



Item 8.1: System Planning and Weatherization Update

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Reliability and Markets Committee Meeting

ERCOT Public

August 30, 2023

Planning and Weatherization Update: Overview

- **Purpose**
 - Provide an update on recent activity related to planning, modeling, generation interconnection, resource adequacy, and weatherization
- **Voting Items / Requests**
 - No action is requested of the R&M Committee or Board; for discussion only

Key Takeaways

- Weatherization and inspection program is on track and exceeding the minimum requirements provided in the PUC rule.
- Commission acceptance of the “Wind Chill” interpretation provided needed clarity for Market Participants.
- Dispatchable Thermal Unit interconnection requests remain a small portion of the overall number of potential projects.
- The Summer SARA provided scenarios accurately representing actual Summer peak conditions.
- Tightest actual conditions occurred before the Solar generation was fully off the system. SARA analysis anticipated tightest conditions to be at 9 PM.
- MORA report series will replace the SARA beginning in October 2023.
- ERCOT has proposed changes that affect some Large Loads and is working with interested parties in determining agreeable solutions.

Weatherization and Inspection – August 2023 Update

- The first year of Summer Weatherization Inspections (both Generation and Transmission) is underway with 246 generation resources or Transmission Service Provider (TSP) facilities inspected through the end of July.
- The Phase II PUC Weather Emergency Preparedness rule requires that preparation measures must be in place by June 1st and must be maintained through the end of September.
- Weatherization Inspectors are utilizing new ServiceNow software on iPad devices this summer.
- 1,344 cumulative inspections have been executed through July 2023, approximately 20 months since program inception in December 2021. We are tracking well ahead of the required rate of 1,800 inspections over 3 years.

Key Takeaway: Weatherization and inspection program is on track and exceeding the minimum requirements provided in the PUC rule.



Wind Chill Temperature Interpretation

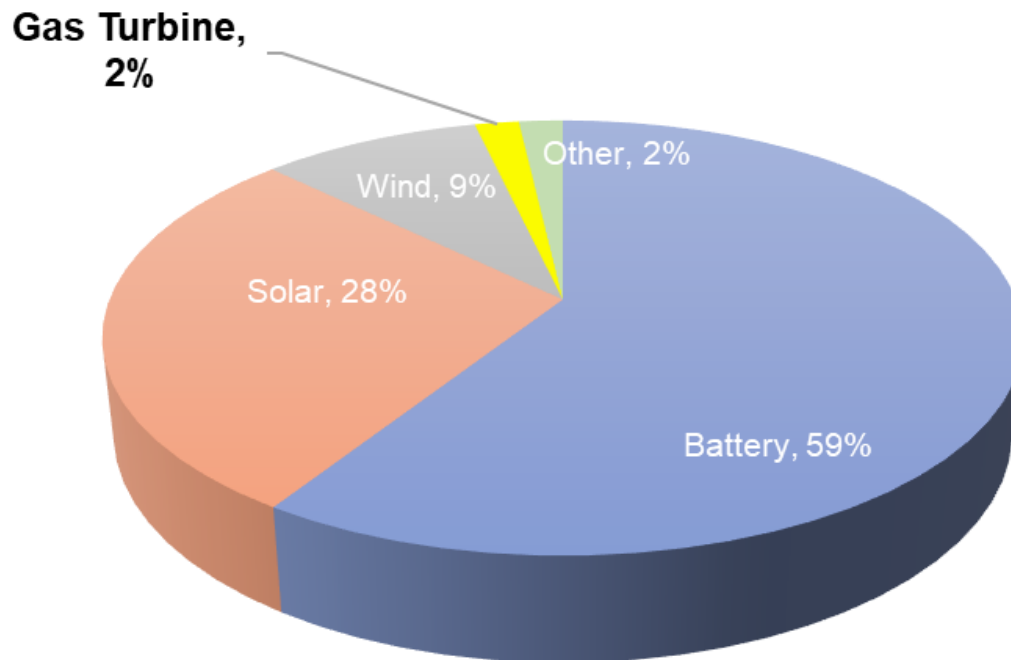
- PUCT Substantive Rule 25.55(c)(1)(B) and (f)(1)(B) require facility preparations to reasonably be expected to ensure sustained operation at the 95th percentile minimum average 72-hour wind chill temperature as identified in ERCOT's historical weather study for their weather zone.
- Phase II Weather Emergency Preparedness rule requirements for winter will be effective as of December 1, 2023.
 - For clarity, ERCOT submitted an interpretation that Resource owners and TSPs should include both a temperature and a wind speed in their preparation design.
 - ERCOT will use both numbers to calculate the adequacy of the design preparation and will continue to use inspections to confirm compliance.
 - ERCOT's clarification was accepted at the July 20, 2023 Open Meeting.
- ERCOT held a virtual workshop on July 28, 2023 to share the interpretation and answer questions. More than 280 participants attended.

Key Takeaway: Commission acceptance of the “Wind Chill” interpretation provided needed clarity for Market Participants.

Generation Interconnection Activity

- Overall generation interconnection activity continues at a record pace.
- Most of the interest in the last 60 days remains in battery and solar projects (87%).
- Gas turbine requests represent only 2% of the total number of interconnection requests.

Generation Interconnection Requests Received in the last 60 Days



Key Takeaway: Dispatchable Thermal Unit interconnection requests remain a small portion of the overall number of potential projects.

Resource Adequacy – 2023 Seasonal Assessment of Resource Adequacy (SARA) Comparison to Actual 2023 Summer Peak

Peak load this summer* compared to Summer SARA scenarios.

Summer 2023 SARA @ 1700		August 10, 2023 @1800*
Load Forecast - Base (MW)	83,412	Actual 85,435
Load Forecast - High (MW)	86,801	
Load Forecast - Extreme (MW)	88,526	
Dispatchable** Generation (MW)	73,074	73,719
Wind Generation (MW)	10,427	9,554
Solar Generation (MW)	12,636	10,434
DC Ties (MW)	850	815
Thermal Outages (MW)	5,034	4,948
Reserves, High Peak Load Scenario (MW)	5,153	4,139

Key Takeaway: While the SARA is not a forecasting tool, it did provide scenarios accurately representing actual Summer peak conditions.

Resource Adequacy – Changes to the Operational Resource Adequacy Reports

SARA - Seasonal Assessment of Resource Adequacy

MORA - Monthly Operational Assessment of Resource Adequacy

The MORA will replace the SARA for the winter of 2023/4

For the MORA report:

- Posting MORA reports two months prior to the reporting month, starting with an October 2 release for December (no winter SARA will be prepared)
- Each MORA report will be a multi-tabbed Excel Workbook that will ultimately include a link to an interactive dashboard
- Initial reports will be “basic” versions relying largely on a manual production process
- New features will be added to the reports incrementally

Key Takeaway: MORA report series will replace the SARA beginning in October 2023

Large Load Changes

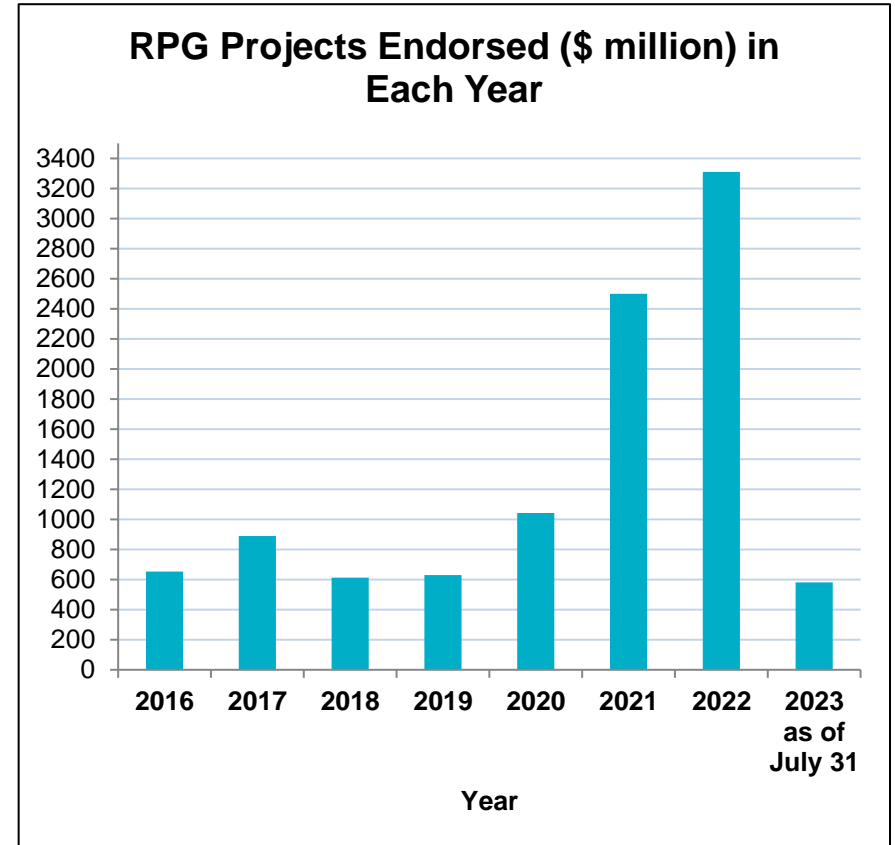
- ERCOT submitted a series of binding document changes that would alter how some large loads operate and are studied in ERCOT.
- A Workshop was held on August 16, 2023, to discuss these changes and receive feedback from affected parties. The major changes include:
 - A faster, more efficient interconnection process to meet the needs of these new Loads.
 - Load forecasting improvements to capture the unique demand characteristics of larger Loads.
 - Voltage ride-through standards to maintain grid resiliency during events.
 - Ramp rate limits to mitigate negative impacts on Ancillary Service availability.
 - A new Load category to reduce the need for Emergency Operations.

Key Takeaway: ERCOT has proposed changes that affect some Large Loads and is working with interested parties in determining agreeable solutions.

Appendix

Transmission Planning Summary

- As of May 12, 2023, projects energized in 2023 total about \$442 million.
 - \$1.567 billion energized in all of 2022
- As of June 30, 2023, ERCOT has endorsed transmission projects totaling \$1.083 billion.
 - Total endorsed transmission projects in 2022 equaled \$3.311 billion
- As of May 12, 2023, projects in engineering, routing, licensing, and construction total about \$12.469 billion.



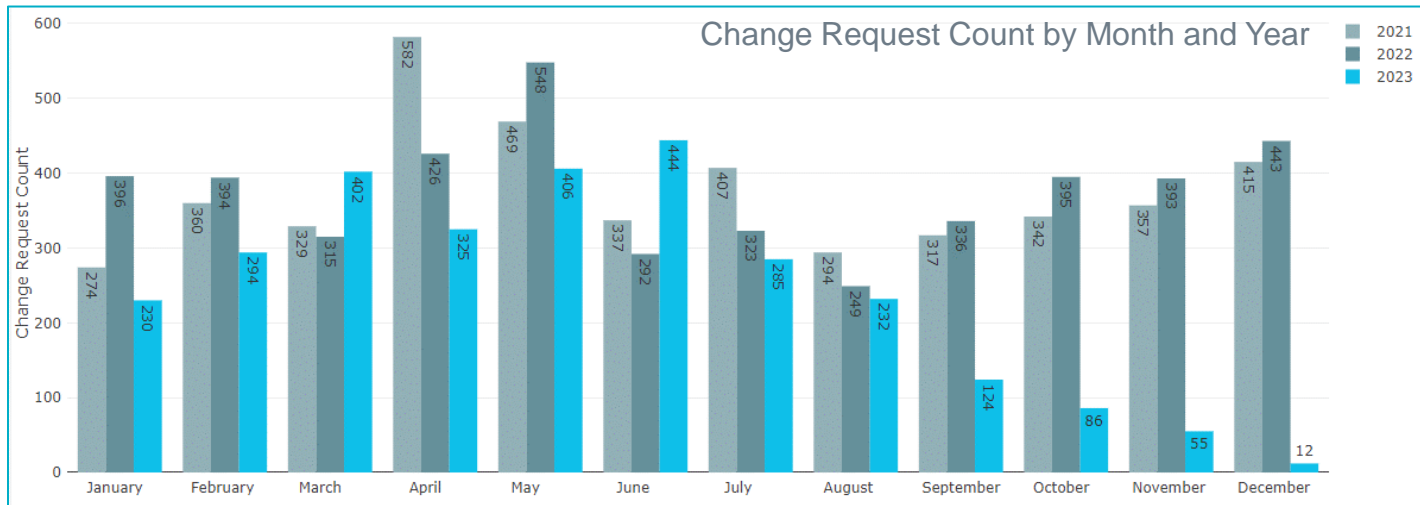
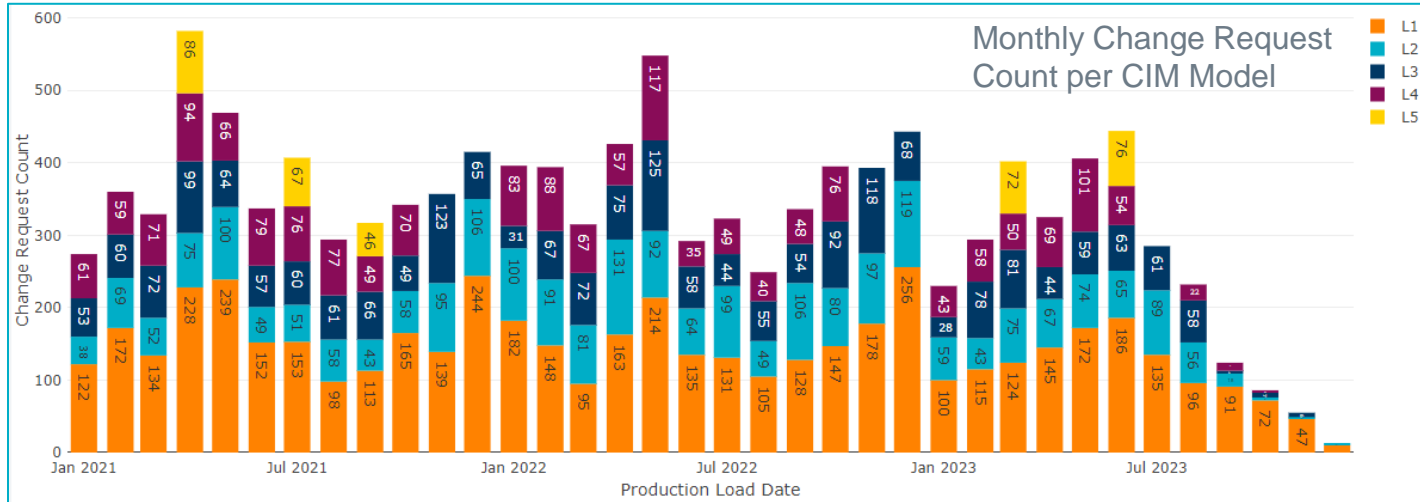
Elements Submitted for Operational Modeling (Monthly)

July 2023	August 2023	Rolling Average <i>Previous 12 Months</i>
<p>Resources – 9 (<i>net*</i>)</p> <ul style="list-style-type: none"> • 0 Thermal • 0 Wind • 2 Solar • 9 ESRs <ul style="list-style-type: none"> • 2 conversion* 	<p>Resources – 6 (<i>net*</i>)</p> <ul style="list-style-type: none"> • 0 Thermal • 0 Wind • 4 Solar • 3 ESR <ul style="list-style-type: none"> • 1 conversion* 	<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"> • -3 Transformers • -9 Breaker • -4 Lines 	<p>Transmission</p> <ul style="list-style-type: none"> • 5 Transformers • 30 Breakers • 7 Lines 	<p>Transmission</p> <ul style="list-style-type: none"> • 6 Transformers • 57 Breakers • 18 Lines
<p>Contingencies</p> <ul style="list-style-type: none"> • 1 	<p>Contingencies</p> <ul style="list-style-type: none"> • 2 	<p>Contingencies</p> <ul style="list-style-type: none"> • 61

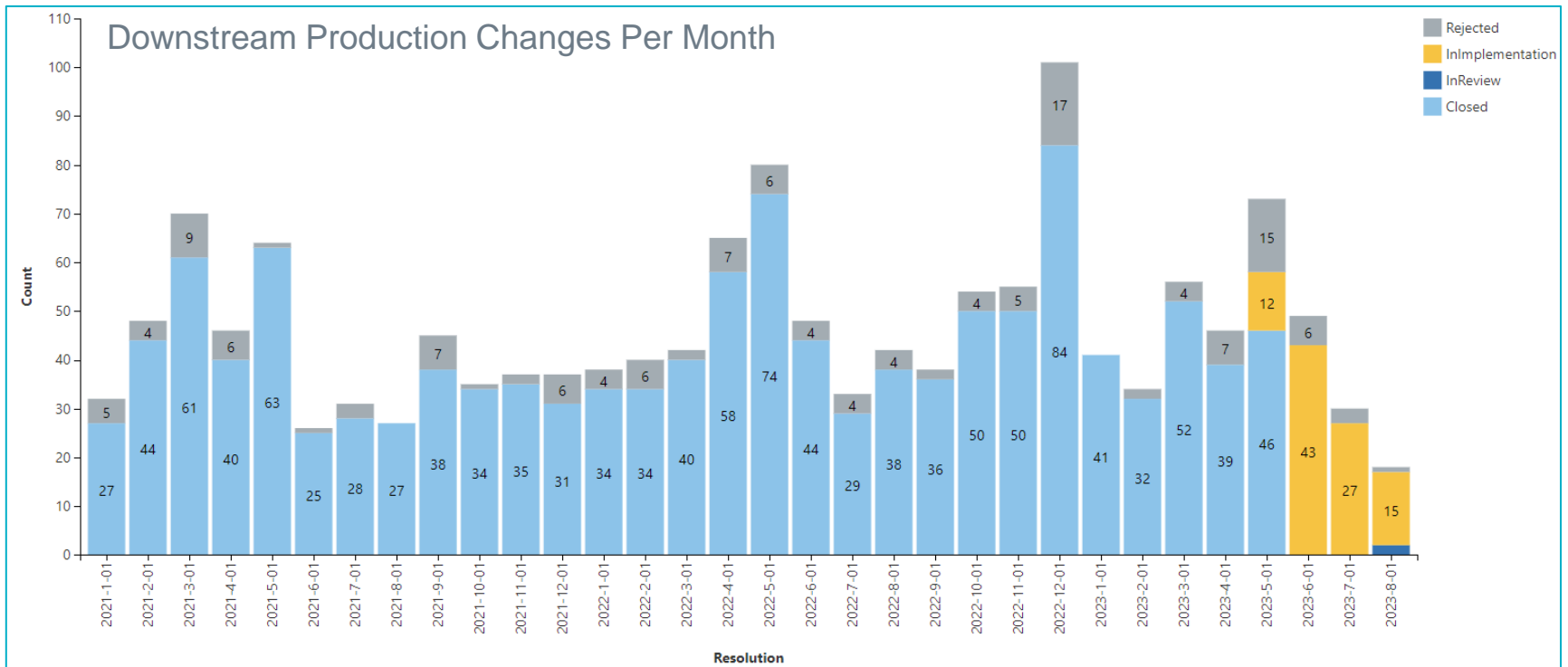
* Removing distribution modeling of pre-moratorium DESRs



Changes Submitted for Operational Modeling



Notice for Operational Model Changes



Large Load Changes

- ERCOT submitted a series of binding document changes that would alter how some large loads operate and are studied in ERCOT.
- Changes are proposed to the Nodal Protocols, Planning Guides, Nodal Operating Guides, and the Resource Glossary.

NPRR1191

- Definitions
- Provision of Information
- Ramp rate limits
- Changes to SSO/SSR terminology
- Interconnection fee and other changes

PGRR111

- Handling of Large Loads in Planning studies
- New interconnection process for Large Loads
 - Studies
 - Quarterly Stability Assessment
 - Modeling
 - Approval to Energize
- Ongoing obligations for Large Loads

NOGRR256

- Large Load voltage ride-through requirements
- Shedding of RCLs prior to EEA
- Exemption of RCLs from TSP firm load shed obligations

RRGRR036

- New sections added to RIOO
- New RIOO fields to support the interconnection process