



Optimizing Energy Management in Commercial Sectors with **Battery Energy Storage**

In the commercial sector, managing energy consumption efficiently is crucial for reducing costs, increasing sustainability, and ensuring uninterrupted operations. Battery energy storage systems (BESS) offer an innovative solution to optimize energy management in commercial buildings. This use case explores the application of BESS in the commercial vertical, focusing on its usage for peak shaving and load shifting.

Scenario:

Consider a commercial building which operates a large office space and various energy-intensive facilities, such as data centers, manufacturing units, or cold storage facilities. The company faces challenges related to high energy demand during peak hours, expensive utility tariffs, and the need to reduce strain on the grid.

Challenge

Overcome the challenge of high energy demand during peak periods and reduce electricity costs. They are also interested in adopting sustainable energy practices and exploring options to minimize their reliance on the grid during peak hours.

Solution:

Implement battery energy storage systems within the commercial building.
The BESS solution provides several advantages:

Peak Shaving:

BESS optimizes energy consumption during peak hours by shifting the load from the grid. The batteries are charged during off-peak hours when energy prices are lower, and the stored energy is used to power the building during peak demand, helping reduce costly peak demand charges.

Load Shifting:

Battery energy storage shifts energy usage to off-peak hours when electricity tariffs are lower. Non-essential or energy-intensive operations can be scheduled to align with periods of lower energy demand, effectively reducing electricity costs.

Power Quality and Reliability:

BESS acts as a buffer between the grid and the building's electrical system, providing stability and improving power quality. The batteries can deliver instant power during grid fluctuations or outages, helping to minimize equipment downtime and reduce financial losses.

Grid Independence:

Reduce reliance on the grid during peak periods. This helps avoid strain on the grid infrastructure and potential power disruptions, ensuring uninterrupted operations within the commercial building.

Renewable Integration:

Battery energy storage systems can be coupled with renewable energy sources, such as solar panels or wind turbines, to store excess energy generated during peak renewable generation periods. This stored energy can be utilized during peak demand, maximizing the utilization of renewable energy and further reducing reliance on the grid.

Implementation & Results:

Implementation of a BESS system in the commercial space will require a site assessment, battery system design, integration and control systems, testing and commissioning.

The following positive outcomes are experienced as a result of the BESS implementation:

Energy Cost Reduction:

Utilizing peak shaving and load shifting techniques can significantly reduce their electricity costs by avoiding expensive peak demand charges and taking advantage of lower off-peak tariffs. This can lead to substantial long term savings on energy bills

Grid Reliability:

The battery storage system provides a reliable and stable power supply, minimizing the impact of grid fluctuations and outages. Grid reliance during peak hours is reduced, promoting uninterrupted operations and helping reduce the risk of productivity losses.

Environmental Impact:

Sustainability efforts are influenced by integrating battery energy storage with renewable energy sources. The increased utilization of renewable energy and reduced reliance on fossil fuel-based grid power contributes to a greener and more environmentally friendly commercial building.

The implementation of battery energy storage systems in the commercial sector, specifically for peak shaving and load shifting, offers significant benefits in the Commercial space. By optimizing energy management, reducing costs, and increasing sustainability, BESS becomes an essential component of the energy strategy. This use case serves as an example for other businesses in the commercial sector to explore the potential of battery energy storage for efficient energy management and cost savings.

To get started on your BESS journey in the Commercial sector, connect with one of our experts:

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