

SolarTech Power Solutions

Investment estimation of peak-shaving energy storage projects



Overview

The findings clearly show peak shaving as the financially superior option, delivering an NPV of \$23.9 million, an IRR of 20.8 percent, and a payback period of 4.8 years. In contrast, microgrid deployment resulted in an NPV of \$5.8 million, an IRR of 12.0 percent, and an 8.3-year payback. Can peak shaving reduce energy costs?

Modern consumers actively seek cost-effective energy solutions and sustainable practices. This white paper explores peak shaving as an effective method to minimize energy costs. Energy and facility managers will gain valuable insights into how peak shaving applications can help unlock the full potential of energy storage systems.

Is peak shaving energy storage a necessity?

In an era of rising electricity costs, unpredictable peak demand charges, and growing pressure for energy independence, peak shaving energy storage is no longer a luxury—it's a necessity.

What is peak shaving?

Peak shaving involves selectively transferring specific loads within a facility from the grid to an energy storage system. This process is accomplished by disconnecting the power supply of a specific load(s) from Source A (typically the grid) and connecting them to Source B (an energy storage system).

What is peak shaving in power system?

In the power system, the load usually shows “peak” and “valley” differences. It refers to the fact that the load is higher during certain times of the day and lower during other times of the day. In order to meet the peak demand, the power system needs to carry out peak-shaving.

Should peak shaving be a strategy?

BESS is one of the most effective ways to achieve a sustainable future. The

decision to adopt peak shaving as a strategy should be carefully assessed by consumers on a case-by-case basis. Peak shaving is particularly relevant in regions where Time-of-Use (TOU) rates are implemented by electric utilities and where demand charges are substantial.

Does energy storage affect peak-shaving cost?

On the other hand, references [35, 36] do not consider the impact of energy storage utilizing peak and off-peak electricity price arbitrage on the peak-shaving cost of the power system, thus failing to fully utilize the peak-shaving capabilities of energy storage.

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