Alliant

Power

Battery Energy Storage Systems Overview



As Wind and Solar power generation sources become more popular, these generators are turning to Battery Energy Storage Systems (BESS) as a cost-effective means to harness and deliver the power created from these renewable sources.

Battery Energy Storage Systems Overview

BESS is essentially a large collection of batteries where the power created can be stored and then released when needed. This allows storage and disbursement to happen in a more regulated way, which is also gaining popularity as a way to adapt to the changing demands of the grid. It is an important way to ensure energy sources like solar and wind, that are not able to capture power all the time, can still be a consistent source of energy. Their reliability and versatility allow for broad application, from utility-scale to residential-scale.

The current state of BESS growth continues to be exponential, with no end in sight. As manufacturers develop batteries with greater storage capacity and the costs of materials continue to decline, the global demand for batteries has soared. Additionally, the recently signed Inflation Reduction Act has created more incentives for a variety of industries to use battery technology.

Common Risks

While BESS is an attractive option in many ways, potential hazards remain in the vicinity of their installation and for the people who work around them. The number of losses in the installed base of BESS is already significant. The batteries themself can be an area of concern. Things like a manufacturing defect, design flaw, improper use or a charging issue can cause battery failure. One can expect that a fire in the enclosure will also have the same effect. When batteries fail, they often release combustible gases, which if not properly dissipated, can lead to an explosion.

Additionally, given a BESS is sometimes set up in a warehouse type environment, a big concern is that the overheating of one cell can overheat an adjacent cell, resulting in a cascading failure.

The current industry norm for BESS systems is lithium-ion technology. There are multiple battery technologies that fall under the lithium-ion battery classification, but there is now a clear and welcome trend within the lithium-ion market segment toward the use of Lithium Iron Phosphate (LFP) cells, which will reduce the risk profile of these systems. This technology continues to evolve, and new storage systems will need to be evaluated as they become available.

Another area of concern is BESS are often found in rural areas. If there is a fire or explosion, firefighting operations may not be able to respond quickly and there may not be a readily available water supply.

Current Market

While more renewable power generators are exploring BESS options, the insurance market is working to adequately address this area of risk. Renewable Energy companies face unique challenges to insure this risk as this is a new and often unfamiliar technology for underwriters. BESS has a high concentration of high-value assets in a single location, so chances or a total loss are higher. The battery technology is also constantly evolving, and underwriters may not always be up to date on the latest technology.

Given the complexity and evolving nature of the risks, it is crucial to engage a broker that understands the risks associated with BESS, that can help a company be an advocate in the marketplace. It is critical that a client with a BESS engage with industry specialists who understand the insurance and risk landscape. They can not only handle the application process, but they also have access to more specialist and competitive markets who understand and have the appetite to underwrite Wind, Solar and their BESS risks.

Alliant Renewable Energy

Alliant's dedicated Renewable Energy team is well-versed in this area of risk and is leading the charge in developing creative solutions for our clients. Our team will:

- Screen the risk by conducting more granular natural catastrophe modeling
- Capture relevant information, accurately and concisely, to better inform underwriters
- Review contracts and documents to ensure that finance and lending requirements are met and discrepancies are avoided early
- Provide loss control and safety support to make sure risks are being properly mitigated
- Keep clients informed of current trends and emerging issues

Ultimately, Alliant knows that BESS is going to continue to grow and be the dominate way to store power. Our team is committed to staying at the forefront of this industry and developing solutions to address risks as they continue to evolve.

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