440 kWh bess

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In February 2024, Rahul Bollini had written about the latest trend of 314Ah Cell and 5MWh BESS in 20 feet container. In this article, he discusses the 5MWh BESS in more detail.

Depth-of-Discharge: DoD indicates the depth of cell discharge in each cycle. 100% DoD would mean the cell would operate between 0% and 100% SoC (state-of-charge). To achieve 100% DoD in LFP, the cell must work between 2.5V and 3.65V, i.e. charge to 3.65V and discharge to 2.5V.

Calendar ageing: Calendar ageing refers to the degradation of the cell capacity with respect to inactivity during the non-usage time. It contributes to the system level cycle life because a system is not constantly charging or discharging at a given time like in the case of cycle life testing done for cells. For projects with 2 cycles per day, there is lower calendar aging as compared to one cycle per day projects because there is less time of inactivity per day.

Temperature: The 25?C temperature condition allows for a longer cycle life for cells. BESS can operate up to 35?C on a regular basis because most cooling systems (air cooling or liquid cooling) activate at 35?C and come with various cooling levels based on the temperature inside the system. The cooling system activates at 35?C to save the auxiliary energy required for cooling the system. Higher auxiliary energy consumption increases the total cost of ownership of BESS.

The BESS market is growing, and with battery prices coming down in 2023 and 2024, BESS is more affordable than ever. Combine that with increasing cycle life capabilities in the cell, and many record-low pricing projects are being executed in the BESS space.

The next article, Part 6 of Understanding BESS, will focus on deeper aspects of the architecture of the 5MWh liquid cooling container, which is gaining popularity across large-scale grid-connected projects.

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