues that may arise in the coming years, beyond the normal 10-year planning horizon, as the electric industry experiences significant change driven by state energy and environmental decarbonization policies. Studies include the *Future Grid Reliability Study* (FGRS), *Transmission Planning for the Clean Energy Transition Pilot Study* (TPCET), *Pathways to the Future Grid*, and the New England states' *2050 Transmission Study*, to support the New England states' Vision Statement.

**Interregional planning**—The ISO participates in national and interregional planning activities, including development of coordinated system plans with other regions. 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.

### **The Role of Planning in New England**

The Regional System Plan is developed every other year 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 [2021 Regional System Plan](#) is available on ISO New England's website.