



PUBLIC

Item 8.5: Real-Time Co-optimization Update

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Board of Directors

September 22-23, 2025

- **Purpose**
Provide updates on the market trials and implementation of Real-Time Co-optimization plus Batteries (RTC+B) Program for December 5, 2025.
- **Voting Items / Questions for the Board**
No action is requested of the ERCOT Board; for discussion only

Key Takeaway(s)

- May/June/July/August trials completed successfully
- Status of system-wide Production testing Sep/Oct
- Alignment for go-live December 5, 2025

* Revised 9/16/25 (Slide 7 data added)

Agenda

	Update for RTC+B Program includes
1	RTC+B Task Force and Market Trials summary since June Board
2	Current Market Trials activities
3	Next Steps

RTC+B is most significant market design change since 2010 (zonal to nodal) and requires extended market trials ensure collective success and reliability for Real-Time Market and dispatch.



RTC+B Task Force Update

Policy issues are essentially complete and remaining focus is Readiness for Go-Live

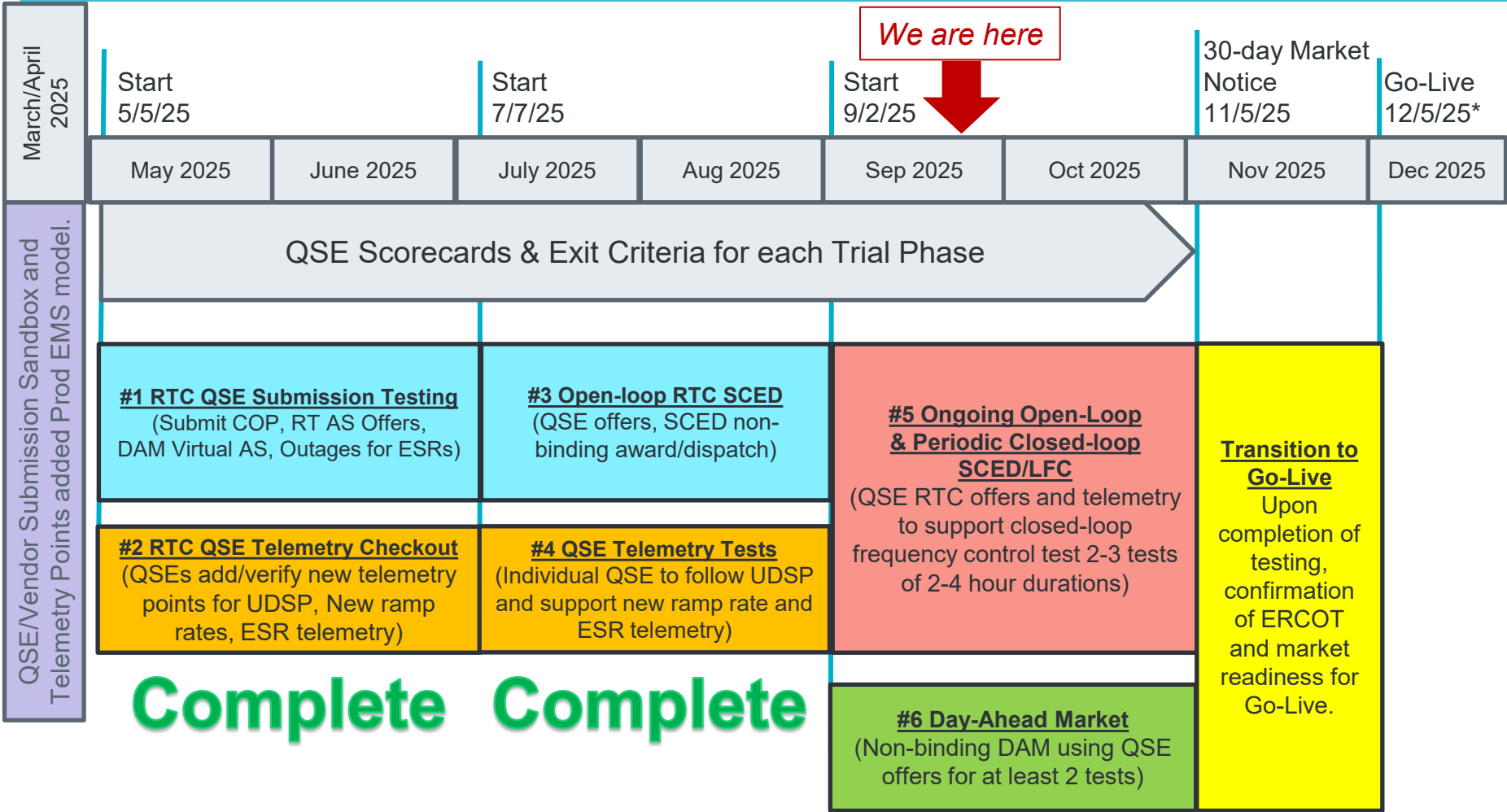


Issue to resolve	Protocol needed?	Approval level	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25
Parameters for Ancillary Service proxy offers NPRR1269	Yes	PUCT	BOARD	PUC					
Scaling Factor Values for RegUp/RegDown - NPRR1269	Yes	PUCT	BOARD	PUC					
ASDCs for use in Reliability Unit Commitment (RUC) studies- NPRR1269	Yes	PUCT	BOARD	PUC					
RTC SOC/AS duration parameter discussion- NPRR1282/NOGRR277	Yes	PUCT			BOARD	PUC			
Clean-up Revision Requests to address as-builts and clarifications, as needed- NPRR1290/NOGRR278	Yes	PUCT						Board	PUC
RTC Simulator Analysis for periodic analysis comparing RTC and the current ORDC design – KP 1.1(8) - Historical Operating Days identified by RTCBTF - Additional review of transmission constraint max. shadow price values (Sec 22/per NPRR1211) - Review of AS Demand Curve in context of current policy- NPRR1268 - Consider AS Indifference	N/A	N/A							
Market Readiness									
- Release Market Trials Sequence and Potential Dates (May 2024)									
- RTC+B Technical Workshops and release interface specifications (May-June 2024)									
- Explanation of ICCP Changes (Abhi Gari Masanna- May RTCBTF)									
- Explanation of Market Submission (Nathan Smith- August RTCBTF)									
- Release and review Market Trials Plan with RTCBTF (TAC endorsed October 2024)	No	TAC							
- Execute QSE Attestation (completed August 2024)									
- Announce Planned Go-Live Date (September 2024)									
- Outline of Readiness Training modules									
- Delivery of Training modules to RTCBTF Training page					Complete				
- Market Trials Handbooks for 5/5/25 Trials (Market Submission and Telemetry Check-out)									
- Market Trials Handbook for 7/7/25 Trials (OpenLoop SCED and QSE Telemetry Testing)			Complete						
- Market Trials Handbook for 9/2/25 Trials (Closed-Loop Test and Day-Ahead Market)					Complete				
- Annual Operations Training Seminar (6-weeks)			Complete						
- Go-Live Transition Plan						earlier			
- Any protocol and/or PUCT waivers needed for market trials and/or transition to Go-Live						earlier			
- RTCBTF issues- a. Operation Procedures (e.g., removing SASM and HASL/LASL), note to include any needed discussion on triggers for initiating off-cycle SCED execution, b. Business Practice Manuals (e.g., changes to COP and telemetry), c. Market trials/training/annual seminar engagement (release plans/dates for market trials), d. Any details MPs need for designing their control systems									



RTC+B Market Trial Progression

Market trials are a progression of activities to mitigate the risk for Go-Live on new systems and processes for both the Market Participants & ERCOT.



* Go-Live date reflects 12/5/2025 as first Operating Day where 12/4/2025 is planned software migration.



Public RTC+B scorecards have served as effective feedback tools for:

- Collectively the Market Participants have remained on-schedule for each round of market trials to meet the system-wide exit criteria.**

	Scorecard	Flag	ESR	GIN	TOPD
	GEN	LOAD	COP	OS	TPO
Market Trials HB#1 Submissions Scorecard:					
Q5E with active Resources	ESR	GEN	LOAD	COP	TPO
AE TELVIEW ESS LLC					
AES INTEGRATED ENERGY LLC	G		G	G	G
AMA Q5E LLC			G	G	G
AMERICAN ELECTRIC POWER SERVICE CORP	G				G
AVANGRID RENEWABLES LLC	G				G
BHER POWER RESOURCES INC					
BOSTON ENERGY TRADING AND MARKETING	G		G	G	G
BP ENERGY RETAIL COMPANY LLC			G	G	G
BTU					
BULL CREEK WIND LLC					G
CALPINE POWER MANAGEMENT LLC					G
CITY OF AUSTIN DBA AUSTIN ENERGY					G
CITY OF GARLAND	G				G
CONSTELLATION ENERGY GENERATION LLC					G
CPS ENERGY	G		G	G	G
CWP ENERGY INC	G		G	G	G
DELIHAH SOLAR ENERGY II LLC					G
DELIHAH SOLAR ENERGY LLC					G
DENTON MUNICIPAL ELECTRIC					
DERIVA ENERGY SERVICES LLC	G		G	G	G
DIRECT ENERGY LP					G
EDF NORTH AMERICA	G				G
ENEL TRADING NORTH AMERICA LLC	G		G	G	G
ENEL X NORTH AMERICA INC					G
ENERWISSE GLOBAL TECHNOLOGIES LLC					G
ENGIE ENERGY MARKETING NA INC	G		G	G	G
ESV ENERGY MANAGEMENT LLC (Q5E)			G	G	G
ETC ENDURE ENERGY LLC					G
FORMOSA UTILITY VENTURE LTD	G		G	G	G
GALT POWER INC					G
GERDAU AMERISTEEL ENERGY INC					G
GEUS					G
GEXA ENERGY LP	G				G
GOLDEN SPREAD ELECTRIC COOPERATIVE INC					G
GOLDTHWAITE WIND ENERGY LLC					G
GRIDBEYOND LLC	G		G	G	G
GRIDMATIC EQUISETUM LLC (SQ4)	G		G	G	G
GUDPOST ENERGY LLC	G		G	G	G
GUNSHIGHT MOUNTAIN WIND ENERGY LLC	G				G
HABITAT ENERGY INC			G	G	G
HEI1 INC			G	G	G
HEI3 INC			G	G	G
HEI4 INC			G	G	G
HEN POWER MARKETING LLC	G		G	G	G
IP LUMINA II LLC	G		G	G	G
IP LUMINA LLC	G		G	G	G

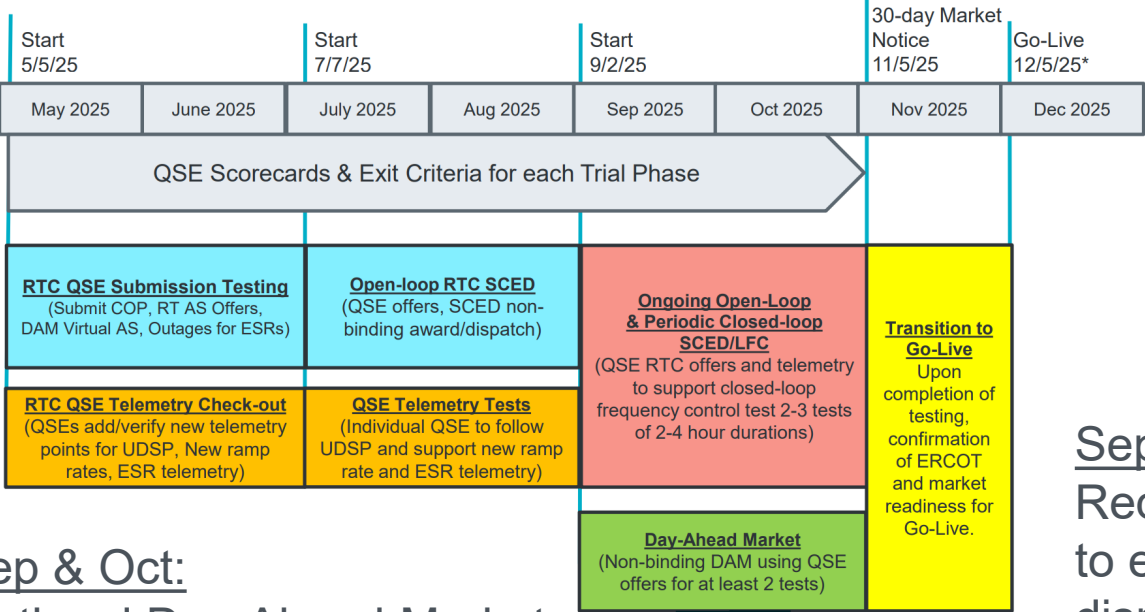
	Scorecard	Flag	ESR	GIN	TOPD
	GEN	LOAD	COP	TPO	TPO
Market Trials HB#1 Submissions Scorecard:					
Q5E with active Resources	ESR	GEN	LOAD	COP	TPO
IP RADIAN LLC					
JUPITER POWER ENERGY MANAGEMENT LLC	G		G	G	G
LINEBACKER POWER FUNDING LLC					G
LOWER COLORADO RIVER AUTHORITY	G		G	G	G
LUMINANT ENERGY COMPANY LLC	G		G	G	G
MADDOO WIND ENERGY LLC					G
MERCURIA ENERGY AMERICA LLC	G		G	G	G
MIAMI WIND I LLC					G
MITSUI AND CO ENERGY MARKETING AND	G		G	G	G
MP2 ENERGY LLC					G
MP2 ENERGY TEXAS LLC DBA SHELL ENERGY	G		G	G	G
MP2 MESQUITE CREEK WIND LLC	G		G	G	G
NEXTERA ENERGY MARKETING LLC	G		G	G	G
NG RENEWABLES ENERGY SERVICES LLC	G		G	G	G
NRG TEXAS POWER LLC					G
NUENERGEN LLC					G
OCCIDENTAL POWER SERVICES INC	G		G	G	G
OCTOPUS ENERGY LLC					
PATTERN ENERGY MANAGEMENT SERVICES	G				G
PERFECT POWER LLC			G	G	G
PRIORITY POWER MANAGEMENT LLC	G		G	G	G
PROLOGIS ENERGY LLC	G		G	G	G
RATTLENAKE WIND I LLC					G
RAYBURN COUNTRY ELECTRIC COOPERATIVE	G		G	G	G
RIESEL HOLDCO LLC					
RWIE CLEAN ENERGY Q5E LLC	G		G	G	G
SAMSON SOLAR ENERGY II LLC					G
SAMSON SOLAR ENERGY III LLC					G
SAMSON SOLAR ENERGY LLC					G
SANDY CREEK ENERGY ASSOCIATES LP	G		G	G	G
SANTA RITA EAST WIND ENERGY LLC	G		G	G	G
SANTA RITA WIND ENERGY LLC	G		G	G	G
SCURRY COUNTY WIND II LLC	G		G	G	G
SCURRY COUNTY WIND LP					
SHELL ENERGY NORTH AMERICA (US) LP	G		G	G	G
SOUTH PLAINS WIND ENERGY LLC (Q5E)					G
SOUTH TEXAS ELECTRIC CO OP INC	G		G	G	G
SOUTHERN POWER COMPANY					G
STANTON WIND ENERGY LLC					G
SUSTAINING POWER SOLUTIONS LLC					G
TENASKA POWER SERVICES CO	G		G	G	G
TOTALENERGIES GAS AND POWER NORTH	G		G	G	G
TURKEY TRACK WIND ENERGY LLC					G
TYR ENERGY LLC	G		G	G	G
UMBRA ASSET MANAGEMENT LLC	G		G	G	G
VOLTUS INC	G				G
WAKE WIND ENERGY LLC					G

ons Scorecard:	7/9	7/21	7/26	7/28
	100%	100%	100%	100%
EMENT LLC (Q5E)	100%	100%	100%	100%
LLC (Q5E)	100%	100%	100%	100%
ORITY (Q5E)	100%	97%	95%	100%
	100%	100%	100%	100%
LLC (Q5E)	63%	100%	99%	100%
SE)	100%	100%	100%	100%
IC (Q5E)	100%	46%	85%	100%
	100%	100%	100%	100%
ETING AND SERV	100%	100%	100%	83%
	100%	100%	100%	100%
ELL ENERGY SOL	100%	100%	100%	100%
C (Q5E)	100%	100%	100%	100%
LLC (Q5E)	99%	99%	99%	99%
	100%	84%	100%	100%
	100%	100%	100%	100%
INC (Q5E)	100%	100%	100%	100%
	100%	100%	100%	100%
VT SERVICES LLC	100%	100%	100%	100%
	100%	100%	100%	100%
IT LLC (Q5E)	89%	94%	100%	100%
	100%	100%	100%	100%
	100%	100%	100%	100%
COOPERATIVE INC	100%	100%	100%	100%
	-	-	-	-
SE)	96%	90%	96%	96%
(Q5E)	100%	100%	100%	100%
(Q5E)	100%	100%	100%	100%
SE)	100%	100%	100%	100%
TES LP (Q5E)	-	-	-	-
Y LLC (Q5E)	100%	100%	100%	100%
(Q5E)	100%	100%	100%	100%
2SE)	100%	100%	100%	100%
	100%	100%	100%	100%
4 (US) LP (Q5E)	100%	100%	90%	98%
LC (Q5E)	100%	100%	100%	100%
NC (Q5E)	100%	100%	100%	100%
Q5E)	100%	100%	100%	100%
SE)	100%	100%	100%	100%
IS LLC (Q5E)	100%	100%	100%	100%
(Q5E)	99%	99%	99%	99%

Market Trials HB#1 Submissions Scorecard:	Q5E with active Resources	Q5E with active Resources	Q5E with active Resources	Q5E with active Resources	Q5E with active Resources
HEI1 INC (Q5E)	100%	100%	100%	100%	100%
HEI3 INC (Q5E)	100%	100%	50%	100%	100%
HEN POWER MARKETING LLC (Q5E)	66%	38%	99%	99%	100%
IP LUMINA II LLC (Q5E)	100%	100%	100%	100%	100%
IP LUMINA LLC (Q5E)	100%	100%	100%	100%	100%

Market Trials HB#1 Submissions Scorecard:	Q5E with active Resources	Q5E with active Resources	Q5E with active Resources	Q5E with active Resources	Q5E with active Resources
TURKEY TRACK WIND ENERGY LLC (Q5E)	100%	100%	100%	100%	100%
TYR ENERGY LLC (Q5E)	100%	100%	100%	100%	100%
UMBRA ASSET MANAGEMENT LLC (Q5E)	100%	100%	67%	67%	100%
WAKE WIND ENERGY LLC (Q5E)	100%	100%	100%	100%	100%
VOLTUS INC (Q5E)	50%	0%	0%	100%	100%

Final round of Market Trials in Flight



Sep & Oct:
Optional Day-Ahead Market

- Voluntary Day-Ahead Market for all QSEs will be conducted at least 2 times.
- QSE can test their market submissions for Day-Ahead AS Self-Arrangement, AS Only Offers, Trades and normal submissions.
- DAM participation is strongly encouraged but not required in Readiness metrics since RTC procures AS in Real-Time.
- Participation includes much broader QSE population (marketers and load-only QSEs).

Sep & Oct:
Required **live-production test** to ensure effective frequency dispatch and control.

- ERCOT and QSEs will conduct **live-production tests** of RTC-SCED and Load Frequency Control (LFC) prior to go-live.
- RTC-SCED and frequency control dispatch during the tests will be binding to manage the reliable operations of the grid for 2-4 hours.
- ERCOT will coordinate with QSEs on how to submit RTC offers and telemetry for Energy and AS for the two systems (current and RTC system).
- ERCOT will provide a summary of the test and use analysis and engineering judgement to assess if the test was successful in controlling frequency.



Outcome of first Production Closed-Loop LFC Test

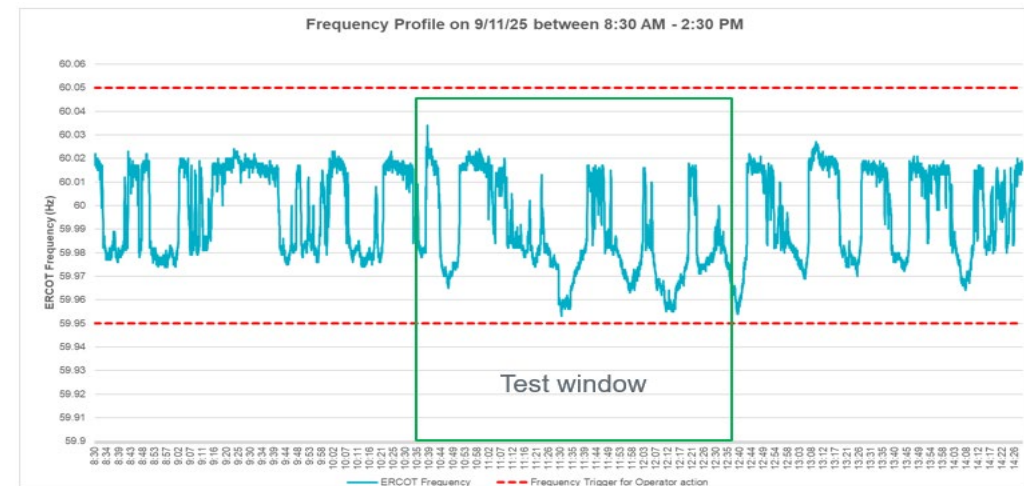
ERCOT successfully conducted the first of two planned RTC+B Production Tests on Sept 11, 2025 from 10:35am-12:35pm to manage the Real-Time Market and Load Frequency Control systems:

- Market participants were able to submit accurate telemetry, bids, offers and follow RTC+B dispatch
- The real-time market (RTC+B SCED) awarded and dispatched energy and ancillary services in real-time (every 5 minutes)
- The real-time market and frequency was controlled for two hours from the ERCOT control room on RTC+B systems (4 second telemetry signal)

ERCOT will conduct the second Production LFC test in the mid-late October timeframe using similar parameters to test frequency control changes and allow ERCOT and market to re-test issues from first test.

Snapshot of Sept 11 Frequency below (more details posted from [RTCBTF Sep 16 Meeting](#)).

Successful first production test achieved and second test in October for testing improvements ahead of RTC+B Go-Live



Next Steps: Final Push to the Finish

Progress to date since re-starting the program in July 2023

- 27 RTCBTF meetings to collaborate and implement 25+ Revision Requests
- On-time deliveries of ERCOT and Vendor code- with four tests of “bid-to-bill” Operating Days since Apr-2025
- Currently at 5 months of interactive Market Trials to test and stabilize systems

Remaining push to Go-Live in 73 days

- Six weeks of Market Trials (additional October LFC Test and Day-Ahead Market runs)
- 30-Day Market Notice on November 5 to confirm protocols and system transition
 - If needed, ERCOT will file Good Cause Exception with PUCT for cutover protocol support
- Go-Live Transition begins Monday after Thanksgiving for December 1-5, 2025

December Board Meeting is 3 days after Go-Live for an almost real-time update.

