Energy Yield Assessments - Wind

How is your project really performing?

EYA services

OST offer a range of key energy yield assessment services, including:

- Wind data processing
- Energy yield assessment
- Computational flow modelling
- Site conditions
- Offshore operations
- Operational performance analysis
- Energy yield re-forecast
- Performance optimisation

OST and its advisors have worked on circa 60 GW of onshore and offshore wind power projects and have been involved in over $30 billion of operating plants around the world.

Our team has accumulated extensive experience in technical due diligence and analysis roles providing engineering input and wind studies.

OST specialises in data analysis, to help our clients make the most of the information available, and to deliver projects with maximised energy yield and minimised overall cost and risk.

The devil of analysis is often in the detail, so OST has developed a complete range of services, designed to deliver results in the face of complexity for feasibility, pre-construction and operational assessments.

Our services are designed to be useful and clear, in spite of complexity. Thanks to our specialist advisors’ experience across all stages of development and in different markets, we provide critical input (at the right time) to help our clients build better wind energy projects.

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- **High-level yield estimation:** For projects with no on-site data, OST provides indicative wind resource and energy yield results across the globe; the ideal solution for prioritising development funds within portfolios.

- **Layout design and optimisation:** In today's competitive market, reducing the cost of energy is the major challenge to project success. OST has a proven track record in achieving cost reductions by using comprehensive cost-modelling and optimisation tools. We can integrate project constraints such as wake effects, noise limits, shadow flicker, setback limits, telecommunication links, aviation tip height limits, and curtailment for bats & birds, etc.

- **Wind monitoring campaign design and management:** Wind data is key to any project, and quality data can reduce uncertainties resulting in better project finances. OST provides full monitoring campaign design services.

- **Turbine comparison:** With many different options available in today’s market, OST provides impartial advice on the most appropriate turbine models and sizes for a site's wind resource, delivering the maximum yield whilst considering environmental and local factors.

**Independent energy yield analysis**

Following collection of sufficient wind data, OST provides detailed analysis resulting in a yield report suitable for the purposes of pre-construction project financing, consistently proven as bankable in global markets.

- **Wind data processing:** Choosing the best data is the basis of wind analysis. OST combines our experience with data selection, our computational tools, and our scientific judgement in order to audit the data, apply process, produce concise reports, and deliver key statistics adapted to the client's financial, engineering, or management demands.

- **Energy yield assessment:** OST will deliver a tailored product, from a simple feasibility analysis to finance-grade estimates, including a detailed breakdown of losses and uncertainties (P50, P90, etc.). We then guide our clients in interpreting the results and understanding how their project compares to others.

- **Computational flow modelling:** We use our independence to select the best products available, for computation fluid dynamics (CFD) modelling at a complex forested site, or wake modelling multi-gigawatt offshore arrays.

- **Site conditions:** Prediction of normal and extreme climatic conditions for the project design and specification.

**Operational energy yield analysis**

Data obtained from an operational project is high value. OST provides tailored approaches to SCADA data analysis for the purposes of project refinancing and acquisition, or to better inform clients on the performance and optimisation of their assets.

- **Operational performance analysis:** From a high-level review to a thorough data trawl, OST uses bespoke tools to handle significant data quantity to highlight savings and inform operational decisions.

- **Energy yield re-forecast:** For the purpose of refinancing, project acquisitions, or simply to better understand the expected future energy yield predictions of a project, OST will undertake a re-forecasting of the yield based on performance to date. Typically, uncertainties are substantially reduced in comparison to pre-construction estimates.

- **Performance optimisation:** Analysing the performance of wind turbines can require the most detailed level of analysis, but is necessary to promote accountability for the sale of a power curve. Where appropriate we will advise on when to do a power performance test, how to secure compensation and provide recommendations for future operation.

**Independent EYA and CFD flow modelling – Hornsdale 1, 2 & 3 wind farms, Australia**

With a total of more than 90 turbines, the quantification of wake effects of one project on the other was of high importance. The EYA references several primary sources of wind data including masts of different heights and a roaming SODAR and the finance-grade report includes analysis of on-site met data and reference data, long-term corrections, wind flow and wake modelling and full assessment of P50, P90 scenarios and capacity factors for the three 100 MW projects.

Due to the complex nature of the wind flow and the site specific meteorological conditions, the analysis was undertaken using an advanced CFD flow model, resulting in higher confidence in the results and an improved P90 / P50 ratio.

**Site of the Hornsdale Wind Farms, Australia**

To discover more, please email info@ostenergy.com or visit our website at www.ostenergy.com