

# Climate Change Study: Potential NYS Power System Impacts

➔ “Climate Change Impact and Resiliency: an Assessment of Climate Change Impacts on Power System Reliability in New York State,” assesses the system impacts associated with climate change and the need to transition the grid to zero-emissions resources by 2040.

## Comprehensive System Planning

Core to our mission at the New York ISO is our responsibility to prepare for the impact of changes in supply and demand of power to ensure the reliable operation of New York’s transmission system and power grid.

We produce many reports and studies to inform and educate stakeholders and policymakers on topics including, grid reliability, resource adequacy, economic system planning, and public policy transmission needs.

## Key findings

**1.** The variability of output from wind and solar resources presents a fundamental challenge to meeting electricity demand.



**2.** Battery storage resources help to fill in voids in renewable resources output, but extended periods rapidly deplete storage capabilities.



**3.** Dispatchable, emission-free resources are needed to balance renewable intermittency on the system.



**4.** It will also be necessary to expand transmission throughout the state in order to maximize the access to renewable resources.



**5.** Overall, the key reliability challenges identified in this study relate to how the resource mix evolves in compliance with the CLCPA.



**6.** Climate change will impact meteorological conditions and events that introduce additional reliability risks.



“ By modeling what the changing climate means for the New York energy grid, ”

we will be able to pursue the changes necessary to keep the grid resilient and reliable in the coming years.

**Zach G. Smith**  
VP of System & Resource Planning, New York ISO

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## Investment will determine the 2040 Resource Mix

The graph at right depicts a 2040 fuel mix scenario that meets the state's zero-emissions mandates and strict grid reliability requirements. This scenario assumes investment in renewables and infrastructure, as well as retirement of generation, will progress based on current trends reflected in our interconnection queue and planning studies.

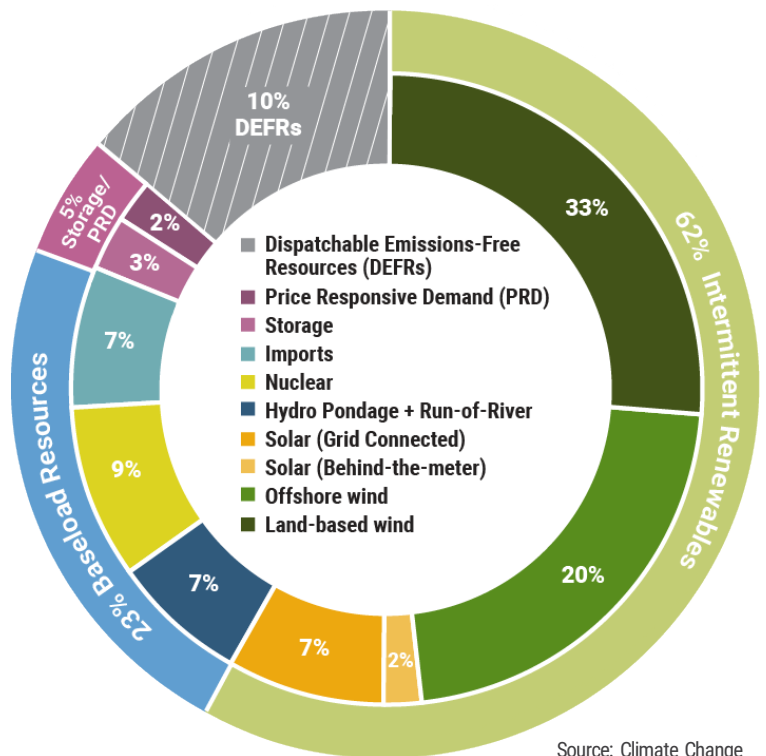
**A key finding of the study is the need for dispatchable supply resources and flexible load to address the intermittency of wind and solar.**

This study is helping to identify wholesale electricity market changes that will encourage innovation in zero-emissions supply resources and price-responsive demand.

### Dispatchable Emission-Free Resources (DEFs).

Intermittency from increased renewables creates the need for energy that can, like fossil fuels, be dispatched immediately, but which is emissions free. Technologies being developed in this category now include green hydrogen and renewable natural gas.

Generation by Resource Type  
CLCPA Case | Winter



Source: Climate Change Impact & Resilience Study Phase II, Appendix C, pg. 130

**Price-Responsive Demand.** PRDs, or flexible load, enable operators to balance renewable intermittency by adjusting demand in response to price signals. An example could involve the use of Electric Vehicle (EV) chargers or other aggregated storage resources.

## Our commitment to the Climate Action Council

We are committed to help the CAC develop its implementation plan to meet the CLCPA's mandates. Our planning studies and competitive market design will serve as a platform for progress in meeting these goals in a manner that maintains reliability, shifts investment risk from consumers to investors, and minimizes cost.

➔ To learn more and read our Guide to the Climate Action Council, visit: [www.nyiso.com/2040](http://www.nyiso.com/2040)

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