

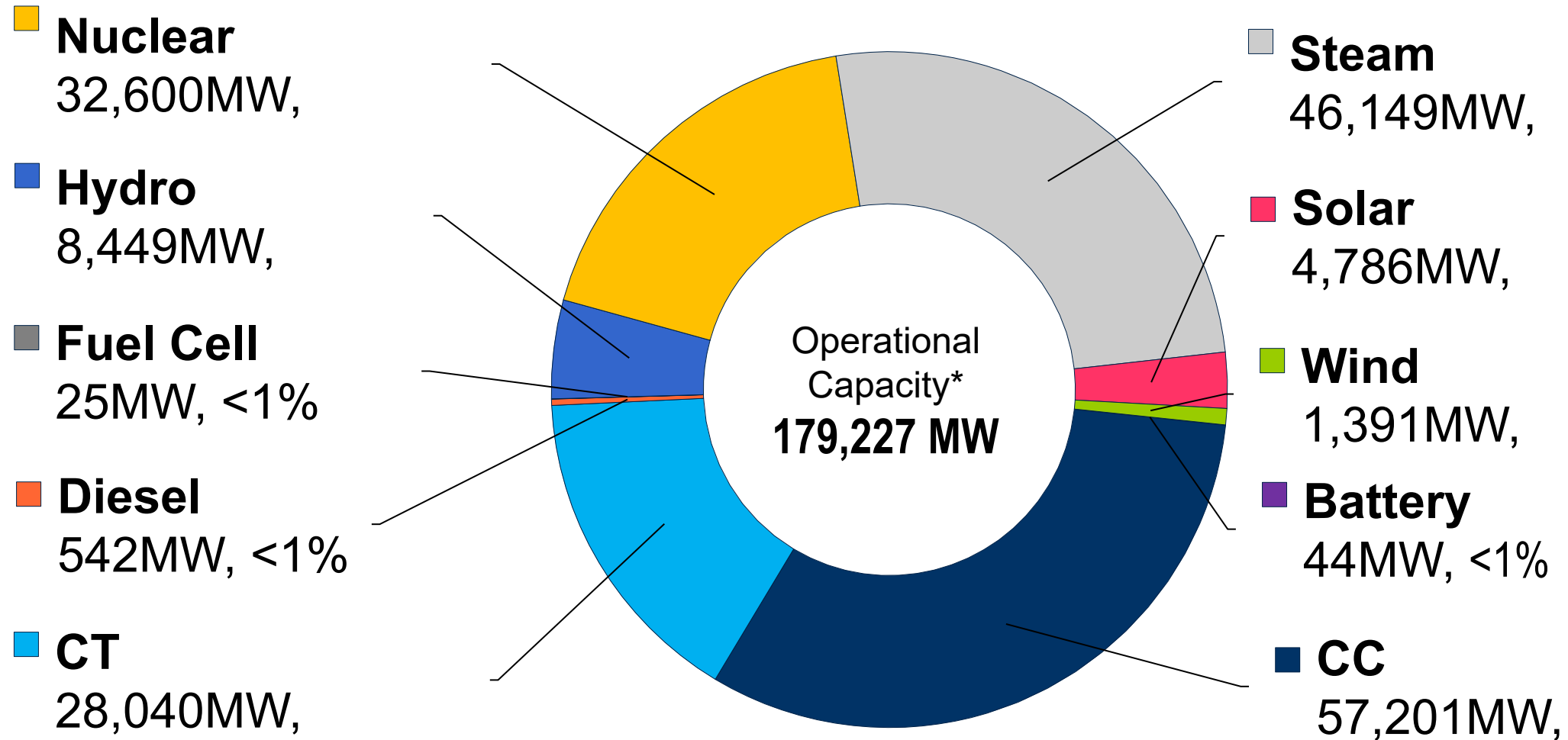
2025 Summer Preliminary Capacity Overview

Operating Committee
Mark Dettrey
May 8, 2025

BACKGROUND:

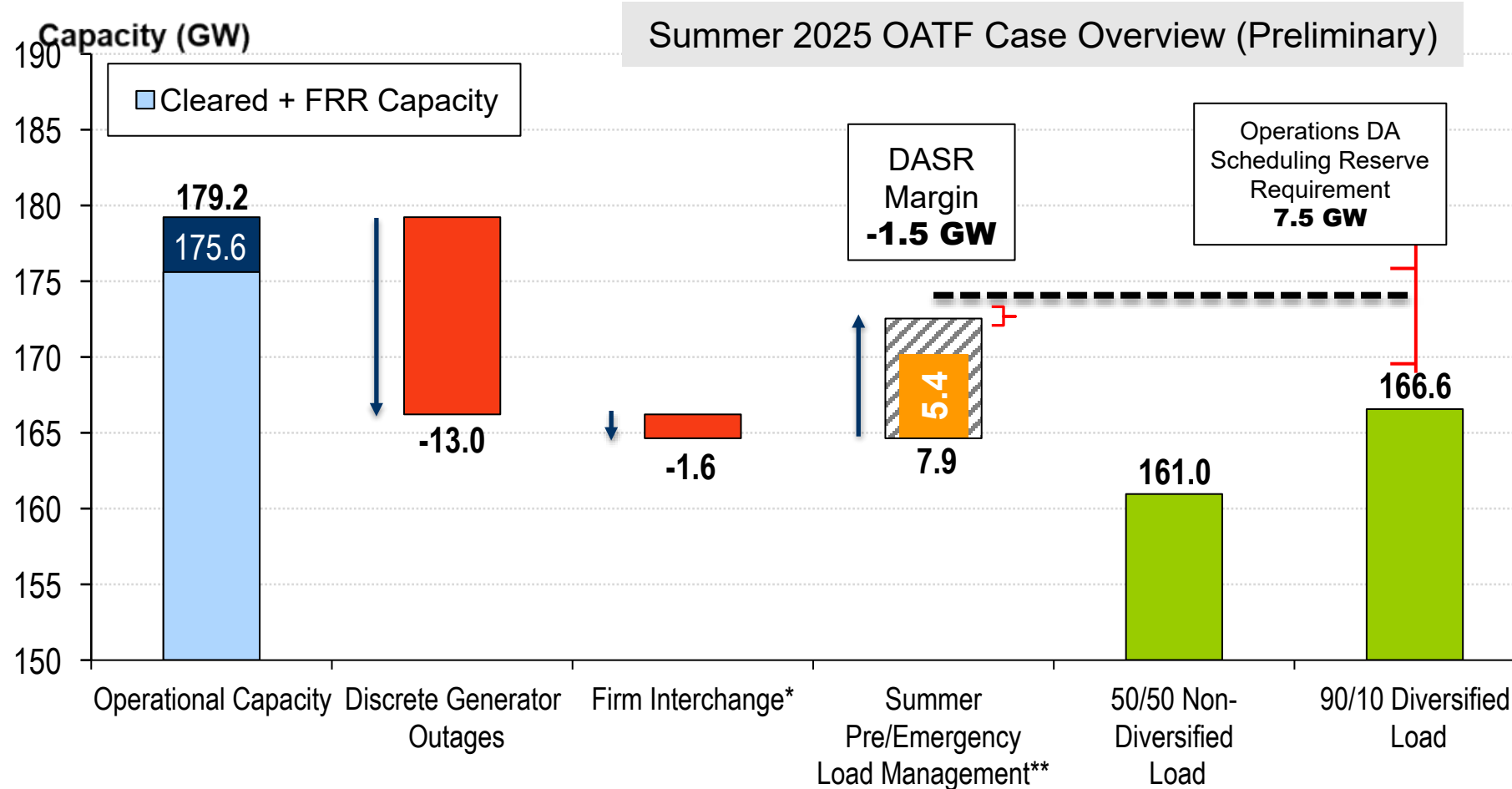
As part of PJM's summer preparations, an analysis is performed of the anticipated operational capacity position for the PJM RTO.

- The analysis helps provide an advanced identification of any potential Emergency Procedures that may be required under both typical and stressed scenarios to meet expected demand levels.
- This analysis is separate, but complementary to the OATF power flow analysis that is also performed.



**operational capacity = ICAP for all units, plus summer ELCC adjusted values for wind and solar*

As of Feb. 6, 2025



Anticipated PJM actions to reliably serve the 90/10 Forecast:

1. Issue Max Gen/Load Management Alert (DA)
2. Schedule all Available Generation (DA)
3. Curtail all Recallable Exports (RT)
4. Implement Demand Response (~5.4 GW) to Maintain Primary Reserve Requirement of 3.5 GW (RT)

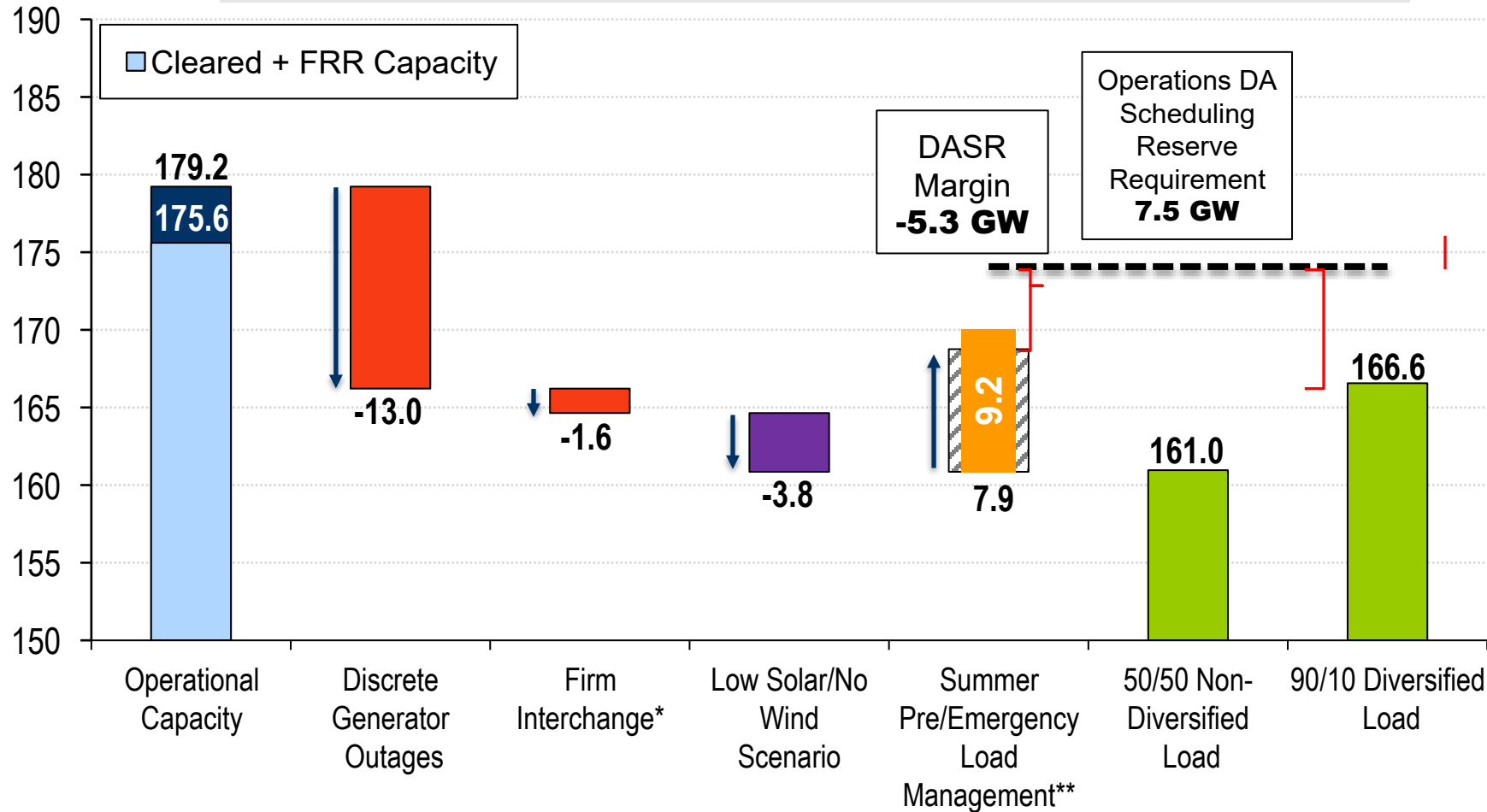
*1,600 MW out of the total **net interchange** (4,200 MW) are capacity backed exports.

** 97% of Load Management is Pre-Emergency.

Low-Solar and No-Wind Scenario

(Summer 2025 – Preliminary)

Capacity (GW) Summer 2025 Low-Solar/No-Wind Scenario Overview (Preliminary)



Anticipated PJM actions to reliably serve the 90/10 Forecast:

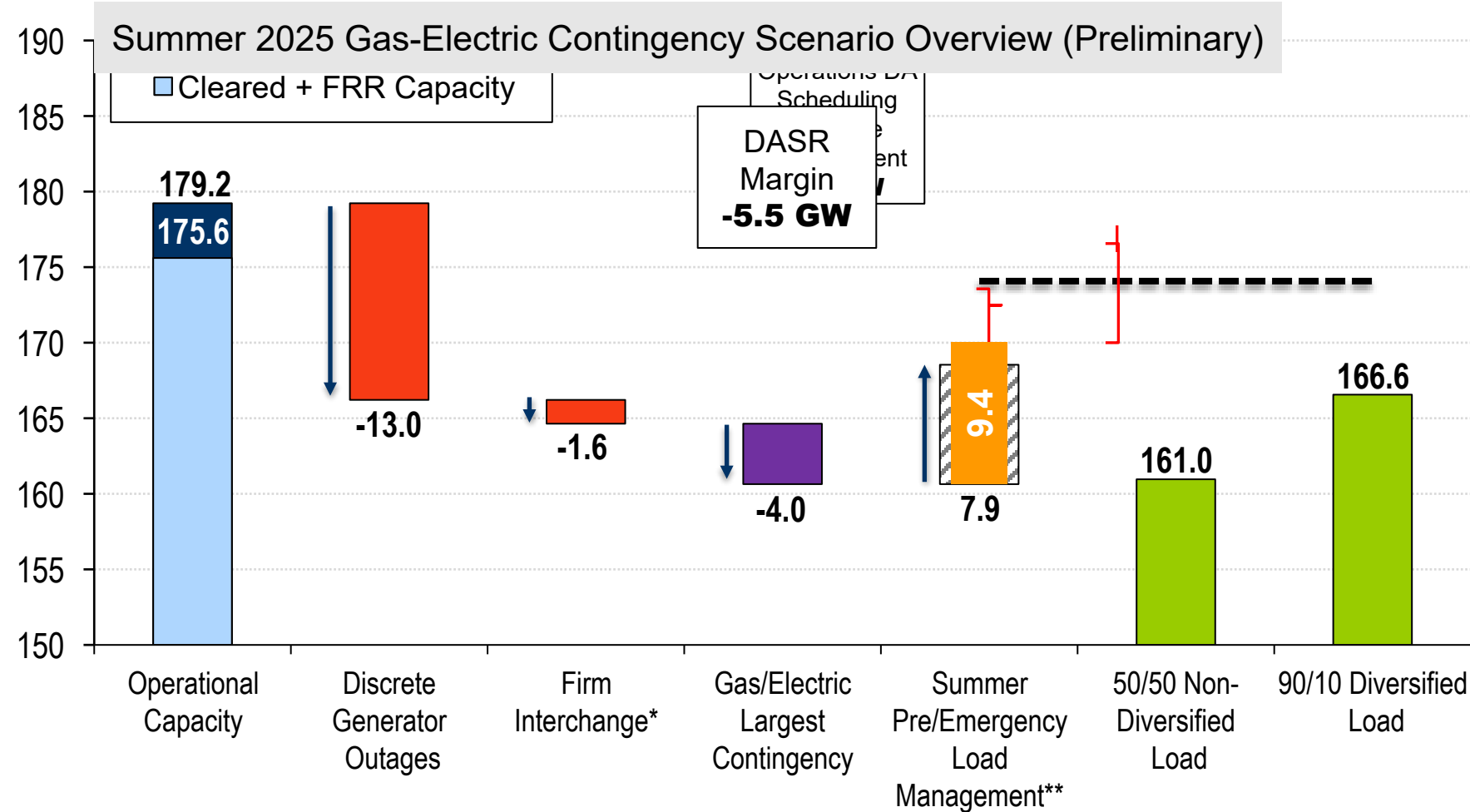
1. Issue Max Gen/Load Management Alert (DA)
2. Schedule all Available Generation (DA)
3. Curtail all Recallable Exports (RT)
4. Implement **all** Demand Response (7.9 GW) to meet the load + Primary Reserve Requirement of 3.5 GW (RT)
5. Call Maximum Emergency Energy into capacity and purchase Emergency Energy (If available) to address the **1.3 GW shortfall**
6. Initiate escalating Emergency Procedures if needed (RT)

*1,600 MW out of the total **Net Interchange** (4,200,MW) are capacity backed exports.

** 97% of Load Management is Pre-Emergency.

Gas-Electric Contingency Scenario

(Summer 2025 – Preliminary)



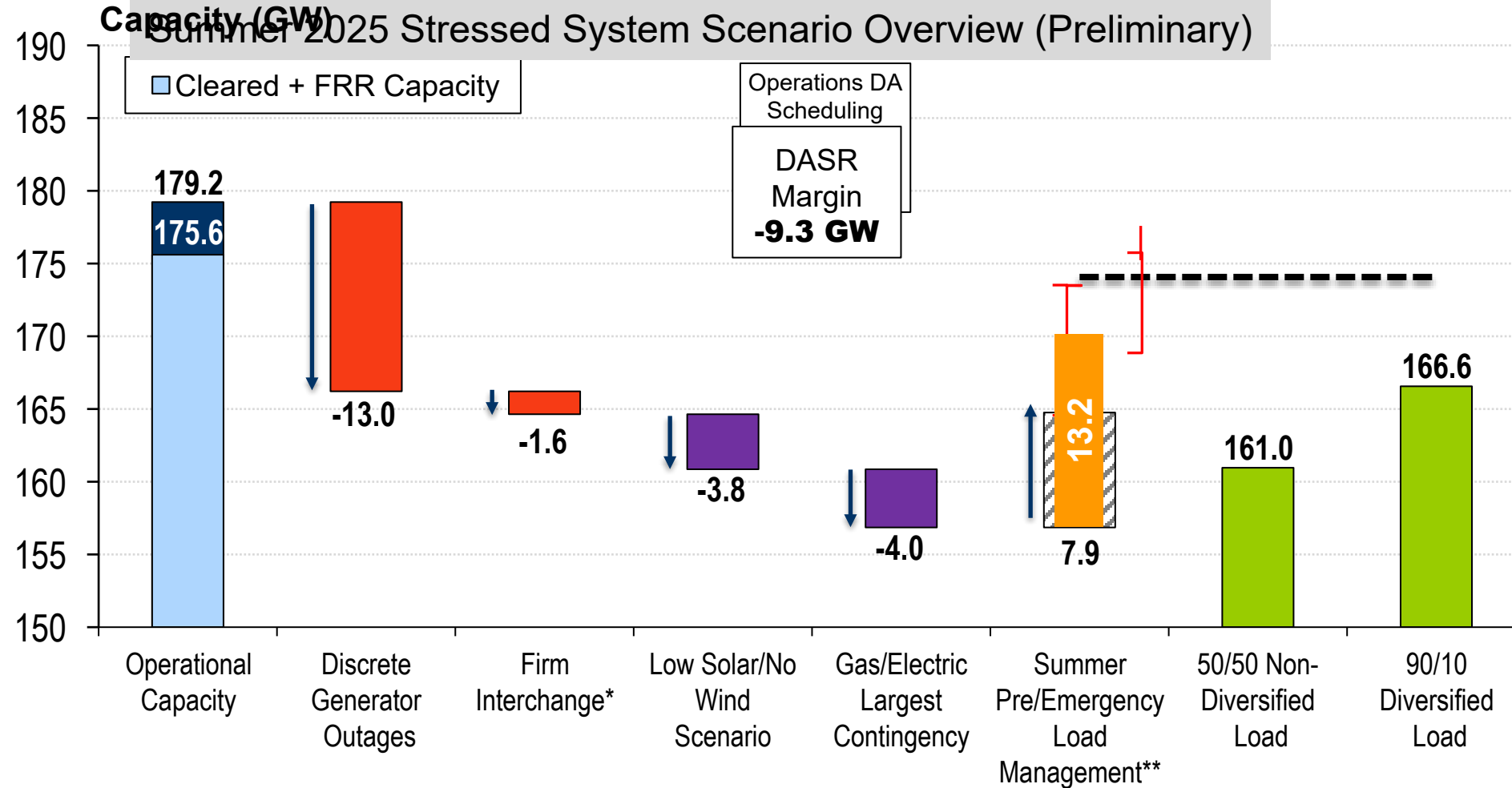
Anticipated PJM actions to reliably serve the 90/10 Forecast:

1. Issue Max Gen/Load Management Alert (DA)
2. Schedule all Available Generation (DA)
3. Curtail all Recallable Exports (RT)
4. Implement **all** Demand Response (7.9 GW) to meet the load + Primary Reserve Requirement of 3.5GW (RT)
5. Call Maximum Emergency Energy into capacity and purchase Emergency Energy (If available) to address the **1.5 GW shortfall**
6. Initiate escalating Emergency Procedures if needed (RT)

*1,600 MW out of the total **Net Interchange** (4,200 MW) are capacity backed exports.

** 97% of Load Management is Pre-Emergency.

Summer 2025 Stressed System Scenario Overview (Preliminary)



Anticipated PJM actions to reliably serve the 90/10 Forecast:

1. Issue Max Gen/Load Management Alert (DA)
2. Schedule all Available Generation (DA)
3. Curtail all Recallable Exports (RT)
4. Implement **all** Demand Response (**7.9 GW**) to meet the load + Primary Reserve Requirement of 3.5 GW (RT)
5. Call Maximum Emergency Energy into capacity and purchase Emergency Energy (If available) to address the **5.3 GW shortfall**
6. Initiate escalating Emergency Procedures if needed (RT)

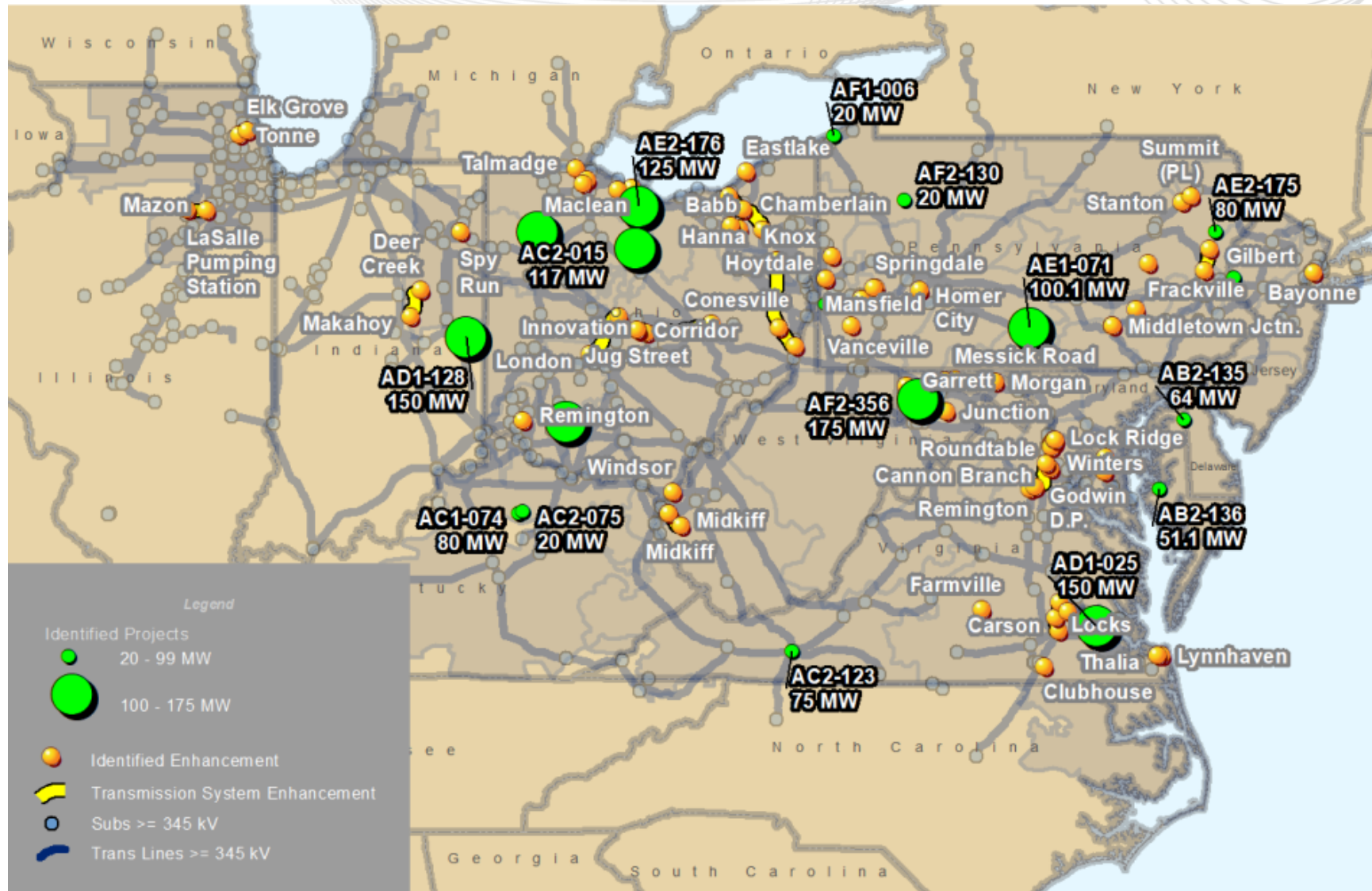
*1,600 MW out of the total **Net Interchange** (4,200MW) are capacity backed exports.

** 97% of Load Management is Pre-Emergency.

- Load forecasts have increased year over year due to data center and economic growth, as well as increased electrification in the PJM footprint.
- Available generation capacity has decreased due to retirements and delays in new additions to the fleet.
- Based on the load increase and generation decrease, PJM is projecting potential reserve margin shortages during peak operating periods. As a result, there is an increased risk that Emergency Procedures may be required to meet load and reserve requirements.
- PJM will be heavily reliant on good generation performance from both fossil and inverter-based generation to avoid/minimize the need for Emergency Procedures.

Operations Assessment Task Force 2025 Summer Study

Upcoming Generation and Transmission Projects



50/50 Non-diversified Peak Load Base Case

LAS Load Forecast	160,961 MW
RTO Case Interchange	4,200 MW** (Exporting)
PJM RTO Installed Capacity	179,227 MW (Preliminary)
Discrete Generator Outages	13,012 MW

**OATF Case Interchange (-3,000 MW) = Forecasted Net Interchange(-4,200 MW) + Pseudo-Tie Adjustment (1,200 MW)

Peak Load Analysis

- Several thermal overloads identified above emergency
- No thermal exceedances above load dump in the N-1 analysis

- Re-dispatch and switching required to control local thermal or voltage exceedances in some areas.
- Most networked thermal overloads and voltage exceedances observed were relieved through shunt and tap adjustments, switching, PAR adjustments, applicable operating procedures, and generation re-dispatch
- Identified 12 post-contingency overloads between 100-113% of emergency ratings. None of which are above their respective load dump limits
- The exceedances reported are only controllable by post contingency local load relief or post contingency switching

Sensitivity Studies	Results
External Contingencies Impactful to PJM Reliability	No Reliability Concerns
N-1-1 Relay Trip Conditions	No Reliability Concerns
Max-Cred Contingency Analysis	No Reliability Concerns
90/10 Load Forecast Study (166,562 MW Diversified Peak Load Forecast)	No Reliability Concerns
Solar and Wind Generation Sensitivity Study	No Reliability Concerns
Transfer Interface Analysis	No Reliability Concerns
BGE/PEPCO Import Capability	No Reliability Concerns

Interface	Projected Limit (MW)	Back-off (MW)
Eastern	8780	300
Central	1185	200
Western	4612	200
BED – BLA	1631	50
AP South	4156	100
AEP – DOM	4972	100
Cleveland	4063	200
CE-EAST	4099	200
5004/5005	2411	50

Presenter:

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**Operations Assessment Task Force
2025 Summer Study**



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malicious
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