



esVOLTA

INTRODUCTION TO ESVOLTA AND BATTERY ENERGY STORAGE

AUGUST 2024

esVolta: A Top North American Utility Scale Energy Storage Developer



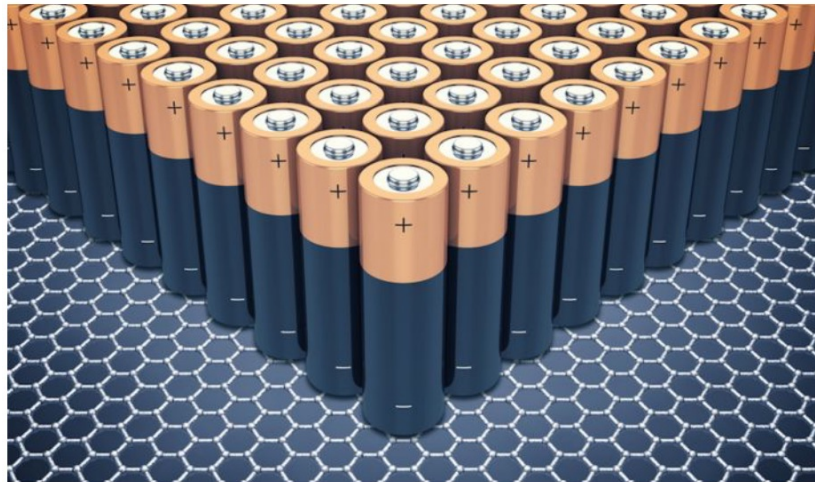
- esVolta is a leading fully-integrated, utility-scale standalone storage IPP with over 7 years of company experience developing, building, owning and operating energy storage assets across the United States
- Wholly-owned subsidiary of Generate Capital, which is a leading sustainable infrastructure company driving the infrastructure revolution. Generate builds, owns, operates and finances solutions for clean energy, transportation, water, waste and digital infrastructure.
- As one of the first U.S. standalone storage developers, we have assembled a portfolio of approximately 30 projects and 24 GWh, including operating, in-construction and development-stage assets diversified across three key markets CAISO, ERCOT and WECC
- esVolta has successfully developed more than 700 megawatts (MWac) of utility-scale energy projects and has secured over \$5.5 billion in capital from leading lenders and investors



Battery Energy Storage - What is it?

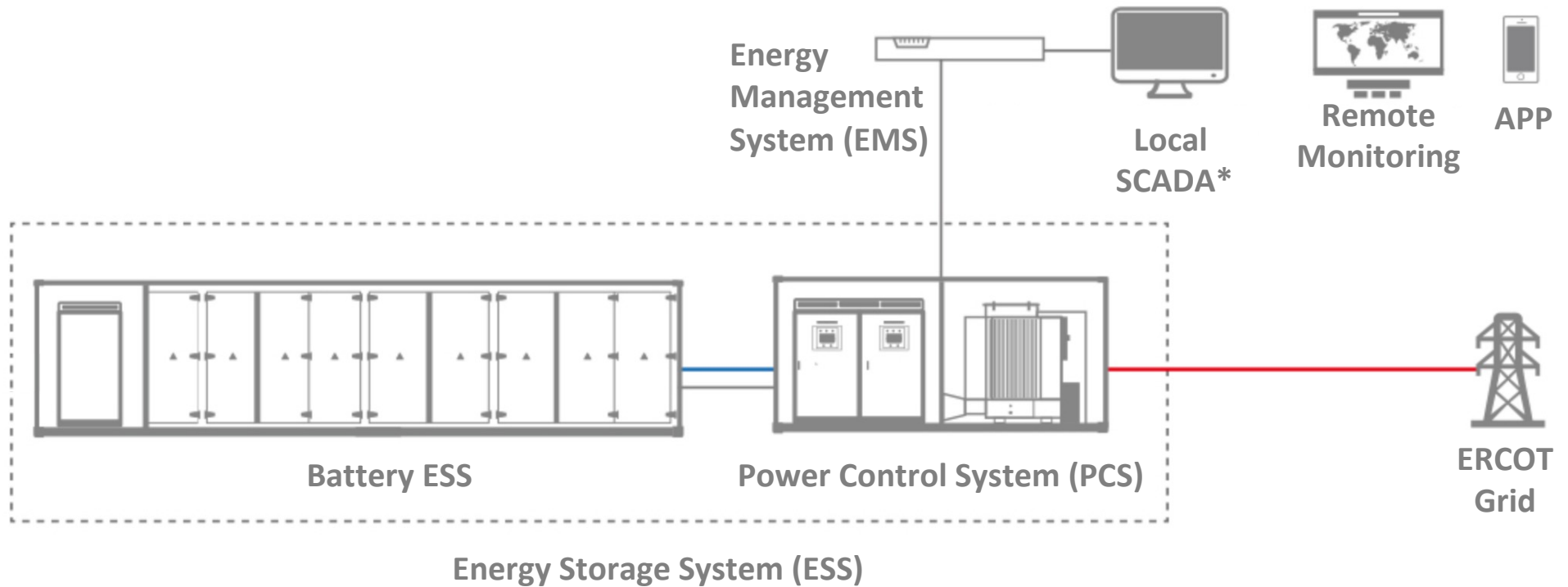
Battery Energy Storage Systems (BESS) utilize lithium-ion batteries, which are used in everyday phones, computers and electric cars, except these larger batteries can electrify homes, businesses and large industrial uses. Energy storage systems will enable energy from renewables, like solar and wind, to be stored and then released when the power is needed most.

Energy storage improves the way power markets generate, deliver, and consume electricity. Energy storage helps during emergencies like power outages from storms, equipment failures, and accidents.



Battery Energy Storage is unique in its ability to balance power supply and demand instantaneously - within milliseconds - which makes power networks more *resilient*, *efficient*, and *cleaner* than ever before.

Major Components of an Energy Storage System

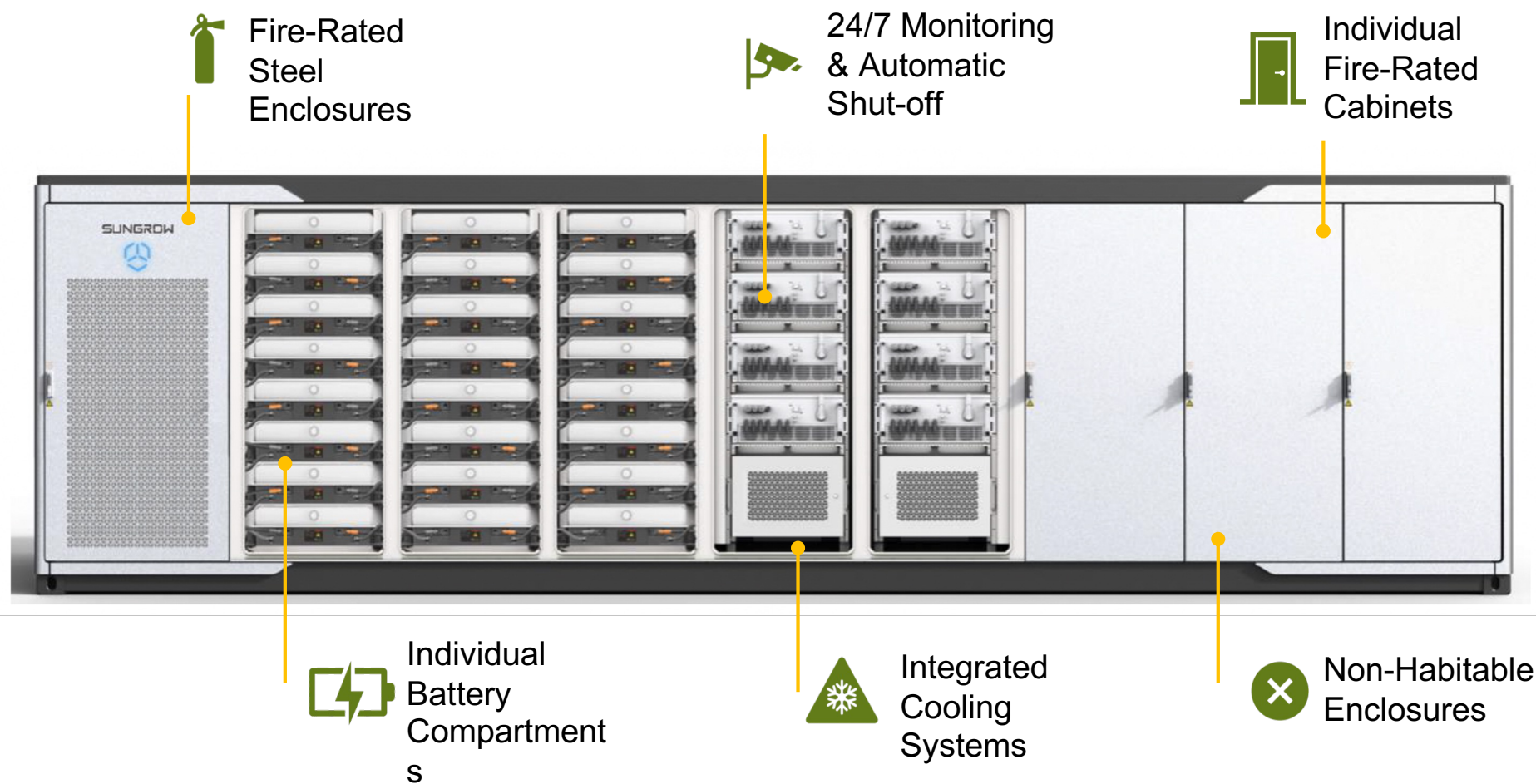


**Supervisory Control and Data Acquisition*

Real World Visualization of Energy Storage Plant



Interior Components of an Energy Storage Container



esVolta Plans To Implement Sungrow PowerTitan 2.0 BESS



Safety and Reliable

- AI monitoring for cell health, with early warning
- Electrical safety management, overcurrent fast breaking and arc extinguishing protection
- The electrical cabinet and battery cabinet are separated to prevent thermal runaway



Efficient and Flexible

- High-efficiency heat dissipation, increase battery life and system discharge capacity
- Front single-door-open design, supporting back to back & side by side layout drawing
- System commissioning in advance, reduce commissioning work on site, accelerate COD process



Convenient O&M

- One-click system upgrade
- Intelligent automatic rehydration reduces manual rehydration
- Online intelligent monitoring to reduce manual inspections frequency



Optimal Cost

- Intelligent liquid-cooled temperature control system to optimize the auxiliary power consumption
- Pre-assembled, no battery module handling on site, transportation of complete system

Sungrow PowerTitan 2.0

Lithium-Ion LFP (LiFePO4)

Liquid Cooling Energy Storage System



[Video Link](#)

Battery Energy Storage Systems in the U.S. must comply with the National Fire Protection Association standards ([nfpa.org](https://www.nfpa.org))

- Most stringent and advanced BESS fire safety code
- “Gold standard” based on scientific principles, testing and operational experience
- Reflects the current best practice for preventing explosions and safely containing fires
- The depth of this standard makes it a valuable resource for all Authorities Having Jurisdiction
- Includes a range of prescriptive requirements for metrics such as maximum energy and spacing between units
- Serves as a valuable resource for the latest best practices in BESS safety for industry and government partners alike

esVolta seeks to meet or exceed the standards established in the most up-to-date version of NFPA 855.



BESS Safety: Additional Standards & Codes



NFPA 855-2023 requires the following code compliance for BESS projects:

- UL 9540 – Standard for Safety, Energy Storage Systems and Equipment
- UL 9540A – Test Method for Evaluating Thermal Runaway
- NFPA 68 – Explosion Protection by Deflagration Panels
- NFPA 69 – Explosion Prevention System

Additional requirements:

- Hazard Mitigation Analysis
- Emergency Response Plan

Every esVolta BESS project is subject to each NFPA standards and codes listed above.



Benefits Provided by Energy Storage

Large-scale energy storage improves the way power markets generate, deliver, and consume energy, providing many benefits:

- Energy storage facilities have minimal developmental impacts. They occupy little land, can be screened to minimize visual impacts, are emission-free, and have low traffic and noise profiles.
- Energy storage smooths out the electricity supply from energy sources with variable outputs, ensuring that energy generation meets energy demand.
- Energy storage has a rapid response time, discharging power to the grid quickly (within milliseconds) to maintain grid stability when sudden changes occur in energy demand.
- Energy storage cuts energy costs for consumers by reducing economic losses from major and minor power outages and allowing cheap, clean energy to be stored for later use.
- Energy storage allows for energy diversification by allowing it to be consumed on demand and at a controlled rate.

Energy storage projects also provide numerous benefits to the local communities in which they are sited:

- Energy storage projects add value to local economies and cut energy costs for consumers.
- They generate property tax revenue, which promotes economic development and can be used to support local schools and emergency services – all without the need to raise local tax rates.
- Energy storage projects create temporary and long-term employment opportunities.
- These projects provide landowners with option payments during the development period, lease payments during the term (once development is complete), and a low-impact neighbor during operation.
- Energy storage increases energy security during times of emergency and smooths out otherwise volatile energy prices, leading to more manageable supply and demand patterns.

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