# Agenda Item # 4 (b)

# KP2 - Definition of the AS Products to Align with RTC Framework

Ancillary Service product suite as defined by NPRR 863.

## **Regulation-Up/Down**

Each Regulation service qualification test, is conducted during an hour period agreed to by the QSE and ERCOT. Testing consists of sending the QSE a series of varying Regulation requests.

* Resource will begin 5 min ramp to meet qualification amount
* Resource will hold at qualification amount for 5 min
* Resource will then complete test with a 5 min ramp back to starting level

The Resource’s response is then analyzed and scored using GREDP metric to determine whether or not Resources passed/failed the Regulation Service qualification.

### Fast Responding Regulation Service (FRRS) Up/Down

All FRRS Resources must first successfully complete the associated Regulation testing. FRRS qualification is completed and reviewed using a combination of telemetry and site level data.

The test begins with ERCOT sending a FRRS deployment request to the QSE, which is then transmitted to the Resource by the QSE. The official start time of the test is the time at which the Resource receives the request at its physical location.

The Resource must record the FRRS request and its MW response at a resolution of no less than 32 samples a second. Testing is deemed successful if the Resource responds within 60 cycles of receiving the request and maintains the requested amount for eight minutes.

Resources also must demonstrate their ability to respond to frequency event within 60 cycles when frequency falls below 59.91 Hz and provide confirmation with data collected by the high speed recorder.

**Under RTC**

Continue with current qualification methodology. Existing Regulation Ancillary Service qualification tests can continue under RTC and ERCOT suggests currently qualified Resources qualification status to carry-over into RTC.

The qualification process will determine for each Resource the maximum MW amount of Regulation-Up and Regulation-Down the resource is qualified to provide. MW qualified to provide Regulation Service excluding FRRS will be limited to how much Resources can sustain for an hour. ERCOT will limit awards to no more than the qualified quantity.

## **Responsive Reserve Service**

### RRS-Gen/CLR

Testing is conducted during a continuous eight-hour period agreed to by the QSE and ERCOT. ERCOT sends a QSE level RRS request and verifies the QSE’s ability to update the Resource’s RRS schedule to reflect the deployment amount within 15 seconds of the ERCOT request.

Limit on Generation and CLR to be applied using the TAC approved procedure per NPRR 863.

### RRS-Gen (Synchronous condenser fast response mode)

Quarterly HSL tests.

### UFR controlled Load Resources

Must be capable of unloading the scheduled amount of RRS within ten minutes of instruction by ERCOT and must be immediately (30 cycles) responsive to system frequency by action of under-frequency relays with settings as specified by the Operating Guides.

**Under RTC**

### RRS-Gen/CLR

Continue with current qualification methodology and include the provision to sustain the qualified MW for an hour.

### RRS-Gen (Synchronous condenser fast response mode)

Continue with current qualification methodology.

### Fast Frequency Response (FFR) including UFR controlled Load Resources

ERCOT deployment signal and high-speed site-level data to verify the 15 cycle response along with the sustained 15-minute output.

1. Resources must be able to sustain for full 15 minutes their output, equal or greater than the amount requested for FFR qualification.
2. Resources must demonstrate their capability to provide full response in 15 cycles or faster when Frequency falls below 59.85 Hz.
3. High Speed Recorder capability must be demonstrated.

The qualification process will determine for each Resource the maximum MW amount of FFR the resource is qualified to provide. ERCOT will limit awards to no more than the qualified quantity.

## **Non-Spin Reserve Service (NSRS)**

Non-Spin may be provided from offline Generation Resource capacity that can ramp within 30 minutes or from an online Generation Resources/CLR that can be dispatched by SCED. The MW amount a Resource is qualified to provide NSRS must be sustainable for at least an hour.

### Offline Non-Spin

Testing is conducted during a continuous eight-hour period agreed to by the QSE and ERCOT. ERCOT sends a deployment message that contains the official start time of the test, from which the Resource has 25 minutes to reach LSL and 30 minutes to reach the full Non-Spin amount.

### Online Non-Spin w/Online Capacity **(Standing Non-Spin deployment)**

Online Non-spin is conducted during an hour period agreed to by the QSE and ERCOT. Testing consists of the QSE correctly updating Resource telemetry within 30 seconds of the top of the scheduled testing hour to reflect a standing Non-Spin deployment, i.e., Non-Spin responsibility set to the testing amount and Non-Spin schedule set to zero.

### **Online Non-Spin w/Offline Capacity**

Resource must first pass the Offline Non-Spin test and then also complete the Online Non-Spin test for a single hour, except the QSE will update the Resource’s Non-Spin schedule to match the Non-Spin Responsibility.

Under RTC

### **Offline Non-Spin**

Continue with current qualification methodology.

### Online Non-Spin Capacity

All SCED dispatchable Resources are qualified to provide online Non-Spin Reserve Services based on their 30 minutes blended ramp rate.

The qualification process will determine for each Resource the maximum MW amount of Non-Spin the resource is qualified to provide. ERCOT will limit awards to no more than the qualified quantity.

## **ERCOT Contingency Reserve Service (ECRS)**

ECRS may be provided from Generation Resources, Controllable Load Resources or Non-Controllable Load Resources. The limits in the ERCOT protocols of how much ECRS can be provided by these various resource types shall be respected. The MW amount a Resource is qualified to provide ECRS must be sustainable for at least an hour.

### **Offline ECRS**

Offline ECRS can only be provided by Resources that have met the Quick Start Generation Resources (QSGR) qualification.

### **Online ECRS**

All SCED dispatchable Resources are qualified to provide online ECRS based on their 10 minutes blended ramp rate.

### ECRS from Load Resources other than CLR

Same qualification process used today to test manual deployment of Load Resources for RRS, excluding requirements for under-frequency relay response.

## **Quick Start Generation Resource (QSGR) Qualification**

Quick Start qualification test is conducted during an hour period agreed to by the QSE and ERCOT. ERCOT issues a verbal dispatch instruction (VDI) for the requested qualification amount. The Resource may be qualified for an amount no greater than the MW output reached 10 minutes after the VDI.

The qualification process will determine for each Resource the maximum MW amount of ECRS the resource is qualified to provide. ERCOT will limit awards to no more than the qualified quantity