Battery Energy Systems

Environment Committee

West Hills NC

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Battery Energy Storage System (BESS)

- BESS captures energy from renewable or non-renewable resources and stores the energy for later use.
- The battery is a Direct Current (DC) device and the electrochemical energy is discharged when needed.
- BESS has become an essential technology because of greater use of renewable resources.

How Does BESS Work

- BESS collects energy from renewable energy resources or the electric network and stores the energy.
- The battery discharges when necessary such as peak demand, power outages, or grid balancing
- A power conversion system is needed that converts from ac to dc and vice versa.

Advantages of BESS

- Environmental – Can reduce emissions when Renewable Energy is used to Charge BESS
- Reduce Energy Costs – Charge during cheap and discharge during high energy costs.
- Reduce Grid Dependency – Continuous supply
- Provides Backup Power
- Stabilize the network and improves reliability
- Co Location and small footprint

BESS Applications

- Peak Shaving and Load Management
- Energy Time Shifting
- Fast Response Backup Power
- Can provide Frequency Response
- Congestion Management

Other Storage Options

- Pumped Hydro
- Compressed Air
- Thermal Energy
- Salt Caverns