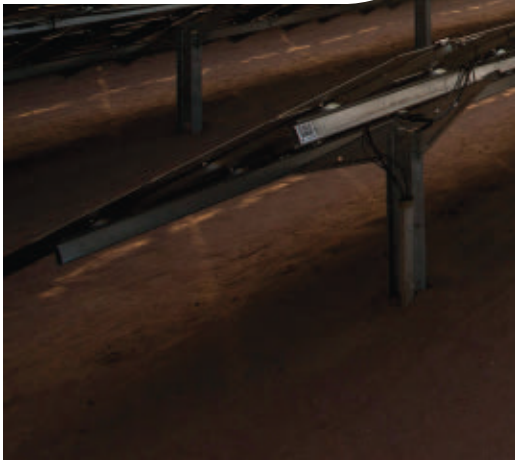
Cracking the PPA: Renewable Energy Projects and Energy Storage

Overcoming challenges associated with adding energy storage to existing solar and wind farms.



BECKY DIFFEN AND NELLI DOROSHKIN, *McGuireWoods*

Colocating energy storage with renewable generation resources seems like a natural partnership to reduce the intermittency of renewable generators. Several projects have been built across the country combining storage with wind or solar projects. While the co-location of such facilities can yield many benefits, there are a number of legal and practical issues that need to be considered when deciding to acquire and co-locate storage facilities (particularly battery projects) with existing or new renewable generation.

The primary issue with co-locating a storage project, particularly with an already operating wind or solar project, is considering how the storage "add-on" will affect the renewable development. From an implementation standpoint, constructing or setting up a storage facility next to existing renewable generation can disrupt the existing resource's performance. The operating project will likely need to be taken out of service for at least some of the construction phase of the storage project, which will impact revenues and contractual performance obligations.

Further any existing power purchase agreement (PPA) or offtake agreement will need to be modified to account for performance changes due to the co-located storage. Sometimes these agreements are amended to include the storage project, so the off-taker now receives both generation from the wind or solar project and the services provided by the battery, but other projects keep the storage project as a separate resource, which can significantly complicate matters. For example, if the battery charges from a solar project such that the off-taker no longer receives that power, how does that affect the PPA obligations? And in either case, what happens when the battery takes power off the grid? Who is responsible for that

Solar PV plant.
Credit: First Solar.

cost? Thinking through and documenting all the different generating and charging scenarios is a complicated task that requires technical, business, and legal teams to all work together.

Interconnection, Taxes and Insurance

In addition to cracking open the PPA, interconnection upgrades may be necessary when installing co-located storage, as well as significant meter upgrades to measure the power going in and out of the various components of the project. If storage and solar are to be installed together, then the interconnection studies can be done at one time and one comprehensive interconnection agreement can be entered into. However, if storage is to be added to an existing project, new studies may be required and the interconnection agreement may need to be amended, or an entirely new interconnection agreement may be required. The state of the transmission grid may also have changed from the time when the initial studies were performed, and a change to the project could trigger network upgrades that previously were not required.

Developers must ensure their existing property rights allow for the new co-located storage facility. If a solar or wind lease was entered into, does it also grant the rights to install a battery system? Does the tax abatement agreement

POWER-GEN EUROPE

RENEWABLE ENERGY WORLD CONFERENCE & EXPO EUROPE

25 ANNIVERSARY YEARS

CONFERENCE & EXHIBITION
27-29 JUNE 2017
KOELNMESSE, COLOGNE, GERMANY

ENERGY STORAGE
UNLOCKING A LOW CARBON STABLE ENERGY SYSTEM

The last few years has seen efficient, cost-effective energy storage systems increasingly deployed in grid support and power production. To better understand today's energy storage potential, POWER-GEN & Renewable Energy World Europe, in conjunction with the European Association for Energy Storage (EASE) is devoting a day of its conference to Energy Storage issues.

Focusing on energy storage in the power industry, the conference covers:

- Current opportunities and challenges for storage
- The most promising technologies
- Case studies of successful implementations

Register now at www.powergeneurope.com/register, and save on conference delegate rates at the power industry's most prestigious conference and exhibition.

For exhibiting and brand awareness enquiries, please contact:

Leon Stone | T: +44 (0) 1992 656 671 | E: leons@pennwell.com

ufi Approved Event

US Commercial Service

MAKING SENSE OF POWER

WWW.POWERGENEUROPE.COM

#POWEREUROPE

In association with: EASE

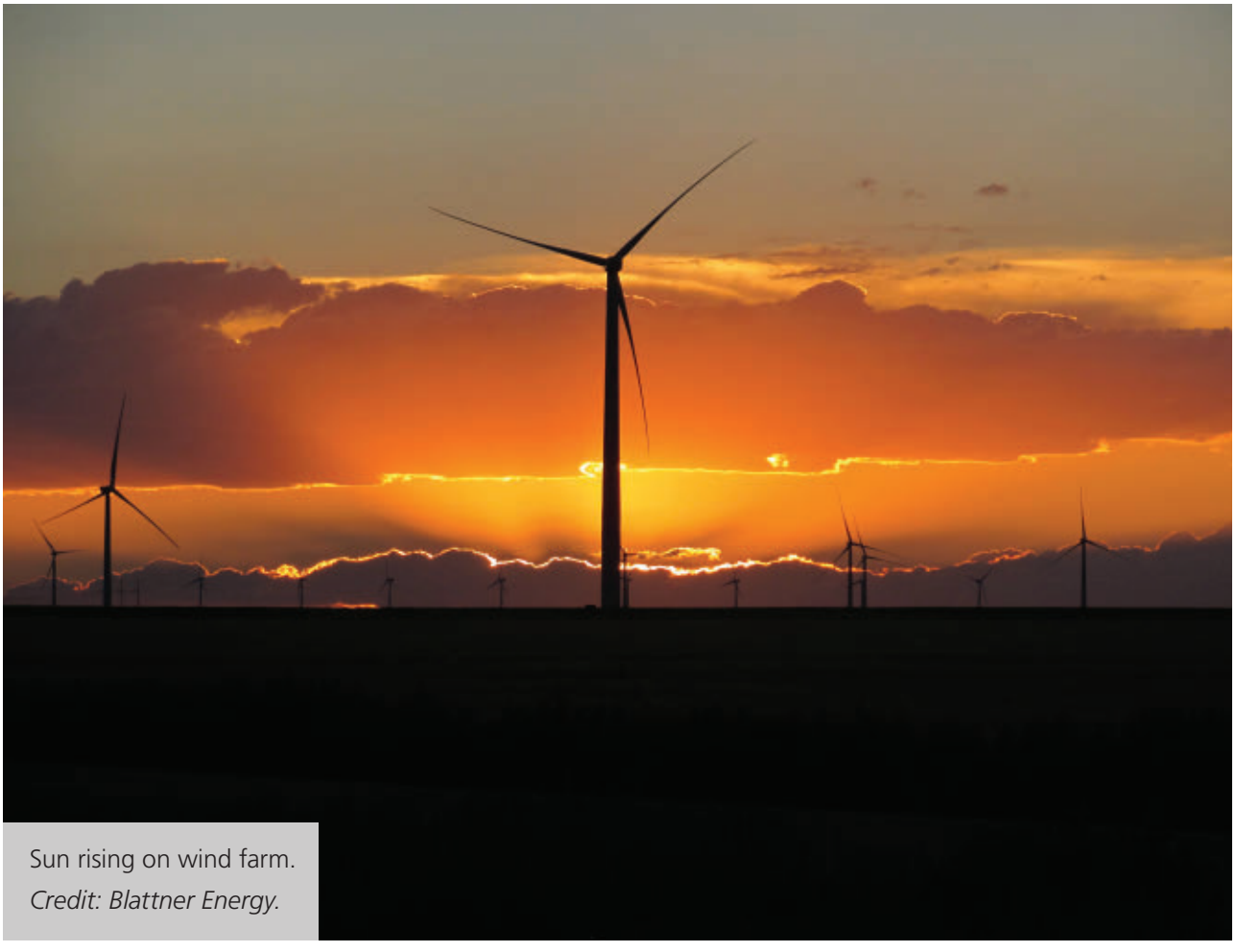
Owned and Produced by: PennWell

Presented by: PEi Power Engineering International | Renewable Energy World.com | decentralized energy | Hydro Review

allow storage to be added, and how does that affect the property taxes or payment in lieu of taxes that was previously agreed to? New permits or amendments to existing permits may also be required. A developer should not just assume that it will be a simple amendment to add on storage. Particularly for solar projects, which may be located closer to residential areas, a stand-alone solar project may be acceptable but the aesthetic impact of a trailer of batteries may be considered too much by the local authorities. In addition to any local siting and/or environmental permits, some states may require additional regulatory permits and registrations.

A storage developer should also examine options for expanding existing insurance policies to cover the new storage facility. This may require a modification to the facility's cybersecurity insurance policy — as well as a general review of any new technology risks associated with the storage facility. The risk portfolio of a building or trailer full of batteries (many of which are made with potentially explosive materials) is quite different from a solar project.

Despite the potential investment tax credit eligibility of a co-located storage project, the restrictions around the credit subject the project to recapture risk, which may limit the project's financial attractiveness. Stand-alone storage projects already face significant financing challenges due to factors such as technology risk, regulatory uncertainty, and project size. As discussed above, co-locating a project adds to the potential risk. Combined with rapid advances in storage technology that place downward



Sun rising on wind farm.
Credit: Blattner Energy.

pressure on prices, this can result in low market willingness to invest in a co-located project. Often, a fully wrapped engineering, procurement, and construction contract, with a strong warranty (including credit support) behind it, is needed to receive financing for co-located storage projects. Developers should be sure to address all of the foregoing issues, as each will be reviewed critically by potential investors and other project participants.

This is not to say that wind, solar, and storage projects should not be co-located. In the right location and with the right offtake and use cases, these types of projects can be economic and beneficial to the power grid. The key is for developers to not assume a battery system should be installed at a wind or solar site — instead, careful analysis of the technical and economic aspects of the project should be performed to ensure the best location is a co-located site, and this analysis should include consideration of the timing, legal, and economic impact of the issues set forth in this article.

Finally, when new solar and wind power plants are being proposed and negotiated, it would be wise for developers to consider including a provision about adding energy storage to the project within the PPA and the interconnection agreement so that down the road, should these opportunities arise, the complications will not outweigh the benefits. ◑

Becky Diffen and Nelli Doroshkin are attorneys with McGuireWoods' Energy Industry Team.