New York ISO
Independent System Operator

Preliminary Results on Maintaining Operating Reserve at Load Shedding

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Background

- **For the 2023 IRM study, the NYISO proposes the modeling change to maintain operating reserves ("OR") during load shedding events**
  - Specifically, the NYISO proposes to maintain some level of 10-minute OR which is capable of accommodating system volatility during load shedding
- **It is expected that the amount and the locations of how the 10-minute OR are maintained will have different impacts on the IRM**
  - The current IRM model includes 1,310 MW of 10-minute OR
- **The NYISO conducted preliminary analysis, maintaining three different levels of 10-minute OR at load shedding**
  - 327.5 MW = ¼ of the total 10-minute OR
  - 500 MW
  - 655 MW = ½ of the total 10-minute OR

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Methodology

- Currently 10-minute OR is modeled as Emergency Operating Procedure ("EOP") step 8 in the IRM, which MARS will count on to address system shortages.
- The NYISO deducted the three MW levels of 10-minute OR in the EOP step 8, reflecting the reduced amount of OR being available during load shedding. Three allocation methods were also studied.

Current 10-Minute OR EOP 8			Maintain **327.5 MW** OR at Load Shedding			Maintain **500 MW** OR at Load Shedding			Maintain **655 MW** OR at Load Shedding		
Zone		MW (%)	Current Allocation	All Upstate	All Downstate	Current Allocation	All Upstate	All Downstate*	Current Allocation	All Upstate	All Downstate*
Upstate	NY_F	518 (40%)	129.5	203.9	0	197.7	311.3	13.7	259.0	407.8	110.2
	NY_G	314 (24%)	78.5	123.6	0	119.8	188.7	8.3	157.0	247.2	66.8
Downstate	NY_J	358 (37%)	89.5	0.0	245.3	136.6	0.0	358.0	179.0	0.0	358.0
	NY_K	120 (9%)	30.0	0.0	82.2	45.8	0.0	120.0	60.0	0.0	120.0
TOTAL		**1310**	**327.5**			**500**			**655**		

*Existing 10-minute OR is not sufficient in downstate and additional OR will need to be maintained from upstate

Preliminary Results for OR @ 327.5 MW

- The IRM impacts are parametric results. Parametric adjustment methods vary depending on where the 327.5 MW OR is maintained.

Metrix	FBC with Neptune Outage	Maintain **327.5 MW** OR at Load Shedding		
		Current Allocation *A-K Adjustment*	All Upstate *A-F Adjustment*	All Downstate *G-K Adjustment*
IRM	19.60%	20.66%	20.57%	21.03%
J_LCR	80.70%	81.50%	80.70%	82.74%
K_LCR	99.80%	100.81%	99.80%	102.36%
NYBA EOP	38.4	33.5	29.5	38.2

Preliminary Results for OR @ 500 MW

- The IRM impacts are parametric results. Parametric adjustment methods vary depending on where the 500 MW OR is maintained.

Metrix	FBC with Neptune Outage	Maintain **500 MW** OR at Load Shedding		
		Current Allocation *A-K Adjustment*	All Upstate *A-F Adjustment*	All Downstate *G-K Adjustment*
IRM	19.60%	21.28%	21.22%	21.78%
J_LCR	80.70%	81.98%	80.70%	83.80%
K_LCR	99.80%	101.41%	99.80%	103.70%
NYBA EOP	38.4	30.9	24.8	38.1

Preliminary Results for OR @ 655 MW

- The IRM impacts are parametric results. Parametric adjustment methods vary depending on where the 655 MW OR is maintained.

Metrix	FBC with Neptune Outage	Maintain **655 MW** OR at Load Shedding		
		Current Allocation *A-K Adjustment*	All Upstate *A-F Adjustment*	All Downstate *G-K Adjustment*
IRM	19.60%	21.84%	21.93%	22.09%
J_LCR	80.70%	82.40%	80.70%	84.25%
K_LCR	99.80%	101.94%	99.80%	104.26%
NYBA EOP	38.4	28.7	20.7	38.1

Observation and Next Step

- **Maintaining additional OR at load shedding will proportionally increase the IRM**
  - Since OR is modeled without EFORd, for 1 MW OR maintained, >1 MW of ICAP will need to be added to the system
  - Zonal allocations between upstate and downstate have ~0.5% impact on the IRM
- **Zonal allocation will impact the preliminary LCRs are directly**
  - Tan45 process may to some extend soften the impacts on LCRs
- **Having the OR maintained upstate and increasing upstate ICAP, will alleviate issues in Zone A/B, hence reducing the EOP activations.**
- **Next Step:**
  - Select a MW level for maintaining OR and an allocation method to proceed with a Tan45 assessment. Recommend selecting the 327.5 MW OR with current NYCA allocation.
  - Consider combining other modeling changes, such as adopting GE ELR model for the Tan45 assessment

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Questions?

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