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Co-location of Storage and Renewable Generation

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Co-location of Storage and Renewable Generation

For many when they first hear about energy storage, they immediately think about pairing it with renewable energy. In reality, energy storage has many applications and use cases where it can provide significant benefits to the electric grid and consumers that do not involve renewable energy at all. Still, co-locating energy storage with renewable generation resources seems like a natural partnership to reduce the intermittency of renewable generators, and several projects have been built across the country combining storage with wind or solar projects. Some developers and owners, particularly those more familiar with the renewable energy industry and new to storage, may feel that it is easier to co-locate a storage project. There are, however, a number of legal and practical issues that need to be considered when deciding to acquire and co-locate storage facilities with existing or new renewable generation. This article highlights considerations that accompany the decision to build storage projects (particularly battery projects) at a wind or solar site.

Storage and renewables can be co-located at a utility-scale, commercial and industrial, or residential level. Typically, we refer to co-location as when storage and generation resources share a meter, (*i.e.*, are located behind the same meter) or when they are both located behind one point of interconnection with the transmission grid. Because most co-located projects involve batteries, this article will primarily focus on issues related to co-locating batteries with wind and solar projects.

Reasons to co-locate

Not all storage projects are co-located with renewable energy. In fact, most storage experts will tell you storage works best when it is installed as a stand-alone project so that it can be located in places on the grid where it is most useful. In some jurisdictions, though, a level of storage support is mandated for new renewable generation projects. In December 2013, the Puerto Rico Electric Power Authority and the island's primary utility, the Autoridad de Energia Eléctrica, issued minimum technical requirements for new grid-connected solar and wind resources to add 30% of the resource's capacity in storage for frequency control and 45% of its maximum generation capacity in reserve for at least one minute for ramping control.[1] Similarly, the Hawaii

[1] *See* Jeff St. John, *Puerto Rico Mandates Energy Storage in Green Power Mix*, GREENTECH MEDIA, Dec. 27, 2013, https://www.greentechmedia.com/articles/read/puerto-rico-mandates-energy-

Electric Company requires new wind turbines to maintain ramp rates below 1 to 2 megawatts per minute, which, as a practical matter, mandates the use of co-located storage.[2] Hawaii has also adopted rules requiring solar to include storage, and the recent announcement from AES of its solar-storage "peaker" in Kauai shows how these projects are being completed in an economic manner.[3]

Because co-location reduces intermittency, perhaps the most obvious reason for co-location is to ensure reliability for the load that relies on renewable generation. This is why island-based utilities like those in Hawaii and Puerto Rico (which have less resources overall and are limited to a small power grid) are leading the industry in co-located storage and renewable projects. Storage plus solar projects can also be used to allow projects to participate in capacity markets and to offer a firm (as opposed to intermittent) product.

Even if co-location is not required, it can make economic sense. Co-location can allow storage projects to claim the 30% investment tax credit ("ITC").[4] For commercial and industrial entities that own distributed renewable generation, co-location can lower demand charges. Co-location may be particularly attractive for wind or solar developers who already have land and facilities in place for renewable generation and choose to add on a battery project, as site acquisition and other development costs (such as environmental studies, survey and title insurance) have already been covered by the renewable project. It may also seem easier to a renewable developer looking to break into the storage industry to add storage onto a project they are already familiar with; however, as described below, co-located projects add many complications which developers should be aware of.

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storage-in-green-power-mix; *see also* Sonal Patel, *Puerto Rico Issues Energy Storage Mandate*, POWER, Jan. 2, 2014, http://www.powermag.com/puerto-rico-issues-energy-storage-mandate/.

[2] *See* Chet Lyons, *A Trio of US Markets Ready for Grid-Scale Energy Storage Success*, GREENTECH MEDIA, Nov. 19, 2013, https://www.greentechmedia.com/articles/read/A-Trio-of-US-Markets-Ready-for-Grid-Scale-Energy-Storage-Success.

[3] *See* Julian Spector, *AES's New Kauai Solar-Storage 'Peaker' Shows How Fast Battery Costs Are Falling*, GREENTECH MEDIA, Jan. 16, 2017, *https*://www.greentechmedia.com/articles/read/aes-puts-energy-heavy-battery-behind-new-kauai-solar-peaker

[4] I.R.S. Priv. Ltr. Rul. 20130805 at 5 (Feb. 22, 2013), https://www.irs.gov/pub/irs-wd/1308005.pdf.