



Request for Information for ERCOT Real Time Co-Optimization of Energy and Ancillary Services

Date of Release: September 05, 2019

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1. General Information

1.1. Request for Information (RFI) Objective

The ERCOT objective in this RFI is to evaluate vendor products and service offerings for the implementation of Real-Time Co-Optimization (RTC) of energy and Ancillary Services (AS) in the ERCOT market.

This RFI does not constitute a commitment, implied or otherwise, that Electric Reliability Council of Texas, Inc. (ERCOT) will take procurement action in this matter. ERCOT intends to gather and evaluate information resulting from this solicitation.

1.2. ERCOT Background

1.2.1. Overview of ERCOT

ERCOT manages the flow of electric power to 24 million Texas customers, representing about 90 percent of the state's electric load. As the independent system operator for the region, ERCOT schedules power on an electric grid that connects more than 46,500 miles of transmission lines and 570+ generation units. ERCOT also performs financial settlement for the competitive wholesale bulk-power market and administers retail switching for 7 million premises in competitive choice areas. ERCOT is a membership-based 501(c)(4) nonprofit corporation, governed by a board of directors and subject to oversight by the Public Utility Commission of Texas and the Texas Legislature. Additional information about ERCOT can be found at <http://www.ercot.com/>.

1.3. Legal and Regulatory Constraints

1.3.1. Conflicts of Interest

ERCOT seeks to ensure a level playing field in the award of the contract. ERCOT has implemented an aggressive policy concerning actual or potential conflicts of interest to ensure fair and open competition, and has included language concerning actual and potential conflicts of interest in Section 8 of the Professional Services Agreement (http://www.ercot.com/content/wcm/lists/96114/ERCOT_Professional_Services_Agreement.pdf). A vendor responding to this RFI (hereinafter "Respondent") must carefully review and understand the terms of Section 8 of the Professional Services Agreement when developing responses with respect to this RFI.

1.3.2. Former Employees and Agents of ERCOT

Respondent must disclose any past employment of its employees and agents, or its subcontractors' employees and agents, by ERCOT, including, but not limited to, the former ERCOT employee or vendor's name and dates of employment with ERCOT.

1.4. ERCOT Point of Contact

The sole point of contact for inquiries concerning this RFI is:

Jimmy Ramirez, Senior Manager, Supply Chain Management
2705 West Lake Drive
Taylor, Texas 76574
(512) 248-6343
jimmy.ramirez@ercot.com

All communications relating to this RFI must be directed to the specified ERCOT Point of Contact.

1.5. Procurement Timeline

Procurement Timeline	
RFI Release Date	September 05, 2019
Notice of Intent to Respond	September 12, 2019
Respondent Questions Due	September 20, 2019
Response to Respondent Questions	September 26, 2019
Respondent Responses Due	October 04, 2019
Respondent Presentations and Site Visits	TBD
Future Solicitation for Proposal (if needed)	TBD

1.6. RFI Cancellation

ERCOT reserves the right to cancel this RFI.

1.7. Right to Reject Responses

ERCOT may, in its discretion, reject any and all responses submitted in response to this RFI.

1.8. No Reimbursement for Costs of Responses

ERCOT will not reimburse Respondent for costs of developing responses to this RFI.

2. Scope, Purpose, and Objective

2.1. Project Background

At the direction of the Public Utility Commission of Texas (PUC), ERCOT has completed its initial assessments of the costs and benefits associated with the implementation of RTC. In June 2018, the Independent Market Monitor (IMM) for the ERCOT wholesale electricity market released a [report](#) that includes its evaluation of the impacts of RTC on the ERCOT market. ERCOT also released a [study](#) showing some additional impacts of RTC to supplement the IMM report.

ERCOT has established a RTC Task Force (RTCTF). The RTCTF is a non-voting body that reports directly to the ERCOT Technical Advisory Committee (TAC) and provides recommendations to TAC under the scope of its Charter. RTCTF is responsible for developing the necessary policy principles to implement an RTC design in the ERCOT market that aligns with PUC Project No. 48540, Review of Real-Time Co-Optimization in the ERCOT Market. RTCTF is also responsible for reviewing draft Revision Requests (RRs) prepared by ERCOT to implement RTC policy principles.

The first phase and objective (Phase I) of RTCTF is to: (a) establish the key policy principles that establish the scope of the RTC project and will be used to develop the ERCOT rules, and (b) identify policy issues that are beyond the scope of the RTC project. The second phase and objective (Phase II) of RTCTF is to review the draft RRs prepared by ERCOT for implementation of the policy principles established in Phase I.

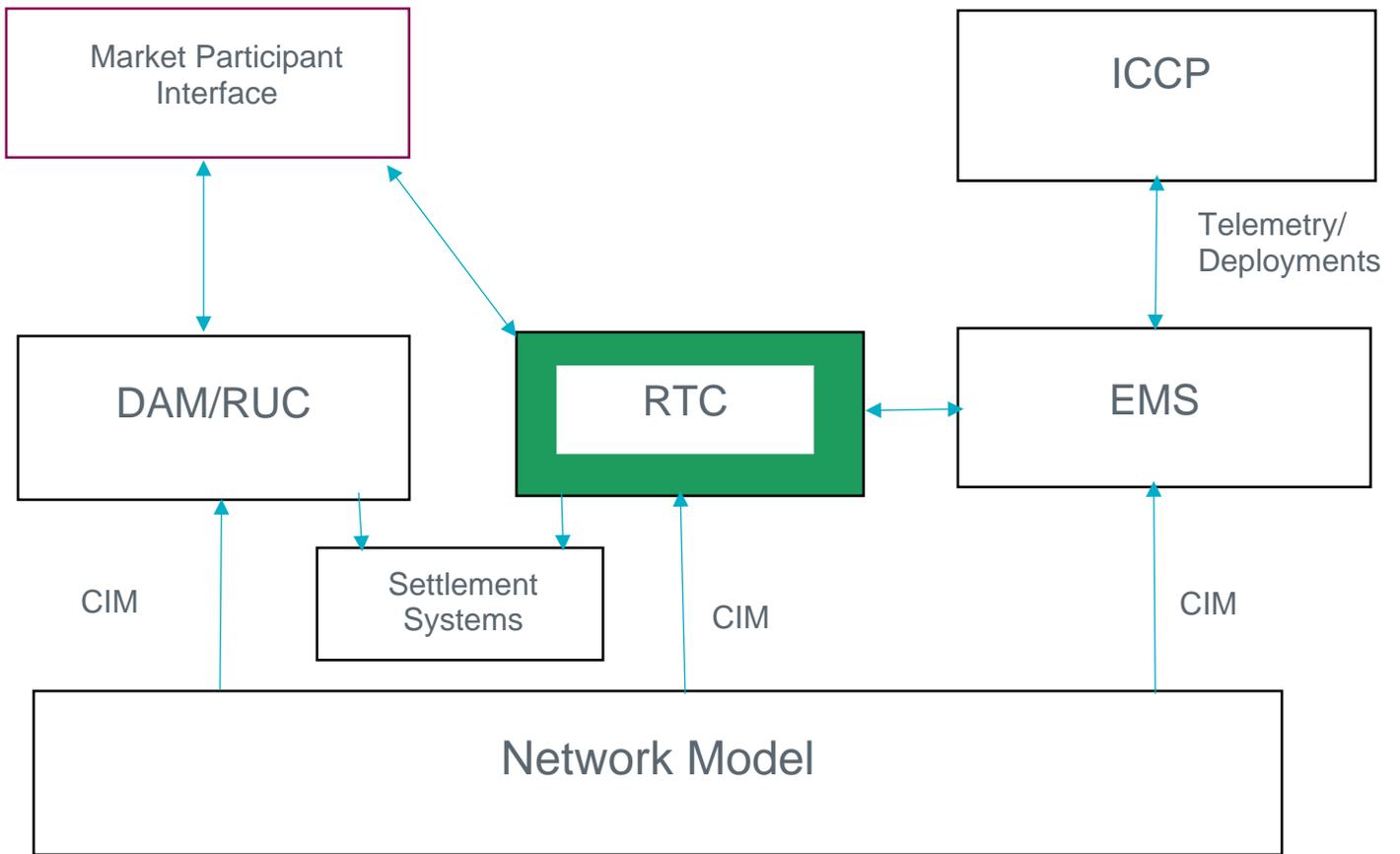
As part of RTCTF's role to developing the necessary policy principles to implement a RTC design in the ERCOT market, ERCOT seeks to gather necessary information on actual or potential risks involved in implementing a RTC market, and evaluate existing RTC markets in North America.

2.2. Project Overview and Objective

ERCOT is seeking information on a real-time market clearing solution that co-optimizes energy and AS. The long-term objective is to replace ERCOT's current real-time market process, which is energy-only.

The RTC solution will be integrated with the existing ERCOT environment as functionally shown in Figure 1, and supplied with Application Programming Interfaces (APIs) to consume and produce all required data. This is for informational purposes only.

Figure 1 RTC Interfaces



Summary of some key features are as follows:

1. Single interval (5 minute duration) dispatch and pricing, no commitment or optimization across multiple dispatch intervals.
2. RTC run: end-to-end execution time is 20 seconds.
3. System-wide AS requirements (i.e., no zonal/local AS requirements).
4. Some portion of system-wide AS may not be co-optimized.
5. Marginal cost of transmission losses not be modeled (i.e., ERCOT system is considered loss-less and settlements accounts for average losses in the system through a separate process).
6. Multiple sequential optimization runs involved in the RTC process for a single dispatch interval.
7. Piecewise linear offers and bids for resources in the market (i.e. the objective function is quadratic).
8. AS offer structure specifies a MW offer quantity and prices for each AS type that RTC will use to determine the split of the AS MW offer (i.e., individual AS awards by type).
9. AS awards to take a resource's capability into account (e.g., AS qualifications, ramp rate restrictions, temporary limitations, etc.).
10. Ability for ERCOT operators to block AS awards even if the resource is fully qualified.
11. AS products are as defined in Nodal Protocol Revision Request (NPRR) 863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve (see Figure 3 AS as defined by NPRR-863).
12. Special modeling for certain resource types (e.g., combined cycle plants, quick start generation resources (QSGRs), and controllable load resources).
13. Static Data: Input into ERCOT's network model normally occurs on a weekly basis via a Common Information Model (CIM) import process provided by ERCOT's Network Model Management System (NMMS).
14. Market participant relationships are input from ERCOT's registration system with periodic and/or on-demand triggers.

Figure 2 Timeline of RTC

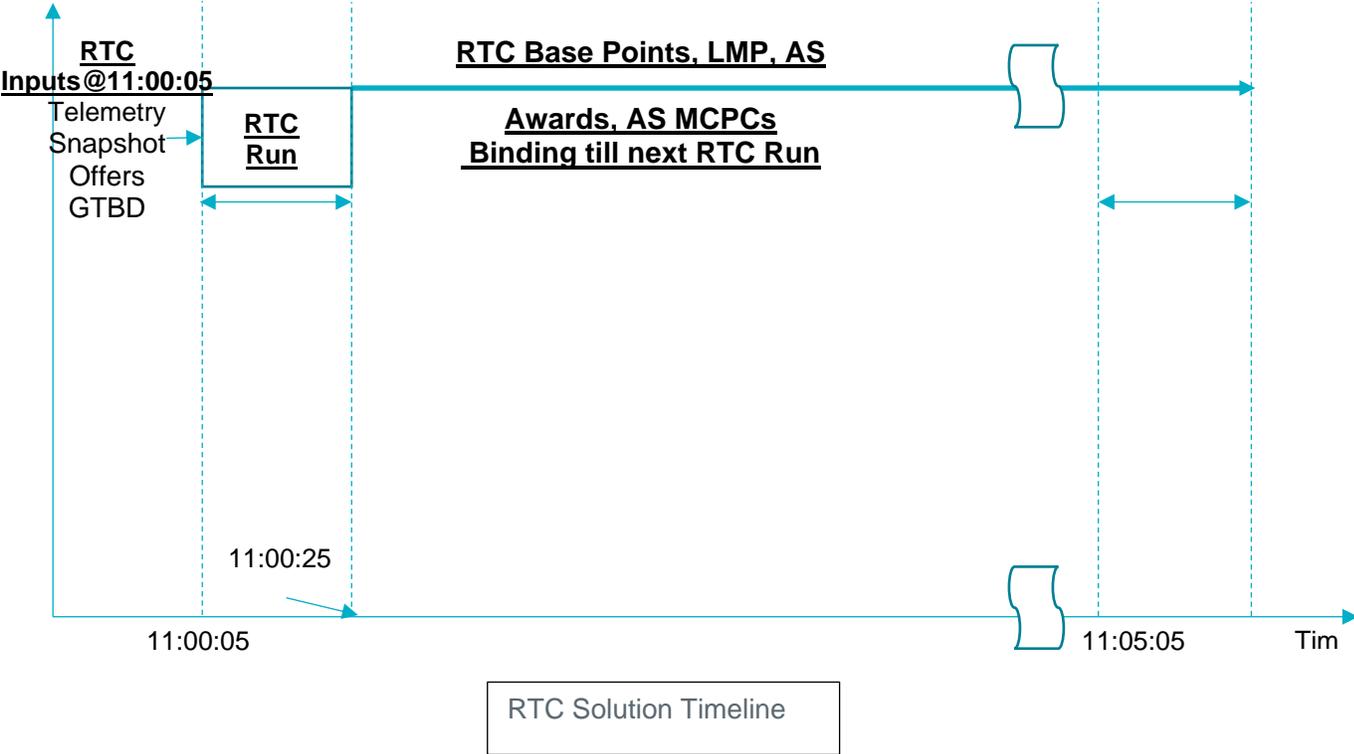
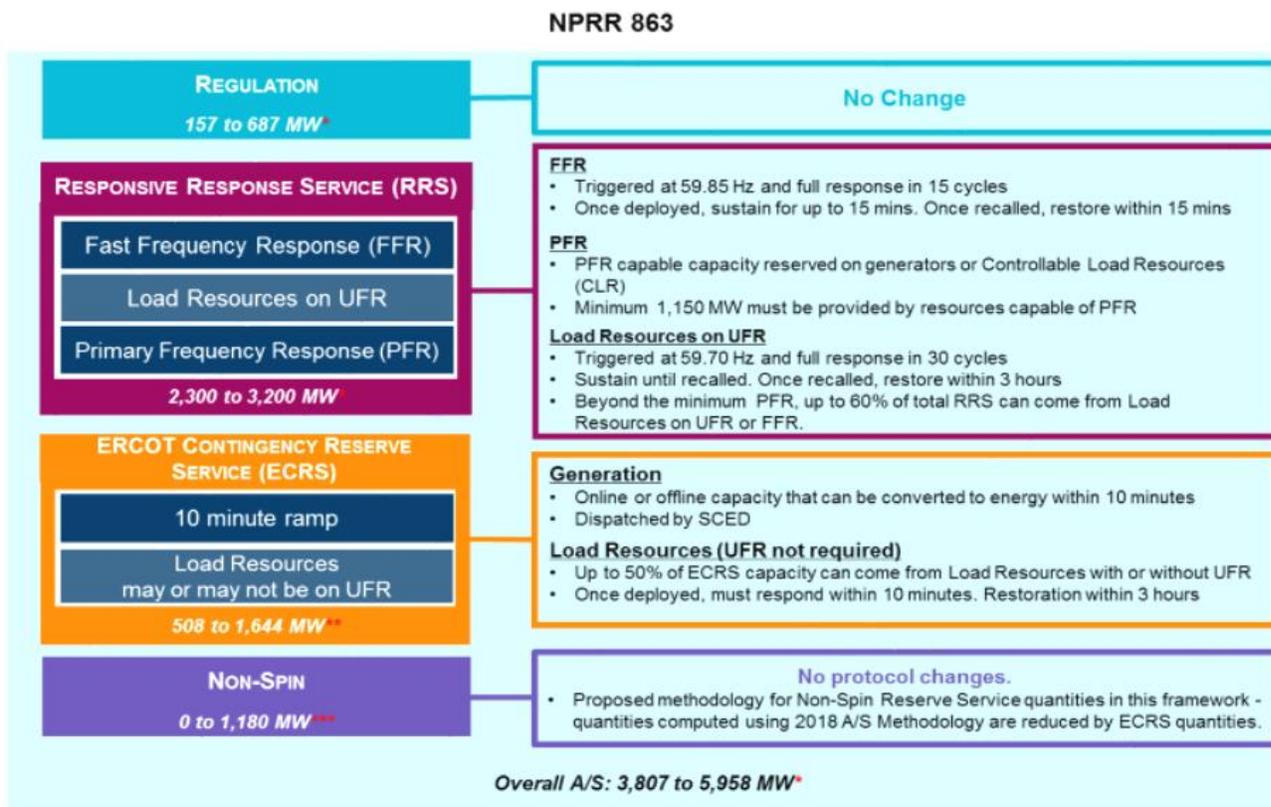


Figure 3 AS as defined by [NPRR-863](#)



2.3. ERCOT High Level Requirements and Objectives

ERCOT is working with market participants to develop guiding principles for the implementation of RTC, and has defined the requirements and specifications for purposes of this RFI.

As ERCOT seeks to engage vendors for more information and research, ERCOT has included its objectives, expectations, high-level specifications and requirements in this document; however, they are subject to change and only intended for purposes of this particular RFI.

2.3.1. Functional Business Requirements

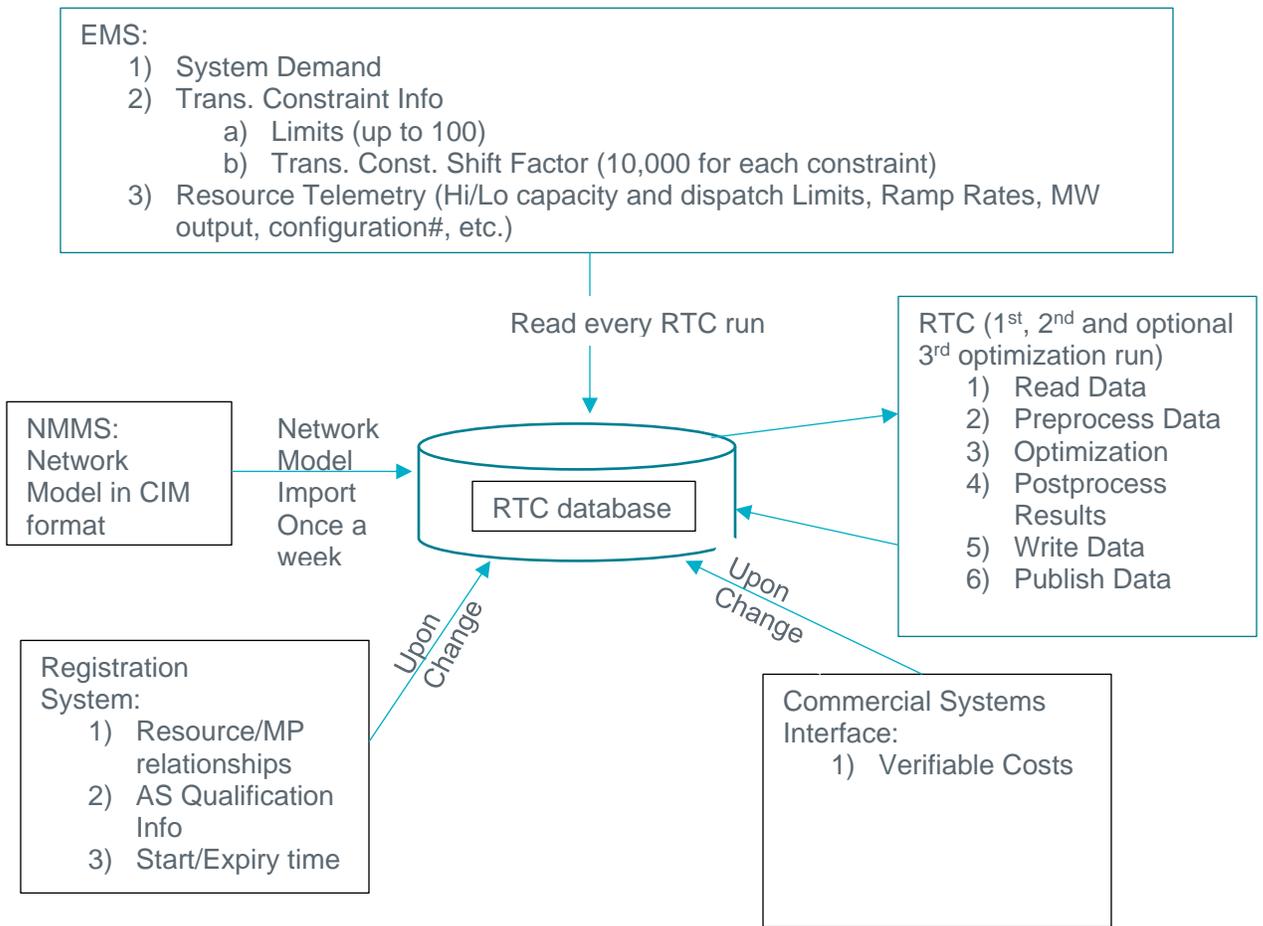
The RTC project replaces the current real-time market clearing process. Some of the key features are:

- 1) Single interval (5 minute duration) dispatch optimization, no commitment.
 - a. Results are energy and AS awards and prices that are binding as soon as results are available. Dispatch instructions and prices are valid until the next RTC execution (periodic execution schedule or on-demand).
 - b. RTC clearing is for the next interval.
 - c. Periodic execution period is 5 minutes.
 - d. Ability to perform off-cycle RTC run anytime on demand via manual or software trigger. Such results are immediately binding.
- 2) RTC Run: End-to-end is 20 seconds, which includes:
 - a. Reading data:
 - i. Transmission constraint information – 100 constraints, each with up to 10,000 shift factors for different locations;
 - ii. Energy and AS offers for resources. Energy offers can be submitted for up to 10 price point curves. Each resource can have up to 5 independent AS offers;
 - iii. Resource telemetry comprising of high/low capacity and dispatch limits, ramp rates, etc;
 - iv. Verifiable resource costs for mitigation;
 - b. Preprocessing input data;
 - c. Optimization solve time (up to 3 runs);
 - d. Mitigation of offers between optimization runs;
 - e. Post processing data (e.g., Locational Marginal Price (LMP) at 10,000 locations comprising of nodes, settlement points for hubs, load zones, resource nodes, and meter prices, and AS Market Clearing Price for Capacity (MCPC) for various AS types); and
 - f. Writing results to the database.
- 3) Optimization solver is Mixed Integer Quadratic Programming.
- 4) All AS requirements are system-wide; there are no zonal or local AS requirements.
- 5) AS awards shall take a resource's capability (AS qualifications, ramp rate restrictions, temporary limitations, etc.) into account.
- 6) Ability for ERCOT operators to block AS awards even through a resource may be fully capable/qualified.
- 7) Marginal cost of transmission losses not to be modeled (i.e. ERCOT system is considered loss-less and settlements accounts for average losses in system in a separate process).

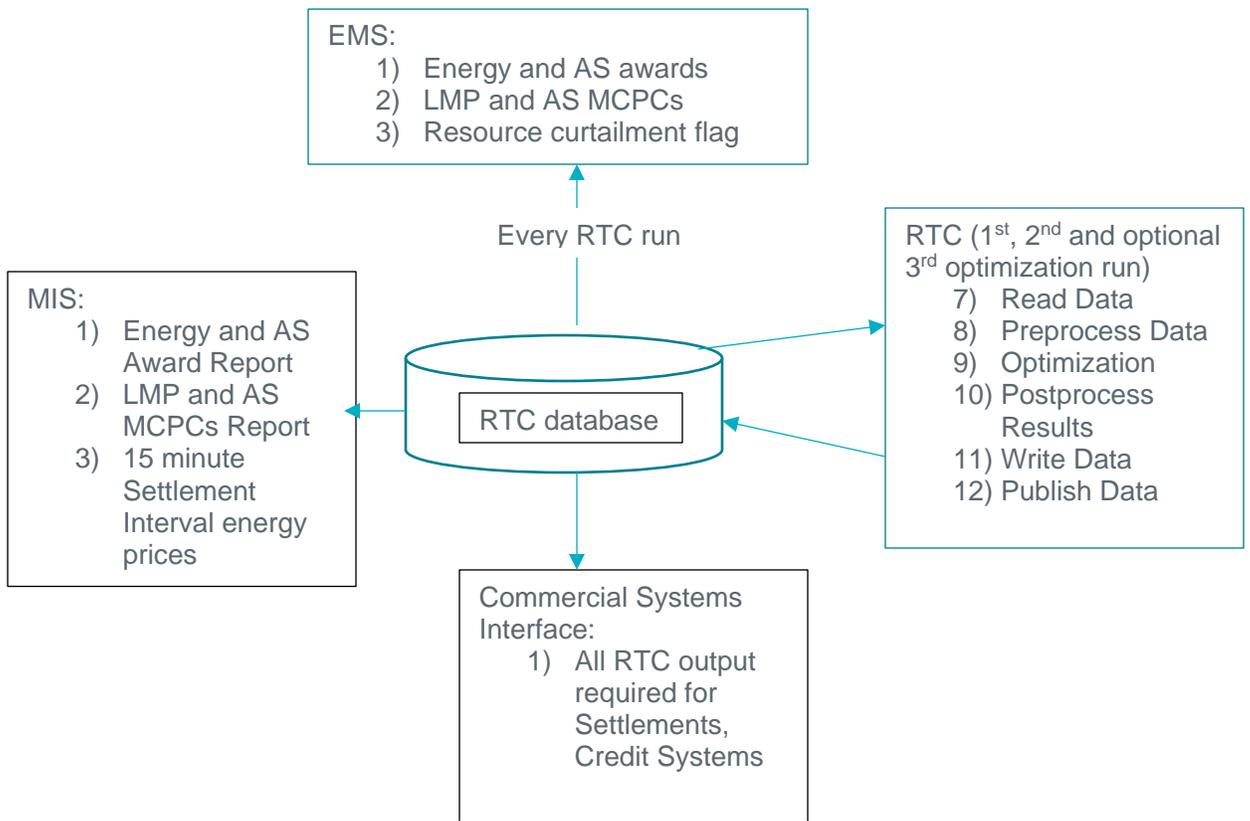
- 8) The RTC clearing process involves multiple sequential optimization runs.
 - a. First Run:
 - i. Considers only competitive transmission constraints.
 - ii. The only output of first optimization run is to setup reference LMPs for mitigation purposes.
 - iii. Mitigation of offers: process to determine whether a resource's offer should be mitigated, and if the appropriate criteria is satisfied, then the offer is mitigated (process to be based on ERCOT Protocols).
 - b. Second Run:
 - i. Considers all transmission constraints; energy and AS awards considered binding.
 - c. Optional Third Run:
 - i. Pricing run – Repeat of first and second runs with modifications to input data; performed when ERCOT operator initiates defined out-of-market action.
 - d. Final Binding Prices:
 - i. If there are no out-of-market actions, then final binding prices are from the second run.
 - ii. However, if a third run is performed, then:
 1. LMPs and AS MCPCs from the second run will used as reference;
 2. The positive changes to power balance shadow price ($\max(0, \text{third run power balance shadow price} - \text{second run power balance shadow price})$) will be added to all LMPs; and
 3. The positive change to AS MCPCs relative to the second run will be added to all the AS MCPCs from that run.
- 9) Key inputs:
 - a. Transmission constraint information (e.g., limits, shift factors) as provided from ERCOT's Energy Management System (EMS) Transmission Constraint Manager (TCM), as approved by ERCOT operators. TCM is an EMS subsystem where the inputs are candidate transmission constraints to be processed by RTC .These transmission constraints are results from EMS-Real-Time Contingency Analysis (RTCA) and other EMS subsystems. ERCOT operators review and select transmission constraints to be processed by RTC.
 - b. ERCOT system demand, resource ramp rates (MW/min), dispatch limits (normal and emergency), capacity limits (maximum and minimum), and resource status are inputs from the EMS.
 - c. Inputs from ERCOT's Market Management System (MMS), including:
 - i. Market participant submitted energy and AS offers;
 - ii. Penalty curves for power balance and transmission constraints; and
 - iii. AS demand curves based on Loss of Load Probability (LOLP).
 - d. Verifiable costs used for mitigation of energy offers is input from Commercial System Interface (CSI).
- 10) Key outputs:
 - a. For the optimization runs:
 - i. Shadow prices for constraints (at minimum: power balance, and transmission constraints);
 - ii. Energy and AS awards;
 - iii. LMP and AS MCPCs;

- iv. Calculated flow based on awards for all transmission constraints input to RTC; and
 - v. Objective function value (Price of co-optimized energy and AS).
 - b. Supporting information for mitigation process (e.g., final mitigated offers going into the second run, and information for validating the mitigation process).
- 11) Energy offers are piecewise linear (i.e., objective function is quadratic).
- 12) AS offer structure specifies a MW offer quantity; prices for each AS type used by RTC will determine the split of offered AS MW into individual AS awards by type (i.e., AS offers are linked).
- 13) AS products, as defined in [NPRR 863](#).
- 14) Resource Modeling:
 - a. Combined cycle plants: Modeled as configurations by telemetry submitted by the market participant. Additional conditional constraints (involving binary variables) are modeled to account for frequency responsive capacity when awarding regulation and Responsive Reserve service (RRS). Binary variables are used to model linear segments that describe the relationship between the output of the frequency responsive capacity with respect to the total output.
 - b. QSGRs: A special resource status will that the QSGR is to be treated as on-line with a zero low dispatch limit; the QSGR will not be eligible for regulation service or responsive reserve service.
 - c. Controllable Load Resource: A load resource that can be dispatched continuously and can be located at a single location or within a load zone; the shift factor assigned to a resource will always be the load zone shift factor.
 - d. Information if any, regarding modeling and treatment of energy storage resources.
- 15) Static Data: Input into ERCOT's network model normally occurs on a weekly basis via a CIM import process provided by ERCOT's NMMS.
- 16) Market participant relationships are input from ERCOT's registration system with periodic and/or on-demand triggers.
- 17) Savecase Functionality: RTC should be able to read and rerun savecases generated from older versions of RTC.
- 18) Off-line Study Mode Savecase Rerun Capabilities:
 - a. Single Rerun:
 - i. Rerun a savecase and extract shadow price of any constraint, as specified via user interface, apart from the standard shadow prices used to compute prices;
 - ii. Change input data and add constraints for all RTC savecases via user interface and rerun; and
 - iii. Identify marginal control variables.
 - b. Multiple Rerun – Sequential Mode:
 - i. Results of previous RTC savecase to generate inputs for the following RTC savecase; Savecases to be selected based on a date/time range;
 - ii. Rerun all RTC savecases and extract shadow prices for constraints, as specified via user interface, apart from the standard shadow prices used to compute prices;
 - iii. Change input data and add constraints for all RTC savecases under study via user interface and rerun; and
 - iv. Identify marginal control variables for each RTC savecase
 - c. Multiple Rerun – Independent Mode:

- i. Results of previous RTC savecase not used for the following RTC savecase;
- ii. Rerun all RTC savecases and extract shadow prices for constraints, as specified via user interface, apart from the standard shadow prices used to compute prices;
- iii. Change input data and add constraints for all RTC savecases under study via user interface and rerun; and
- iv. Identify marginal control variables for each RTC savecase.



Input Data Flow to RTC and writing RTC results to RTC DataBase



Output Data Flow to RTC and writing RTC results to RTC DataBase

Please see following links/attachment for additional information regarding ERCOT's implementation of RTC.

- 1) [RTCTF Meeting Page](#)
- 2) [ERCOT Protocol Section 6: Adjustment Period and Real-Time Operations](#) - See Sections 6.5.7, Energy Dispatch Methodology, and 6.5.7.3, Security Constrained Economic Dispatch
- 3) [PUC Project No. 48540, Review of RTC in the ERCOT Market](#)
- 4) [PUC Project No. 41837, PUCT Review of RTC in the ERCOT Region](#)
- 5) [NPRR863, Creation of ERCOT Contingency Reserve Service and Revisions to Responsive Reserve - Board Report](#) - AS products to be co-optimized under RTC
- 6) [Manager User Guide](#) - See Section 4.10, Create an AS Offer
- 7) Information regarding ERCOT's real-time market:
 - a. [ERCOT Protocol Section 3: Management Activities for the ERCOT System](#) – See Section 3.8.3, QSGRs
 - b. [Combined Cycle Workshop \(June 2, 2010\)](#)
 - c. Power Point presentation extracted from various training material that describes current RTM that will be retained under RTC (Appendix A)

2.3.2. Non-Functional Business Requirements

In addition to the above functional business requirements, ERCOT seeks information on the capability of a solution to meet the following non-functional business requirements:

2.3.2.1. Hardware/Software/Failover/Redundancy/Availability

- Capability to run on virtual machines on Linux or AIX with the latest operating system versions.
- Respondent shall provide the required hardware specifications (e.g., memory, CPU, disk space, etc.), storage requirements and network bandwidth requirements for a server to build the RTC system.
- Solution shall provide the supported third party software specifications and configurations required to build and run the RTC system and applications.
- Capability to support high availability within the site, and disaster recovery at a passive site using virtual machine (VM) infrastructure.
- Capability to support automatic local failovers within the same site; capability to perform automatic site failovers in the event of critical failure.
- Applications must be available, up and running 24x7, excluding system and application maintenance periods.
- Solution must support all third party software used in the systems, and have roadmaps for upgrades.
- Capability to import and export from the application to certain databases (e.g., Oracle and SQL).

2.3.2.2. Performance

- RTC shall complete (end-to-end) within 20 seconds.
- RTC shall execute periodically every 5 minutes, and on-demand.

2.3.2.3. Scalability

- Respondent system shall support running multiple instances of the system/application (e.g., real-time and multiple instances of study modes) based on the server hardware configuration.
- VM system configuration must handle increasing and decreasing workload.

2.3.2.4. Capacity

- Configuration expected to scale-up by increasing hardware capacity.
- Respondent system must provide the capability to archive input and output data of each study, and rerun such studies based upon archived input data.

2.3.2.5. Reliability

- Application must be available 24X7.

2.3.2.6. Maintainability

- Application must provide detailed log messages (e.g., successful/failure messages) of each execution step from every module in logs for info, debug and monitoring.
- Application must log all user actions (e.g., informational, warnings, error messages, etc).
- Application must have ability to send email alerts regarding failures, abnormal input data, and output.
- Application must have capability to integrate with third party interfaces (e.g., Oracle, TIBCOEMS/JMS, etc.).
- Application user interface must have a dashboard to show health of systems (e.g., memory, CPU, disk space etc.) and applications.
- Application user interface shall have capability to show individual user memory and/or CPU usage.

2.3.2.7. Audit Tracking

- Application should allow for audit tracking and reporting of user activity.
- Capability to suspend/disconnect users after a defined period of inactivity.

2.3.2.8. Access Controls

- Solution must have application and user login authentication with Active Directory (AD), and integrated with Lightweight Directory Access Protocol (LDAP) or Oracle Identity Management (OIM) software.
- Solution must support a single sign-on (SSO).
- Solution must provide an automated account lifecycle management (i.e., automatic provisioning and user access revocation capabilities).
- Solution must have the capability to define user access levels (authorization) with specific roles (e.g., read-only, write, execute permissions, work flow, individual models and user interface displays).

2.3.2.9. Security and NERC Standards Compliance

- Solution must have a defined process to periodically assess security vulnerabilities of the system and its application, and provide security patches to resolve security risks under the North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) standards and ERCOT's compliance requirements.
- Solution must have the capability to extract user/service accounts for quarterly access review to meet NERC CIP standards and ERCOT's compliance requirements.
- Solution must perform third-party software security monitoring, and provide patches to meet NERC CIP standards and ERCOT's compliance requirements.
- Solution must support encrypted passwords for any accounts used at the system level and by ERCOT.
- Solution shall not display passwords in messages or displays, or on any files in the server.
- Respondent shall work with ERCOT to ensure compliance with NERC CIP standards and ERCOT requirements.
- Solution must meet National Institute of Standards and Technology (NIST) 800-53 standards for media protection.

2.3.2.10. Data Archival

- Solution must be able to create and restore savecases for each study, and have the ability to rerun the studies based on restored savecases.
- Application must have the capability to change input data from user interfaces and backend database tables following restoration of savecases, and rerun any study.

2.3.2.11. Usability

- Solution client user interface must have the capability to run from a Citrix environment.
- Solution must provide a client user interface display to show end-to-end workflow with all modules, including execution status and start/end execution times.
- Solution must support web-based client architecture.
- Respondent must provide a document describing its maintenance and support process.

2.3.2.12. Integration

- Application must have the capability to integrate with ERCOT's MMS, EMS and settlement systems either through Oracle Database and/or JMS/TIBCOEMS messaging system to transfer application input and output data.
- Application must have capability send a solution completion message and time to TIBCO system (through JMS message) at end of each execution.
- Respondent system and application logs must be in a format (example: log4j) that can be integrated with Splunk system.
- Application must support CIM Compatibility

2.3.2.13. Training/Runbooks

- Solution must provide self-help capabilities, runbooks and tutorials

2.3.2.14. Licenses

- Solution must document the system and application architecture, and provide the requisite licenses

2.3.2.15. Operator Training Simulation (OTS)

- Respondent system processes and applications must have the capability to run in simulation mode; simulation time can be in the past or future.
- Application must have capability to read the simulation time from EMS/OTS system through Oracle database interface or third party API call, and run the application in simulation time at the defined execution frequency.
- Application must have the capability to recognize EMS/OTS simulation start/run/pause/stop and save case restoration commands/messages through third party API calls, and perform appropriate actions.
 - If a start message is received from OTS, the application work flow must be up and ready to run.
 - If a pause message is received, the application must pause any executions.
 - If a run message is received, the application must run in defined execution frequency mode and include the OTS simulation time.
 - If a stop message is received, the application must have capability to go down.
 - If a save case restoration message is received, the application must bring down the application workflow, truncate all input and output tables, and bring the workflow back up.
- Application must have the capability to send back an acknowledgement to EMS/OTS after a command is completed.
- User must have the ability to enable/disable the above-referenced capabilities.

- Application events (if there are any) that run independently of the application, and process input and output data for the application, must run with simulation time, start/run/pause/stop with OTS simulation, and perform a truncate of the table after save case restoration in EMS/OTS, as described above.
- Application user interface must show all the data, and log messages with simulated time and intervals.
- Application study time selections, if any, must be with respect to simulation time.
- Application must create save cases with simulation times, and have the capability to rerun a save case in study mode with the same simulation time.
- Application must have capability send a solution completion message and time to TIBCO system (through JMS message) at end of each execution in simulation mode.
- Respondent system components/processes must have capability to recognize a simulation time and run with a simulation time. Log messages must be captured with a simulation time (not with current system time). These system components/processes must recognize EMS/OTS simulation start/run/pause/stop and save case restoration commands/messages, and perform respective actions as described above.

2.3.2.16. Day Light Savings Time (DST)

- Respondent systems, applications and user interface must support long and short day Daylight Savings (DST) times (Hour 25 during long DST and 23 hours during short DST), and display data accordingly in user interface.

2.4. Qualifications

- 2.4.1. Respondents must demonstrate their experience and knowledge of Real-Time Energy Management systems in North America RTO/ISO markets. It is preferred that a respondent have experience within the last 5 years providing Real-Time Market solutions (Real Time dispatch and pricing) in North American RTO/ISO markets
- 2.4.2. Respondents must demonstrate their compliance experience with NERC CIP (North American Electric Reliability Corporation critical infrastructure protection), designed to secure the assets required for operating North America's bulk electric system
- 2.4.3. Respondents must provide their CIP-013 readiness plan demonstrating compliance with Section 10 of the Professional Services Agreement.

2.6. Respondent Questions and Required Feedback

ERCOT seeks responses to the following questions and solicits general feedback regarding ideal methodologies and approaches to RTC Implementation:

- (A) What additional functionalities are available in Respondent offerings that are not listed above?
- (B) What experience does the Respondent have in implementation of a real time market in a multivendor environment?
- (C) Would the respondent be willing to share source code in a joint development with ERCOT?
- (D) What are your operations maintenance and support models? (24/7, T&M, fixed costs, etc.)
- (E) How do you staff for development and long term support of resources for your RTC customers?

2.6.1. Project Schedule

- (A) Given your experience with real time market implementations, identify the project schedule and timeline that was used in your last delivery and deployment and how it might differ given the scope of this RFI.

2.6.2. Support, Training, and Management

- (A) Please outline your Support and Training philosophy

3. General Instructions and Requirements

3.1. Notice of Intent to Propose

Respondent may submit a Notice of Intent to Propose to the ERCOT Point of Contact identified in **Section 1.5** no later than 5:00 p.m. Central Time on **the date listed in the Section 1.6 Procurement Timeline**. The Notice of Intent should consist of an email stating that Respondent intends to submit a response for this procurement. **Only Respondents who submit a Notice of Intent to Propose will receive the answers to questions from all Respondents, and/or any clarifications, amendments, and addenda to the RFI.** Respondents who provide a Notice of Intent are not obligated to submit response after submitting the Notice of Intent, but must submit a response to be considered for an award.

3.2. Respondent Questions and Comments

All questions and comments regarding this RFI must be submitted electronically to the email address contained in **Section 1.5**. All questions must reference the appropriate RFI page and section number. In order to receive a response, Respondent questions and comments must be received no later than the deadline set forth in **Section 1.6**. Inquiries received after the due date may be reviewed by ERCOT but will not receive a response. Answers to Respondent questions will be emailed to the point of contact listed on the Notice of Intent to Propose. A Respondent must inquire in writing as to any ambiguity, conflict, discrepancy, exclusionary specification, omission, or other error in this RFI prior to submitting a response. If a Respondent fails to notify ERCOT of any error, ambiguity, conflict, discrepancy, exclusionary specification, or omission, the Respondent shall submit a response at its own risk and, if awarded the contract, shall have waived any claim that the RFI and Professional Services Agreement were ambiguous and shall not contest ERCOT's interpretation. If no error or ambiguity is reported by the deadline for submitting written questions, the Respondent shall not be entitled to additional compensation, relief, or time by reason of the error or its later correction.

ERCOT reserves the right to amend answers prior to the response submission deadline.

3.3. News Releases

A Respondent may not issue press releases or provide any information for public consumption regarding its participation in this RFI without specific prior written approval of ERCOT.

3.4. ERCOT Use of Respondent Ideas

ERCOT reserves the right to use any and all ideas presented in any response that are not the Respondent's proprietary information and so designated in the response. Respondent's proprietary materials do not include information that:

- is already published or available to the public, or subsequently becomes available;
- is received from a third party who, to ERCOT's knowledge, is not in breach of any obligation of confidentiality; or
- is independently developed by personnel or agents of ERCOT without reliance on the Respondent's proprietary materials.

3.5. Additional Information

By submitting a response, the Respondent grants ERCOT the right to obtain information from any lawful source regarding: (i) the past business history, practices, conduct, and ability of a Respondent to supply goods, services, and deliverables; and (ii) the past business history, practices, conduct, and ability of the Respondent's directors, officers, and employees. ERCOT may take such information into consideration in evaluating responses.

3.6. Instructions for Submitting Responses

3.6.1. Submission

Submit all copies of the response to the ERCOT Point of Contact no later than **2:00 p.m. Central Time on the submission deadline** (see **Sections 1.5 and 1.6**). The response must be signed by an authorized representative of the Respondent and submitted electronically via email—the file must not exceed 20MB. If this size restriction cannot be met, multiple emails may be sent, but the Respondent must indicate how many emails ERCOT should anticipate (i.e., "email 1 of 3"). ERCOT reserves the right to disqualify late responses.

3.6.2. Additional Requirements

All responses must be:

- clearly legible;
- sequentially page-numbered;
- organized in the sequence outlined in **Sections 3.7 and 3.7.1**;
- limited to 50 pages (excluding ERCOT required forms);
- responsive to the requirements of this RFI; and
- responses should include the Respondent's name at the top of each page, and should not include unrequested materials or pamphlets.

3.7. Format and Content

The response must consist of two separate parts and must be sent in three separate attachments:

Part 1 – Business response

3.7.1. Part 1 – Business Response

The Business Response must include the following sections:

- *Section 1 – Transmittal Letter*
- *Section 2 – Executive Summary*
- *Section 3 – Corporate Background and Experience*
- *Section 4 – Methodology and Services Approach*
- *Section 5 – Assumptions*
- *Section 6 – Appendices*
- *Section 7 – Respondent Information and Other Required Forms*

Section 1 – Transmittal Letter

Respondents must include a transmittal letter printed on official company letterhead. The letter must be signed by an individual authorized to legally bind the Respondent.

The transmittal letter must include:

1. Disclosure of all pending, resolved, or completed litigation, mediation, arbitration, or other alternate dispute resolution procedures involving the Respondent (including Subcontractors) and its client(s) within the past 24 months.
2. Disclosure of all affiliations with, or ownership relationships with, any ERCOT Market Participant or its affiliates.
3. A description of any personal or business interest that may present an actual, potential, or apparent conflict of interest with the performance of the contract and an explanation of how the Respondent can assure ERCOT that these relationships will not create an actual conflict of interest.
4. A list of key personnel previously employed by ERCOT in accordance with the requirements of Section 1.5.2.
5. A complete list of all exceptions, reservations, and limitations to the terms and conditions of the RFI.
6. Signed copies of the Professional Services Agreement, NDA, IRS W-9, and Vendor Information Form, located here:
<http://www.ercot.com/about/procurement/index.html>.
7. Additionally, if the nature of this RFI solicitation involves an Information Technology purchase, please review and acknowledge the “Cyber Security Requirements” document, also located here:
<http://www.ercot.com/about/procurement/index.html>.
8. If proposing a SaaS solution, the Respondent must include a copy of a SOC 2 (type 2) audit report, or equivalent (ISO 27001 certification proof).
9. Please also address the following Records and Information Management (RIM) RFI questions:
 1. Does the solution include an application that will generate electronic information to be saved or stored within such application, whether hosted off-site or within ERCOT’s current IT infrastructure?
 - If YES, proceed to question 2.
 - If NO, no further questions are required as this does not pose any RIM Program concerns.
 2. Does the solution utilize proprietary electronic document formats?
 - If YES, provide additional detail for RIM evaluation (format(s) and access requirements).
 - If NO, provide additional detail for RIM evaluation (format(s)).
 3. Can the product meet ERCOT’s RIM program requirements¹ for records and information generated or stored by the system including destruction at the end of their lifecycle?
 - If YES, provide additional detail for RIM evaluation.
 - If NO, initiate additional discussion.

Section 2 – Executive Summary

¹ RIM program requirements include purging records and non-record information based on current business requirements and the retention requirements found in ERCOT’s Records Retention Schedule.

In this section, the Respondent should condense and highlight the content of the Business Response to provide ERCOT with a broad understanding of the Respondent's approach to meeting ERCOT's objectives for this procurement.

Section 3 – Corporate Background and Experience

Respondent's Background and Experience

This section details the Respondent's corporate background and experience. If the Respondent proposes to use Subcontractor(s), it must describe any existing ongoing relationships with such Subcontractor(s), including project descriptions. The section should include the following information:

- respondent's full organization, company, or corporate name
- headquarters address
- type of ownership (e.g., partnership, corporation)
- if the Respondent is a subsidiary or affiliate and the name of the parent organization
- state where the Respondent is incorporated or otherwise organized to do business
- federal taxpayer identification
- name and title of person who will sign the contract
- name and title of person responsible for responding to questions regarding the response, with telephone number, facsimile number, and email address

Describe the Respondent's corporate background as it relates to projects similar in scope and complexity to the project described in this RFI.

If the response includes the use of Subcontractors, include a similar description of the Subcontractor's corporate background.

Include at least three (3) references for projects performed within the last five (5) years that demonstrate the Respondent's ability to perform the required RFI services. Include contract dates and contact parties, with address, telephone number, and email, if available. If the work was performed as a Subcontractor, the Respondent must describe the scope of subcontracting activities.

Key Personnel

Identify and describe the Respondent's proposed labor skill set and provide resumes of all proposed key personnel (as defined by the Respondent). Resumes must demonstrate experience germane to the position proposed. Resumes must list any relevant professional designations for key personnel identified by Respondent. Resumes should include work on projects cited under the Respondent's corporate experience, and the specific functions performed on such projects.

Section 4 – Methodology and Services Approach

Describe the Respondent's methodology and delivery approach for the deliverables identified in Section 2. Include a proposed project schedule, illustrating start and finish dates of the terminal and summary elements identified in Section 2 or proposed by Respondent.

Section 5 – Assumptions

State any business, economic, legal, or practical assumptions that underlie the Respondent's Business Response.

Section 6 –Appendices

Include any appendices to the Respondent's Business Response.

Section 7 – Respondent Information and Other Required Forms

Respondents must complete the following required forms:

- Nondisclosure Statement
- Complete ERCOT's on-line registration portal through Zycus, our supplier management system, at <https://zsn.zycus.com/quest/genericRegister/ELE462>.
 - To create a new account click on "Register" and complete the fields under "Register with our Supplier Network". You will receive an email from Zycus Notification. Please click on the activation link to activate your account.
- If the anticipated contract value with ERCOT is equal to or >\$250,000.00, the Respondent must include the two (2) most recent two (2) years' audited financial statements (include unaudited statements if supplier is unaudited). Publicly-held companies must include or provide a link to the most recent Forms 10-K and 10-Q filings.

3.7.2. Part 2 – Budgetary Estimate

The Budgetary Estimate must be based on the Scope of Work described in Section 2. This section should include any business, economic, legal, or practical assumptions that underlie the Estimate.

3.7.3. Part 3 – Requirements Response Template (Excel File)

As noted in section 2.5.1, Respondents must fill out the "Requirements Response Template." This is a separate Excel document posted in addition to this RFI document. This spreadsheet requires Respondents to confirm their ability to meet functional and non-functional requirements.

4. Evaluation

4.1. Evaluation of Responses

This is a RFI does and does not constitute a commitment, implied or otherwise, that ERCOT will take procurement action in this matter. ERCOT intends to gather and evaluate information resulting from this solicitation.

ERCOT will evaluate the Respondent through an internal evaluation process. ERCOT will consider capabilities or advantages that are clearly described in the response, which may be confirmed by oral presentations, site visits, or demonstrations, if required, and verified by information from reference sources contacted by ERCOT. ERCOT reserves the right to contact individuals, entities, and organizations that have had dealings with the Respondent, or staff proposed for this effort, whether or not identified in the response.

4.2. Evaluation Criteria

The primary criteria for evaluating the responses as they relate to this RFI are:

1. Respondent's responsiveness to ERCOT's RFI
2. Respondent's experience and qualifications
3. Respondent's ability to meet the scope and requirements set forth in Section 2
4. Budgetary estimates and project timelines

4.3. Oral Presentations and Site Visits

ERCOT may, at its sole discretion, request oral presentations, site visits, and/or demonstrations from one or more Respondents. ERCOT will notify selected Respondents of the time and location for these activities, and may supply agendas or topics for discussion. ERCOT reserves the right to ask additional questions during oral presentations, site visits, and/or demonstrations to clarify the scope and content of the written response, oral presentation, site visit, or demonstration.

ERCOT may require and coordinate site visits with other ISO/RTOs for further evaluation of existing Real Time markets and solutions.

4.4. Discussions with Respondents

ERCOT may, but is not required to, conduct discussions with all, some, or none of the Respondents for the purposes of this RFI.