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Recent Generator Ride-Through Events

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Event Analysis

August 17, 2026

Outline:

- Ride-Through Requirement Summary
- June 30, 2026 Event
- July 4, 2026 Event (Preview)

Ride-Through Requirement Summary

2.6.2.1 Frequency Ride-Through Requirement for Transmission-Connected IBRs, Type 1 WGRs and Type 2 WGRs (see 2.6.2.1.1 for temporary legacy exemption)

Frequency (f) in (Hz)	Minimum Ride-Through Time (seconds)
f > 61.8	May ride-through or trip
61.6 < f ≤ 61.8	299
61.2 < f ≤ 61.6	540
58.8 ≤ f ≤ 61.2	continuous
58.4 ≤ f < 58.8	540
57.0 ≤ f < 58.4	299
f < 57.0	May ride-through or trip

2.9.1.1 Preferred Voltage Ride-Through Requirements for Transmission-Connected IBRs (see 2.9.1.2 for Legacy Voltage Ride-Through Requirements)

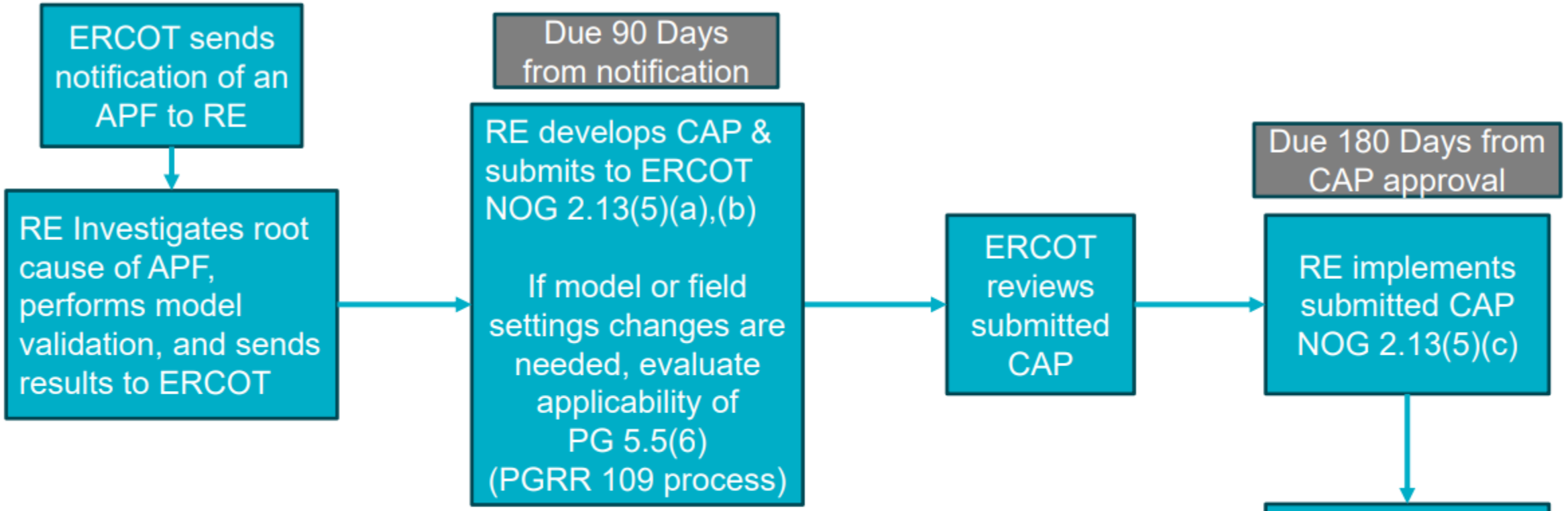
Root-Mean-Square Voltage (p.u. of nominal)	Minimum Ride-Through Time (seconds)
V > 1.20	May ride-through or trip
1.10 < V ≤ 1.20	1.0
0.90 ≤ V ≤ 1.10	continuous
0.70 ≤ V < 0.90	3.0
0.50 ≤ V < 0.70	2.5
0.25 ≤ V < 0.50	1.2
0.005625 ≤ V < 0.25	(V+0.084375)/0.5625
V < 0.005625	0.16

Table A: Applicable to WGRs

Root-Mean-Square Voltage (p.u. of nominal)	Minimum Ride-Through Time (seconds)
V > 1.20	May ride-through or trip
1.10 < V ≤ 1.20	1.0
0.90 ≤ V ≤ 1.10	continuous
0.70 ≤ V < 0.90	6.0
0.50 ≤ V < 0.70	3.0
0.25 ≤ V < 0.50	1.2
0.095625 ≤ V < 0.25	(V+0.084375)/0.5625
V < 0.095625	0.32

Table B: Applicable to PVGRs and ESR IBRs

Apparent Performance Failure (APF) High-Level Timeline



Key Takeaway: Once ERCOT determines a resource has experienced an APF based on requested information, a notification will be sent. Within 90 days, a CAP must be submitted for ERCOT's approval. Upon approval, the RE must implement the CAP and notify ERCOT within 180 days.

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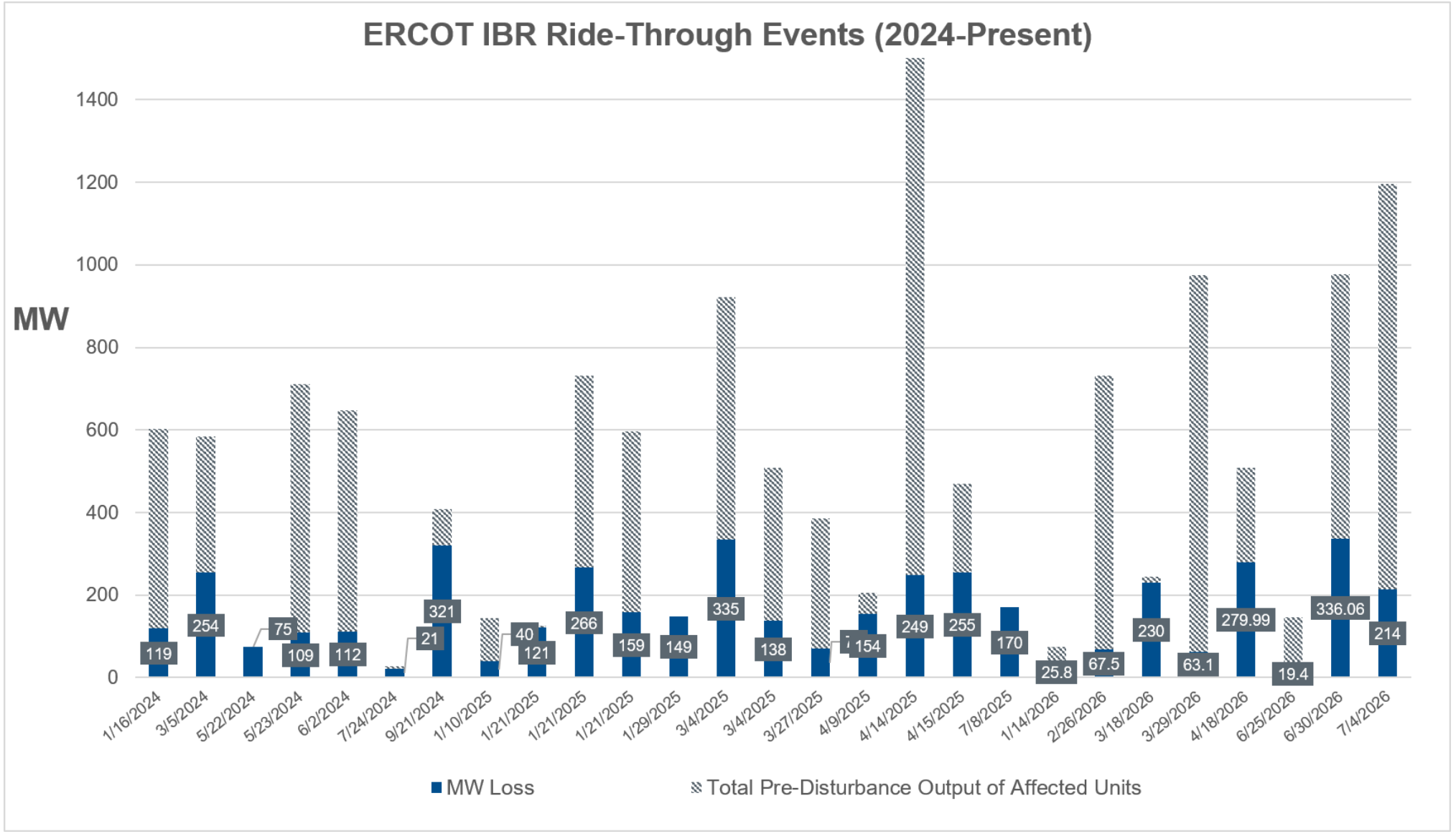
IBR Ride-Through Events



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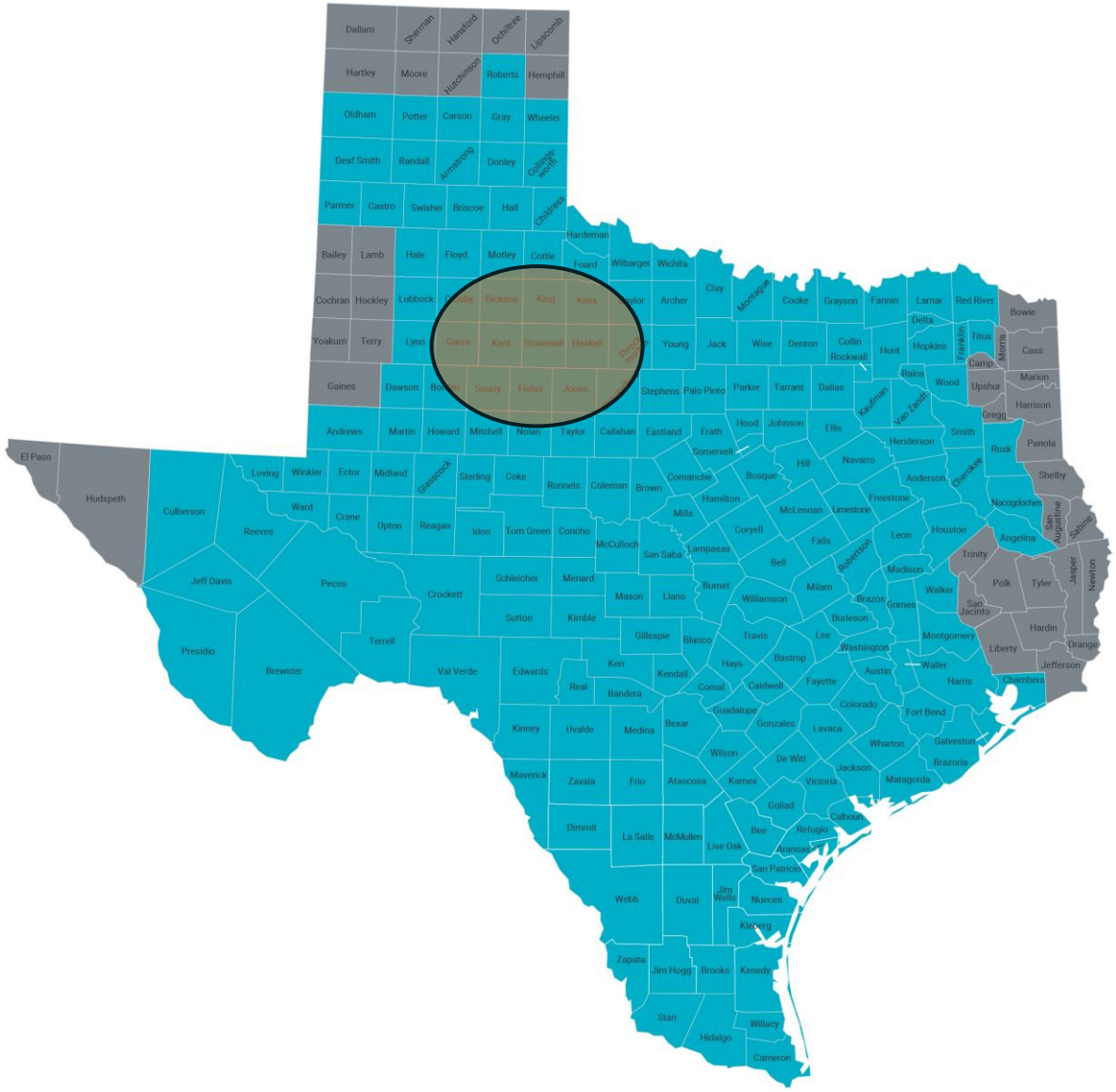
June 30, 2026 - Event Summary

- Fault on the 345kV System
- Generator MW reductions seen on both 345kV and 138kV system
- Conducted follow ups with 9 generators
- Reduction of 401 MW total
  - 336 MW immediately following event
  - 65 MW delayed reduction
- Low system frequency of 59.975 Hz



June 30, 2026 - Generator Summary

Site	Pre-Disturbance MW	Max MW Reduction	Notes
SOLAR1	195	189	Ongoing investigation into MW reduction relationship to curtailment.
SOLAR2	320	51	Ongoing investigation into MW reduction relationship to curtailment.
SOLAR3	320	26	Ongoing investigation into MW reduction relationship to curtailment.
SOLAR4	106	37	No inverter trips but slow return to pre-fault MW. Previous MW reduction during fault events.
WIND1	118	43	23 turbines tripped offline. Cause of trip under investigation. Previous MW reduction during fault events.
WIND2	288	37	No inverter trips but slow to return to pre-fault MW.
WIND3	137	18	Under ERCOT investigation MW threshold.

Key Takeaway: Most sites were partial reductions or slow returns but not tripping offline.

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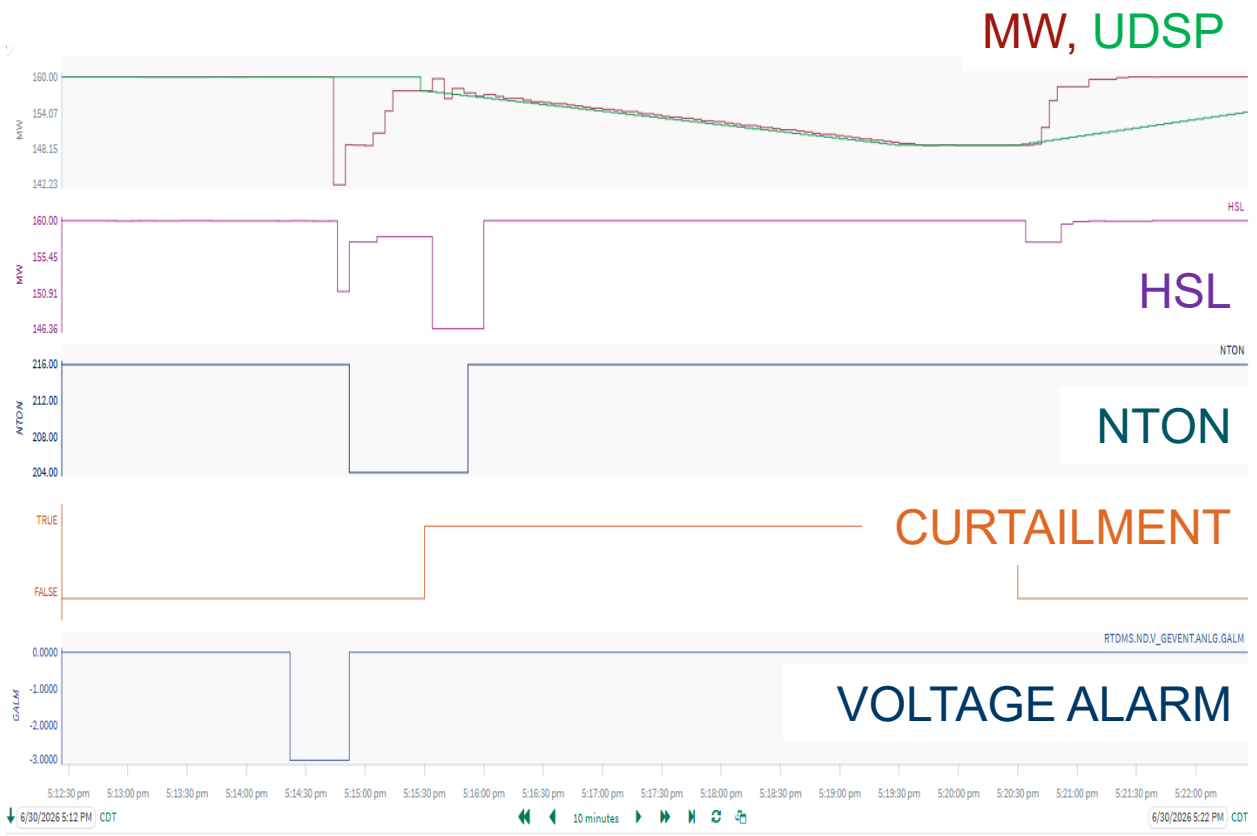
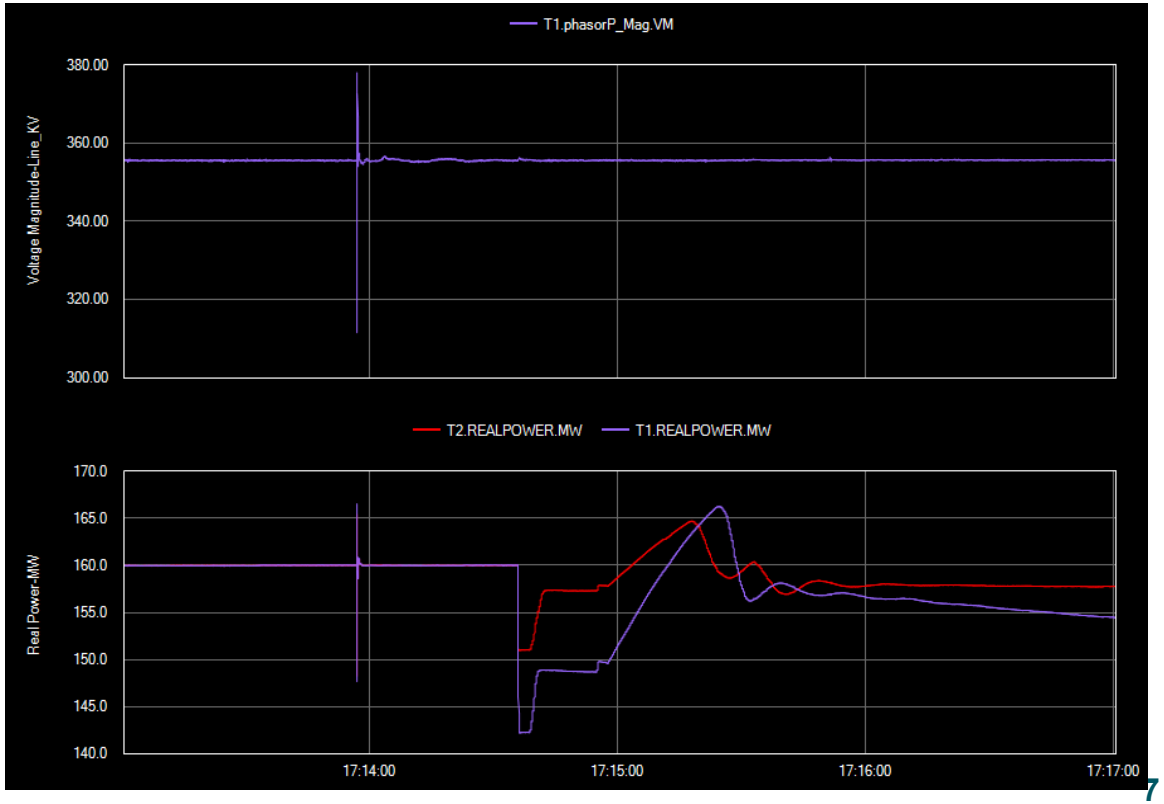
Analysis Difficulties

Curtailment Response vs Fault Ride-Through

- A curtailment instruction was issued for several sites very soon after the fault event
- Utilizing SCADA it was difficult to identify which sites reduced MWs in response to curtailment vs. the fault event



- Recommendations for Generating Resources
  - Ensure NTON (Number of Turbines On) telemetered to ERCOT is accurate based on turbines available, not turbines being utilized
  - Ensure that HSL telemetered is accurate and does not lag following a voltage event
  - When curtailed, ramp to the new base point rather than sharply reducing MWs



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Analysis Difficulties

Repeat Root Causes

- Two sites were previously involved in fault events and are currently working on corrective actions
- Having a Corrective Action Plan (CAP) in progress does not negate operating requirements
    - Completing CAPs quickly reduces risk of additional Apparent Performance Failure notifications

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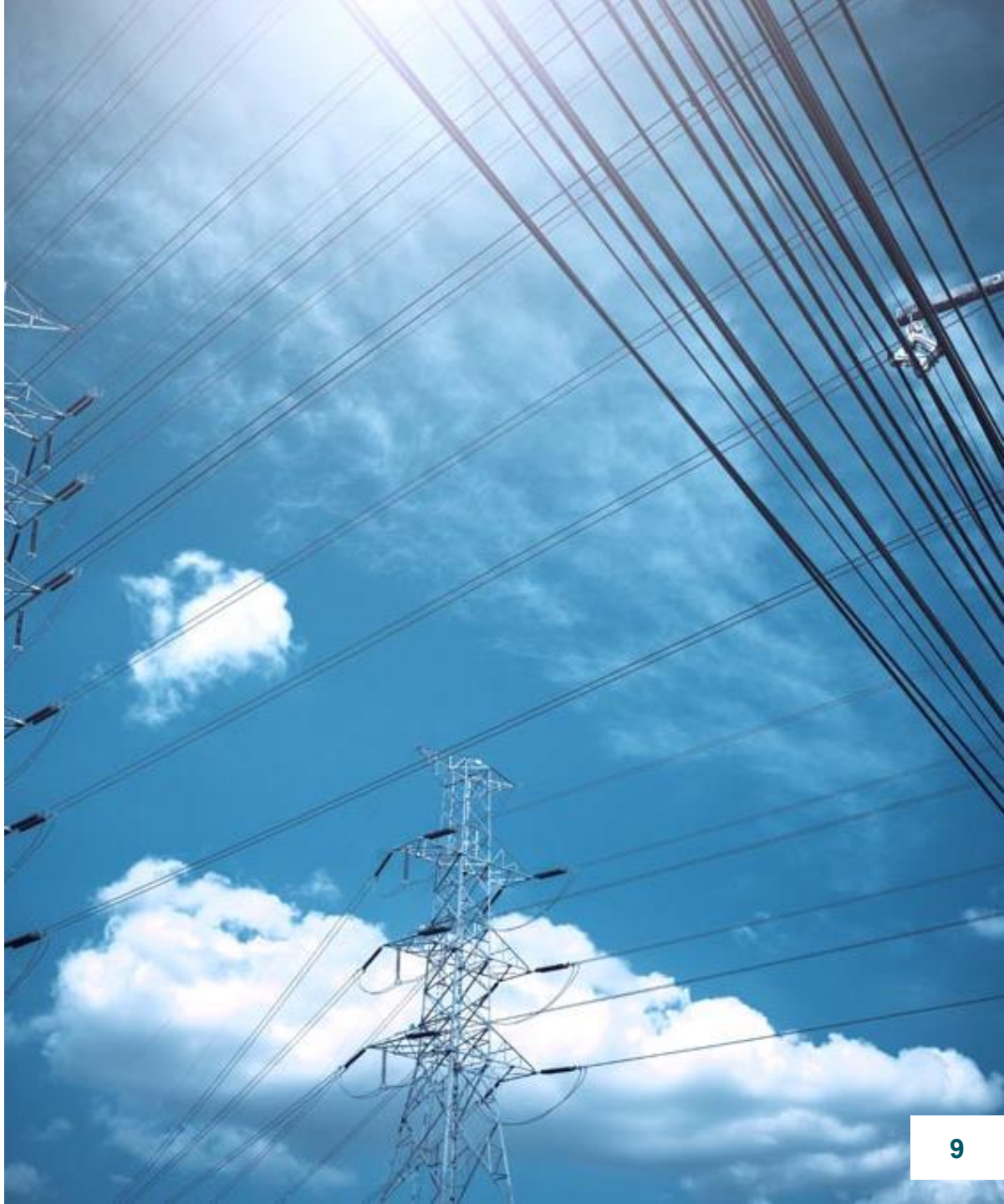
Correct Ride-Through

2 sites that ERCOT reached out to rode-through without issue

Being sent an RFI does not necessarily mean there was an issue or that the site will be issued an Apparent Performance Failure notification



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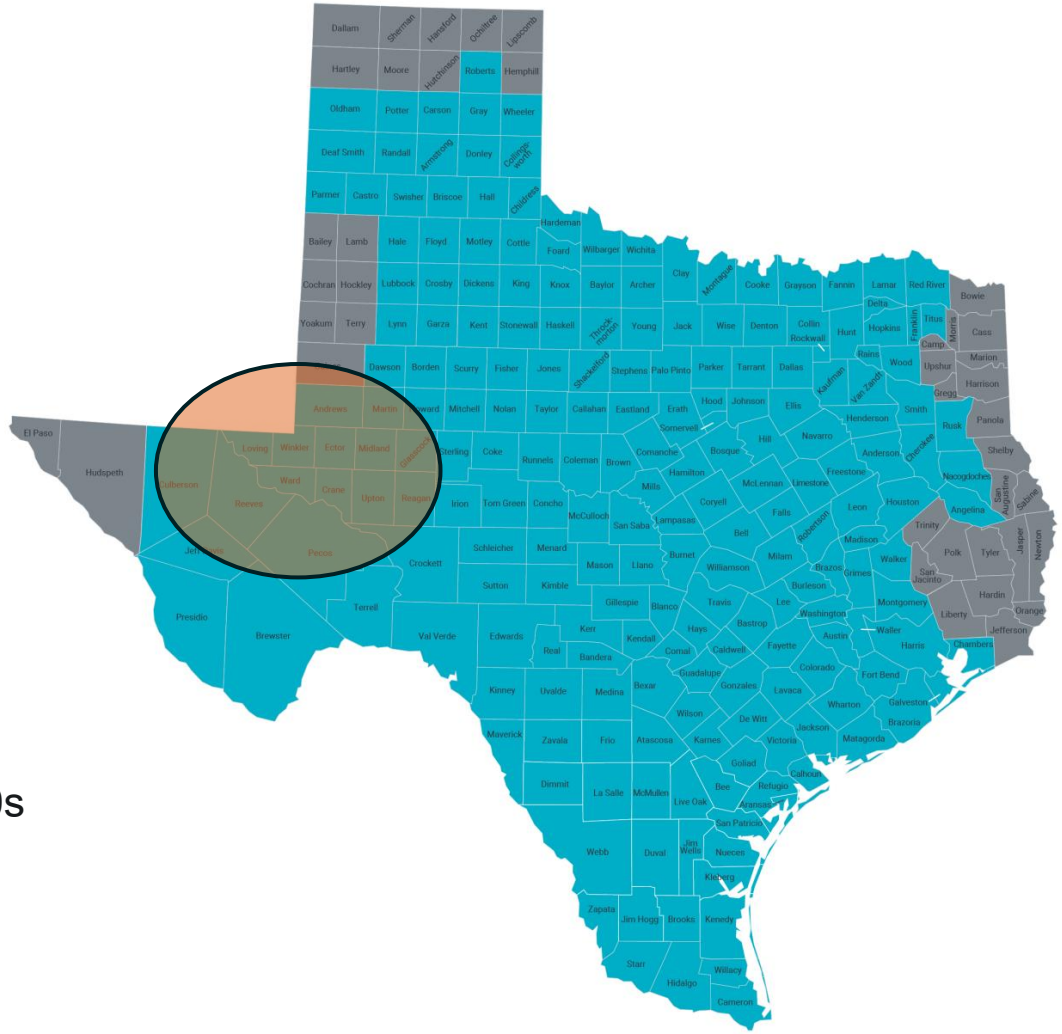
PREVIEW: July 4, 2026 - Event Summary

- Consecutive Faults on a line in the Far West 345kV System, close to Odessa

	Fault Type	Clearing Time	Lowest Voltage Recorded on PMU/DFR (pu)
1st Fault	B-G (SLG)	3.75 cycles	0.163 (Bϕ on 345kV base DFR)
2nd Fault	ABC (3Phase)	4.13 cycles	0.659 (Cϕ on 345kV base DFR)
3rd Fault	BCG (LLG)	3.88 cycles	0.763 (Bϕ on 345kV base DFR)
4th Fault	ABC (3Phase)	4.81 cycles	0.110 (Cϕ on 345kV base DFR)

- Generation reduction of 214 MW total (preliminary) from IBRs
  - Generator MW reductions seen on both 345kV and 138kV systems
  - ESRs overreacted to frequency swings
  - RFI sent to solar units, and ESRs
- Load reduction of ~370 MW in Far West
- Frequency swings ranging from 59.969Hz to 60.20 Hz in the span of ~20s



Note: IBR deadband is ± 0.017 Hz.

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Questions/Comments?

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