



Fig. 01

MICROGRIDS FOR DEMAND CHARGE REDUCTION

The problem

Electricity demand varies a lot over time. Network operators need to design the grid in accordance with the maximum power required at each voltage level. In order to refinance the grid costs, in many countries demand charges apply to commercial and industrial electricity consumers on the basis of their highest peak load per year or month. Demand charges can make up to 70% of the end-customers' electricity bills. The prices may vary regionally depending on the utilization of the grid, the increasing share of renewable energy, which requires the expansion of low voltage levels, and the age of the electricity network.

Fig. 01 is showing how a BESS can help to cut demand charges by supplying energy in peak load hours (discharging process) and flattening the load profile when absorbing energy in low demand hours (charging process).

Our solution

Storage systems are one solution for industries to reduce demand charges on their electricity bills. The storage can deliver electricity in times with temporarily higher demands, i.e. when the current load exceeds the base load and the storage can be recharged when the load is below the base load. Depending on the countries' regulation, it may be attractive for industries to shift peak load demand to general non-peak times. This can also be done and controlled by a battery energy storage system (BESS).

In many businesses, peak loads occur only in a certain season. This opens the possibility to extend the scope of the BESS and additionally use it to increase photovoltaic self-consumption, saving even more parts of the electricity bill, or to operate the storage for frequency regulation, bringing new revenue streams with it.