



Item 7.1: System Planning and Weatherization Update

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Reliability and Markets Committee Meeting

ERCOT Public

June 19, 2023

System Planning and Weatherization Update: Overview

- **Purpose**

- Provide an update on recent activity related to planning, modeling, generation interconnection, resource adequacy, and weatherization
- No significant updates for Planning or System Modeling

- **Voting Items / Requests**

- No action is requested of the R&M Committee or Board; for discussion only

- **Key Takeaways**

1. 17 Distribution Energy Supply Resources (DESRs) or batteries added in May and June.
2. Transmission Planning staffing continues to be a challenge.
3. Batteries continue to dominate new requests for generation interconnection.
4. Summer 2024 Reserve Margin decreases slightly.
5. Probabilistic Reserve Model shows 11% risk of Energy Emergency Alert (EEA) outages over summer peak.
6. EEA risk shifts from afternoon to evening as generation portfolio continues to change.
7. Weatherization and inspection program is on track.

Elements Submitted for Operational Modeling (Monthly)

May 2023	June 2023	Rolling Average <i>Previous 12 Months</i>
<p>Resources – 7 (<i>net*</i>)</p> <ul style="list-style-type: none"> • 0 Thermal • 0 Wind • 2 Solar • 7 DESRs <ul style="list-style-type: none"> • 2 conversion* <p>Transmission</p> <ul style="list-style-type: none"> • 11 Transformers • 80 Breaker • 30 Lines <p>Contingencies</p> <ul style="list-style-type: none"> • 83 	<p>Resources – 19</p> <ul style="list-style-type: none"> • 0 Thermal • 0 Wind • 6 Solar • 3 TFSR • 10 DESR <p>Transmission</p> <ul style="list-style-type: none"> • 5 Transformers • 31 Breakers • -5 Lines <p>Contingencies</p> <ul style="list-style-type: none"> • 26 	<p>Resources – 9</p> <ul style="list-style-type: none"> • 1 Thermal • 2 Wind • 3 Solar • 3 ESRs <p>Transmission</p> <ul style="list-style-type: none"> • 7 Transformers • 64 Breakers • 19 Lines <p>Contingencies</p> <ul style="list-style-type: none"> • 61

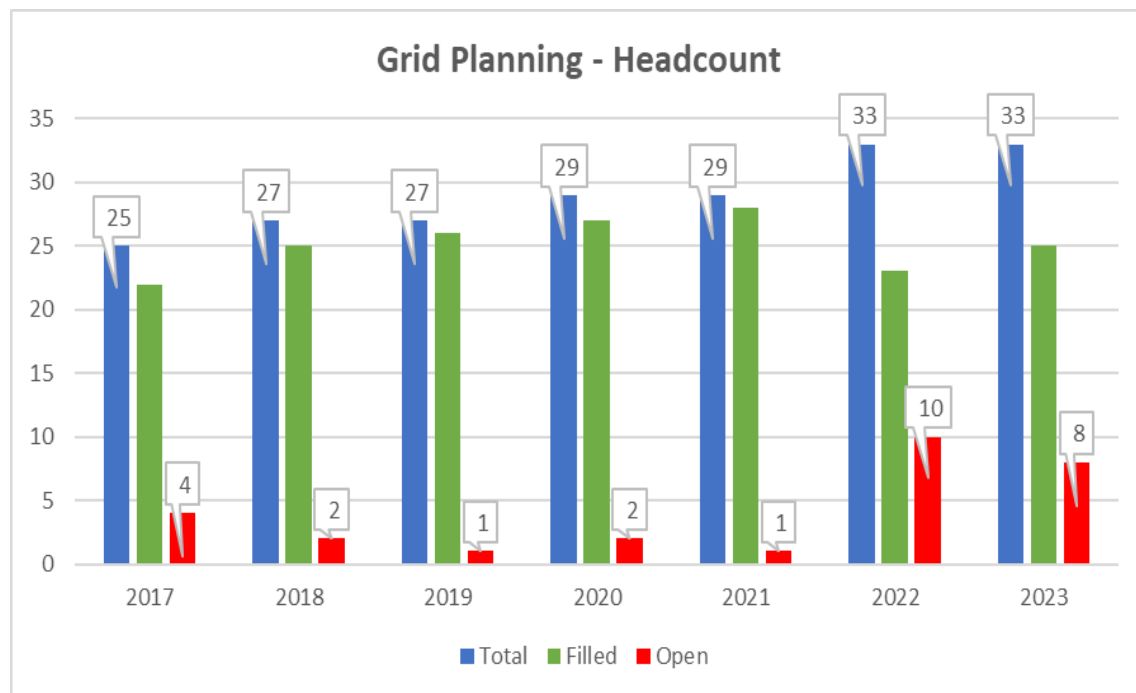
Key Takeaway: 17 Distribution Energy Storage Resources (DESRs) or batteries added in May and June



Transmission Planning Staffing Challenge

Grid Planning Staffing (as of May 1, 2023)

- Total Headcount – 33
- Current Staff – 25
- 40% of the current staff are new hires (2022 & 2023)
- Vacant Positions - 8
- Several months required to fill a position.

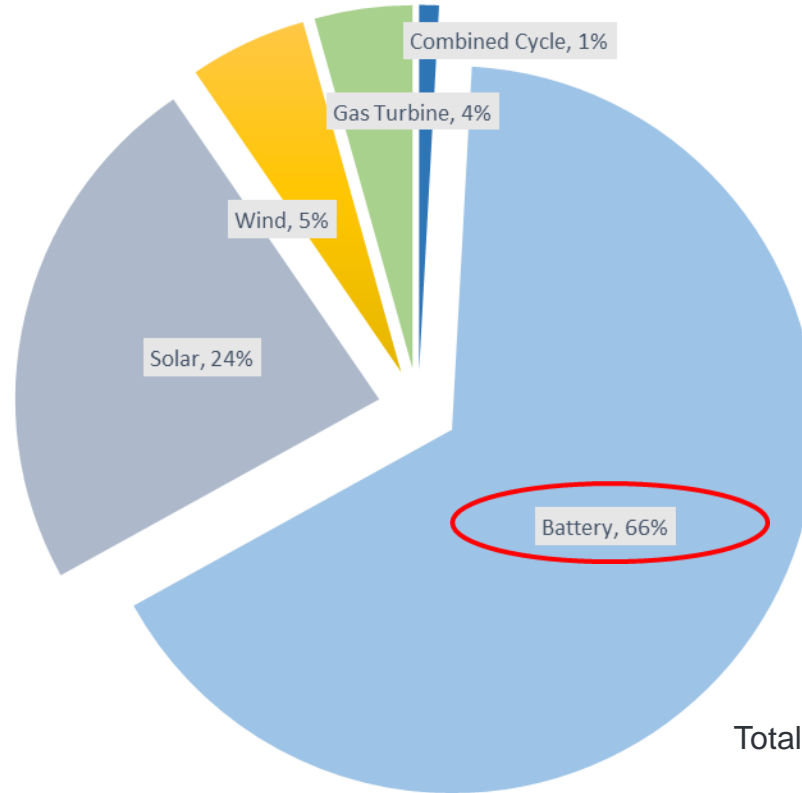


Headcount snapshot as of May 1 each year

Key Takeaway: Transmission staffing continues to be a challenge with large number of openings, high turnover rate, and loss of experienced engineers

Generation Interconnection

APPLICATIONS RECEIVED IN THE LAST 60 DAYS BY FUEL



Total Count was 115 Applications

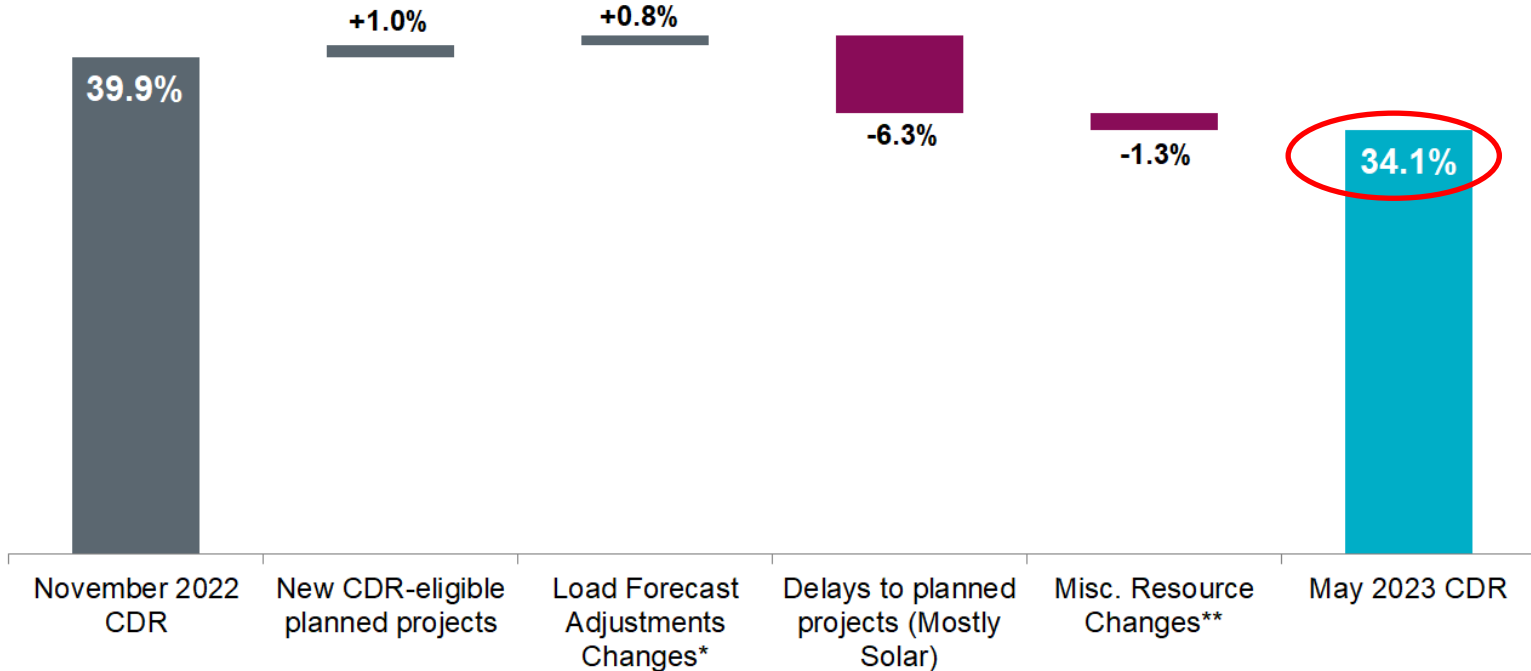
Key Takeaway: Batteries continue to dominate new requests for generation interconnection

May Release of Resource Adequacy Assessments

- **May Release**
 - CDR (Capacity, Demand, and Reserves) Report for Summer of 2024-2028
 - SARA (Seasonal Assessment of Resource Adequacy) Report for the Summer of 2023
 - Probabilistic Reserve Model results for Summer 2023

Capacity, Demand, and Reserves Report

Summer 2024 Reserve Margin November 2022 CDR to May 2023 CDR



Notes:

*Load Forecast Adjustments Update: Load Resources for Responsive/Non-spin Reserves (+548 MW), TDSP Load Management (+53 MW)

**Misc. Resource Changes (unavailable switchable capacity for summer 2024, rating changes to operational and planned resources, planned project movement between planned and inactive status, units moved to indefinite mothball status, capacity contribution updates for hydro, PUNs and solar to include summer 2022 data, wind unit retirement)

Key Takeaway: Summer 2024 Reserve Margin decreases slightly

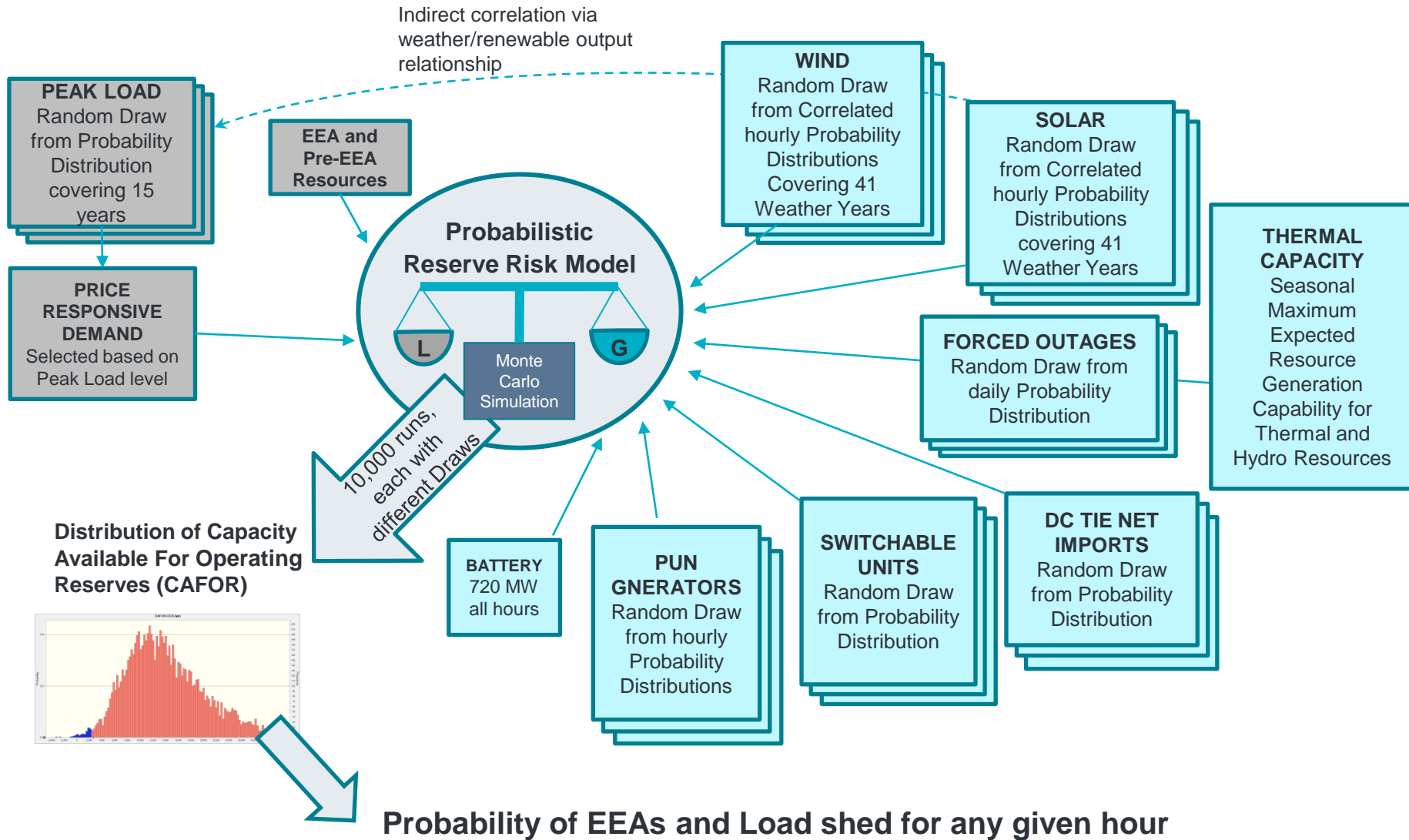


Probabilistic Reserve Model

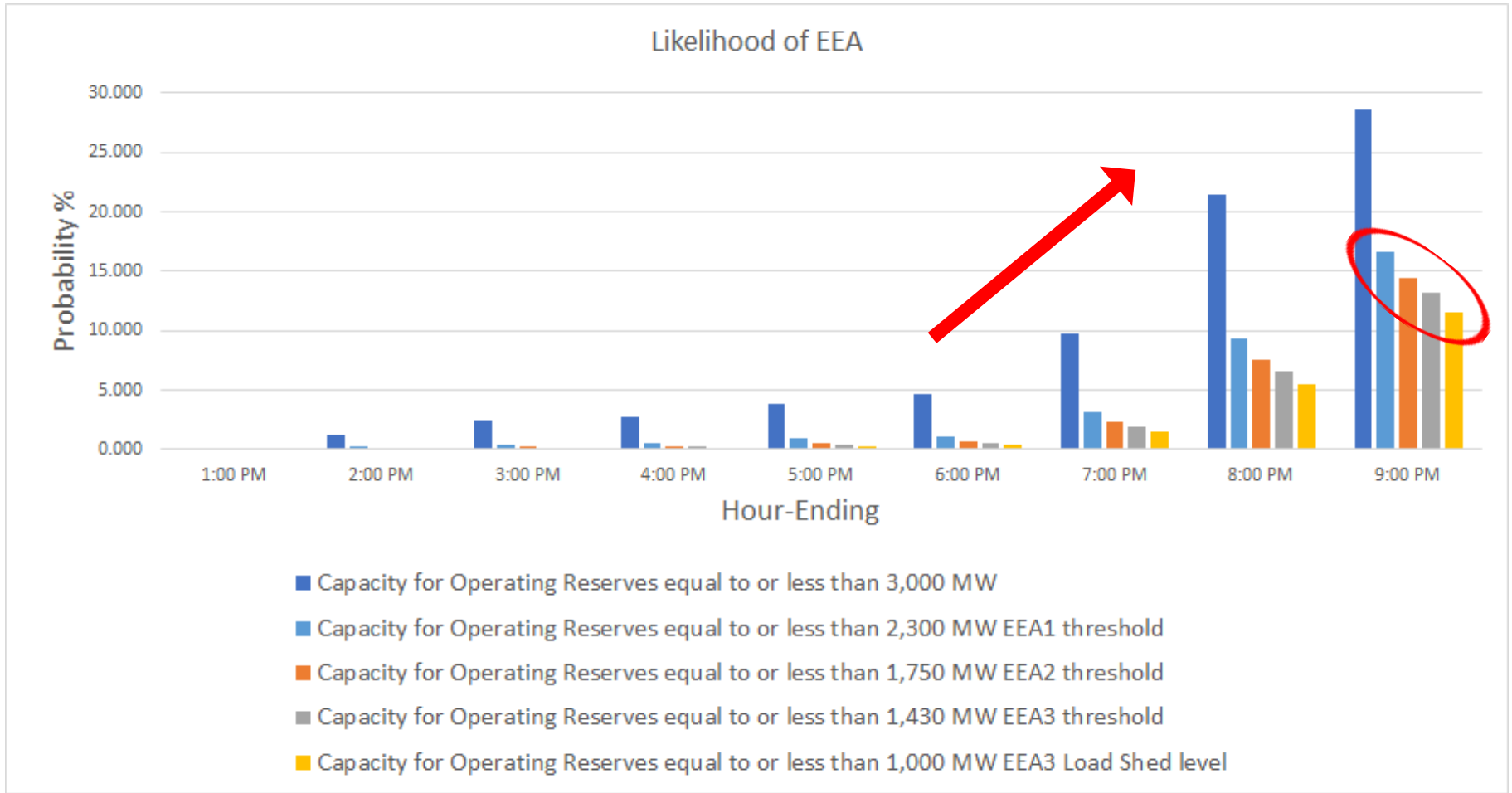
- Performs Monte Carlo simulations of future *Capacity Available for Operating Reserves (CAFOR)* for a seasonal peak load day
- The model generates 10,000 CAFOR outcomes for a range of summer peak day hours, 1:00 PM – 9:00 PM, rather than just the single peak load hour like the SARA report
- Variations in CAFOR outcomes come from random sampling of probability distributions for peak demand, unplanned thermal outages, wind output, solar output, and other resource risk variables
- Based on the range of hourly CAFOR outcomes, the model reports the probability that capacity reserves are at or below levels indicating the need for a control room advisory or an Energy Emergency Alert (including rotating outages)
- Model accounts for resources available prior to, and after, EEAs are declared

Key Takeaway: This model is an extension of the SARA analysis and its results will be incorporated into the future Monthly Operational Reliability Assessment

Probabilistic Reserve Model Data Flow



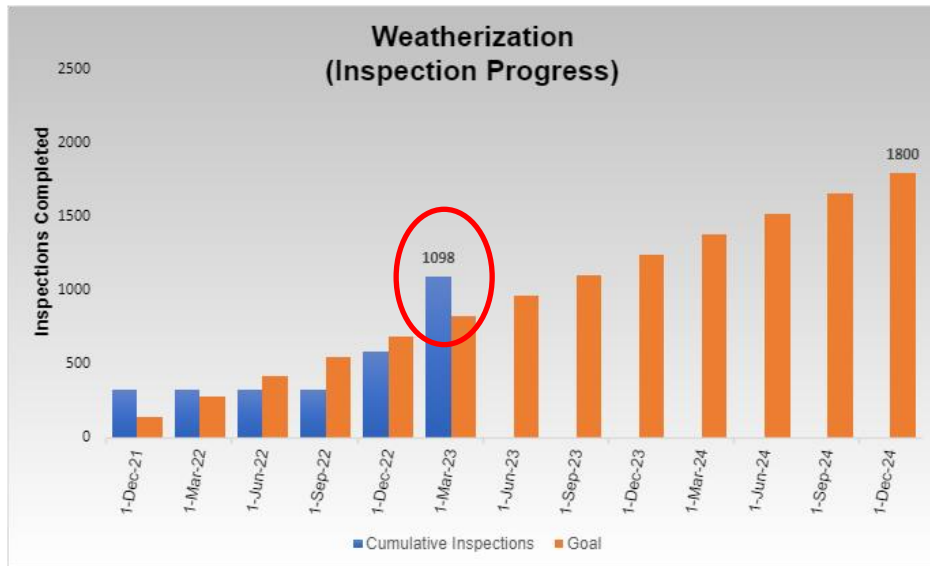
EEA / Rotating Load Shed Probabilities by Hour Summer 2023



Key Takeaway: Due to higher solar penetration, EEA risk shifts from late afternoon to early evening as solar production diminishes

Weatherization and Inspection – June 2023 Update

- 774 Winter Weatherization Inspections (both Generation and Transmission) completed between December resulting in 69 cure periods.
- Two-thirds of cure periods completed as of 5/25/23.
- The phase II PUC Weather Emergency Preparedness rule requires that preparation measures must be in place and must be maintained through the end of September.
- More than 500 inspections planned for the summer.



- May 25, 2023 was “go-live” date for new software tool for weatherization inspections.
- 16 TAC §25.55 requires all generation resources (~1,250) and 10% of TSP substations (~550) to be inspected 1x/3yrs, for a total of 1800.
- Cumulative inspections to date are 1,098, well ahead of the required rate.

Key Takeaway: Weatherization and inspection program is on track