



# Day-Ahead Reserve Price Analysis

Markets Committee Webinar  
February 20 2024

Joseph Ciabattoni  
Sr. Manager Day Ahead Markets

**Focused on  
September,  
October and  
November**

**Sept. average = \$1.3**

**Reserve Prices  
greater than the Sept. average = 1,212 hours**

**Sept.  
137 hours**

**Oct.  
662 hours**

**Nov.  
443 hours**

## Of these 1,212 hours

**100% of the reserve shadow prices** were set by the reserve interface

**280 hours** shadow price only Sync Reserve

**5 hours** shadow price both Sync and Primary Reserves

**927 hours** shadow price only Primary Reserves

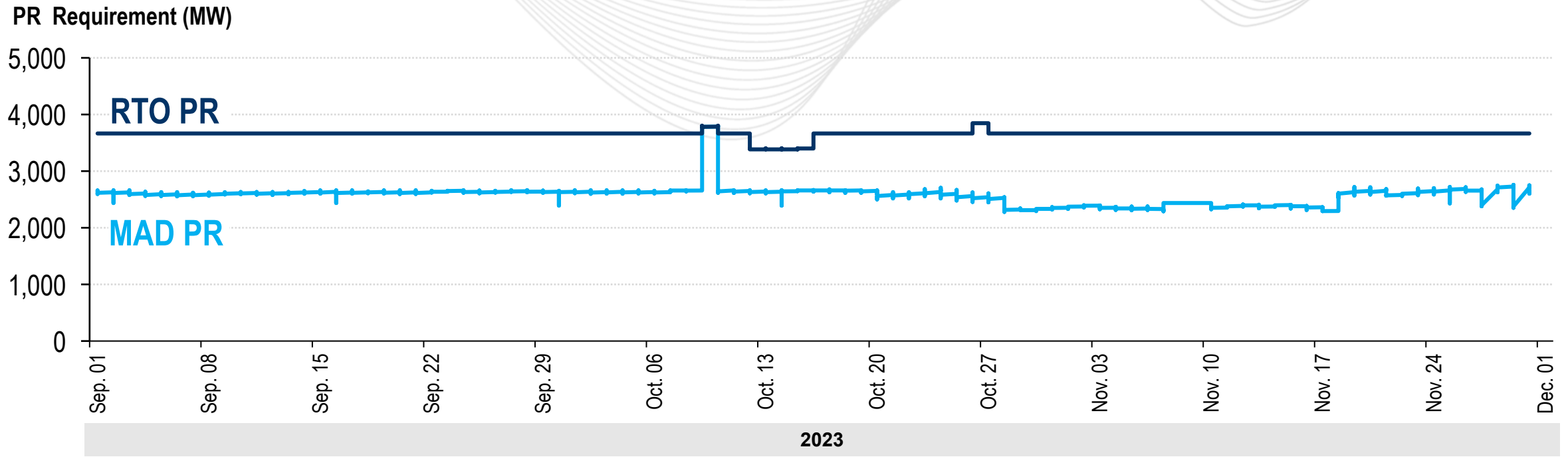
**Sync Reserve** average price was \$5.77 with a max of \$20.62

**Primary Reserve** average price \$10.77 with a max of \$77.44

**High reserve prices were driven by shadow prices of reserve sharing in both Sync Reserve and Primary Reserve, but primarily by shadow prices of Primary Reserve.**

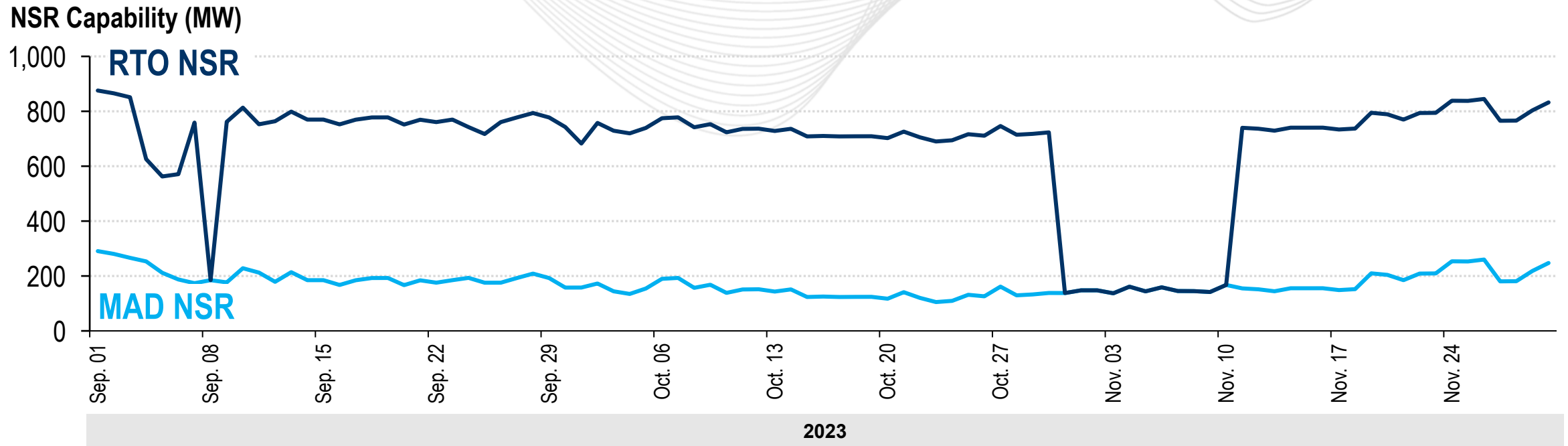
Months	AVERAGE		AVERAGE	
	Primary Reserve Price	Sync Reserve Price	Primary Reserve Shadow Price	Sync Reserve Shadow Price
Sept.	\$1.18	\$1.25	\$1.18	\$0.08
Oct.	\$7.80	\$9.35	<b>\$7.80</b>	\$1.55
Nov.	\$4.72	\$5.34	<b>\$4.72</b>	\$0.62

***Why Primary Reserve Shadow prices jump since October?***



**RTO Primary Reserve** requirement has been stable from Sept. to Nov., with small increases in a few days in Oct.

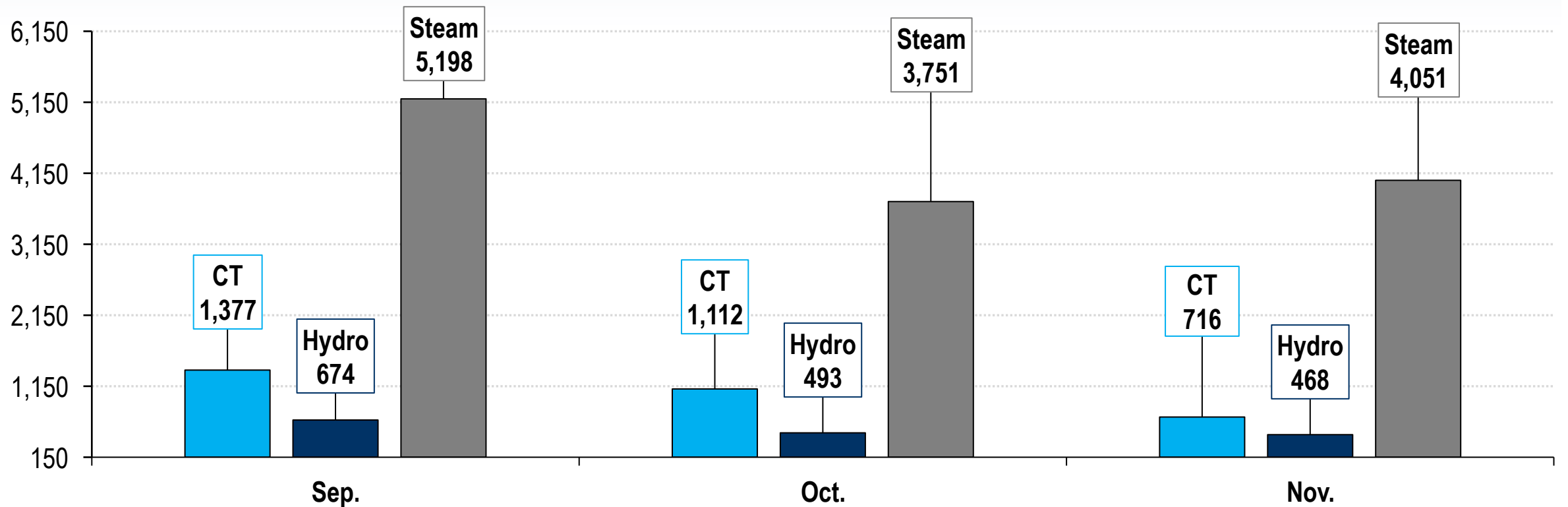
**MAD Primary Reserve** requirement has been stable. *There was a large increase for two days in Oct. and about 10% decrease from Oct. 28–Nov. 18.*



**NSR capability** decreased slightly in both MAD and RTO from Oct., then pick up from late Nov.  
*From Oct. 31–Nov. 10, there was a significant decrease in RTO NSR capability.*

**Sync Reserve capability comes mostly from CT, hydro and steam units.**

**RTO SR Capability (MW)**



1. High reserve prices in DA was driven by Primary Reserve shadow prices.

Cause by tightened Primary Reserve capability to meet requirement

---

2. Reduction in Primary Reserve capability is observed in all the main categories (NSR, CT SR, hydro SR, steam SR).
- 

3. Steam units account for the most loss of SR capability.



# What Caused Reduced Sync Reserve Capability?

**Strong correlation with generator outage data**

**Correlation with high load days**

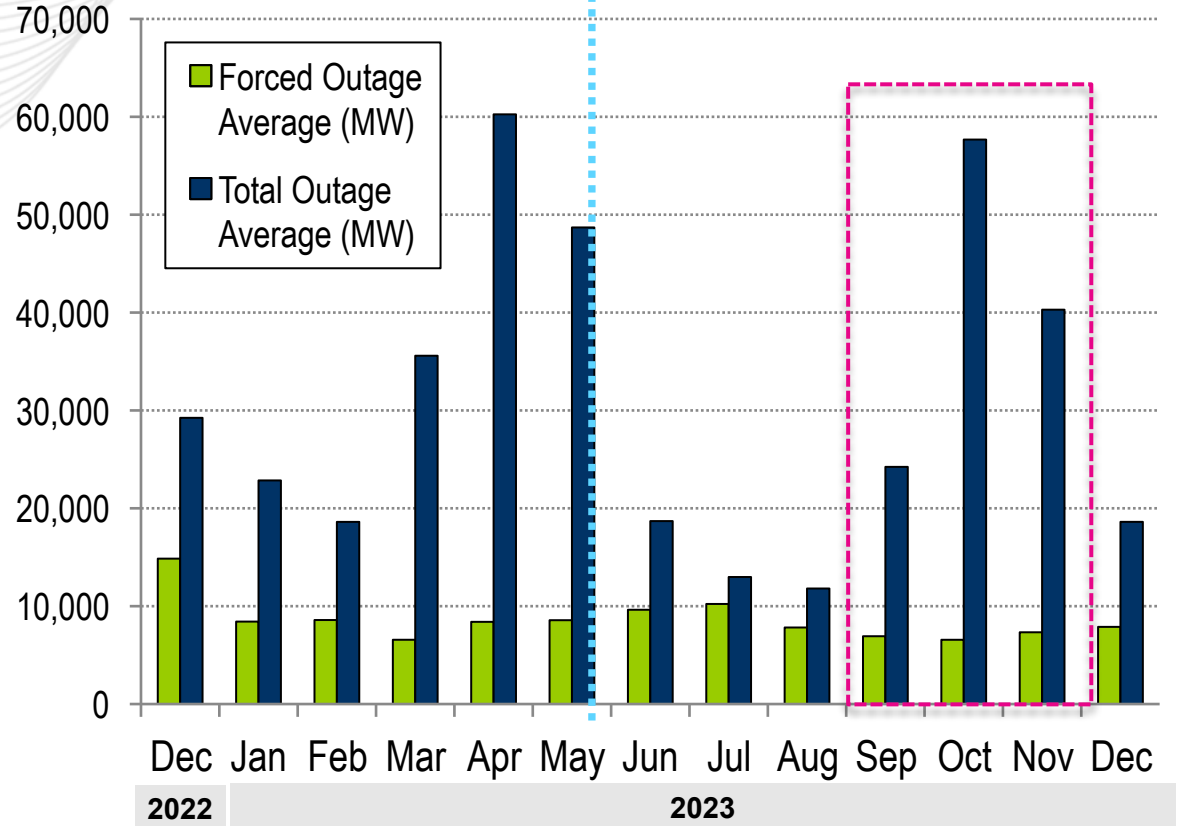
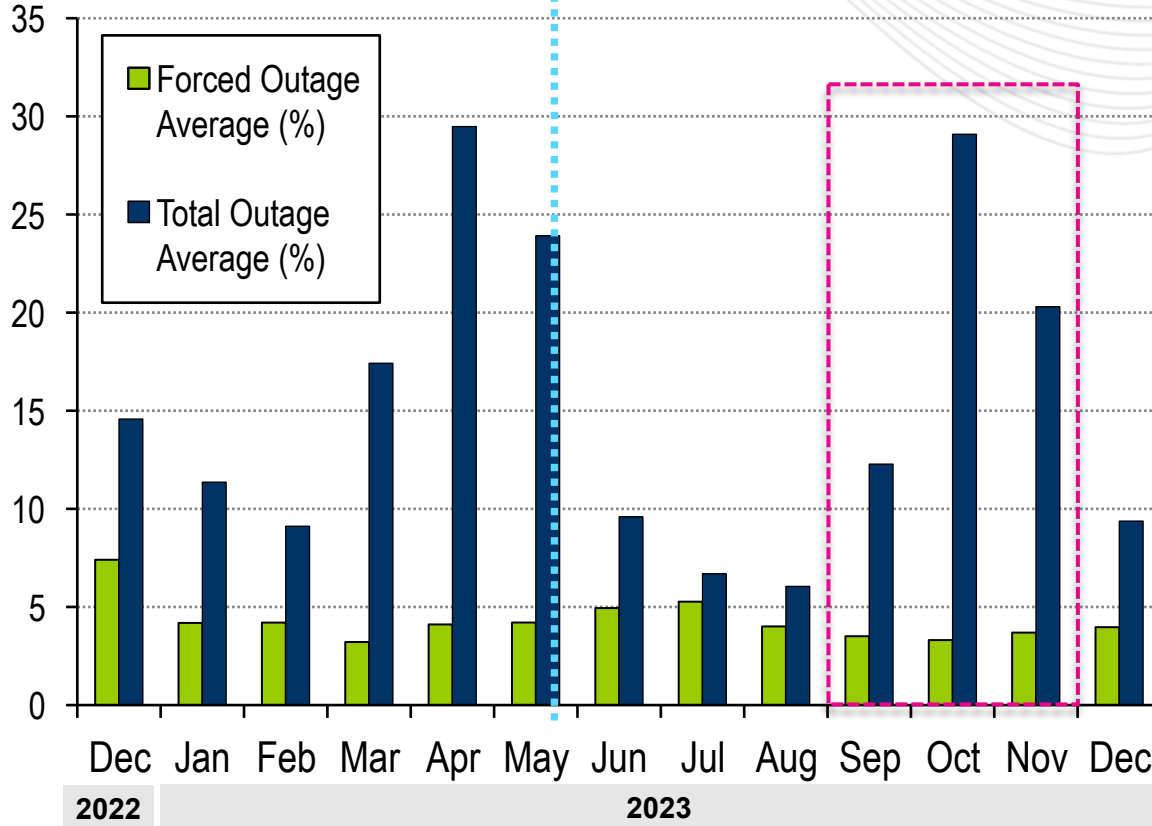
**May 19 increased requirement**

Supply relative to the requirement

**Other possible reason is the uneconomic stack**

Lower load day less unit commitments, less supply

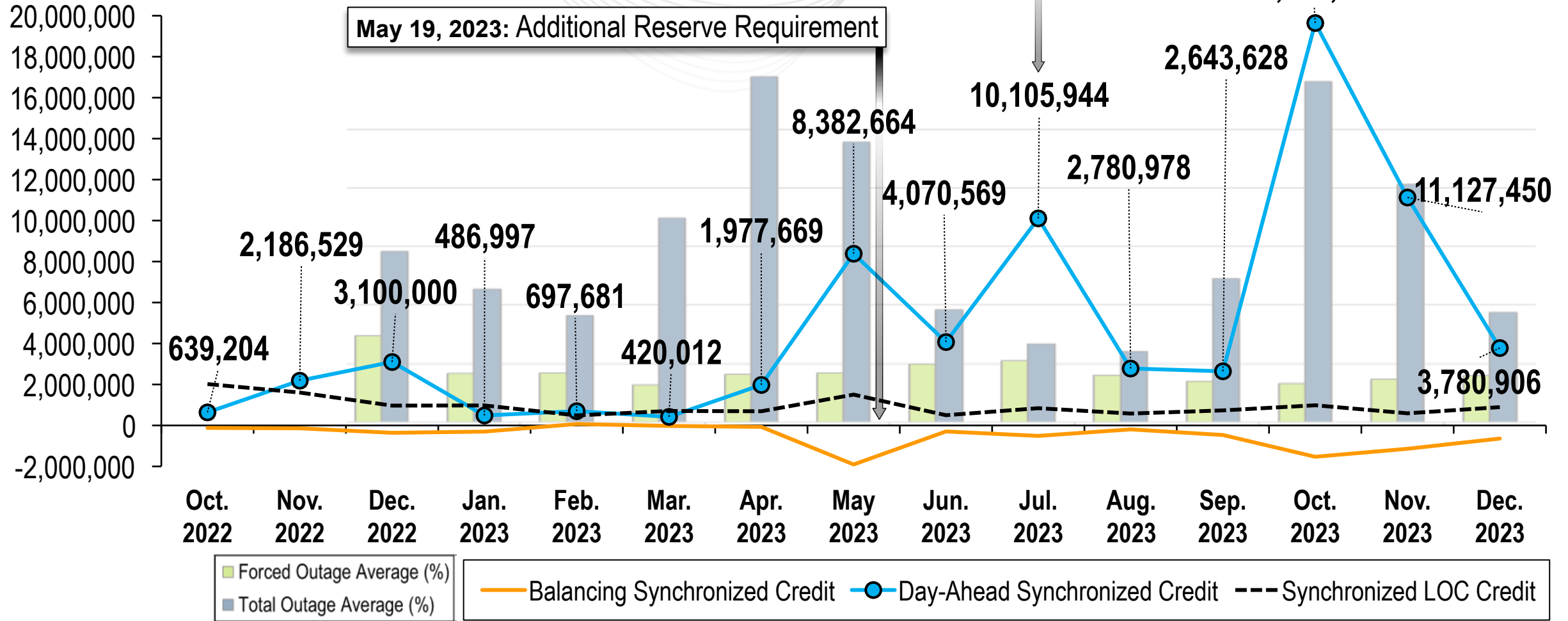
May 19, 2023, additional reserve requirement



<b>The 13-Month Average:</b>	<b>Forced Outage Rate</b>	<b>Total Outage Rate</b>
	4.32% or 8,608 MW	15.33% or 30,750 MW

# Sync Reserve Cost vs. Generator Outages

Sync Reserve and Condenser Cost Settlements Data



Presenter: Joseph Ciabattoni  
Joseph.Ciabattoni@pjm.com



**Member Hotline**

(610) 666 – 8980

(866) 400 – 8980

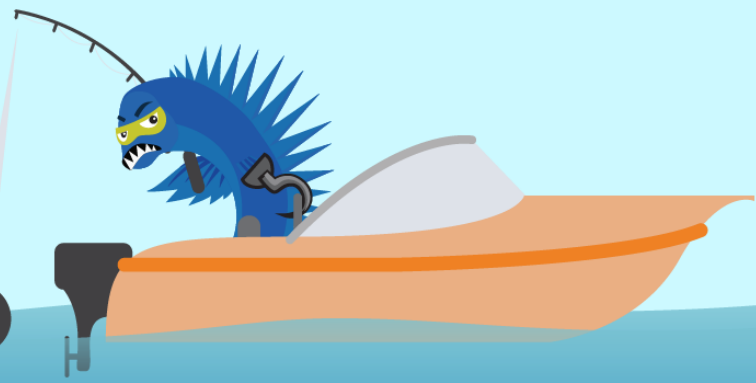
custsvc@pjm.com

**PROTECT THE  
POWER GRID**

**THINK BEFORE  
YOU CLICK!**



**BE ALERT TO  
MALICIOUS PHISHING  
EMAILS**



**Report suspicious email activity to PJM.  
Call (610) 666-2244 or email [it\\_ops\\_ctr\\_shift@pjm.com](mailto:it_ops_ctr_shift@pjm.com)**