2024 Gold Book Forecast Graphs

April 2024

2024 Gold Book Forecast Graphs

1. **Load Shape Projections**

    Projected load shapes on high load January and July days in future years

2. **10-Year NYCA Baseline Forecast Summaries**

    Including energy and peak demand forecasts before large load growth

3. **NYCA Forecast Scenarios**

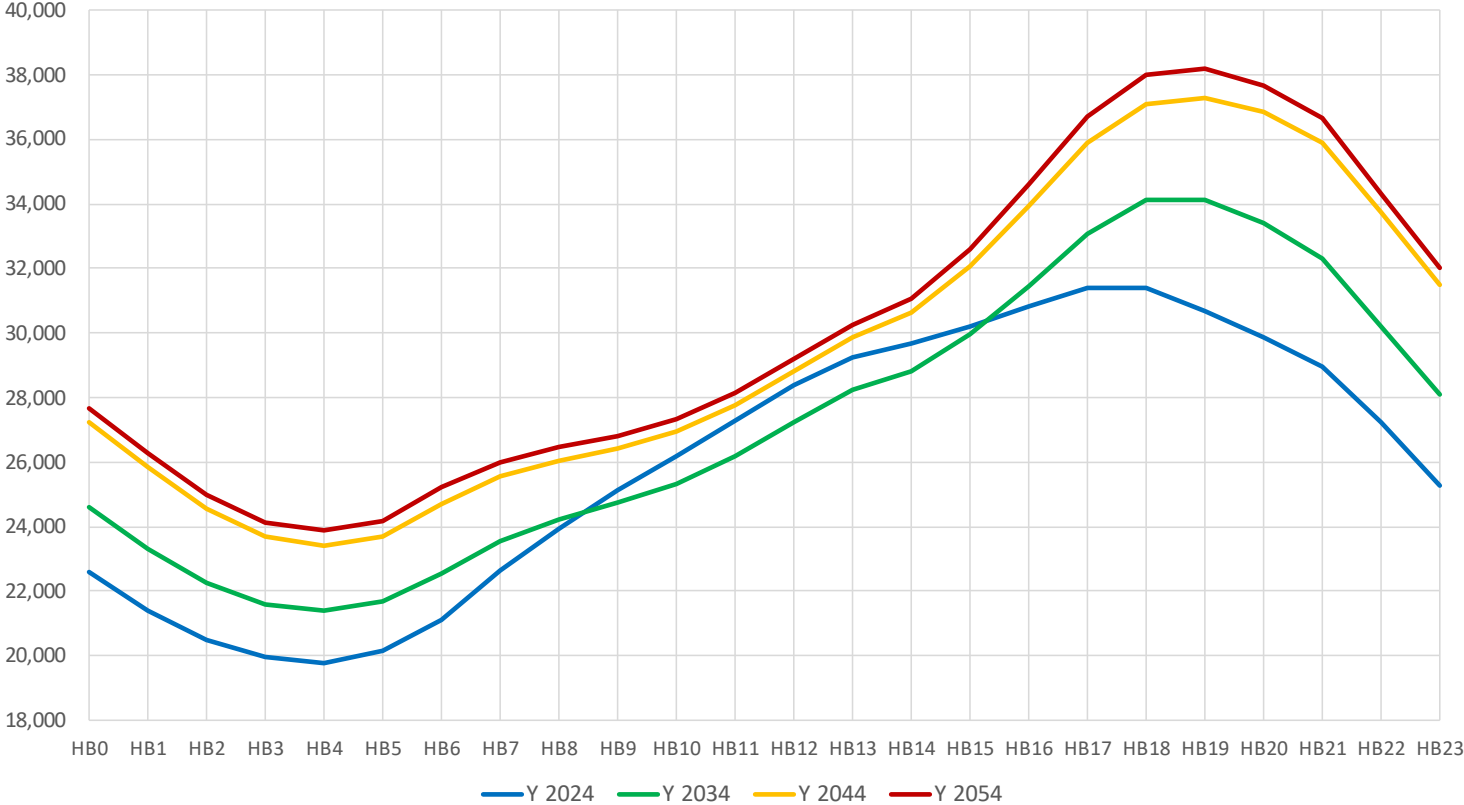   NYCA scenario summary, NYCA forecast graphs, and baseline and policy scenario forecast impacts

4. **Area Forecast Summaries**

    Annual energy and summer and winter peak forecasts for Zones A to E, Zones F&G, Zones H&I, Zone J, and Zone K

New York ISO
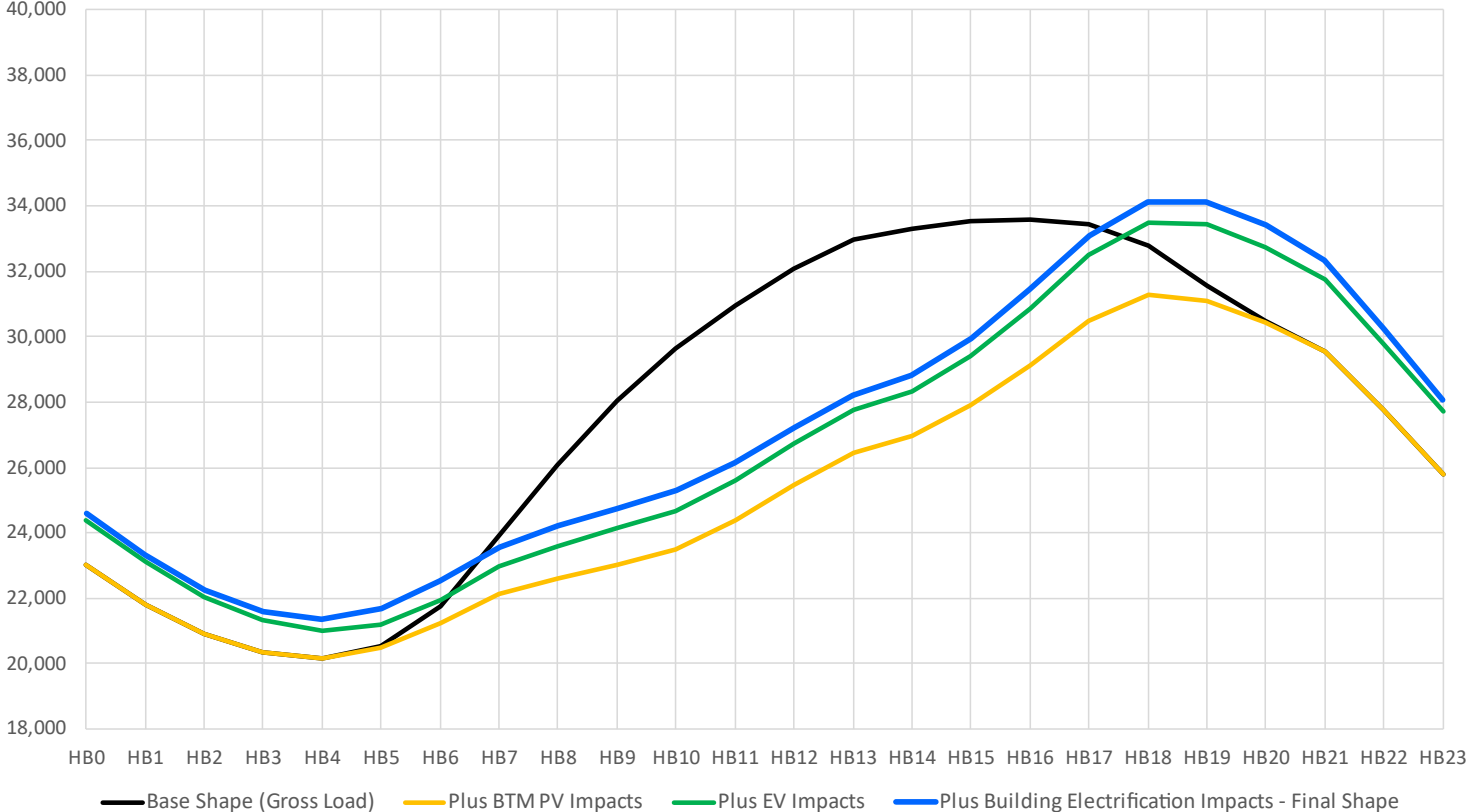
Load Shape Projections

New York ISO

Projected Summer Load Shapes

NYCA Summer Projected Load Shapes - July High Load Weekday (MW)

2034 Summer Load Shape Impacts

NYCA 2034 Summer Load Shape Impacts - July High Load Weekday (MW)

Black line shows projected base load shape (gross load).

Yellow line shows base load shape plus BTM solar reductions.
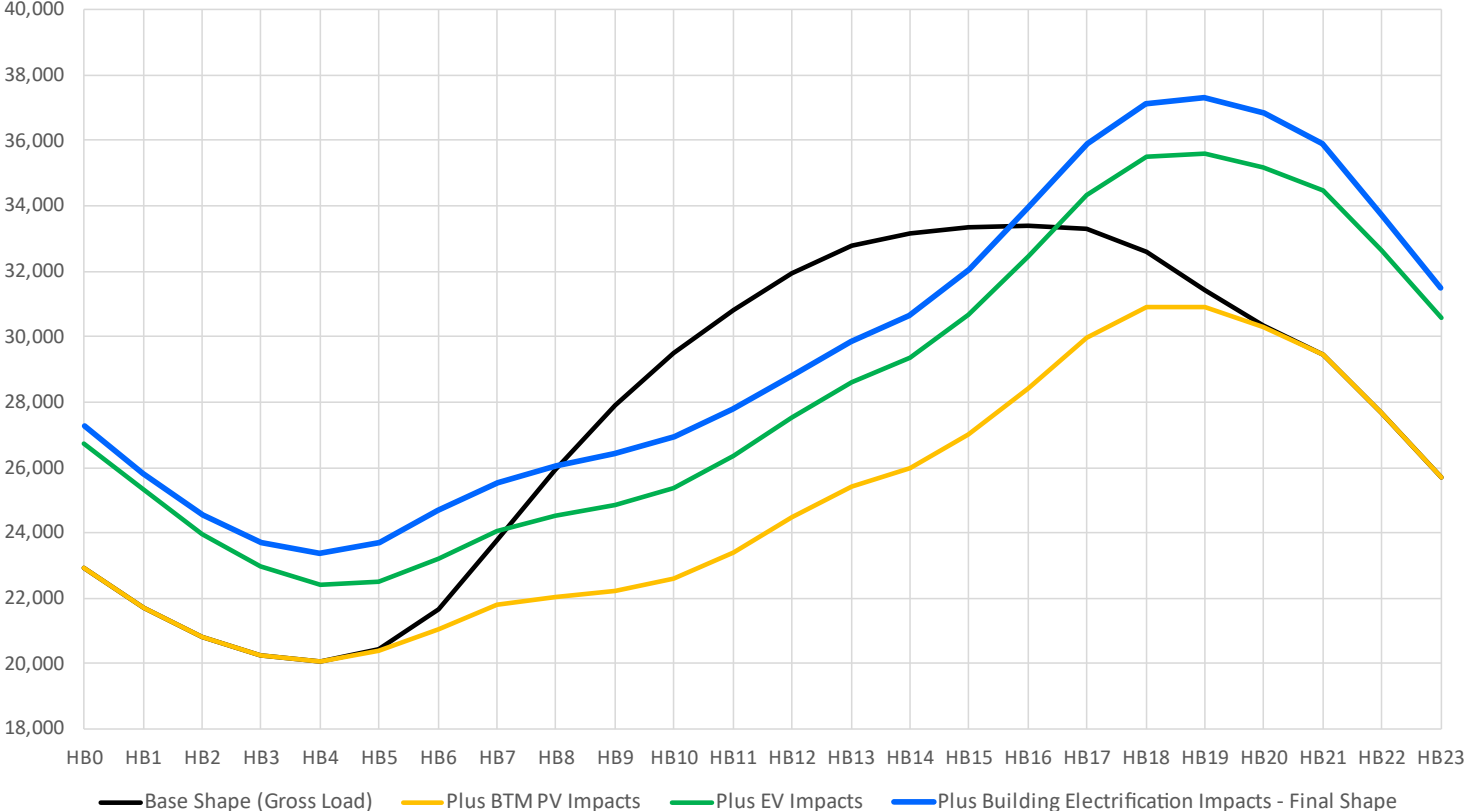
Green line shows base load shape plus BTM solar reductions and EV charging impacts.

Blue line shows final projected load shape – base shape plus BTM PV, EV, and building electrification impacts.

Legend: Base Shape (Gross Load) — Plus BTM PV Impacts — Plus EV Impacts — Plus Building Electrification Impacts - Final Shape

New York ISO

2044 Summer Load Shape Impacts

NYCA 2044 Summer Load Shape Impacts - July High Load Weekday (MW)

Black line shows projected base load shape (gross load).

Yellow line shows base load shape plus BTM solar reductions.
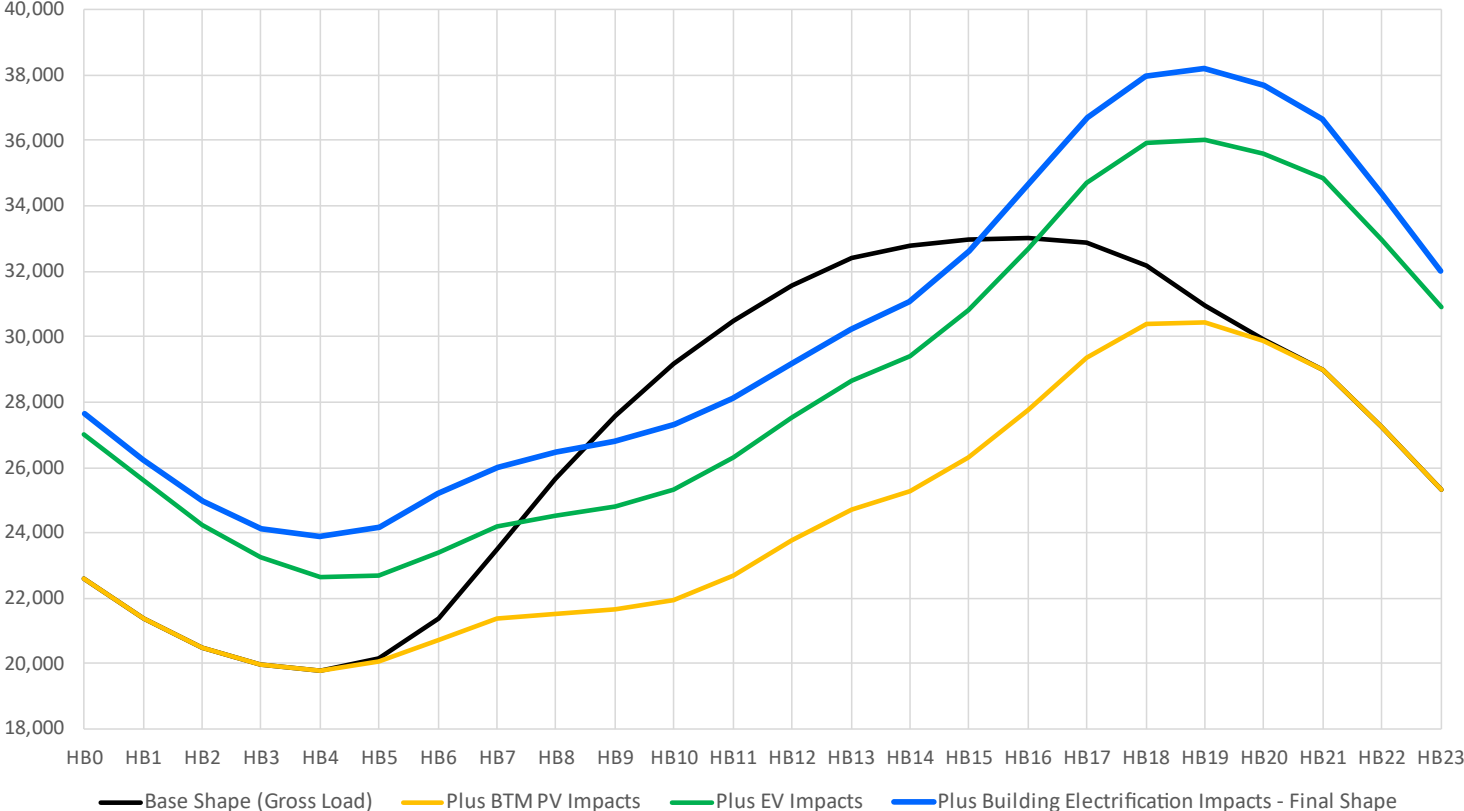
Green line shows base load shape plus BTM solar reductions and EV charging impacts.

Blue line shows final projected load shape – base shape plus BTM PV, EV, and building electrification impacts.

Legend: Base Shape (Gross Load) — Plus BTM PV Impacts — Plus EV Impacts — Plus Building Electrification Impacts - Final Shape

New York ISO

2054 Summer Load Shape Impacts

NYCA 2054 Summer Load Shape Impacts - July High Load Weekday (MW)

Black line shows projected base load shape (gross load).

Yellow line shows base load shape plus BTM solar reductions.
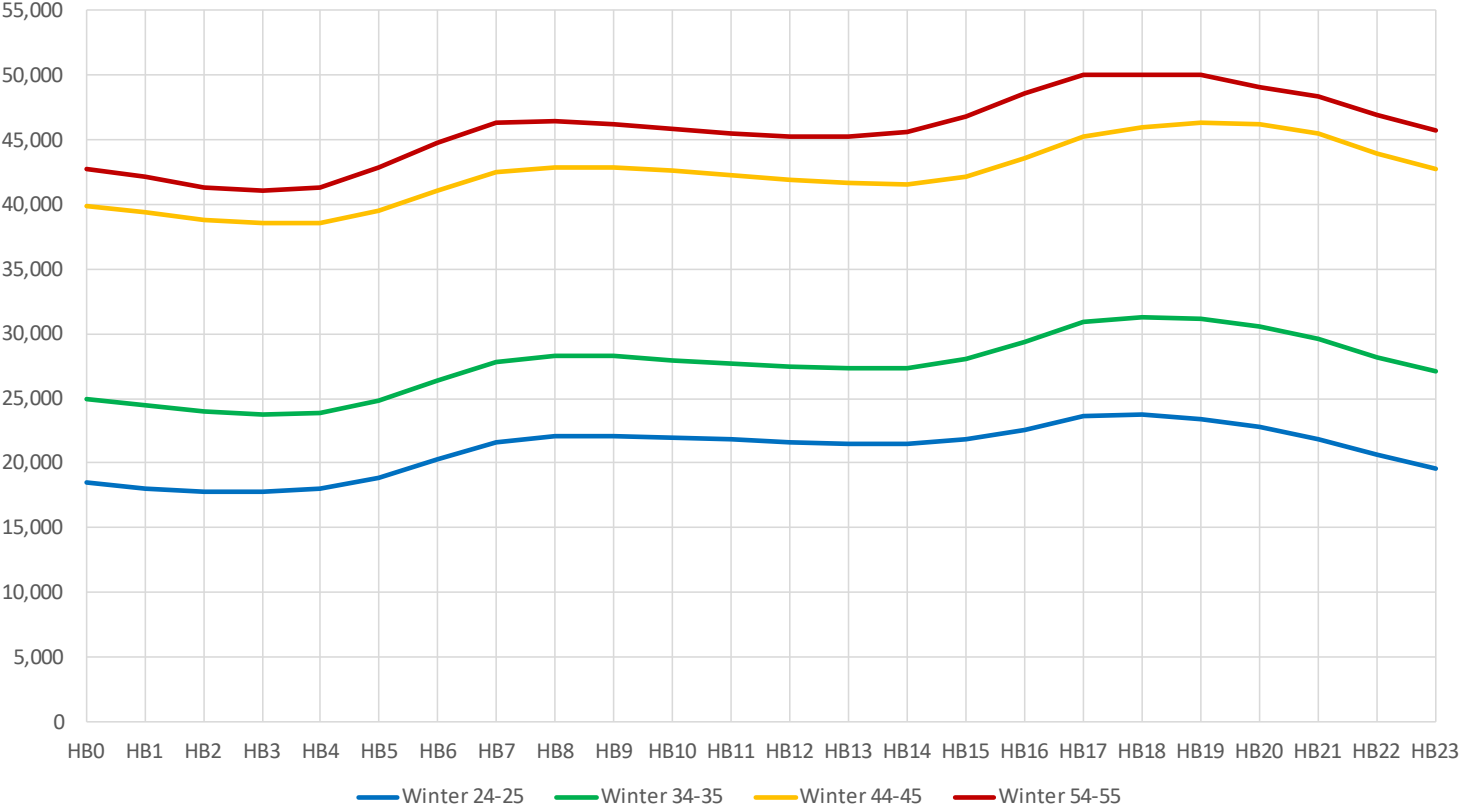
Green line shows base load shape plus BTM solar reductions and EV charging impacts.

Blue line shows final projected load shape – base shape plus BTM PV, EV, and building electrification impacts.

Legend: Base Shape (Gross Load) — Plus BTM PV Impacts — Plus EV Impacts — Plus Building Electrification Impacts - Final Shape

Projected Winter Load Shapes

NYCA Winter Projected Load Shapes - January High Load Weekday (MW)

— Winter 24-25 — Winter 34-35 — Winter 44-45 — Winter 54-55

2034-35 Winter Load Shape Impacts

NYCA Winter 2034-35 Winter Load Shape Impacts - January High Load Weekday (MW)
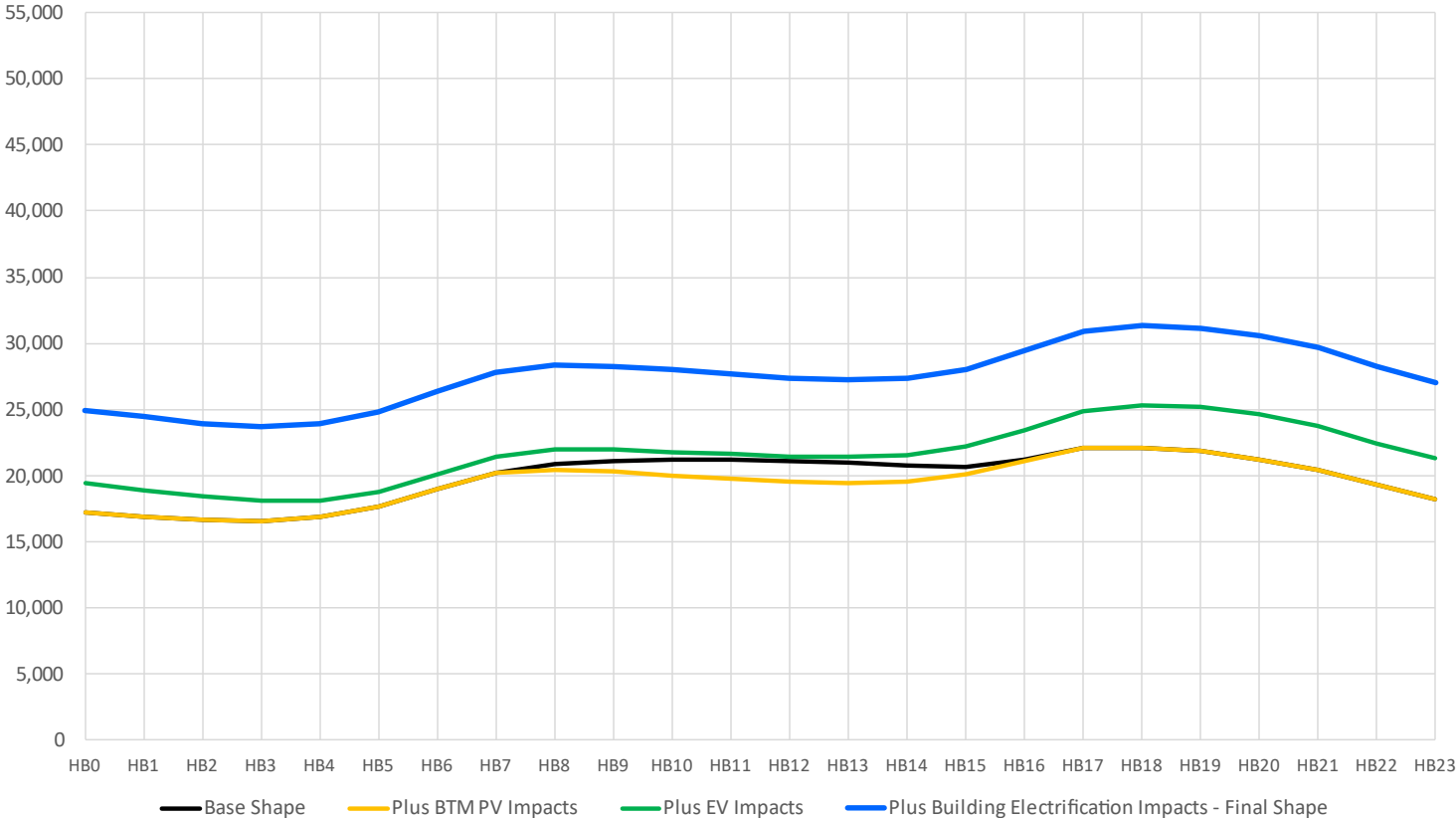
Black line shows projected base load shape (gross load).

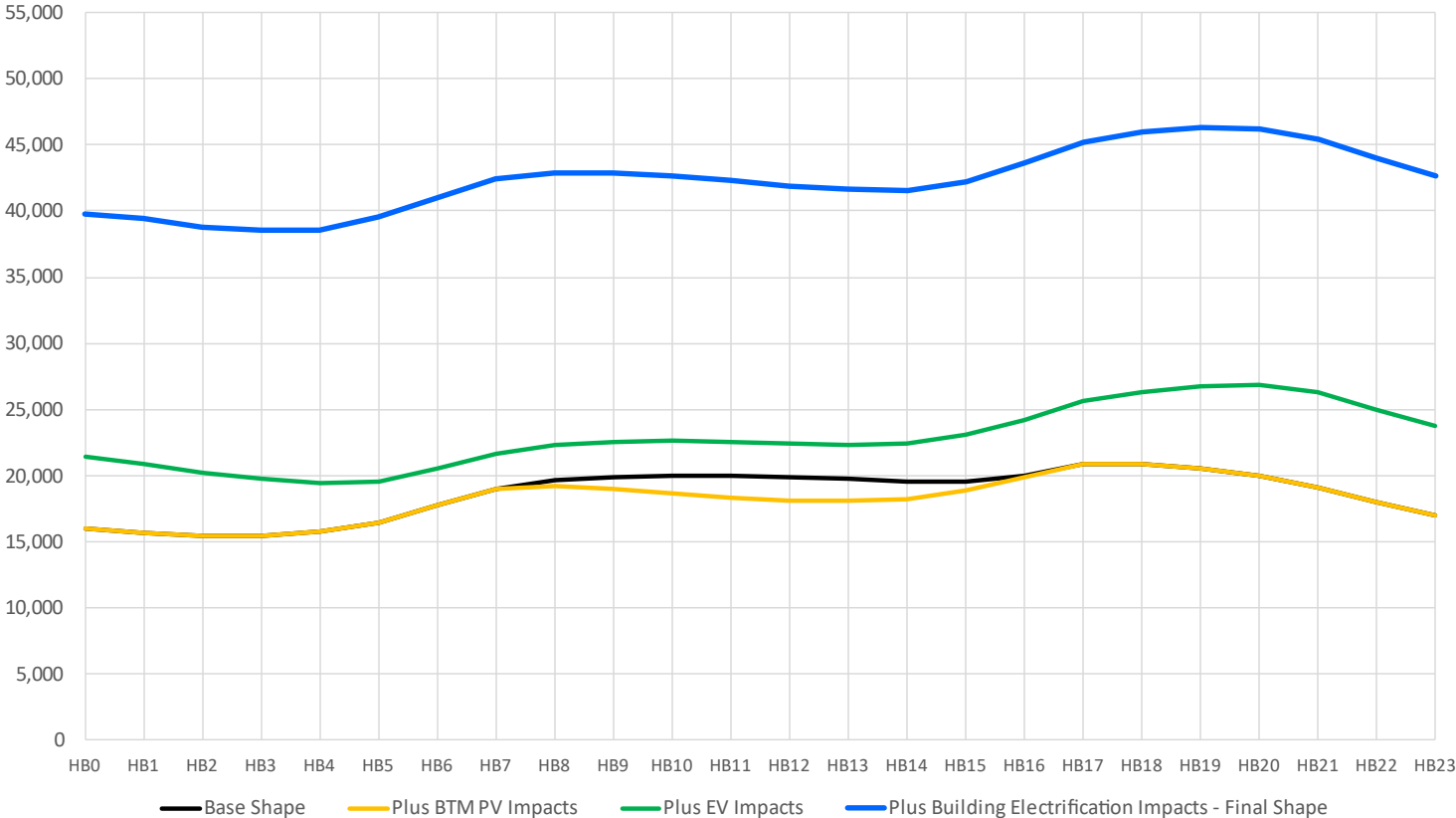**Yellow line** shows base load shape plus BTM solar reductions.

Green line shows base load shape plus BTM solar reductions and EV charging impacts.

Blue line shows final projected load shape – base shape plus BTM PV, EV, and building electrification impacts.

2044-45 Winter Load Shape Impacts

NYCA Winter 2044-45 Winter Load Shape Impacts - January High Load Weekday (MW)

Black line shows projected base load shape (gross load).

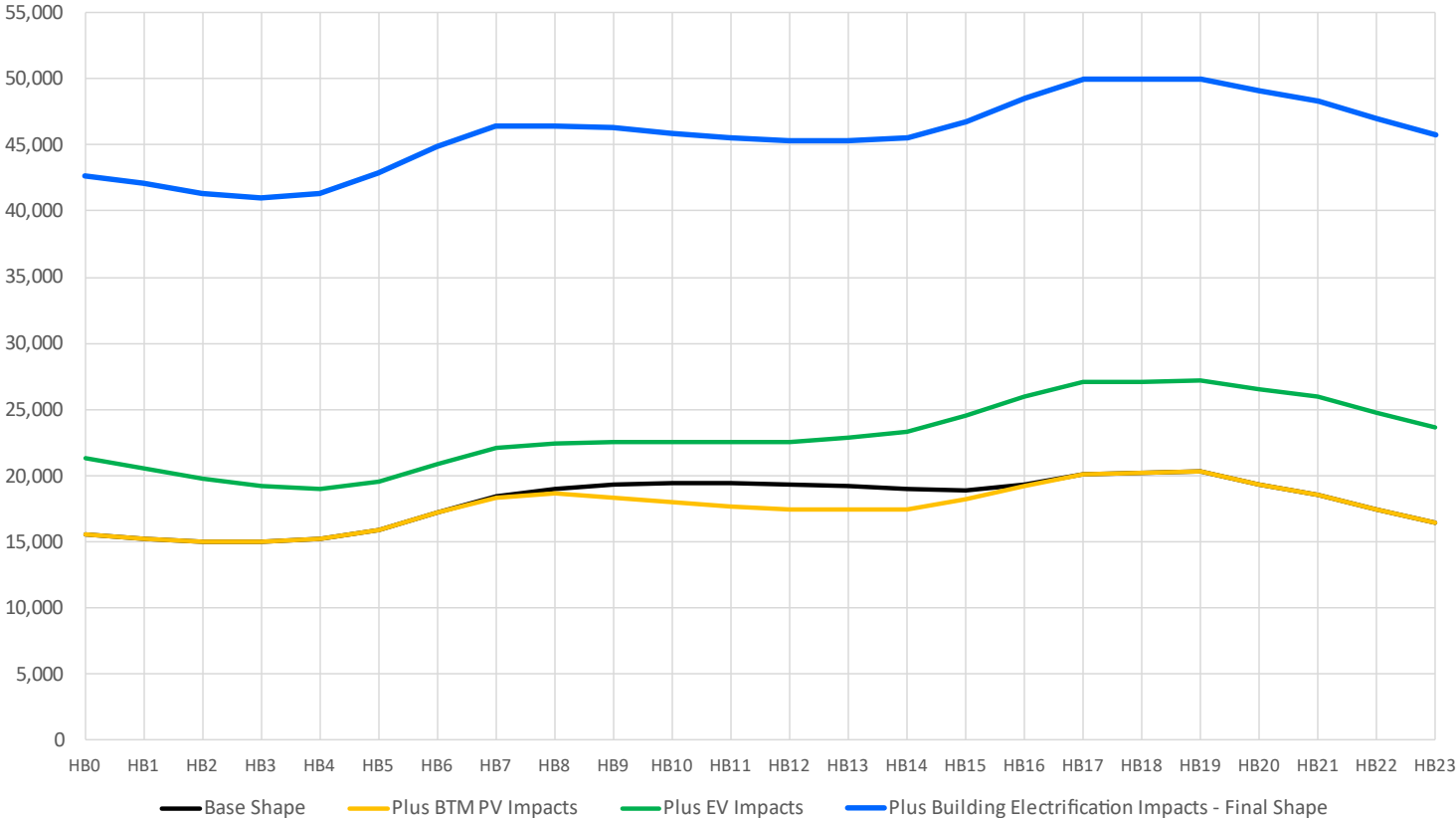**Yellow line** shows base load shape plus BTM solar reductions.

Green line shows base load shape plus BTM solar reductions and EV charging impacts.

Blue line shows final projected load shape – base shape plus BTM PV, EV, and building electrification impacts.

Legend: Base Shape — Plus BTM PV Impacts — Plus EV Impacts — Plus Building Electrification Impacts - Final Shape

2054-55 Winter Load Shape Impacts

NYCA Winter 2054-55 Winter Load Shape Impacts - January High Load Weekday (MW)

Black line shows projected base load shape (gross load).

Yellow line shows base load shape plus BTM solar reductions.

Green line shows base load shape plus BTM solar reductions and EV charging impacts.

Blue line shows final projected load shape – base shape plus BTM PV, EV, and building electrification impacts.
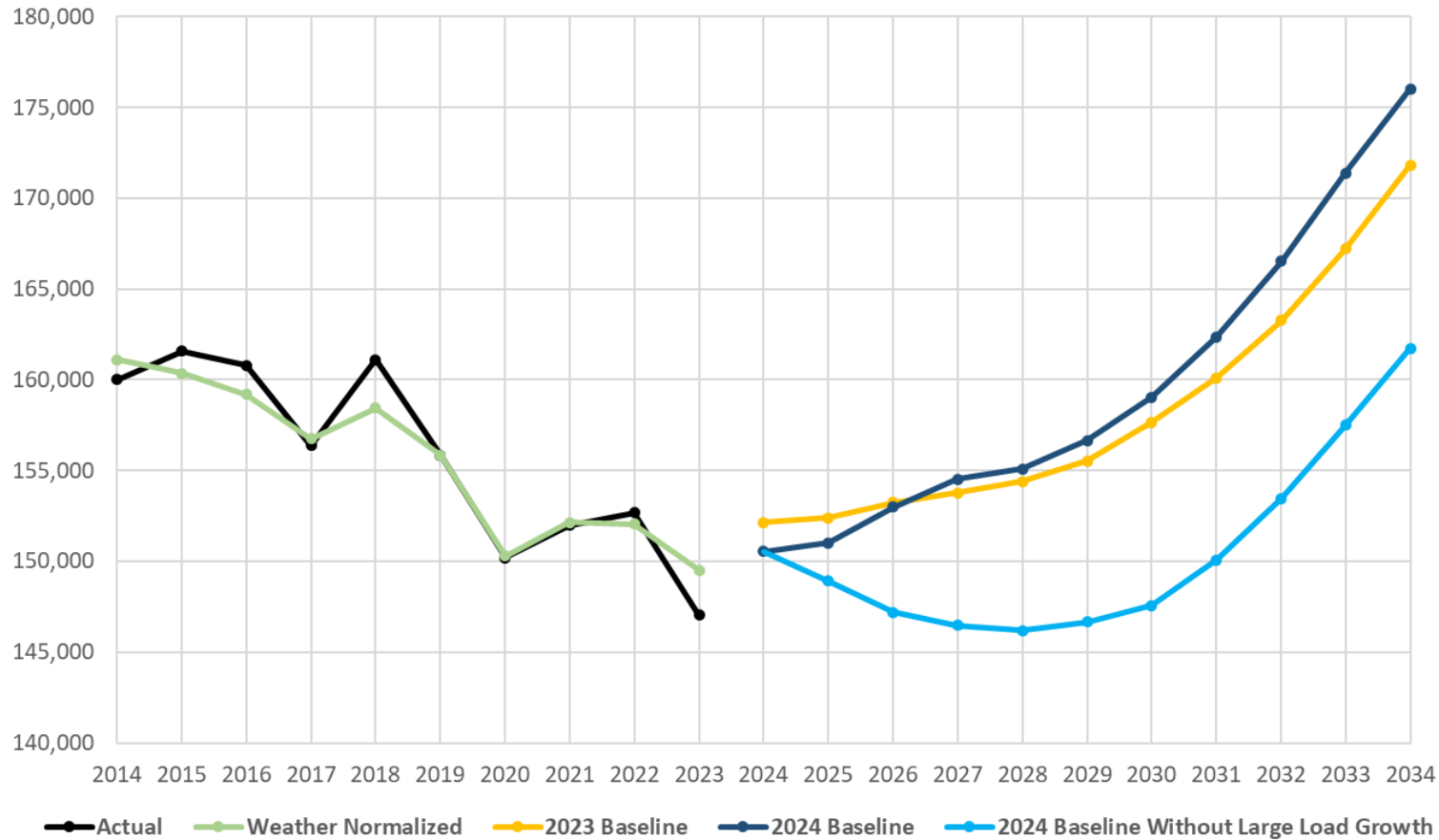
Legend: Base Shape · Plus BTM PV Impacts · Plus EV Impacts · Plus Building Electrification Impacts - Final Shape

10-Year NYCA Baseline Forecast Summaries

New York ISO

Notes for Forecast Summary Graphs

- Historical energy and peak values reflect actual experienced weather conditions.

- Weather normalized summer peak values include estimated demand response added back.

- Forecasted energy and peak values reflect expected trended weather conditions.

- Expected weather conditions include an increasing temperature trend from the NYISO *Climate Impact Study Phase I* report.

- Historical peak values include demand response reductions when called. Forecast peak values assume no demand response reductions.

- Con Edison and Orange & Rockland design their peak forecasts at the 67th percentile. Other Transmission Owners design their peak forecasts at the 50th percentile. As a result, the aggregate statewide peak forecast is designed at 57th percentile weather conditions.
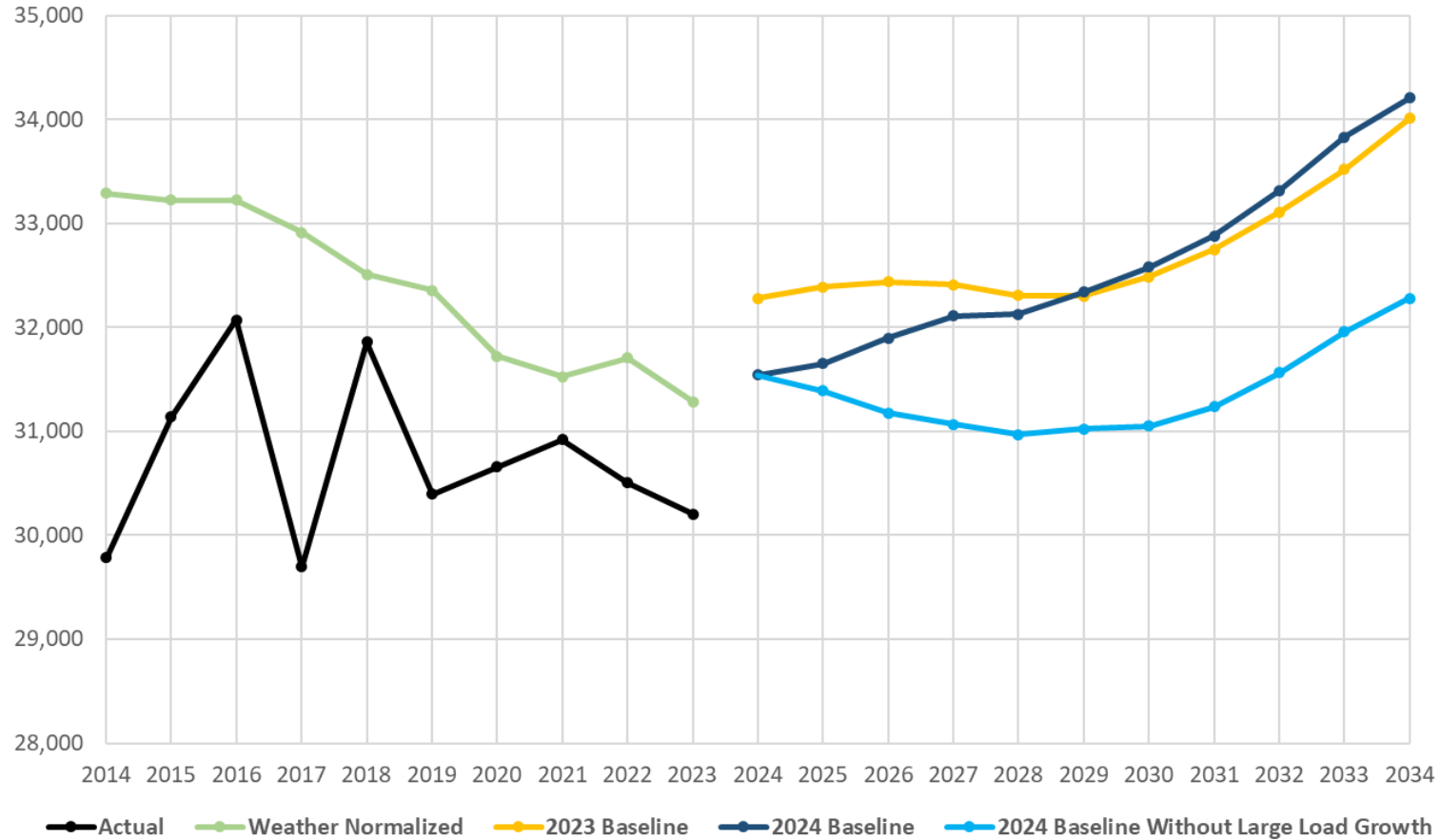
New York ISO

Historical NYCA Annual Energy and 10-Year Forecasts - GWh

Legend: Actual, Weather Normalized, 2023 Baseline, 2024 Baseline, 2024 Baseline Without Large Load Growth

(No additional large load growth beyond 2024)

Historical NYCA Summer Peak Demand and 10-Year Forecasts - MW

Legend: Actual, Weather Normalized, 2023 Baseline, 2024 Baseline, 2024 Baseline Without Large Load Growth

(No additional large load growth beyond 2024)

New York ISO

Historical NYCA Winter Peak Demand and 10-Year Forecasts - MW

Legend: Actual · Weather Normalized · 2023 Baseline · 2024 Baseline · 2024 Baseline Without Large Load Growth
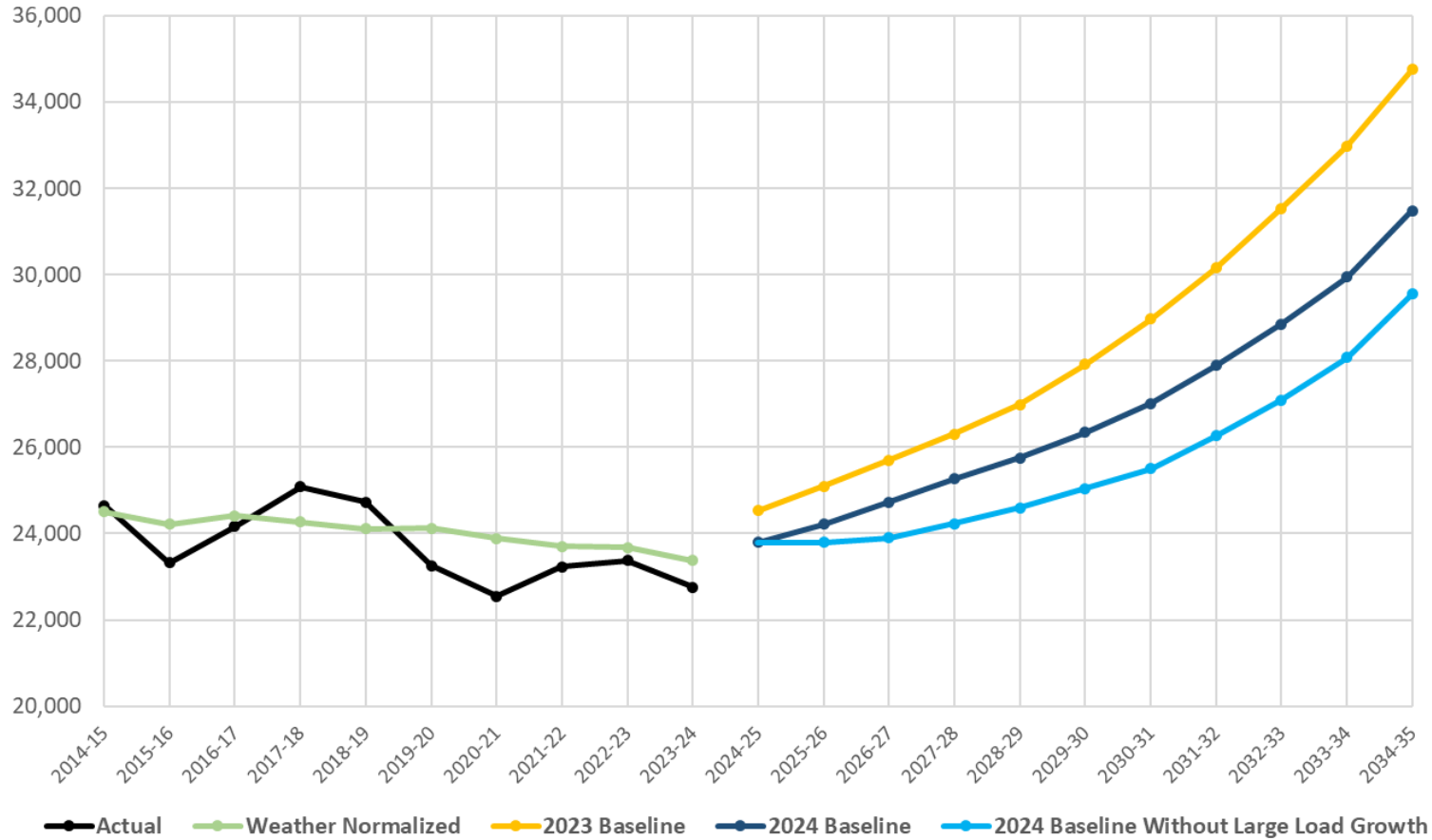
(No additional large load growth beyond 2024-25)

NYCA Forecast Scenarios

New York ISO

Load Scenario Summary

Forecast Component	Baseline Forecast	Lower Demand Scenario	Higher Demand Scenario	Policy Scenario
Weather Trends	Trended weather from NYISO Climate Change Impact Study - average NYCA temperature gain of approximately 0.7 degrees Fahrenheit per decade	Same as Baseline Forecast	Same as Baseline Forecast	Same as Baseline Forecast
Economic Assumptions	Baseline economic forecast - expected economic growth in the long run. Declining population and households in later forecast years - statewide population of under 18 million in 2050	Slower than baseline economic growth in the long run.	Faster than baseline economic growth. Increase in population and households over the forecast horizon - statewide population of over 20 million in 2050	Similar economic assumptions to Baseline Forecast
Energy Efficiency (Table I-8)	Significant energy savings and peak reductions due to energy efficiency programs, codes & standards improvements, and building shell upgrades	Same as Baseline Forecast	Same as Baseline Forecast	Very significant energy savings and peak reductions due to energy efficiency programs, codes & standards improvements, and building shell upgrades, reflecting achievement of State policy targets
BTM Solar PV (Table I-9)	10,000 MW DC installed by 2030, and almost 13,000 MW DC installed in 2050	Same as Baseline Forecast	Same as Baseline Forecast	Same as Baseline Forecast
BTM Non-Solar DG (Table I-10)	500 MW installed non-solar BTM DG nameplate capacity by 2035. No assumption of future entry of resources into the wholesale DER market	Same as Baseline Forecast	Same as Baseline Forecast	Same as Baseline Forecast

New York ISO

Forecast Component	Baseline Forecast	Lower Demand Scenario	Higher Demand Scenario	Policy Scenario
Electric Vehicles (Table I-11)	85% LDV EV sales saturation in 2035. Over 6 million EVs (passenger vehicles, trucks and buses) on the road by 2040. Increasing share of managed charging over time	Lower EV sales saturation than baseline. Nearly 5 million EVs on the road by 2040. Reduced peak load impact due to increased managed charging	100% LDV EV sales saturation by 2035. Over 7 million EVs on the road by 2040. Increased peak load impact due to reduced managed charging	100% LDV EV sales saturation by 2035. Over 7 million EVs on the road by 2040. Reduced peak load impact due to increased managed charging
BTM Energy Storage (Table I-12)	Nearly 1,000 MW installed BTM nameplate capacity by 2030, and nearly 3,000 MW installed by 2050. Does not include wholesale storage resources which are expected to contribute significantly to State policy targets	Same as Baseline Forecast	Same as Baseline Forecast	Same as Baseline Forecast
Building Electrification (Table I-13)	Significant electrification of space heating and other end uses. Roughly 75% saturation of primary residential electric heating by 2050, including air source and ground source heat pumps, and electric resistance heating. As of 2023, 86% fossil, 14% existing primary electric heat. As of 2050, 62% additional growth in primary electric heating to reach 76% saturation: * 35% full capacity ASHP * 15% ASHP with supplemental heat * 7% primary electric resistance heat * 5% Ground Source Heat Pumps ("GSH * 24% primary fossil fuel heating	Lower saturation of electric space heating and other end uses. Nearly 65% saturation of residential electric heating by 2050. As of 2023, 86% fossil, 14% existing primary electric heat. As of 2050, 50% additional growth in primary electric heating to reach 64% saturation: * 28% full capacity ASHP * 15% ASHP with supplemental heat * 5% primary electric resistance heat * 2% GSHP * 36% primary fossil fuel heating	Very high saturation of electric space heating and other end uses. Nearly 90% saturation of residential electric heating by 2050. As of 2023, 86% fossil, 14% existing primary electric heat. As of 2050, 75% additional growth in primary electric heating to reach 89% saturation: * 40% full capacity ASHP * 20% ASHP with supplemental heat * 10% primary electric resistance heat * 5% GSHP * 11% primary fossil fuel heating	Extremely high saturation of electric space heating and other end uses. 99% saturation of residential electric heating by 2050. As of 2023, 86% fossil, 14% existing primary electric heat. As of 2050, 85% additional growth in primary electric heating to reach 99% saturation: * 45% full capacity ASHP * 20% ASHP with supplemental heat * 15% primary electric resistance heat * 5% GSHP * 1% primary fossil fuel heating
Large Loads (Table I-14)	Expected load growth from certain large load projects in the NYISO IQ, along with impacts from projects not in the queue	Same as Baseline Forecast	Additional load growth from large load projects beyond that included in the baseline forecast	Same as Baseline Forecast
Electrolysis (Hydrogen Production)	No electrolysis beyond that included in the large loads forecast	No electrolysis beyond that included in the large loads forecast	Similar to Climate Action Council Integration Analysis Scenario 2 electrolysis forecast. Nearly 40,000 GWh annual energy impact in 2050. No peak load impact	Similar to Climate Action Council Integration Analysis Scenario 2 electrolysis forecast. Nearly 40,000 GWh annual energy impact in 2050. No peak load impact

NYCA Energy Forecasts - Annual Energy (GWh)

Legend: Annual Energy - Historical, Baseline Forecast, Policy Scenario, Lower Demand Scenario, Higher Demand Scenario
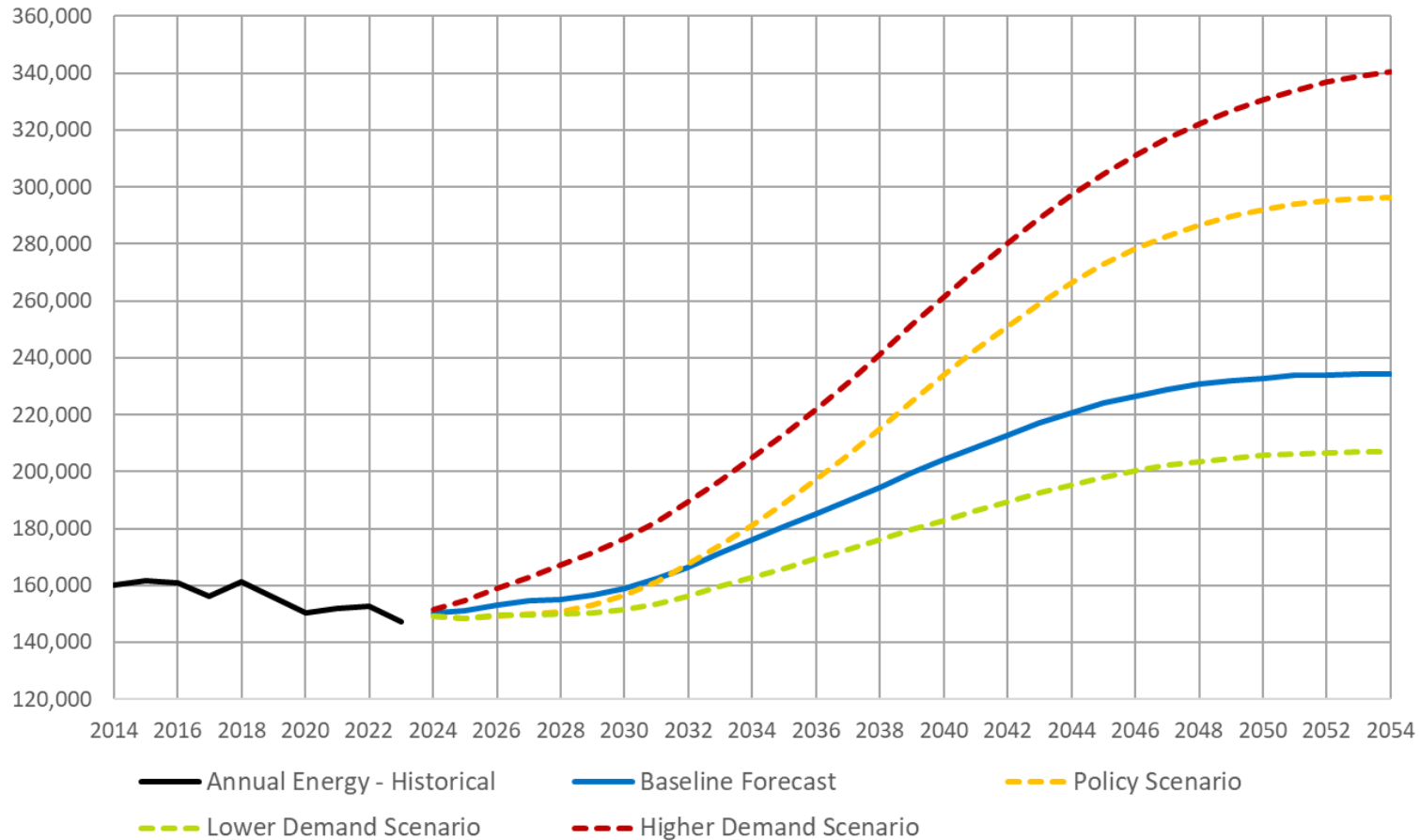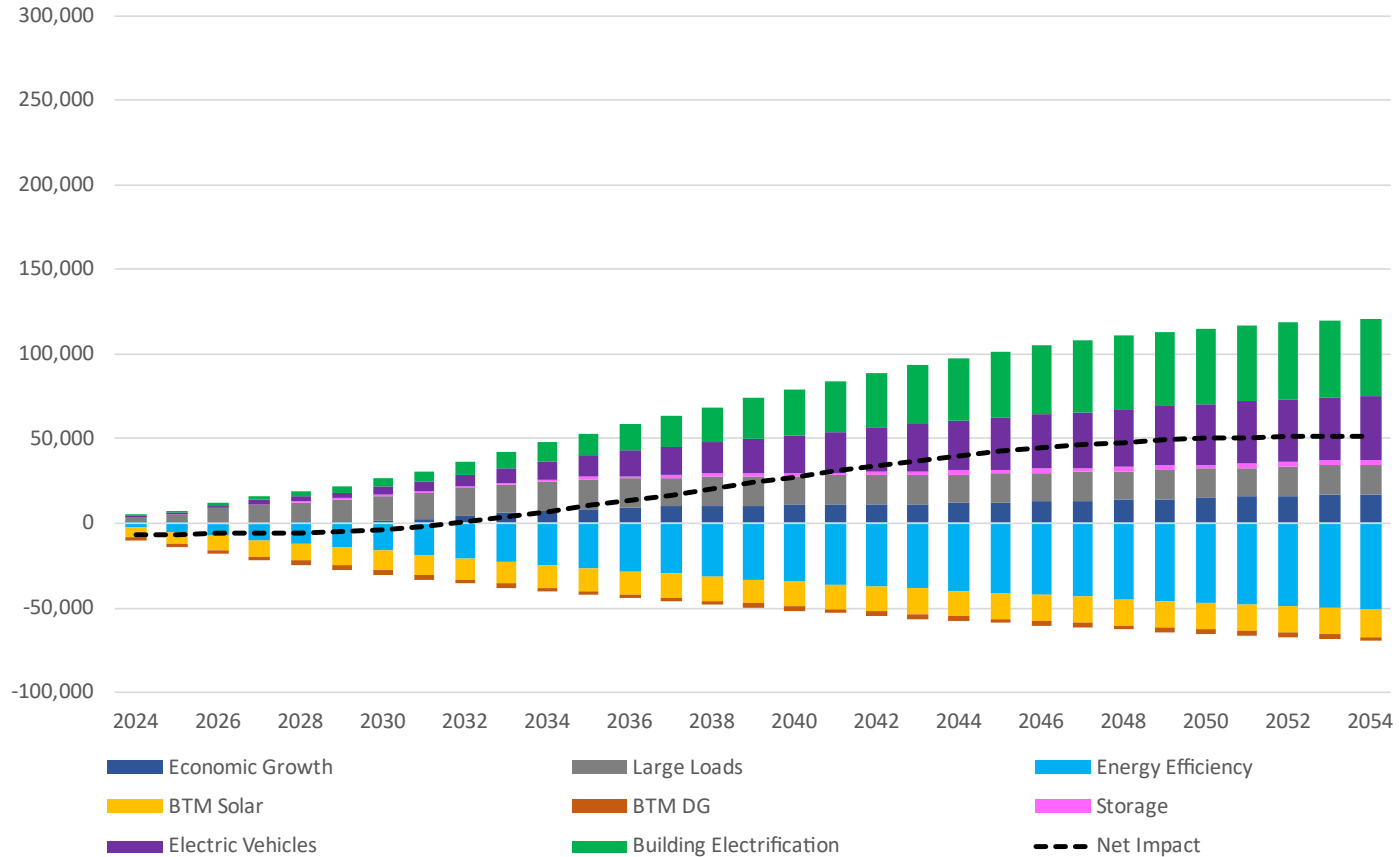
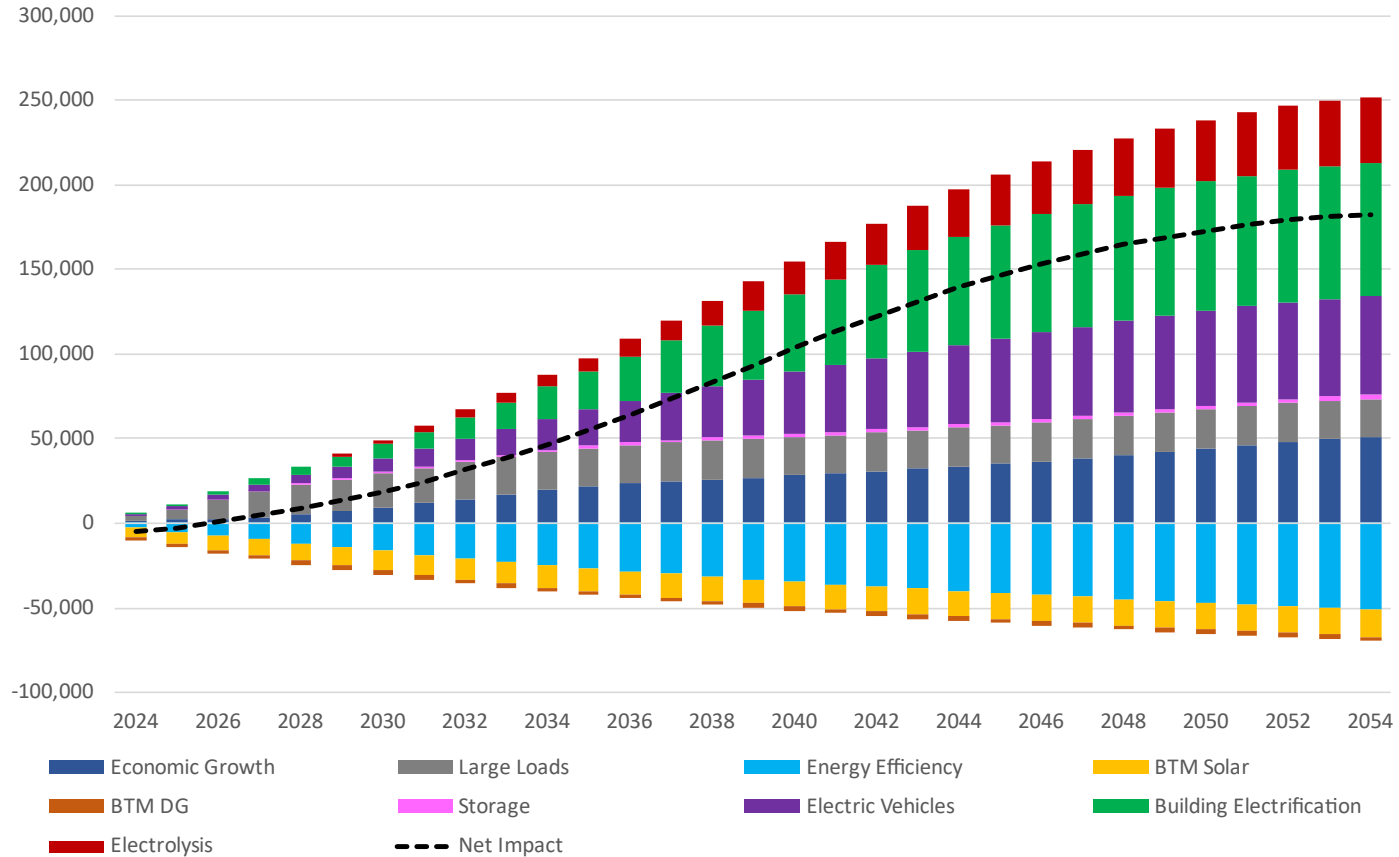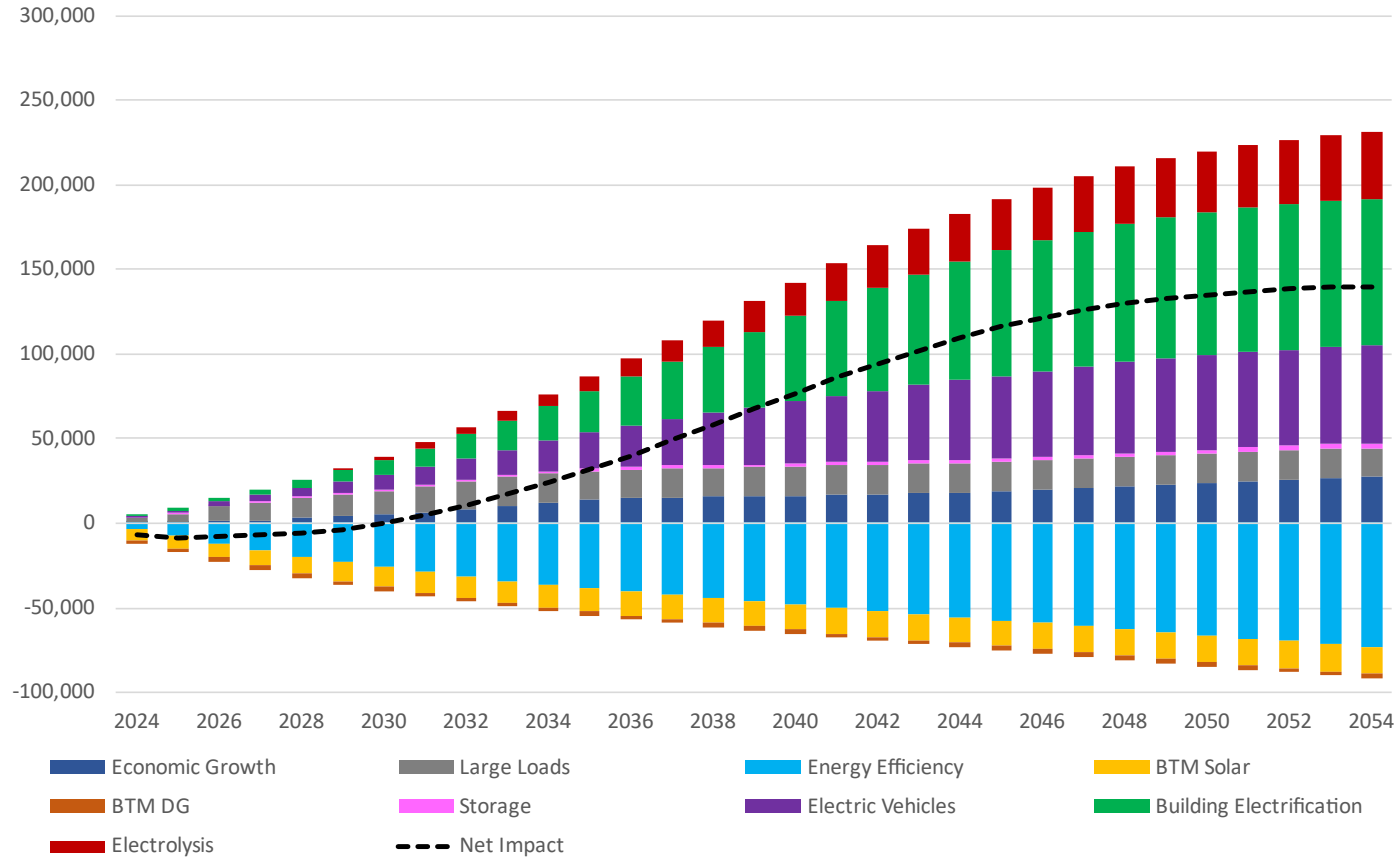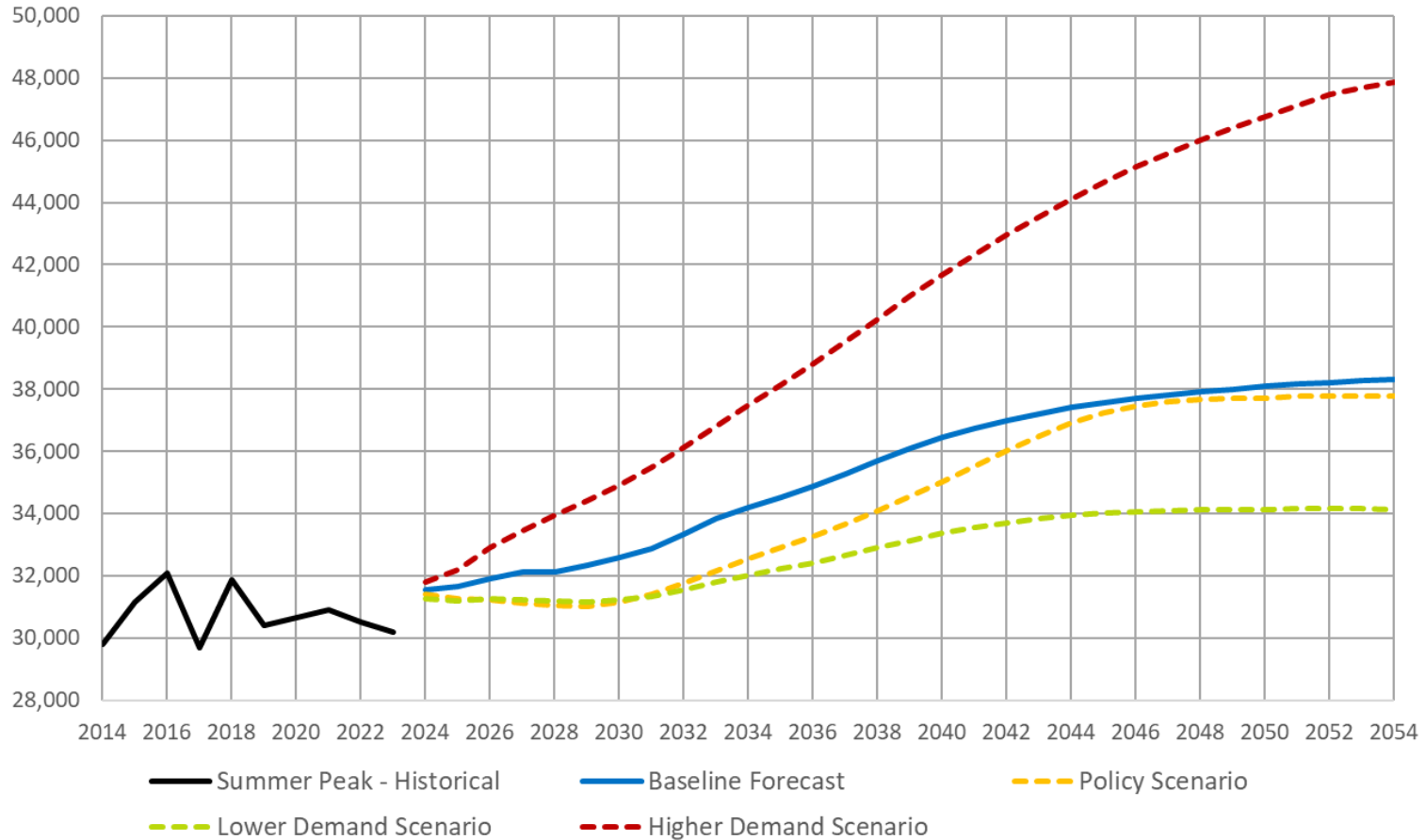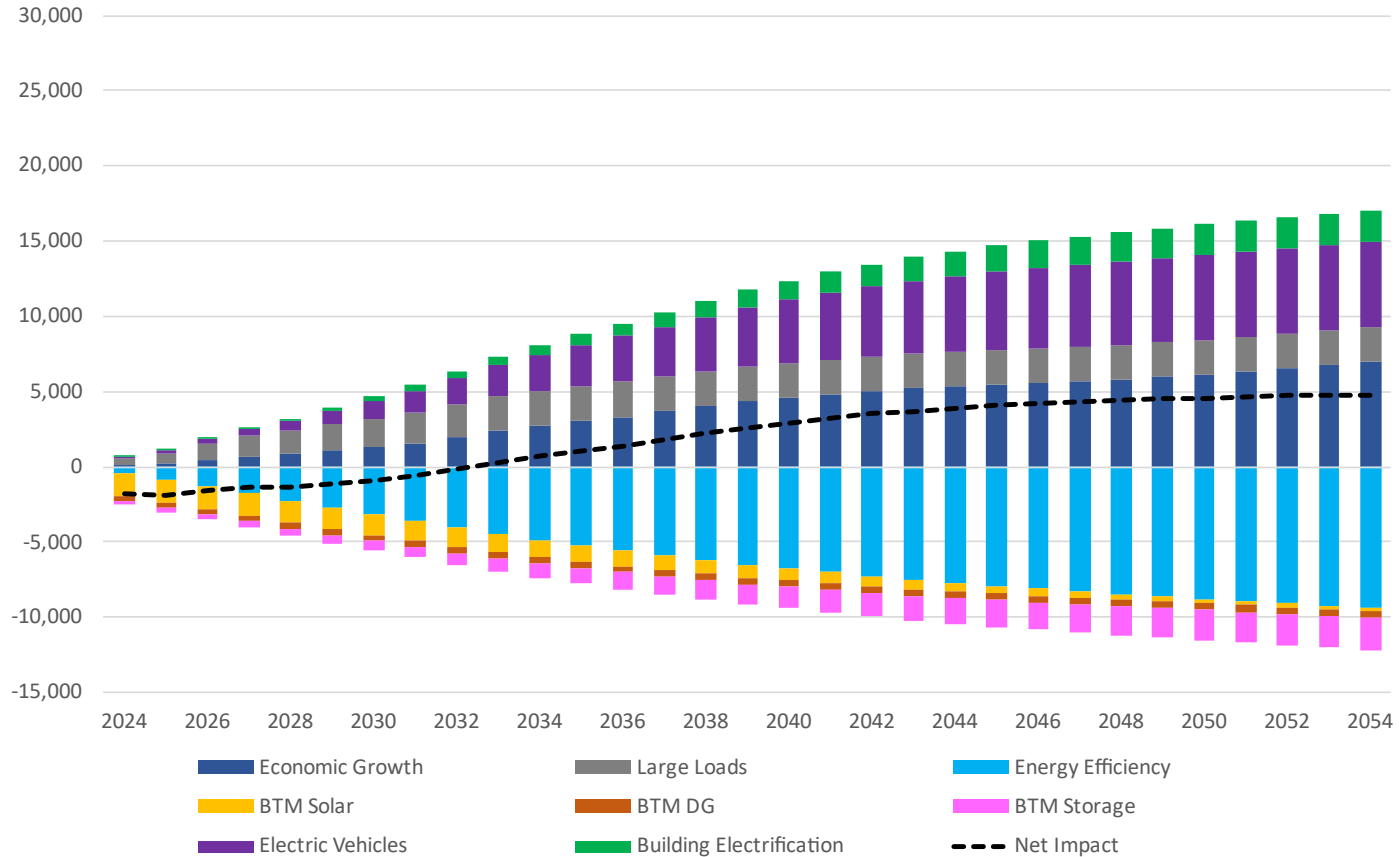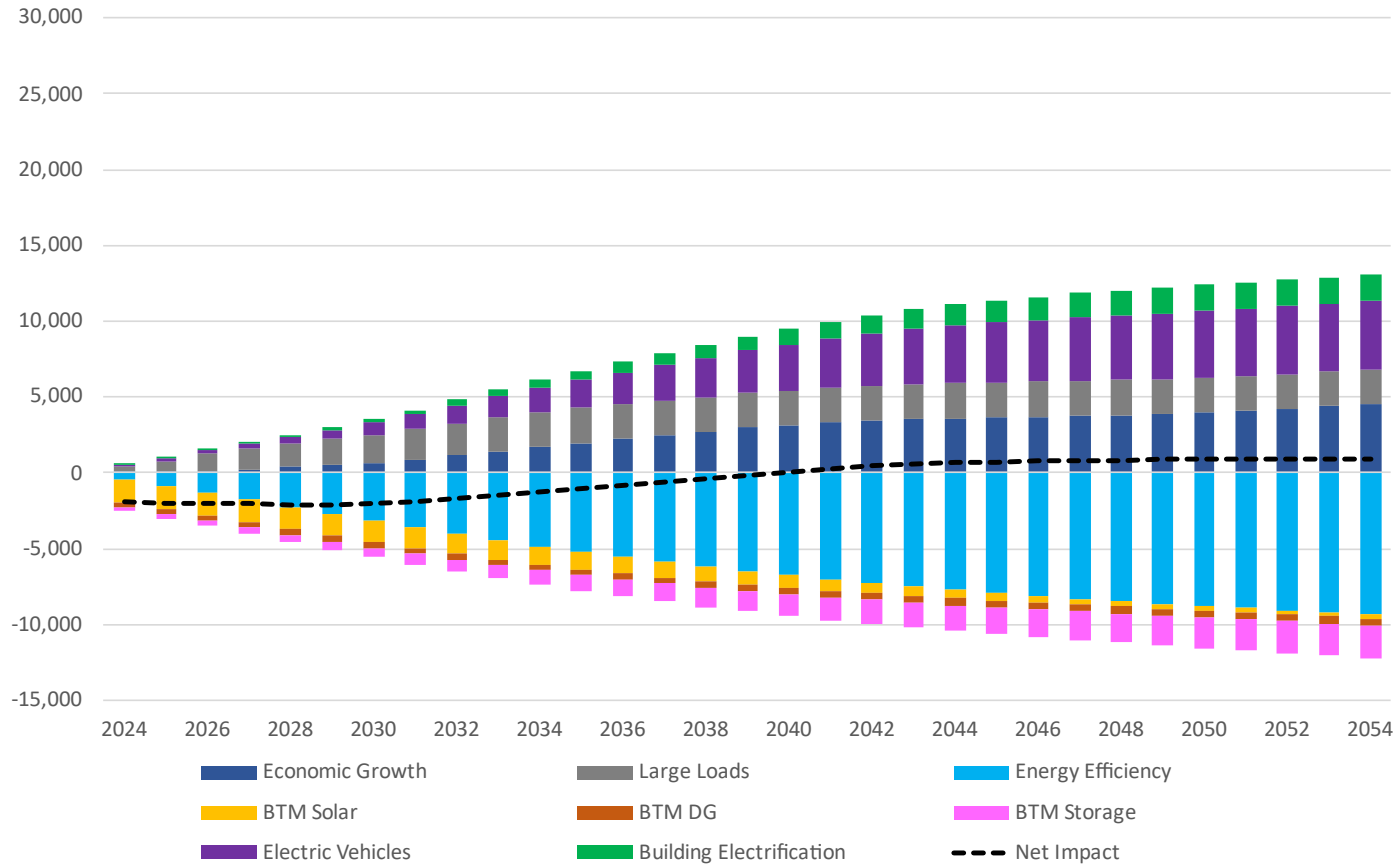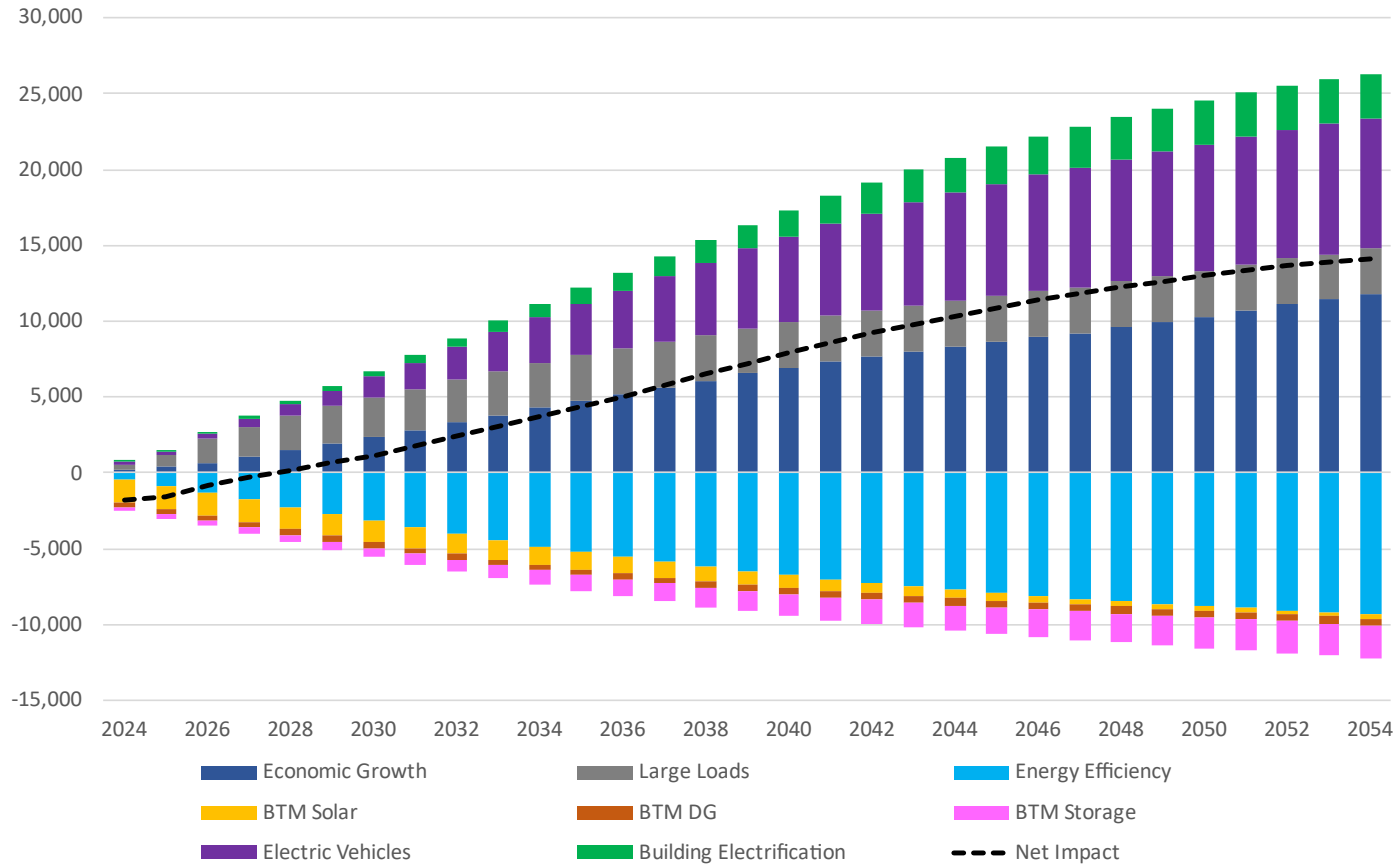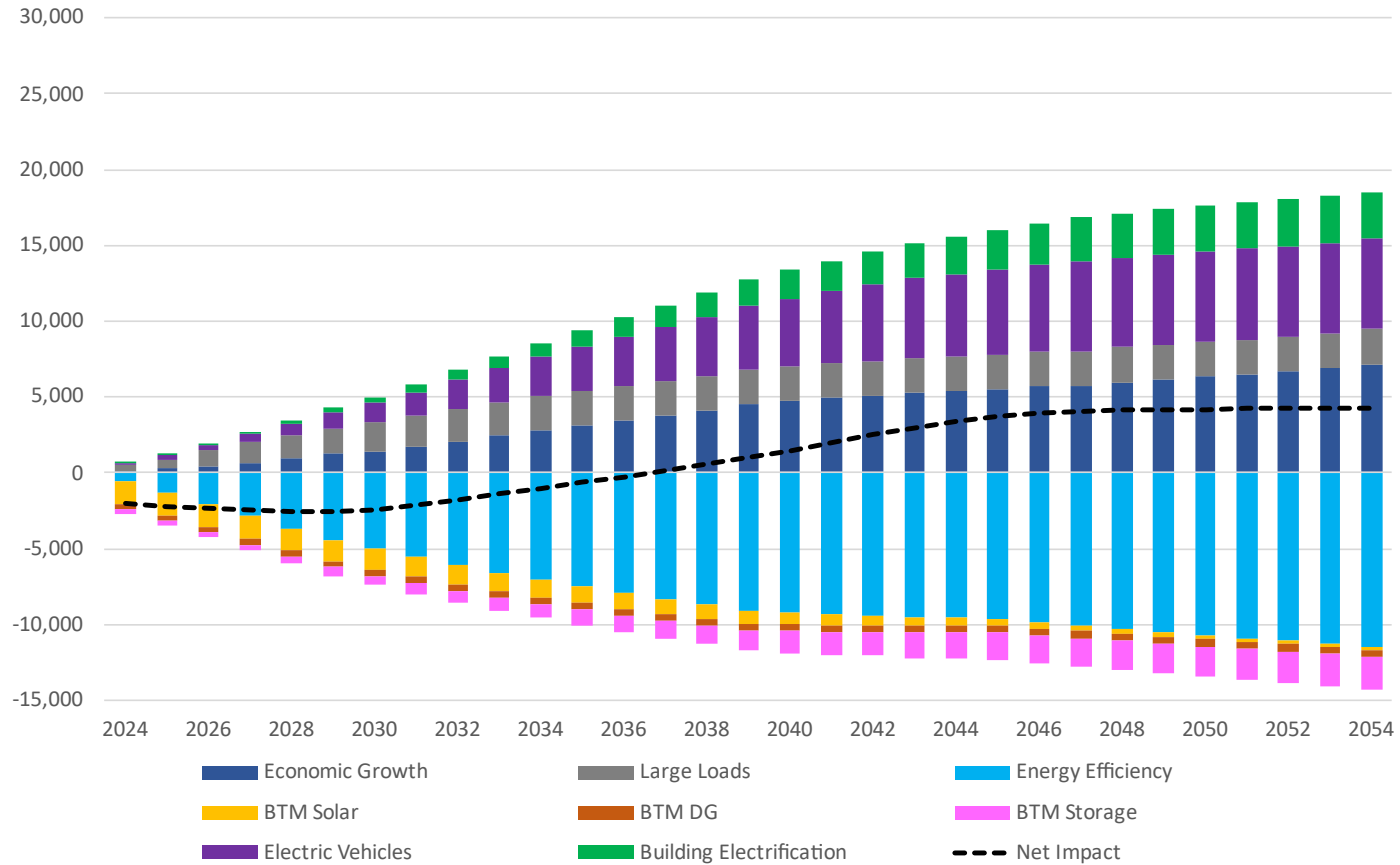NYCA Baseline Energy Forecast Impacts - GWh
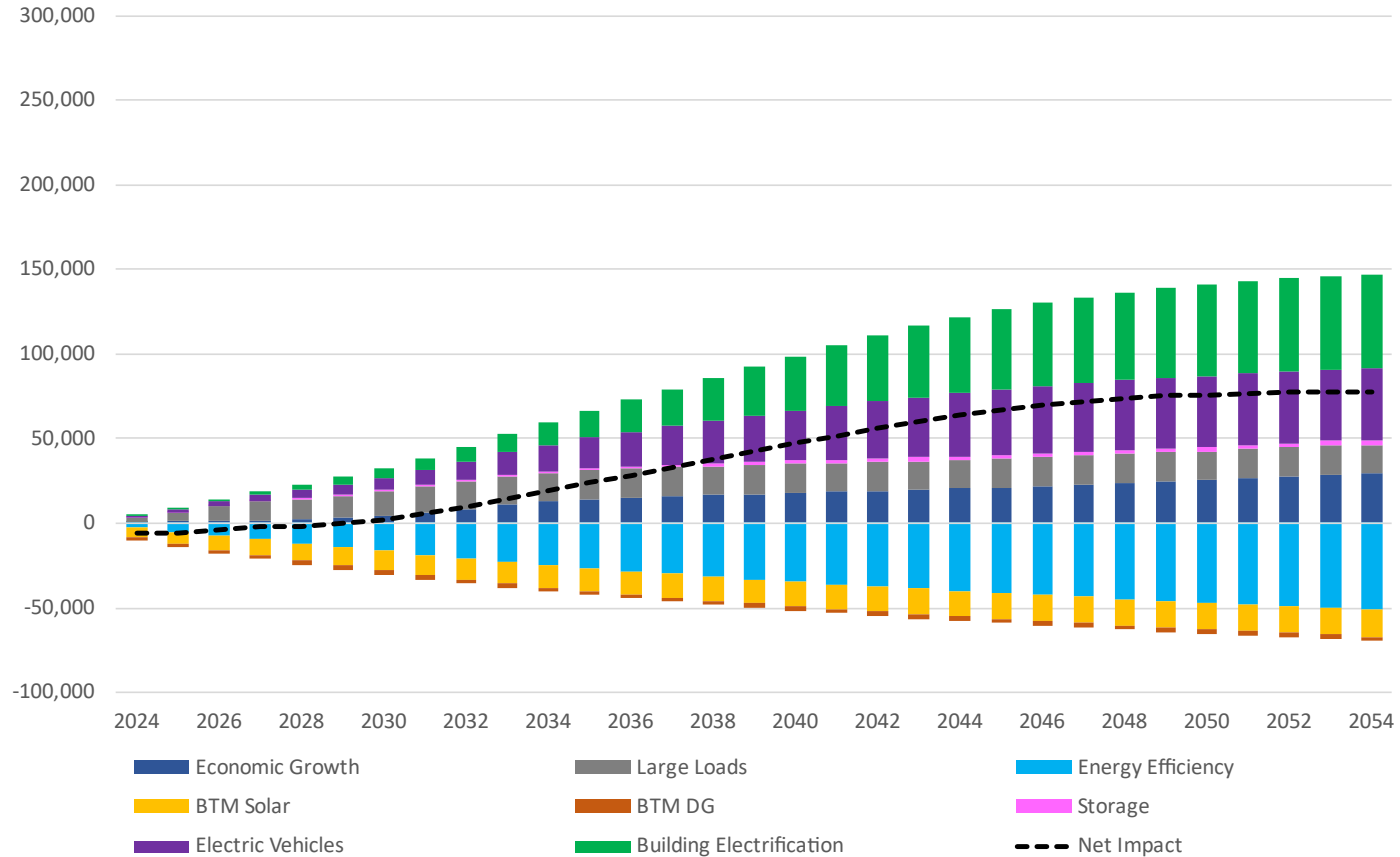
Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

# NYCA Lower Demand Scenario Energy Forecast Impacts - GWh

Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

NYCA Higher Demand Scenario Energy Forecast Impacts – GWh

Legend: Economic Growth, Large Loads, Energy Efficiency, BTM Solar, BTM DG, Storage, Electric Vehicles, Building Electrification, Electrolysis, Net Impact

Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

NYCA Policy Scenario Energy Forecast Impacts - GWh

Legend:
- Economic Growth
- Large Loads
- Energy Efficiency
- BTM Solar
- BTM DG
- Storage
- Electric Vehicles
- Building Electrification
- Electrolysis
- Net Impact

Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

NYCA Summer Peak Forecasts - Coincident Peak (MW)

Legend:
- Summer Peak - Historical
- Baseline Forecast
- Policy Scenario
- Lower Demand Scenario
- Higher Demand Scenario

NYCA Baseline Summer Peak Forecast Impacts - MW

Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

NYCA Lower Demand Scenario Summer Peak Forecast Impacts - MW

Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

NYCA Higher Demand Scenario Summer Peak Forecast Impacts - MW

Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

NYCA Policy Scenario Summer Peak Forecast Impacts - MW

Legend: Economic Growth, Large Loads, Energy Efficiency, BTM Solar, BTM DG, BTM Storage, Electric Vehicles, Building Electrification, Net Impact

Note: Economic growth is endogenous to the end-use models and includes impacts due to economic variables, end-use saturations, and projected weather trends.

NYCA Winter Peak Forecasts - Coincident Peak (MW)
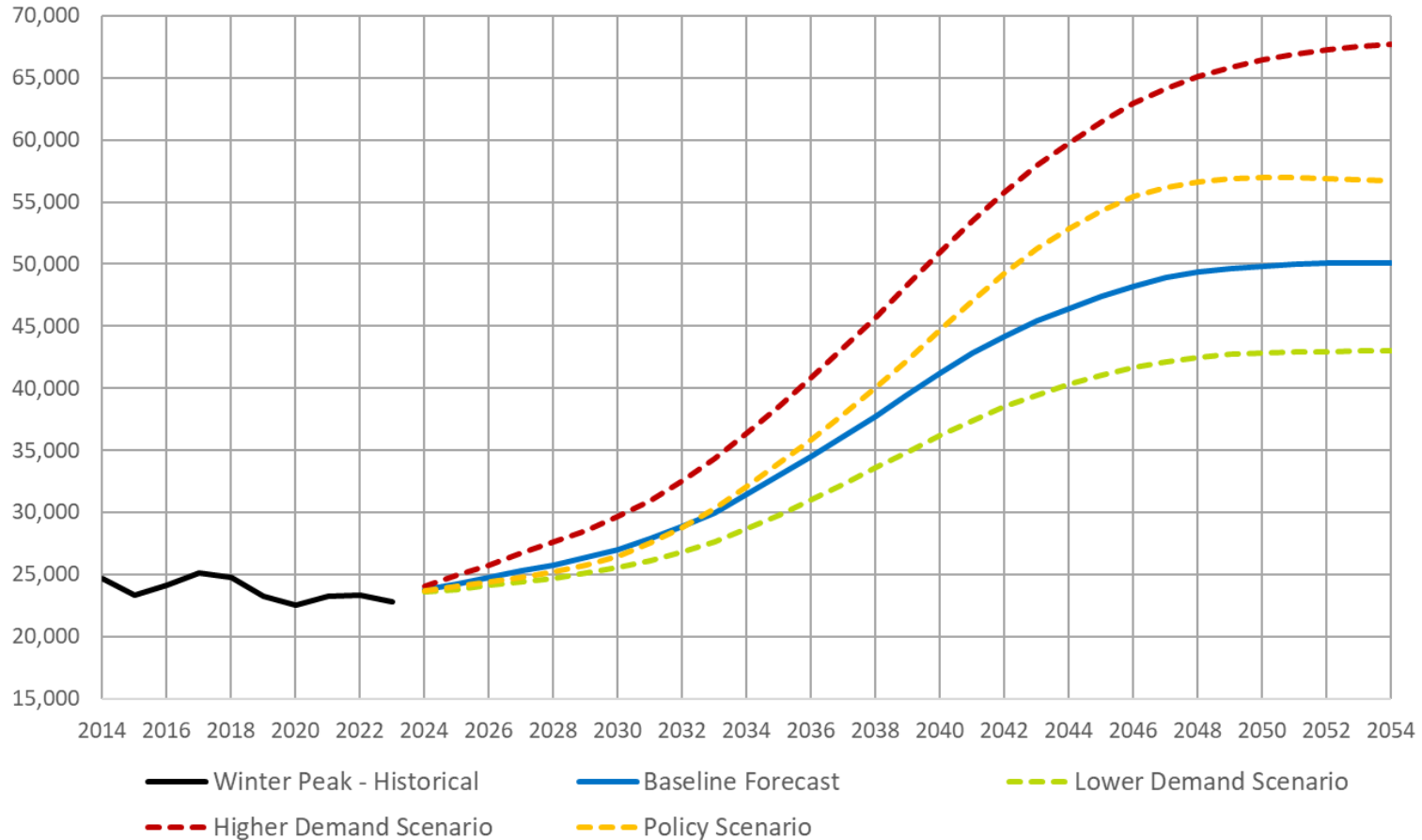
NYCA Baseline Winter Peak Forecast Components- MW
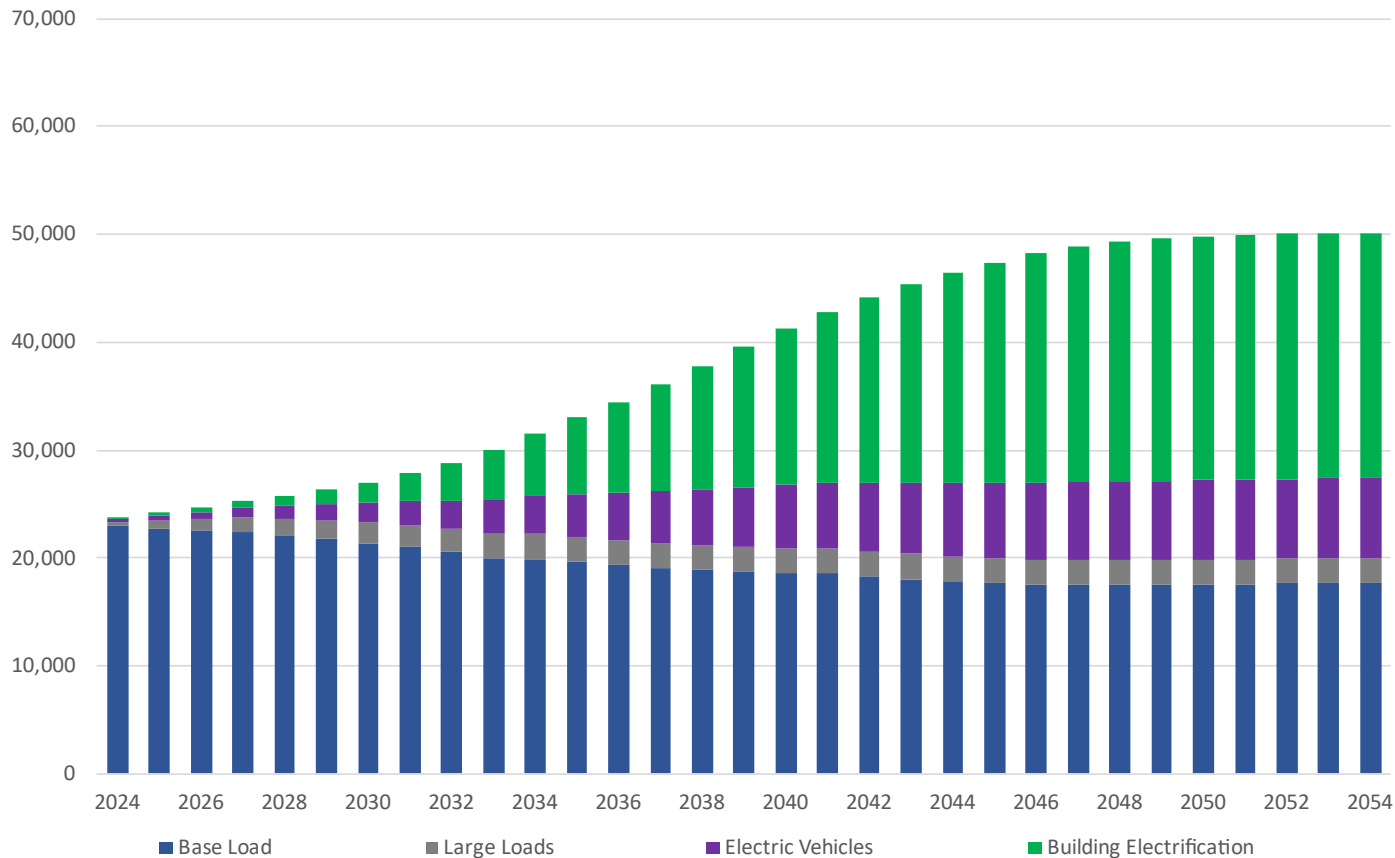
Note: Base load growth includes reductions due to BTM distributed generation, BTM energy storage, energy efficiency, and temperature trends.

NYCA Lower Demand Winter Peak Forecast Components - MW
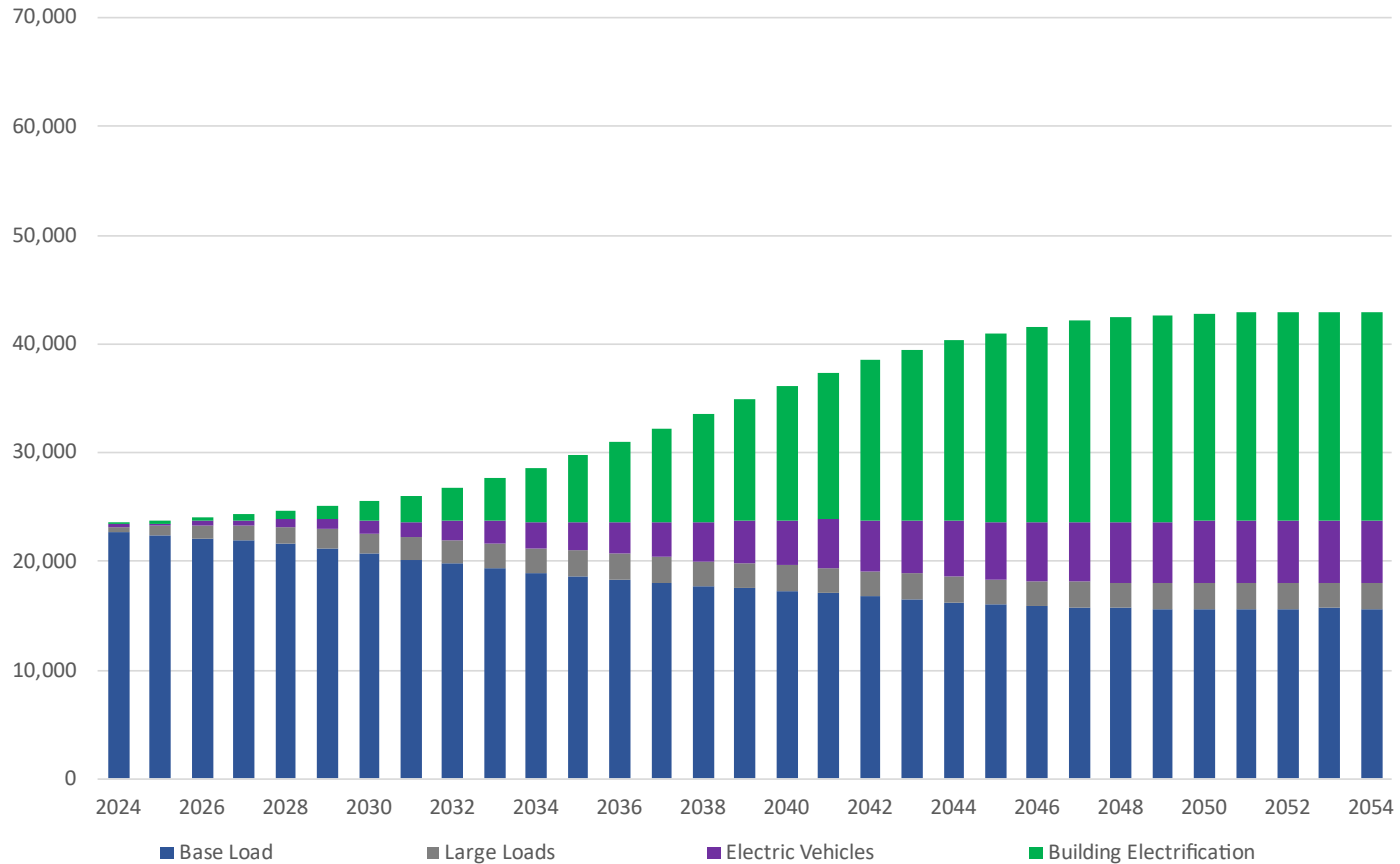
Note: Base load growth includes reductions due to BTM distributed generation, BTM energy storage, energy efficiency, and temperature trends.
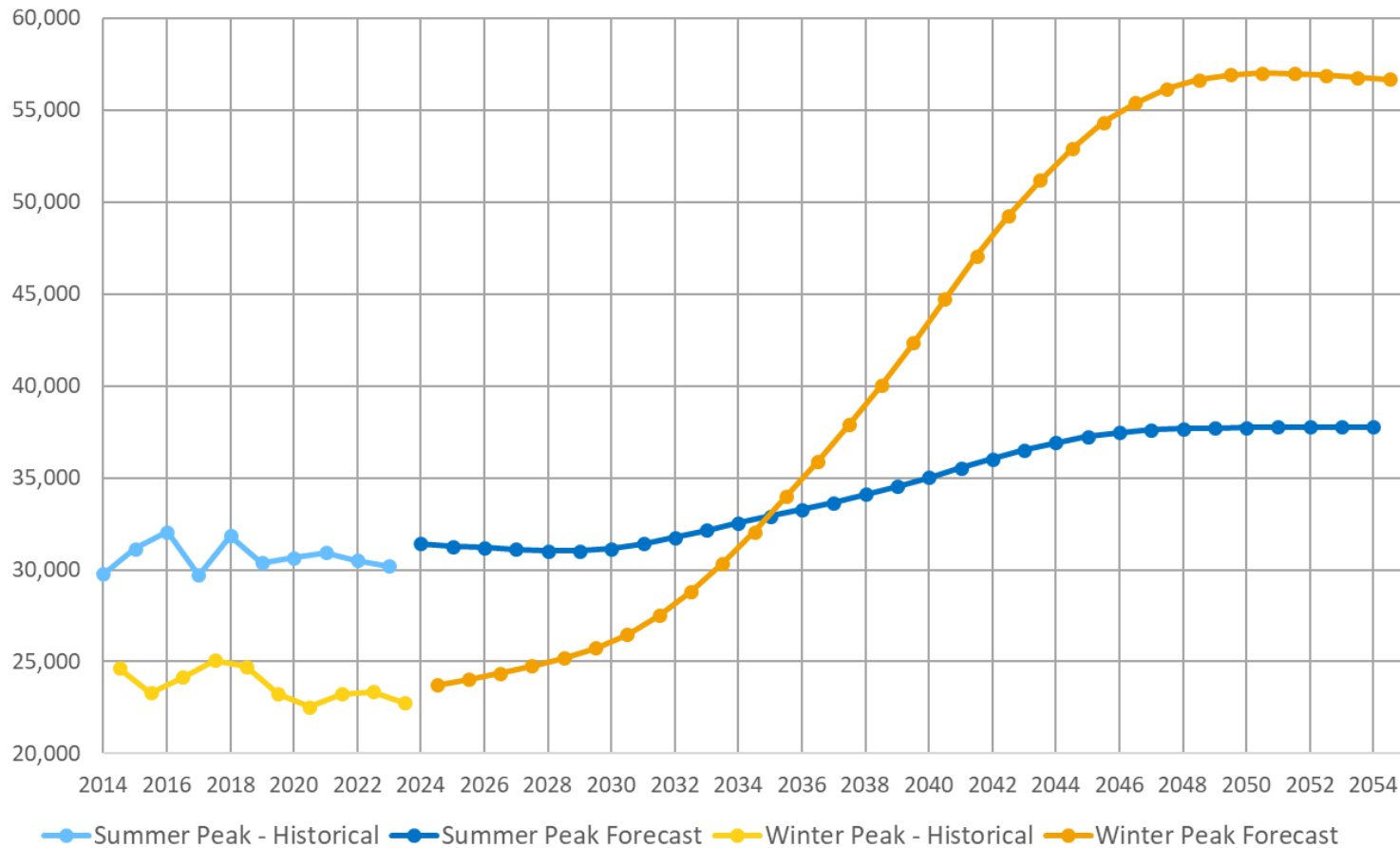
NYCA Higher Demand Scenario Winter Peak Forecast Components - MW
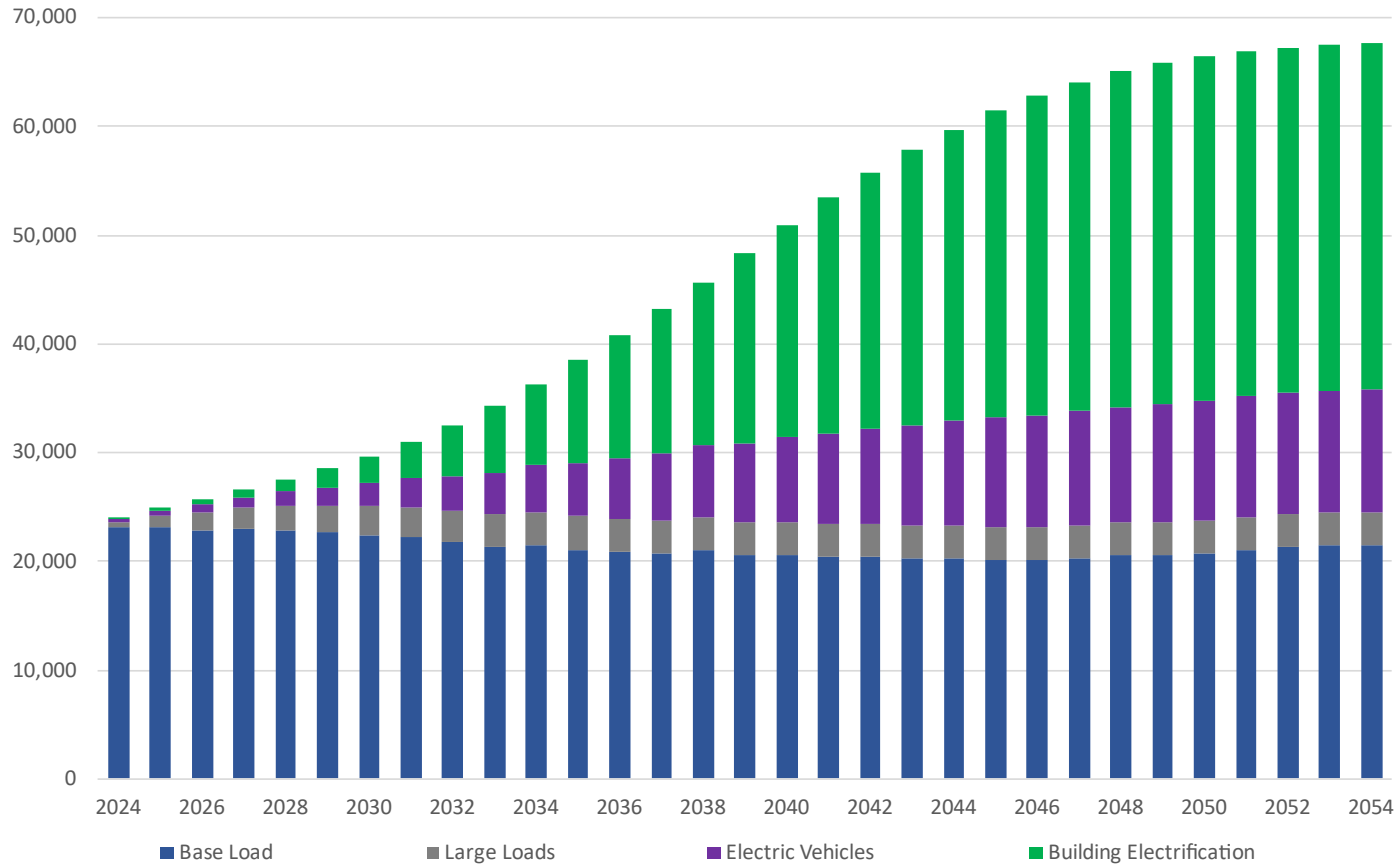
Legend: Base Load, Large Loads, Electric Vehicles, Building Electrification

Note: Base load growth includes reductions due to BTM distributed generation, BTM energy storage, energy efficiency, and temperature trends.

NYCA Policy Scenario Winter Peak Forecast Components - MW
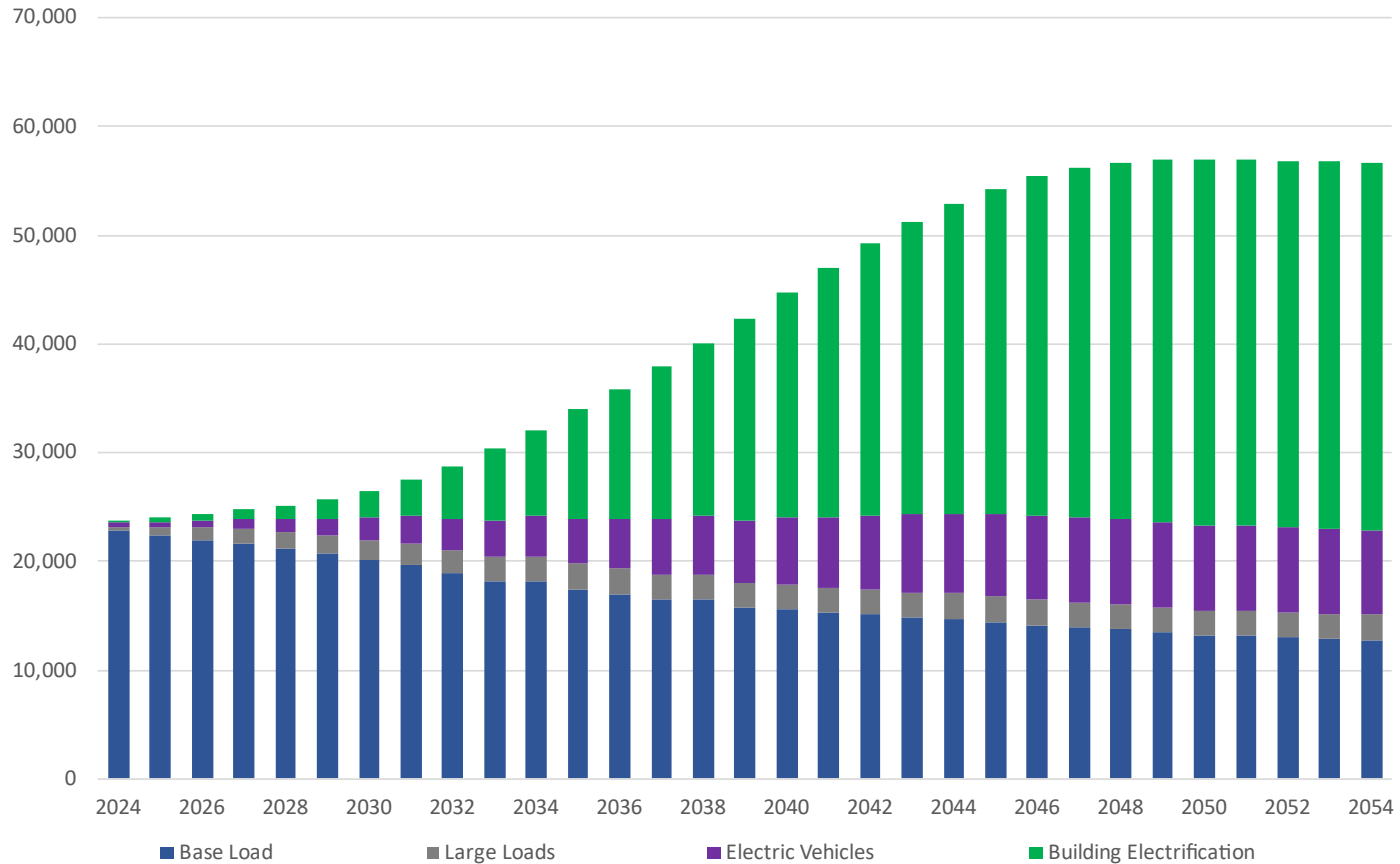
Note: Base load growth includes reductions due to BTM distributed generation, BTM energy storage, energy efficiency, and temperature trends.

NYCA Baseline Peak Forecast Comparison - Coincident Peak (MW)
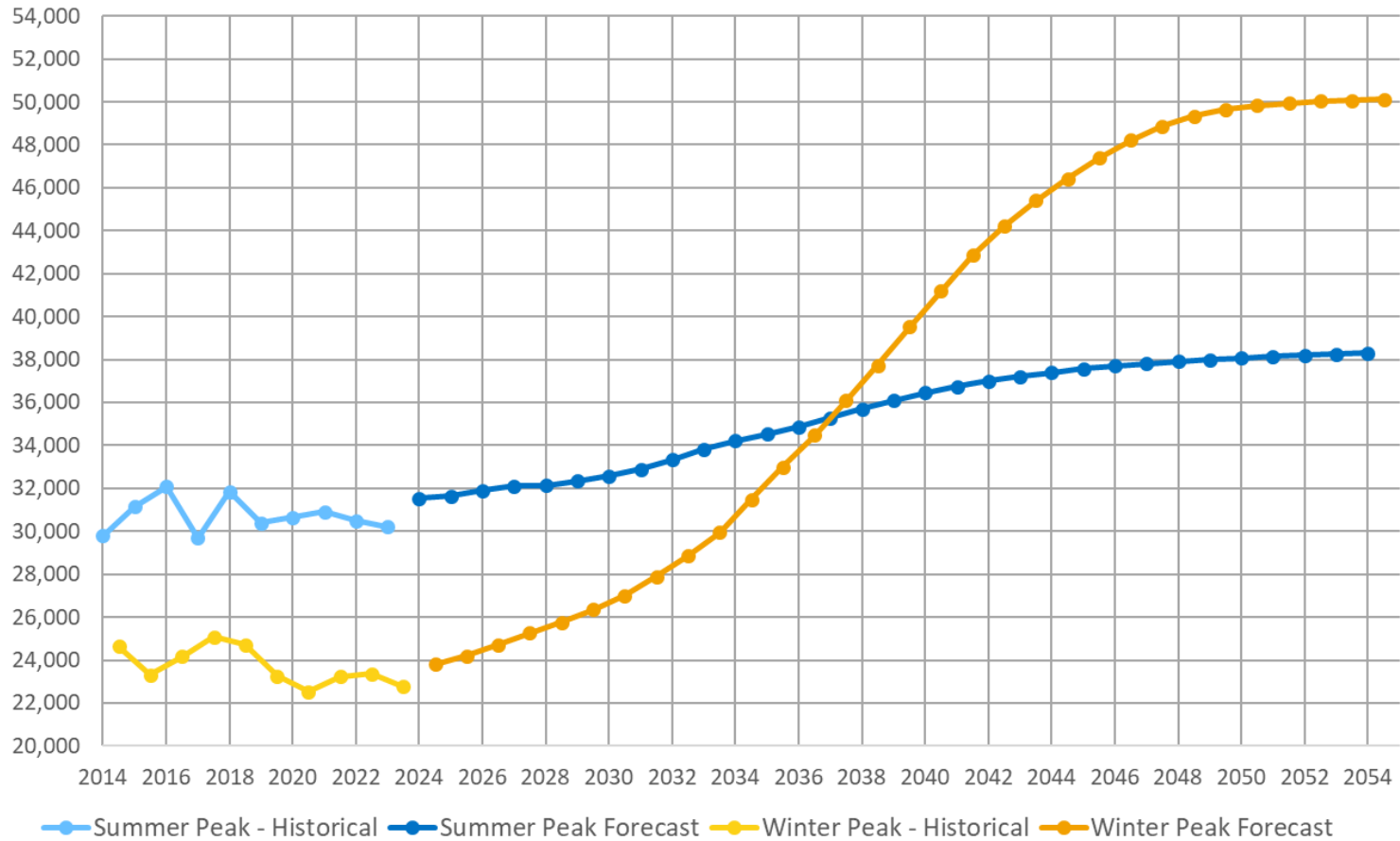
Legend: Summer Peak - Historical, Summer Peak Forecast, Winter Peak - Historical, Winter Peak Forecast

New York ISO

NYCA Lower Demand Scenario Peak Forecast Comparison - Coincident Peak (MW)

Legend: Summer Peak - Historical, Summer Peak Forecast, Winter Peak - Historical, Winter Peak Forecast
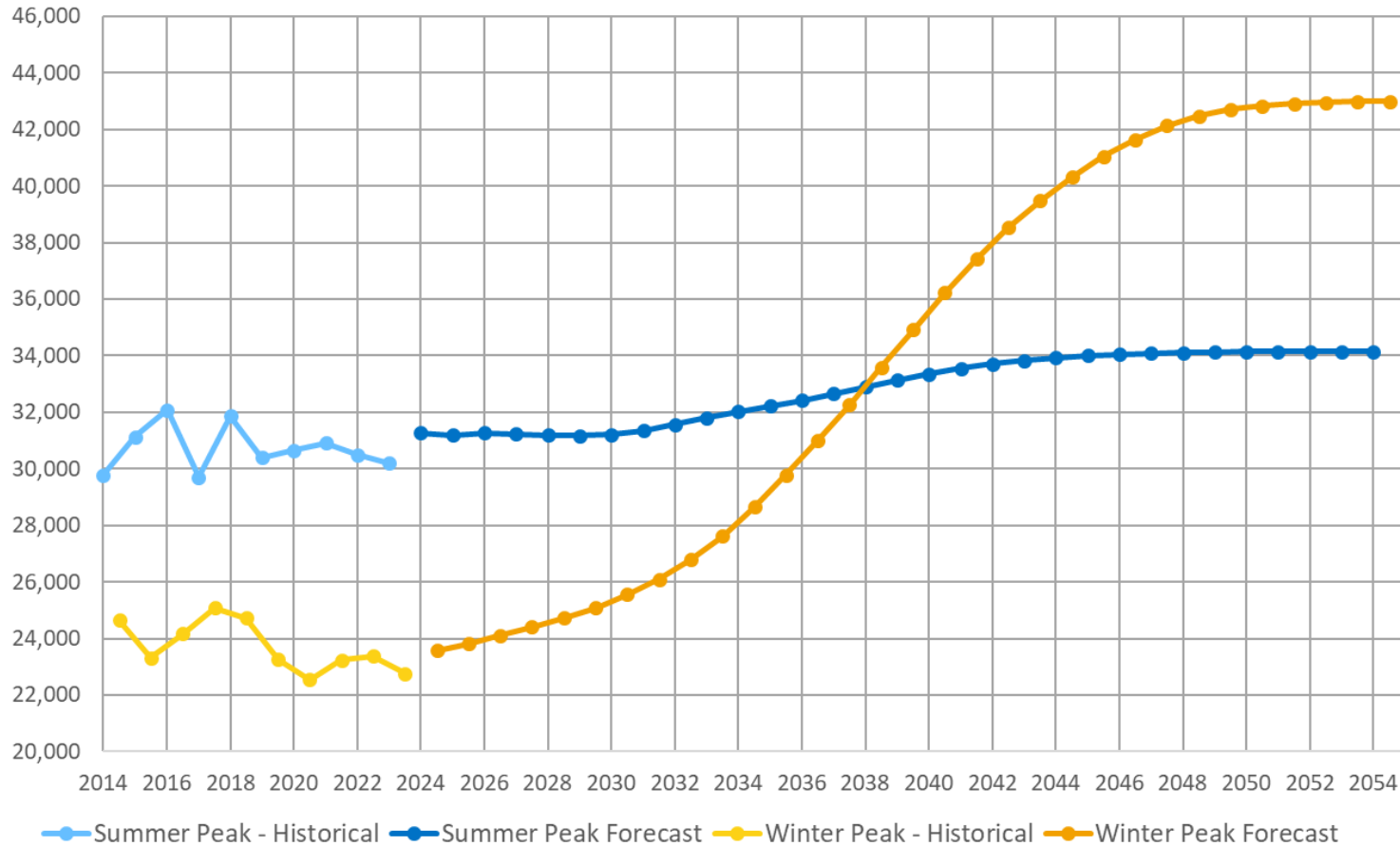
NYCA Higher Demand Scenario Peak Forecast Comparison - Coincident Peak (MW)
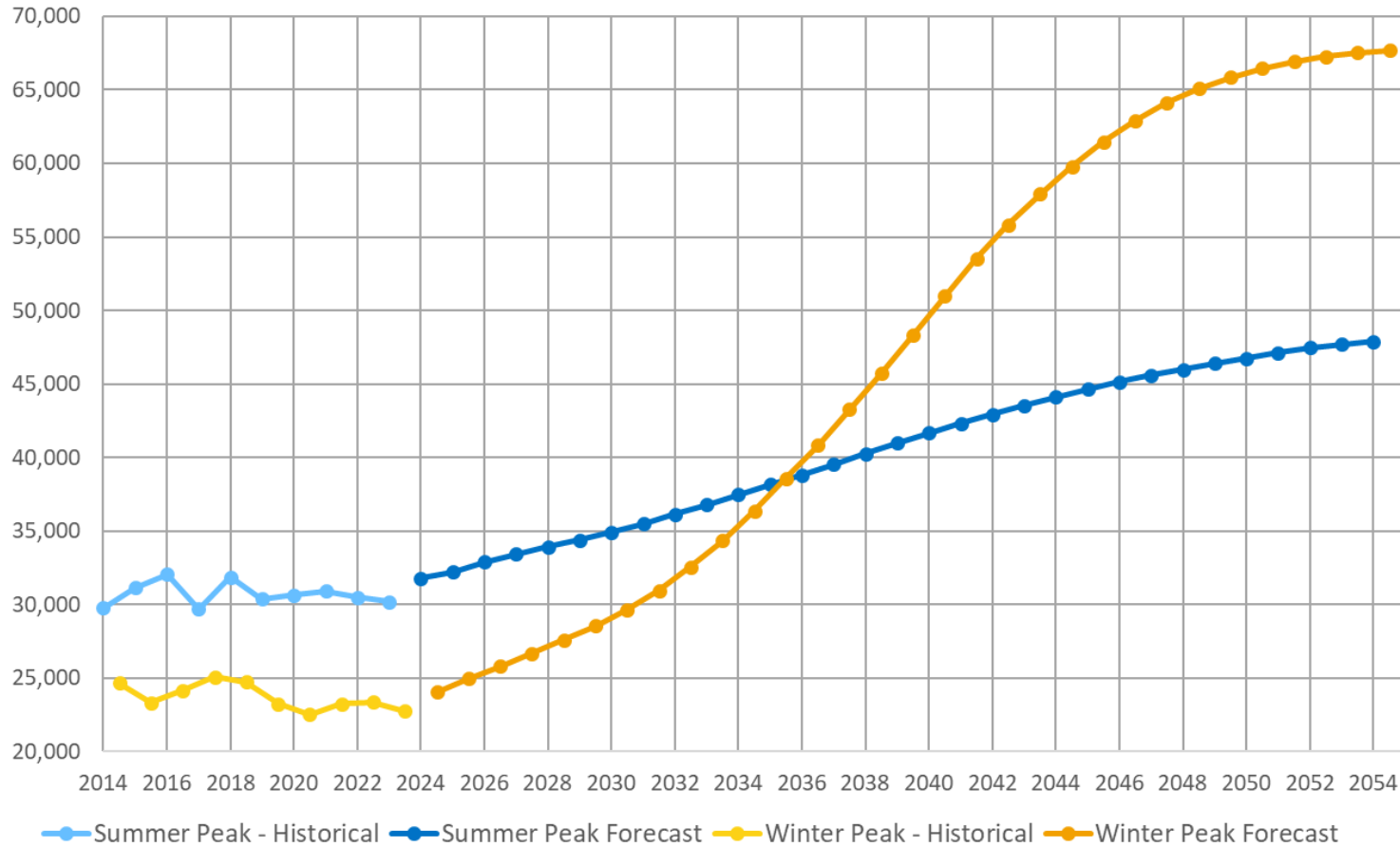
NYCA Policy Scenario Peak Forecast Comparison - Coincident Peak (MW)

Legend: Summer Peak - Historical, Summer Peak Forecast, Winter Peak - Historical, Winter Peak Forecast

New York ISO

2024 Gold Book

Area Forecast Summaries

New York ISO

Zones A to E Energy Forecasts - Annual Energy (GWh)

Legend:
- Annual Energy - Historical
- Baseline Forecast
- Policy Scenario
- Lower Demand Scenario
- Higher Demand Scenario
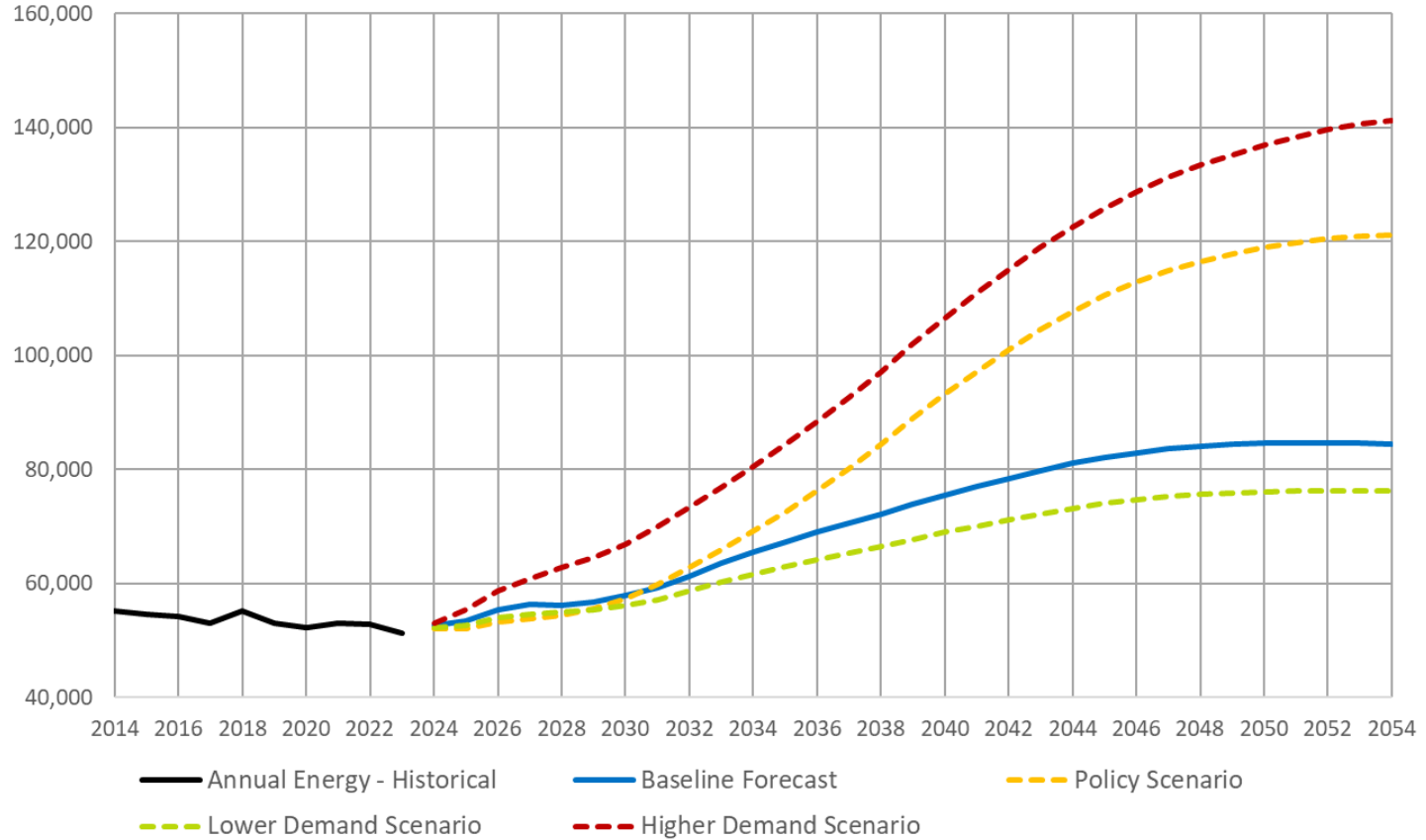
Zones A to E Summer Peak Forecasts - Coincident Peak (MW)
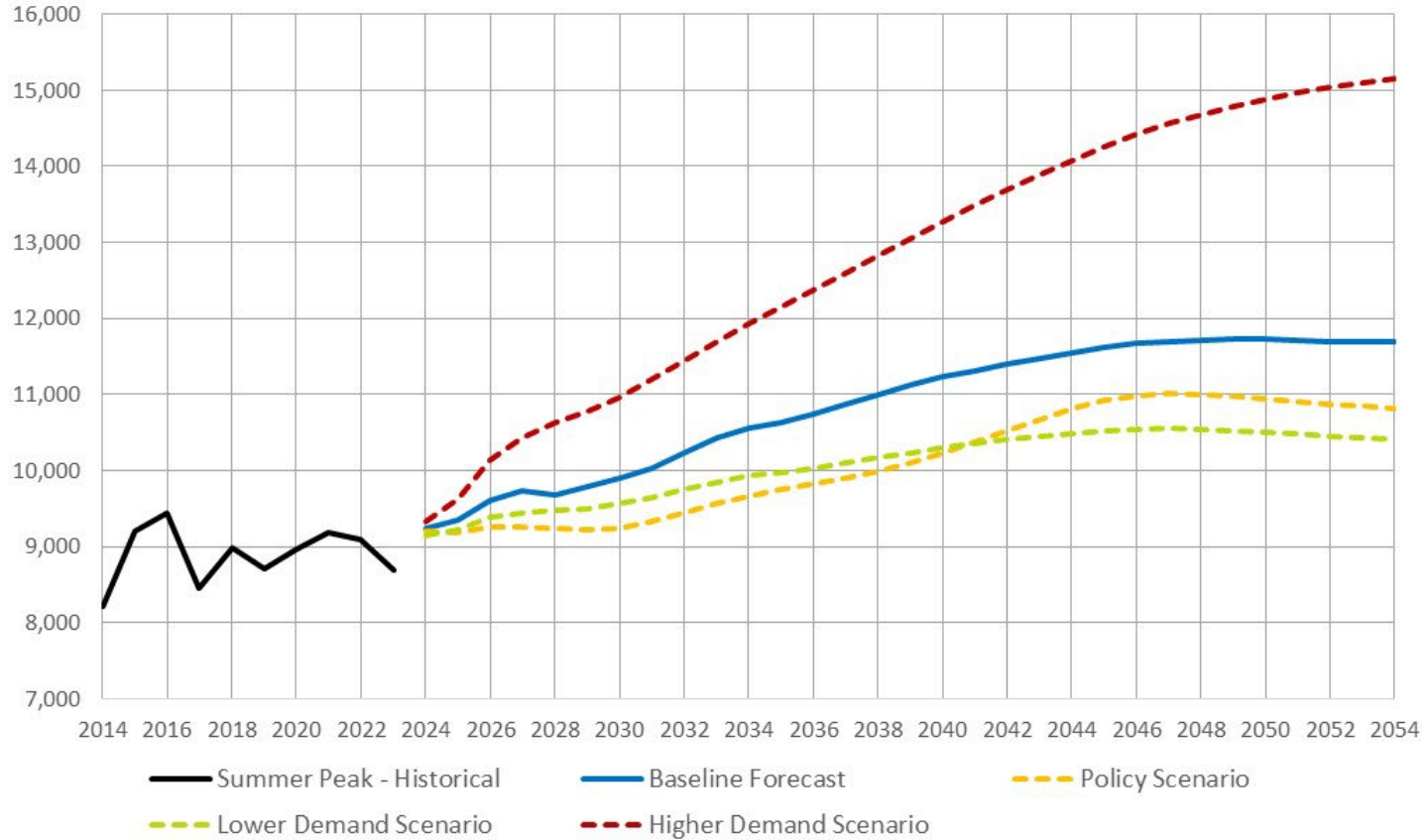
Zones A to E Winter Peak Forecasts - Coincident Peak (MW)
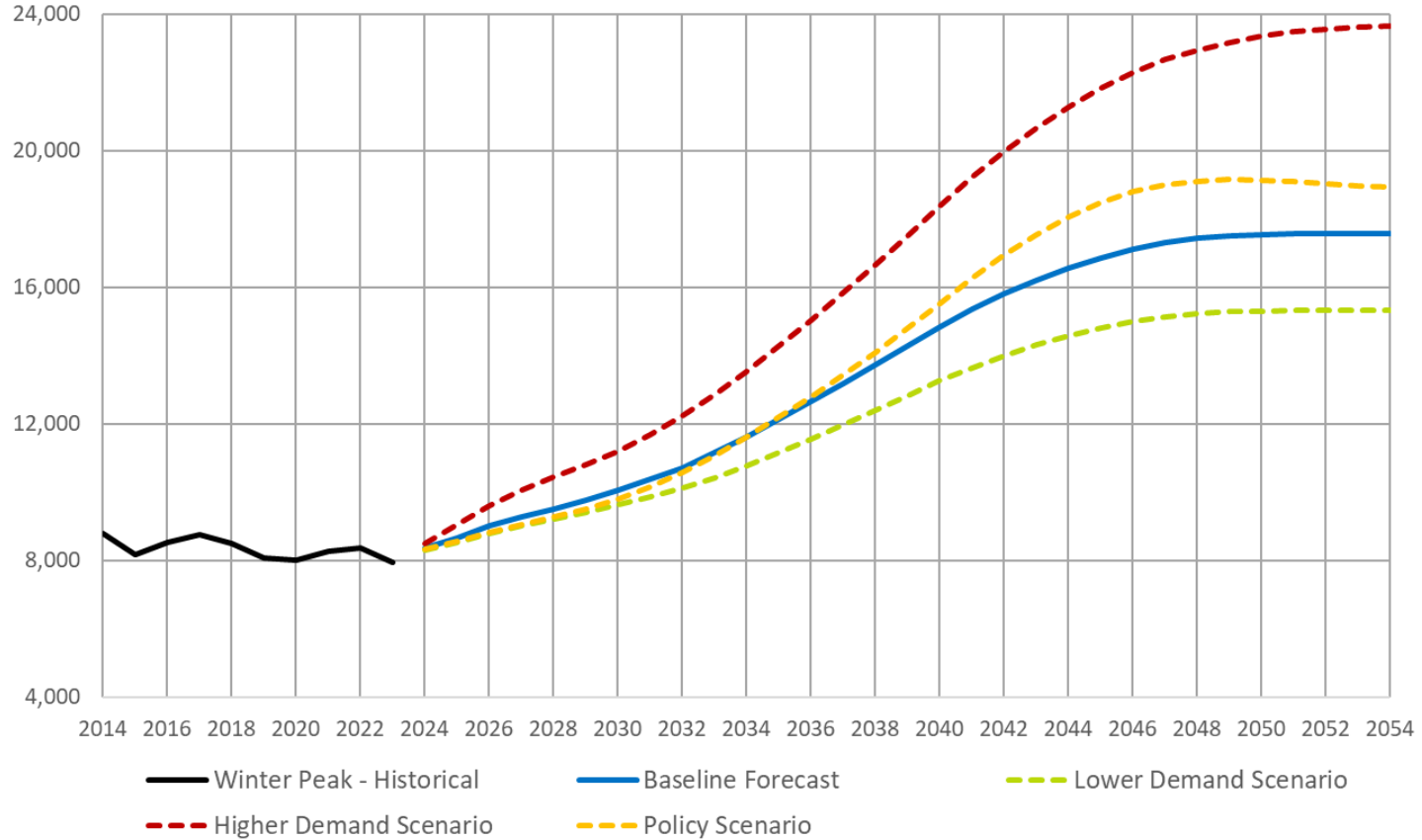
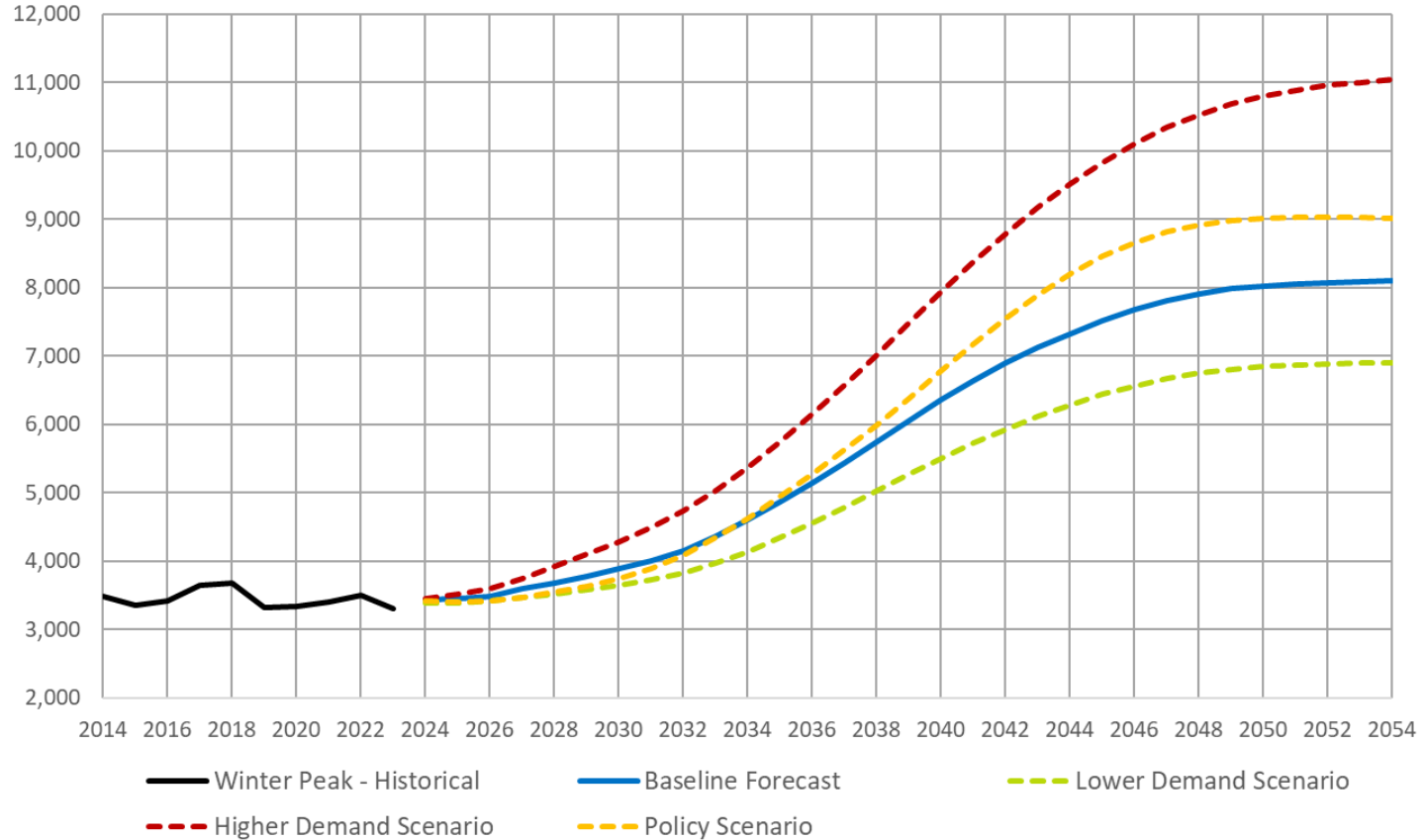Zones A to E Baseline Peak Forecast Comparison - Coincident Peak (MW)
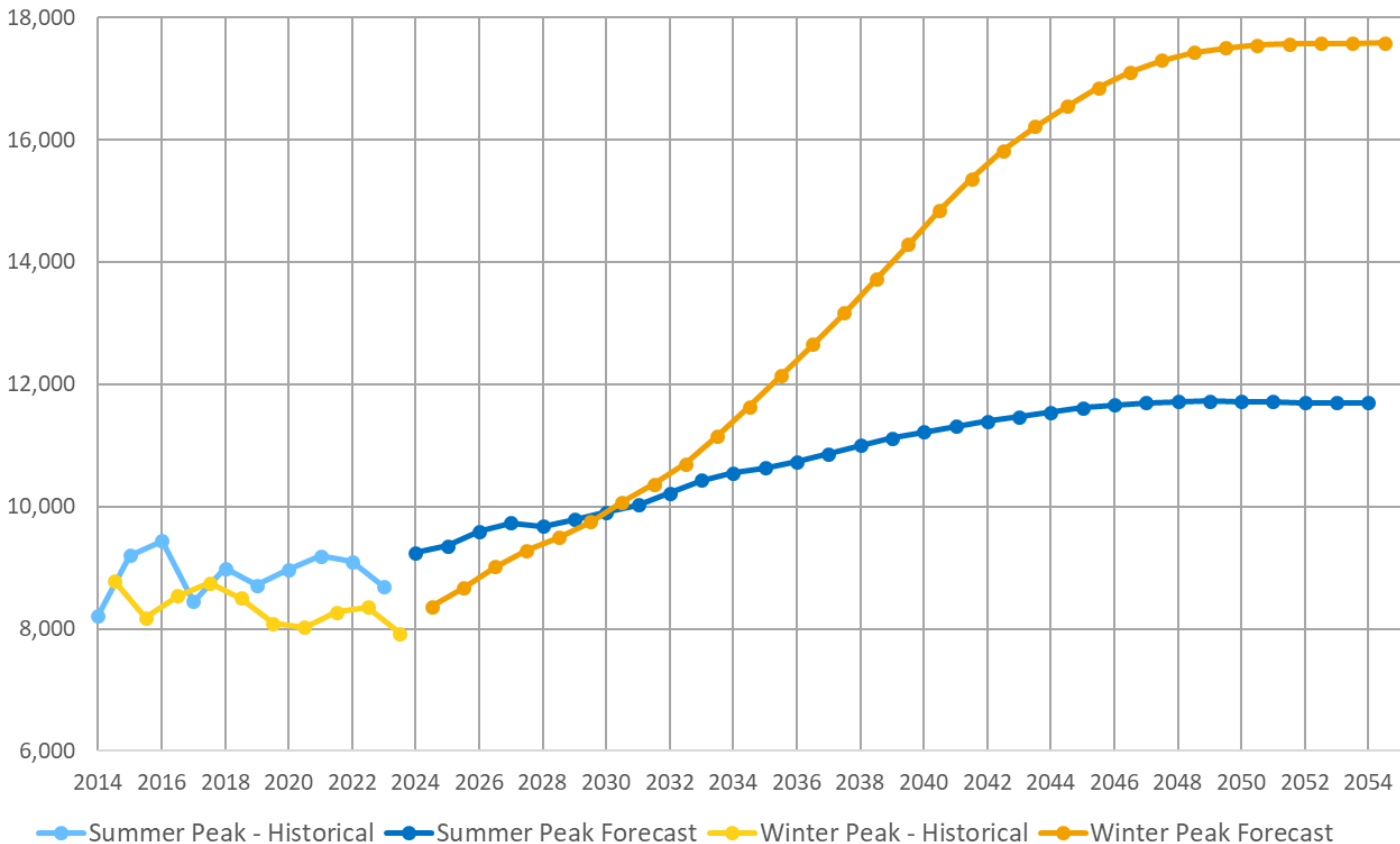
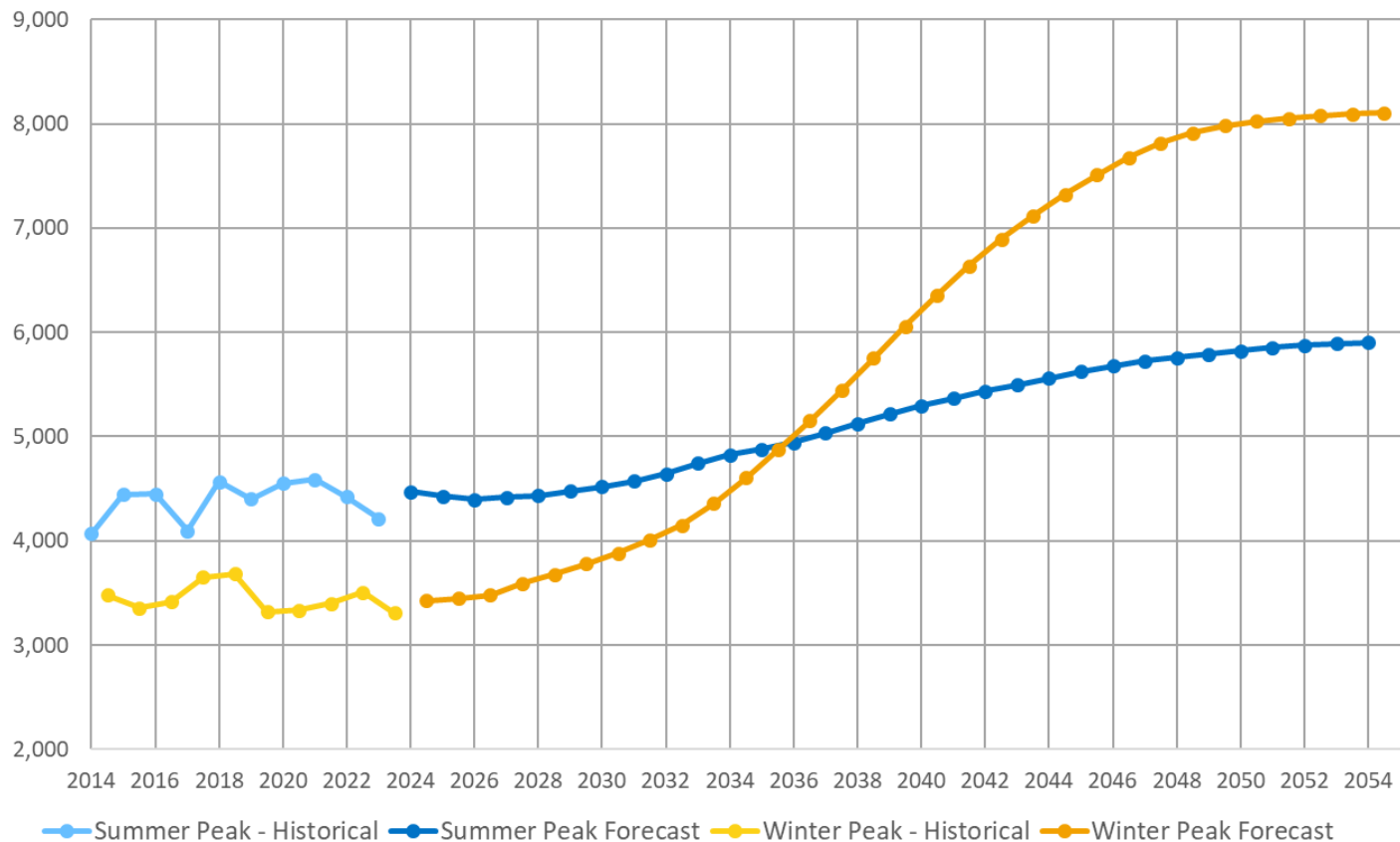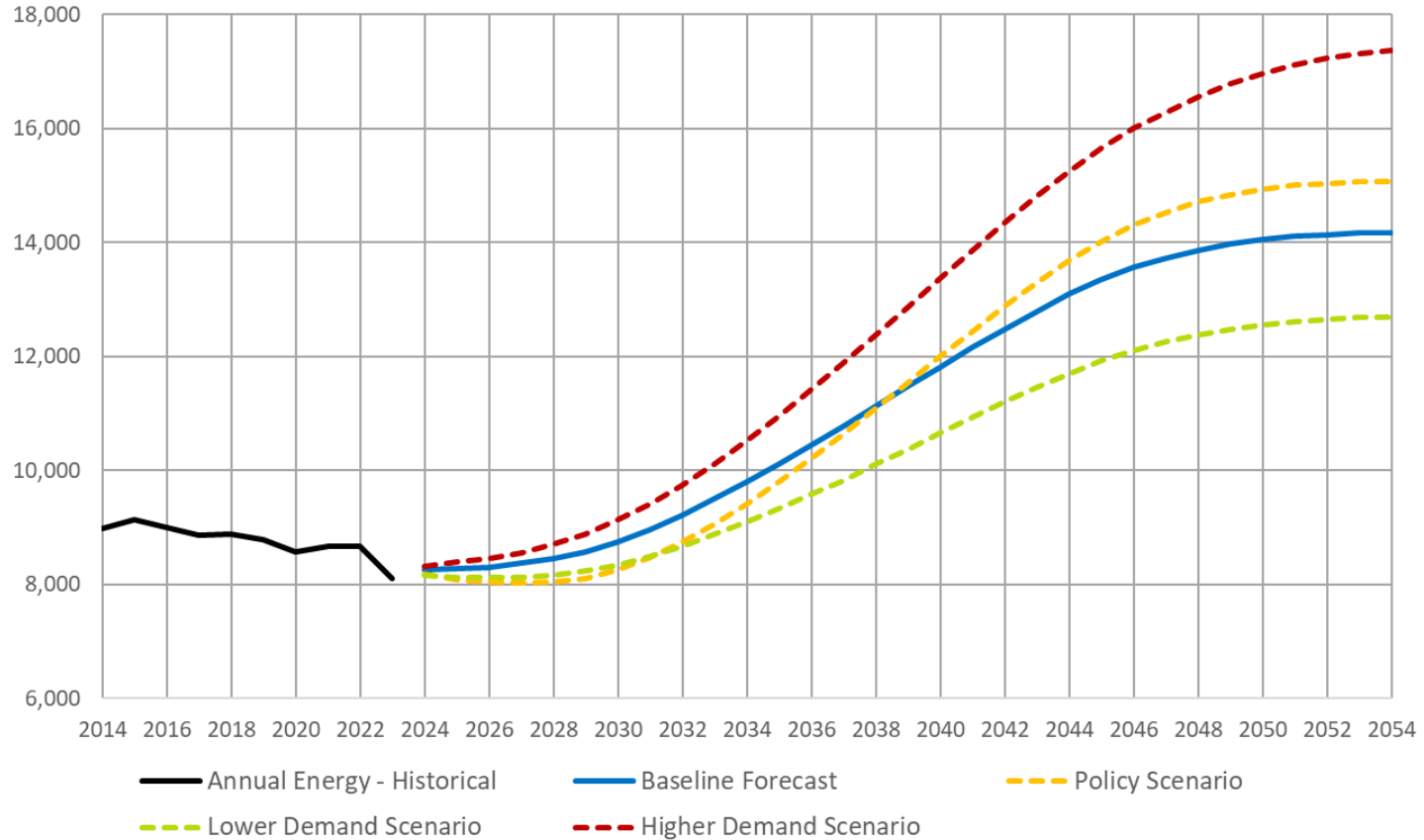**Zones F&G Energy Forecasts - Annual Energy (GWh)**

Legend: Annual Energy - Historical, Baseline Forecast, Policy Scenario, Lower Demand Scenario, Higher Demand Scenario
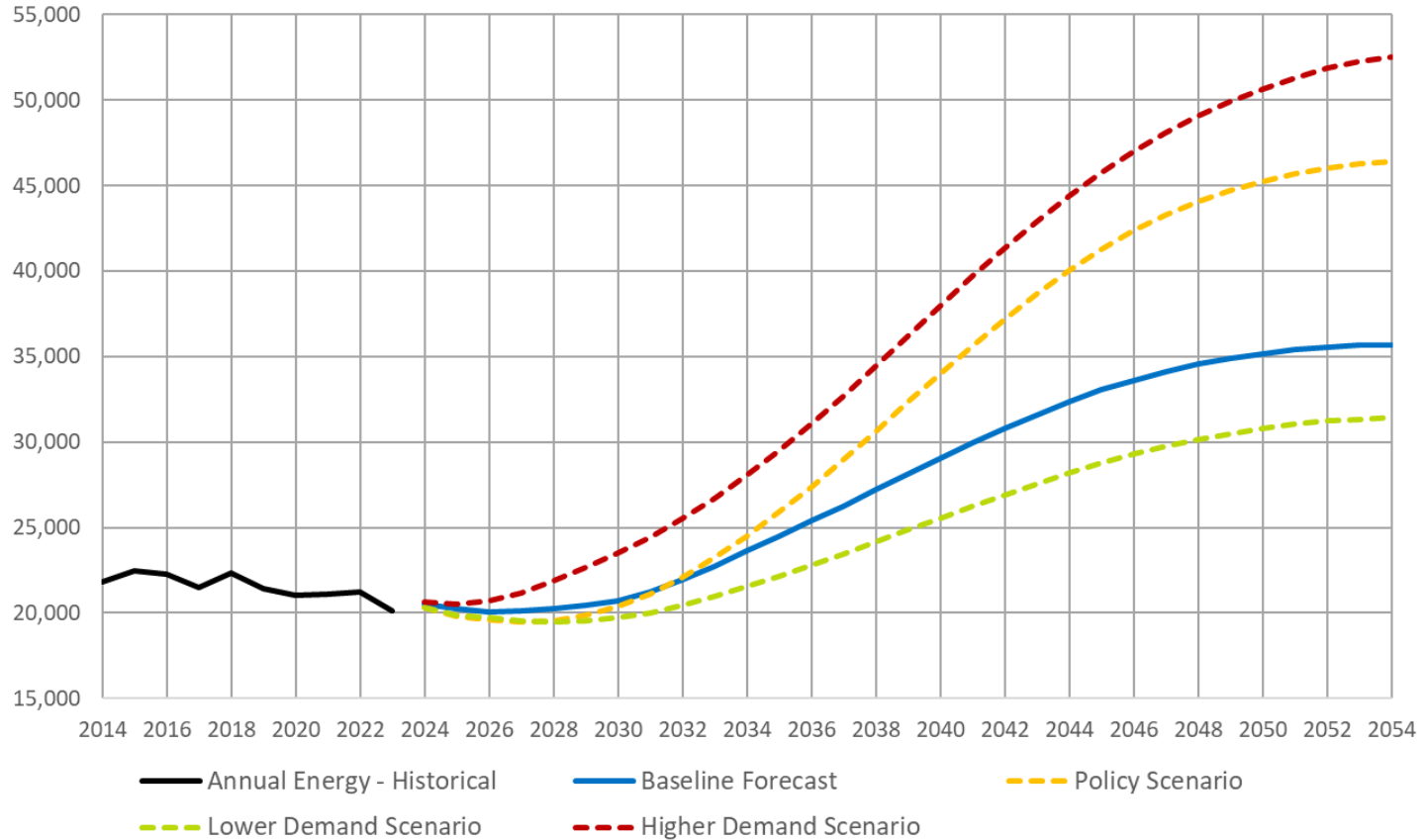
Zones F&G Summer Peak Forecasts - Coincident Peak (MW)

Legend:
- Summer Peak - Historical
- Baseline Forecast
- Policy Scenario
- Lower Demand Scenario
- Higher Demand Scenario
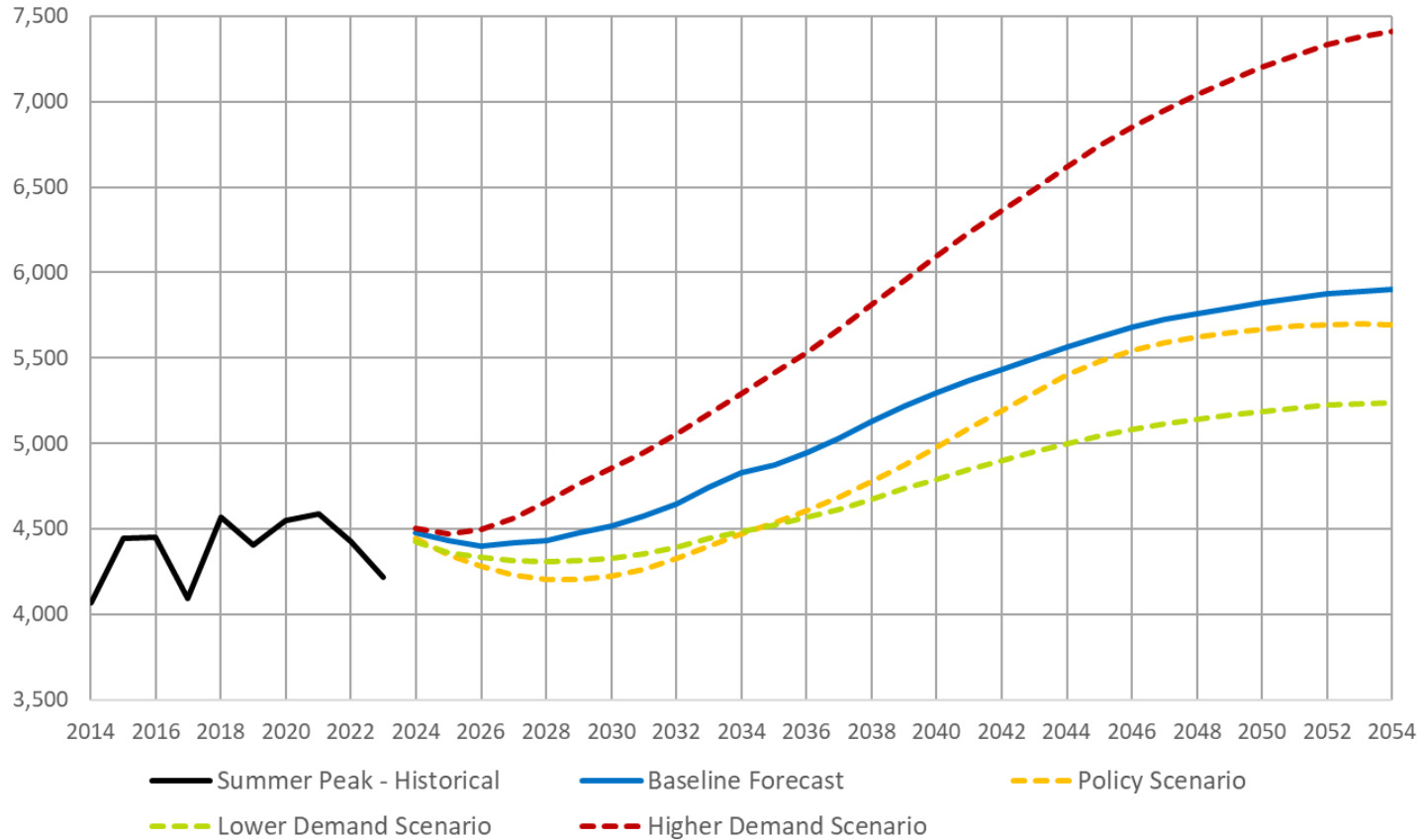
Zones F&G Winter Peak Forecasts - Coincident Peak (MW)

Zones F&G Baseline Peak Forecast Comparison - Coincident Peak (MW)

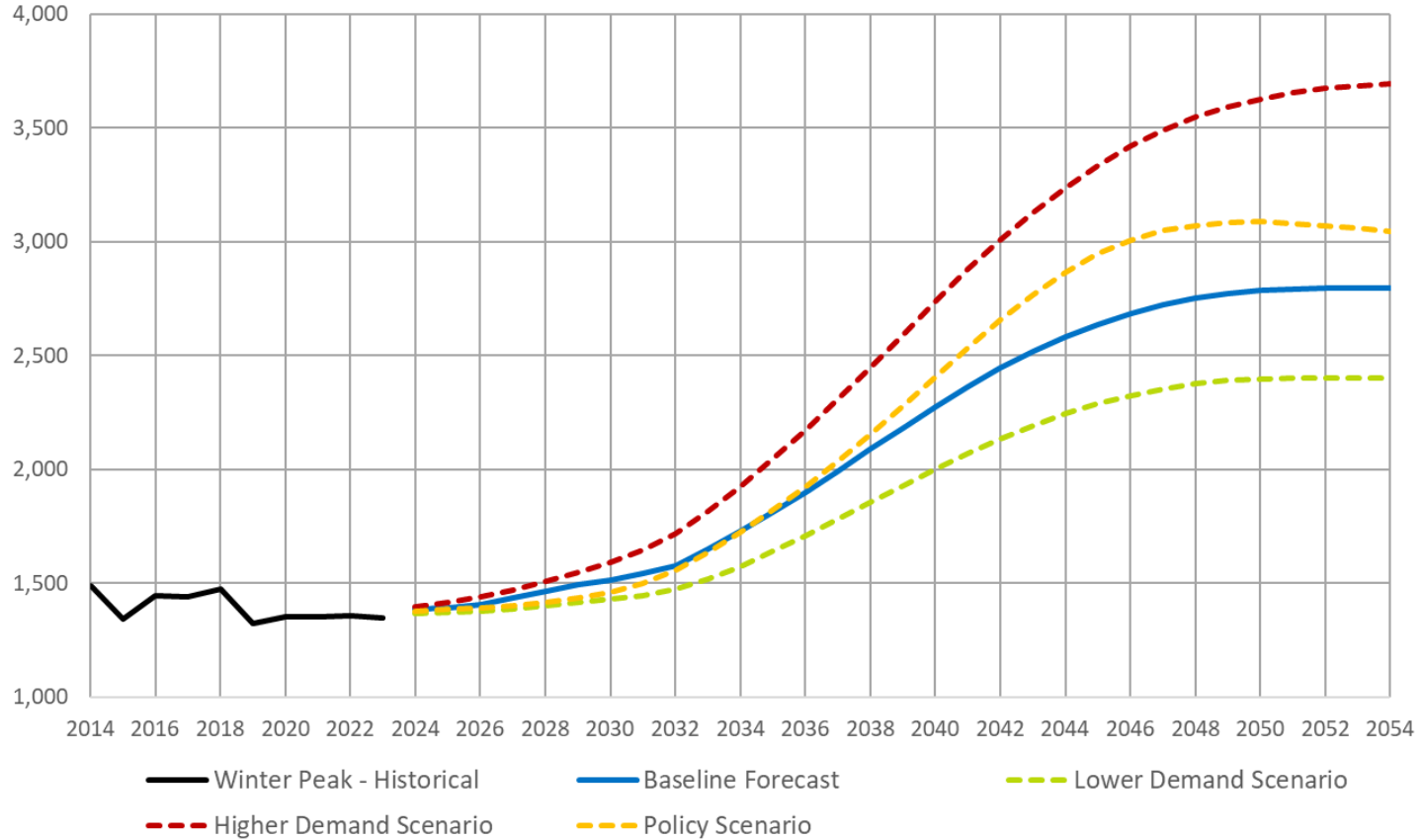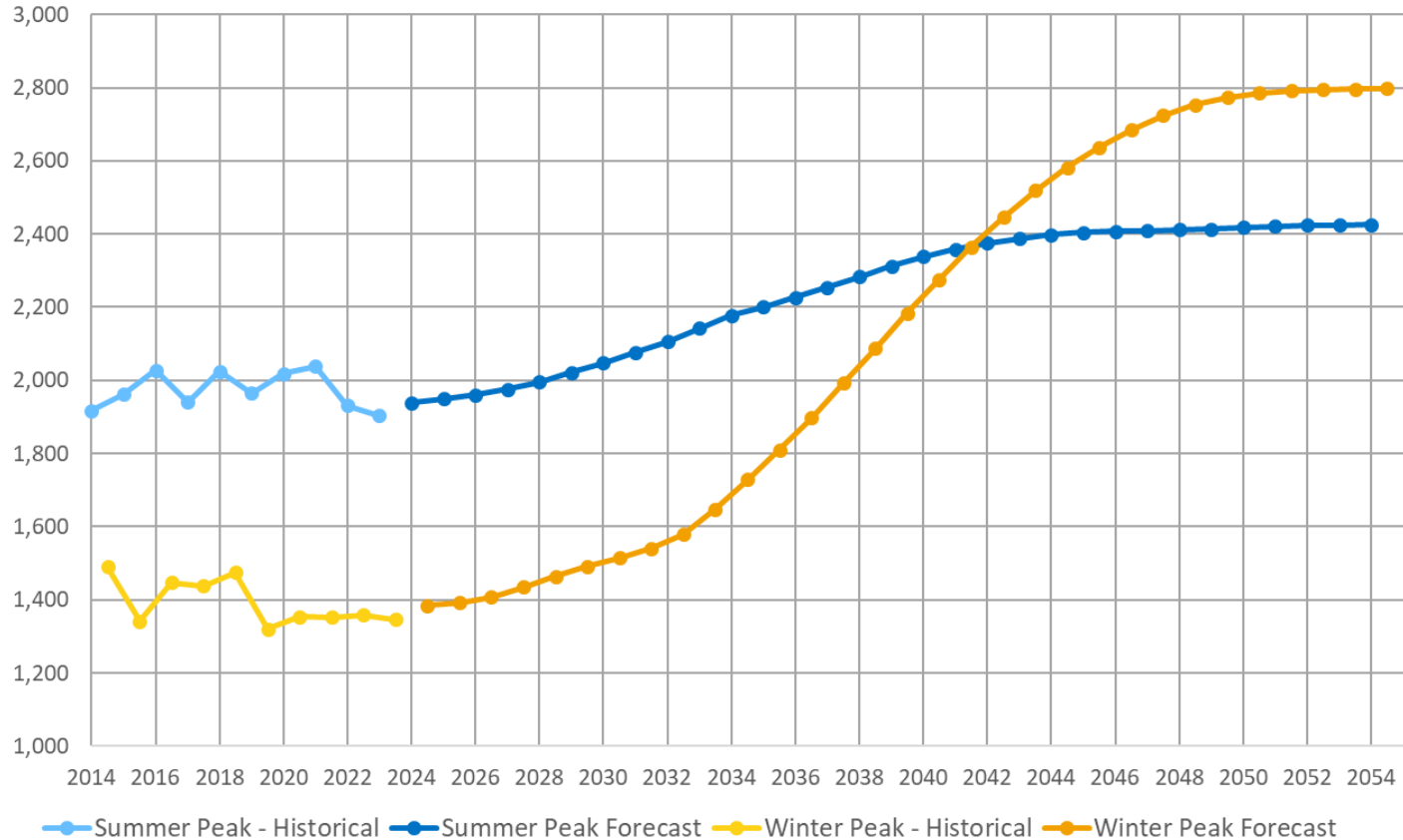Zones H&I Energy Forecasts - Annual Energy (GWh)

Legend:
- Annual Energy - Historical
- Baseline Forecast
- Policy Scenario
- Lower Demand Scenario
- Higher Demand Scenario

Zones H&I Summer Peak Forecasts - Coincident Peak (MW)

Legend: Summer Peak - Historical, Baseline Forecast, Policy Scenario, Lower Demand Scenario, Higher Demand Scenario
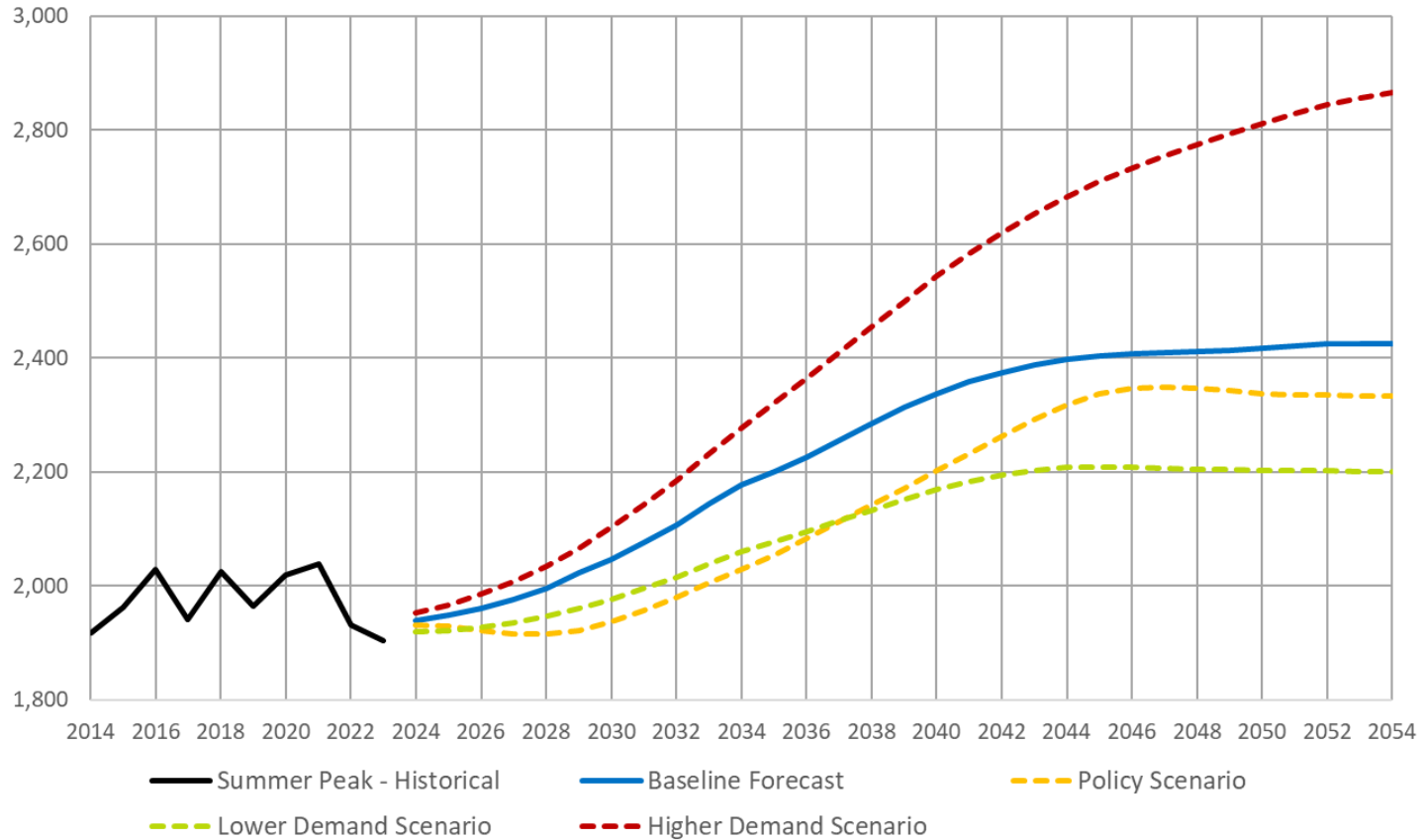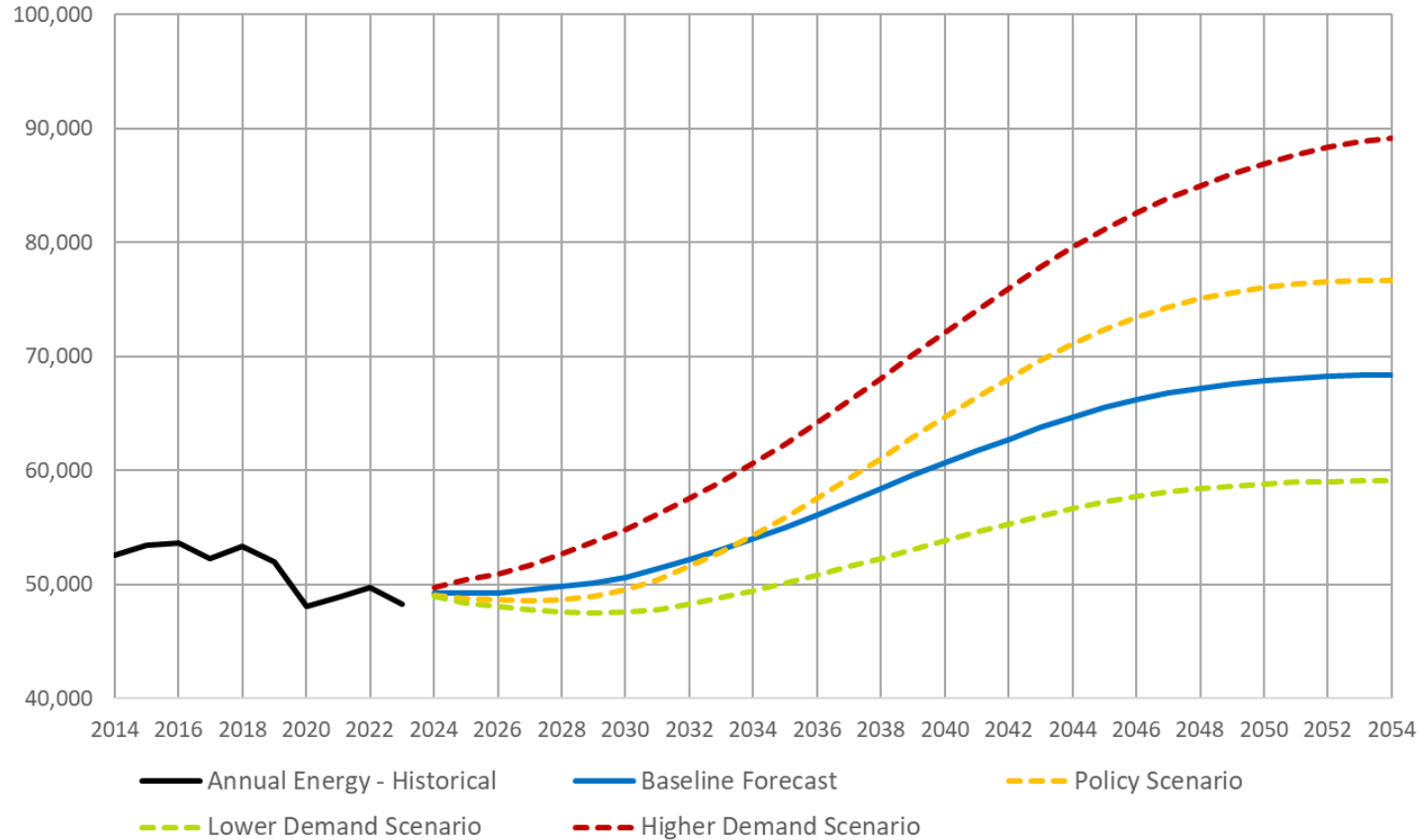
Zones H&I Winter Peak Forecasts - Coincident Peak (MW)
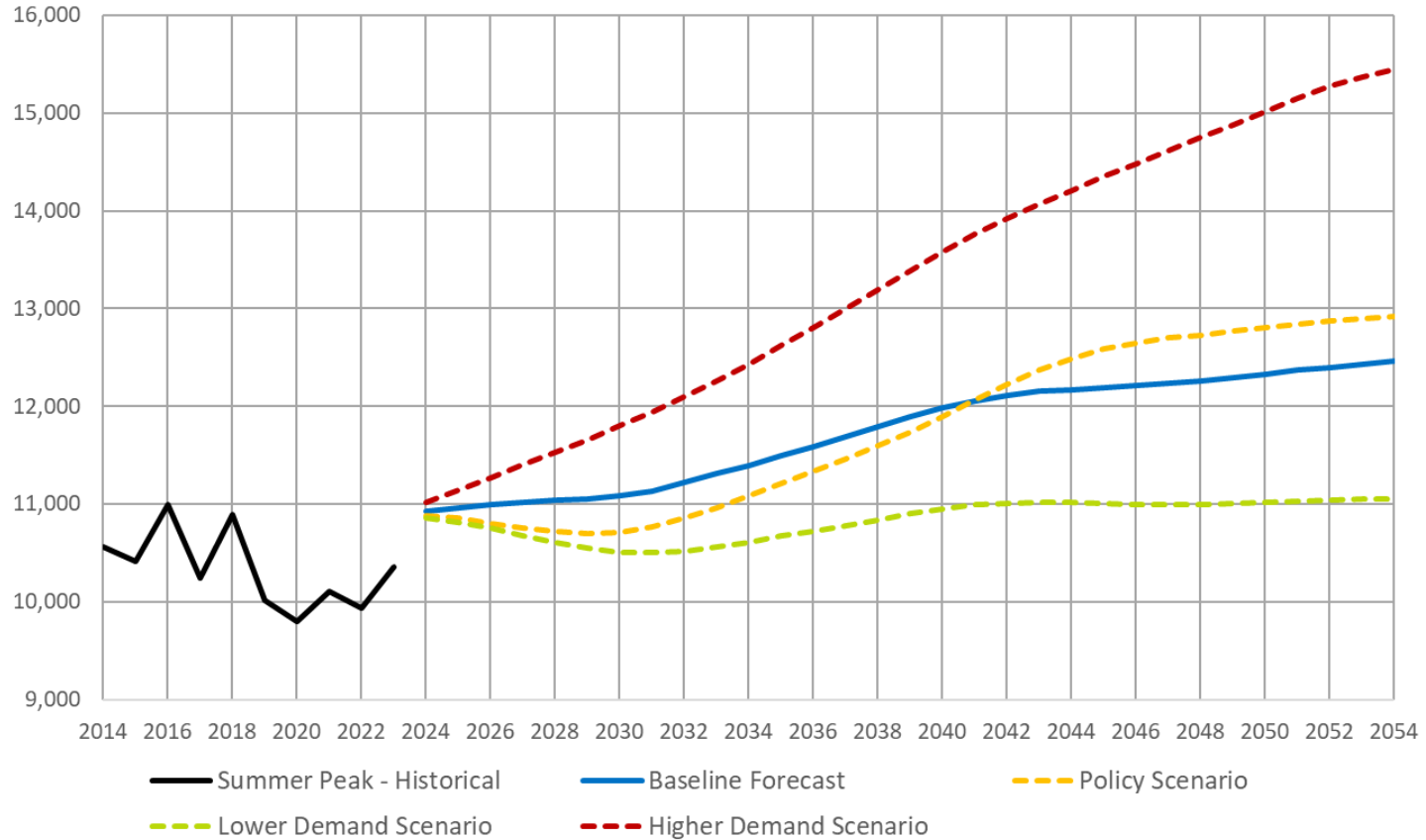
Zones H&I Baseline Peak Forecast Comparison - Coincident Peak (MW)

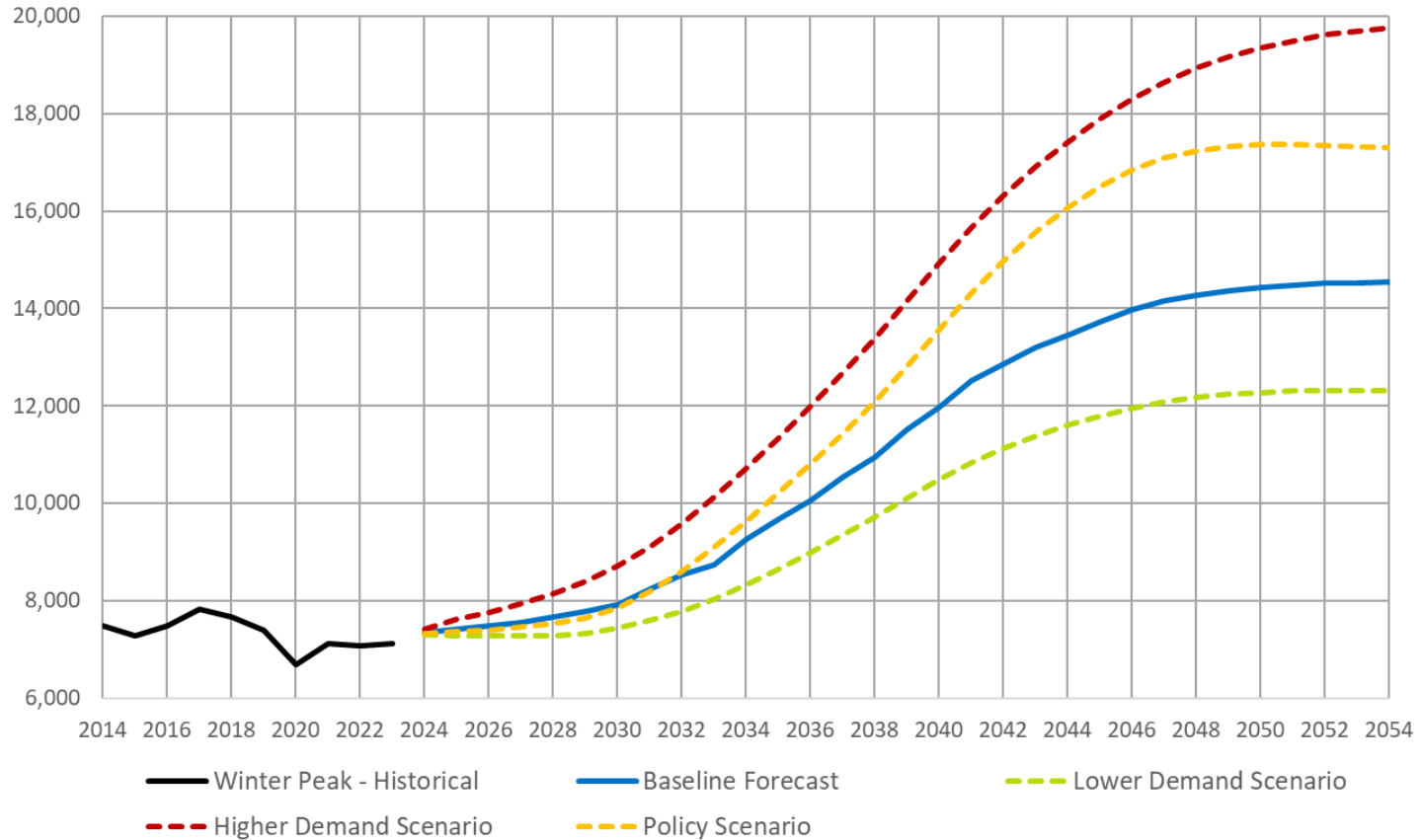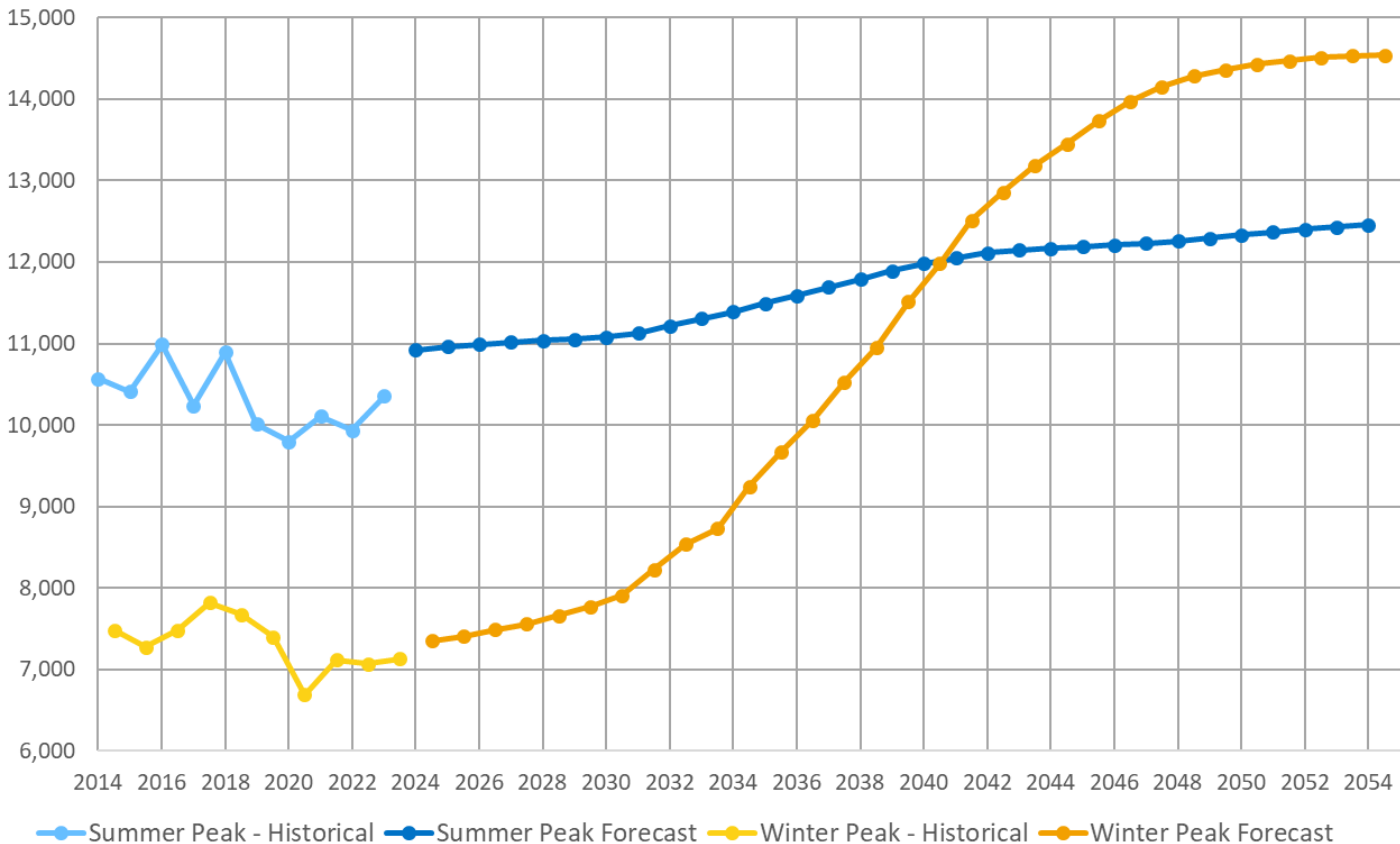Zone J Energy Forecasts - Annual Energy (GWh)
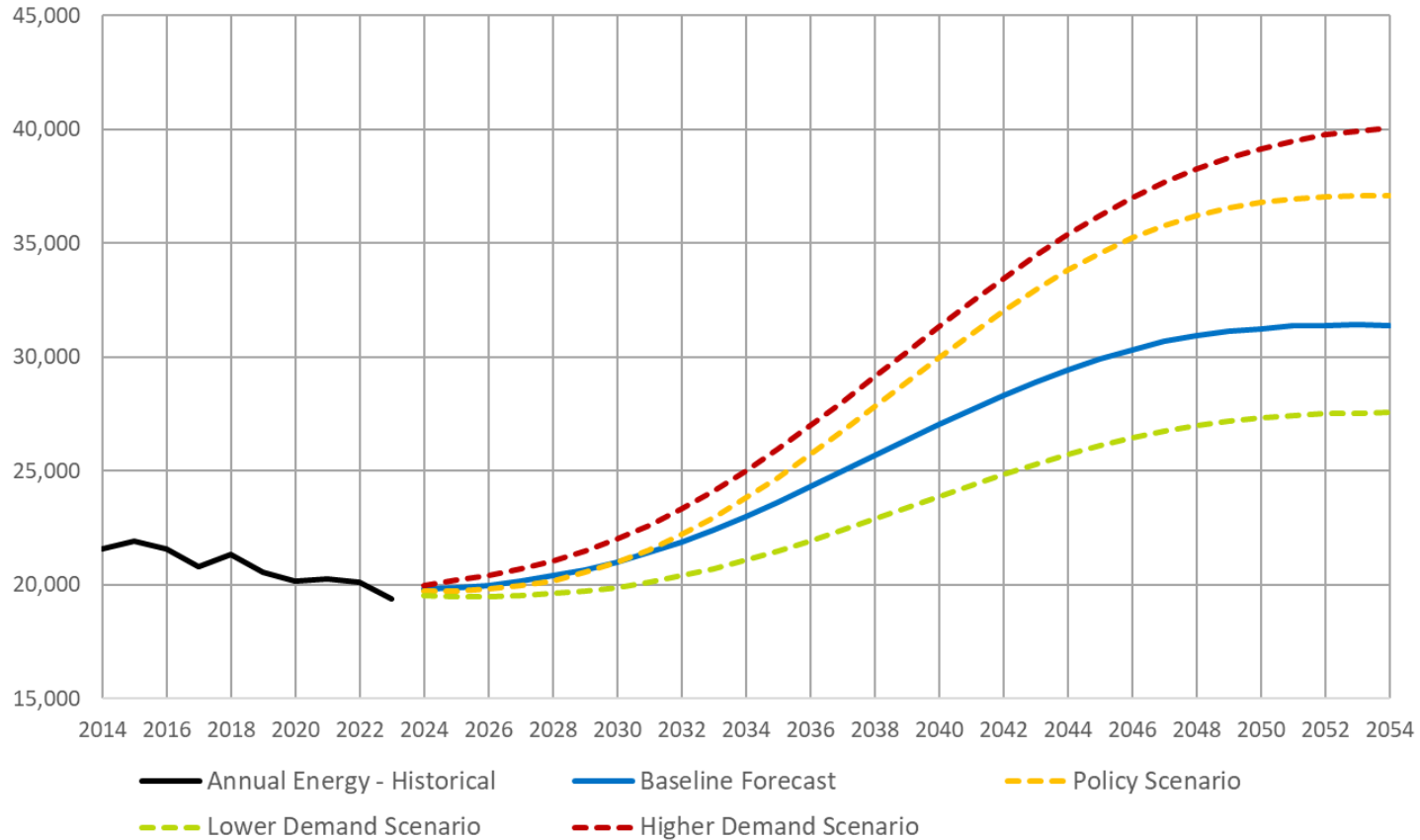
Zone J Summer Peak Forecasts - Coincident Peak (MW)

- Summer Peak - Historical
- Baseline Forecast
- Policy Scenario
- Lower Demand Scenario
- Higher Demand Scenario

New York ISO

Zone J Winter Peak Forecasts - Coincident Peak (MW)

Legend: Winter Peak - Historical, Baseline Forecast, Lower Demand Scenario, Higher Demand Scenario, Policy Scenario

Zone J Baseline Peak Forecast Comparison - Coincident Peak (MW)

Legend: Summer Peak - Historical, Summer Peak Forecast, Winter Peak - Historical, Winter Peak Forecast

Zone K Energy Forecasts - Annual Energy (GWh)

Legend:
- Annual Energy - Historical
- Baseline Forecast
- Policy Scenario
- Lower Demand Scenario
- Higher Demand Scenario

Zone K Summer Peak Forecasts - Coincident Peak (MW)

Legend:
- Summer Peak - Historical
- Baseline Forecast
- Policy Scenario
- Lower Demand Scenario
- Higher Demand Scenario

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Zone K Winter Peak Forecasts - Coincident Peak (MW)

Zone K Baseline Peak Forecast Comparison - Coincident Peak (MW)
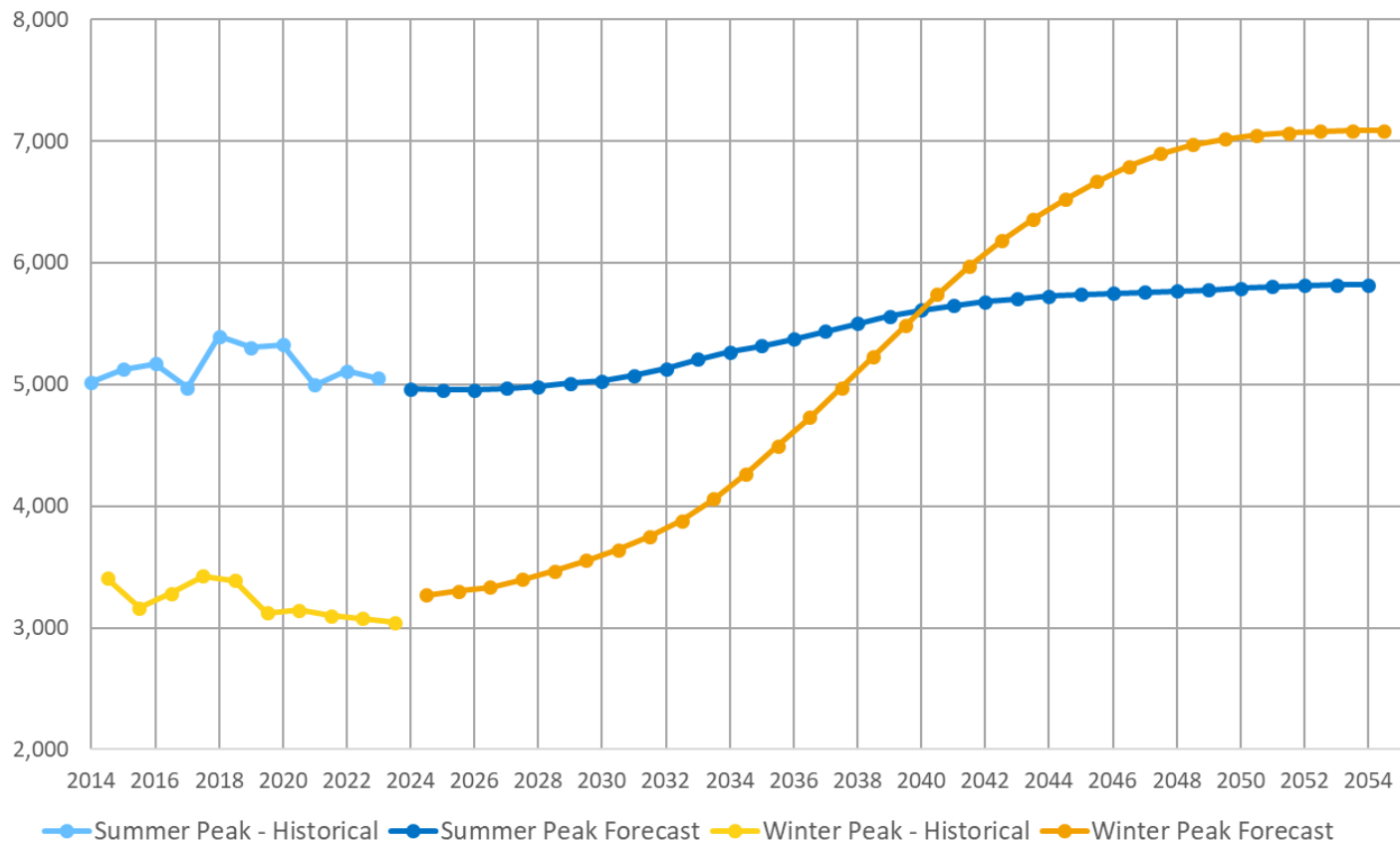
Our Mission & Vision

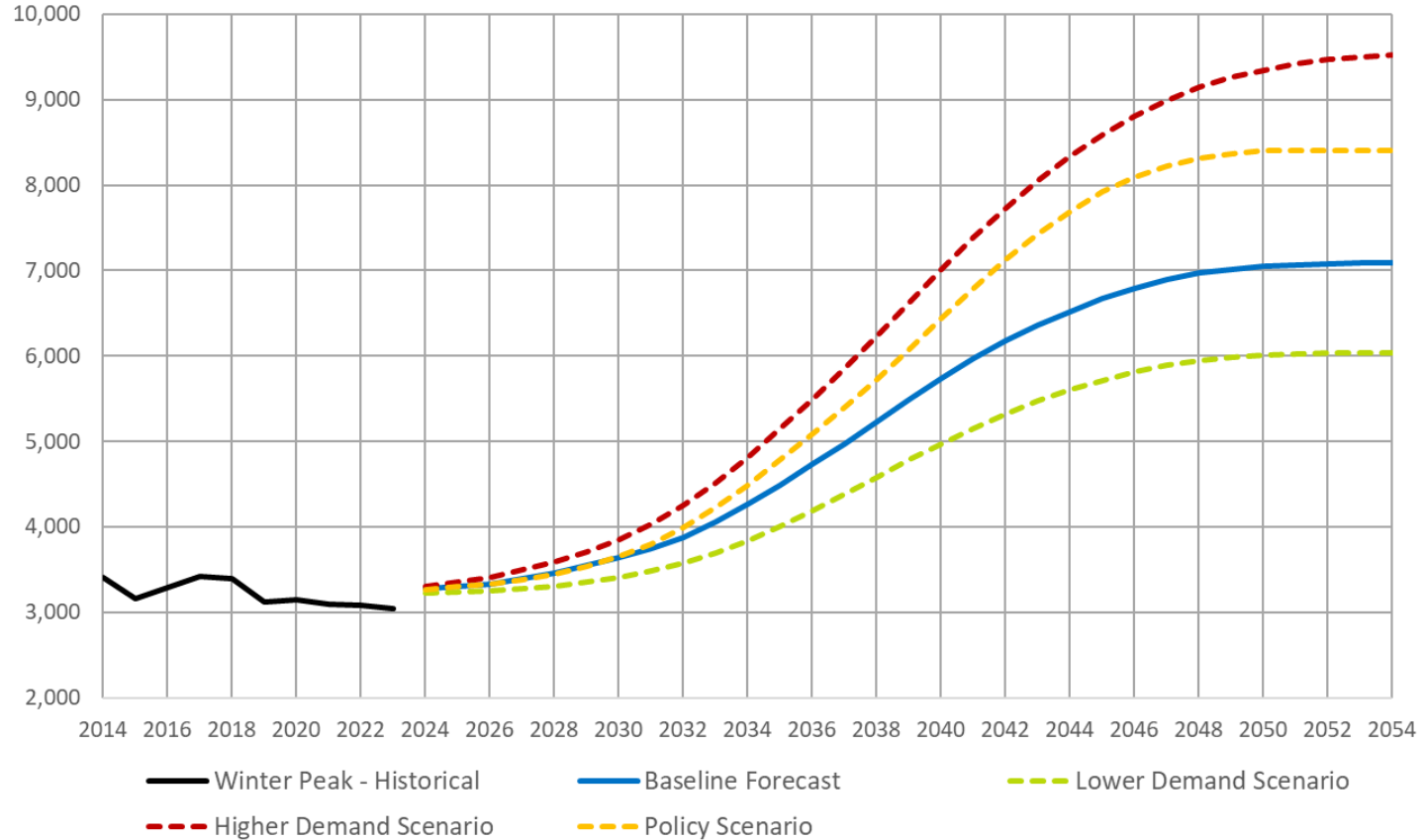## Mission
Ensure power system reliability and competitive markets for New York in a clean energy future

Vision
Working together with stakeholders to build the cleanest, most reliable electric system in the nation

New York ISO