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Energy + Natural Resources Industry

Battery Energy Storage Systems Series

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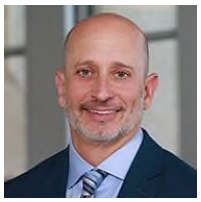
Permitting Utility-Scale Battery Energy Storage Projects: Lessons From California

By David J. Lazerwitz and Linda Sobczynski




The increasing mandates and incentives for the rapid deployment of energy storage are resulting in a boom in the deployment of utility-scale battery energy storage systems (BESS). In the first installment of our series addressing best practices, challenges and opportunities in BESS deployment, we will look at models and recommendations for land use permitting and environmental review compliance for battery energy storage projects with a particular focus on California, which is leading the nation in deploying utility-scale battery storage projects.

Land Use Permitting and Entitlement

There are three distinct permitting regimes that apply in developing BESS projects, depending upon the owner, developer, and location of the project.

Utility-Sponsored Projects – Public Utilities Commission

BESS projects developed or owned by the state's investor-owned utilities are subject to California Public Utilities Commission (CPUC) jurisdiction under General Order (GO) 131-D. GO 131-D governs permitting for utility-owned infrastructure including the potential need for a Certificate of Public Necessity and Convenience (CPCN) or Permit to Construct (PTC) and related environmental review pursuant to the California Environmental Quality Act (CEQA). For BESS projects approved to date, the utilities have invoked an exemption from GO 131-D qualifying such projects as "distribution" facilities falling below applicable 50 MW and 50 kV thresholds, thereby avoiding CPCN and PTC compliance and California Environmental Quality Act (CEQA) review and significantly streamlining permitting.

Private Land Projects – State and Local Government Agencies

For BESS projects developed or owned by private entities, permitting jurisdiction is dependent upon the location of the project, typically either on private, federal or state land, and governed by the applicable governmental agency with jurisdiction over that property. The majority of BESS projects developed to date are located on private land – typically near substation infrastructure and/or generating facilities – and subject to the applicable county or city zoning and land use ordinances and, if necessary, associated CEQA review.

Co-locating BESS facilities with the solar or wind generating source has proven to streamline the permitting process. In such circumstances, several California counties have found BESS projects to constitute an accessory use to the associated energy generation facility, thereby bundling the two projects together, even where a BESS project may be added subsequent to the development of the solar or wind facility. In other jurisdictions, BESS projects have been interpreted as falling within permitted uses for electrical substations and transmission and distribution facilities, thereby avoiding discretionary review; or, alternatively, BESS projects may be interpreted as allowed as conditional uses for similar facilities, requiring a conditional or special use permit and triggering CEQA review.

Federal Public Lands – Federal Government Agencies

For those projects located on federal or state land, permitting will fall under the jurisdiction of the applicable agency and its associated permitting regime – for example, the Federal Land Policy and Management Act's Right of Way (ROW) process for projects falling under Bureau of Land Management (BLM) jurisdiction. As with BESS projects located on private land, BLM will typically bundle the consideration of a BESS facility with an associated solar or wind facility in an initial ROW Grant, or, if the BESS facility is added subsequent to the generation facility, treat it as an amendment to the ROW Grant. We have not, however, seen BLM treat a BESS facility as an authorized use under an existing ROW Grant, thus the agency must still make an affirmative decision that triggers NEPA compliance.

Environmental Review Compliance

Where BESS projects trigger discretionary permitting and CEQA or NEPA review, there are a variety of procedural mechanisms for agencies to address environmental review compliance ranging from categorical exemptions/exclusions to a full scope environmental impact report/statement, respectively. Where a BESS facility is combined in environmental review with a solar or wind project, the BESS facility will be subsumed within the scope of that review process, typically requiring a mitigated negative declaration/environmental assessment or environmental impact report/statement. Where a BESS facility is permitted as a stand-alone facility and/or added subsequent to the review of a related solar or wind project, we have seen success in the use of categorical exclusions/exemptions for these projects due to the relatively small size and enclosed nature of the facilities.

While the applicable categorical exemptions/exclusions are specific to the relevant agency, they typically fall within categories for existing facilities, replacement or reconstruction of existing structure or facilities or accessory structures. For subsequently added BESS facilities, BLM has also utilized a Determination of NEPA Adequacy (DNA) finding the BESS facility to fall within the scope of the broader environmental review for the already analyzed solar or wind project.

Given the relatively small footprint of typical BESS projects and their location closer to urban load centers or existing generating facilities, the environmental and natural resource issues emerging to date tend to focus on technology-specific impacts including fire risk, noise impacts and hazardous materials transportation, use, and disposal.

Recommendations for BESS Project Development

The rapid deployment of BESS projects at large scale to meet regulatory mandates and tax incentives presents developers and regulatory agencies with an array of novel permitting and environmental review issues and potential hurdles. Developing strategies for addressing land use permitting and environmental review issues early and effectively will facilitate the cost-efficient, timely and successful deployment of BESS projects. Our "best practices" recommendations for permitting BESS projects include:

- Prior to engaging regulatory agencies, prepare a permitting and environmental review strategy, which should include references to potentially applicable zoning or land use entitlement requirements and categorical exemptions/exclusions.
- Site BESS facilities within the existing or anticipated disturbance footprint of a co-located energy generating facility, such as within or adjoining temporary construction laydown areas, parking areas or operations and maintenance facilities; and, for stand-alone BESS facilities, identify existing structures or buildings that could provide the footprint for the facility.
- Consider identifying a potential BESS facility in conjunction with solar or wind project development to provide optionality for future deployment even if such use is not immediately anticipated.

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EPC Agreements for Utility-Scale Battery Projects

By Michael Ginsburg

The negotiation of an engineering, procurement and construction (EPC) agreement for a battery energy storage systems (BESS) project typically surfaces many of the same contractual risk allocation issues that one encounters in the negotiation of an EPC agreement for a solar or wind project. However, there are several issues that merit special attention in the context of an EPC agreement for BESS projects.

Equipment Procurement and Warranties

Full-wrap, turnkey EPC agreements – where the EPC contractor takes full responsibility for the engineering, equipment procurement, construction, commissioning, testing and turnover of a completed project to the owner – have historically been favored by energy project owners and their project finance lenders, due largely to the benefits of having a single, creditworthy counterparty responsible for all delivery aspects of a fully completed and properly performing project.

That said, as the project finance market for BESS projects is still developing and equity remains the more typical source of financing, alternatives to the full-wrap, turnkey EPC agreement have been utilized on BESS projects, largely to reduce equipment procurement costs to the owner.

EPC agreements providing for owner-supplied equipment will need to address the allocation of responsibilities as between owner and EPC contractor that would typically be borne by the EPC contractor in a typical full-wrap EPC, with respect to all such owner-supplied equipment (most typically the batteries themselves for BESS projects) – including delivery, risk of loss, title transfer, installation in conformance with supplier guidelines/recommendations and equipment warranties. In addition, issues of creditworthiness and/or credit support with respect to the equipment supplier will need to be addressed in a similar manner as the credit of the EPC contractor is resolved in the EPC agreement.

To the extent equipment warranties are provided directly to the owner by the equipment supplier and not wrapped by the EPC contractor in its project-related warranties, care needs to be taken to properly structure the EPC contractor's warranty obligations such that, together with the equipment supplier's warranty obligations, they provide full warranty coverage to the owner.

Performance Tests and Guarantees

Whether acquired from the EPC contractor in an EPC agreement or an equipment supplier in an equipment supply agreement, typical performance guarantees for BESS projects include round trip efficiency, capacity, speed of charge/discharge, availability, ramp rate/response time and noise.

An EPC agreement containing BESS project performance guarantees will contain detailed testing procedures as well as provisions for liquidated damages in the event that a constructed BESS project is unable to pass applicable performance testing. As with most EPC agreements, provisions related to the amount of such liquidated damages and any applicable caps on such liquidated damages can be expected to be a point of heavy negotiation. EPC agreements may also provide the EPC contractor the ability to permanently "buy down" BESS project performance via payment of agreed liquidated damages, subject typically to specified minimum levels of performance required to be met or exceeded under all circumstances.

Decommissioning and Disposal

The costs of decommissioning a BESS project and disposing/recycling battery equipment at the end of a BESS project's useful life is currently a material cost item, particularly in connection with lithium ion batteries, which will be classified as a hazardous waste, with the owner being considered a hazardous waste generator liable for proper disposal under applicable EPA rules. Thus, the EPC agreement should explicitly address which party bears this burden. Sometimes the obligation to decommission and dispose of the batteries for a BESS project is retained by a third party O&M provider.

To the extent decommissioning is addressed in the EPC agreement and the obligation allocated to the EPC contractor, a specific decommissioning plan will often be attached as an exhibit to the EPC agreement. Given the evolving nature of rules and standards for the decommissioning, disposition and/or recycling of energy storage projects, it is recommended that any such decommissioning plans retain a reasonable degree of flexibility to accommodate potential changes to such rules and standards after the date of execution of the EPC.

COVID-19

An EPC agreement for a BESS project would be expected to contain concepts of force majeure and/or excusable event pursuant to which events beyond the reasonable control of the EPC contractor (force majeure) and/or certain specified events (excusable events) may entitle the EPC contractor to an adjustment to the EPC agreement's milestone schedule and/or an increase in contract price to account for such changed circumstances. As for the foreseeable future COVID-19 and related governmental shutdowns and/or supply chain disruptions have the potential to affect the EPC contractor's performance, the EPC agreement for a BESS project should carefully define the "status quo" vis-à-vis COVID-19 as of time of execution of the EPC agreement and specifically address the extent to which subsequent changes in circumstances related to COVID-19 from and after the date of the parties' entry into the EPC agreement do or do not entitle the EPC contractor to any schedule and/or cost relief.

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Breaking up the Patent Monopoly for the Benefit of Batteries

By Laura K. Pedersen

The patent monopoly is at odds with the global need for battery storage technology. As the world mobilizes towards climate change solutions, companies with battery patents will face increasing pressure to share this critical intellectual property (IP). How they respond will impact our planet's future.

The effort to make battery technology more widely available could not be more vital. It currently takes 20-30 years for energy sector inventions to reach the mass market. To reach current climate goals, we need to halve the diffusion time for clean technologies globally, according to Bernice Lee et al.'s *Who Owns Our Low Carbon Future? Intellectual Property and Energy Technologies.*

There are a variety of steps that need to be taken, and quickly, in order for the patent industry to make the innovation we'll need to change the world: a global licensing database, patent pools, standard setting organizations, co-assigned patents, university-to-industry technology transfer, open to the public and patent pledges.

Global Licensing Database

Licensing has the benefit of being familiar to most sophisticated corporate players and many major universities. Licensing alone may not sufficiently speed diffusion, particularly if the licenses are exclusive. Cross-licensing – agreements between parties to license their IP to each other – may address part of this problem.

Because the existence, let alone terms, of many license agreements are confidential, parties hoping to enter a license have few benchmarks for price or other important terms. One way to provide such benchmarks would be to establish a global database with licensing data and best practices.

Patent Pools

"In a patent pool, multiple patent holders assign or license their individual rights to a central entity, which in turn exploits the collective rights by licensing, manufacturing, or both." according to Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations.* Member patent holders generally must license all patents covering industry-relevant technology, but can use any other members' IP for a fixed fee. Patent pools can vary widely in size.

Pooling IP may be essential in industries with complex technology that requires access to many, complementary, patents to function meaningfully. They significantly reduce the transaction costs of acquiring IP. However, the technology in a pool is only open to members; a small pool may do little to diffuse clean energy technology. Additionally, potential members may not want to pool royalties, particularly companies with high-value patents.

Standard Setting Organizations

Standard setting organizations (SSOs) are governing bodies of member companies that form technical standards. Like patent pools, member entities will typically contribute IP for the group's mutual use and may pay royalties into a shared pool. But SSOs go beyond patent pools by writing a catalogue of

technical standards to which industry players commit to comply. This effort encourages standardization. And standardization is key to mass production.

On the other hand, SSOs require coordinated collective action and significant up-front investment. Establishing a battery technology SSO may take so much time that it overshadows the benefits.

Co-Assigned Patents

In the United States, and other nations, more than one entity or person can own a patent. Each co-owner may exploit the patent without compensating co-owners or obtaining their consent. This shared ownership obviates the need for a license between the co-owners. This arrangement also increases enforcement power, since all co-owners must join in enforcement actions.

But co-assigned patents may not be a viable global solution. The co-ownership statute does not allow co-owners to "make, use, offer to sell, or sell" the patented invention outside the U.S. (unsurprisingly). Co-owners must also be prepared to incur the additional expense of joining enforcement actions.

University-To-Industry Technology Transfer

Major research universities typically have technology transfer offices responsible for licensing technology invented by students and researchers to private enterprise. These licensed technologies can sometimes spin off into corporations. Many universities also have clean technology competitions, such as the MIT Clean Energy Prize, that encourage student-led startups.

Universities attract bright minds with time and resources to experiment with novel technologies. Dr. John Goodenough, inventor of the lithium-ion battery, is a professor of mechanical engineering at University of Texas at Austin. Universities also have clear monetary and prestige incentives to share their work with private industry. But research institutions may have existing relationships with companies, making access to this technology selective.

Open to the Public: Create a Culture of Open Innovation

The clean energy industry can also look to the example of open source software to guide its response to the need for globally-diffused battery storage technology.

Authors of open source software make the software open to the public; anyone can modify and improve on the source code. Users are still subject to a license, but the license is royalty free and contains minimal restrictions. Some open source licenses require that anyone who modifies the software must release their modifications publicly and free of charge.

These clever licensing schemes would not be possible without a programming culture that valued the free exchange of ideas. Companies with critical clean energy patents could recreate that same culture in the clean energy industry.

Patent Pledge

Patent pledges are a promise not to assert one's patents against others who use the patented technology. As remarkable as it may seem to promise something for nothing, more than 100 companies have historically taken patent pledges, including Google, IBM, Microsoft, Red Hat, Sun Microsystems, and Twitter.

This amnesty is not without exception; most pledges ends if the party using the patents sues the pledging patent holder. Companies with patent pledges are, in fact, getting something in return: goodwill with the public and, more importantly, with open source developers who rely on the free flow of information to innovate. Indeed, failing to take a patent pledge may tarnish your brand.

Unfortunately, it's not clear if patent pledges are enforceable in court. Moreover, sharing one's patent is not at all the same as sharing best practices for producing the invention.

Conclusion

These solutions may seem challenging, but as the effects of climate change are more widely felt, the adoption of one or more of these strategies to make green technology more broadly available appears increasingly essential. Better to understand the available tools now with time yet to strategize for a cleaner future.

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Battery Energy Storage Systems Integrated in Solar Facilities To Receive Tax Incentives

By Lysondra E. Ludwig

Intermittency is one of the largest issues impeding increased reliance on energy from utility-scale renewable energy generation sources such as wind and solar. Battery energy storage systems ("BESSs") can alleviate concerns related to intermittency and will play a vital role in transitioning to primarily renewable energy sources. However, BESSs has not received the same tax incentives as wind and solar facilities. Rather, BESS deployment has benefited from tax incentives only when incorporated as part of a solar facility.

Federal Investment Tax Credit

The energy investment tax credit (ITC) has been vital to the growth of solar industry and has also aided in the deployment of energy storage in limited cases. The ITC available under Internal Revenue Code section 48 provides a deduction of a certain percentage of the costs of installing a solar energy system from an owner's / investor's federal taxes. The ITC generally applies to "solar energy property", which is defined as including equipment that directly generates electricity from solar energy (i.e., "generation property"). The regulations clarify that solar energy property includes storage devices; however, the regulations also limit the availability of the ITC for storage devices under certain circumstances.

For utility-scale projects, the ITC is available when a solar facility and a storage device such as a battery system have the same owner, are located on the same site, are installed at the same time, are placed in service on the same date, and are subject to the same off-take agreement. However, to the extent the facts and circumstance of a specific project do not meet the above criteria, the ITC may be curtailed with respect to the storage device. For example, the following factors may impact the availability of the ITC:

1. Location of Storage – Installation of storage on the transmission side of the meter may not qualify for the ITC as the storage property may not be considered "generation property".
2. Charging – If storage is charged more than 25% from the grid or a utility other than a solar facility, then the ITC is not available. If 75% or more is charged by a solar facility, the energy storage will be treated as dual-use property and allowed a reduced ITC.
3. Timing of Installation – A storage device installed one year after the original solar system qualifies for the ITC. However, it hasn't been confirmed by the IRS if storage can be added to older solar arrays and still receive the ITC. This may limit the feasibility of adding energy storage to older facilities.
4. Ownership of Solar and Energy Property – Identical owners for the solar facility and storage device weighs in favor of the ITC's availability.

As described above, to take advantage of the ITC when financing a storage project, BESSs must be incorporated into a solar facility.

California Property Tax Exemption

Similar to the ITC, storage may qualify for a property tax exemption if the BESS is part of a solar facility. Under Proposition 13, California has an acquisition value-based property tax system, rather than a market value-based system, which requires property tax to be levied on an annual basis based on the base year value of real property (including structures and affixed fixtures). The base year value is determined at the time of a change of ownership (e.g., an acquisition) or completion of new construction. Annual increases

to the base year value of real property is limited to no more than 2 percent, except when property changes ownership or undergoes new construction.

However, voter-approved Proposition 7 provides an exclusion from property tax for "the construction or addition of any active solar energy system" (Cal. Const., art. XIII A, subd. (c)(1)). An "active solar energy system" is a system that uses solar energy in the production of electricity and includes storage devices, power conditioning equipment, transfer equipment, and parts related to the functioning of those items. However, only the equipment used up to, but not including, the stage of conveyance or use of the electricity is considered part of the active solar energy system and, therefore, eligible for the exclusion. In general, a utility-scale system's final stage of power generation is typically a "step-up" transformer, "where the output voltage is increased to meet the transmission grid voltage requirements" (Guidelines for Active Solar Energy Systems for New Construction Exclusion). As such, storage deployed up to and including the final step-up transformer within the on-site substation would be considered part of the active solar energy system, and subject to the exclusion.

This may be changing soon. On the November 2020 ballot is a measure that would revise the California Constitution to allow for the reassessment of commercial and industrial real properties at least once every three years at the properties' current fair market value, rather than the "base year" value as described above. Inadvertently, this measure would likely impact solar facilities which are often located on property zoned for commercial and industrial use. Anticipating this issue, S.B. 364, which would ensure that certain utility-scale solar energy systems remain exempt from property tax if voters approve the ballot measure, was adopted and sent to the Governor for approval. It remains unclear if this law, if approved, would survive court challenge.

As you can see, tax incentives spurring deployment of energy storage are limited in their application to development in tandem with a solar facility. The requirements to receive the tax incentives, however, may not align with advancement in technology and/or designs for energy storage.