



Item 5.1: Projects Update

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Technology and Security Committee Meeting

ERCOT Public

December 18, 2023

Overview

- **Purpose**
 - Provide update on project performance and delivery.
- **Voting Items / Requests**
 - No action is requested of the Technology and Security (T&S) Committee or Board; for discussion only.
- **Key Takeaways**
 - “Greenfield” projects have increased risk for schedule and/or budget variances.
 - Resources are prioritized to mitigate schedule variance on high priority time-sensitive projects.
 - Project demands have increased over time and are expected to sustain or increase in 2024.

“Top 10” 2023 Projects Delivered - Budget Performance

Project	Estimated Budget	Actual Spend	Budget Variance
DC5 Program - subset of “live” projects	\$39.8M	\$40.6*	2%
EMS Upgrade 2024	\$20.0M	\$19.2M*	-4%
Enterprise Collaboration Software Migration	\$1.6M	\$1.4M	-16%
Creation of ERCOT Contingency Reserve Service (ECRS)	\$1.7M	\$2.4M	40%
Replace TCC1 HVAC Controls	\$1.2M	\$1.2M*	<1%
EIS Tech Health 2022	\$895K	\$818K*	-9%
Replace Control Room Video Wall (TCC1)	\$799K	\$764K	-4%
Application Testing Modernization	\$751K	\$692K*	-8%
Application Performance Monitoring	\$611K	\$612K*	<1%
SCR789 Update NMMS Topology Processor to PSS/E 34 (35) Capability – Phase 2	\$434K	\$424K	-2%

- Top 10 projects with Go-Live in 2023, based on largest budget
- Estimated Budget baselined at Planning Phase completion and covers the life of the project
- (*) Project not yet complete, Actual Spend includes remaining forecast

Key Takeaway: Large budget variances occurred on “greenfield” projects.



“Top 10” 2023 Projects Delivered - Schedule Performance

Project	Estimated Duration (Months)	Actual Duration (Months)	Schedule Variance
DC5 Program - subset of “live” projects	99.0	103.9	5%
EMS Upgrade 2024	48.8	48.3	-1%
Enterprise Collaboration Software Migration	8.3	9.1	10%
Creation of ERCOT Contingency Reserve Service (ECRS)	16.4	16.8	3%
Replace TCC1 HVAC Controls	11.5	11.5*	0%
EIS Tech Health 2022	9.3	9.2	-1%
Replace Control Room Video Wall (TCC1)	5.1	4.7	-6%
Application Testing Modernization	13.7	14.8	8%
Application Performance Monitoring	9.5	11	16%
SCR789 Update NMMS Topology Processor to PSS/E 34 (35) Capability – Phase 2	13.0	17.5	35%

- Top 10 projects with Go-Live in 2023, based on largest budget
- Duration measure is based on project initiation to project Go-Live
- (*) Go-Live projected in December

Key Takeaways:

- Schedule variances were minimized on high priority time-sensitive projects.
- Largest schedule variance occurred on a “greenfield” project.



Delivery History 2021-2023

	2021	2022	2023*
Total Spend	\$31.9M	\$54.5M	\$36.8M
Total Internal Labor Spend	\$10.5M	\$11.7M	\$12.8M (YTD, 10/31/2023)
Internal Labor Full-Time Equivalents	66.5	69.7	76.4 (YTD, 10/31/2023)
Total Projects Delivered	20	30	24
XL (>=\$1M)	4	8	9
L (\$500k-\$999k)	5	3	6
M (\$100k-\$499k)	8	12	9
S (<\$100k)	3	7	4
# of Unique Projects Worked in Year	73	83	89
Typical # of Projects Active at a Point in Time	~45	~55	~60

Key Takeaway: Project demands have increased over time.

2024 Major Projects*

- Market Design
 - Continued work on RTC+B including gate to Execution
- Delivery of Stakeholder Approved Revision Requests
 - Q2: Battery State of Charge in MMS/EMS - Implementation of NPRR1186
 - Q2: NPRR1149 Implementation of Systematic Ancillary Service Failed Charges
 - Q4: Retail Market Implementation of TX SET 5.0
- Delivery of Technical Health & Strategic Improvements (partial list)
 - DC5 x86 and RISC Compute Infrastructure
 - DC5 AIX Migrations to x86 Linux
 - ERCOT WAN Replacement
 - Market Participant Identity Management Tech Refresh
 - Treasury Management System
 - Weatherization & Inspection Management
 - Second iTest Environment

*Projected as of November 2023



Appendix

Revision Requests Delivered by a Project in 2023

Project	Revision Request(s)	Impact Statement	
Creation of ERCOT Contingency Reserve Service (ECRS)	NPRR863 NPRR992 NPRR1015 NPRR1096 NPRR1148	NOGRR186 NOGRR187 OBDRR043	ECRS is reserved capacity that can respond in 10 minutes to recover frequency, compensate for intra-hour net load forecast errors uncertainty and variability on days in which large amounts of online thermal ramping capability is not available and replace deployed reserves. ECRS can be provided by Resources using capacity that can be sustained at a specified level for two consecutive hours.
Ensuring Continuous Validity of PRC and Dispatch through Timely Changes to Resource Telemetry and COPs	NPRR1085 OBDRR044		Addressed initiative #6 on the Emergency Conditions List. Required quicker updates by QSEs to telemetered Resource Status, High Sustained Limit (HSL) and other relevant information. Created a new Resource Status value to inform ERCOT that a Resource is On-Line but temporarily available to SCED Dispatch.
Allow Some Integrated Energy Storage Designs to Calculate Internal Loads	NPRR1020		Allows Energy Storage Resources (ESRs) with integrated Loads that cannot be metered as designed to alternatively calculate these Loads using internal sensors. Implemented EPS Metering portion of this NPRR.
Update NMMS Topology Processor to PSS/E 35 – Phase 2	SCR789		Updated Network Model Management System (NMMS) to latest PSS/E version. Coordinated with impacted Market Participants through the Steady State Working Group (SSWG).

Revision Requests Delivered by a Project in 2023

Project	Revision Request(s)	Impact Statement
Securitization Phase 2A – Subchapter M Invoice and Credit Exposure	NPRR1103 NPRR1114	Implement new Securitization Default Charge Invoice & associated processes, Automate other Treasury and Credit Management securitization-related manual processes.
Include Alternate Resource in the Availability Plan for the Firm Fuel Supply Service	NPRR1154	Allows for a qualified alternate Resource to be considered in the calculation of the availability reduction factor for the Firm Fuel Supply Service Resource (FFSSR) to allow for improved participation in providing the product. Provides a new Settlement billing determinant that will provide the Firm Fuel Supply Service Award Amount per QSE per FFSSR by hour.
Create Daily Energy Storage Integration Report and Dashboard	SCR822 <i>December 2023 Go-Live</i>	Creates energy storage dashboard similar to functionality currently available for wind and solar generation.
Increase CRR Transaction Capability CRR Auction Bid Credit Enhancement	SCR807 SCR816 <i>December 2023 Go-Live</i>	Increases total CRR auction transaction limit from 300,000 to 400,000. Eliminates credit overlap between the CRR Monthly Auction and the CRR Long-Term Auction.

Acronyms

- COP – Current Operating Plan
- CRR – Congestion Revenue Rights
- DC5 – Data Center 5 Refresh
- EIS – Enterprise Information Services
- EMS – Energy Management System
- HVAC – Heating, Ventilation, and Air Conditioning System
- iTest – Integrated Test Environment
- NMMS - Network Model Management System
- NOGRR – Nodal Operating Guide Revision Request
- NPRR – Nodal Protocol Revision Request
- OBDRR – Other Binding Document Revision Request
- PSS/E – Power System Simulation for Engineering
- RISC – Reduced Instruction Set Computer
- RTC+B – Real-Time Co-optimization, batteries included
- SCR – System Change Request
- TCC1 – Taylor Control Center 1
- TX SET – Texas Standard Electronic Transaction
- WAN – Wide Area Network