|  |  |  |  |
| --- | --- | --- | --- |
| NPRR Number | [1085](http://www.ercot.com/mktrules/issues/NPRR1085) | NPRR Title | Ensuring Continuous Validity of Physical Responsive Capability (PRC) and Dispatch through Timely Changes to Resource Telemetry and Current Operating Plans (COPs) |
| Date of Decision | July 15, 2021 |
| Action | Tabled |
| Timeline  | Normal |
| Proposed Effective Date | To be determined |
| Priority and Rank Assigned | To be determined |
| Nodal Protocol Sections Requiring Revision  | 3.1.4.4, Management of Resource or Transmission Forced Outages or Maintenance Outages 3.1.4.7, Reporting of Forced Derates3.9, Current Operating Plan (COP)3.9.1, Current Operating Plan (COP) Criteria6.4.8, Notification of Forced Outage of a Resource6.5.5.1, Changes in Resource Status |
| Related Documents Requiring Revision/Related Revision Requests | None |
| Revision Description | This Nodal Protocol Revision Request (NPRR) improves the validity of the Physical Responsive Capability (PRC) calculation and dispatch by requiring quicker updates by Qualified Scheduling Entities (QSEs) to the telemetered Resource Status, High Sustained Limit (HSL), and other relevant information. |
| Reason for Revision |  Addresses current operational issues. Meets Strategic goals (tied to the [ERCOT Strategic Plan](http://www.ercot.com/content/wcm/lists/144926/ERCOT_Strategic_Plan_2019-2023.pdf) or directed by the ERCOT Board). Market efficiencies or enhancements Administrative Regulatory requirements Other: (explain)*(please select all that apply)* |
| Business Case | This NPRR addresses initiative #6 in the Emergency Conditions List posted on ercot.com. Following an evaluation of a system frequency excursion on February 15, 2021, it became clear that the value of PRC calculated from telemetry was incorrect; it is not feasible for PRC to actually be in the 1000 MW range and frequency to be far below 59.91 Hz for several minutes. ERCOT’s evaluation found that several elements of the calculated PRC were based on incorrect telemetered values. It is critical for ERCOT situational awareness to have an accurate value of PRC at all times as well as an accurate forecast of available generation capability and availability. ERCOT utilizes Real-Time telemetry received from Resources for its Real-Time monitoring and as part of its emergency plans to mitigate emergencies as a measure of Generation Resources’ capability and availability. The timeliness and accuracy of this data are critical in having an accurate understanding of reserve levels on the system at all times. This NPRR proposes to modify Sections 3.1.4.4, 3.1.4.7, 6.1.4.8, and 6.5.5.1 to require that Real-Time telemetered status, HSL, and associated telemetry are updated within five minutes of an Outage, derate, or failure to start that caused the change. This will, in part, help ensure Security-Constrained Economic Dispatch (SCED) has accurate capability and availability information for dispatch and ERCOT system operators will have an accurate accounting of reserves, including PRC.ERCOT utilizes forecasts of available generation capability and availability based on Current Operating Plans (COPs) to determine if sufficient generation capacity and reserves exist to meet demand needs and minimum reserve requirements. This NPRR also proposes to modify Sections 3.1.4.4, 3.1.4.7, 3.9, and 3.9.1 to require that each QSE that represents a Resource, Reliability Must-Run (RMR) Unit, or Black Start Resource must update its COP as soon as practicable but no longer than 30 minutes after the event that caused the changes, rather than the current 60 minute requirement. This will help to ensure timely and accurate forecast of generation capability and availability needed to prepare for and mitigate Emergency Conditions as well as support ERCOT’s operational planning analyses and Real-Time assessments. |
| Credit Work Group Review | To be determined |
| PRS Decision | On 7/15/21, PRS voted unanimously via roll call to table NPRR1085 and refer the issue to ROS. All Market Segments participated in the vote. |
| Summary of PRS Discussion | On 7/15/21, there was no discussion. |

|  |
| --- |
| Sponsor |
| Name | Nitika Mago |
| E-mail Address | Nitika.Mago@ercot.com  |
| Company | ERCOT |
| Phone Number | 512-248-6601 |
| Cell Number |  |
| Market Segment | Not Applicable |

|  |
| --- |
| **Market Rules Staff Contact** |
| **Name** | Brittney Albracht |
| **E-Mail Address** | Brittney.Albracht@ercot.com  |
| **Phone Number** | 512-225-7027 |

|  |
| --- |
| **Comments Received** |
| **Comment Author** | **Comment Summary** |
| TCPA 071421 | Requested NPRR1085 be tabled for review by ROS for impacts to Resource operations |

|  |
| --- |
| **Market Rules Notes** |

None

|  |
| --- |
| Proposed Protocol Language Revision |

**3.1.4.4 Management of Resource or Transmission Forced Outages or Maintenance Outages**

(1) In the event of a Forced Outage, after the affected equipment is removed from service, the Resource Entity or QSE, as appropriate, or TSP must notify ERCOT of its action by:

|  |
| --- |
| ***[NPRR857: Replace paragraph (1) above with the following upon system implementation:]***(1) In the event of a Forced Outage, after the affected equipment is removed from service, the Resource Entity or QSE, as appropriate, TSP, or DCTO must notify ERCOT as soon as practicable of its action by:  |

(a) For Resource Outages:

(i) Changing the telemetered Resource Status and associated telemetery as specified in paragraph (2) of Section 6.5.5.2, Operational Data Requirements, appropriately, as soon as practicable but no longer than five minutes after the affected equipment is removed from service; and

(ii) Updating the COP as soon as practicable but no longer than 30 minutes after the affected equipment is removed from service; and

(iii) Updating the Outage Scheduler, if necessary.

(b) For Transmission Facilities Forced Outages:

(i) Changing the telemetered status of the affected Transmission Elements; and

(ii) Updating the Outage Scheduler with the expected return-to-service time.

(2) Forced Outages may require ERCOT to review and withdraw approval of previously approved or accepted, as applicable, Planned Outage, Maintenance Outage, or Rescheduled Outage schedules to ensure reliability.

(3) For Maintenance Outages, the Resource Entity or QSE, as appropriate, or TSP shall notify ERCOT of any Resource or Transmission Facilities Maintenance Outage according to the Maintenance Outage Levels by updating the COP and Outage Scheduler. ERCOT shall coordinate the removal of facilities from service within the defined timeframes as specified by the TSP, QSE or Resource Entity in its notice to ERCOT.

|  |
| --- |
| ***[NPRR857: Replace paragraph (3) above with the following upon system implementation:]***(3) For Maintenance Outages, the Resource Entity or QSE, as appropriate, TSP, or DCTO shall notify ERCOT of any Resource or Transmission Facilities Maintenance Outage according to the Maintenance Outage Levels by updating the COP and Outage Scheduler. ERCOT shall coordinate the removal of facilities from service within the defined timeframes as specified by the TSP, DCTO, QSE, or Resource Entity in its notice to ERCOT. |

(4) ERCOT may require supporting information describing Forced Outages and Maintenance Outages. ERCOT may reconsider and withdraw approvals of other previously approved Transmission Facilities Outage or an Outage of a Reliability Resource as a result of Forced Outages or Maintenance Outages, if necessary, in ERCOT’s determination to protect system reliability. When ERCOT approves a Maintenance Outage, ERCOT shall coordinate timing of the appropriate course of action under these Protocols.

(5) Removal of a Resource or Transmission Facilities from service under Maintenance Outages must be coordinated with ERCOT. To minimize harmful impacts to the system in urgent situations, the equipment may be removed immediately from service, provided notice is given immediately, by the Resource Entity or TSP, to ERCOT of such action.

|  |
| --- |
| ***[NPRR857: Replace paragraph (5) above with the following upon system implementation:]***(5) Removal of a Resource or Transmission Facilities from service under Maintenance Outages must be coordinated with ERCOT. To minimize harmful impacts to the system in urgent situations, the equipment may be removed immediately from service, provided the Resource Entity, TSP, or DCTO immediately gives notice of such action to ERCOT. |

**3.1.4.7 Reporting of Forced Derates**

(1) The Resource Entity or its designee must enter Forced Derates that are expected to last more than 48 hours into the Outage Scheduler

(2) The QSE must update the telemetered High Sustained Limit (HSL) and any applicable telemetery as specified in paragraph (2) of Section 6.5.5.2 appropriately based on the Forced Derate, as soon as practicable but no longer than five minutes after the beginning of the Forced Derate.

(3) The QSE must update the COP as soon as practicable but no longer than 30 minutes after the beginning of the Forced Derate.

**3.9 Current Operating Plan (COP)**

(1) Each Qualified Scheduling Entity (QSE) that represents a Resource must submit a Current Operating Plan (COP) under this Section.

(2) ERCOT shall use the information provided in the COP to calculate the High Ancillary Service Limit (HASL) and Low Ancillary Service Limit (LASL) for each Resource for the Reliability Unit Commitment (RUC) processes.

|  |
| --- |
| ***[NPRR1007: Replace paragraph (2) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project:]***(2) ERCOT shall use the information provided in the COP to calculate operating limits and Ancillary Service capabilities for each Resource for the Reliability Unit Commitment (RUC) processes. |

(3) ERCOT shall monitor the accuracy of each QSE’s COP as outlined in Section 8, Performance Monitoring.

(4) A QSE must notify ERCOT that it plans to have a Resource On-Line by means of the COP using the Resource Status codes listed in paragraph (5)(b)(i) of Section 3.9.1, Current Operating Plan (COP) Criteria. The QSE must show the Resource as On-Line with a Resource Status of ONRUC, indicating a RUC process committed the Resource for all RUC-Committed Intervals. A QSE may only use a RUC-committed Resource during that Resource’s RUC-Committed Interval to meet the QSE’s Ancillary Service Supply Responsibility if the Resource has been committed by the RUC process to provide Ancillary Service.

(5) To reflect changes to a Resource’s capability, each QSE shall report by exception, changes to the COP for all hours after the Operating Period through the rest of the Operating Day.

(6) When a QSE updates its COP to show changes in Resource Status, the QSE shall update for each On-Line Resource, either an Energy Offer Curve under Section 4.4.9, Energy Offers and Bids, or Output Schedule under Section 6.4.2, Output Schedules.

(7) Each QSE, including QSEs representing Reliability Must-Run (RMR) Units, or Black Start Resources, shall submit a revised COP reflecting changes in Resource availability as soon as reasonably practicable, but in no event later than 30 minutes after the event that caused the change.

(8) Each QSE representing a Qualifying Facility (QF) must submit a Low Sustained Limit (LSL) that represents the minimum energy available, in MW, from the unit for economic dispatch based on the minimum stable steam delivery to the thermal host plus a justifiable reliability margin that accounts for changes in ambient conditions.

***3.9.1 Current Operating Plan (COP) Criteria***

(1) Each QSE that represents a Resource must submit a COP to ERCOT that reflects expected operating conditions for each Resource for each hour in the next seven Operating Days.

(2) Each QSE that represents a Resource shall update its COP reflecting changes in availability of any Resource as soon as reasonably practicable, but in no event later than 30 minutes after the event that caused the change.

(3) The Resource capacity in a QSE’s COP must be sufficient to supply the Ancillary Service Supply Responsibility of that QSE.

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Replace applicable portions of paragraph (3) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(3) Each QSE that represents a Resource shall update its COP to reflect the ability of the Resource to provide each Ancillary Service by product and sub-type. |

(4) Load Resource COP values may be adjusted to reflect Distribution Losses in accordance with Section 8.1.1.2, General Capacity Testing Requirements.

(5) A COP must include the following for each Resource represented by the QSE:

(a) The name of the Resource;

(b) The expected Resource Status:

(i) Select one of the following for Generation Resources synchronized to the ERCOT System that best describes the Resource’s status. Unless otherwise provided below, these Resource Statuses are to be used for COP and/or Real-Time telemetry purposes, as appropriate.

(A) ONRUC – On-Line and the hour is a RUC-Committed Hour;

(B) ONREG – On-Line Resource with Energy Offer Curve providing Regulation Service;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (B) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

(C) ON – On-Line Resource with Energy Offer Curve;

(D) ONDSR – On-Line Dynamically Scheduled Resource (DSR);

|  |
| --- |
| ***[NPRR1000: Delete item (D) above upon system implementation and renumber accordingly.]*** |

(E) ONOS – On-Line Resource with Output Schedule;

(F) ONOSREG – On-Line Resource with Output Schedule providing Regulation Service;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (F) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

(G) ONDSRREG – On-Line DSR providing Regulation Service;

|  |
| --- |
| ***[NPRR1000, NPRR1007, NPRR1014, and NPRR1029: Delete item (G) above upon system implementation for NPRR1000, NPRR1014, or NPRR1029; or upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; and renumber accordingly.]*** |

(H) FRRSUP – Available for Dispatch of Fast Responding Regulation Service (FRRS). This Resource Status is only to be used for Real-Time telemetry purposes;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (H) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 and NPRR1029; and renumber accordingly.]*** |

(I) ONTEST – On-Line blocked from Security-Constrained Economic Dispatch (SCED) for operations testing (while ONTEST, a Generation Resource may be shown on Outage in the Outage Scheduler);

(J) ONEMR – On-Line EMR (available for commitment or dispatch only for ERCOT-declared Emergency Conditions; the QSE may appropriately set LSL and High Sustained Limit (HSL) to reflect operating limits);

(K) ONRR – On-Line as a synchronous condenser providing Responsive Reserve (RRS) but unavailable for Dispatch by SCED and available for commitment by RUC;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (K) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

|  |
| --- |
| ***[NPRR863: Insert paragraph (L) below upon system implementation and renumber accordingly:]***(L) ONECRS – On-Line as a synchronous condenser providing ERCOT Contingency Response Service (ECRS) but unavailable for Dispatch by SCED and available for commitment by RUC; |

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (L) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

(L) ONOPTOUT – On-Line and the hour is a RUC Buy-Back Hour;

(M) SHUTDOWN – The Resource is On-Line and in a shutdown sequence, and has no Ancillary Service Obligations other than Off-Line Non-Spinning Reserve (Non-Spin) which the Resource will provide following the shutdown. This Resource Status is only to be used for Real-Time telemetry purposes;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (M) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(H) SHUTDOWN – The Resource is On-Line and in a shutdown sequence, and is not eligible for an Ancillary Service award. This Resource Status is only to be used for Real-Time telemetry purposes; |

(N) STARTUP – The Resource is On-Line and in a start-up sequence and has no Ancillary Service Obligations. This Resource Status is only to be used for Real-Time telemetry purposes;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (N) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(I) STARTUP – The Resource is On-Line and in a start-up sequence and is not eligible for an Ancillary Service award, unless coming On-Line in response to a manual deployment of ERCOT Contingency Reserve Service (ECRS) or Non-Spinning Reserve (Non-Spin). This Resource Status is only to be used for Real-Time telemetry purposes; |

(O) OFFQS – Off-Line but available for SCED deployment. Only qualified Quick Start Generation Resources (QSGRs) may utilize this status; and

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (O) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(J) OFFQS – Off-Line but available for SCED deployment and to provide ECRS and Non-Spin, if qualified and capable. Only qualified Quick Start Generation Resources (QSGRs) may utilize this status; |

(P) ONFFRRRS – Available for Dispatch of RRS providing Fast Frequency Response (FFR) from Generation Resources. This Resource Status is only to be used for Real-Time telemetry purposes;

|  |
| --- |
| ***[NPRR1015: Replace paragraph (P) above with the following upon system implementation of NPRR863:]***(P) ONFFRRRS – Available for Dispatch of RRS when providing Fast Frequency Response (FFR) from Generation Resources. This Resource Status is only to be used for Real-Time telemetry purposes. A Resource with this Resource Status may also be providing Ancillary Services other than FFR; |

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (P) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Insert applicable portions of items (K) and (L) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(K) ONSC – Resource is On-Line operating as a synchronous condenser and available to provide Responsive Reserve (RRS) and ECRS, if qualified and capable, and for commitment by RUC, but is unavailable for Dispatch by SCED. For SCED, Resource Base Points will be set equal to the telemetered net real power of the Resource available at the time of the SCED execution; and(L) ONHOLD – Resource is On-Line but temporarily unavailable for Dispatch by SCED or Ancillary Service awards. This Resource Status is only to be used for Real-Time telemetry purposes. For SCED, Resource Base Points will be set equal to the telemetered net real power of the Resource available at the time of the SCED execution. |

(ii) Select one of the following for Off-Line Generation Resources not synchronized to the ERCOT System that best describes the Resource’s status. These Resource Statuses are to be used for COP and/or Real-Time telemetry purposes, as appropriate.

(A) OUT – Off-Line and unavailable;

(B) OFFNS – Off-Line but reserved for Non-Spin;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (B) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

(C) OFF – Off-Line but available for commitment in the Day-Ahead Market (DAM) and RUC;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Replace item (C) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(B) OFF – Off-Line but available for commitment in the Day-Ahead Market (DAM), RUC, and providing Non-Spin, if qualified and capable; |

(D) EMR – Available for commitment as a Resource contracted by ERCOT under Section 3.14.1, Reliability Must Run, or under paragraph (2) of Section 6.5.1.1, ERCOT Control Area Authority, or available for commitment only for ERCOT-declared Emergency Condition events; the QSE may appropriately set LSL and HSL to reflect operating limits; and

(E) EMRSWGR – Switchable Generation Resource (SWGR) operating in a non-ERCOT Control Area, or in the case of a Combined Cycle Train with one or more SWGRs, a configuration in which one or more of the physical units in that configuration are operating in a non-ERCOT Control Area; and

(iii) Select one of the following for Load Resources. Unless otherwise provided below, these Resource Statuses are to be used for COP and/or Real-Time telemetry purposes.

(A) ONRGL – Available for Dispatch of Regulation Service by Load Frequency Control (LFC) and, for any remaining Dispatchable capacity, by SCED with a Real-Time Market (RTM) Energy Bid;

(B) FRRSUP – Available for Dispatch of FRRS by LFC and not Dispatchable by SCED. This Resource Status is only to be used for Real-Time telemetry purposes;

(C) FRRSDN - Available for Dispatch of FRRS by LFC and not Dispatchable by SCED. This Resource Status is only to be used for Real-Time telemetry purposes;

(D) ONCLR – Available for Dispatch as a Controllable Load Resource by SCED with an RTM Energy Bid;

(E) ONRL – Available for Dispatch of RRS, excluding Controllable Load Resources;

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete items (A)-(E) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

|  |
| --- |
| ***[NPRR863: Insert paragraph (F) below upon system implementation and renumber accordingly:]***(F) ONECL – Available for Dispatch of ECRS, excluding Controllable Load Resources;  |

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (F) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029; and renumber accordingly.]*** |

(F) OUTL – Not available;

|  |
| --- |
| ***[NPRR863 and NPRR1015: Insert applicable portions of paragraph (H) below upon system implementation of NPRR863:]***(H) ONFFRRRSL – Available for Dispatch of RRS when providing FFR, excluding Controllable Load Resources. This Resource Status is only to be used for Real-Time telemetry purposes; |

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete item (H) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029.]*** |

|  |
| --- |
| ***[NPRR1007, NPRR1014, NPRR1029: Insert item (B) below upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(B) ONL – On-Line and available for Dispatch by SCED or providing Ancillary Services. |

|  |
| --- |
| ***[NPRR1014 or NPRR1029: Insert applicable portions of paragraph (iv) below upon system implementation:]***(iv) Select one of the following for Energy Storage Resources (ESRs). Unless otherwise provided below, these Resource Statuses are to be used for COP and Real-Time telemetry purposes:(A) ON – On-Line Resource with Energy Bid/Offer Curve;(B) ONOS – On-Line Resource with Output Schedule;(C) ONTEST – On-Line blocked from SCED for operations testing (while ONTEST, an Energy Storage Resource (ESR) may be shown on Outage in the Outage Scheduler);(D) ONEMR – On-Line EMR (available for commitment or dispatch only for ERCOT-declared Emergency Conditions; the QSE may appropriately set LSL and High Sustained Limit (HSL) to reflect operating limits);(E) ONHOLD – Resource is On-Line but temporarily unavailable for Dispatch by SCED or Ancillary Service awards. ESRs shall not be discharging into or charging from the grid. This Resource Status is only to be used for Real-Time telemetry purposes; and(F) OUT – Off-Line and unavailable; and |

(c) The HSL;

(i) For Load Resources other than Controllable Load Resources, the HSL should equal the expected power consumption;

|  |
| --- |
| ***[NPRR1014 and NPRR1029: Insert applicable portions of paragraph (ii) below upon system implementation:]***(ii) For ESRs, the HSL may be negative; |

(d) The LSL;

(i) For Load Resources other than Controllable Load Resources, the LSL should equal the expected Low Power Consumption (LPC);

|  |
| --- |
| ***[NPRR1014 and NPRR1029: Insert applicable portions of paragraph (ii) below upon system implementation:]***(ii) For ESRs, the LSL may be positive; |

(e) The High Emergency Limit (HEL);

(f) The Low Emergency Limit (LEL); and

(g) Ancillary Service Resource Responsibility capacity in MW for:

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Replace applicable portions of item (g) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(g) Ancillary Service capability in MW for each product and sub-type. |

(i) Regulation Up (Reg-Up);

(ii) Regulation Down (Reg-Down);

(iii) RRS; and

|  |
| --- |
| ***[NPRR863: Insert paragraph (iv) below upon system implementation and renumber accordingly:]***(iv) ECRS; and |

(iv) Non-Spin.

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Delete items (i)-(iv) above upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029.]*** |

(6) For Combined Cycle Generation Resources, the above items are required for each operating configuration. In each hour only one Combined Cycle Generation Resource in a Combined Cycle Train may be assigned one of the On-Line Resource Status codes described above.

(a) During a RUC study period, if a QSE’s COP reports multiple Combined Cycle Generation Resources in a Combined Cycle Train to be On-Line for any hour, then until the QSE corrects its COP, the On-Line Combined Cycle Generation Resource with the largest HSL is considered to be On-Line and all other Combined Cycle Generation Resources in the Combined Cycle Train are considered to be Off-Line. Furthermore, until the QSE corrects its COP, the Off-Line Combined Cycle Generation Resources as designated through the application of this process are ineligible for RUC commitment or de-commitment Dispatch Instructions.

(b) For any hour in which QSE-submitted COP entries are used to determine the initial state of a Combined Cycle Generation Resource for a DAM or Day-Ahead Reliability Unit Commitment (DRUC) study and the COP shows multiple Combined Cycle Generation Resources in a Combined Cycle Train to be in an On-line Resource Status, then until the QSE corrects its COP, the On-Line Combined Cycle Generation Resource that has been On-Line for the longest time from the last recorded start by ERCOT systems, regardless of the reason for the start, combined with the COP Resource Status for the remaining hours of the current Operating Day, is considered to be On-Line at the start of the DRUC study period and all other COP-designated Combined Cycle Generation Resources in the Combined Cycle Train are considered to be Off-Line.

(c) ERCOT systems shall allow only one Combined Cycle Generation Resource in a Combined Cycle Train to offer Off-Line Non-Spin in the DAM or Supplemental Ancillary Services Market (SASM).

|  |
| --- |
| ***[NPRR1007, NPRR1014, and NPRR1029: Replace paragraph (c) above with the following upon system implementation of the Real-Time Co-Optimization (RTC) project for NPRR1007; or upon system implementation for NPRR1014 or NPRR1029:]***(c) ERCOT systems shall allow only one Combined Cycle Generation Resource in a Combined Cycle Train to offer Off-Line Non-Spin in the DAM or SCED. |

(i) If there are multiple Non-Spin offers from different Combined Cycle Generation Resources in a Combined Cycle Train, then prior to execution of the DAM, ERCOT shall select the Non-Spin offer from the Combined Cycle Generation Resource with the highest HSL for consideration in the DAM and ignore the other offers.

(ii) Combined Cycle Generation Resources offering Off-Line Non-Spin must be able to transition from the shutdown state to the offered Combined Cycle Generation Resource On-Line state and be capable of ramping to the full amount of the Non-Spin offered.

(d) The DAM and RUC shall honor the registered hot, intermediate or cold Startup Costs for each Combined Cycle Generation Resource registered in a Combined Cycle Train when determining the transition costs for a Combined Cycle Generation Resource. In the DAM and RUC, the Startup Cost for a Combined Cycle Generation Resource shall be determined by the positive transition cost from the On-Line Combined Cycle Generation Resource within the Combine Cycle Train or from a shutdown condition, whichever ERCOT determines to be appropriate.

(7) ERCOT may accept COPs only from QSEs.

(8) For the first 168 hours of the COP, ERCOT will update the HSL values for Wind-powered Generation Resources (WGRs) with the most recently updated Short-Term Wind Power Forecast (STWPF), and the HSL values for PhotoVoltaic Generation Resources (PVGRs) with the most recently updated Short-Term PhotoVoltaic Power Forecast (STPPF). ERCOT will notify the QSE via an Extensible Markup Language (XML) message each time COP HSL values are updated with the forecast values. A QSE representing a WGR may override the STWPF HSL value but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STWPF provided by ERCOT; a QSE representing a PVGR may override the STPPF HSL value but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STPPF provided by ERCOT.

|  |
| --- |
| ***[NPRR1029: Replace paragraph (8) above with the following upon system implementation:]***(8) For the first 168 hours of the COP, ERCOT will update the HSL values for Wind-powered Generation Resources (WGRs) with the most recently updated Short-Term Wind Power Forecast (STWPF), and the HSL values for PhotoVoltaic Generation Resources (PVGRs) with the most recently updated Short-Term PhotoVoltaic Power Forecast (STPPF). A QSE representing a DC-Coupled Resource shall provide the capacity value of the Energy Storage System (ESS) that is included in the HSL of the DC-Coupled Resource, and ERCOT will update the DC-Coupled Resource’s HSL with the sum of the forecasts of the intermittent renewable generation component and the QSE-submitted value for the ESS component. ERCOT will notify the QSE via an Extensible Markup Language (XML) message each time COP HSL values are updated with the forecast values. A QSE representing a WGR may override the STWPF HSL value but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STWPF provided by ERCOT; a QSE representing a PVGR may override the STPPF HSL value but must submit an HSL value that is less than or equal to the amount for that Resource from the most recent STPPF provided by ERCOT. A QSE representing a DC-Coupled Resource may override the COP HSL value with a value that is lower than the ERCOT-populated value, and may override with a value that is higher than the ERCOT-populated value if the ESS component of the DC-Coupled Resource can support the higher value. |

(9) A QSE representing a Generation Resource that is not actively providing Ancillary Services or is providing Off-Line Non-Spin that the Resource will provide following the shutdown, may only use a Resource Status of SHUTDOWN to indicate to ERCOT through telemetry that the Resource is operating in a shutdown sequence or a Resource Status of ONTEST to indicate in the COP and through telemetry that the Generation Resource is performing a test of its operations either manually dispatched by the QSE or by ERCOT as part of the test. A QSE representing a Generation Resource that is not actively providing Ancillary Services may only use a Resource Status of STARTUP to indicate to ERCOT through telemetry that the Resource is operating in a start-up sequence requiring manual control and is not available for Dispatch.

(10) If a QSE has not submitted a valid COP for any Generation Resource for any hour in the DAM or RUC Study Period, then the Generation Resource is considered to have a Resource Status as OUT thus not available for DAM awards or RUC commitments for those hours.

(11) If a COP is not available for any Resource for any hour from the current hour to the start of the DAM period or RUC study, then the Resource Status for those hours are considered equal to the last known Resource Status from a previous hour’s COP or from telemetry as appropriate for that Resource.

(12) A QSE representing a Resource may only use the Resource Status code of EMR for a Resource whose operation would have impacts that cannot be monetized and reflected through the Resource’s Energy Offer Curve or recovered through the RUC make-whole process or if the Resource has been contracted by ERCOT under Section 3.14.1 or under paragraph (2) of Section 6.5.1.1. If ERCOT chooses to commit an Off-Line unit with EMR Resource Status that has been contracted by ERCOT under Section 3.14.1 or under paragraph (2) of Section 6.5.1.1, the QSE shall change its Resource Status to ONRUC. Otherwise, the QSE shall change its Resource Status to ONEMR.

(13) A QSE representing a Resource may use the Resource Status code of ONEMR for a Resource that is:

(a) On-Line, but for equipment problems it must be held at its current output level until repair and/or replacement of equipment can be accomplished; or

(b) A hydro unit.

(14) A QSE operating a Resource with a Resource Status code of ONEMR may set the HSL and LSL of the unit to be equal to ensure that SCED does not send Base Points that would move the unit.

(15) A QSE representing a Resource may use the Resource Status code of EMRSWGR only for an SWGR.

|  |
| --- |
| ***[NPRR1026: Insert paragraph (16) below upon system implementation:]***(16) A QSE representing a Self-Limiting Facility must ensure that the sum of the COP HSL/LSL and the sum of the telemetered HSL/LSL submitted for each Resource within the Self-Limiting Facility do not exceed either the limit on MW Injection or the limit on the MW Withdrawal established for the Self-Limiting Facility. |

|  |
| --- |
| ***[NPRR1029: Insert paragraph (16) below upon system implementation:]***(16) A QSE representing a DC-Coupled Resource shall not submit an HSL that exceeds the inverter rating or the sum of the nameplate ratings of the generation component(s) of the Resource. |

6.4.8 Notification of Forced Outage of a Resource

(1) In the event of a Forced Outage of a Resource, the telemetered status of the Resource automatically notifies ERCOT of the event. In the event of a Forced Outage or a Forced Derate of a Resource, the telemetered HSL and any other applicable telemetry of the Resource as specified in paragraph (2) of Section 6.5.5.2, Operational Data Requirements, shall be updated as soon as practicable but no longer than five minutes after the beginning of the event.

(2) In the event of a Forced Outage, an impending Forced Outage, or de-rating of a Resource, the QSE shall inform ERCOT of the following in the Outage Scheduler:

(a) Time of expected change in Resource Status or rating;

(b) Text message describing the nature of the Forced Outage or de-rating updated as new information becomes available; and(c) The expected minimum and maximum duration of the Forced Outage or de-rating.

(3) In the event of a Forced Outage or Forced Derate, the QSE must update the Resource’s COP as soon as practicable but no longer than 30 minutes after the beginning of the event.

**6.5.5.1 Changes in Resource Status**

(1) Each QSE shall notify ERCOT of a change in Resource Status via telemetry as soon as practicable but no longer than five minutes after the change in the status of the Resource occurs and through changes in the Current Operating Plan (COP) as soon as practicable but no longer than 30 minutes after the change in status of the Resource occurs.

(2) Each QSE shall promptly inform ERCOT when the operating mode of its Generation Resource’s Automatic Voltage Regulator (AVR) or Power System Stabilizer (PSS) is changed while the Resource is On-Line. The QSE shall also provide the Resource’s AVR or PSS status logs to ERCOT upon request.

(3) Each QSE shall immediately report to ERCOT and the TSP any inability of the QSE’s Generation Resource required to meet its reactive capability requirements in these Protocols.