
DER / Energy Storage Compensation

What has changed?

Distributed Energy Resources (DER), including energy storage, are proliferating on cooperative systems thanks to cost declines, performance improvements, consumer-member expectations, and the digitization of metering. Battery energy storage systems (BESS) have seen steep cost declines in recent years, and total capacity is expected to grow 11 times over between 2016 and 2022 — to about 2.5 GW.¹

The Federal Energy Regulatory Commission (FERC) defines electric storage as any “resource capable of receiving electric energy from the grid and storing it for later injection of electric energy back to the grid.”² Wholesale market rules for energy storage already take into account the unique physical and operational characteristics of energy storage resources, including the bidirectional capability to both inject energy onto the grid and receive energy from it. In addition, FERC considers behind-the-meter resources that do not inject electric energy onto the grid as demand response. However, many in the industry are uncertain how to classify and how to appropriately compensate BESS.

Depending on the type of BESS, how and where it is installed, and how it is operated, BESS can be utilized by generation and transmission cooperatives (G&Ts), distribution cooperatives, and consumer-members for a variety of objectives, including reliability, resiliency, maximizing renewable generation, transmission and distribution (T&D) deferral, and demand response, among others. BESS can also be a substitute for or a complement to a variety of different energy resources at the generation, transmission, substation, or behind-the-meter level. When compensating BESS, it is essential to start by understanding the value streams created from its applications rather than attempting to arbitrarily categorize the service.

What is the impact on cooperatives?

Electric distribution cooperatives are load-serving entities that have an obligation to provide reliable power at the lowest reasonable cost over the long-term. To accomplish this, co-ops engage in both risk and portfolio management on behalf of their consumer-members or through their G&T. Each cooperative, directly or through a G&T or other power supplier, assembles a portfolio of owned and contractual energy and capacity resources.

While co-ops utilize a range of resources to serve members, consumers are generally more interested in the value that the resources bring – things like hot showers, cold beer, on-demand smart phone charging, and even electric vehicle (EV) charging. Consumers are generally not interested in the technology behind wi-fi

¹ GTM Research. “U.S. Energy Storage Monitor: Q3 2017 Executive Summary.” September 2017.
<https://www.greentechmedia.com/research/report/us-energy-storage-monitor-q3-2017#gs.duM4iWU>

² “Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators.” Federal Energy Regulatory Commission. March 2018 <https://www.federalregister.gov/documents/2018/03/06/2018-03708/electric-storage-participation-in-markets-operated-by-regional-transmission-organizations-and>

enabled devices. They care more about the value those devices can bring and how they improve their lives and businesses. Similarly, energy storage is a technology that can fulfill various objectives and provide multiple value streams to G&Ts, distribution co-ops, and consumer-members. Compensation should be based on the value it adds to the system.

The value provided by BESS should be determined in a holistic manner to reflect multiple factors. A co-op should first determine what its needs are independent of BESS and then analyze the potential set of solutions that can address those needs. These analyses should include all quantifiable costs and benefits for each solution along with other factors unique to the co-op. If BESS is then determined to be the most attractive solution, the analysis will then indicate the value of BESS to address the need. This approach leads to the decision on how to treat BESS and how to compensate it for the specific purpose. (For more information, see NRECA's related resources: [DER Compensation and Cost Recovery Guide](#) and [Rate Options to Support EV Programs](#)).

What do cooperatives need to know or do about it?

Co-ops will be able to identify the best compensation model by considering specific goals and local circumstances. As NRECA lays out in the [DER Compensation and Cost Recovery Guide](#), it is beneficial for co-ops to look at compensation and cost recovery methods within the broader framework of cooperative policies and existing contractual obligations, such as wholesale power supply agreements. So, instead of compensating a device based on location, co-ops may want to consider focusing on the value that the technology or combinations of technologies brings to the system. Value can be determined based on specific co-op goals in combination with analytics. This is a technology-agnostic approach that puts objectives and value at the forefront. Each DER or combination of DER should be individually analyzed based on local conditions and its proximity to load.

Co-op DER-related goals and objectives need to be closely aligned with overall corporate strategic objectives. For example, a G&T may have strategic objectives that are closely linked with DER. Factors to consider include the impact of aggregated DER on the T&D system and power markets, as well as safety and reliability and power quality. Compensation methods should be evaluated based on how the method may improve or exacerbate cost shifting, and how other costs and factors contribute to the overall value.

Cooperatives are in a unique position when it comes to pricing and rate innovation. Most operate smaller scale grids, are self-regulated, and can be more nimble and flexible than larger utilities. Distribution cooperatives that purchase supply from G&T cooperatives also have greater opportunities to align pricing with wholesale costs and derive more value across the energy value chain.

BESS growth will likely impact co-op rate structures, capital investment plans, integrated resource planning, and grid operations. There is also a potential impact on G&T and distribution co-op business models. The electric utility industry is moving from technology-specific actions toward energy services and value-oriented analysis. This may necessitate the movement from traditional rate structures toward the consideration of new pricing mechanisms based on value and benefits. However, each co-op will need to decide for itself which compensation mechanism to implement based on local system requirements and consumer-member preferences.

Additional Resources

- [DER Compensation and Cost Recovery Guide](#)
- [Battery Energy Storage Overview](#)
- [Rate Options to Serve EV Programs](#)

Contact for Questions

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