



Item 7.2: Real-Time Co-optimization Task Force (RTCTF) Update

Matt Mereness (RTCTF Chair)
ERCOT Compliance Director

Urgent Board of Directors Meeting

ERCOT Public
December 8, 2020

RTCTF Update

- RTCTF Stakeholder Update
- RTCRR Review Schedule & Progress to Date
- Next Steps for RTC and Passport
- Appendix
 - Review Processes

RTC Revision Requests

- Based on the Board approved RTC Key Principles from February 11, 2020 (44 pages), ERCOT filed the RTC Revision Requests (RTCRRs) and a single Impact Analysis (IA) for RTC implementation, in accordance with Section 21 of Protocols.

RTCRRs released	Pages 549 total
NPRR1007- RTC NP3- Management Activities for the ERCOT System	62
NPRR1008- RTC NP4- Day-Ahead Operations	65
NPRR1009- RTC NP5- Transmission Security Analysis and Reliability Unit Commitment	39
NPRR1010- RTC NP6- Adjustment Period and Real-Time Operations	248
NPRR1011- RTC NP8- Performance Monitoring	49
NPRR1012- RTC NP9- Settlement and Billing	15
NPRR1013- RTC NP 1, 2, 16, 25- Overview, Definitions/Acronyms, Registration and Qualification of MPs, and Market Suspension and Restart	24
NOGRR211- RTC Nodal Operating Guides 2 and 9- System Operations and Control Requirements and Monitoring Programs	21
OBDRR020- RTC - Methodology for Setting Maximum Shadow Prices for Network and Power Balance Constraints	26



RTCRR Review Schedule

- Schedule of 2020 meetings for RTCRRs:
 - Mar. 11 – RTCTF (Plan and logistics for RR review)
 - Apr. 8 – RTCTF (Review detailed plan, and begin review process)
 - Apr. 30 – RTCTF
 - May 11 – *Special RTCTF for Potential Design Flaw- AS Price Cap discussion*
 - May 20 – RTCTF
 - Jun. 10 – RTCTF
 - Jun. 22 – *Special RTCTF for Ancillary Service Deployments*
 - Jun. 29 – RTCTF
 - Jul. 15 – *Special RTCTF for AS Deployment Expectations & Durations*
 - Jul. 22 – RTCTF
 - Aug. 12 – RTCTF
 - Sep. 9 – RTCTF
 - Sep. 28 – RTCTF
 - Oct. 21 – RTCTF (last meeting)
 - Nov. 5 – ROS – Approved NOGRR211
 - Nov. 11 – PRS –Approved NPRR1007-1013
 - Nov. 17 – CWG/CMWG Review and Comments
 - Nov. 18 – TAC
 - Dec. 8 – ERCOT Board consideration for RTCRRs

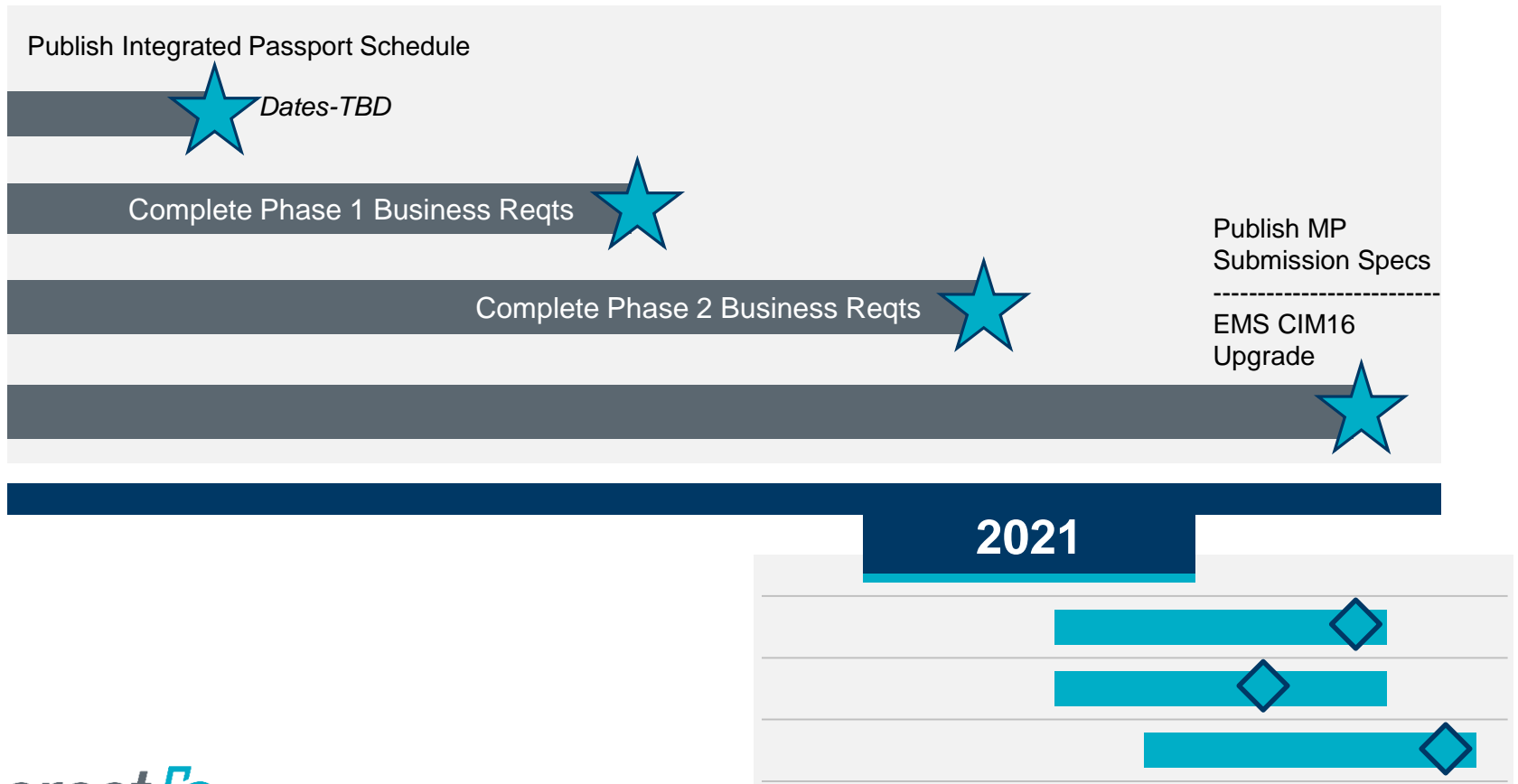
Through the stakeholder process, no significant Protocol changes were introduced beyond the Key Principles, which left the budget estimate of \$50-55 million unchanged.

RTCTF Next Steps

- As the RTCTF developed the Protocols, there were issues identified that will require further stakeholder engagement prior to 2024 implementation (details in Appendix)
 - Policy items (e.g., Ancillary Service proxy offers)
 - Analysis items (e.g., Comparison of ORDC vs RTC design outcomes)
 - Supporting details (e.g., various Business Practice manuals to align with Protocols)
 - Market Participant needs (e.g., Market Interface design changes ICCP, XML)
- ERCOT will work with TAC leadership to support the next phase of engagement with TAC on these types of policy and implementation issues.

RTC/Passport Delivery Schedule and Next Steps

- Beginning in February 2021, ERCOT will begin reporting to the Board on the schedule and status of the Passport Program with updates on key near-term and long-term milestones and budget updates.



APPENDIX

Reminder of RTC Scope
RTCTF Items for Future
Consideration prior to 2024

Reminder of RTC Scope

- Real-Time Market (SCED) will be expanded to clear Energy & AS every five minutes
 - Hence real-time “co-optimization”, similar to Day-Ahead Market
- SCED will clear full capability of Resources
 - QSEs no longer reserve AS Capacity from Day-Ahead Market awards
- SCED essentially re-clears all AS in Real-Time
 - Note there are some exceptions for Load Resources
 - Therefore Supplemental AS Market no longer needed (SASM retired)
 - RUC (like SCED) will co-optimize the full capability of Resources (no HASL/LASL)
- DAM will allow virtual AS Offers (offers only, no bids to buy)
- If a Resource that is qualified to provide AS does not offer AS in real-time, ERCOT systems will create Proxy Offers for services
 - Open issue to consider Proxy AS Offer Prices (needed prior to go-live)
- Operating Reserve Demand Curve (ORDC) price adders will be discontinued in RTC, and reflected as RTC AS Demand Curves for each AS in SCED
- Telemetry changes required from Resources
 - Additional Ramp Rates
 - Merging UDBP and Regulation into single UDSP



RTCTF Items for Future Consideration prior to 2024

- POLICY - Open policy discussion items:
 - Parameters for Ancillary Service proxy offers
 - Ancillary Service Demand Curves (ASDCs) for use in Reliability Unit Commitment (RUC) studies
 - Any needed discussion on triggers for initiating off-cycle Security-Constrained Economic Dispatch (SCED) executions
 - Largely driven by ERCOT Operator desk procedures and discretion today
 - Consideration of NPRR for allowing real-time updates to offers in current Real-Time Market and future with RTC
- ANALYSIS - Requested analysis going forward:
 - Framework for periodic analysis comparing RTC and the current Operating Reserve Demand Curve (ORDC) design – Key Principle 1.1(8)

RTCTF Items for Future Consideration (continued)

- SUPPORTING DETAILS - Other documentation that may need review:
 - Verifiable Cost Manual (Change for on-line hydro Resources per Key Principle 1.3(3))
 - Additional review of transmission constraint max. shadow price values
 - Operation Procedures (e.g., removing SASM and HASL/LASL)
 - Business Practice Manuals (e.g., changes to COP and telemetry)
- MARKET PARTICIPANT NEEDS - Market needs for the transition and implementation:
 - Mapping of bill determinants to extracts and reporting for developing shadow settlement
 - Changes to Inter-Control Center Communications Protocol (ICCP) handbook, and documentation for non-ICCP market submissions
 - Market trials/training/annual seminar engagement
 - Any details MPs need for designing their control systems