2025 Heat Waves Capacity Performance

MIC

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Joel Romero Luna

Monitoring Analytics

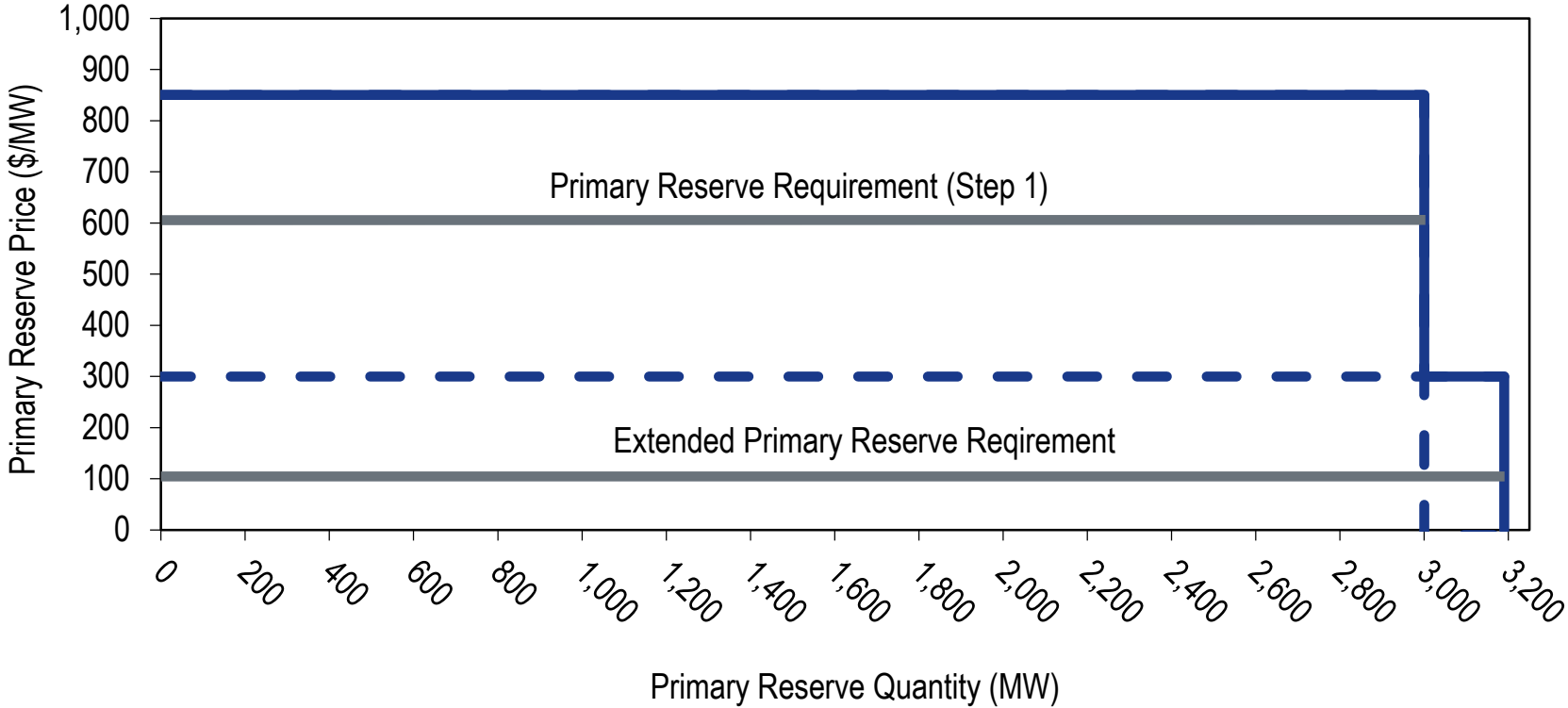
June – July Heat Waves Performance

- **PAIs are triggered when, for an entire reserve zone or subzone there is:**
  - **(1) Shortage of the Primary Reserve Requirement (Step 1) plus one of the following:**
    - Voltage Reduction Warning and reduction of non-critical plant load
    - Manual Load Dump Warning
    - Maximum Generation Emergency Action
    - Curtailment of non-essential building loads and Voltage Reduction Warning

June – July Heat Waves Performance

- **(2) or anytime, for an entire reserve zone or subzone:**
  - a load shed directive is issued
  - Manual Load Dump Action is issued
  - Voltage Reduction Action is issued
  - Deploy all resources action is issued

Primary Reserve ORDC



June – July Heat Waves Performance

- PJM experienced several periods of high demand in June and July:
  - June 22-26
  - July 14-17
  - July 23-30
- Several emergency procedures were declared including:
  - Generation maintenance outage recall.
  - Hot weather alerts
  - Maximum generation and load management alert.
  - Pre emergency load management.
- None of the alerts triggered PAIs.

June – July Heat Waves Performance

- **The system was short of the Primary Reserve Requirement (Step 1) during 40 intervals on June 23, 24 and July 28.**
  - **June 23: 16 intervals.**
  - **June 24: 20 intervals**
  - **July 28: 4 intervals**
- **None of the four alerts that in combination with Primary Reserve Requirement shortage trigger a PAI were invoked.**
- **Therefore none of these intervals were PAIs.**

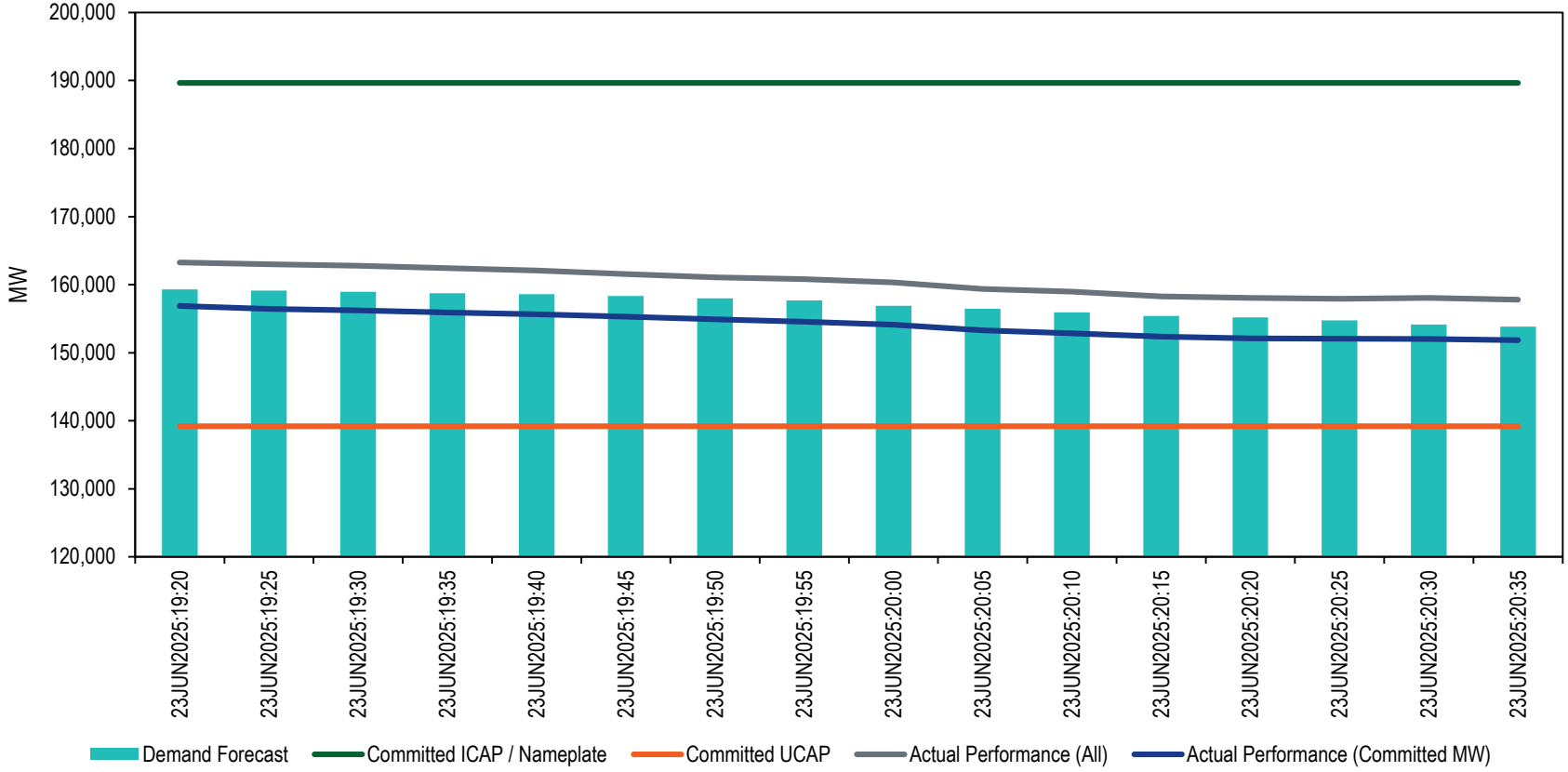
Performance Evaluation

- **Performance for purposes of the PAIs is measured as:**
  - **Expected Performance = Committed UCAP x Balancing Ratio (BR)**
    - Where BR = the ratio of [(total amount of Actual Performance for all generation resources, plus net energy imports, plus total Demand Response Bonus Performance for that interval, plus total PRD Bonus Performance for that interval / (total amount of committed Unforced Capacity of all Generation Capacity Resources)].

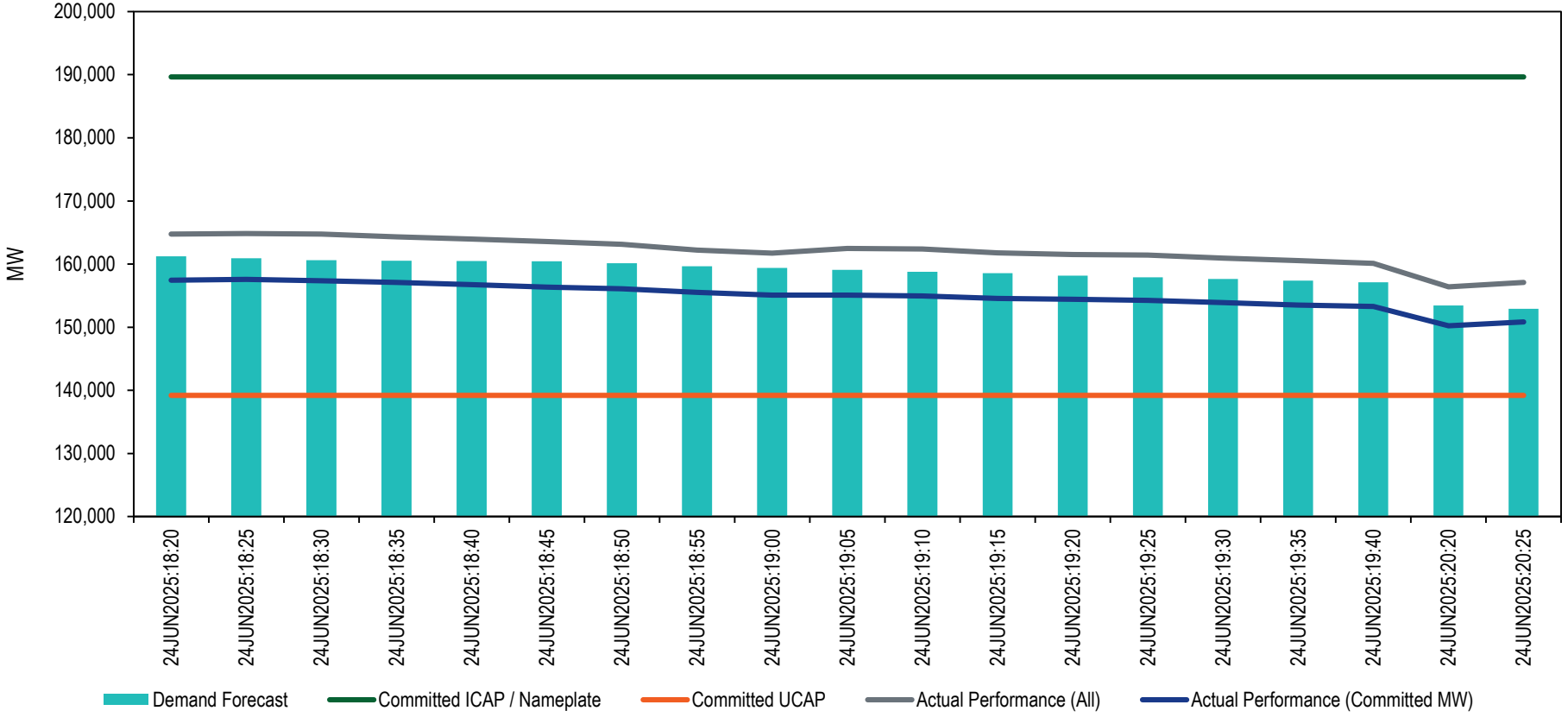
Performance Evaluation

- The IMM evaluated the performance of generation resources excluding the impact of imports/exports, DR and PRD.
- The IMM evaluated the performance of generation resources to committed ICAP or Nameplate for variable resources.
- Actual performance used was energy plus ancillary services assignment. No adjustments.
- The IMM evaluated the performance of generation resources capped at committed ICAP or Nameplate for variable resources.
- No excuses were included.
- One interval on June 24 was excluded: 11:55 (transient shortage).
- The IMM calculations are not a PJM Settlement calculation. This is for illustration purposes only.

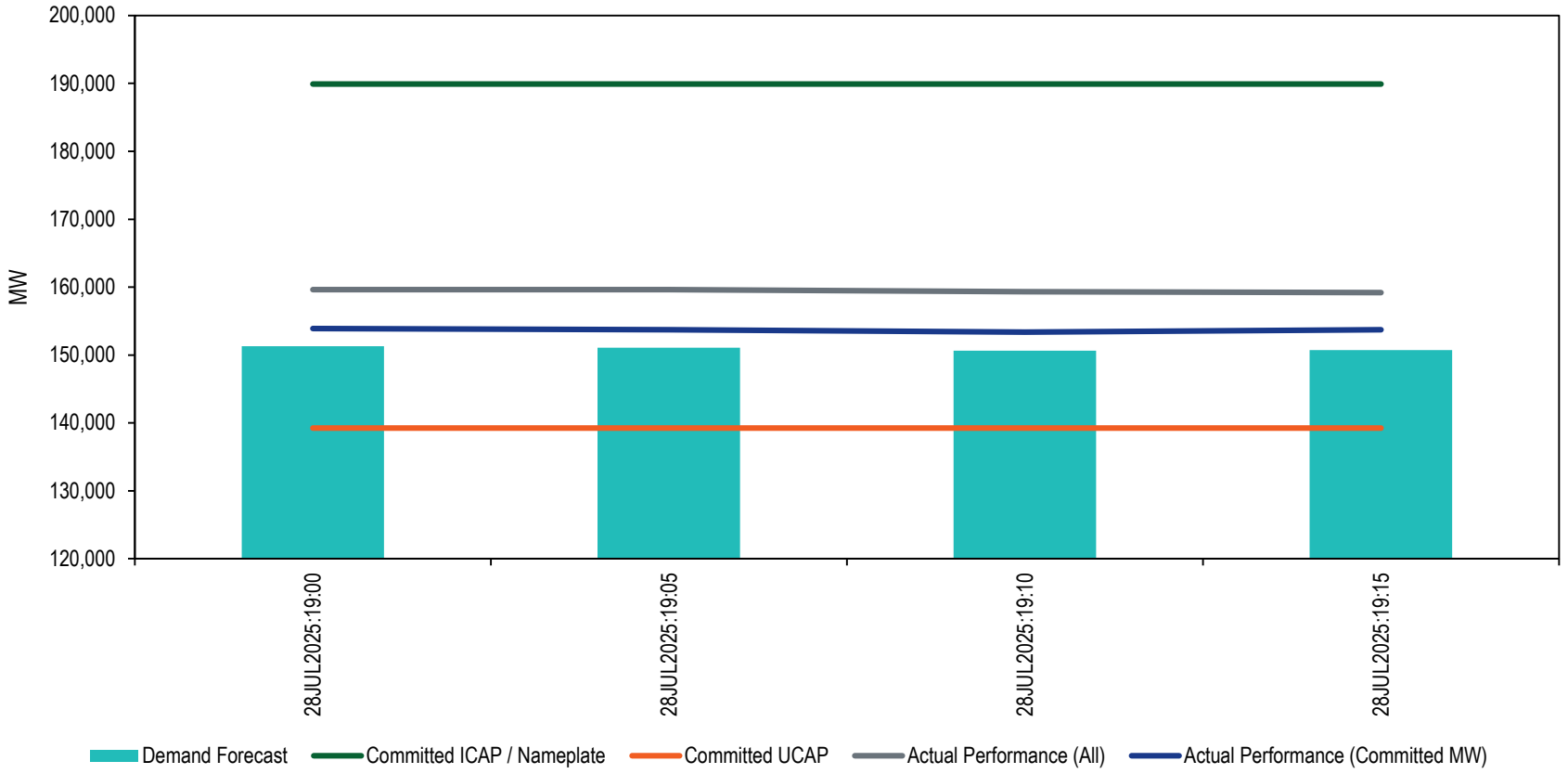
June 23 Results



June 24 Results



July 28 Results



Average Performance by Unit Type

Unit Type	June 23 (Shortage Intervals) Compared to Committed ICAP/Nameplate	June 23 (Shortage Intervals) Compared to Committed UCAP	June 24 (Shortage Intervals) Compared to Committed ICAP/Nameplate	June 24 (Shortage Intervals) Compared to Committed UCAP	July 28 (Shortage Intervals) Compared to Committed ICAP/Nameplate	July 28 (Shortage Intervals) Compared to Committed UCAP
Hydro (Not Pumped Storage)	71%	104%	73%	107%	61%	89%
Solar	13%	97%	31%	227%	24%	174%
Storage	93%	137%	91%	135%	94%	139%
Thermal	89%	110%	90%	110%	90%	110%
Wind	30%	171%	9%	51%	7%	39%
Total	81%	111%	82%	111%	81%	110%

Observations

- During all intervals, Actual Performance exceeded Committed UCAP. Uncapped average balancing ratios (B) would have been (B is actual performance/committed UCAP):
  - June 23: 1.15
  - June 24: 1.16
  - June 28: 1.15
- Balancing ratios are capped at 1.00.
- On June 23 and 24, performance from committed ICAP MW was not enough to cover PJM's load forecast (RTSCED). The balance was met by uncommitted capacity.

Observations

- **After ELCC implementation, the system UCAP no longer represents summer performance expectation.**
- **Evaluating performance against an ELCC based UCAP is distorted.**
- **Summer loads easily exceed total committed UCAP of 139,000 MW.**
  - **If performance had been 100% (based on committed UCAP), PJM would have had to shed load because demand would exceed supply.**

Monitoring Analytics, LLC
2621 Van Buren Avenue
Suite 160
Eagleville, PA
19403
(610) 271-8050

MA@monitoringanalytics.com
www.MonitoringAnalytics.com