# Action Items

SODRSTF

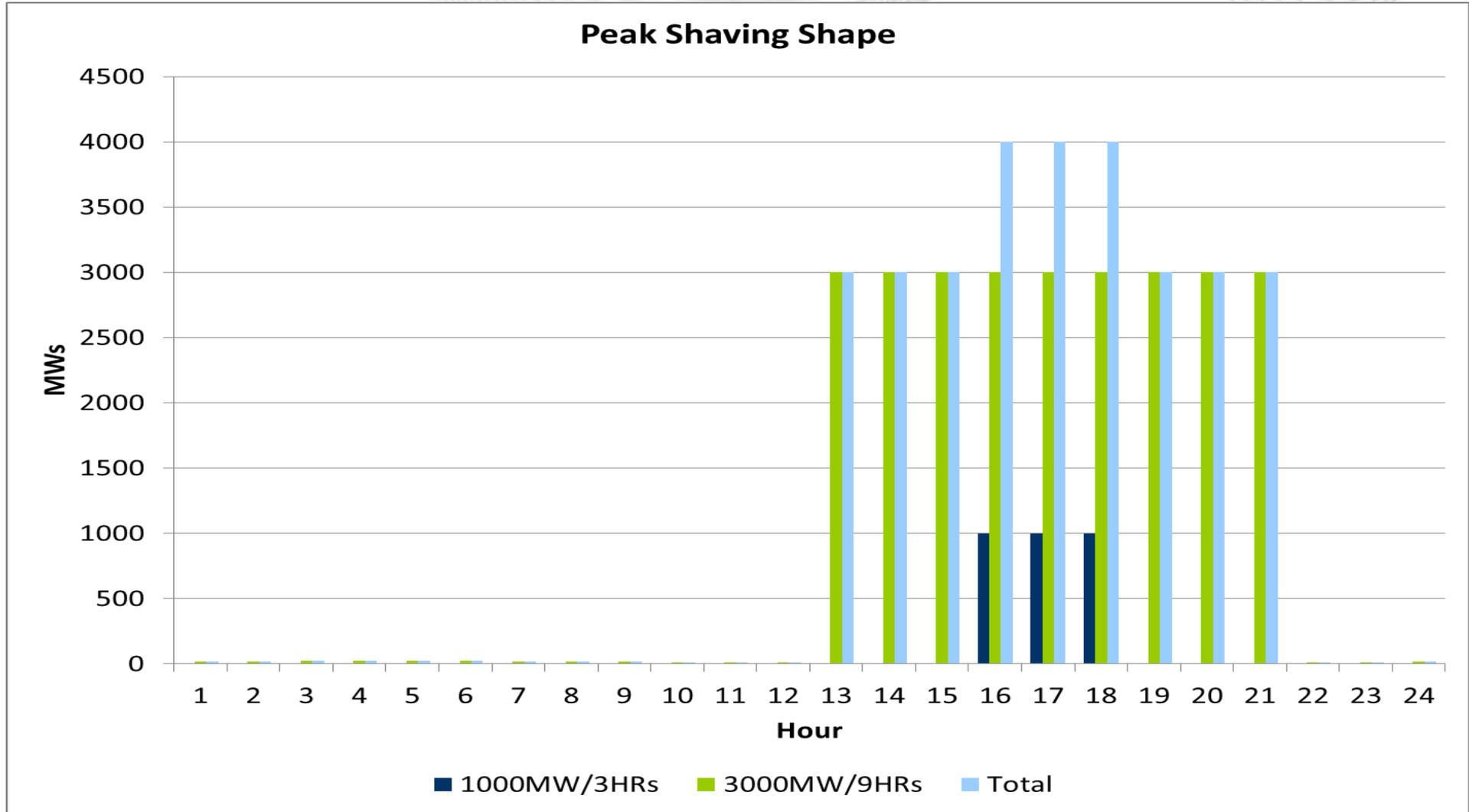February 14, 2018

Link of LOLE to THI

- Investigate correlation of Loss of Load Expectation (LOLE) to Temperature Humidity Index (THI)
  - A series of GEMARS runs were performed using load shapes from 2006 and 2011 (contain the two highest RTO annual peaks) . This produced an hourly LOLE profile.
  - PJM constructed an RTO THI measure using hourly load weights
- Based on this analysis, there appears to be a strong relationship between LOLE and THI. Thus THI-based peak shaving likely produces similar results to LOLE-based peak shaving.
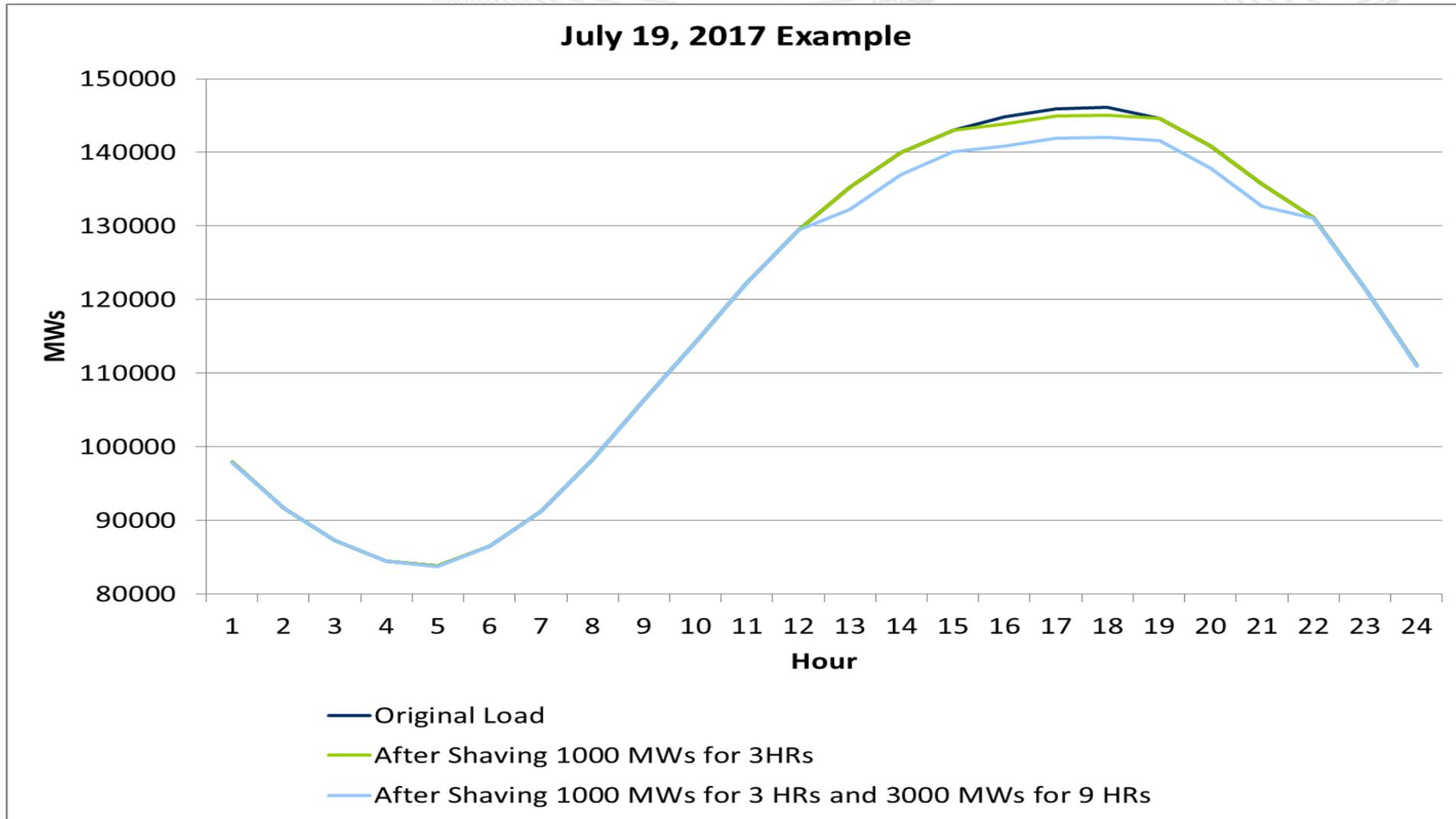
LOLE vs THI for 2006

LOLE vs THI for 2011
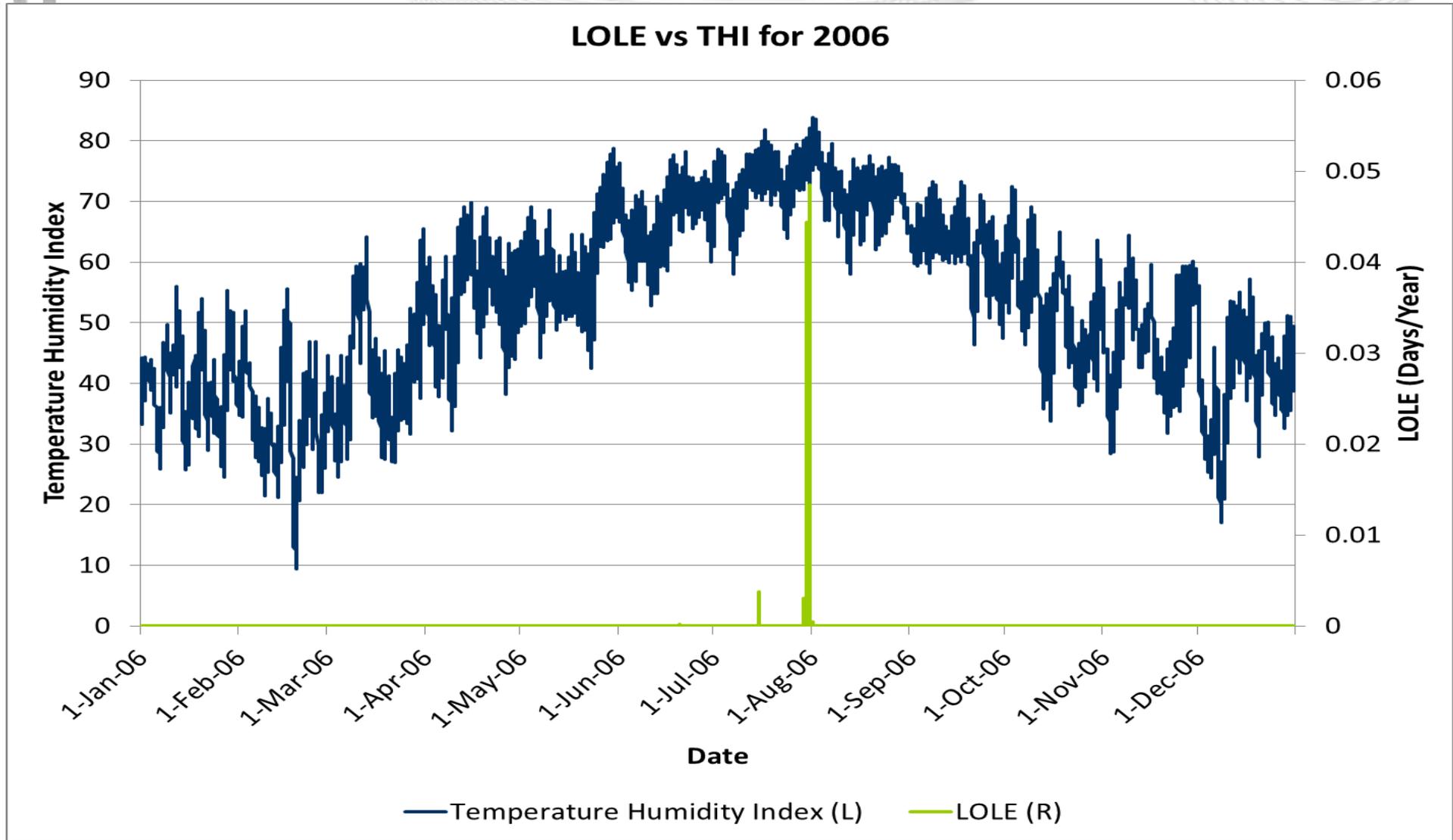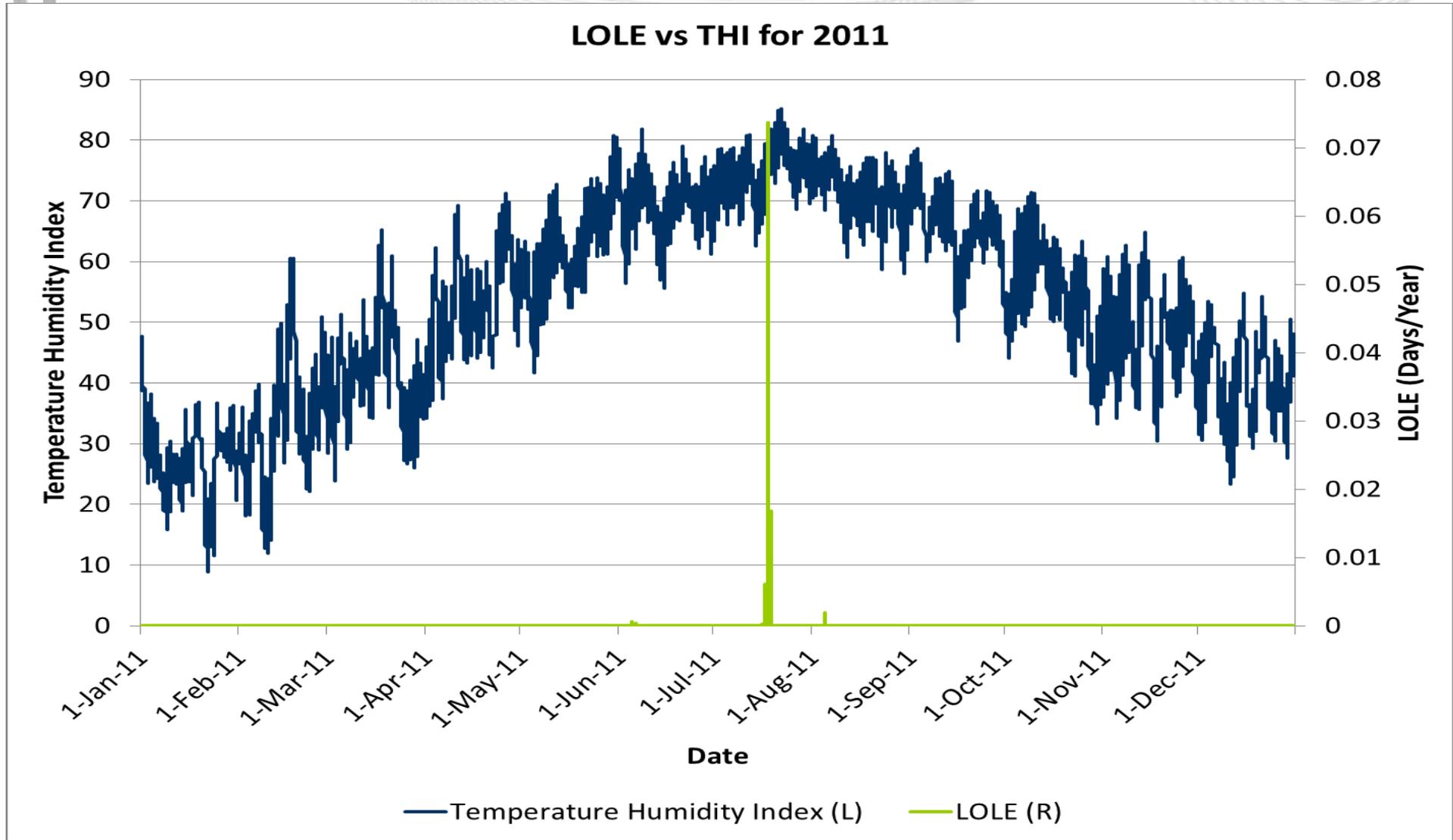
Additional Peak Shaving Example

- Stakeholder requested the impact of a different peak shaving shape in which there were two resources: one 1000 MW resource that can shave for three hours and one 3000 MW resource that can shave for nine hours.
  - Total capability of 4000 MW

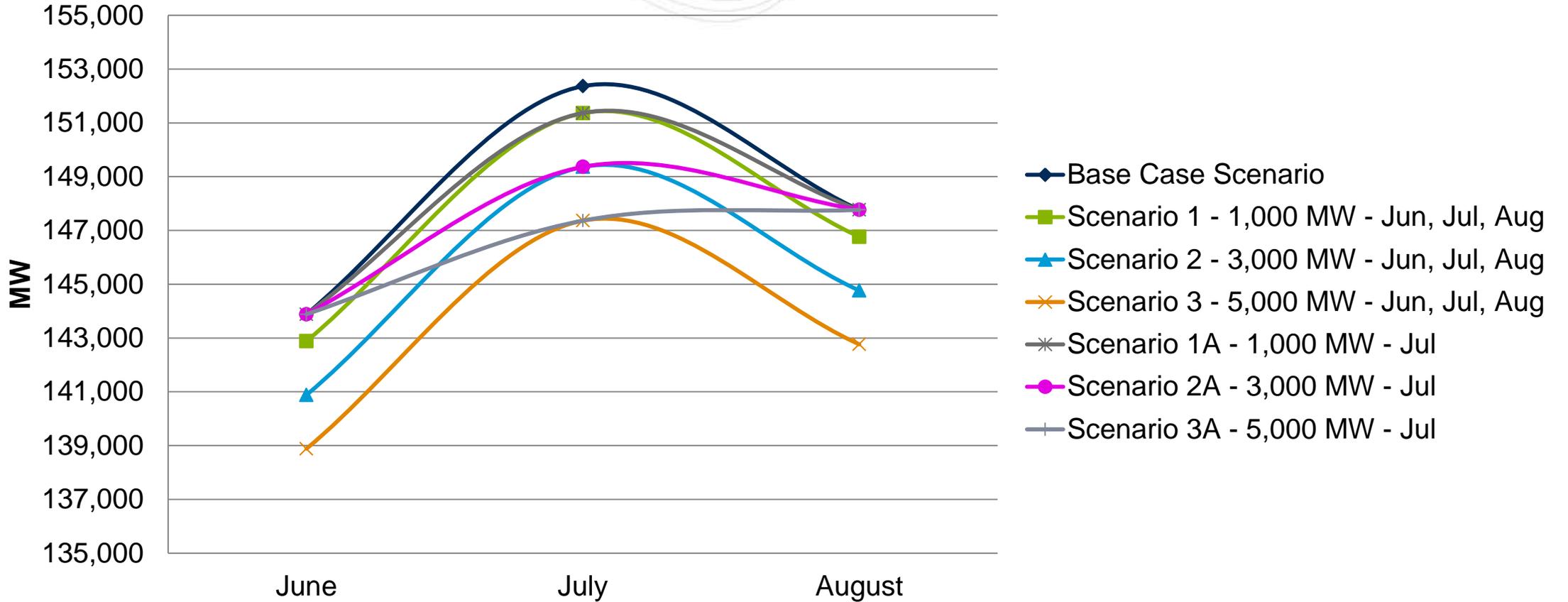Peak Shaving Shape

July 19, 2017 Example

- This example produces a 4000 MW reduction in the daily peak.
  - Similar to prior analysis. Recall from the 2/2 presentation:
    - A 1000 MW resource w/ 3 hour capability produced 1000 MW of benefit
    - A 3000 MW resource w/ 9 hour capability produced 3000 MW of benefit
- An infinite number of scenarios can be performed. Key points regarding intra-day shifting are that a shaving program's ability to reduce the peak is linked :
  - 1) to the duration of reductions
  - 2) the total MW size (i.e. the benefits will not necessarily be linear)

Reliability Requirement Changes due to Potential Peak Shaving Impact on Load Forecast

- Calculations based on 2017 Reserve Requirement Study
- Target Delivery Year: 2021
  - 50/50 Forecast for 2021: 152,363 MW (according to 2018 PJM Load Forecast Report)
- 6 impact scenarios are considered based on:
  - 3 MW impact levels: 1) 1,000 MW – 2) 3,000 MW – 3) 5,000 MW
  - 2 impact periods: 1) July Only – 2) June, July and August
- Note that the methodology to determine the impact of Peak Shaving on PJM Load Forecast has not been developed. The above scenarios are for illustrative purposes only.

2021 Summer Peaks Under Each Scenario

Scenario	Annual Peak (MW)	Peak Month	IRM	FPR	RelReq (MW)	RelReq Reduction Relative to Base Case	RelReq Reduction to Peak Shaving Impact on Load Forecast
Base Case Scenario	152,363	July	15.8%	1.0898	166,045	NA	NA
Scenario 1 - 1,000 MW - Jun, Jul, Aug	151,363	July	15.8%	1.0898	164,955	-1,090	1.0898
Scenario 2 - 3,000 MW - Jun, Jul, Aug	149,363	July	15.8%	1.0898	162,776	-3,269	1.0898
Scenario 3 - 5,000 MW - Jun, Jul, Aug	147,363	July	15.8%	1.0898	160,596	-5,449	1.0898
Scenario 1A - 1,000 MW - Jul	151,363	July	16.1%	1.0926	165,379	-666	0.6660
Scenario 2A - 3,000 MW - Jul	149,363	July	16.8%	1.0992	164,180	-1,865	0.6218
Scenario 3A - 5,000 MW - Jul	147,765	August	17.4%	1.1049	163,266	-2,780	0.5559

RelReq: Reliability Requirement

- If the Peak Shaving impact is identical on the monthly peaks of all summer months with LOLE, the reductions in Reliability Requirements are commensurate with the peak shaving MW impact times the FPR.

- If the Peak Shaving impact is restricted to the month with the annual peak only, the reductions in Reliability Requirement are lower than the peak shaving MW impact.

VRR Curve Changes