

#### Maintaining Operating Reserves during Load Shedding – 2024-2025 IRM

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#### **ICS Meeting #276**

May 3, 2023 Revised: May 5, 2023 Revision: ICS Recommendation slide added following discussion at ICS Meeting #276

# Agenda

- Background
- Methodology
- Results
- Recommendation
- Next Steps
- ICS Recommendation
- Appendix



# Background

 Maintaining 350MW of Operating Reserves ("OR") during load shedding events was implemented for the 2023-2024 IRM Study after being adopted by the NYSRC

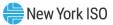
https://www.nysrc.org/PDF/MeetingMaterial/ICSMeetingMaterial/ICS%20Agenda%20260/Operating\_Reserve\_Recommendation\_ICS05042022\_V4\_Updated[4867].pdf

- The 350MW recommendation was based on the 10-minute net load variability during the summer Peak Load Window (PLW) using NYISO's Regulation Requirements dataset
- The NYISO also recommended reviewing and updating the 350MW recommendation with new information, such as when the NYISO's Regulation Requirements are updated

#### NYISO's Regulation Requirements are currently in the process of being updated analyzing two scenarios

 $https://www.nyiso.com/documents/20142/37014190/Proposed \% 20 Regulation \% 20 Requirements \_ 20230406\_SOAS\_v1.pdf/a2d7d51a-5511-37c6-ad04-a177d69f5424$ 

- Scenario 1: End of 2024 forecast for wind and solar (3,000MW Land Based Wind (LBW), 125MW Offshore Wind (OSW), 7,651MW Solar)
- Scenario 2: End of 2026 forecast for wind and solar (3,700MW LBW, 125MW OSW, 9,768MW Solar)
- The NYISO reviewed the two scenarios for a potential update to the 350MW assumption in the 2024-2025 IRM study



## Methodology

- Using the same approach that produced the 350MW recommendation in the 2023-2024 IRM Study, the 10-minute net load variability was calculated to 3σ (99.7% confidence level) for both scenarios
  - Net Load = (Total Load) (Solar Production) (Wind Production)
- Two Summer Windows were analyzed for the calculation to review the withholding OR assumption
  - 1. 8 Hour Peak Load Window (PLW)
    - HB 12 19 from June August
    - This is the PLW that was used to calculate the 350MW used in IRM23
  - 2. LOLE Window
    - HB 11 21 from June August
      - Informational 2023 Hourly LOLE Distribution posted on NYISO's Capacity Accreditation page
        - <u>https://www.nyiso.com/documents/20142/36848677/Peak-Load-Window-for-the-20232024-Capability-Year.pdf/4850e0ea-78ed-e3c2-98eb-fddd92446c31</u>

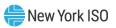


#### **Results**

10-Minute Net Load Variability – IRM23 Study								
	June	July	August					
8 Hour PLW	307	346	315					

10-Minute Net Load Variability – 8 Hour PLW									
Dataset June July August									
Scenario 1	254	328	298						
Scenario 2	272	345	312						

10-Minute Net Load Variability – LOLE Window										
Dataset June July Au										
Scenario 1	316	396	382							
Scenario 2	328	411	390							



## Recommendation

- The NYISO recommends no change to the 350MW being withheld during EOP step 8 in the 2023-2024 IRM Study
  - The assumption for withholding 350 MW OR was implemented since last year
  - The updated datasets do not show a significant change in net load variability compared to last year's study
  - The distribution of the 10-Minute OR with the 350 MW withheld is detailed in the table below:

т	otal 10-Minute OR	Distribution	Distribution of the Recommended <b>350 MW</b>	Recommended Modeling of 10-Minute OR at EOP 8			
Zone		MW (%)	OR at Load Shedding	- With maintaining 350 MW OF at Load Shedding			
Unototo	NY_F	518 (40%)	138	380			
Upstate	NY_G	314 (24%)	84	230			
Downstate	NY_J	358 (37%)	96	262			
	NY_K	120 (9%)	32	88			
TOTAL 1		<u>1310</u>	<u>350</u>	<u>960</u>			

 It is worth noting that the updated datasets show upward trending of the net load variability. Continued monitoring of the penetration of intermittent resources is also recommended



### **Next Steps**

- If the recommendation is approved by the ICS, continue modeling the 350 MW OR withholding in the 2024-2025 IRM Study
- Continue to review the assumption of maintaining OR at the time of load shedding during each IRM study cycle



### **ICS Recommendation**

- After review at the May 3<sup>rd</sup> ICS Meeting, the ICS approved maintaining 400 MW OR during load shedding in the 2024-2025 IRM Study
- Below is the updated 10-minute OR distribution that will be modeled at EOP step 8:

т	otal 10-Minute OR	Distribution	Distribution of the Recommended <b>400 MW</b>	Recommended Modeling of 10-Minute OR at EOP 8			
Zone MW (%)		MW (%)	OR at Load Shedding	- With maintaining 400 MW OR at Load Shedding			
Upstate	NY_F	518 (40%)	158	360			
Upstate	NY_G	314 (24%)	96	218			
Downstate	NY_J	358 (37%)	109	249			
Downstate	NY_K	120 (9%)	37	83			
TOTAL		<u>1310</u>	<u>400</u>	<u>910</u>			



### **Our Mission & Vision**

 $\checkmark$ 

#### **Mission**

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

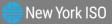


#### Vision

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

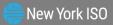


# **Questions?**



# Appendix

Proposed Regulation Requirements presented at April 17<sup>th</sup> ICAPWG



### **Proposed Regulation Requirements**

	April	-May	June-/	August	Septembe	er-October	November-March			April-May		April-May		June-	August	t September-October November-M		er-March
							Current	Scenario 1		Current	Scenario 2	Current	Scenario 2	Current	Scenario 2	Current	Scenario 2	
		3,000MW LBW,				3,000MW LBW,	-	3,000MW LBW,		Requirement	3,700MW LBW,	Requirement	3,700MW LBW,	Requirement	3,700MW LBW,	Requirement	3,700MW LBW,	
	3,500MW Wind		3,500MW Wind		3,500MW Wind		3,500MW Wind			3,500MW Wind	125MW OSW,	3,500MW Wind	125MW OSW,	3,500MW Wind	125MW OSW,	3,500MW Wind	125MW OSW,	
НB	3,000MW Solar	7,651MW Solar	3,000MW Solar	7,651MW Solar	3,000MW Solar	7,651MW Solar	3,000MW Solar	7,651MW Solar	НВ	3,000MW Solar	9,768MW Solar	3,000MW Solar	9,768MW Solar	3,000MW Solar	9,768MW Solar	3,000MW Solar	9,768MW Solar	
0	175	175	225	225	175	175	200	200		175	175	225	225	175	175	5 200	200	
1	175	175	175	175	175	175	175	175		175	175	175	175	175	175	5 175	5 175	
2	175	175	175	175	150	150	175	175		2 175	175	175	175	150	175	175	175	
3	175	175	175	175	175	175	150	150		3 175	175	175	175	175	175	5 150	175	
4	225	225	225	225	225	225	175	175		225	225	225	225	225	225	5 175	175	
5	225	225	250	250	275	275	225	225		225	275	250	275	275	275	225	225	
6	225	275	275	300	300	325	275	275		5 225	325	275	325	300	325	275	275	
7	225	300	275	350	275	350	275	325	1	225	375	275	375	275	400	275	325	
8	200	275	275	300	225	300	275	275		200	375	275	400	225	450	275	375	
9	200		225		225	275	225	250		200	325	225	350	225	400	225	325	
10	200	225	200	225	225	275	200	200	1	200	275	200	300	225	350	200	275	
11	225	225	200	225	225	250	200	200	1	225	250	200	275	225	300	200	250	
12	225	250	225	250	275	275	250	250	1	225	300	225	300	275	300	250	250	
13	200	250	200	250	250	275	225	225	1	3 200	300	200	300	250	300	225	250	
14	225	250	200	275	225	275	250	250	1	225	325	200	325	225	350	250		
15	200	275	225	275	225	250	250	250	1	5 200	350	225	350	225		250	300	
16	225	250	250	275	200	200	275	275	1	225	300	250	350	200	300	275	5 275	
17	225	225	275	275	250	250	300	300	1	225	250	275	300	250	250	300	300	
18	250	250	250	250	275	275	275	275	1	3 250	250	250	250	275	275	5 275	275	
19	275	275	250	250	250	250	250	250	1	275	275	5 250	250	250	250	250	250	
20	250	250	250	250	250	250	200	200	2	250	250	250	250			200	200	
21	200	200	250	250	250	250	225	225	2	200	200	250	250	250	250	225	225	
22	200	200	275	275	200	200	200	200	2	200	200	275	275	200	200	200	200	
23	200	200	275	275	225	225	200	200	2	200	200	275	275	225	225	5 200	200	

(Planned Updates – Scenario 1)

(Planned Updates – Scenario 2)

