Energy storage for load shifting budapest

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Secretary of State for Energy G?bor Czepek emphasised the importance of storage capacities for the country’s energy sovereignty. In addition to nuclear energy, Hungary is focusing primarily on solar energy, the weather-dependent production of which poses a particular challenge. The country’s total PV capacity has doubled since 2022, but the storage sector is also on the rise.

Energy storage capacities will double over the next year, with the aim of providing at least 1 GW of storage capacity by 2030. With public funding totalling 33 billion forints (approx. 80 million euros), storage facilities with a total capacity of 38 MW will be installed at 13 locations. These development projects should be completed by the summer of 2025. As part of the largest project, the transmission system operator MAVIR Zrt. is building a 20 MW storage facility in Szolnok with a subsidy of HUF 15 billion.

Another tender for more electricity storage capacities was launched in February of this year and has a budget of 62 billion forints. The aim is to build around 50 additional industrial energy storage facilities with a combined capacity of 440 MW. Companies that are awarded the contract must realise the installation and connection of the new facilities to the electricity grid by spring 2026 at the latest. Several of the projects in the tender will involve the installation of plants that exceed the capacity of the Szolnok plant.

In the realm of energy management, two key strategies stand out for optimizing grid performance and enhancing overall efficiency: load shifting and peak shaving. These techniques, often employed in conjunction with Battery Energy Storage Systems (BESS), offer innovative solutions to mitigate demand peaks, reduce energy costs, and promote grid stability. This article delves into the distinction between load shifting and peak shaving, elucidating their positive impacts when integrated with BESS technologies.

Load shifting and peak shaving are both methods aimed at managing electricity consumption to alleviate strain on the grid during periods of high demand. However, they differ in their approach and objectives.

Load shifting involves redistributing electricity consumption from peak hours to off-peak times, thereby smoothing out demand curves and optimizing grid utilization. By encouraging consumers to shift non-essential tasks, such as charging electric vehicles or running appliances, to periods of lower demand, load shifting reduces the pressure on the grid during peak hours, when energy costs are typically higher.

On the other hand, peak shaving focuses specifically on reducing peak demand spikes by deploying energy storage systems to supply additional power during critical periods. By storing excess energy during off-peak hours and discharging it during peak demand periods, peak shaving effectively "shaves off" the peaks from the load profile, ensuring a more stable and manageable grid operation.

Battery Energy Storage Systems (BESS) play a pivotal role in enabling both load shifting and peak shaving

strategies, offering a versatile and efficient means of storing and dispatching electricity. BESS, comprised of lithium-ion batteries or other energy storage technologies, can rapidly charge and discharge electricity, making them ideal for dynamic grid applications.

In the context of load shifting, BESS provides a reliable storage solution for capturing surplus energy during periods of low demand and releasing it when demand is higher. By strategically timing the discharge of stored energy, BESS facilitates load shifting initiatives, smoothing out demand peaks and reducing reliance on costly peak-time electricity generation.

Similarly, BESS empowers peak shaving efforts by augmenting grid capacity during periods of heightened demand. By deploying BESS to deliver additional power during peak hours, utilities can mitigate the need for expensive peaking power plants or grid infrastructure upgrades. This not only reduces electricity costs but also enhances grid stability and resilience.

In conclusion, load shifting and peak shaving, when coupled with Battery Energy Storage Systems, offer powerful tools for optimizing grid performance, reducing costs, and promoting sustainability. By leveraging the flexibility and efficiency of BESS technology, utilities and consumers can effectively manage electricity demand, enhance grid stability, and accelerate the transition towards a cleaner, more resilient energy future.