# Battery storage: Factors that may determine project viability

*By Henry King, Brendan McNallen, Stephane Nguyen, Anna Karapetyan and Kevin Levy*

## *Takeaways*

- Battery storage enhances integration of intermittent renewable energy
- Project leaders should track lithium prices, effects of trade wars, COVID disruptions
- Contract and zoning rules could force storage projects to partner with power generators

One of the main challenges with wind and solar projects has been that energy production is intermittent. The fuel is free, but only available when the wind blows or the sun shines. In addition, wind and solar projects often produce electricity during periods when the market demand is not at its peak. Perhaps the most dramatic example of this issue occurs in the Texas market where wind projects generate during low-peak nighttime hours and are able to sell their output at negative prices because they continue to generate production tax credits.

Energy storage technology is poised to make a significant change in the economics of the electricity market, especially in markets where numerous wind and solar projects exist. As noted in National Renewable Energy Laboratory reports, the cost of battery technology continues to decrease and deployment is projected to grow by more than 500 percent by 2050 with over 125 GW of installed capacity.

The legal and contractual issues associated with development, construction, and operation of a battery storage project are similar to those of other power projects, but owners/developers should keep in mind some key issues, particularly around equipment supply contracts, real estate, and shared facilities.

Battery project developers should take into account the constantly evolving economic and political environments that impact procurement of energy storage equipment. For example, while the cost of battery technology may be decreasing in the long run, the rapid increase in demand for lithium, a key material in both utility-scale batteries and electric vehicle batteries, resulted in significant cost increases for battery storage equipment in 2021. Developers should consider how the risk of price increases or decreases should be allocated, particularly where there is a long period of time between execution of a contract and delivery of equipment under the contract. In addition, while the Biden administration revoked an executive order put in place by the Trump administration that would have prohibited the acquisition of certain equipment from foreign adversaries of the United States, it has maintained import tariffs established against China and could increase the tariffs as part of the ongoing trade war with China. At the same time, additional legislation may be developed as advocacy groups push governments to address human rights abuses associated with the extraction of minerals used in batteries. Since many battery manufacturers have operations located in Asia or other countries outside of the United States, developers should anticipate political uncertainty that could impact the cost of the equipment being supplied or the ability to source equipment or materials from certain countries.

Supply chain problems due to COVID-19 have impacted the ability of suppliers to timely deliver goods, including battery storage equipment. Although it has been nearly two years since COVID-19 broke out, new variants and surges in infection rates still threaten to disrupt global supply chains and logistics. Developers should ensure that each supply contract establishes a project schedule that takes into account the likelihood of such delays, allocates risk appropriately between disruptions that can be foreseen at contract execution and those that cannot, and provides for remedies that adequately compensate the developers for the impact of delays.

Another key issue with contracts is establishing clear criteria for supplier performance, particularly with respect to establishing commercial operation of the project and the ongoing performance of the energy storage system. Based on the technology of the battery system purchased and the requirements for a given project, developers should determine whether testing of one battery, a series of batteries, or the entire system of batteries is required to establish commercial operation of the project. Establishing clear criteria for such testing and requiring that payment be made to the supplier only after achievement of these criteria are also important, especially where a third party may be responsible for constructing a portion of the project.

Developers should also establish clear methods for assessing defective performance, and assessing remedies, over the course of the project lifecycle. This can be particularly nuanced given that battery performance naturally deteriorates over time and that the use of the battery is a factor driving the pace of deterioration. Developers should carefully craft remedies for defective products, including repairs that may be required during the operation of the battery system, maintenance of operating spares, self-help remedies, and cash payments. Such performance criteria and remedies are especially important where the battery system is incorporated into a larger renewable generation project, since the performance may impact more than just the individual battery system.

Large-scale battery storage projects are often sited adjacent to renewable generation projects. Developers may choose to structure these storage projects with separate project companies that will share real estate and infrastructure. The traditional contractual arrangement for shared facilities is a co-tenancy, where each project company has an “undivided interest” in the asset. These co-tenancy arrangements are not flexible in adding or changing the identity of the co-tenants, since that often requires the landowner or permitting agency to grant a separate right to a new project company.

Especially for large-scale, multi-phase projects, a more efficient structure is to use a limited liability company to own the shared asset, such as a generation tie-line or substation, and then have the project companies take partial ownership interest in the entity, which entitles the project company to use the asset. The limited liability company operating agreement will address issues such as funding of the improvements, curtailment, and a project’s potential interference with another project.

When determining the siting of battery storage projects, developers should consider issues relating to permitting and zoning. Due to their more compact nature, battery storage project sites often have a smaller real estate footprint than wind and solar energy generation projects. However, laws and ordinances often address permits and zoning of wind and solar projects, but have obvious gaps when it comes to battery storage projects. For example, the California Subdivision Map Act generally restricts the sale, lease, and financing of a portion of a parcel, unless the same has been legally subdivided, with limited exemptions. Renewable energy projects are often sited on portions of legal parcels for various reasons, including cost-effectiveness. The California Subdivision Map Act has exemptions for the leasing of land for solar energy generation projects and wind energy generation projects, which allow for such a structure. However, a similar exemption does not exist for battery storage projects, unless such projects are co-located with wind and solar projects and can be characterized as such for purposes of the Act.

Developers must be extra careful and consider the additional efforts required to comply with the California Subdivision Map Act, such as by reconfiguring boundary lines through a lot line adjustment or requesting a certificate of compliance from the local agency, both of which can add a considerable amount of time to project development. Developers should also consider obtaining a subdivision endorsement from the title company to insure compliance.

In addition, local zoning ordinances may not have yet incorporated battery storage into their provisions, and an ordinance that defines energy generation projects as a permitted use may make no mention at all of battery storage projects. In such a case, it may be unclear whether a zoning ordinance allows the construction and operation of a standalone battery storage project. This may force developers to allocate additional time and/or obtain special permits or variances for the project. Co-locating a battery storage project with another permitted use – such as a solar energy generation project – might be a solution to this issue, if the zoning allows for such a structure.

Battery storage projects also carry with them a risk of fire. As a result, local jurisdictions are often focused on minimization and mitigation of fire risks that may be implicated as a result of the construction and operation of such projects. When negotiating and obtaining site control agreements for projects, developers should ensure that they have the necessary real estate rights to comply with local fire risk mitigation requirements.

Battery storage projects continue to grow in size and quantity, with many utility-scale projects currently under development or planned over the next few years, and it is very important to consider the risks and issues that are specific to such projects.

## Authors

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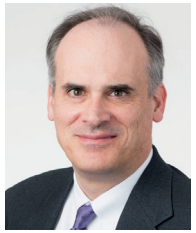

Henry is a partner in the Princeton office. His practice focuses on providing a broad range of advice to owners, investors and developers of energy generation projects of all types, focusing on renewable assets (onshore and offshore wind, solar, geothermal, biomass, battery storage), other new technologies such as fuel cell projects, as well as transmission projects. Henry has been involved in working with clients in the renewable energy industry since the late 1990s. A substantial amount of Henry's work relates to the purchase and sale of power plants. These transactions include both single and portfolios of projects, and occur both during the development stage and after commercial operation, including transactions for projects that will be repowered. Henry also represents projects in debt and equity transactions, including tax equity investments. Henry also handles all types of matters related to the development of power projects, including power purchase agreements, construction and equipment contracts, renewable credit sales agreements, O&M, asset management and construction management agreements, real estate and co-tenancy agreements, and wake impact agreements.

### Brendan McNallen

Brendan is a partner in the Energy & Natural Resources Group in San Francisco. His practice focuses on project development and finance in the energy generation, energy storage, transmission and distribution and infrastructure sectors, with a specific focus on renewable energy. He represents developers, owners, manufacturers and lenders on the development, supply, construction and financing of onshore wind, offshore wind, solar and battery energy storage projects. Brendan also represents utilities on the procurement and construction of transmission and distribution facilities, procurement programs and program management activities. He has advised on energy projects throughout the United States and around the world, including Europe, South America, the Middle East, Mexico and Canada.

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Stephane is a partner in the Century City office. His practice focuses on business law, with an emphasis on real estate and corporate transactions. His practice focuses on renewable energy (wind, solar and geothermal), energy storage and electrical transmission projects, where he regularly advises and represent sponsors, developers, owners, financiers, buyers and sellers of these projects. He has extensive experience with acquisitions, dispositions, financings and joint ventures of other real estate-based assets and businesses, including the asset classes previously noted as well as hotels, office buildings and commercial centers.

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Kevin is based in the San Francisco office. His practice spans project development, M&A and finance in energy and infrastructure transactions, with a focus on renewable energy, including battery storage projects. He has extensive experience in negotiating and drafting deal terms, financing documents, and other ancillary documents. He has also represented early-, mid-, and late-stage private companies, public companies, investors, and underwriters in the technology and life sciences industries. Prior to becoming a lawyer, Kevin worked with tech startups and investors on a variety of sustainability and market growth projects.