



NYISO Summer 2016 Hot Weather Operations

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Introduction

- **Summer 2016 has experienced “above average” ambient temperatures and above average electric loads across the July 1- August 31 time period**
- **The Summer 2016 Actual Peak of 32,076 MW occurred on August 11**
 - *Less than the 50-50 peak forecast of 33,360 MW*
 - *Third consecutive summer with the actual peak below the 50-50 peak forecast.*

Summer Conditions: July 5-7

- **The first significant hot weather crossed New York State immediately following the 3-day Fourth of July weekend**
 - *July 5 -- 27,559 MW*
 - *July 6 -- 29,656 MW*
 - *July 7 -- 29,340 MW*
- **Transmission outages included:**
 - *NJ-NY HTP Cable*
 - *Ramapo Phase Angle Regulator Transformer #3500*
 - *All three 345 kV Marcy South Series Capacitors*
- **On July 6 three generating units tripped off-line resulting in the loss of over 2,000 MW of capacity in Zones G & J from 9:30 – 9:45 AM**
 - *NYISO immediately scheduled a supplemental capacity commitment to mitigate a projected reserve shortage for the afternoon peak conditions*

Summer Conditions: July 5-7 (Cont.)

- **July 6**

- *New York State Governor's Office issued a Public Statement directing all state agencies to curtail non-essential electric usage and encouraged all electric consumers to reduce energy usage where possible*

- **July 7**

- *Updated load forecasts were above the original forecast and an additional 500 MW of generation was lost*
- *NYISO scheduled a supplemental capacity commitment to mitigate a projected reserve shortage*
- *No NYISO Demand Response notification or activation*
- *Two utilities activated their own Demand Response Programs; NYPA and National Grid. The enrollment between the two is approximately 150 MW*

Summer Conditions: July 25

- Updated weather projections on the afternoon of Sunday, July 24, for Monday afternoon, July 25, indicated much warmer weather than originally forecasted
 - *Temperature forecasts for Monday were 95 F across upstate and New York City with extremely high dew points resulting in heat indexes as high as 100 F*
- On Sunday, July 24, NYISO scheduled two supplemental capacity commitments to mitigate projected reserve shortages and transmission security deficiency
 - *Rain showers crossed portions of New York Monday and actual peak loads were less than forecast*
- Demand Response
 - *On Sunday, July 24, the NYISO put Demand Response, Zones G-K on 21-hour notice*
 - *On Monday Con Ed activated Targeted Demand Response for Subzones J1-J9 to alleviate projected local transmission and distribution overloads*
 - *NYISO did not activate Demand Response for capacity or transmission needs*
 - *Three utilities activated their own Demand Response programs (Con Edison, NYPA RG&E around 200 MWs enrolled)*

Summer Conditions July 25

- **Governor's Office issued a Public Statement directing state agencies to curtail non-essential electric usage and encouraging all residential and business consumers to reduce energy usage where possible**
- **Mid-afternoon**
 - *Generator tripped in South Eastern NY and the 345 kV Marcy South Series Capacitors bypassed (The two events resulted in a shortage of South Eastern reserves which activated reserve shortage pricing)*
 - *Thunder Storm Alert was activated*
- **Evening**
 - *Loss of 750 MW of generation capacity Monday evening resulted in need to extend a supplemental capacity commitment into Tuesday, July 26*

Summer Conditions: August 11

- On August 11, HB16 the NYISO recorded the Summer 2016 Peak Load
 - *32,076 MW Actual Summer 2016 Peak*
 - *33,360 MW Seasonal Peak Load Forecast*
- No need for statewide supplemental capacity commitments
- Demand Response was not activated
- Actual loads were 1,000 MW higher than earlier projections
 - *Actual Total Operating Reserves for some intervals were below 2,620 MW and Shortage Pricing was properly activated*
 - *IESO and ISO-NE experienced some generator outages and higher than projected loads resulting in reserve shortages coincident with NYISO reserve shortages*
- Three utilities activated their own Demand Response programs (NYPA, National Grid, RG&E around 170 MWs enrolled)

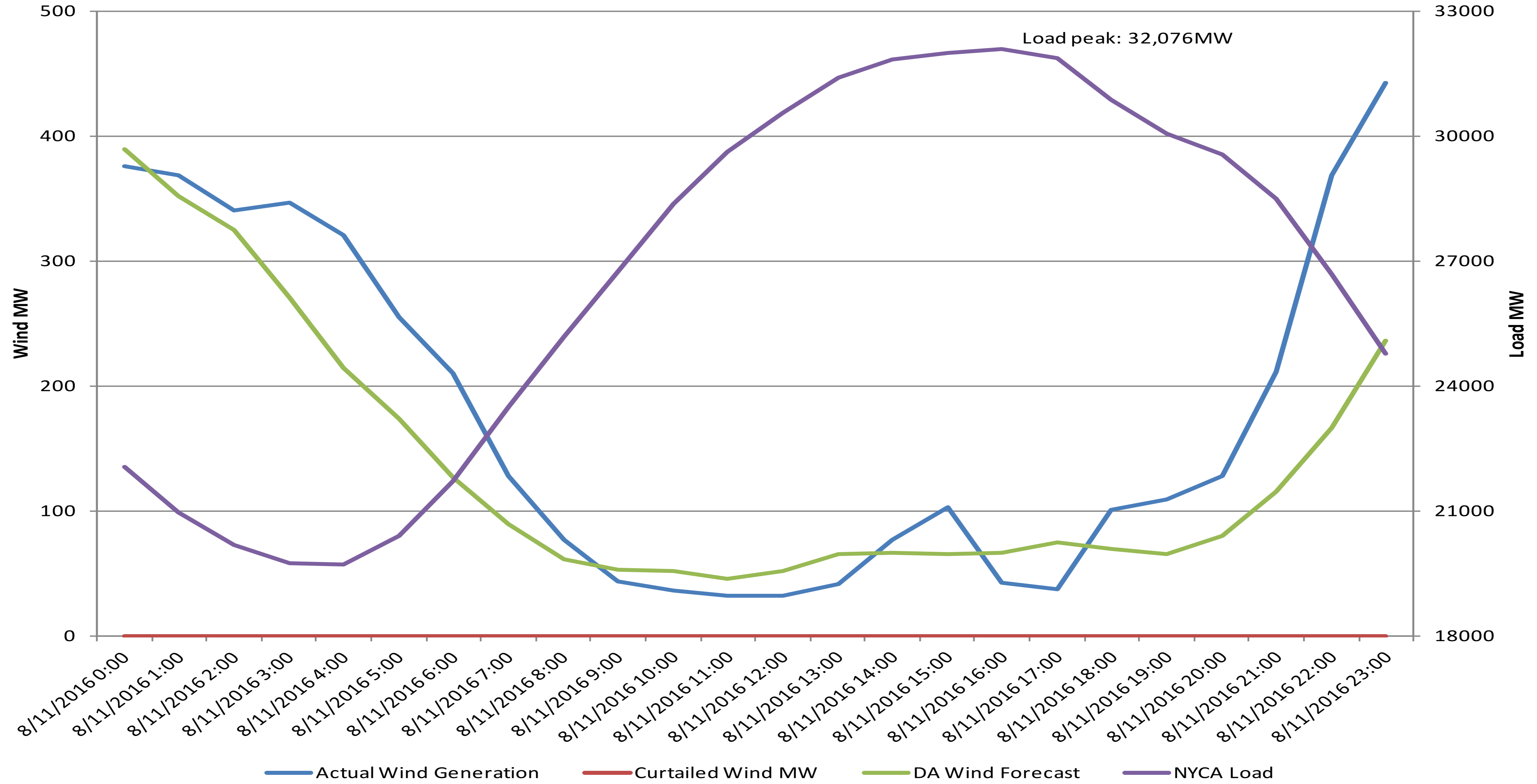
Summer Conditions: August 12

- **Hot weather continued and the August 12 peak load was 31,477 MW**
 - *Estimated peak of 32,415 MW if Demand Response had not been activated (see slide 16)*
- **Demand Response Activation**
 - *NYISO put Demand Response on the 21-hour notification on August 11*
 - *NYISO activated Demand Response on August 12 for all zones from HB13-18 due to projected reserve shortages*
 - *New Scarcity Pricing logic deployed June 1, 2016 worked correctly*
 - *Last voluntary activation of Demand Response was January 2014*
 - *Last mandatory activation of Demand Response was July 2013*

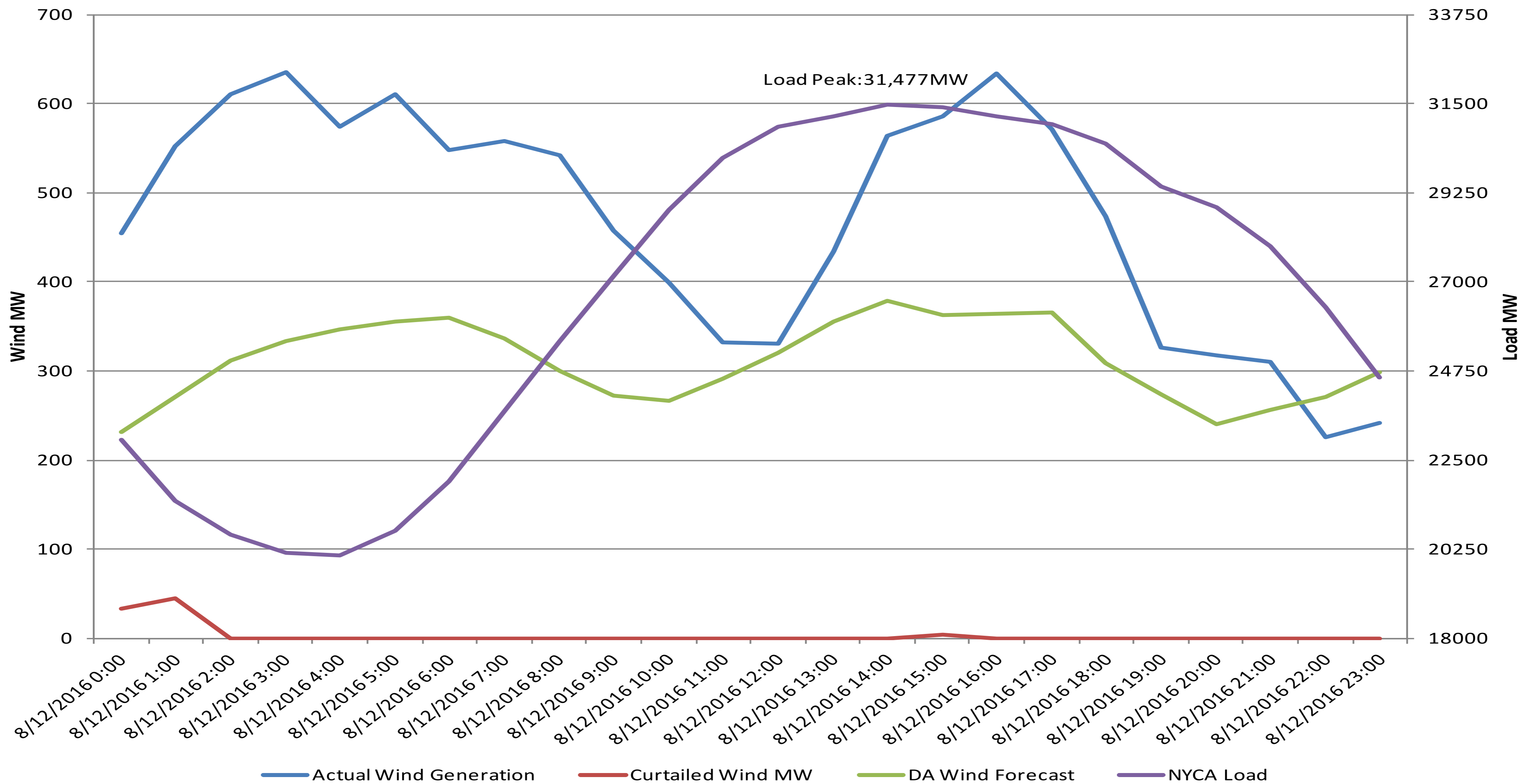
Summer Conditions: August 12 (Cont.)

- Updated peak load forecast and loss of 600 MW generating unit resulted in a projected reserve shortage
 - *NYISO scheduled two supplemental capacity resource commitments*
- All utilities activated their own Demand Response Programs (likely a little more than 150 MW enrolled incremental relative to NYISO Demand Response program)
- Governor's Office issued a Public Statement directing state agencies to curtail non-essential electric usage and encouraging all residential and business consumers to reduce energy usage where possible
- There were seven Thunder Storm Alerts for a total of 25 hours from August 11-15

Wind Output - August 11, 2016

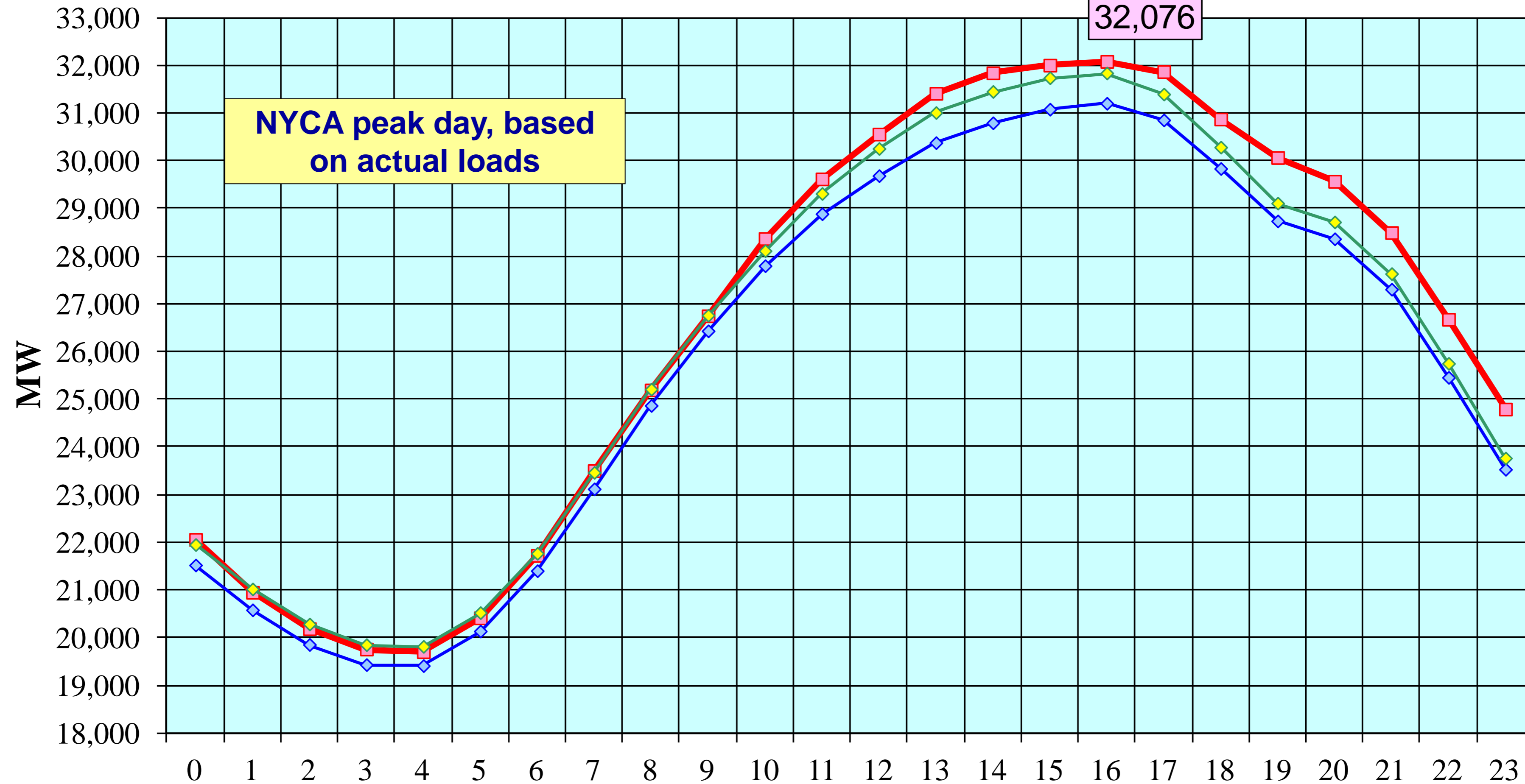


Wind Output - August 12, 2016



NYCA - Actual, Day-Ahead and Weather-Adjusted Loads

Thursday, August 11, 2016



NYCA peak day, based on actual loads

32,076

Chart is in Eastern Daylight Time

Actual Day-Ahead Weather-Adjusted

Day-Ahead forecast includes actual losses.

NYCA - Actual, Day-Ahead and Weather-Adjusted Loads

Friday, August 12, 2016

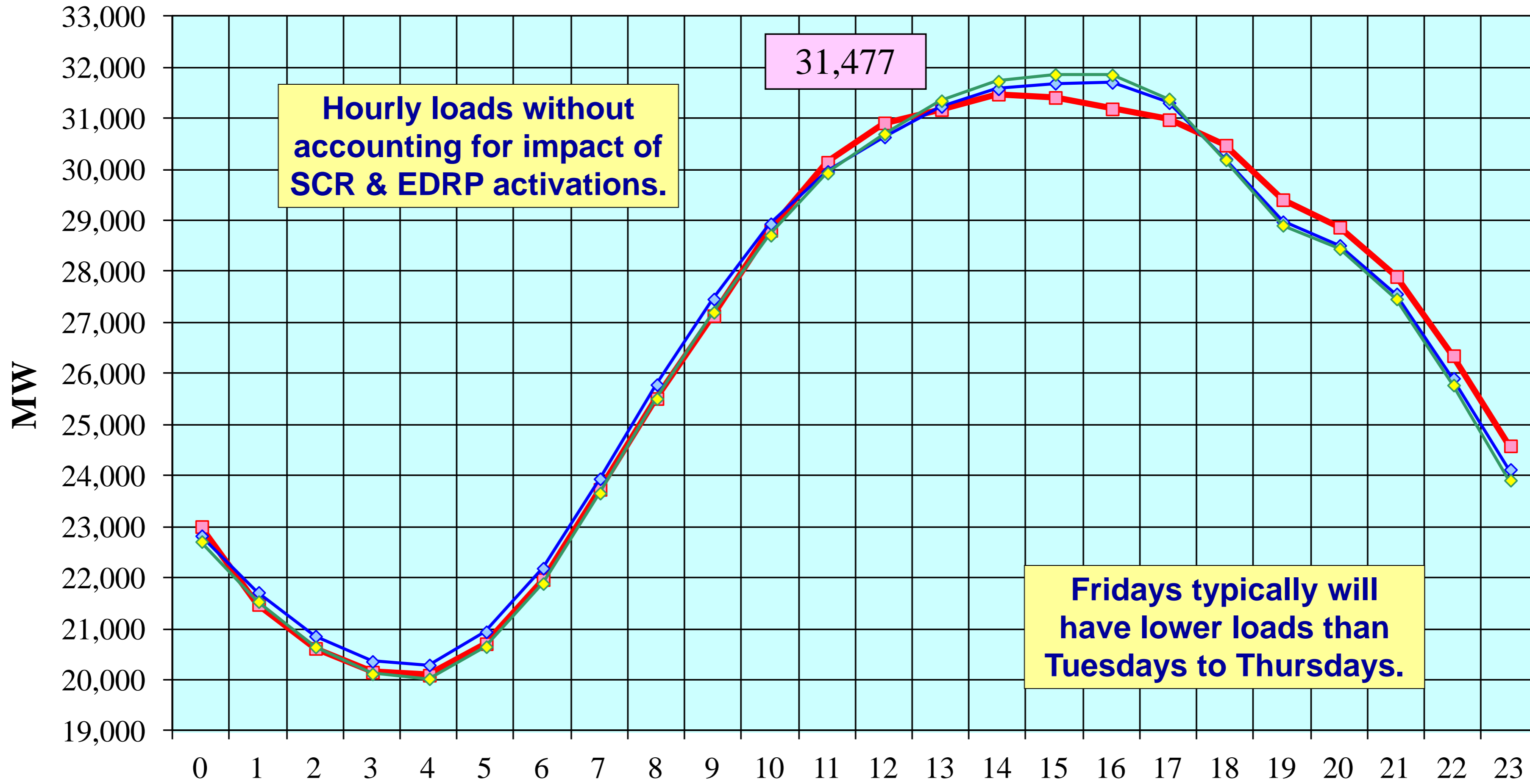


Chart is in Eastern Daylight Time

Actual Day-Ahead Weather-Adjusted

Day-Ahead forecast includes actual losses.

NYCA - Actual, Day-Ahead and Weather-Adjusted Loads

Saturday, August 13, 2016

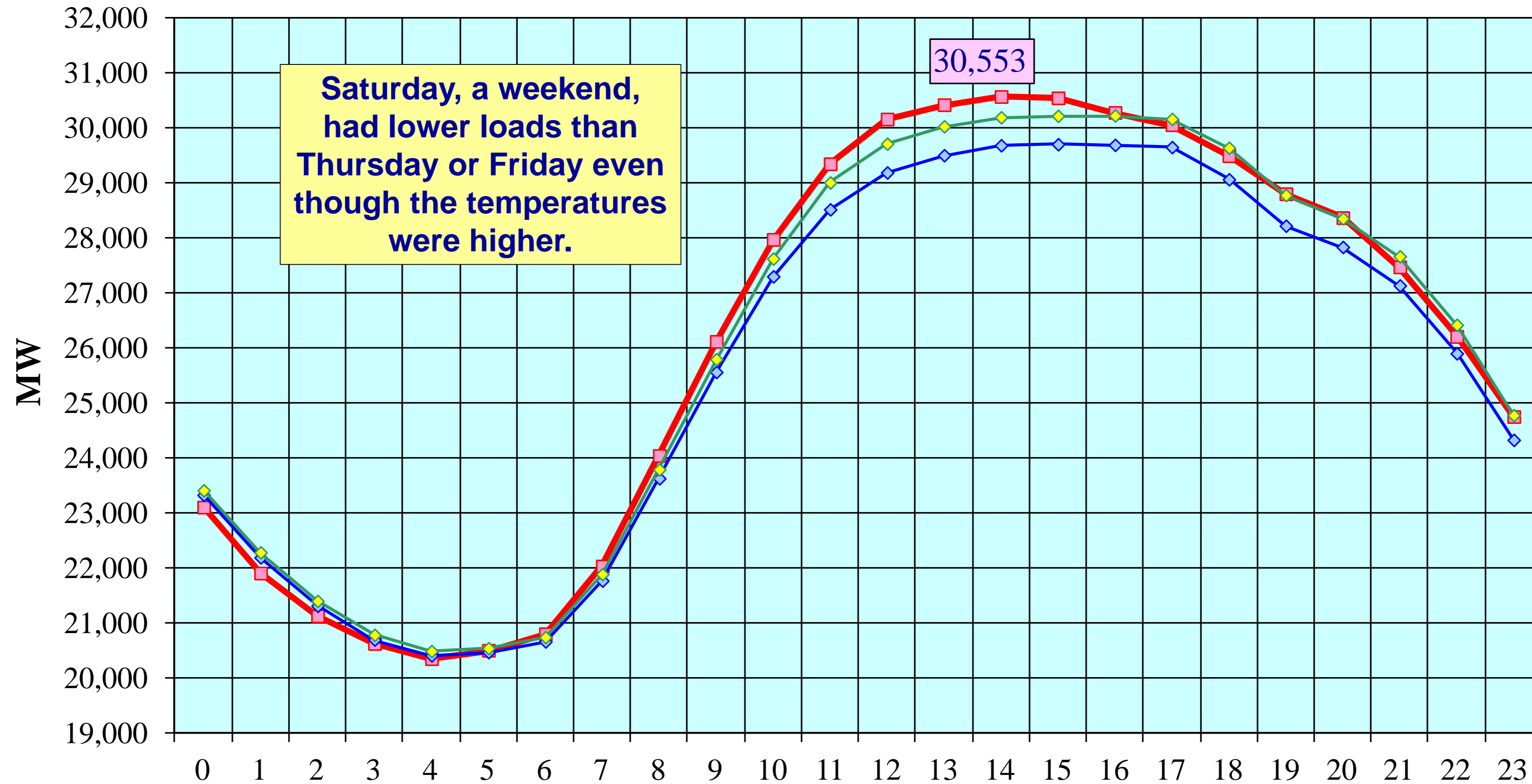


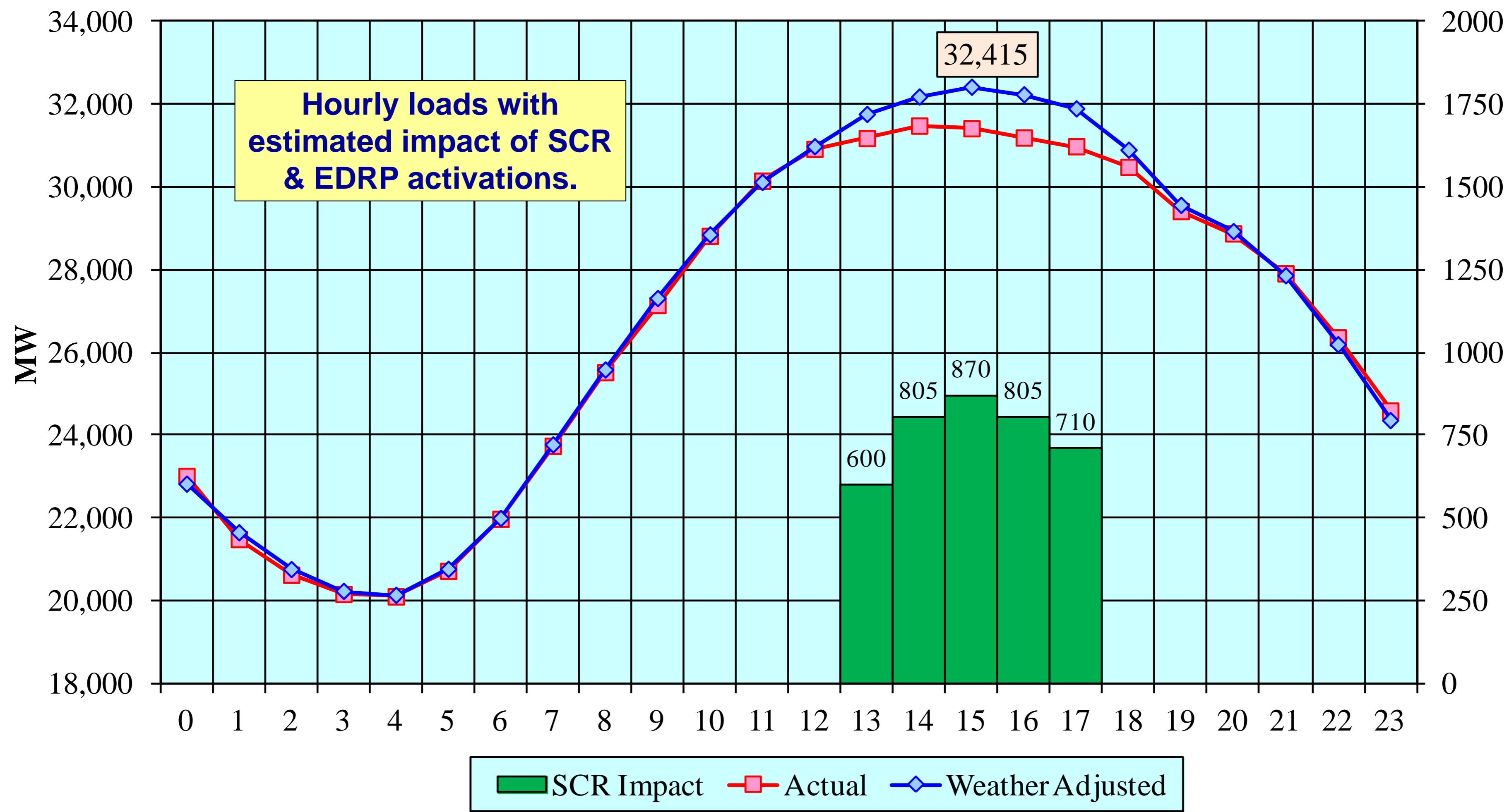
Chart is in Eastern Daylight Time

Actual Day-Ahead Weather-Adjusted

Day-Ahead forecast includes actual losses.

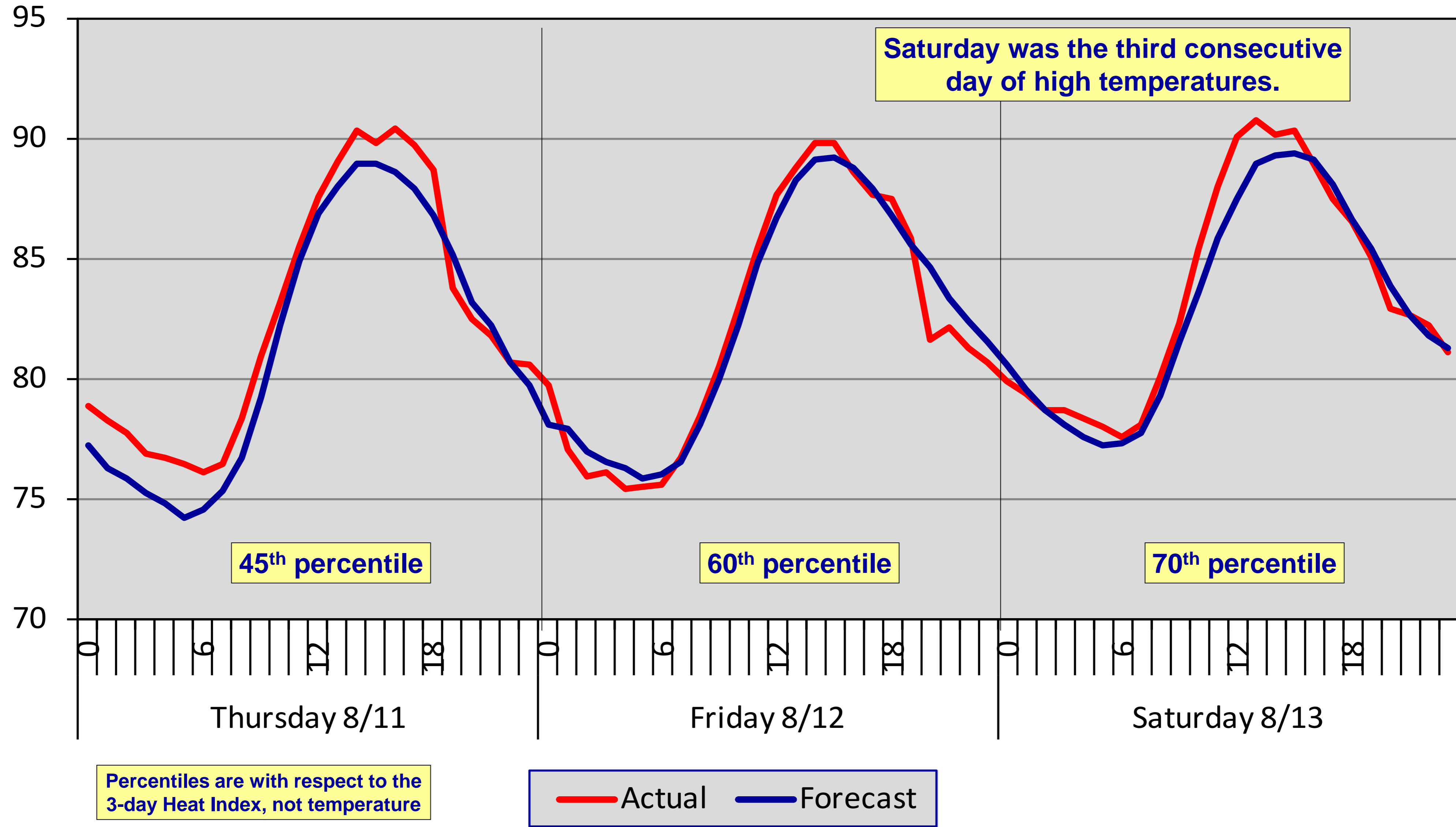
NYCA - Actual, Weather-Adjusted & SCR Impact

Friday, August 12, 2016

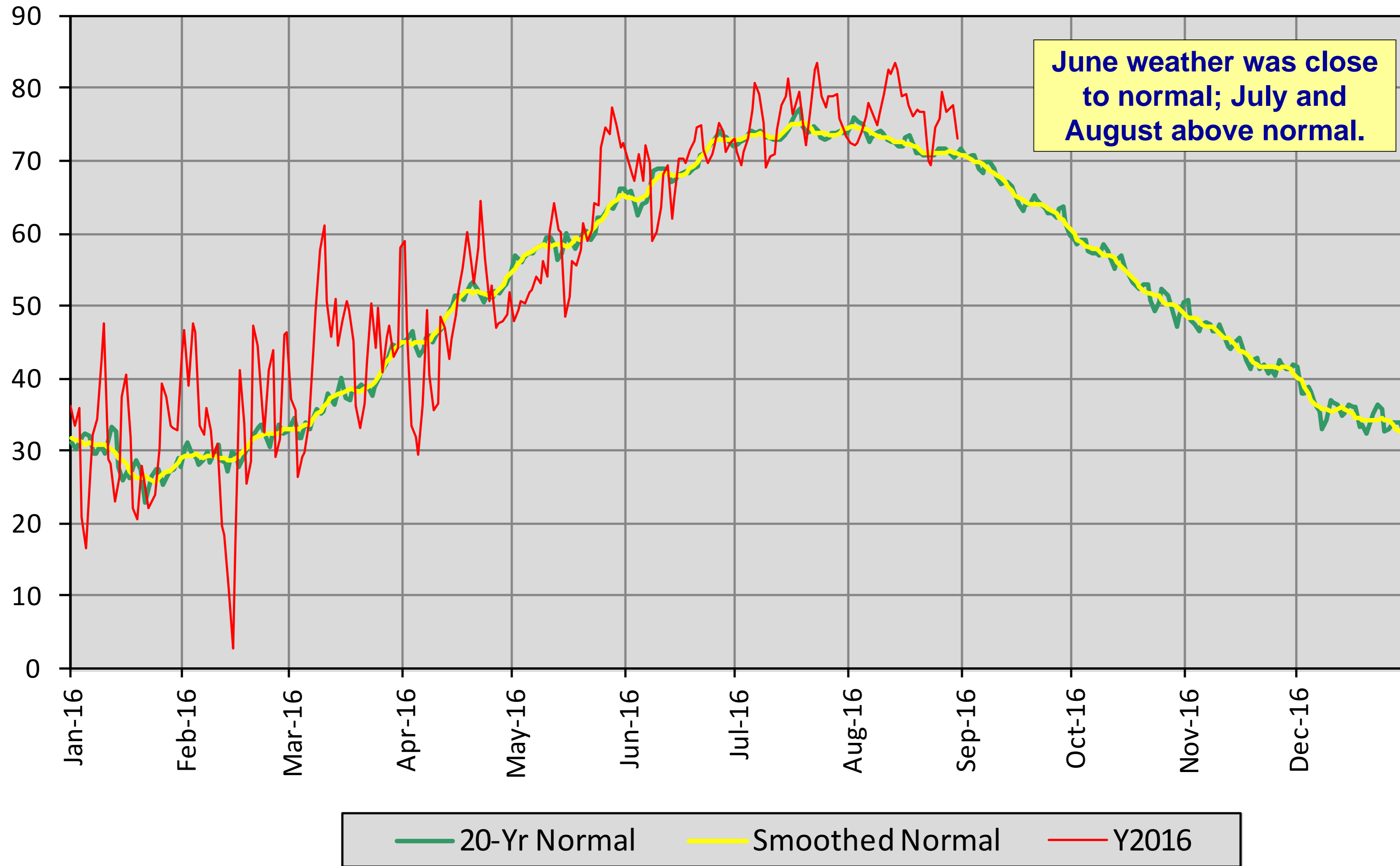


NOTE: Actual load + SCR impact does not equal model estimated due to some impacts of TO DR calls as well as some rain showers

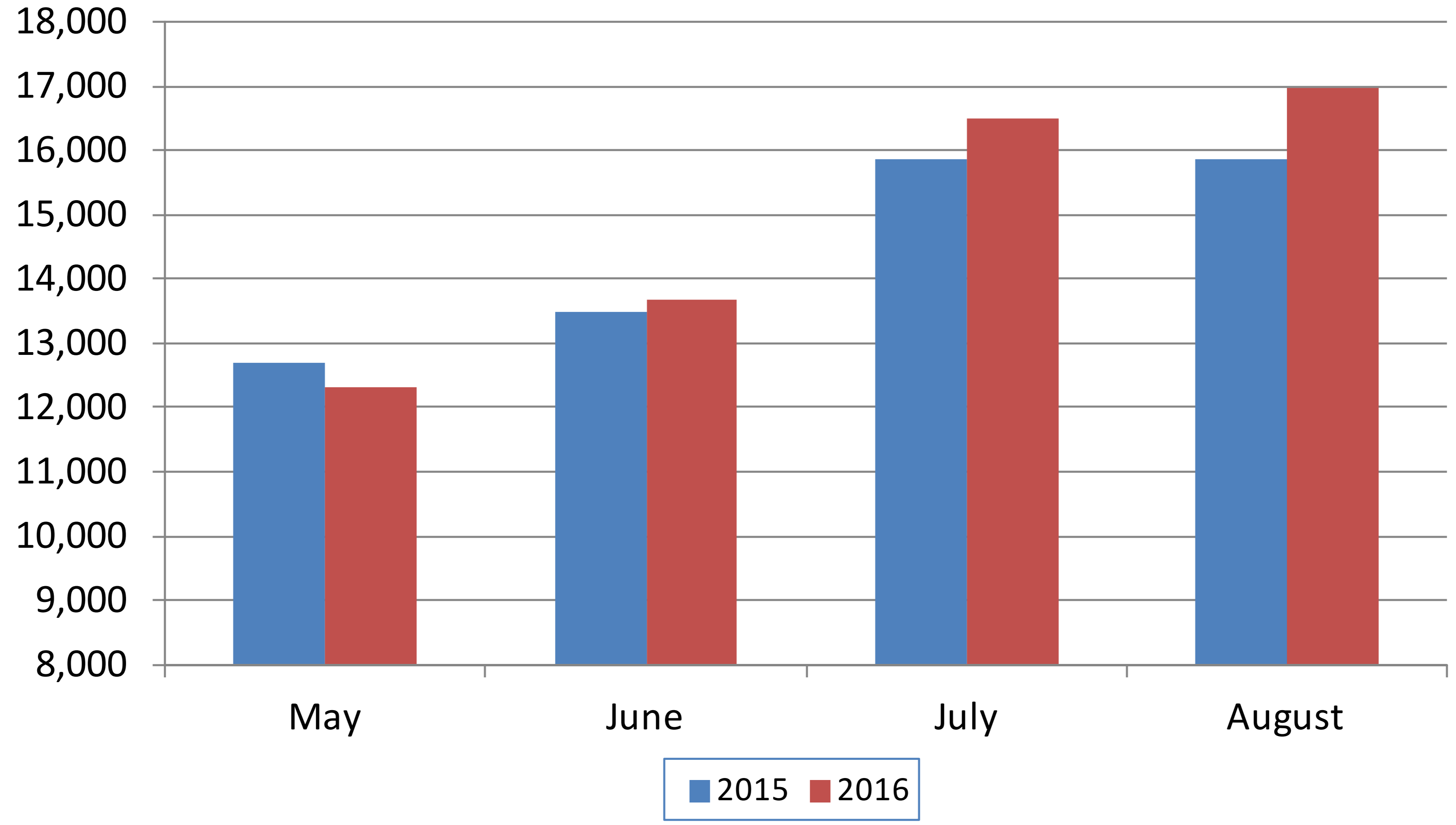
Actual and Day-Ahead Forecasts of Hourly Temperatures 8/11 to 8/13



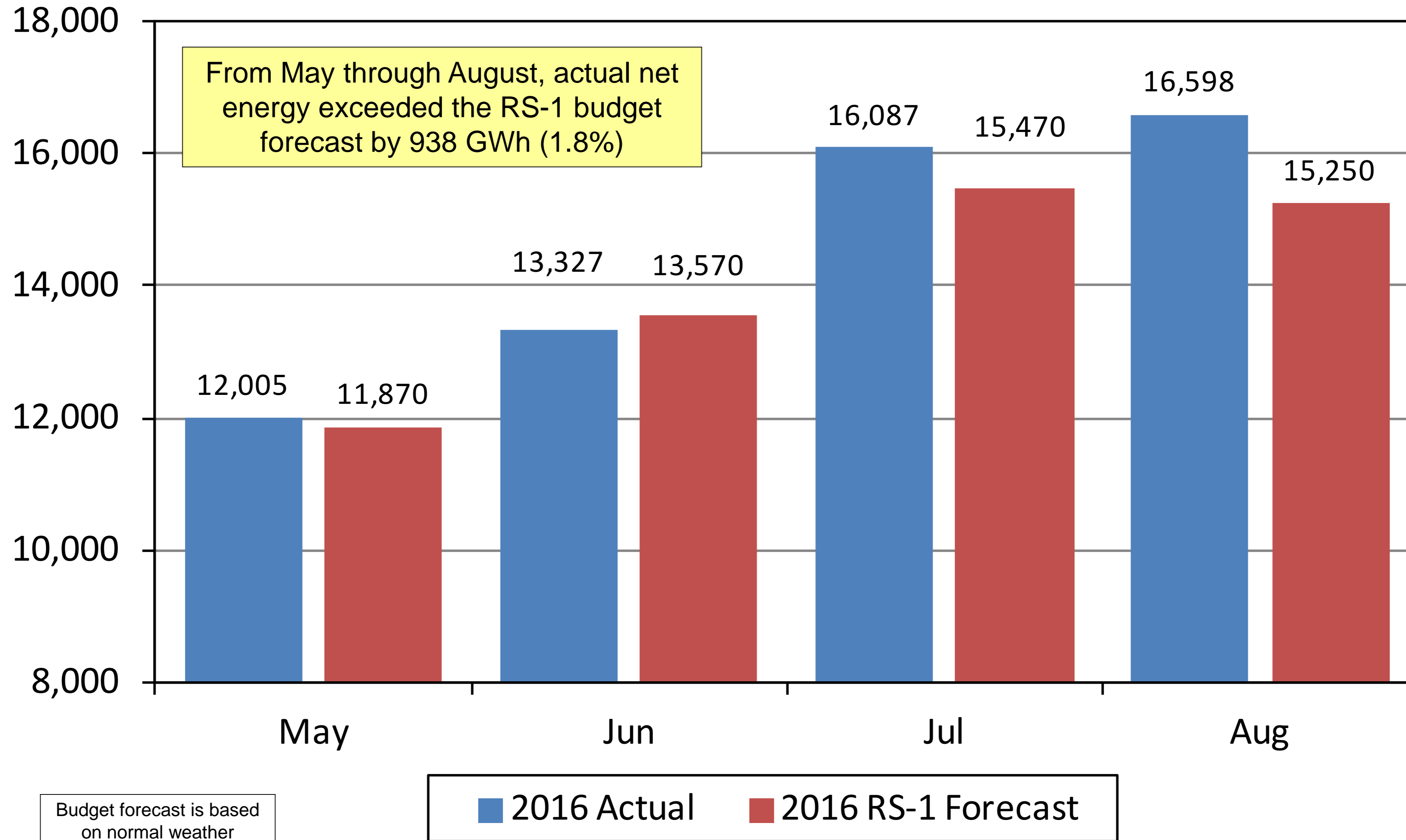
NYCA Composite Daily Average Temperature 2016 & Normal



Monthly Sendout - 2015 & 2016 (GWh)

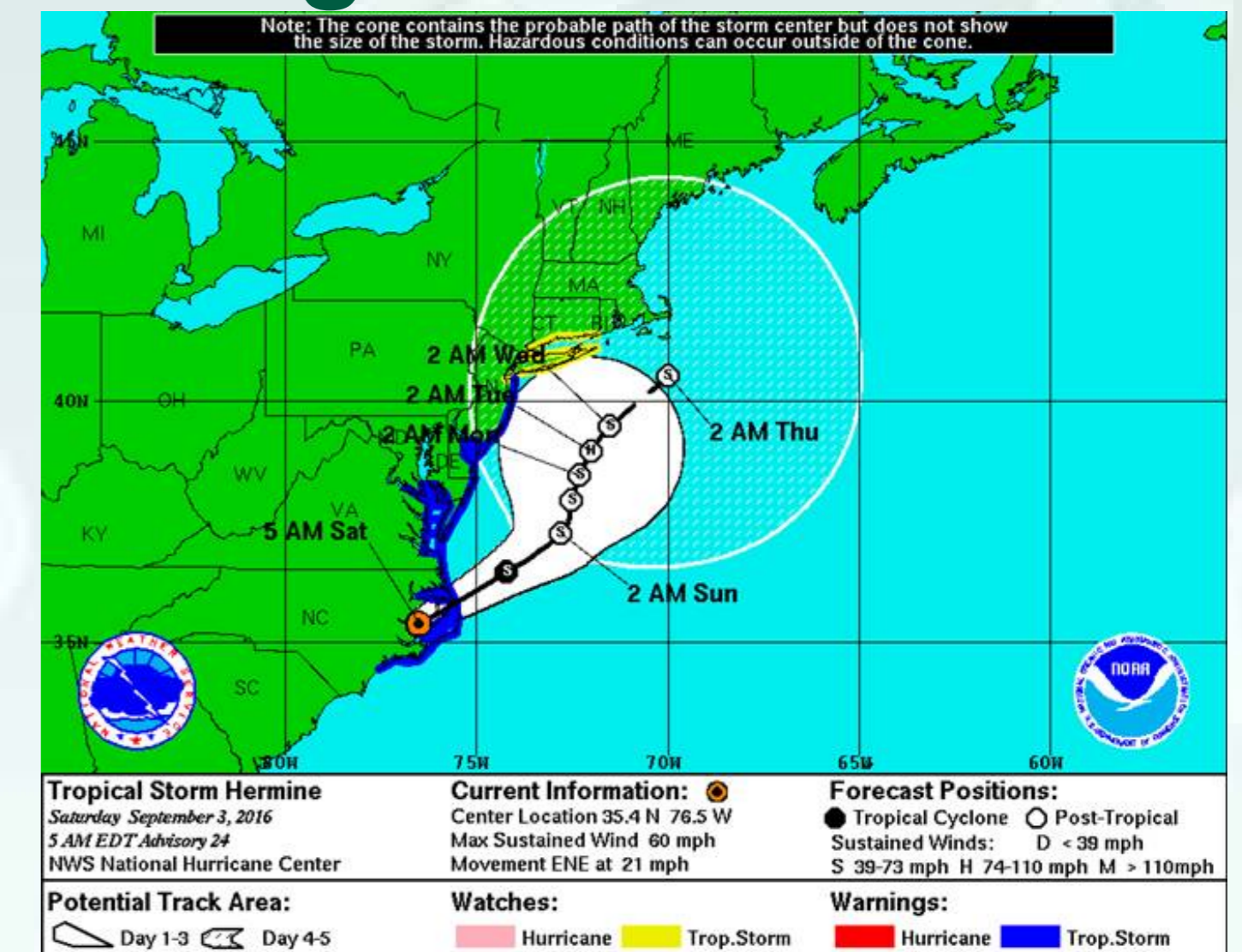


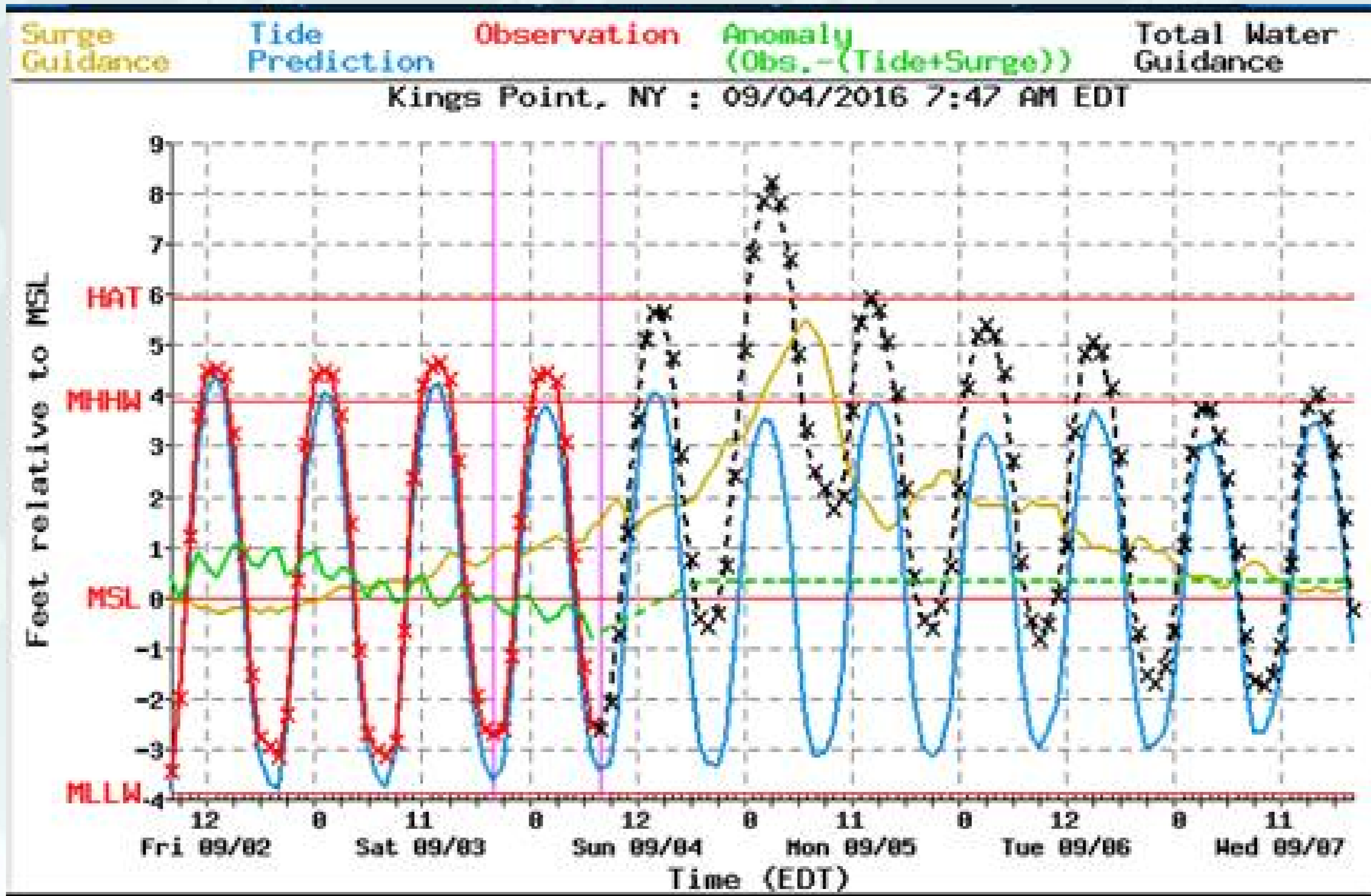
2016 Monthly Net Energy - GWh Actual and RS-1 Budget Forecast



Hurricane Hermine

- Tacked the storms progression up the east coast starting Aug 29th through September 6th
- Discussed storm preparedness, and projected impacts with downstate Transmission Owners starting on Friday September 2nd through Monday September 5th.
 - *Monitored projected storm surge and with respect to generation and transmission asset elevations.*
 - *Transmission work was cancelled*





http://slosh.nws.noaa.gov/etsurge_ESTOFS/index.php?page=stn®ion=ne&type=both&stn=nyking

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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