# Battery Energy Storage System (BESS)

**We engineer, procure, and construct battery energy storage systems (BESS) that keep power flowing when it matters most — handling every phase from site assessment to grid connection under one accountable team. One partner, one seamless path from blueprint to energized, delivering projects built for decades of dependable performance.**

## Building world-class BESS projects:

- Early contractor engagement
- Feasibility studies
- Permitting and regulatory compliance
- Full-service EPC offerings
- Technical drawings, 5D modeling, and more
- Clean-up and reclamation
- Commissioning and handover

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A BESS site appears as a series of trailers on flat land, yet the construction behind this is complex and technical. It requires a detailed understanding of electrical engineering. A network of wiring under each trailer connects the energy storage units together, and links the system to a substation from which the produced energy can enter the grid. WHC manages the engineering, procurement and construction of this process.

Building a BESS project is multi-faceted. Civil works start the process as land must be cleared and tested to ensure it can support the foundation and pilings. It also must have sufficient drainage and proper access. Then structural construction can begin.

Not all BESS projects are alike, with desired voltage and capacity varying per project. Understanding which module to purchase is often a consultation between us as the contractor and the client that owns the project.

At the commissioning stage, power from the BESS inverter is connected to the grid, which is a precise delivery requiring careful engineering.

Because of the many construction stages and stakeholders involved in a BESS project, consistent and collaborative consultation and engagement is required with clients, regulators, nearby landowners, and more.

This is where WHC can help; we can oversee feasibility studies, early contractor engagement and we understand regulator considerations. We're here to help.

Battery Energy Storage System

# Engineering Approach

Our preconstruction and engineering teams work alongside all disciplines — civil, geotech, structural, electrical, SCADA, estimating, procurement, and constructability review — supporting projects from preliminary engineering through capacity testing and commissioning.

## Constructability and Design Reviews

- Basis of Estimate (BOE) development
- Basis of Design (BOD) development
- Constructability review — civil, structural, electrical

## Layout and Site Optimization

- Site feasibility screening and constraint analysis (wetlands, T&E, FEMA, cultural)
- Buildable area analysis; slope, aspect, and terrain studies
- Constraints overlay mapping

## Civil, Grading and Drainage

- Earthwork balance and cut/fill optimization
- Access road design and route optimization
- Bore crossing design for MV cable, fiber, and utility routing.
- GPS machine control on grading equipment validated against drone-derived DTM — grade conformance confirmed in real time, not after the fact

## Geotech and Foundation Engineering

- Geotechnical investigation scoping and oversight
- Pile load test program design development and oversight
- Refusal mitigation strategy and engineered field responses
- Subsurface mapping, refusal heatmaps, and soil zoning
- GPS tracked Field production data (pile installation rates, refusal events)

## Drone, GIS and Digital Tools

- Drone-based photogrammetry
- Digital terrain model (DTM) generation; 3D site modeling for grading optimization and tracker layout
- Grading analysis and cut-and-fill heat mapping
- Depth to bedrock and pile refusal heat mapping
- Flood depth and pile reveal analysis

3D Model of Battery Energy Storage System

Conduit Subgrade

Conduit Stub-ups

Equipment Penetration

**WHC – A Surerus Murphy Company constructs critical infrastructure for the Power sector. We support the full cycle of construction, from early contractor engagement to commissioning and hand-over to the client, and all the steps in between. We are large enough to tackle mega-projects and be successful in managing their complexities, and nimble enough to work on smaller capital projects where there is a need to respond quickly to client needs.**

# What makes us unique is:

Our bench strength. Between us and our parent companies, there is hardly a challenge we haven't seen before, but if there is, we have a depth of skillsets we can call on to help us find solutions.

Our focus on collaboration. We believe in ongoing, transparent communication and we are willing to have the hard conversations when they are required. We don't just work with our clients, we build partnerships.

Our unwavering commitment to safety. Safety isn't just something we say we do; we live it. It is one of our core values. Working safely anchors our drive to be a contractor of choice because we can't be one without the other.

Our delivery of consistently reliable construction. We care deeply about delivering quality to our customers and providing thoughtful and supportive customer service. When we build reliably, we also deliver quality, safety, partnership and value.

Our commitment to our core values. Our core values of Never Harm, Trust, Integrity and Assured Delivery guide how we work with each other, our stakeholders and our clients. We keep our core values alive and recognize each other when we see them in action.

**We successfully build BESS projects across the United States, in urban and rural settings, and across a variety of landscapes.**

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