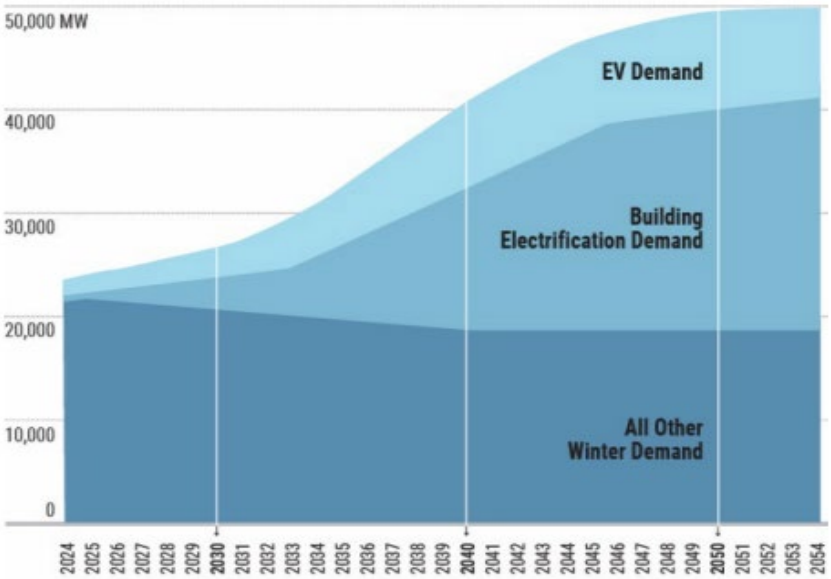
# New York's Winter Grid Reliability Challenges

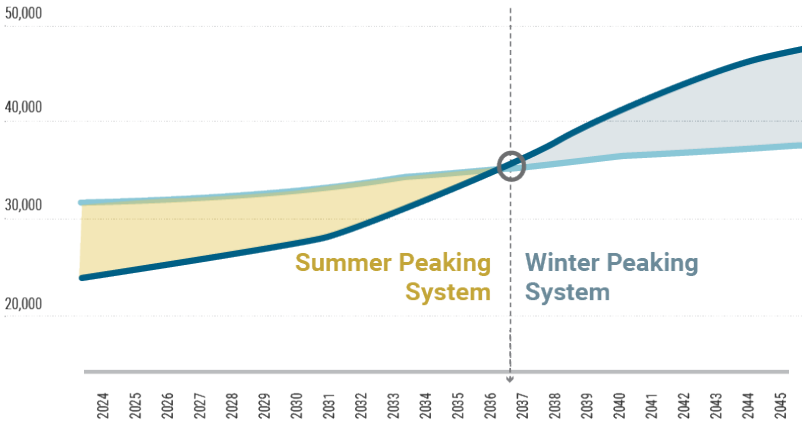
## Changing conditions impacting supply and demand

NYISO forecasting shows a number of emerging reliability challenges as electrification shifts the grid from summer to winter-peaking over the next decade. We are focused on managing these challenges, using planning studies to identify emerging needs, market incentives to attract investment in new resources, and enhancing operating procedures to mitigate risks.

## Impact of electrification on statewide winter peak demand

The grid is expected to become a winter peaking system in the mid-2030s due to increased demand tied to electrification policies. As more consumers rely on electric heating, the NYISO must ensure the grid is prepared to reliably supply winter peak demand. Current winter reliability margins are sufficient. However, if natural gas becomes unavailable and supply cannot be secured elsewhere, statewide deficiencies could arise.




## Transitioning from a summer to winter-peaking system

According to the U.S. Energy Information Administration,[1] 15.3% of New Yorkers currently heat their homes with electric heat. By 2050, 90% of New York homes will be heated by electricity. By 2045, summer peak demand is forecasted to reach approximately 37,000 MW, while winter peak is expected to climb to approximately 47,000 MW.

1. Source EIA NY Energy Source Used for Home Heating

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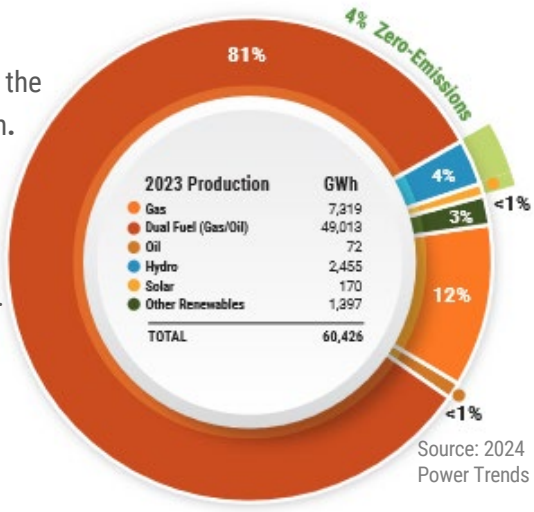
## The important role of dual-fuel in winter reliability

### New grid reliability rules reflect concerns over fuel constraints

Cold weather conditions create concerns over the availability of natural gas for power generation. Gas utilities prioritize residential heating customers. Under certain conditions when demand for gas is high, gas utilities may curtail service to many gas-fired power plants.

Recognizing the potential for generator fuel interruptions, the New York State Reliability Council introduced a new reliability planning requirement for winter operations.

**2023 Downstate Energy Production**




Source: 2024 Power Trends

The rule requires NYISO reliability planning studies to model credible system conditions that could stress the grid during peak conditions, including the unavailability of gas-fired generation. As a result, the NYISO studied 6,400 MW of gas-fired generation as unavailable.

A 2023 NYISO-commissioned *Fuel & Energy Security Assessment* concluded that dual-fuel capability, which enables generators to switch fuels when necessary to continue operation, will be vital for maintaining winter reliability, especially downstate, through 2030.

### Recent winter storms underscore extreme weather challenges

- ✓ **Polar Vortex January 2024.** Tens of millions of residents across North America were affected when temperatures dropped 20-30 degrees below average. Several U.S. grid operators issued reliability warnings and conservation appeals to avoid "load shedding," which is the deliberate shutdown of power to avoid more significant blackouts. Learn more.

- ✓ **Winter Storm Elliott December 2022.** 1.6 million U.S. customers lost power and utilities in several states issued public appeals to turn down thermostats. The ability of downstate generators to burn either natural gas or oil proved crucial to maintaining power.

**Extreme weather events highlight the importance of siting controllable, flexible generation to meet challenging conditions.**

### What's Next

#### Winter Reliability Assessment

Our 2024-25 Winter assessment will study electric system reliability for the coming winter.

Extended extreme weather, risks to fuel availability, and potential unexpected generator outages threaten already narrow reliability margins.

#### *2024 Reliability Needs Assessment* (RNA)

This biennial report will evaluate grid reliability for the next 10 years, including studying summer and winter peak conditions, large industrial loads, anticipated generator deactivations, and fuel security risks.