Hourly Behind-The-Meter Distributed Generation Forecast Results

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List of Acronyms and Initialisms

BTM – Behind-the-meter

CAISO – California Independent System Operator

DAWG – Demand Analysis Working Group

DER – Distributed Energy Resource

DG – Distributed Generation

ITC – Investment Tax Credit

IEPR – Integrated Energy Policy Report

MW – Megawatt

PA – Planning Area

PV – Photovoltaics

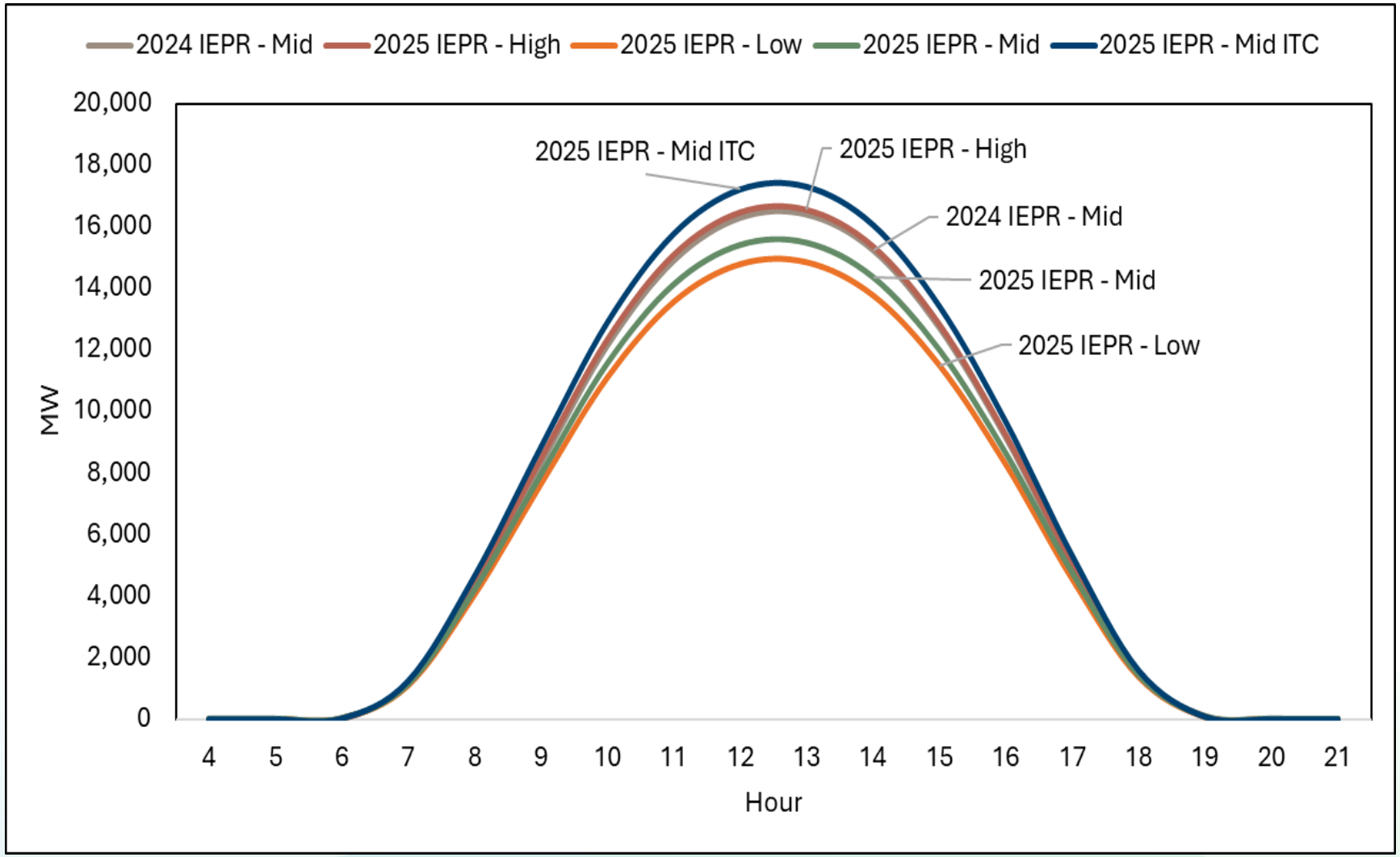
Hourly BTM PV Results

Key Findings: BTM PV Generation Forecast

- Elimination of the ITC leads to lower capacity forecasts and reductions in BTM PV generation in short term
  - 2024 IEPR and 2025 IEPR mid case generation similar by 2040
- Hourly BTM PV generation decreases from the 2024 IEPR to the 2025 IEPR
  - Peak demand (hour 17) generation reduction is **250 MW in 2035 and 20 MW in 2040**
  - Daily max generation (hour 13) reduction is **900 MW in 2035 and 170 MW in 2040**

CAISO Forecast Average Hourly PV Generation: September 2035

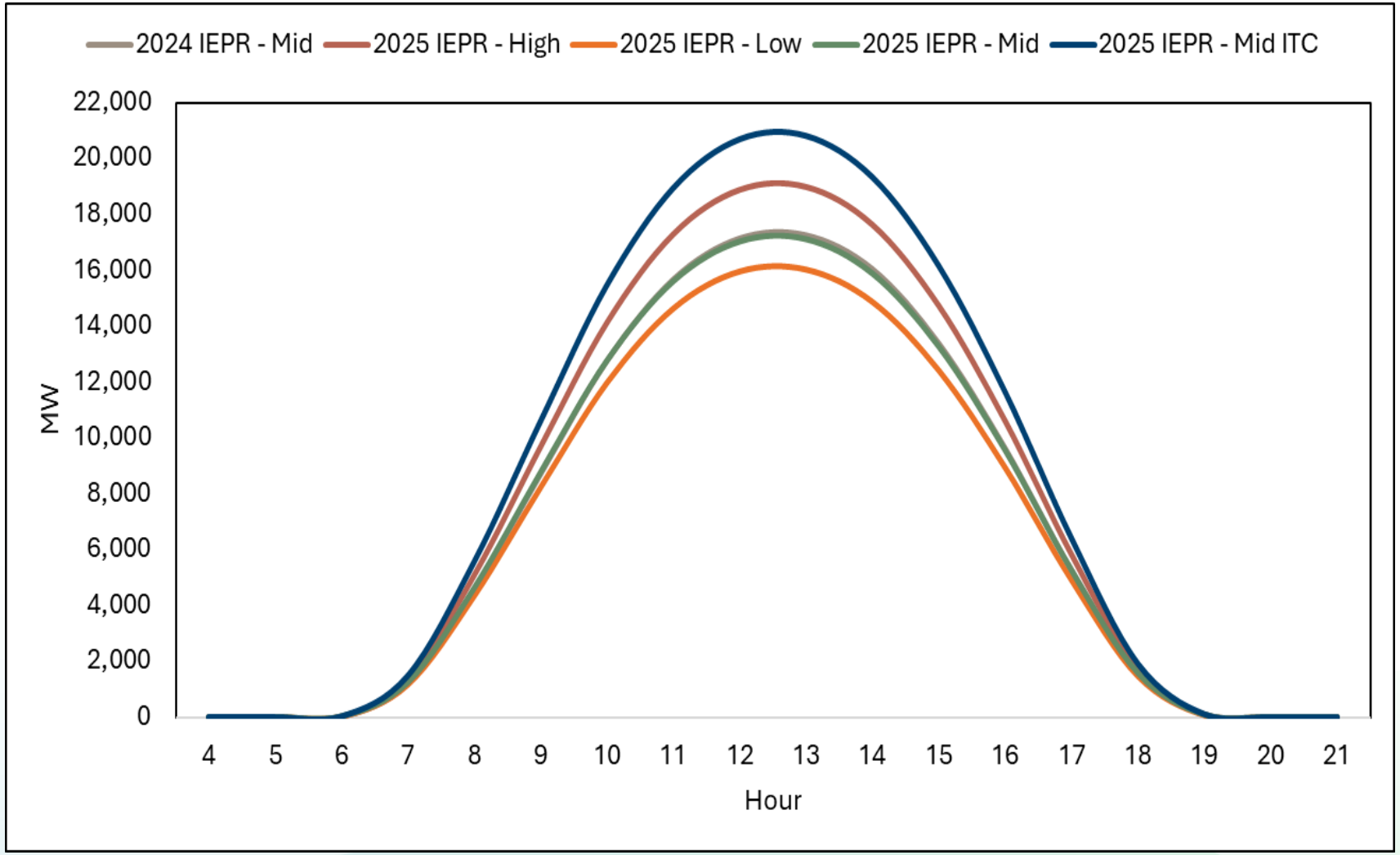
Hour	2025 IEPR Mid (MW)	2024 IEPR Mid (MW)
13	15,500	16,400
17	4,750	5,000



Source: CEC Staff

CAISO Forecast Average Hourly PV Generation: September 2040

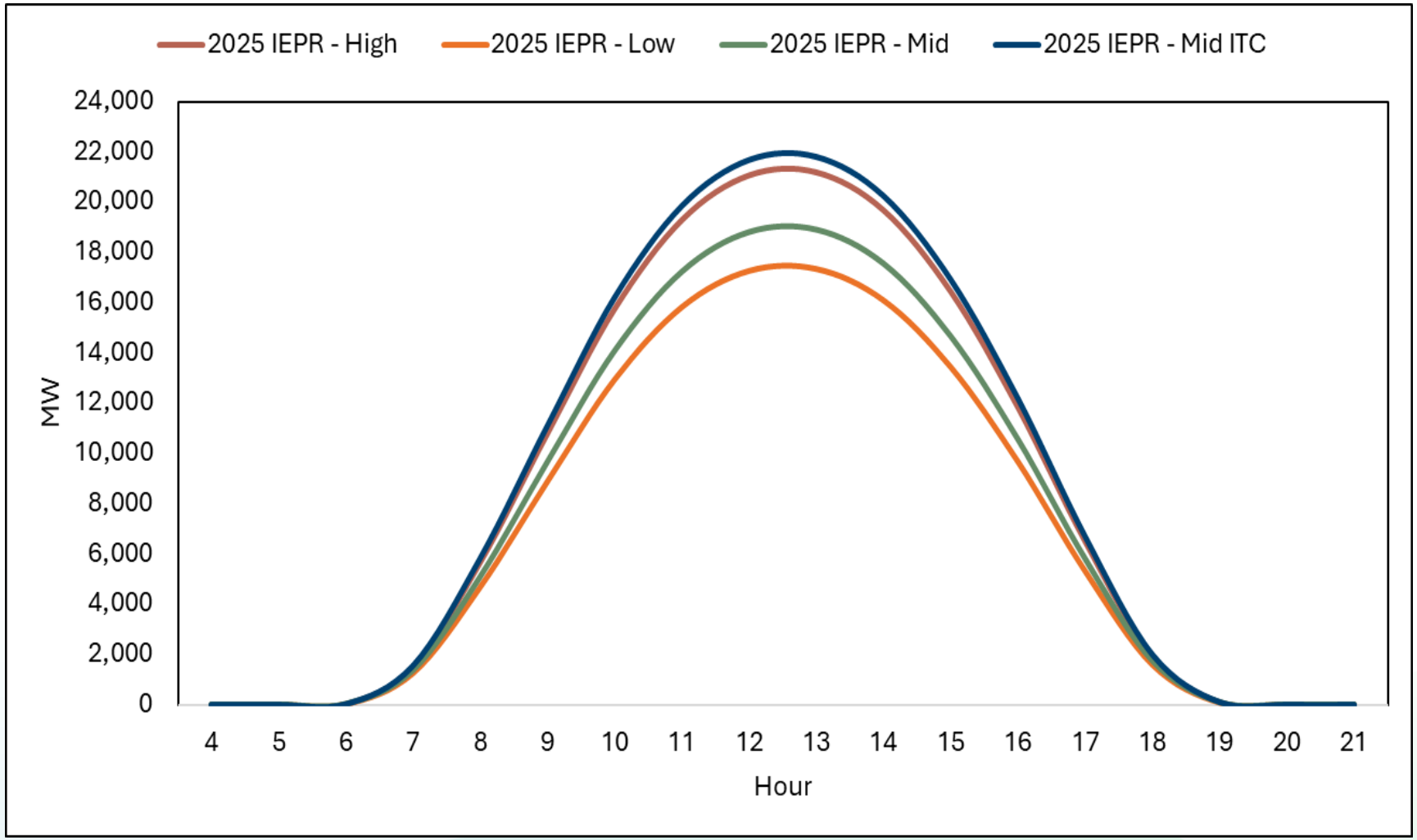
Hour	2025 IEPR Mid (MW)	2024 IEPR Mid (MW)
13	17,100	17,270
17	5,240	5,260



Source: CEC Staff

CAISO Forecast Average Hourly PV Generation: September 2045

- Reintroduction of the ITC drives higher generation in the Mid ITC case



Source: CEC Staff

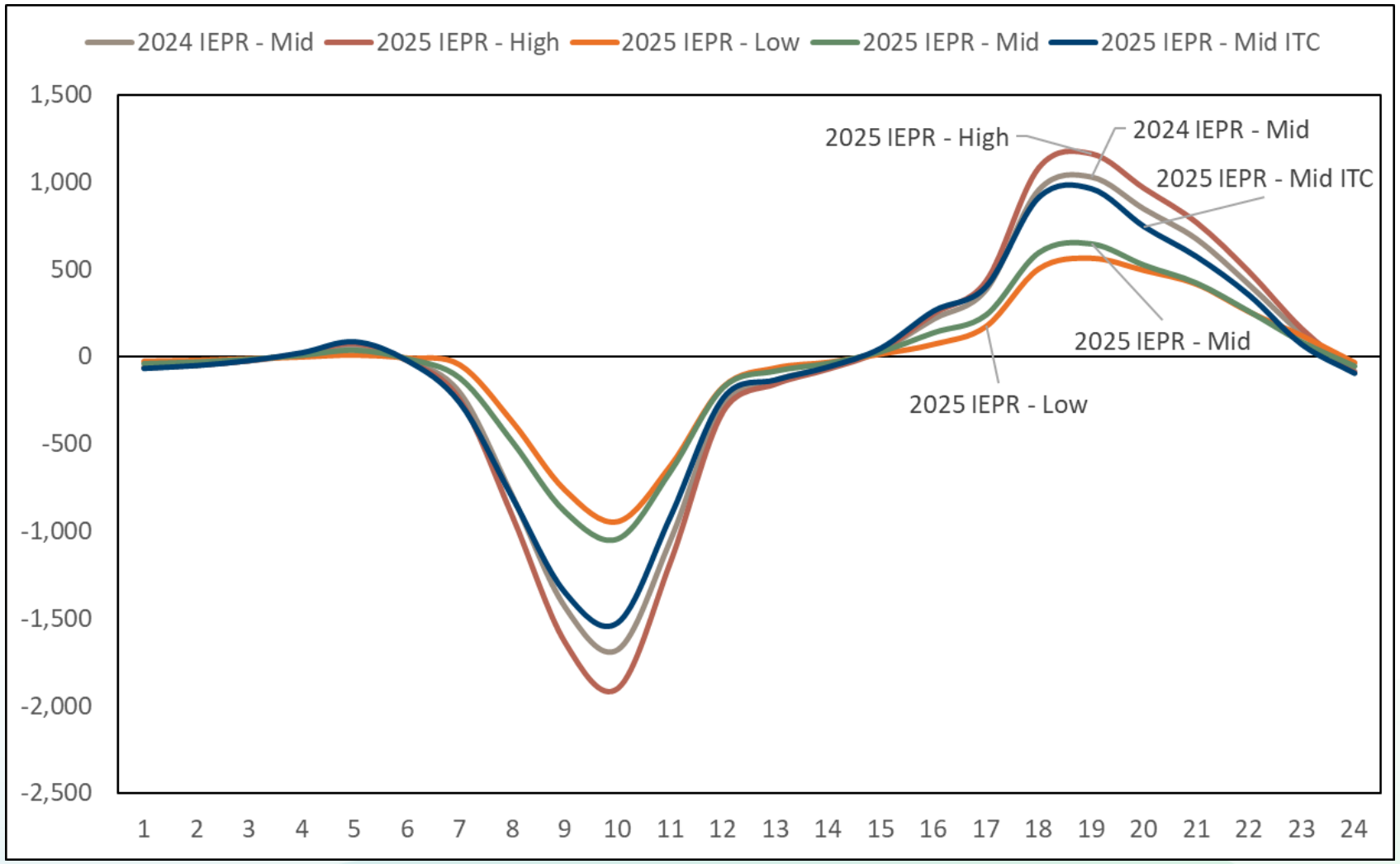
Hourly BTM Storage Results

Key Findings: BTM Energy Storage Forecast

- Reduced forecasted PV capacity due to ITC elimination decreases BTM energy storage capacity and hourly storage impacts
- Compared to 2024 IEPR, reductions in daily max energy storage discharge grow through forecast period
  - 350 MW in 2035
  - 500 MW in 2040

CAISO Forecast Average Hourly Storage: September 2035

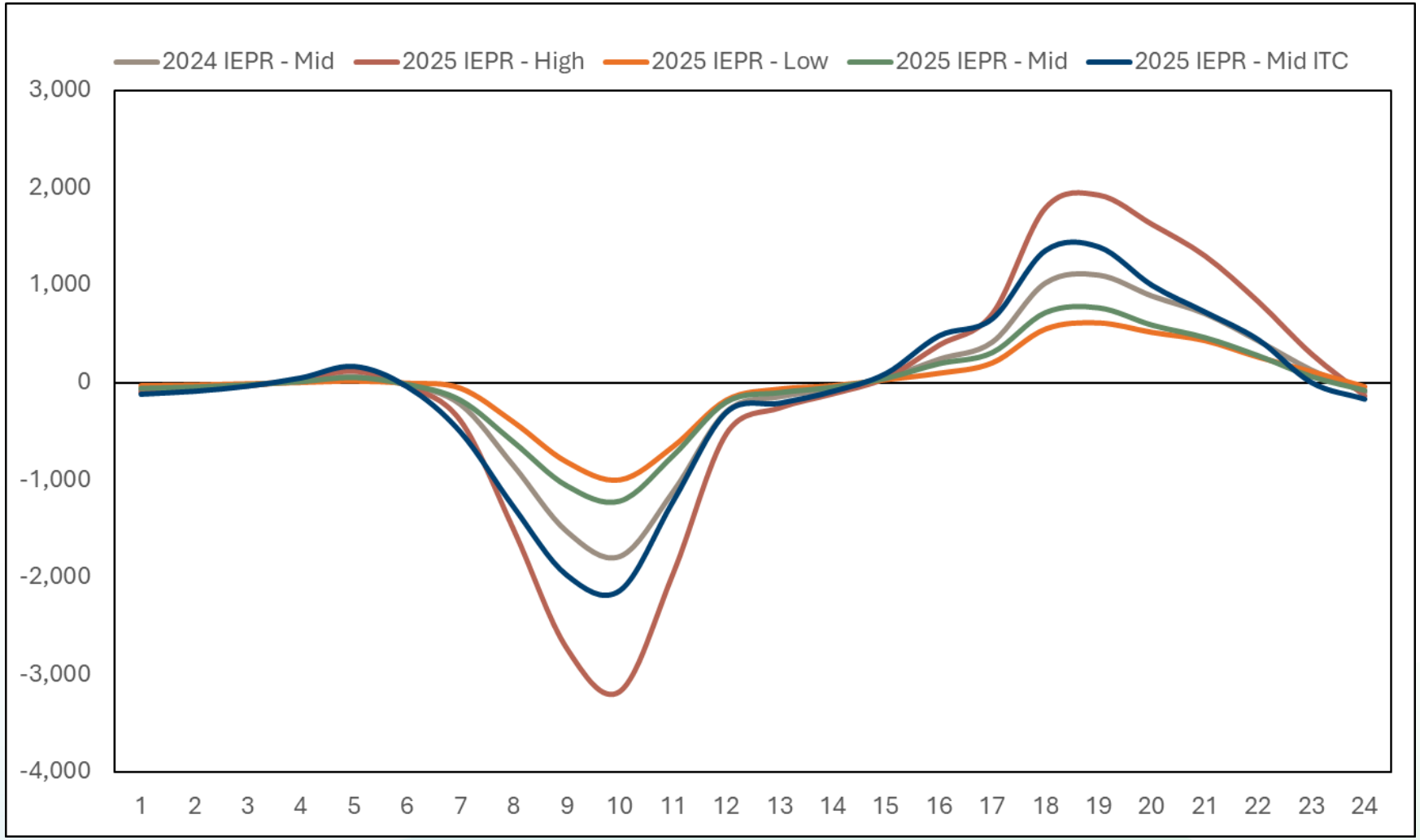
Hour	2025 IEPR Mid (MW)	2024 IEPR Mid (MW)
19	650	1,000



Source: CEC Staff

CAISO Forecast Average Hourly Storage: September 2040

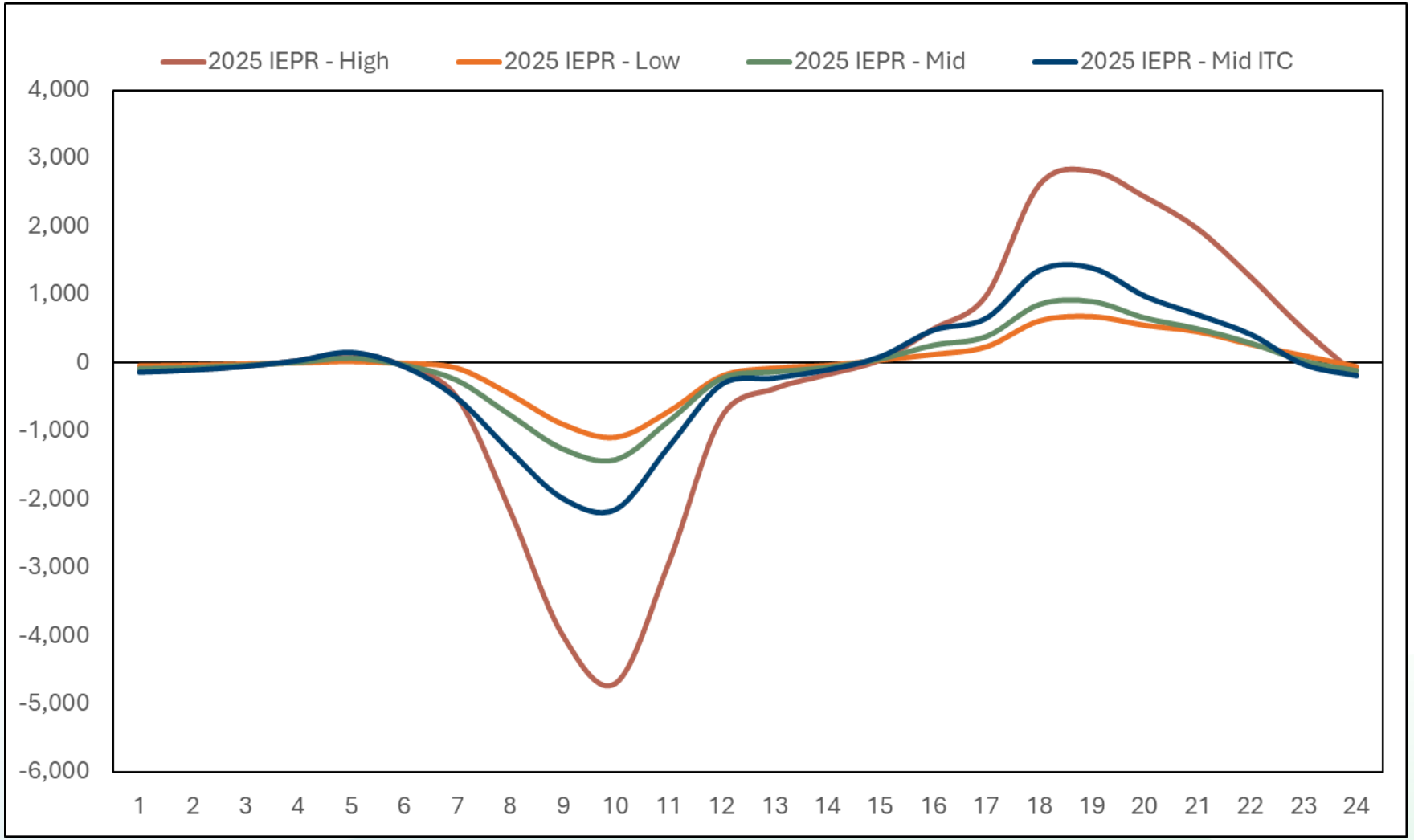
Hour	2025 IEPR Mid (MW)	2024 IEPR Mid (MW)
19	600	1,100



Source: CEC Staff

CAISO Forecast Average Hourly Storage: September 2045

- NEM turnover additions drive the increased energy storage impacts in the High case.



Source: CEC Staff

Closing Remarks

- Thank you for your participation at DAWG!
- A special thanks to our DG Forecast team
  - Mark Palmere
  - Sudhakar Konala
  - Alex Lonsdale
- Have a question? Contact us!
  - Demand Forecast Unit Supervisor
    - Anne Fisher – Anne.Fisher@energy.ca.gov
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Thank You!

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Slide Deck Appendix

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Inputs and Assumptions: Residential Storage Profile

- The following design characteristics apply to all IOU planning areas.

Input Variable	Value
Solar PV Capacity (KW AC)	6
Energy Storage Power Rating (KW AC)	5
Energy Storage Capacity (kWh)	13.5
Minimum Battery State of Charge	25%
Maximum Hourly Discharge Rate in kWh per kWh rated capacity (Summer, Winter)	25%, 15%

Source: CEC Staff

- Minimum SOC included to simulate reserved energy for unplanned outages.
- As of 2022, CEC estimated 54% of residential storage systems in California have a KW AC capacity rating within +/- 1KW of the modeled system.