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RTC+B: Keys for BESS Success in ERCOT

The Real-Time Co-Optimization plus Batteries (RTC+B) market redesign is more than just a tweak to ERCOT's real-time (RT) market. RTC+B serves as a transformational shift in how energy and ancillary services will be valued and dispatched, especially for battery energy storage systems (BESS). For BESS owners and operators, the change represents an opportunity to unlock new and more flexible revenue streams. However, RTC+B also poses risks of under-optimizing if battery owners and operators rely on legacy or static bid approaches.

In a recent webinar previewing the changes and impacts that come with RTC+B, Mike Huisenga, Managing Director at Ascend Analytics, joined Dr. Tapas Peshin, Bidding & Trading Analytics Manager, and Martin Chown, Senior Energy Analyst, to break down rule changes, unpack operational implications, and discuss ways that the Ascend SmartBidder™ energy bid optimization platform's new RTC+B-compliant bidding strategies can uncover value for BESS owners and operators.

Key Takeaways

- Under RTC+B, batteries will move from the current 'combo model,' in which they are treated as separate charging and discharging assets, to a 'single model' intended to ensure better modeling and a more accurate representation of batteries as a single energy storage resource (ESR).
- Rather than relying on day-ahead reserve awards, ERCOT's Security-Constrained Economic Dispatch (SCED) will find the most effective set of resources for providing energy and ancillary services in real time. Bidding strategies will thus need to adjust dynamically with each SCED run in order to avoid risk exposure related to static bid submissions.
- State-of-charge (SOC) constraints will now directly impact both energy and ancillary services, ensuring feasible awards based on ERCOT modeling formulations.
- Ancillary services resource qualification requirements become stricter under RTC+B. ERCOT's new approach removes automatic qualifications for online Non-spin and ECRS, and resources must pass specific qualification tests to provide each service.
- Ascend's SmartBidder energy bid and offer optimization software analytics platform can be a powerful tool in helping battery owners and operators maximize risk-adjusted revenue under RTC+B. SmartBidder contains the new market rules, and has been updated to include real-time ancillary forecasts, realized prices, and RTC+B-compliant bidding strategies.

What is RTC+B + SOC?

Real-Time Co-Optimization plus Batteries (RTC+B) is an ERCOT market design change that represents a major shift in that way that energy and ancillary services are valued and dispatched, especially for battery energy storage systems. From December 5, 2025 onward, RTC+B will be in effect and will apply to all ESRs.

Key Changes under RTC+B include:

- **Transition to a 'single model':** Batteries will no longer be able to 'double-dip' as both a load (charging) and generation (discharging) asset. This 'combo model' will be replaced by a more accurate 'single model,' in which batteries are counted as a single ESR.
- **Tighter SOC constraints:** ERCOT will now be accounting for SOC (MWh) in its Reliability Unit Commitment (RUC) and SCED mechanisms, in a manner that is far more strict than it has historically been. SOC constraints will now directly impact both energy and ancillaries, ensuring feasible awards based on modeling formulations.
- **Revised pricing mechanism:** Ancillary Service Demand Curves (ASDCs) replace the Operating Reserve Demand Curve (ORDC). Under RTC+B, price adders get accounted for in locational marginal prices (LMPs) since energy and ancillary service offers are co-optimized. RT ancillary service awards as well as ancillary service prices will come out of SCED runs.
- **Stricter resource ancillary services qualification requirements:** RTC+B removes automatic qualifications for online Non-spin and ECRS, and resources must pass specific qualification tests to provide each service. RTC+B also adds pre-processing checks in SCED to validate that telemetry supporting ancillary service capabilities as submitted by qualified scheduling entities (QSEs) is accurate. This ensures feasible awards with each SCED run.

Why did ERCOT Create RTC+B?

ERCOT created RTC+B to modernize real-time operations as storage and renewable penetration increased, which correspondingly increased system volatility. The market redesign is primarily intended to do the following:

- **Improve efficiency:** Co-optimizing energy and ancillary services in real time allows ERCOT resources to dispatch far more efficiently. It reduces inefficiencies related to static bid strategies, reduces manual interventions, and increases the probability of finding the most effective set of resources in the RT market.
- **Reduce energy costs:** In the current system, the placement of ancillary services on resources across ERCOT is assumed based on day-ahead (DA) market awards. Under RTC+B, system costs are significantly reduced by awarding ancillary services in RT. As illustrated in the example in Figure 1, this change moves the price from \$150/MWh in the current system to \$60/MWh under RTC+B.
- **Maintain system reliability:** Because RTC+B enables real-time co-optimization, the new design allows a more flexible approach to procuring reserve ancillary services when needed (such as during scarcity events), thus improving real-time reliability.
- **More accurately model, monitor, and measure:** RTC+B ensures more accurate modeling, a truer representation of what a BESS actually is, a single set of telemetry, and a more accurate 'bid/offer curve' submittal. Additionally, it allows ERCOT to have a clearer view with regard to performance monitoring and settlements.

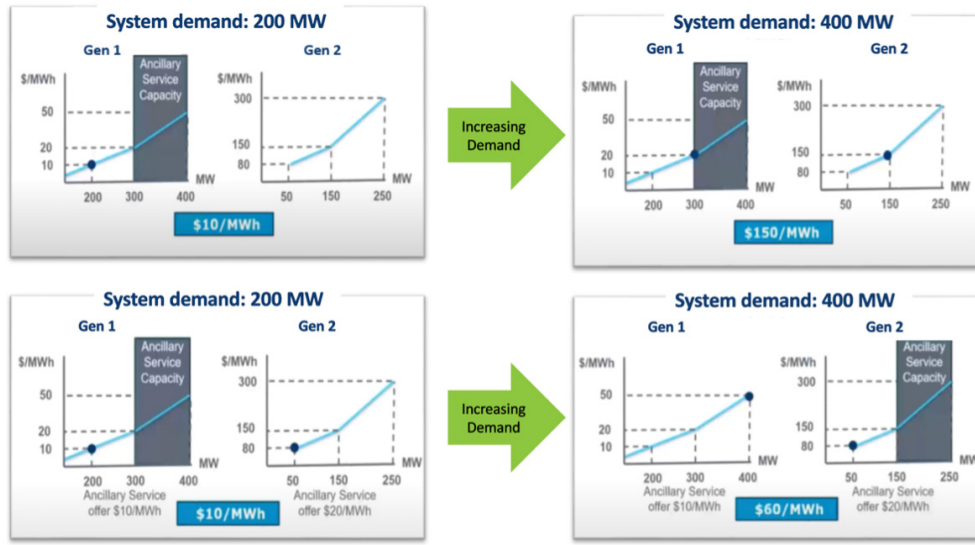


Figure 1. Under RTC+B, resources will not be locked in day-ahead ancillary services positions but can swing between energy and ancillary services every five minutes.

What are the Implications of RTC+B for Battery Owners and Operators?

RTC+B ushers in a fundamentally new operating environment for battery owners and operators in ERCOT. By reshaping how energy and ancillary services are co-optimized every five minutes – and by enforcing SOC dispatch in a real-time manner – the market redesign creates both richer value opportunities and more complex strategic, operational, and risk management requirements for BESS assets.

Key considerations for battery owners and operators include:

- Bidding strategies will need to adjust dynamically with each SCED run in order to avoid risks related to under-optimizing (especially with static bid strategies) and to unlock new and more flexible revenue streams.
- ESRs are required to carry the full SOC at top of the hour for each ancillary product
- To fully optimize BESS assets, owners and operators must understand (and account for) the new market rules, including the way that ERCOT models SOC in RUC.
- Together with market fundamentals, the change to RTC+B will shift the relative value of ancillary service products.
- To navigate the RTC+B environment and to truly capitalize on it, BESS owners and operators will need evolved bidding strategies and RTC+B-ready forecasting and optimization tools. Solutions such as Ascend's SmartBidder can help. SmartBidder contains the new market rules, and has been updated to include real-time ancillary forecasts, realized prices, and optimized RTC+B-compliant bidding strategies.

Interested in Learning More?

Watch the full webinar now for detailed information on how RTC+B will impact pricing dynamics, bid strategies, and risk-adjusted returns for battery owners and operators.

SmartBidder™ uniquely provides a unified platform for custom bid and offer optimization combined with scheduling services to manage asset performance and operations for storage, renewable, and hybrid assets. SmartBidder maximizes revenue and reduces risk, offering asset owners and operators a 100% increase relative to traditional arbitrage strategies, and a 10-25% improvement over similar competing platforms. The solution enables users to develop their own customized bid strategies based on nodal specific forecasts, asset specific constraints, and risk-based optimization for day-ahead and real-time bids. Contact us to learn more.

About Ascend Analytics

Ascend Analytics is the leading provider of market intelligence and analytics solutions for the power industry.

The company's offerings enable decision makers in power development and supply procurement to maximize the value of planning, operating, and managing risk for renewable, storage, and other assets. From real-time to 30-year horizons, their forecasts and insights are at the foundation of over \$50 billion in project financing assessments.

Ascend provides energy market stakeholders with the clarity and confidence to successfully navigate the rapidly shifting energy landscape. Visit us at ascendanalytics.com