

# Elektrizitätswerke des Kantons Zürich (EKZ), Switzerland Turnkey 1 MW Battery Energy Storage System



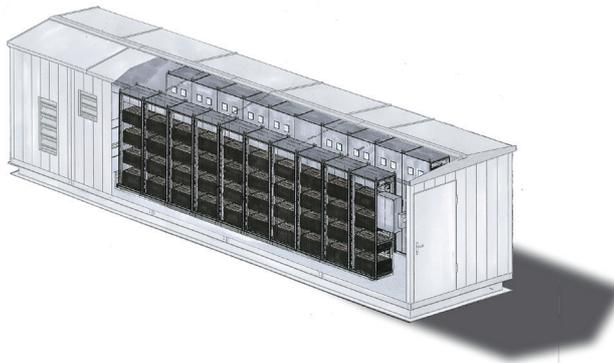
**Energy storage solution connected to the distribution grid, integrated with solar photovoltaic (PV) panels and electric vehicle (EV) fast charging stations**

#### ABB's solution

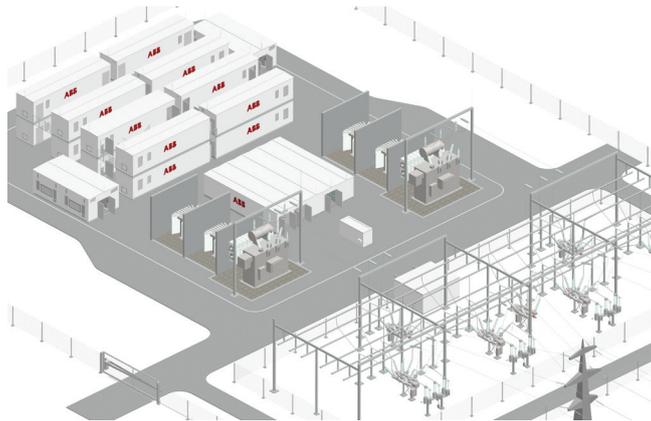
- Battery Energy Storage System (BESS) providing 1 MW for 15 minutes
- Turnkey project including system studies and specifications
- Containerized solution housing 432 Li-ion-battery modules with integrated battery management system
- Grid connection consisting of switchgear, transformer, converter, control and protection systems
- Applications for peak shaving, frequency regulation, reactive power compensation and integration of renewables
- Advanced control algorithms for forecasting of power consumption and generation based on historic data and actual measurements

#### Customer benefits

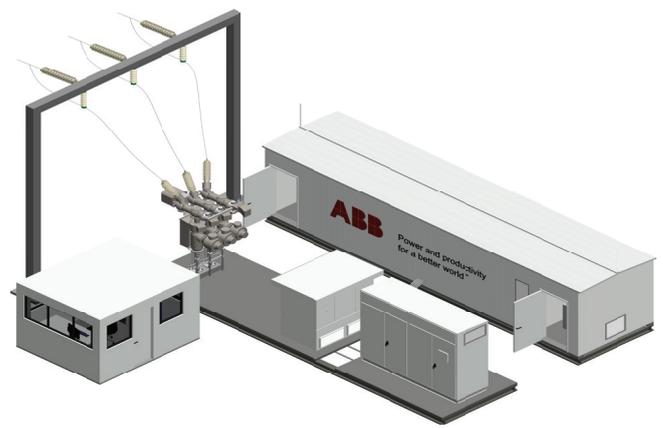
- Possibility to evaluate grid-linked BESS for balancing peak loads, intermittent power supply from renewables and grid optimization
- Enhanced reliability and quality of power supply
- Higher operational efficiency supported by forecasting
- State-of-the-art technologies enabling to address future demands on the grid such as increases in e-mobility
- Optimal solution based on long experience and in-depth knowledge of the demands of the grid as well as storage technologies
- Scalable and mobile solution enabling future extensions and flexible location
- Deferral or avoidance of infrastructure investments
- Proficient turnkey implementation by experienced system integrator



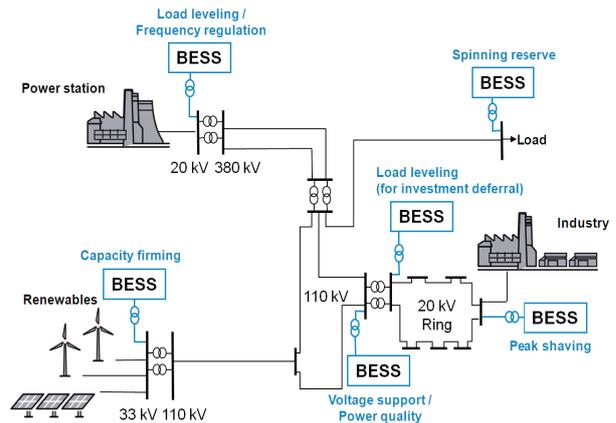
Typical layout for LV connection



Configuration for 20 MW/60 min. BESS with HV connection



Typical layout for MV connection



Typical grid energy storage applications

### Our offering

- Scalable systems ranging from kilowatts to tens of megawatts including grid connection
- Customized solutions with small footprint for distributed energy storage
- Turnkey implementation from system study to commissioning and maintenance
- Solutions based on ABB's proven power converter system (PCS) technology
- Complete range of equipment including switchgear, transformers, SCADA, substation automation, control and protection systems
- Choice of optimal battery technology for each application
- Active and reactive power compensation
- Active filtering of harmonics
- Advanced control algorithms for optimization of energy storage

### Applications

- Frequency regulation - Equalization of imbalances between power generation and demand
- Load leveling (postponement of grid upgrade) - Optimization between generation and supply with load or demand, which postpones the need for a grid upgrade

- Peak shaving - Flattening of short-term peak loads to optimize power consumption
- Capacity firming - Smoothing of volatile power supply from renewable sources such as wind and solar
- Power quality - Increased reliability and quality of power supply for sensitive consumers
- Spinning reserve - Supporting loads during power interruptions

For more information please contact:

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