

NYISO Summer 2022 Hot Weather Operations

Aaron Markham

VICE PRESIDENT, OPERATIONS

New York State Reliability Council - Executive Committee

October 14, 2022

Agenda

- **Key Observations from Summer Operations**
- **Summer 2022 Hot Weather Operations – Focus on two Heat Waves**
 - Sunday, July 17 – Sunday, July 24
 - Wednesday, August 3 – Tuesday, August 9
- **Summer Ambient Temperatures & Loads**
- **Loads & Peaks**
- **Renewable Forecasting & Actual Generation**

Summer 2022 Key Observations

- **Western NY Public Policy project was effective at reducing Zone A congestion and supply bottling**
- **The retirement of the 31 Porter-Rotterdam 230kV associated with Segment A resulted in some congestion into Zone F during the higher load periods**
- **The net load peaks are shifting later in the afternoon due to BTM solar**



July 17-24 Hot Weather Operations

- **Summer Peak load occurred on Wednesday (7/20) HB17- 30,505 MW (96% of the 50-50 forecast of 31,765 MW)**
 - Peak load was reduced due to activation of utilities demand response programs
- **The Governor's Office issued an extreme heat warning on Monday (7/18) due to high heat and humidity expected to impact most of the state 7/19 - 7/21 and urged customers to conserve electricity.**
 - Forecast highs were mainly in the lower- to mid-90s across the state with heat index values breaking the 100-degree mark, with the highest actual temperatures occurring at the end of the heat wave on 7/23 and 7/24
- **7/18/22 NYISO issued a supplemental resource evaluation call ("SREd") for Danskammer 3 & 4 due to generator derates and an increase in load forecasts after the Day-Ahead Market (DAM) for statewide capacity**
- **7/21/22 NYISO issued a supplemental resource evaluation call ("SREd") for Danskammer 4 due to generator derates and an increase in load forecasts after the Day-Ahead Market (DAM) for statewide capacity**
- **NYISO activated EDRP/SCR Resources in Zone F on both Tuesday (7/19) and Wednesday (7/20) in response to forced outages at the Greenbush 115kV station. The outage of the station resulted in bottling Albany area generation and added to transmission constraints feeding Zone F load.**
- **The Neptune HVdc line returned to full capability on 7/19.**



August 3-9 Hot Weather Operations

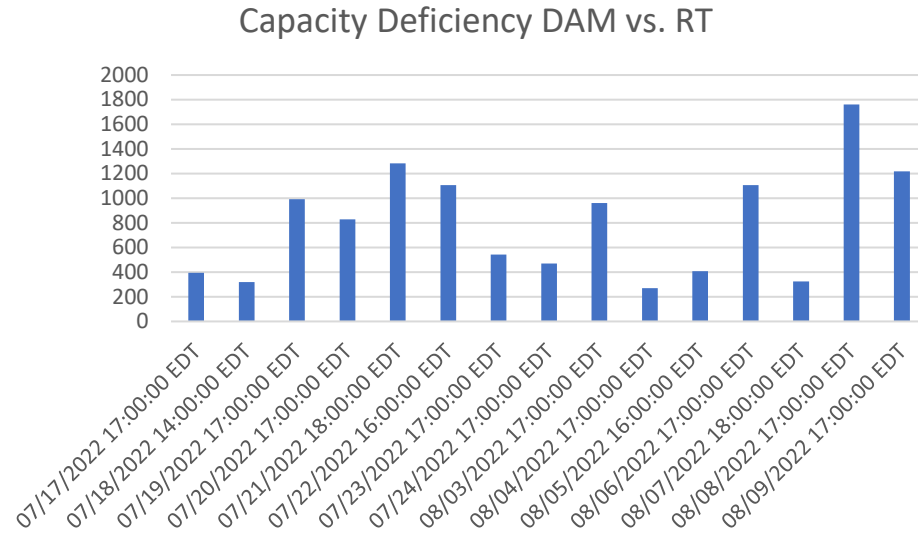
- **Peak load of the period occurred on Monday (8/8) HB17- 30,221 MW (95% of the 50-50 forecast of 31,765 MW)**
 - Peak load was reduced due to activation of utilities demand response programs
- **The Governor's Office issued an extreme heat warning on Wednesday (8/3) due to high heat and humidity expected to impact most of the state 8/4 – 8/5 and urged customers to conserve electricity**
 - Forecast highs were mainly in the lower- to mid-90s upstate and mid- to upper-80s downstate with heat index values in the high 90s and Low 100s
- **8/4/22 NYISO issued a supplemental resource evaluation call (“SREd”) for Danskammer 3, Danskammer 4 & Roseton 2 due to generator derates and an increase in load forecasts after the Day-Ahead Market (DAM) for statewide capacity**
- **8/8/22 NYISO issued a supplemental resource evaluation call (“SREd”) for Danskammer 3, Danskammer 4 & Oswego 5 due to generator derates and an increase in load forecasts after the Day-Ahead Market (DAM) for statewide capacity**
- **8/9/22 NYISO issued a supplemental resource evaluation call (“SREd”) for Danskammer 3, Danskammer 4 due to generator derates statewide capacity**

Summer 2022 Hot Weather Operations

(Applicable to prior periods and the entire season)

- Operations participated in regional coordination conference calls
- Worked with Transmission and Generation Owners to restore out of service equipment to support peak loads
- Transmission Owners activated utility (retail) demand response programs
- No need for NYISO initiated emergency actions such as emergency purchases or statewide voltage reduction
- Pipeline and LDC Operational Flow Order (OFOs) were observed during high load periods

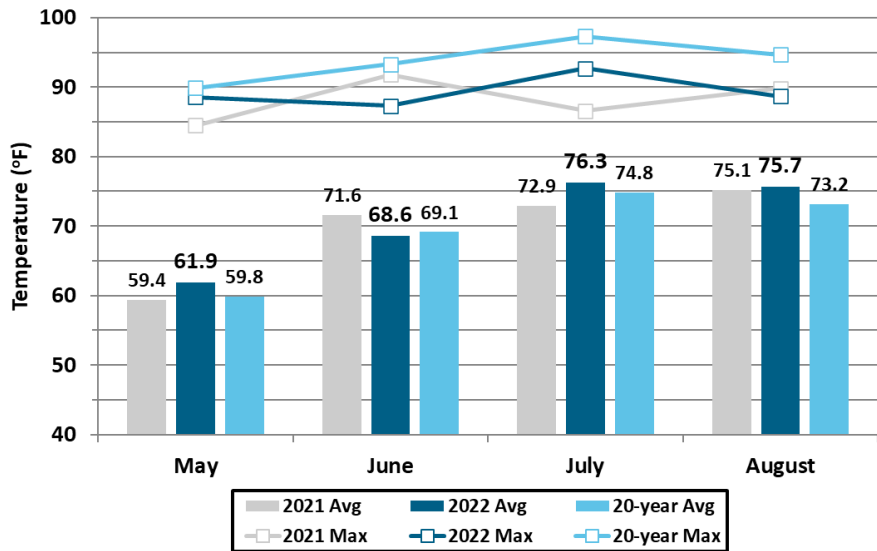
DAM Capacity not available in Real Time



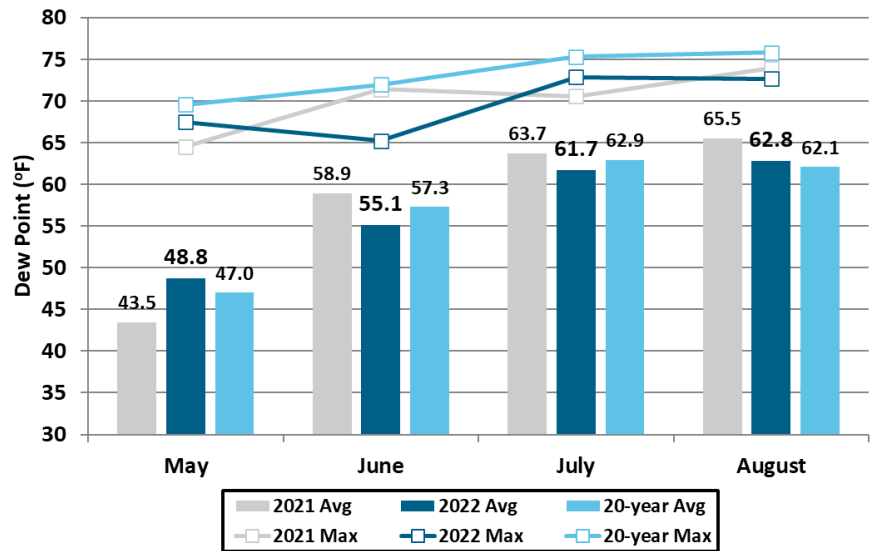
Ambient Conditions

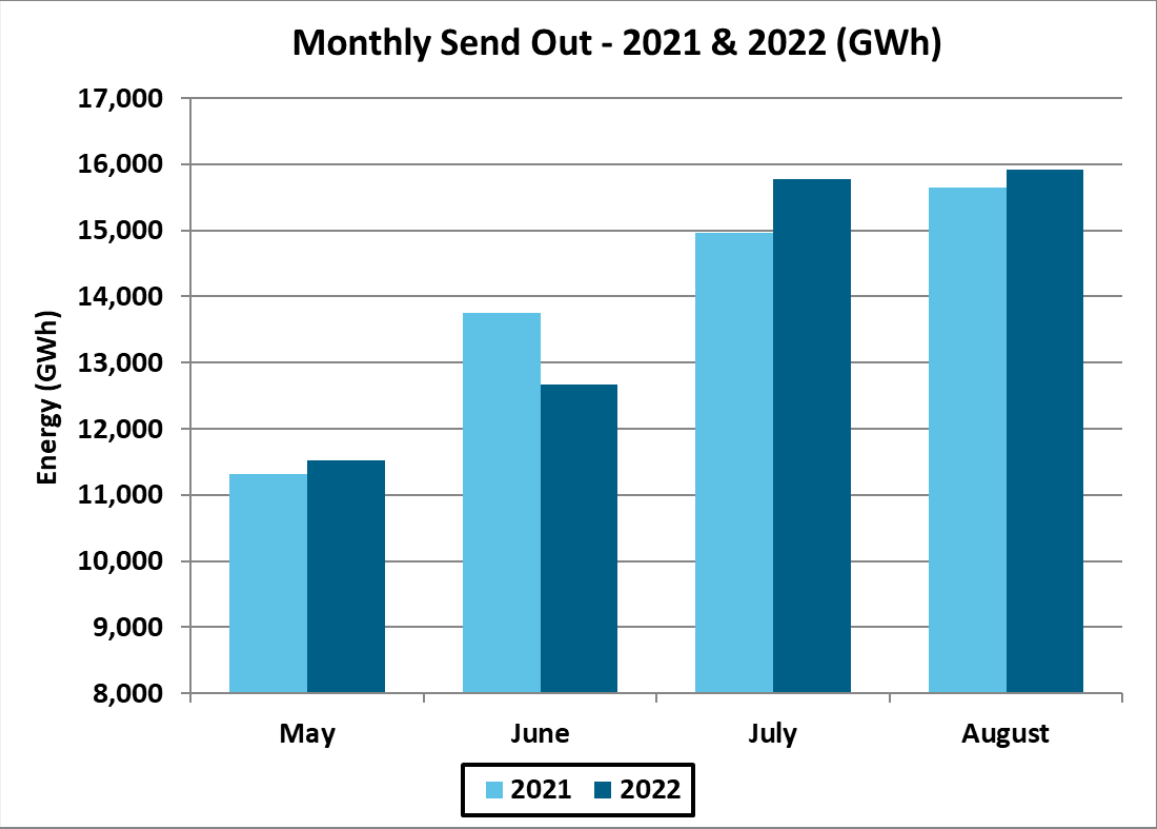
- **Daily mean temperatures were near the 20-year average in June and above average in May, July, and August**
 - Highest Temperatures: 97 °F at NYC - Central Park and 99 °F at Albany
 - 24 days with highs above 90 °F at NYC - Central Park (average is 16 days/year from 1991 – 2020)
(Source: National Weather Service – New York City Office)
 - 25 days with highs above 90 °F at Albany (average is 9 days/year from 1991 – 2020)
(Source: National Weather Service – Albany Office)
- **Total load (GWh) was below 50/50 projections, primarily driven by deficits in June and July**
- **Peak load was below the 50/50 projection**
 - Summer 2022 50/50 forecast was 31,765 MW
 - Summer 2022 actual peak load was 30,505 MW (July 20th)
 - Summer 2021 actual peak load was 30,919 MW
- **Two days with peak loads over 30,000 MW**
 - July 20th: HB16 to HB18
 - August 8th: HB16 to HB18

**Monthly Average and Max Temperatures
2021, 2022, and 20-year (2002 - 2021)**

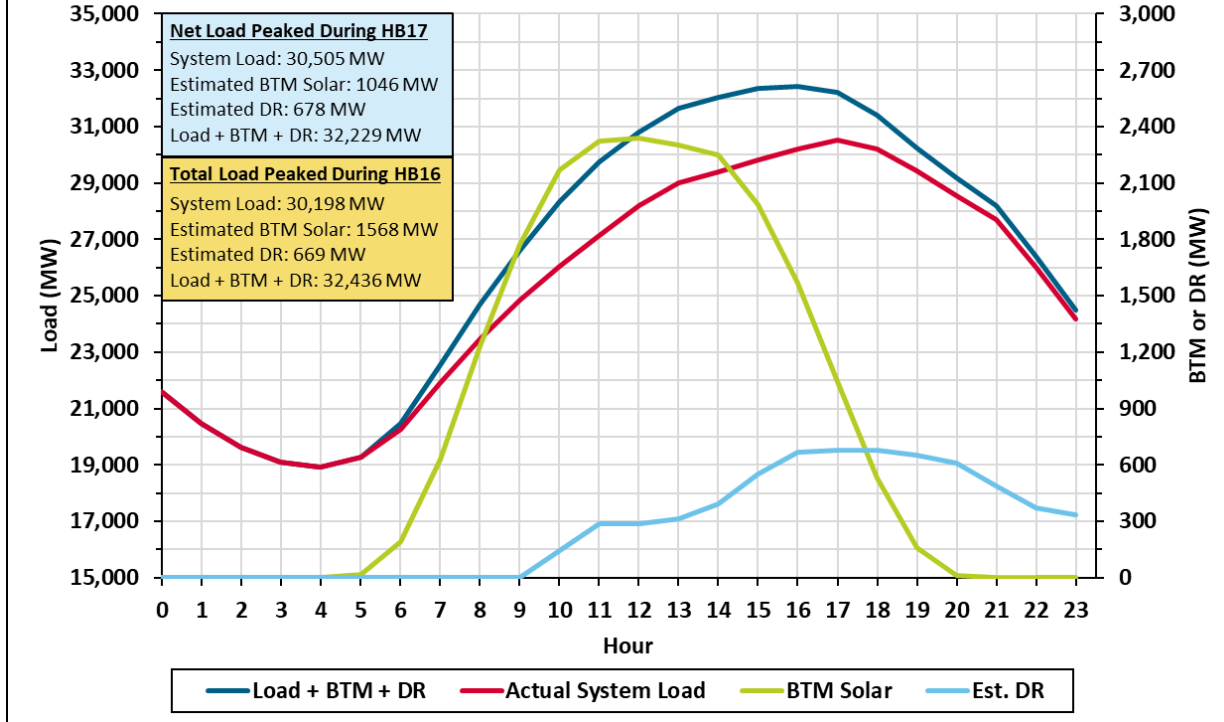


**Monthly Average and Max Dew Points
2021, 2022, and 20-year (2002 - 2021)**

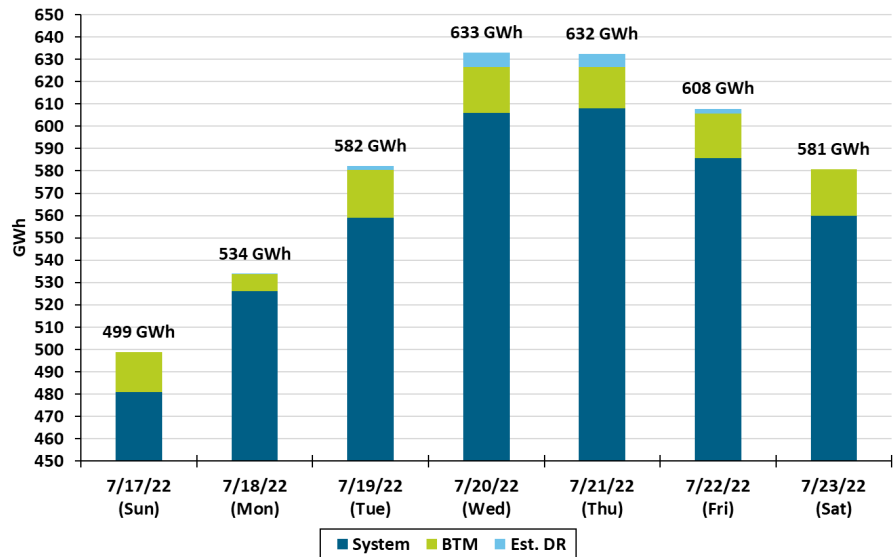




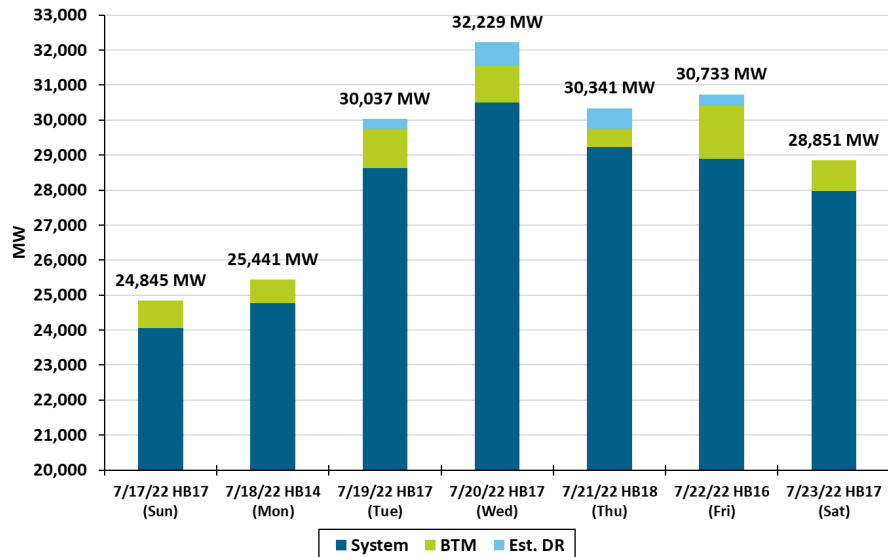
System Load, DR (NYISO- & TO-Initiated), and BTM Generation July 20, 2022



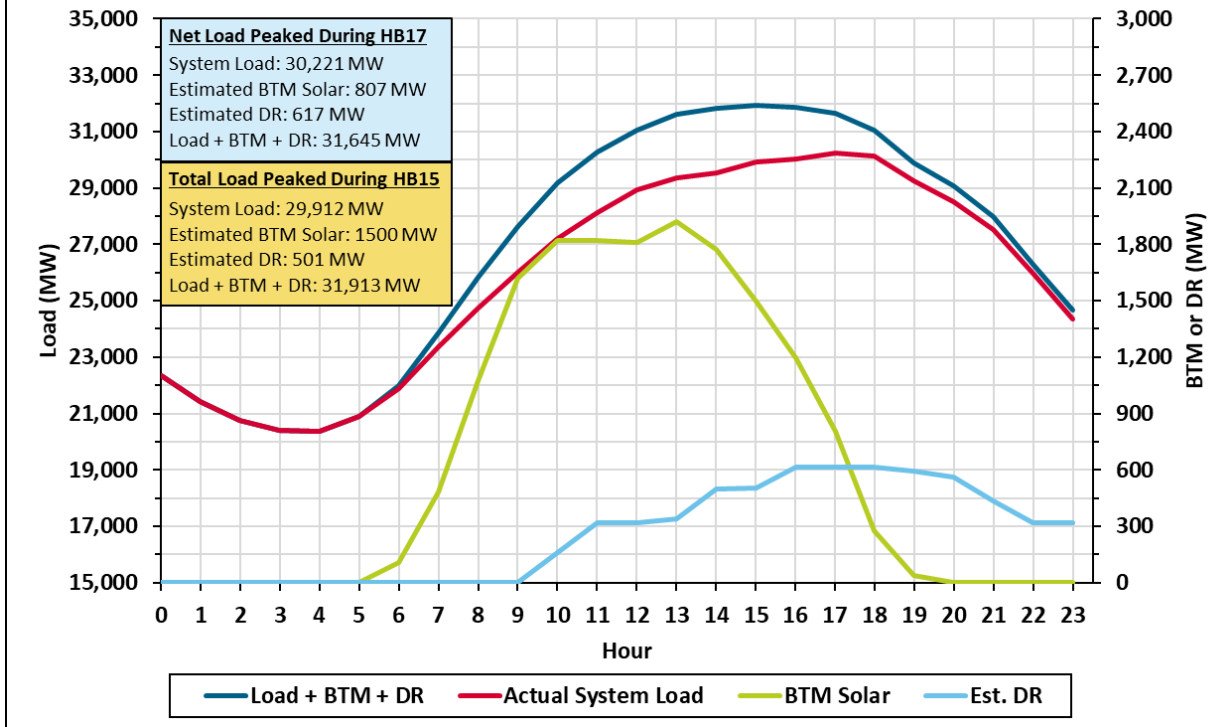
Total System Energy - July Heat Wave



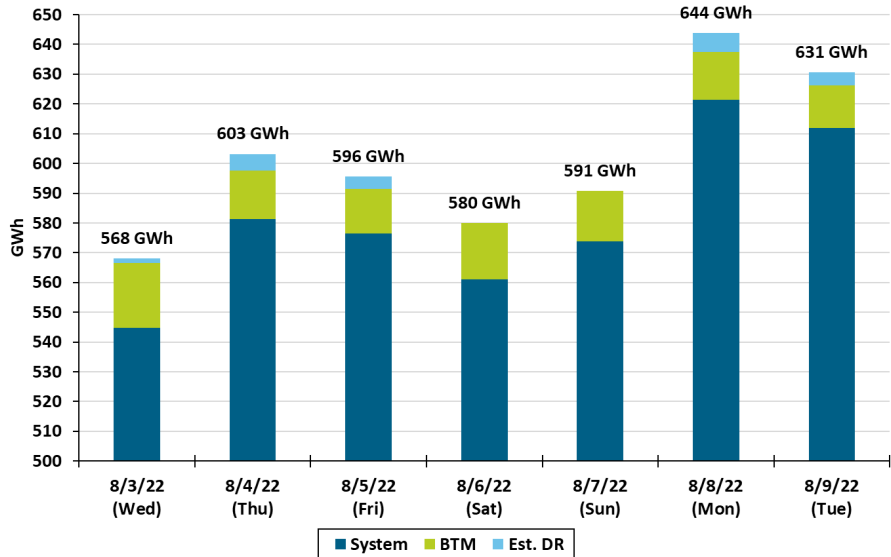
System Load Peak Hour Distribution - July Heat Wave



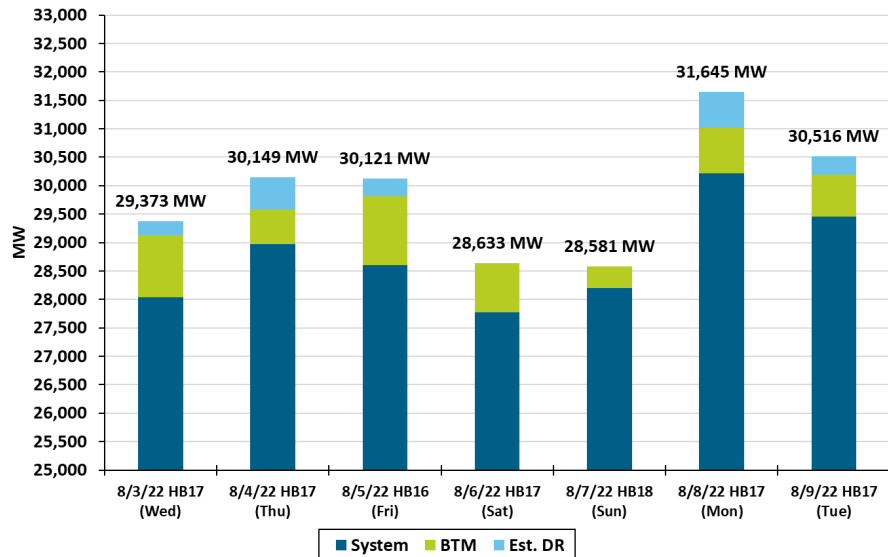
System Load, DR (NYISO- & TO-Initiated), and BTM Generation August 8, 2022



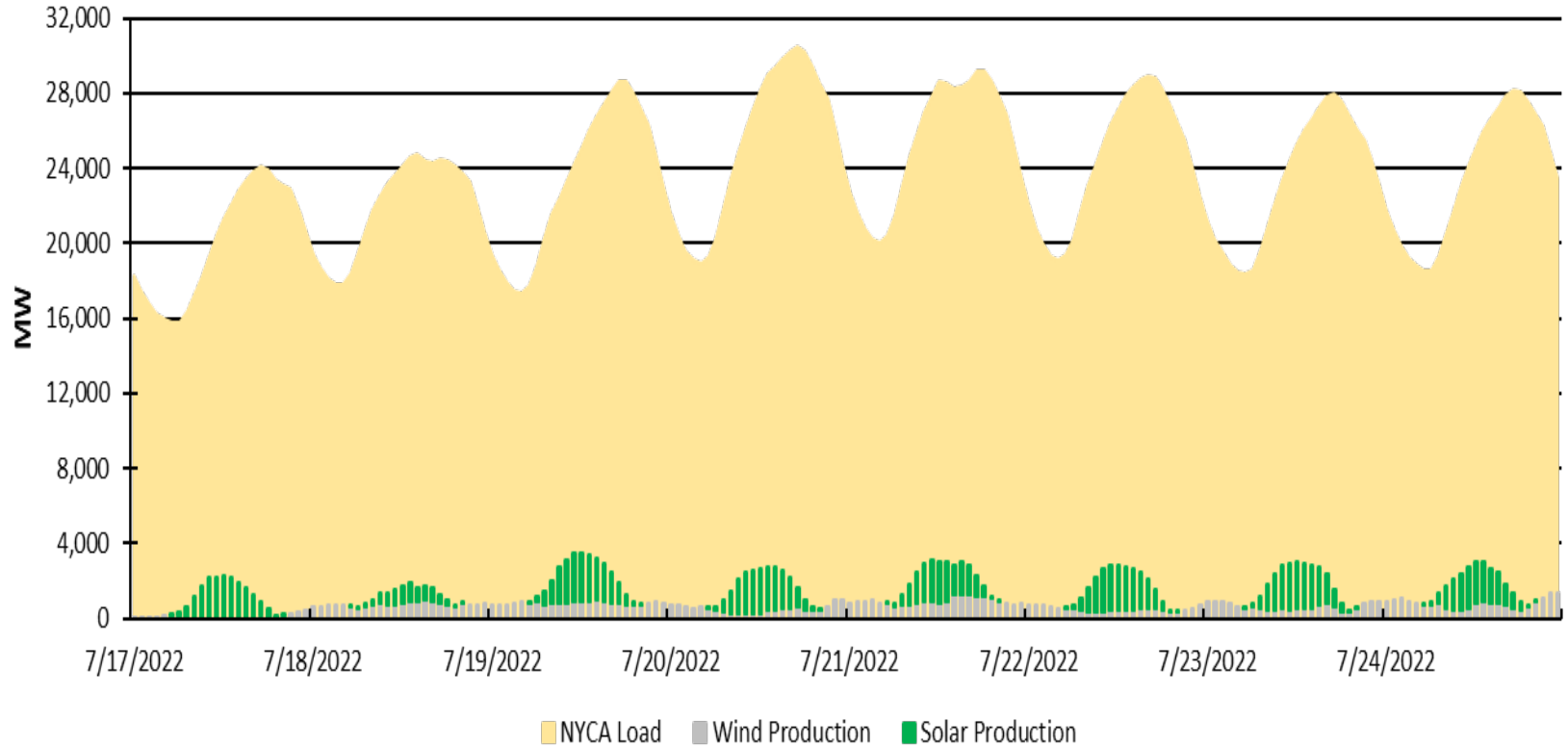
Total System Energy - August Heat Wave



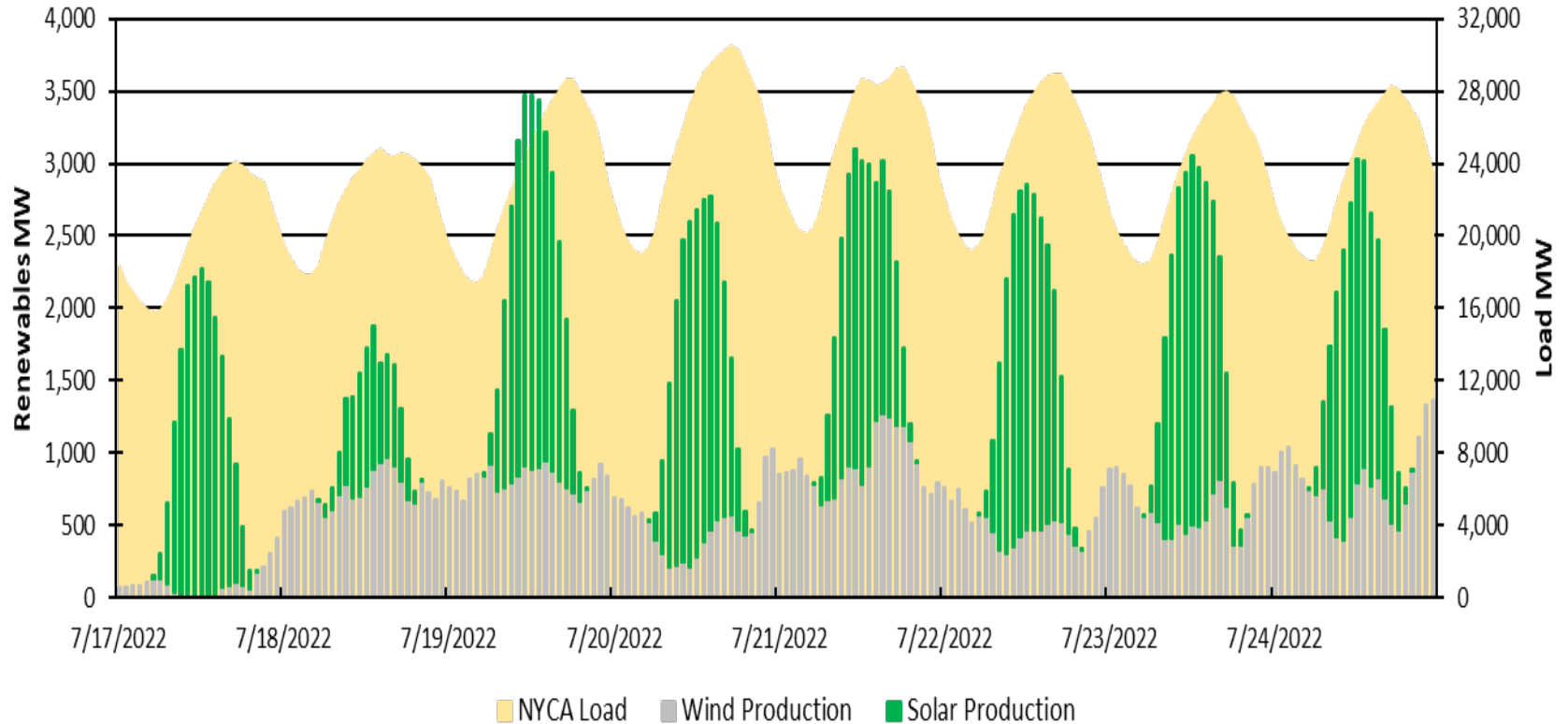
System Load Peak Hour Distribution - August Heat Wave



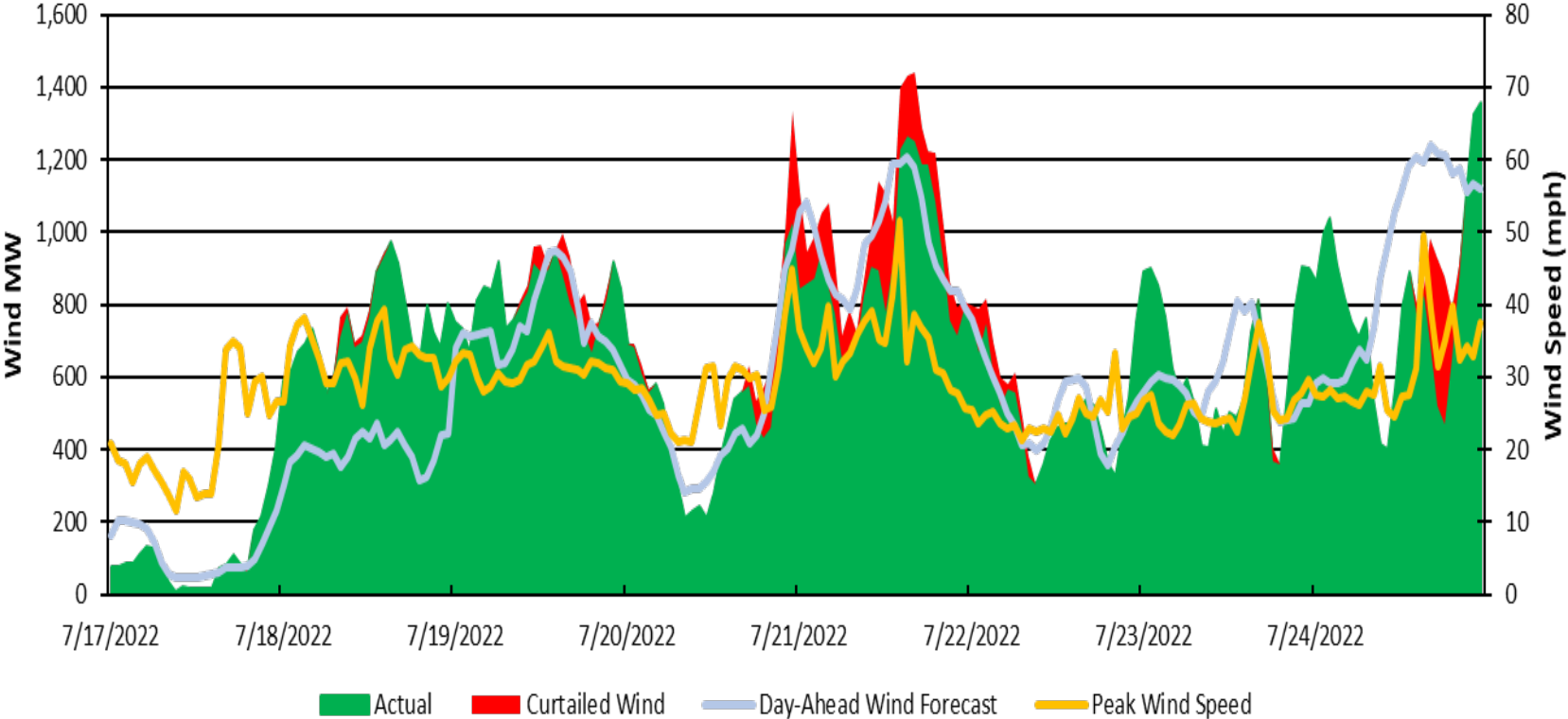
Hourly Wind & Solar Production 7/17 - 7/24



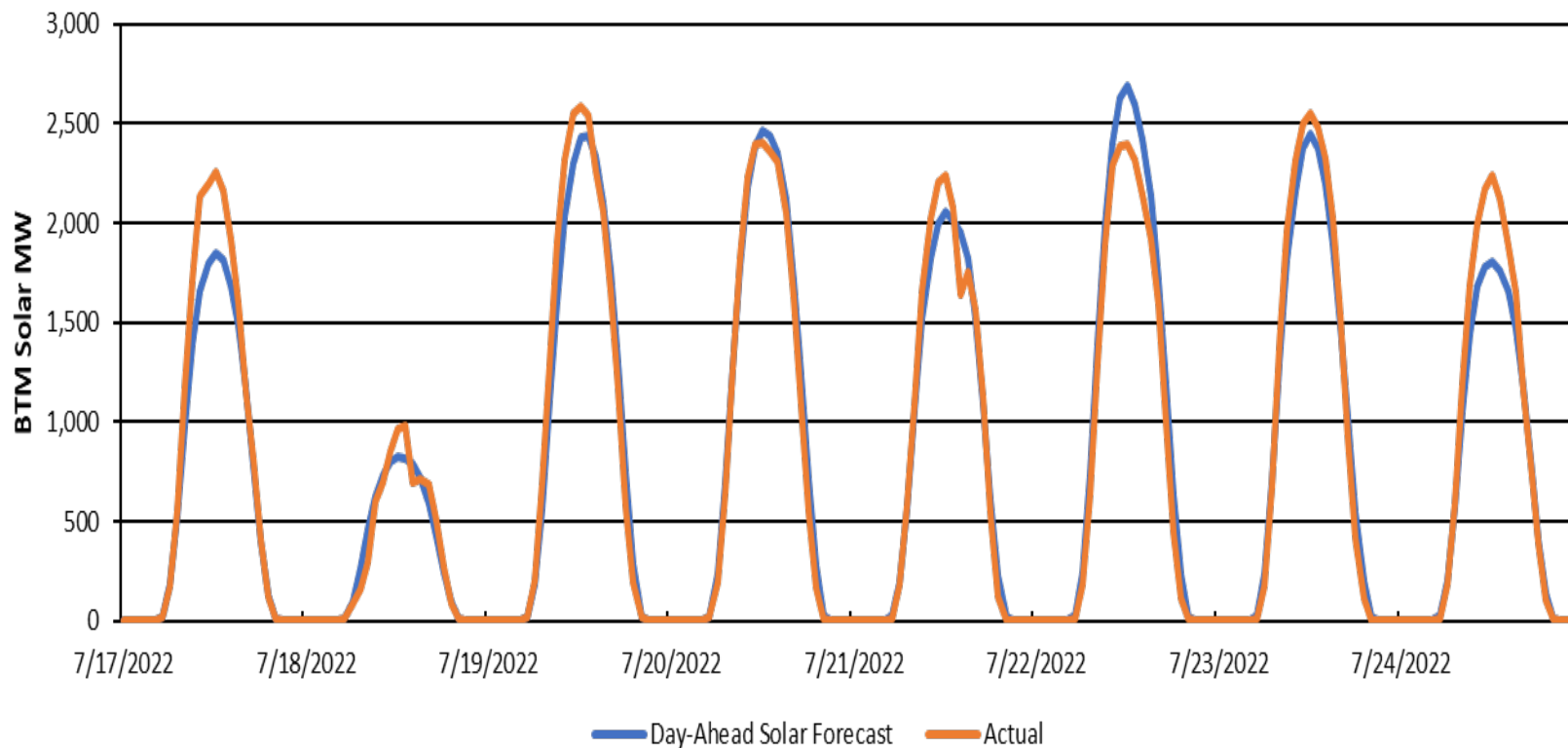
Hourly Wind & Solar Production 7/17 - 7/24



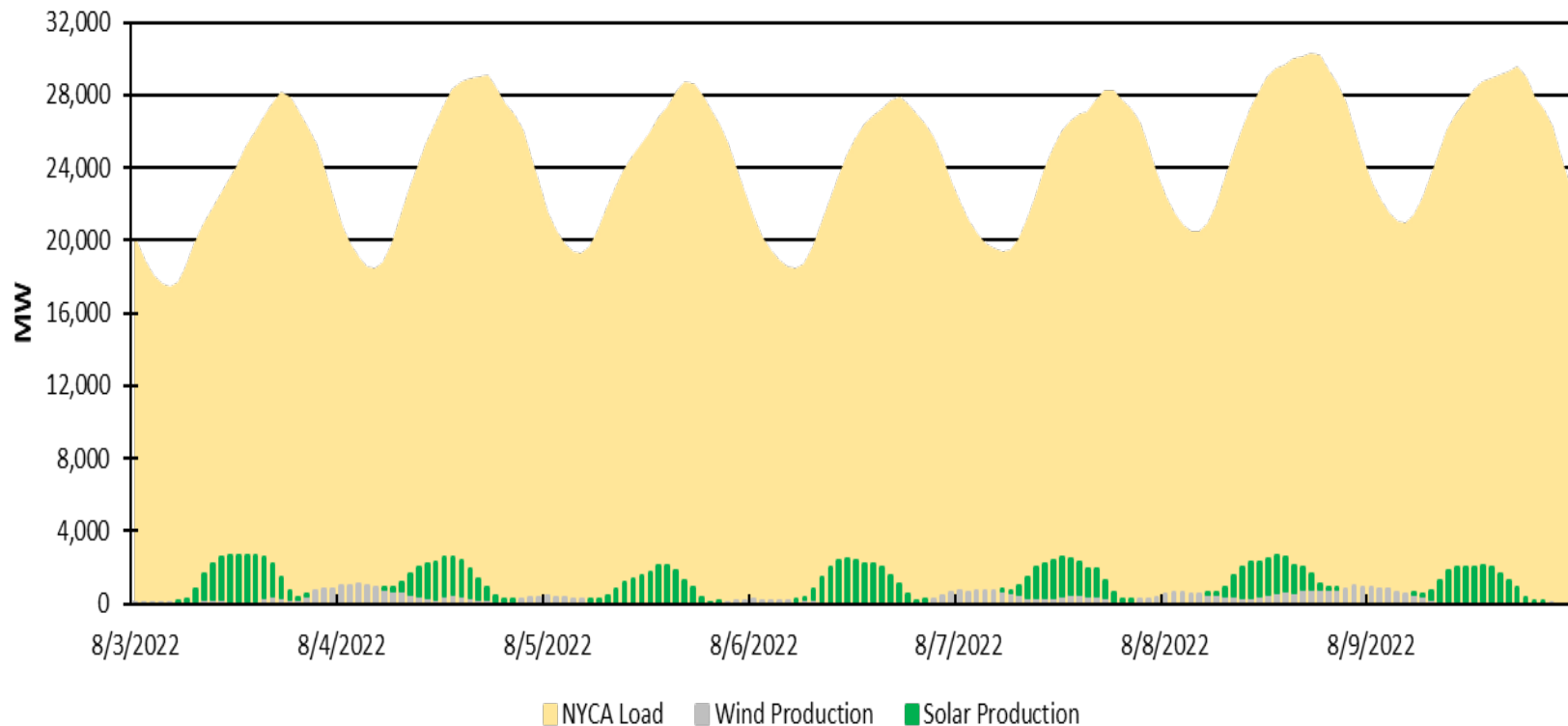
NYCA Wind Profile 7/17 - 7/24



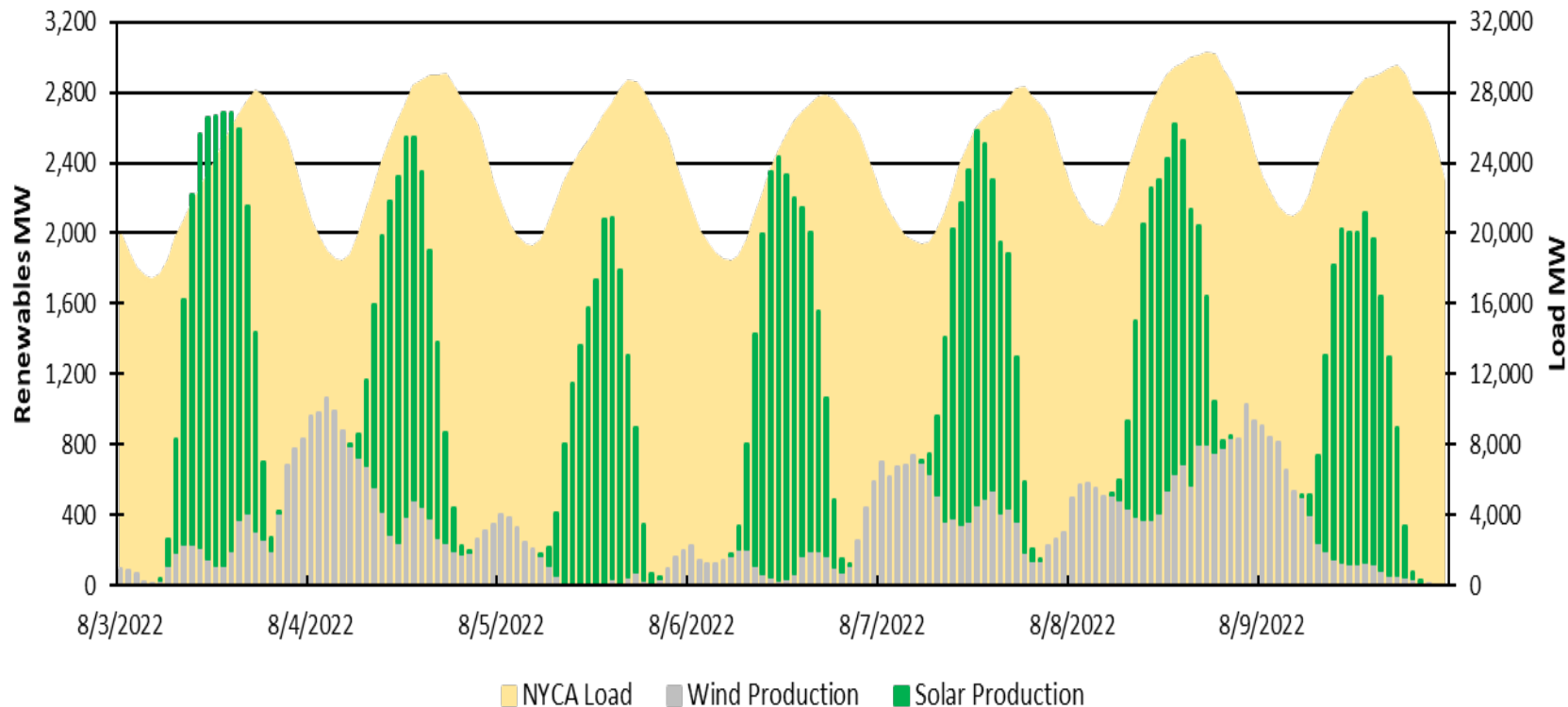
NYCA BTM Solar Profile (~3,935 MW) 7/17 - 7/24



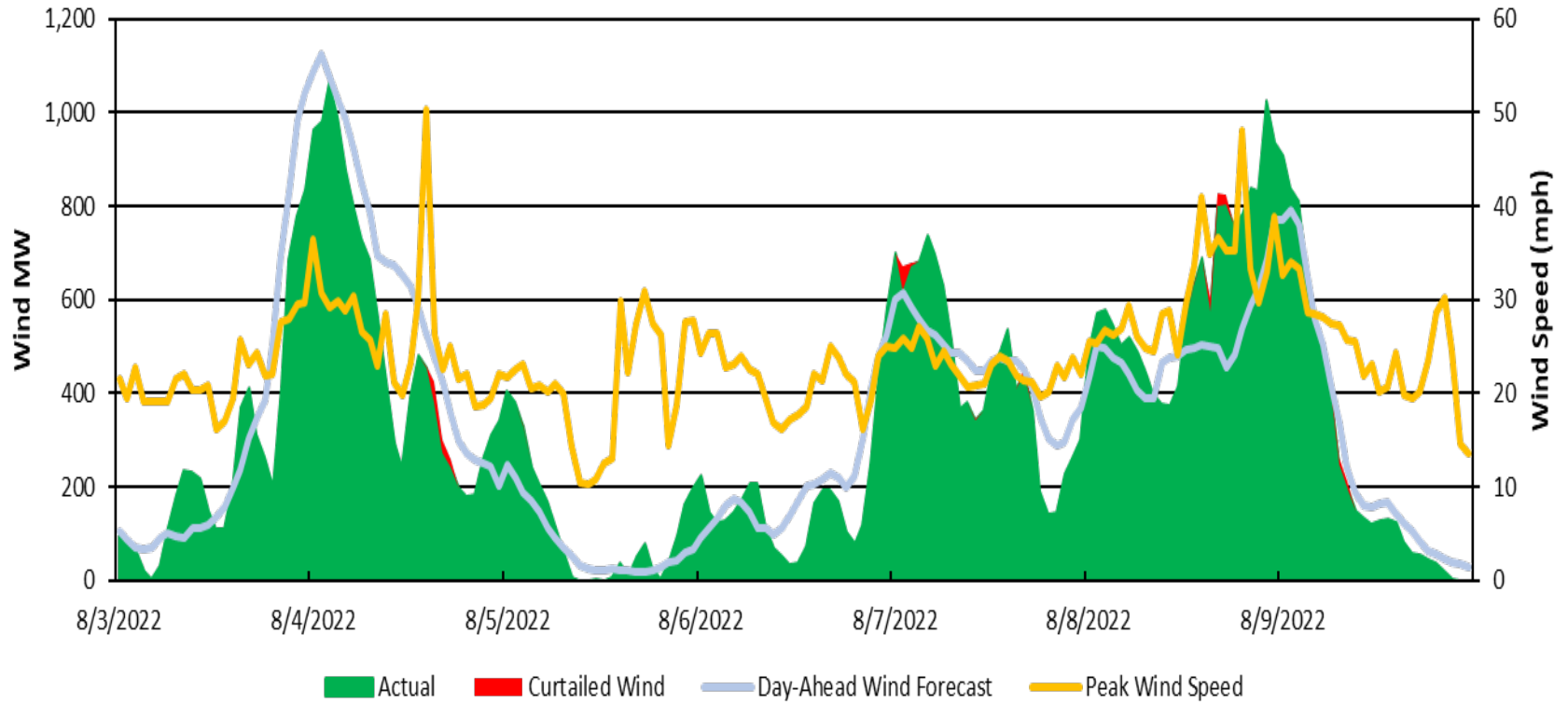
Hourly Wind & Solar Production 8/3 - 8/9



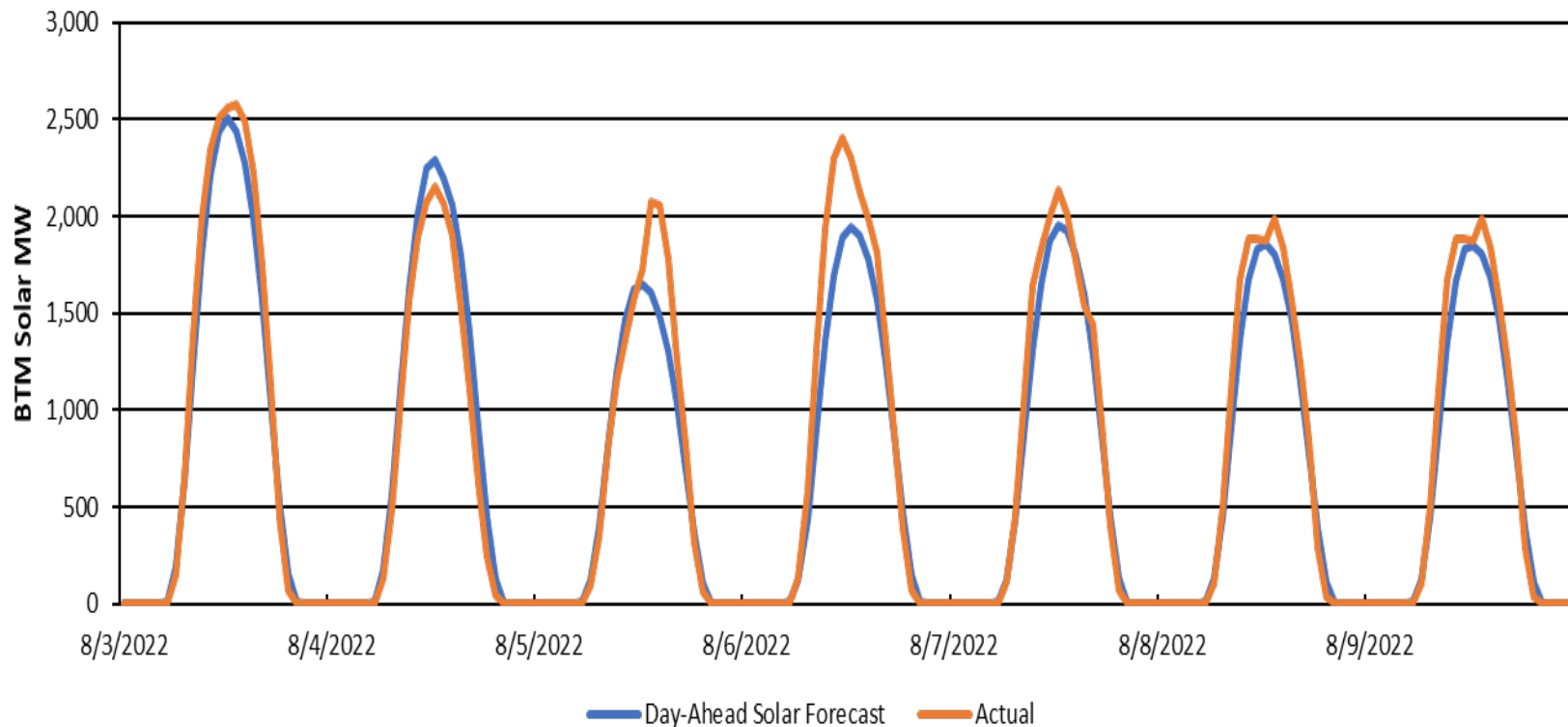
Hourly Wind & Solar Production 8/3 - 8/9



NYCA Wind Profile 8/3 - 8/9



NYCA BTM Solar Profile (~3,995 MW) 8/3 - 8/9



Retail Demand Response Program Activations

| Date | Transmission Owner |
|-----------|--|
| 5/31/2022 | Con Ed |
| 7/18/2022 | Con Ed |
| 7/19/2022 | LIPA, National Grid |
| 7/20/2022 | Con Ed, LIPA, National Grid, NYSEG, RG&E |
| 7/21/2022 | Con Ed, LIPA, National Grid, NYSEG |
| 7/22/2022 | Con Ed, LIPA, National Grid, NYSEG |
| 7/24/2022 | Con Ed |
| 7/25/2022 | Con Ed |
| 8/3/2022 | National Grid, NYSEG |
| 8/4/2022 | Con Ed, National Grid, NYSEG |
| 8/5/2022 | Con Ed |
| 8/8/2022 | Con Ed, LIPA, National Grid, NYSEG |
| 8/9/2022 | Con Ed, LIPA, ORU |
| 8/29/2022 | National Grid, NYSEG, RG&E |

Special Case Resource Program and Emergency Demand Response Program Activations

| Date | Zones Called |
|---------------|--------------|
| July 19, 2022 | F |
| July 20, 2022 | F |

For additional details regarding past SCR/EDRP Performance, please refer to the following link:

<https://www.nyiso.com/documents/20142/28052158/NYISO-2021-Annual-Report-on-Demand-Response-Programs-FINAL.pdf>

For additional details regarding SCR participation for July 2022, please refer to the following link:

<https://www.nyiso.com/documents/20142/27570177/2022-07-SCR-Monthly-Report-July-After%20Partial.pdf>

Our mission, in collaboration with our 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 policymakers, stakeholders and investors in the power system



Questions?