



Realising the value of Energy Storage Systems

The key to unlocking investment capital

Who we can help

OST provides energy storage evaluation, due diligence and implementation services. Our expertise covers the complete range of system types and capabilities including:

- Grid balancing and support systems including Virtual Power Plants
- PV and wind generator co-located systems for firming capacity and resolving settlement imbalance
- Continuity of power from renewable generators in weak grid, micro-grid and stand-alone situations
- Stand-alone systems

The benefits of Energy Storage System technology

The global market for Energy Storage Systems (ESS) is set to continue its exponential rise.

Having advised on many thousands of renewable energy projects across their full lifecycle, OST has acted as Technical Advisor on numerous ESS projects in multiple continents including America, Europe, and Africa, ranging from hydrogen battery technology to flagship lithium-ion plants. OST can assist electricity generators, network utilities and energy suppliers enhance the flexibility and energy security of their systems and increase the value of their electricity operations by helping them utilise the maturing range of ESS technologies now available.

Electricity grids across the world are evolving to accommodate the proliferation of renewable and decentralised energy generation technologies. Maintaining the moment-to-moment stability of power across these networks is a growing challenge for transmission and distribution network operators.

The intrinsic flexibility of established ESS technology enables greater energy security, from remote isolated systems to utility scale networks. The requisite demand capacity during daily peak periods can be achieved by absorbing power and energy when nature is ready and releasing it when consumers are ready.

The multiple benefits of implementing ESS technology in electricity networks are widely cited. However as ESS solutions enter the commercial mainstream, the key to unlocking investment capital for an individual development is establishing robust service revenue streams across the lifetime of a plant which has the potential to deliver one or more of these cited benefits.

Our typical renewable energy services include:

- Due diligence
- Environmental & social services
- Technical advisory
- Construction monitoring
- Project management
- Project feasibility studies
- Project development services
- Design & engineering services
- Contract, risk & financial advisory
- Grid connection support
- Technical component reviews
- Energy yield & resource analysis
- Operational performance analysis
- Asset management
- Energy efficiency services

Having established wide recognition across leading solar PV markets with a large and varied client base, we are well placed to offer advice to investors and banks about their needs and expectations in the rapidly expanding energy storage sector.

Implementation services

OST can assist decision making by providing tailored service packages to meet our clients' specific requirements. We offer support from initial feasibility through to decommissioning; supporting the progression of a project through its feasibility, development, construction and operation phases, covering:

Fully independent feasibility assessments

High-level business model development of system services, lifetime revenue streams, functional modelling and evaluation of investment grade technical inputs to financial models, leading to in-depth economical assessment.

Development and planning

OST can provide assistance with submission of grid connection applications from technical detail and single line diagrams to liaising with DNO planners, as well as offering physical assessment of potential sites and preparation, management and submission of planning applications, from initial layout design to all required technical information, drawings and liaising with the local authorities.

Analysis

Effective economical assessment and functional analysis of projects is central to helping our clients access the most robust revenue streams or to minimise overall cost and risk for the project. We provide in-depth business model development for the following primary ESS implementation scenarios:

- Direct transmission or distribution network connections
- Co-location with intermittent renewable generation
- Virtual Power Plant configurations
- Weak grid and off-grid electrification

Once preferential revenue streams have been identified, the system technical design can be suitably sized and performance tuned to optimise the delivery of those services to provide greatest return on investment, while retaining the integrity of the system within long term warrantable operational ranges.



Technical due diligence

Thorough technical due diligence prior to procurement is an essential tool to ensure the reliability and bankability of an ESS project. At the heart of OST's expertise is the independent identification and evaluation of technical and commercial risk, underpinned by the comprehensive assessment and implementation of practical, cost effective risk management. We can provide independent expert technical input across the project lifecycle to inform incisive decision making by our clients.

Commercial advisory

Based on a deep understanding of the technical and commercial aspects of procurement, we can help our clients establish the framework for the tender and negotiation of construction contracts. Our experience in working alongside financial and legal advisors helps us convey project risks with clarity to clients and establish mechanisms for their mitigation.

Technical advisory

Our team of experts can guide an ESS project's successful provision of technical design and specification elements from the grid connection, physical site investigations, equipment selection, civil works and mechanical installation through to electrical and ancillary works.

Independent technology reviews

OST's dedicated independent technical component reviews of your ESS technology can give investors the confidence they need and help clients to mitigate the risks associated with key items of equipment used on a project.

Construction monitoring

As part of our extensive ESS advisory portfolio, we have established a tailored construction monitoring service to undertake witnessing and inspection of key construction activity and formal reviews of project documentation, agreements and testing to verify that EPC contractual requirements for ESS plant performance have been met.