

# 30 Minute Reserve Requirement

RCSTF

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# The 30 minute reserve requirement is not defined

- **The need for a 30 minute reserve requirement has not been properly defined or described.**
- **Reserves are needed to avoid loss of load, but it is not possible to determine an appropriate, clear and transparent requirement if the need is not defined first.**
- **For example, the Synchronized Reserve Requirement is defined as the largest contingency. It allows PJM to recover from the loss of the worst single contingency.**
  - **What is the equivalent measurable need for 30 minute reserves?**

# The 30 minute reserve requirement is not defined

- **PJM explained that the minimum level currently used for 30 minute reserves was based on the double contingency at the time (roughly 2 x 1,500 MW).**
- **PJM is proposing to change the current minimum requirement from 3,000 MW to roughly 4.4% of the peak load of the day.**
  - **5,940 MW (135,000 MW peak load).**
  - **6,600 MW (150,000 MW peak load).**

# The 30 minute reserve requirement is not defined

- **The proposed requirement is meant to cover two uncertainties:**
  - **Load forecast error**
  - **Generator performance (forced outages)**
- **No longer meant to cover double contingency.**
- **Unlike specific defined contingencies, these uncertainties decrease from the DA deadline to the operating hour in real time.**
  - **Load forecast error decreases**
  - **Generator outages are known**
- **The need for 30 minute reserves changes over time. Higher DA than RT.**

# Synchronized and primary reserves requirements are defined

- **Synch and primary reserve requirement are defined by the largest contingency.**
- **DA vs RT differences only occur when the largest contingency changes (e.g. the actual loss of the largest contingency).**
  - **The largest single contingency in day-ahead day ahead is the largest economic maximum value for all available schedules.**
  - **The largest single contingency in real-time is normally the higher of [max of (the largest online generator's output or economic maximum)].**

# PJM Proposed 30 Minute Reserves

- **The PJM proposed 30 minute reserve requirement does not make sense.**
- **PJM's proposal does not match real time operational practices.**
  - **PJM does not procure reserves for eight hour ahead uncertainties in real time.**
- **In terms of headroom needed:**
  - **The proposal falls short day ahead.**
    - Forecast error based on 8 hour forecast.
    - Generator outage based on outages after 18:00.
  - **The proposal is too much in real time**
    - Real time uncertainties much less compared to DA.

# Example

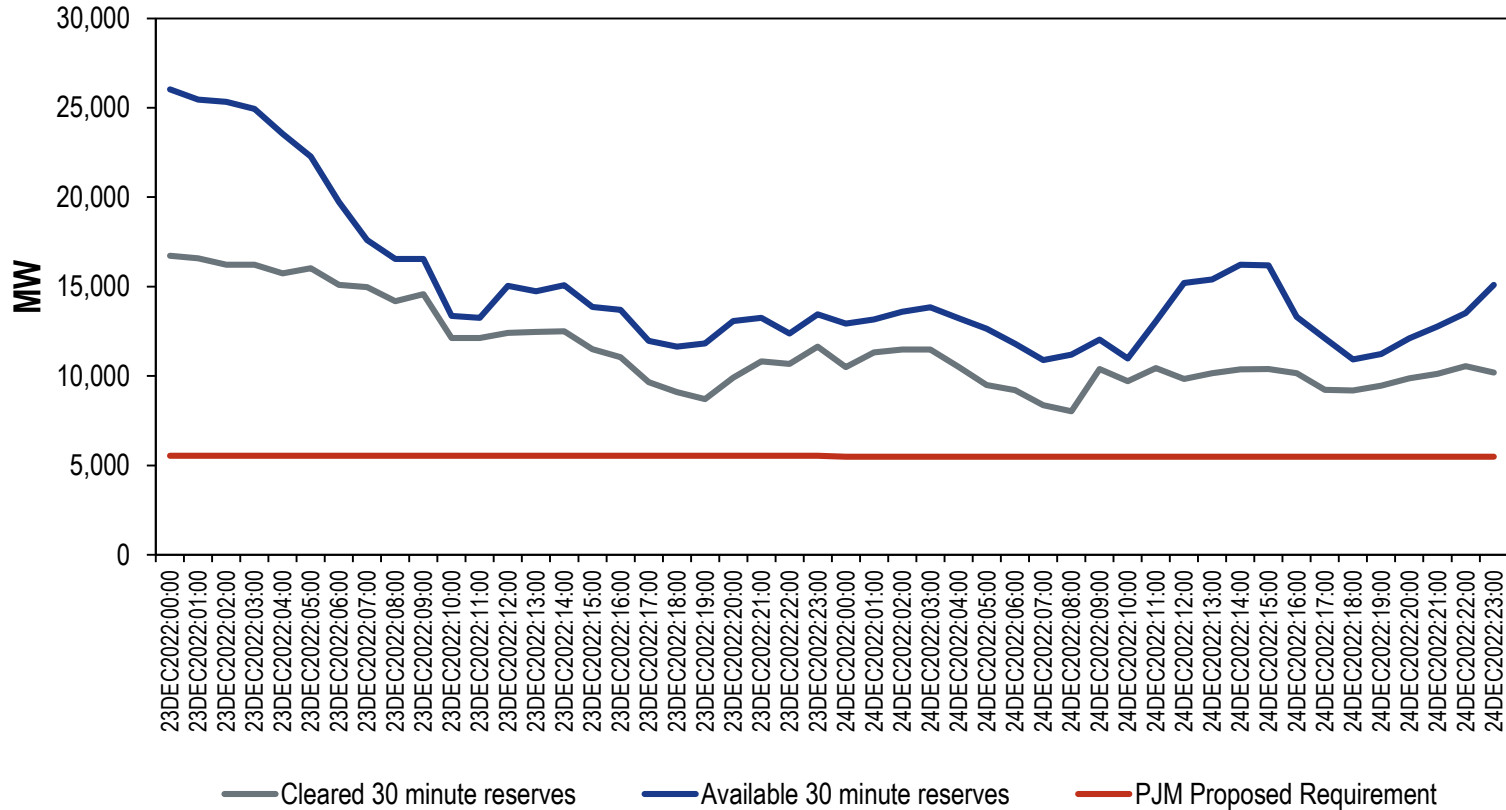
- **Peak load forecast: 140,000 MW**
- **30 minute reserve requirement: 10,000 MW**
- **The system will commit enough resources to meet the 140,000 MW and have 10,000 MW of 30 minute reserves available.**
  - **If the actual peak load is 150,000 MW, what's the need for keeping another 10,000 MW in reserves (for a total of 160,000 MW in real time) after the 10,000 MW of day ahead reserves have been converted to energy to meet the 150,000 MW peak load?**

# Impact

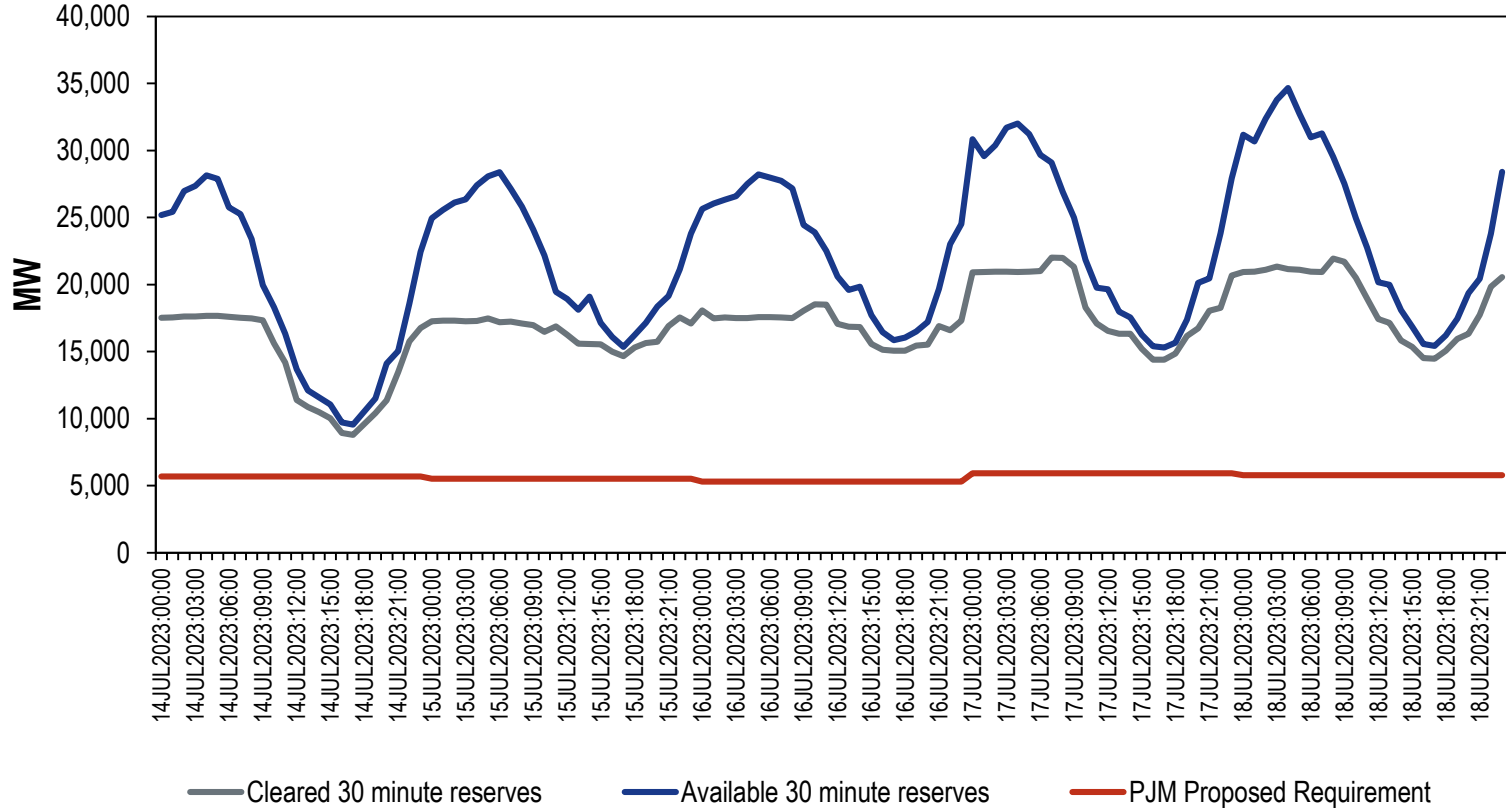
- **PJM has never been short of the proposed 30 minute reserve requirement in day ahead.**
- **The 30 minute reserve requirement constraint has never bound. DA MCPs have always been zero.**
- **PJM posts the amount of 30 minute reserve that the model clears. When the 30 minute reserve requirement constraint does not bind, any 30 minute offline reserves clear the market but 30 minute online reserves do not. Therefore, the 30 minute reserve MW posted by PJM has been always less than the amount available day ahead.**



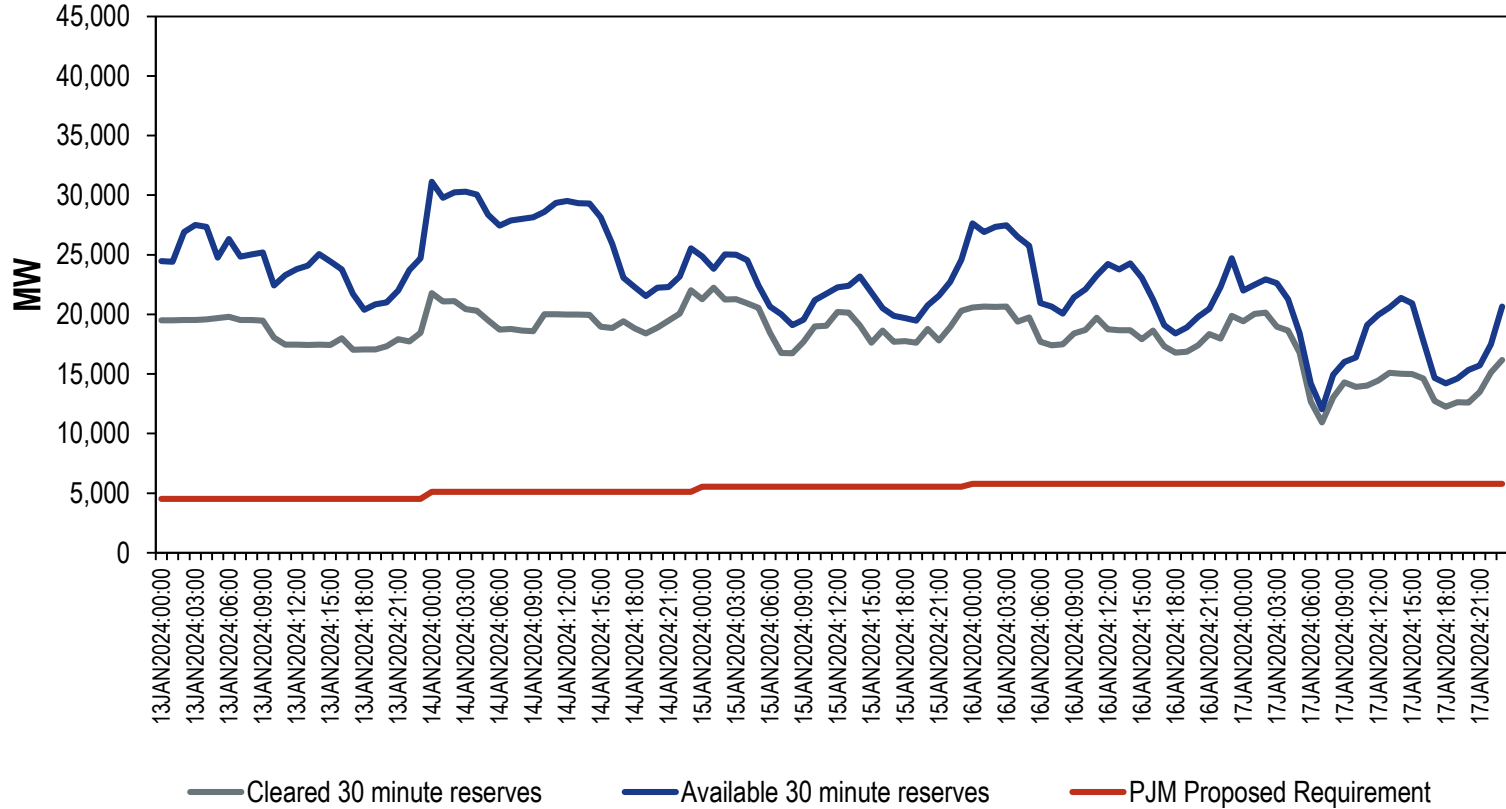
# DA 30 minute reserves - WS Elliott



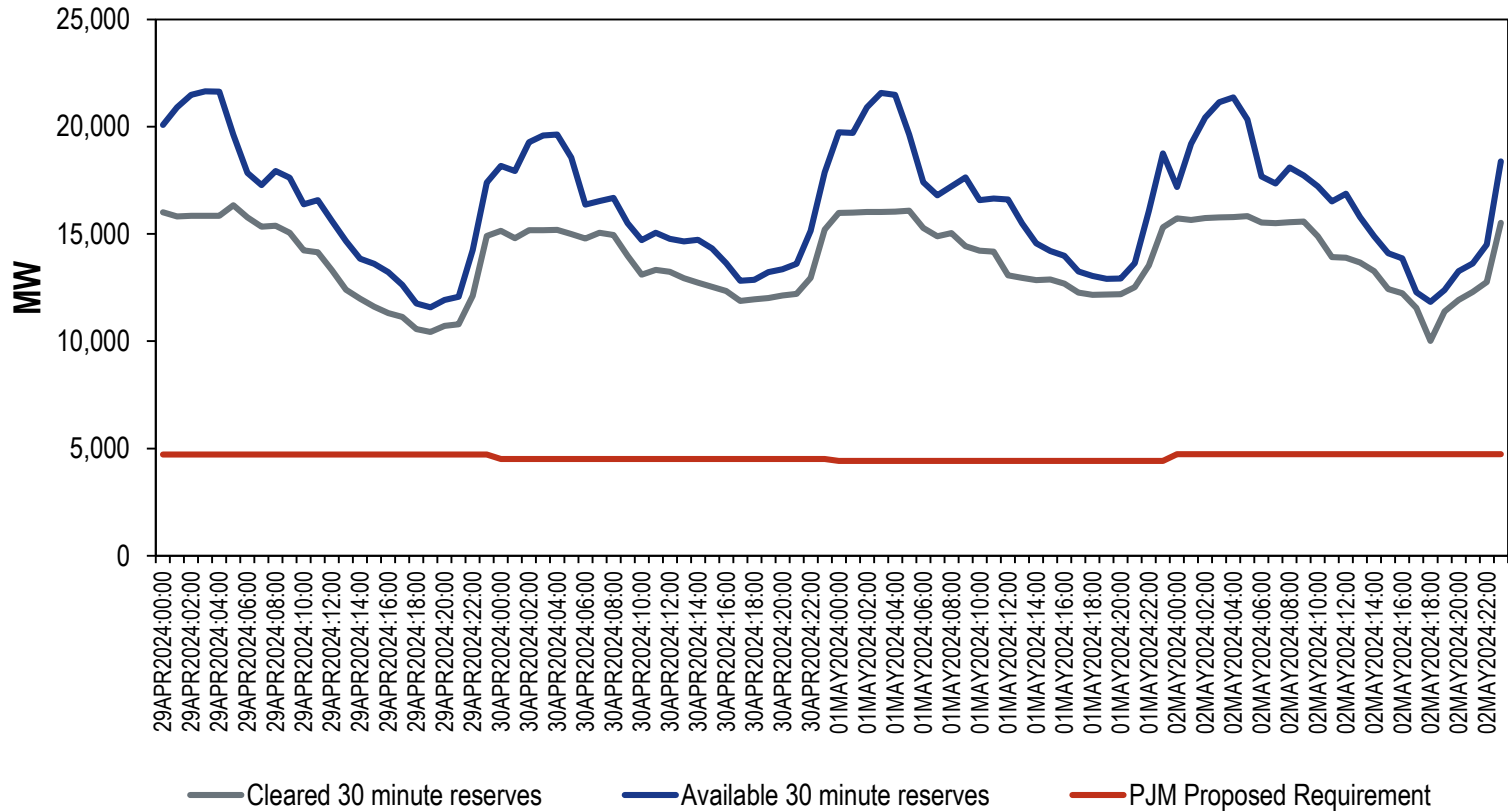
# DA 30 minute reserves - July 2023



# DA 30 minute reserves - WS Gerri



# DA 30 minute reserves - Apr 29 – May 2, 2024



# Impact

- **Increasing the 30 minute reserve requirement would have had zero impact on commitment and zero impact on prices so far.**
- **Recent unit commitment (e.g. WS Gerri, April 29 – May 2) has shown that the current and even the proposed requirements do not reflect the need for reserves.**



# RCSTF Recommendation

- **RCSTF should reject PJM's current proposal.**
- **RCSTF should continue to work to define logical reserve requirements for the day ahead and real time markets.**



# Conclusion

- **The requirement should be defined to ensure the optimal set of units are committed.**
- **The requirement should not be defined to simply increase prices.**
- **The requirement should not be defined to tackle issues that market cannot handle:**
  - **Commitment of long lead units. Units that the DA market cannot clear.**
  - **Commitment of steam units not started for months.**
  - **Decommitment of units with long minimum down times.**
  - **Commitment of units through the weekend gas package.**

## Other Issues

- **What does it mean to be short 30 minute reserves?**
- **Will PJM announce when it expects to be short 30 minute reserves?**
- **Should 30 minute reserve shortage trigger an emergency?**
- **Should 30 minute reserve shortage trigger a PAI?**
- **Should recallable exports and pre-emergency demand response be included in 30 minute reserves?**



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