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| NPRR Number | [1080](http://www.ercot.com/mktrules/issues/NPRR1080) | NPRR Title | Limiting Ancillary Service Price to System-Wide Offer Cap |
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| Date | June 22, 2021 |
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| Submitter’s Information |
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| Market Segment | Not applicable |

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| Comments |

As demonstrated during Winter Story Uri, the Market Clearing Price for Capacity (MCPC) for Ancillary Services can exceed System-Wide Offer Cap (SWCAP) under current system design. On February 15, 2021, the ERCOT grid was minutes away or a single large generator trip away from possible total blackout. Maintaining sufficient Responsive Reserve (RRS) at all times is critical to avoiding such situations. The Operating Reserve Demand Curve (ORDC) is determined assuming 1 MW more of an Ancillary Service procured will result in 1 MW of avoided load lost at Value of Lost Load (VOLL) times the Loss of Load Probability (LOLP). This method of determining ORDC is appropriate for services such as Non-Spinning Reserve (Non-Spin) where having fewer MWs of Non-Spin implies the same number of MWs of energy shortfall in scarcity situations. However, insufficient RRS to arrest frequency can result in total blackout of the grid – the unfathomable cost of a blackout is potentially the loss of thousands of lives, hundreds of thousands of MWh (depending on unknown time to recover from a blackout), and billions of dollars of economic impact. ERCOT must be prepared to shed thousands of MWs of Load and yet protect enough RRS to avoid total blackout. Thus, the value of RRS is LOLP times many multiples of VOLL. With such dire possible consequences for being short RRS, it makes sense to have the goal of reserving enough RRS at all times to be able to arrest frequency decay resulting from the sudden loss of the two largest nuclear units and using RRS not for capacity scarcity (i.e. being released to Security-Constrained Economic Dispatch (SCED)) but rather only deployed by frequency deviations. With the implementation of ERCOT Contingency Reserve Service (ECRS), RRS will be closer to a purely frequency responsive service. However, ECRS implementation has been delayed to at least 2025 and the current practice of releasing RRS to SCED for capacity scarcity may be exposing the grid to unacceptable reliability risks and distorting scarcity price signals.

Our concern with Nodal Protocol Revision Request (NPRR) 1080, as submitted, is that setting RRS penalty factor at SWCAP minus $0.01 would result in DAM awarding Resources energy offers in preference to RRS awards. As such, ERCOT will have insufficient RRS and must resort to out-of-market actions after the Day-Ahead Market (DAM) to secure the reliability of the system. If ERCOT issues an Ancillary Service assignment to a Resource that was awarded energy in DAM, then the resource may be financially harmed by such assignment and the Protocols currently have no means of making that Resource whole. If we modify the Protocols to allow for recovery of such financial harm, then there will be a resulting uplift charge. On the other hand, capping RRS prices at SWCAP has no such issues since the Resource would not be awarded energy instead of RRS. The Resource awarded RRS in DAM may have a theoretical “opportunity cost” higher than SWCAP as calculated within the DAM engine – however, by design, there would be no payment above SWCAP (under NPRR1080, as submitted, Ancillary Service prices are capped just below SWCAP anyway). This treatment is similar to the capping of energy at SWCAP under Real-Time Co-optimization (RTC) where energy prices would otherwise possibly reach $11,000/MWh if theoretical opportunity cost were taken into account. The difference between the two alternatives is that under NPRR1080, as submitted, Resources would be awarded financial energy positions in favor of essential reliability products and may incur actual financial harm when after DAM clearing that same Resource is assigned Ancillary Service; whereas by capping Ancillary Service prices, essential reliability products are awarded in favor of financial energy product.

For example, when the opportunity cost of RRS is greater than SWCAP, setting the Ancillary Service penalty factor (ASPF) at SWCAP minus $0.01 will result in DAM awarding energy at say $7,000/MWh and Reg-Down at $3,000/MW/hr rather than RRS when SWCAP is $9,000/MWh.

ERCOT may assign RRS MWs to these Resources to ensure adequate RRS. Since these Resources have been awarded energy in DAM, they would be financially harmed (actual cost) by such assignment. If Real-Time Market (RTM) energy prices are $9,000/MWh and these Resources are assigned RRS which are not released to SCED, then these Resources have an actual additional financial loss of $2,000/MWh.

While we support moving forward with NPRR1080 and Other Binding Document Revision Request (OBDRR) 030, Related to NPRR1080, Limiting Ancillary Service Price to System-Wide Offer Cap, as filed, as an immediate step to addressing the issue of Ancillary Service prices exceeding SWCAP, we urge TAC to urgently direct ROS and WMS to investigate the following items:

1. Modifying RRS deployment Protocols to eliminate release to SCED thereby making RRS a purely frequency responsive service.
2. Modifying emergency procedures to ensure adequate RRS is maintained and restored after deployment in response to frequency events.
3. Setting the ASPFs for RRS and Regulation Service in the DAM at high enough values to ensure those essential reliability products are procured to the fullest extent possible prior to awarding financial energy positions. MCPCs would be capped at SWCAP.
4. Under RTC, modifying Ancillary Service Demand Curves (ASDCs) for RRS and Regulation Service to higher values than SWCAP and Power Balance Penalty Factor at SWCAP and capping MCPCs at SWCAP. This will ensure RRS and Regulation Service are maintained to the extent possible in order to arrest frequency decay. There is more time to address this issue than the urgent issues list above.

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| Revised Cover Page Language |

None.

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| Revised Proposed Protocol Language |

None.