Battery Energy Storage

Stakeholder Committee Activity Monthly Summary

August 28, 2019

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Committee	SAWG
Date	July 31, 2019
Assigned Issue	Energy Storage Reporting in Resource Adequacy Reports
Discussion	SAWG had an initial discussion of the issues associated with reporting battery storage resources in the capacity reports (Capacity, Demand and Reserves report, and the Seasonal Assessment of Resource Adequacy). Currently the capacity of batteries is not included in the assessment of available resources during peak demand periods. Issues to be discussed: • Appropriate method for calculating the Peak Average Capacity Contributions for Existing and Planned energy storage projects for the CDR and SARA • Peak capacity contributions for GINR Battery Energy Storage projects • Energy-storage-specific RARF Glossary Definitions for Seasonal Net Maximum Sustainable Ratings The presentation is available here.
Resolution	Further discussion needed

Committee	WMS
Date	August 7, 2019
Summary	Discussion of Battery Storage Integration issues assigned by TAC to WMS
Discussion	Early in the WMS meeting, there was a discussion of a stakeholder proposal to allow resources to update their energy-offer curves (EOC) closer to real-time operations (currently resources cannot update their EOCs after the hour prior to the current operating hour). WMS referred this issue to WMWG. Stakeholders raised the issue of visibility into resource-owners plans for battery operations: specifically, does ERCOT have visibility into batteries that have been developed specifically to back-up renewable facilities for bilateral contracts. Stakeholders also stated concerns regarding transparency of discussions at all of the various stakeholder committees; advocated for developing a plan to allow dc-coupled resources to start the interconnection process; and, asked for clarification regarding the requirements for providing various ancillary services. ERCOT provided an update of stakeholder committee battery storage discussions. WMWG had a detailed discussion of state-of-charge management by QSEs. Much of that discussion focused on allowing resource owners to update their EOCs closer to real-time (and make it possible for Resource Owners to control their state-of-charge by submitting EOCs that reflect the need to limit operation of their device - see note above). ERCOT planned to return to WMWG this month (8/19) and provide information regarding system performance impacts from this change. ERCOT also informed WMS that PDCWG had agreed that batteries should, in general, be held to the same reliability requirements when charging as when discharging. Also, since ROS had dealt with that issue, WMS was told that ERCOT would be starting a discussion at ROS regarding whether batteries should be included in RUC decisions. Several stakeholders noted that since batteries were nearly instantaneously available, RUC instructions were not necessary. But others noted if ERCOT needed batteries to have a certain state of charge at a certain

	time, then perhaps a reservation for these devices would be required. Stakeholders also noted the potential for a battery to be needed for transmission reliability, and the potential impact of price mitigation due to non-competitive transmission constraints. Stakeholders asked if ERCOT could be prepared to continue the RUC discussion at WMWG.
Resolution	ERCOT agreed to attend the August WMWG meeting to discuss the performance impact of updating EOC curves, and the need for, and market impacts of, including batteries in RUC decisions.

Committee	ROS
Date	August 8, 2019
Summary	Discussion of Battery Storage Integration issues assigned by TAC to ROS
Discussion	In the update provided by PDCWG, it was noted that PDCWG agreed that battery devices should, in general, be held to the same operating requirements when charging as when discharging. Later in the meeting, ERCOT gave a brief summary of the question as to how energy storage devices should be treated in the RUC process. Although energy storage devices are nearly instantaneously available (and thus would appear to have no need to be requested as part of a RUC instruction), it is possible that, in order for an ES device to have a desired state of charge at a time in the future, it could be necessary for the grid operator to issue a reservation in advance of the need. On the flip side, even if battery state of charge was not a consideration in RUC decisions (i.e., RUC instructions would not be issued to ensure a certain charge level), it would be necessary to consider if battery capacity should be assumed to be available at a future time in the RUC decision engine. This issue was assigned to OWG. The ROS chairman also asked that ERCOT provide a means of documenting discussions at the stakeholder committees, especially issues that are resolved. ERCOT agreed that would be helpful.
Resolution	The issue raised by ERCOT was assigned to OWG.

Committee	PRS
Date	August 15, 2019
Assigned Issue	Review NPRRs associated with Energy Storage devices
Discussion	PRS reviewed NPRR957, "RTF-4 Create Definition and Terms for Energy Storage" submitted by the Resource Definition Task Force (RTF). ERCOT had submitted comments requesting that this NPRR be tabled for one month. The Chair of RTF agreed to this proposal, and PRS voted to table for one month. PRS also reviewed NPRR963, "Creation of Generation and Controllable Load Resource Group (GCLR Group)" submitted by Tenaska Power Services Co. This NPRR was tabled and referred to WMS and ROS for further review. As noted in the PRS report: participants discussed the need for additional considerations and language regarding Settlements, metering, telemetry, naming conventions, performance measurement, and reliability operations.
Resolution	NPRR957 will be on the agenda for the September PRS meeting.

Committee	RTF
Date	August 15, 2019
Assigned Issue	Develop appropriate terminology for protocol definitions of battery energy storage devices
Discussion	RTF is tasked with reviewing and clarifying existing Resource definitions, and proposing definitions for emerging and future resource types. During the August 15 meeting, RTF discussed the definitions for energy storage systems in NPRR957, which was tabled by PRS earlier in the day. Several changes were proposed to the language. The chair of RTF agreed to encapsulate these changes into a new set of comments for review at the September PRS meeting.
Resolution	NPRR957 will likely be discussed at the upcoming PRS meeting on September 12, 2019.

Committee	DSWG
Date	August 23, 2019
Summary	During the DSWG meeting, DSWG leadership provided an update of energy storage issues being discussed at other stakeholder committees.
Discussion	During the update, a concern was raised that protocol changes to support energy storage could have an impact on price-responsive demand. Specifically, allowing Resources to update their energy offer curves closer to real-time should be considered in light of potential impact to system lambdas and price-responsive demand. DSWG leadership agreed to discuss this issue during the DSWG update at September WMS.
Resolution	The working group discussion generated specific issues that may need to be added to the overall energy storage issue list.

Committee	WMWG
Date	August 19, 2019
Assigned Issues	How should the QSE for a battery device participating in SCED communicate its preference regarding when their limited duration device is available for dispatch (to discharge energy to the grid)? • Allowing Resources to update their energy offer curves closer to real-time.
Discussion	Stakeholders continued to discuss the option of allowing Resources to update their energy offer curves closer to real-time. ERCOT presented some performance data indicating updating energy offer curves was not expected to significantly affect SCED performance. Stakeholders requested additional information regarding SCED performance outliers. ERCOT noted that it may be less expensive to implement a solution that kept energy offer curves constant across a 15-minute settlement period. This issue will require further discussion. There was general consensus that expanding the requirements included in NPRR915 to cover larger storage Resources (currently only applies to limited duration devices <10 MW) could be a solution, at least for the near future (see NPRR967). Stakeholders were concerned that updating energy offer curves could have limited effectiveness because of the two-step SCED mitigation process. Additional information regarding how battery storage devices would potentially be mitigated under current rules was requested. Stakeholders expressed concerns with ERCOT issuing a RUC instruction on battery storage devices, because: 1) the devices are nearly instantaneously available, negating the need for sending the an instruction to commence startup; and, 2) ERCOT protocols do not include a process for calculating the opportunity costs associated with altering the proposed output schedule of a limited-duration device. Stakeholders also indicated that it may be helpful to review the expectations for Current Operating Plans submitted by battery storage resource

	owners. In the next WMWG meeting, ERCOT will provide additional information regarding how the Controllable-Load Resource component of a battery energy storage device would participate in SCED under the current protocols. ERCOT will also provide more details regarding the current rules for mitigated offer curves for storage.
Resolution	ERCOT agreed to provide information regarding the two-step mitigation process; mitigated offer curves for battery storage devices; and how Controllable Load Resources are implemented in SCED at the next WMWG meeting (September 16).

Committee	OWG
Date	August 22, 2019
Assigned Issue	How to Include Limited Duration Devices in the RUC Process
Discussion	ERCOT provided an overview of the issues associated with including limited duration resources in the RUC process. Battery energy storage devices are instantaneously available, so a RUC instruction would not be required to make sure that one was committed and available to provide energy. On the other hand, since they have limited duration, they may not have adequate state of charge to provide energy when needed for reliability. ERCOT stated that including limited duration devices in the RUC process may be an issue that calls for a near-term solution that can be modified as we get more battery devices on the system. An additional consideration is what assumptions the RUC engine should use regarding availability of battery energy storage devices later in the current operating day.
Resolution	ERCOT agreed to bring a proposal for addressing limited duration resources in the RUC process to the next OWG meeting (September 19) for review.

Upcoming activities for September 2019:

ERCOT is planning to provide updates on the issues being discussed at WMWG and OWG at the September meetings of WMS (September 4) and ROS (September 5). ERCOT is also planning to provide a brief discussion of the two-part offer mitigation process at WMS; this information was requested by WMWG and will be discussed at their September 16 meeting as well. ERCOT will also provide a description of the current set of ancillary services and A/S changes associated with NPRR863, as well as A/S performance requirements for Resources at the September ROS meeting. The discussion of how to address limited state of charge in the RUC process will also be discussed further at WMWG. ERCOT will provide a draft proposal of how to handle limited duration resources in RUC at the September 19 OWG meeting.

NPRR957 (proposed by RTF) will be on the agenda for the next PRS meeting (September 12). Also, the Advanced Power Alliance submitted NPRR967: Allow Limited Duration Resource Energy Offer Curve Updates Near Real-Time and Remove the 10 MW Limit. This NPRR should be scheduled for initial consideration at the September PRS meeting.