

Item 9.5: Technology and Projects Update

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Reliability and Markets Committee Meeting

ERCOT Public August 15, 2022

Technology Working Group Meeting (Aug 4) Update

Projects Concepts/Charters Notices/Awareness Issues



ERCOT Application Release

Project	Status
Forecast Presentation Platform	Released - June 30
NPRR935(b) - New Solar forecasts and reports	Released - June 30
NPRR1108 - ERCOT Shall Approve or Deny All Resource Planned Outage Requests	Released - 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
NPRR1120 – Firm Fuel Supply Service (FFSS)	On Track - October



OKR Projects Update

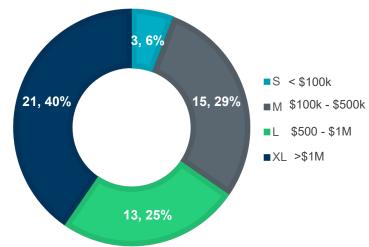
Status	Project	Update
	Fast Frequency Response (FFR) Advancement	 On track – market testing starts August & release in October ERCOT working closely with new TWG Market submission testing required, readiness reports to TAC
	Create Firm Fuel Supply Service	On track – release in October to support Firm Fuel Supply Service contracts that start in November
	RARF Replacement	 November release at risk Resource gaps impacted schedule Scheduled release is late against the OKR target (August)
	ERCOT Contingency Reserve Service (ECRS) Implementation	 On Track – release in late May 2023 Release Market Interface Specifications in September Market testing window opens late March 2023 Market discussion of technical impacts at TWG
	Energy Management System (EMS) Upgrade	 On track – release in November 2023 Discussion of technical impacts to occur in TWG
	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
	Treasury Management System Implementation	On Track – milestone to enter Planning Phase before Q4



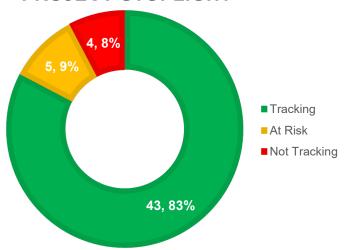
Active Project Delivery

- 52 active projects
- 2022 project activity outpacing 2021
 - Project initiations through Q3 (29) expected to surpass 2021 project initiations (27)
 - Current active project count higher than at any month in 2021, and still rising
- Majority of projects:
 - Are Large or XL
 - Address technical health
 - Report healthy status

PROJECTS BY BUDGET RANGE



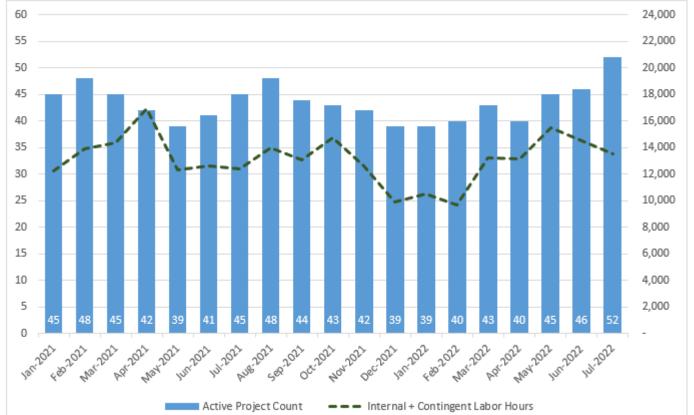
PROJECT STOPLIGHT





Project Labor Statistics



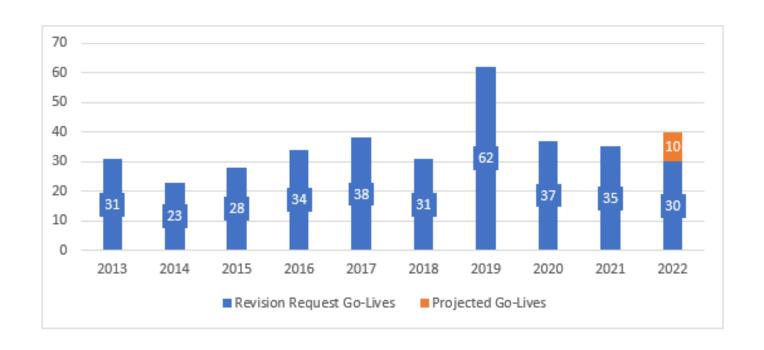


Labor Hours

- Current project count higher than historical trends
- 10,000-15,000 labor hours spent on projects each month (10% of total ERCOT labor)
 - Approximately 75 Full-Time Equivalents and 16 contractors per month
 - In the past 12 months, 431 team members have charged time to projects
 - Majority of staff engaged in projects also have O&M responsibilities



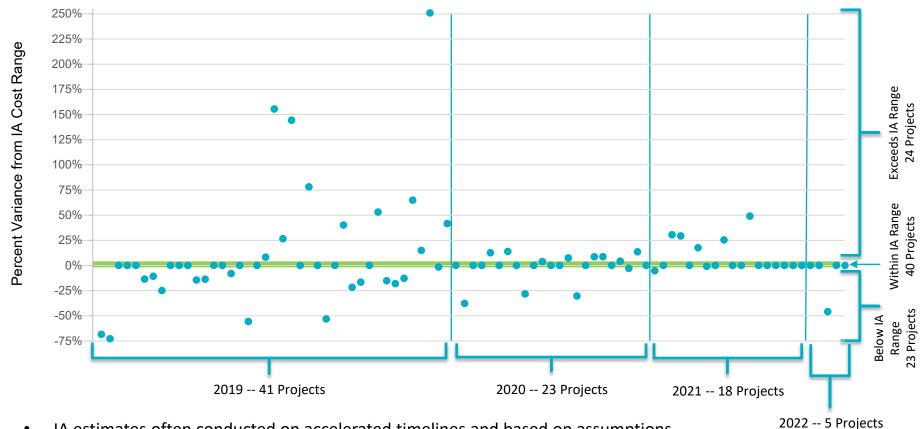
Revision Requests – 10 Year Implementation History



- Many Revision Requests (RRs) are bundled with related RRs
- On occasion, RRs are implemented in stages across multiple releases



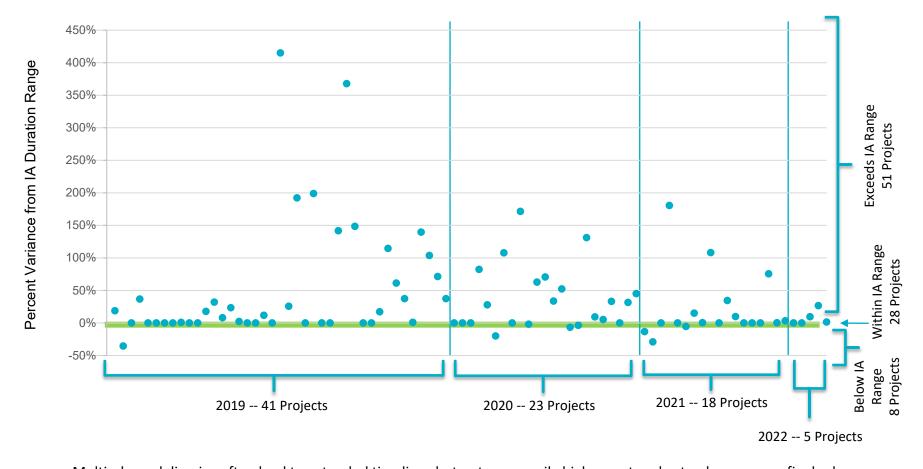
Percent Variance from Impact Analysis Cost Range



- IA estimates often conducted on accelerated timelines and based on assumptions
- Estimates for new ERCOT systems or capabilities tend to have larger variances due to complexity and/or unchartered work
- Project Planning phase produces a more detailed cost estimate which must be approved by ERCOT management prior to proceeding to Execution phase



Percent Variance from Impact Analysis (IA) <u>Duration</u> Range



- Multi-phase deliveries often lead to extended timelines but not necessarily higher costs; chart only measures final release
- Changing priorities can divert resources from less time-critical projects, extending duration
- Major releases occur every two months; delays typically happen in increments of two months



Appendix



Technology Working Group Meeting (May 19) Update

Projects

NPRR863/FFRA scope delivery
NPRR1120 Create Firm Fuel Service
NPRR863/ECRS scope delivery
EMS Upgrade

Concepts/Charter

CIM 16 Upgrade
Operator Real-Time Messaging SCR820
Public API and API improvements

<u>Issues</u>

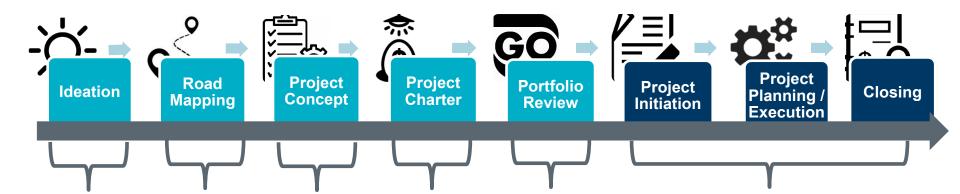
IE11 EOL and multiple cert workaround

Notices/Awareness

MarkeTrak system Updates
Retail API Redesign
TEXAS SET 5.0 Project
Retiring Legacy MIS public reports
TLS 1.2 Certification
NERC EMSWG update
ERCOT WAN Infrastructure Update



ERCOT's Project Portfolio Process

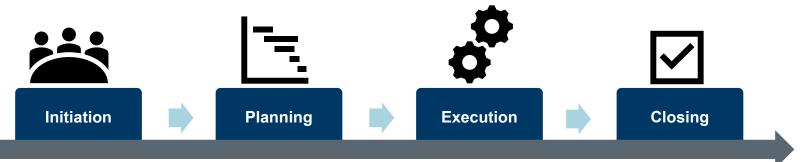


- Initial idea development
- Determine proposed timing & prioritization
- Road Map Dashboard
- Development of objective, background, strategic alignment, benefits, scope & risks
- Develop the Impact Analysis, resource & system impacts, high level requirements
- Executive prioritization
- Approval to proceed
- Official project initiation by the Project Management Office (PMO)
- Project Phases
 - Initiation
 - Planning
 - Execution (includes Go-Live)
 - Closing
- Operational Support hand-off
- Lessons Learned



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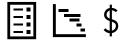
ERCOT's Project Gating Process



- Gate to Initiation with Charter-approved budget & scope
- Mobilize the team
- Determine Planning phase activities, resource assignments, estimates, budget, and duration
- Typically, no budget or scope change from Gate to Initiation
- Build functional, nonfunctional, and operational requirements, system architecture, system design, and test plan
- Select & engage with vendors (if necessary)
- Focus on minimizing uncertainty and addressing the "known unknowns"
- Engage the Market (if necessary)
- Build Execution Phase plan

- Expectation for a high confidence plan to set release date(s) and budget
- Build and test system and process
- Conduct Market training and testing (if necessary)
- Complete operational readiness activities
- Go-Live / Releases
- Production stabilization

- Conduct final lessons learned activity
- Close out project financials and other administrative details



Change Control

- Change to scope, schedule, or budget
- Can be requested in any Phase
- Significant budget increase requires executive approval



52 Active Projects Breakout as of 8/1/2022

