



Texas Nodal Market Implementation: Program Update

ERCOT Board of Directors
15 July 2008

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- **System-wide Load Frequency Control Test**
- **Program Status**
- **ERCOT Staff and Market Participant Readiness**
- **Schedule**
- **CIM Integration**
- **Scope Control**
- **Cost**

System Wide Load Frequency Control Test

ERCOT successfully completed a live run of the Nodal real-time market on June 25

- ERCOT system operations managed the power grid with the nodal real-time systems that will be in place when the nodal market is launched
- Successfully utilized security constrained economic dispatch (SCED) for 5-minute energy dispatch during test
- All Congestion, including Zonal Congestion, was managed by Local Congestion management techniques during the LFC Test
 - Process of moving QSEs to nodal operations started at 11:00 AM
 - All energy schedulers were transitioned to nodal control by 12:18 PM
 - The ERCOT market was entirely under nodal system control for 29 minutes
- System frequency stayed at acceptable levels during the test

Program Status

$$\begin{matrix} \text{Nodal} \\ \text{Delivery} \end{matrix} \times \begin{matrix} \text{ERCOT} \\ \text{Readiness} \end{matrix} \times \begin{matrix} \text{Market} \\ \text{Participant} \\ \text{Readiness} \end{matrix} = \begin{matrix} \text{Nodal} \\ \text{Success} \end{matrix}$$

ERCOT Staff Readiness status is:

Amber

Amber status driven primarily by E8, the staffing metric

Market Participant Readiness status is:

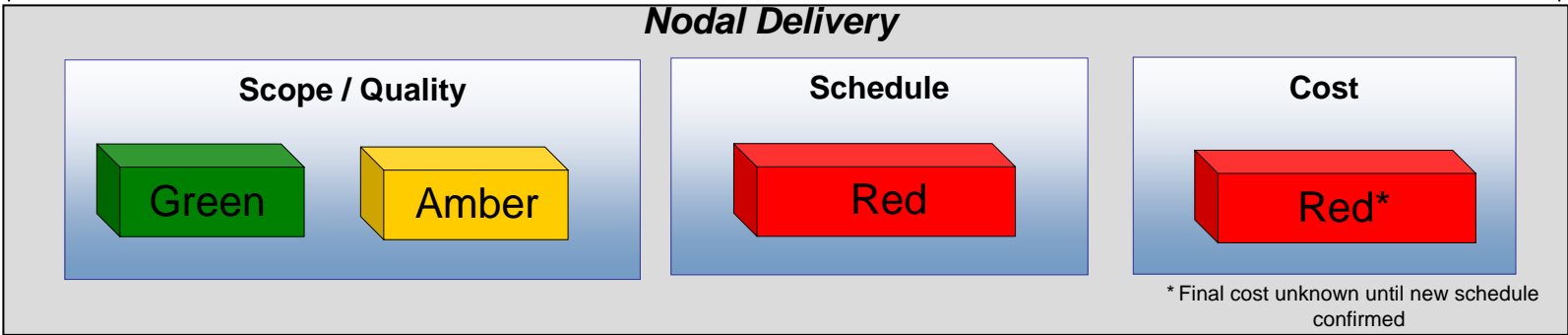
Amber

Amber status driven by the limited response to the Cycle 4 Survey (out-reach efforts are on-going)

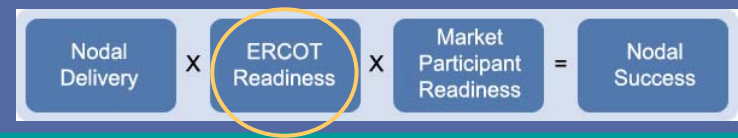
Nodal Delivery status is:

Red

Changed due to schedule and cost impact

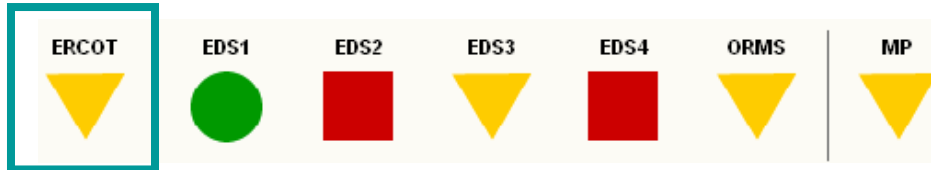


	Scope	Quality	Schedule	Cost
Green	Program is aligned with current protocols	All Nodal products currently achieve quality standards	Go-Live = 12/1/2008	Estimate at Complete =< 319M
Amber	Program is aligned to previous protocol versions	Most Nodal products currently achieve quality standards	Go-Live =< 30 days	Estimate at Complete =< 319M +10%
Red	Program is not aligned to protocols	Product quality not sufficient for Nodal launch	Go-Live =>>30 days+	Estimate at Complete => 319M +10%



ERCOT Staff Readiness status is AMBER

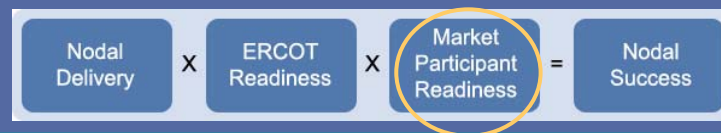
Staffing levels continue to improve and retention is improving



	Engagement	Training	Process	Staffing	Test	Overall
ERCOT	●	▼	▼	▼	●	▼
Information Technology	●	▼	●	▼	●	▼
System Operations	●	▼	▼	▼	●	▼
Market Operations	●	●	●	▼	●	▼
System Planning	●	▼	●	▼	●	▼
Corporate	●	●	●	▼	●	▼

- **Engagement (green)**
 - new survey results came out at the end of June - ERCOT remains fully engaged
- **Training (amber)**
 - training efforts are on-going
- **Process (amber)**
 - one department in System Operations is behind performance levels
- **Staffing (amber)**
 - ERCOT is currently ~95% staffed (98% required for green status)
 - recruitment is on-going
- **Testing (green)**
 - no recent developments

Market Participant Readiness



Market Participant Readiness status is AMBER

MP READINESS BY FUNCTIONAL AREA



	Engagement	Connectivity	Registration and Qualification	Telemetry	Training	Trials Participation	Overall
All Market Participants	Yellow Downward Triangle	Green Circle	Yellow Downward Triangle	Green Circle	Yellow Downward Triangle	Green Circle	Yellow Downward Triangle
QSE with Resources	Green Circle	Green Circle	Yellow Downward Triangle	Green Circle	Green Circle	Green Circle	Yellow Downward Triangle
QSE without Resources	Red Square	White Circle	Yellow Downward Triangle	White Circle	Red Square	Green Circle	Red Square
TDSP	Green Circle	White Circle	White Circle	Green Circle	Green Circle	Green Circle	Green Circle
LSE	Red Square	White Circle	White Circle	White Circle	White Circle	White Circle	Red Square
CRR	White Circle	White Circle	White Circle	White Circle	White Circle	White Circle	White Circle

Cycle 4 Survey

- 100% response from TDSPs and QSEs w/ R
- 87% response from QSEs w/o R (up from 72%)
- 81% response from LSEs (up from 67%)

- **Engagement (amber)**
 - limited survey response from QSEs and LSEs drives amber status
- **Connectivity (green)**
 - several new entrants to the market have been successfully tested
- **Registration and Qualification (amber)**
 - MP10 (resource mapping) has, again, improved steadily since the last meeting
 - MP11 (RARF data) – only 5 RARFs have not been received (RARFs representing more than 99.5% of MWs have been submitted)
- **Telemetry (green)**
 - no change
- **Training (amber)**
 - limited survey response from QSEs drives amber status
- **Trials Participation (green)**
 - improvement in MP15 (EDS 3 trials participation)

ERCOT continues aggressive development of a revised integrated Nodal program schedule that is realistic and achievable

- **Progress**

- Master Schedulers completed initial reviews of all project schedules
- Published project guidelines and PMs revising schedules to align with requirements
- Continuing to identify all cross-project and program-level dependencies
- Continuing to assess and clarify responsibilities of projects at the program layer
- Revising schedules for NMMS, EMS, MMS, Infrastructure and Testing projects by July 11 that will serve as initial feeds into integrated schedule
- Will continue to iterate against integrated schedule to incorporate activities from remaining projects, as well as program-level dependencies

- **Timeline**

- The date for setting a new schedule date has not been finalized, but the team understands the sense of urgency as well as the importance of a realistic plan

ERCOT is working closely with the vendors to minimize the ongoing delay and address development and data issues

- Agreement in place for provision of onsite resources at AREVA until the CIM Importer exits FAT
- Assigned resources are focusing on resolution and delivery
 - ERCOT: 11 resources
 - AREVA: 14 resources
 - ABB: 15 resources
- ERCOT is monitoring AREVA's performance trends to address continuing or potential issues

Scope Control

Potential scope changes continue to require analysis for Go-Live inclusion and subsequent schedule / budget impacts

Item	Nbr Items*	Cost Estimate**	Nodal Budget**
Original Budget			\$263.0
Baseline 1 Changes	59	\$5.8	
Baseline 2 Changes	38	\$20.9	
Post-Baseline 2 Changes Included in Latest Fee Filing	52	\$8.4	
Budget changes resulting from ABB, contingency add of \$15 million, and other vendor / project costs	N/A	\$35.6	
Budget Based on Latest Nodal Fee Filing (including contingency funds)			\$319.5
Subsequent Post-Baseline 2 Changes Approved by Board	11	\$0	
Contingency funds committed for additional changes on 9 projects	9	\$9.6	
Current Budget Estimate resulting from Approved Changes			\$319.5
Changes up for Board Review today (11 NPRRs, 1 Change Item)	12	\$0.23-\$0.40	
NPRRs Currently Under Assessment	10	\$2.0-\$2.7	
Future Changes to be Assessed	TBD	TBD	TBD

* Includes changes resulting from NPRRs, NOGRRs, White Papers, Change Items and Contingency Funds requests

** in Millions \$

Note Baseline 1, Baseline 2 and Post Baseline 2 changes amounted to \$20.9 million

Cost: Element Summary

When the integrated schedule has been finalized and the financial impact determined we will incorporate this into an updated forecast

Nodal Program Cost Element Summary (\$ Millions)

Cost Element	Through May 2008		
	Revised Budget	Actual	Variance (over)/under Budget
Internal Labor	\$ 34.7	\$ 33.8	\$ 0.9
External Labor	80.7	75.2	5.5
Vendor	59.8	63.2	(3.4)
Hardware / Software	56.9	59.1	(2.2)
Taxes and Other	12.5	13.0	(0.5)
Subtotal	\$ 244.6	\$ 244.3	\$ 0.3
Finance Charge	8.3	9.8	(1.5)
Total	<u>\$ 252.9</u>	<u>\$ 254.1</u>	<u>\$ (1.2)</u>

Questions ?