

CARIS Scenario Load Forecast Development

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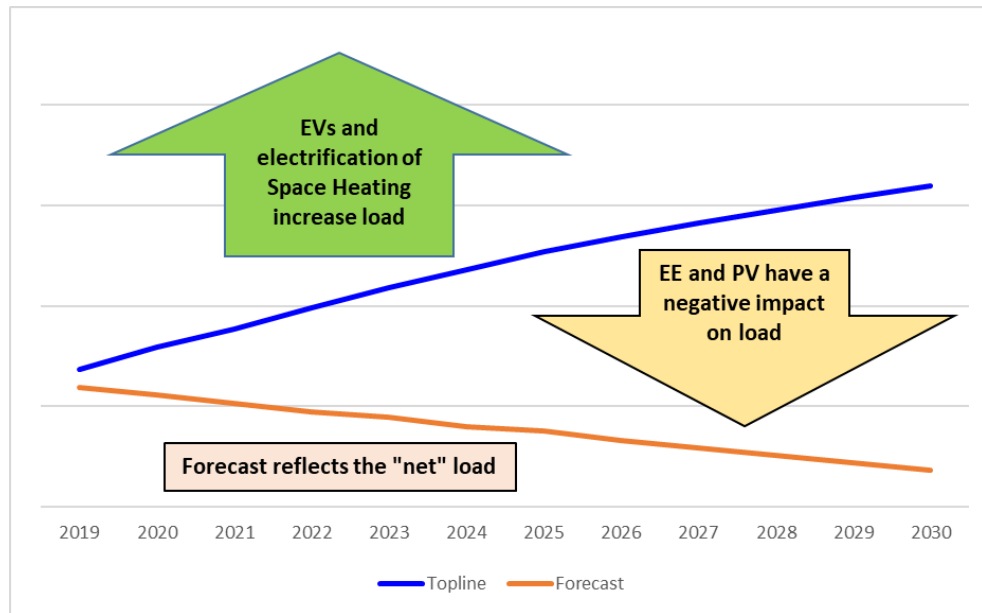
ESPWG

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Scenario Load Forecasts: Methodology

Starting with zonal 'Topline' hypothetical projections, the NYISO layered on separate forecasts of impacts of Electric Vehicles (EV), Space Heating electrification, Energy Efficiency including Codes & Standards (EE), and behind-the-meter Solar (PV) to arrive at the 'net' load forecasts



Scenario Load Forecasts: Assumptions

	Baseline	Scenario
EV Impact	1.3 million light-duty vehicles by 2030	2.2 million light-duty vehicles by 2030
Space Heating Impact	None	2015 estimate of 13,600 GWh in 2015 grows by 50% by 2030 for NYCA
PV Impact	3,000 MWDC behind-the-meter by 2023	6,000 MWDC behind-the-meter by 2025
EE Impact	23,500 GWh of incremental savings by 2030 beyond the 11 GWh achieved by 2014	Additional 30,000 GWh* of savings by 2025 beyond 2014 achievements plus around 2,000 GWh/year** for 2026-30

* This target is based on the retail sales of investor-owned utilities level implied by the 2015 Gold Book forecast for the year 2025.

** This [increment](#) is based on the targets expressed in the Clean Energy Fund documents.

3 Scenario Load Forecasts

■ High-load Forecast

- Higher penetration of Electric Vehicles (EV) and Heat Pumps for electrified Space Heating plus 'baseline' forecasts for EE & PV
 - No distinction made between Air Source Heat Pumps and Ground Source Heat Pumps

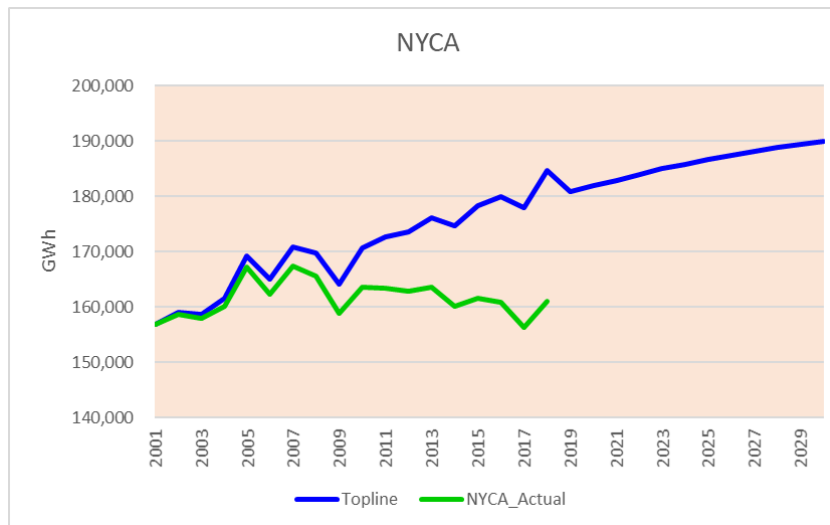
■ Low-load Forecast

- Reflects Climate Leadership and Community Protection Act (CLCPA) targets with respect to behind-the-meter photovoltaic (PV) and Energy Efficiency (EE) plus 'baseline' forecasts for EV and no Heat Pumps

■ '70 x 30' Load Forecast

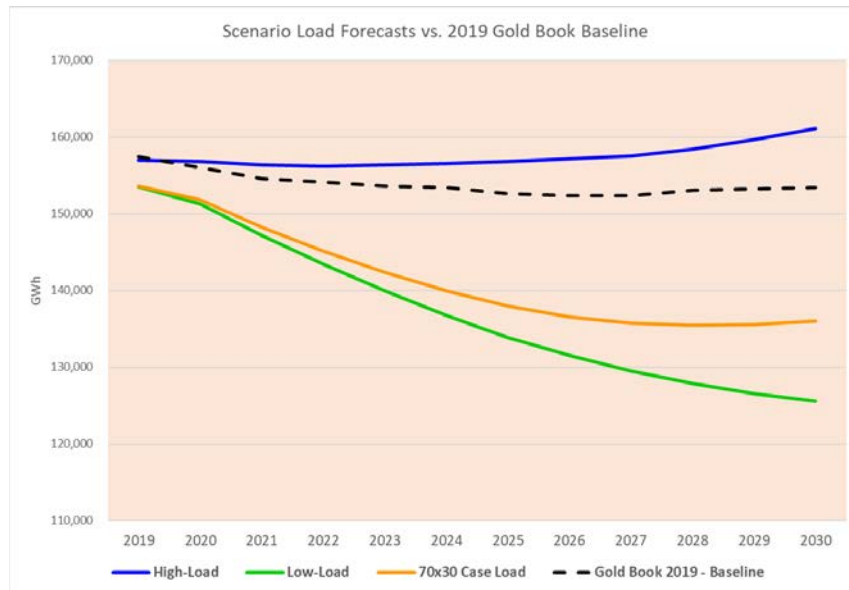
- Incorporates scenario forecasts for EV, Space Heating, EE and PV

“Topline” Load Forecast



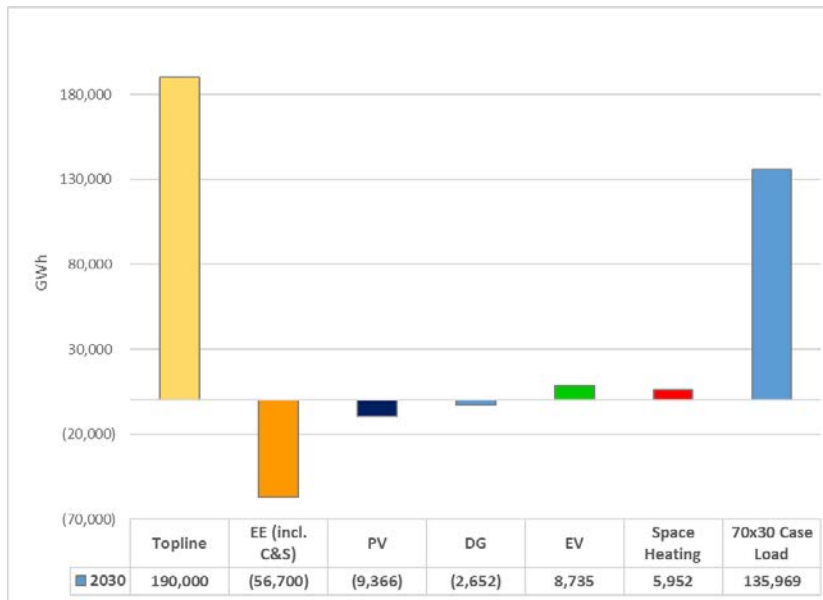
Based on data starting in 1993, the hypothetical “Topline” load projection models the energy usage trend in the absence of impacts attributable to EE, PV, EV and Electrification

Scenario Load Forecasts



The decremental effects of the aggressive EE and PV targets outweigh the incremental impacts of EV and Electrification. The High and Low load forecasts reflect the assumptions on Slides 3 & 4 and serve as modeling bookends.

Structure of '70x30' Load Forecast



The 'Topline' load projection declines to around 136,000 GWh of 'net' load due to the cumulative impact of assumed levels of EE, PV, DG and EV and electrification of Space Heating

The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system



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