Item 5.4: Technology and Projects Update

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Reliability and Markets Committee Meeting

ERCOT Public
June 20, 2022

Technology Working Group Meeting (May 19) Update

Projects

Concepts/Charters

Issues

Notices/Awareness

* Please see appendix for details

ERCOT Application Release 3

Project	Status
NPRR1093 - Load Resource Participation in Non-Spinning Reserve	Released – May 26
NPRR939 - Modification to Load Resource Providing Responsive Reserve Service (RRS) to Maintain Minimum Physical Responsive Capability (PRC) on Generators During Scarcity	Released – May 26
SCR800 - Addition of DC Tie Ramp to Generation To be Dispatched (GTBD) calculation	Released – May 26
SCR809 - Changes to external telemetry validations in Resource Limit Calculator (RLC)	Released – May 26
SCR814 - Point-to-Point (PTP) Obligation Bid Interval Limit	Released – May 26
Forecast Presentation Platform	On Track – June 23
NPRR935(b) - New Solar forecasts and reports	On Track – June 23

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ERCOT Upcoming Application Release 4 & 5

Project	Status
NPRR1108 - ERCOT Shall Approve or Deny All Resource Planned Outage Requests	On Track - July 26
NPRR987(a) - Energy Storage Resource Contribution to Physical Responsive Capability	On Track - October
NPRR1002(a) - Energy Storage Resource Charging Restrictions in Emergency Conditions	On Track - October
NPRR863 - Fast Frequency Response (FFR) Advancement	On Track - October

OKR Projects Update

Status	Project	Update
🟢	Load Resource Participation in Non-Spinning Reserve ("NPRR1093")	• Delivered in May
🟢	Fast Frequency Response (FFR) Advancement	• On track – market testing starts August & release in October • ERCOT working closely with new TWG • Market submission testing required, readiness reports to TAC
🟢	Create Firm Fuel Supply Service	• On track – complete planning in July & set release date • Target – Firm Fuel Supply Service contracts start in November
🔴	RARF Replacement	• On track – revised schedule for final release in November • *Scheduled release is late against the OKR target (August)*
🟢	ERCOT Contingency Reserve Service (ECRS) Implementation	• On Track – complete planning in July & set release date • Target – go-live by mid-2023 • Release Market Interface Specifications in July • Market discussion of technical impacts at TWG
🟢	Energy Management System (EMS) Upgrade	• On track – complete planning in July & set release date • Target – release before mid-2024 • Multi-stage planning phase included development and testing • Execution phase will address significant testing requirements • Additional detail to be discussed in Executive Session
🔴	DC5 Infrastructure Refresh Program	• Subset of Program OKR milestones not trending on budget and/or schedule due to the global chip shortage, revised product end-of-life schedules, & additional migration effort • Additional detail to be discussed in Executive Session

Technology and Project Update

Appendix

Project: NPRR1093

On Track

Phase: Execution   **Budget:** $480k-$700k

Objective	Key Milestones
Load Resource Participation in Non-Spinning Reserve ("NPRR1093") - Implement changes to expand the Non-Spin Ancillary Service Market to allow participation of Load Resources that are not Controllable Load Resources. Supports PUCT market design directives.	Project Start: Oct 2021 Project Go-Live: May 27, 2022

Risks
• n/a

Notes
• This project was delivered on-time and on-budget in May. • No issues reported during the early stages of stabilization. • Scope also includes NPRR1101 - Create Non-Spin Deployment Groups made up of Generation Resources Providing Off-Line Non-Spinning Reserve and Load Resources that are Not Controllable Load Resources Providing Non-Spinning Reserve.

Project: FFRA

On Track

Phase: Execution   **Budget:** $2.5M-$3.5M

Objective	Key Milestones
Fast Frequency Response Advancement (FFRA) - Implement changes to improve and co-optimize FFR capability across multiple Ancillary Service products (Regulation, Responsive, Online Non-Spin). Provides more flexibility to Market Participants and permits a more effective and efficient permanent implementation in the Energy and Market Management Systems. Supports PUCT market design directives.	Functional Testing: June-July 2022 Integration Testing: July-September 2022 Market Workshop: July 2022 Market Testing: August–September 2022 Scheduled Go-Live: October 2022

Risks

- Monitoring contention for key resources also supporting other critical projects, releases, and productions systems.

Notes

- Project on track to begin market testing in August and release in October.
- ERCOT delivery team is working closely with new Technology Working Group.
- Market submission testing is required and readiness reports will be provided to TAC.
- A subsequent release will deliver the 60-Day Reports in December.

Project: FFSS

On Track

Phase: Execution   **Budget:** $250k-$400k

Objective	Key Milestones
Create Firm Fuel Supply Service (FFSS) – Implement an RFP process and system changes for a new reliability product, FFSS, intended to help maintain system reliability it the event of a natural gas curtailment or fuel-supply disruption event. Supports PUCT market design directives.	Release Market Interface Specs: July 2022 Complete Planning: July 2022 Target Contract Start: November 2022

Risks
• Delays in delivery of FFRA could impact resource and environment availability for delivery of FFSS. • Driving early targets for requirements and development of long duration critical path scope in order to mitigate impact on the overall delivery schedule.

Notes
• Project is on track to complete planning in July, which will set the release date. • Project planning is focused on starting Firm Fuel Supply Service contracts in November.

Project: RARF Replacement

Not Trending

Phase: Execution   **Budget:** $10M-$15M

Objective	Key Milestones
Implement the Resource Integration & Ongoing Operations (RIOO) application in support of resource asset registration data management and retirement of the current Resource Asset Registration Form (RARF) spreadsheets and associated manual processes.	Integration Testing: July-October 2022 Scheduled Go-Live: November 2022 OKR Go-Live: August 2022

Risks

- New resources may take more time than planned to ramp up and result in missed milestones.

Notes

- Project is *not* trending to the OKR milestones established at beginning of year due to loss of key project resources.
- Project is on track to the revised schedule for final release in November.

Project: ECRS

On Track

Phase: Planning   **Budget:** $2.5M-$3.5M

Objective	Key Milestones
ERCOT Contingency Reserve Service (ECRS) Implementation - Implement a new Ancillary Service called ECRS with a 10-minute response time that is dispatched by SCED and will help improve the capacity and capability for ramping. Supports PUCT market design directives.	Release Market Interface Specs: July 2022 Complete Planning: July 2022 Target Go-Live: Mid-2023

Risks

- Monitoring contention for key resources also supporting other critical projects, releases, and productions systems.
- Developing execution schedule in conjunction with the EMS Upgrade to mitigate resource and environment contention.
- Driving early targets for requirements and development of long duration critical path scope in order to mitigate impact on the overall delivery schedule.

Notes

- Project is on track for the OKR milestone to complete planning in July, which will set the release date.
- Market Interface Specifications will be published in July.
- Ongoing market discussion of technical impacts at TWG.
- Project planning is focused on releasing no later than mid-2023.

Project: EMS Upgrade

On Track

Phase: Planning   **Budget:** $25M-$30M

Objective	Key Milestones
Upgrade the EMS and the Operator Training Simulator (OTS) to the most current vendor versions. Periodic upgrades are required to remain on standard vendor supported software and minimize the legacy support service.	Complete Planning: July Target Go-Live: No later than Mid-2024

Risks

- Monitoring contention for key testing resources also supporting other critical projects, releases, and productions systems.
- Developing execution schedule in conjunction with the ECRS to mitigate resource and environment contention.
- Multi-stage planning phases included early development and test cycles to mitigate against late-project technical issues.

Notes

- On track to complete planning in July, which will set the release date.
- The primary focus for the execution phase is integration testing and external testing (i.e., "closed loop testing").
- ERCOT will work with the Technology Working Group in preparation for the closed loop testing.
- Project planning is focused on releasing as soon as practical before mid-2024.

Project: DC 5 Program

Not Trending

Phase: Planning   **Budget:** $55M-$65M

Objective	Key Milestones
Upgrade ERCOT's data center infrastructure approaching its end of useful lifespan. This includes servers, network equipment, and storage platforms as well as the supporting management software. The Program includes 8 sub-projects.	Complete Planning: January 2023 Target Completion: January 2026

Risks

- Working proactively with suppliers to mitigate risks related to the global chip shortage.
- Evaluating opportunities to reasonably reduce cost in each project to mitigate budget risk.

Notes

- Subset of Program OKR milestones not trending for budget and/or schedule risk due to the global chip shortage, revised vendor product end-of-life schedules, and additional migration effort.
- Additional detail and milestones to be reviewed in Executive Session.

Technology Working Group Meeting (May 19) Update

Projects

NPRR1093 Loads in Non-Spin

NPRR863/FFRA scope delivery

NPRR1120 Create Firm Fuel Service

NPRR863/ECRS scope delivery

ERCOT WAN Infrastructure Update

Concepts/Charter

CIM 16 Upgrade

Operator Real-Time Messaging SCR820

Public API and API improvements

Issues

IE11 EOL and multiple cert workaround

Notices/Awareness

PVGR Forecasts – Reports

MarkeTrak system Updates

Retail API Redesign

TEXAS SET 5.0 Project

Retiring Legacy MIS public reports

TLS 1.2 Certification

NERC EMSWG update