

# WindManager

your wind farm portfolio information system

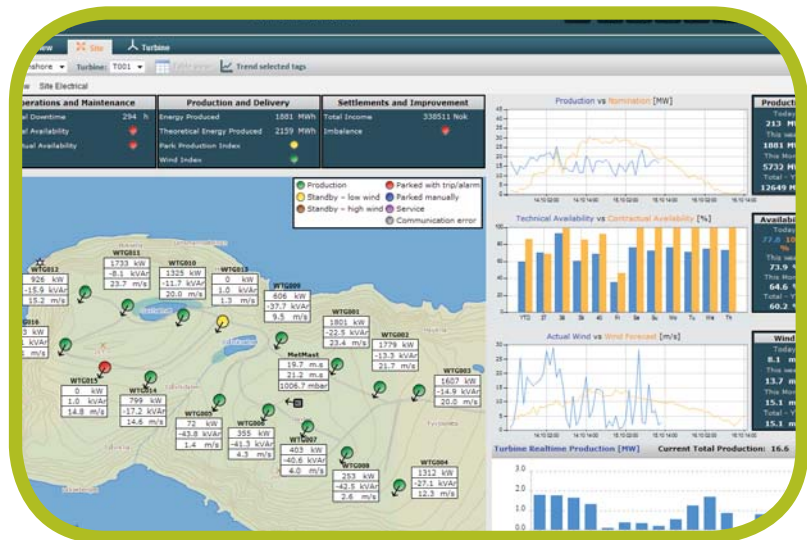
**multi-site wind farm operations**  
including management services and  
product innovations:

**ForeSite™**  
forecasting for wind farms

**WindCentre™**  
operational site control

**Melogale™**  
operational data analysis

**SeaPlanner™**  
offshore marine management



product **innovations**  
management **services**



# WORLD-CLASS OPERATIONS

To excel in wind farm operations you need to be able to operate leanly, collaborate for accuracy & efficiency and apply work processes and standards that allow you to stream line and benchmark performance. With offshore development this can be even more critical given the cost of marine logistics. WindManager™ takes the concept of “Integrated Operations” from other energy markets and applications into wind farm operations.

Natural Power is a leading provider of Asset Management services on wind farm sites – we provide these services on more than 600MW of operating windfarms for both major utilities and independent power producers. We provide site organisation systems, software tools and procedures in the provision of end to end windfarm management services, in conjunction with leading industry standards, to ensure our clients wind farm assets are maintained and operated to maximize revenue, minimise downtime and at all times with the highest regard for H & S.

Combined with the power of the real-time operations management system from Baze Technology we are able to offer unsurpassed real time operations services. Natural Power's experience in wind farm design and asset management coupled with the industry-driven and performance based system from Baze Technology, adds substantial value to the market.

The **MONITORING** module captures data from wind farm assets, visualises and reports. It contains all necessary core WindManager system components.

The **ANALYSIS** module allows the wind farm personnel's expertise and knowledge to be applied by supplying a series of tools for analysis of performance inside turbines, across turbines and across sites.

The **OPERATIONS MANAGEMENT** module facilitates best practice collaboration on operations, daily and weekly decision meetings and nomination.

The **EXPERT** module allows raw data set manipulation and scenario modelling to be undertaken.

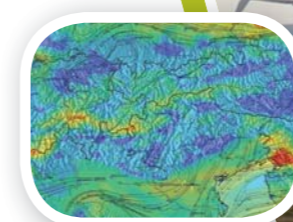
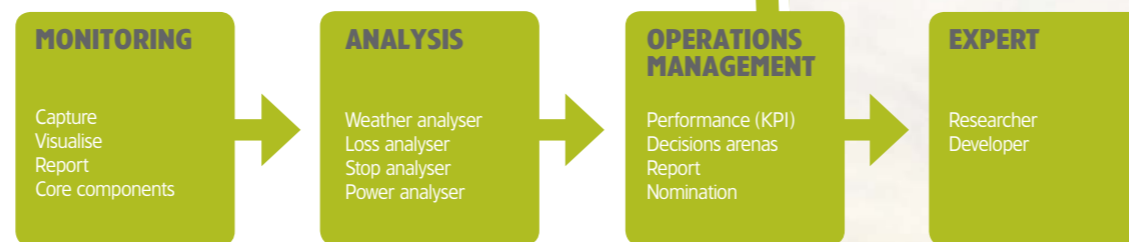
Natural Power's complementary tools and services include:

**WindCentre™** operational site control providing operational control of wind farms 24 hrs per day, 365 days per year ensuring Wind Turbine Safety Rules (WTSR) compliance, site access control, work control and weather watch. Our control room also provide Outage Notifications and communications with the grid operator and electricity off-taker. We are trained in providing emergency co-ordination and fault resets as part of a pre-agreed schedule.

**Melogale™** operational data analysis centred on a suite of in-house software tools facilitating the detailed analysis of all the data streams associated with an operational wind farm. Melogale incorporates both software data pre-processing and analyst post-processing of site data – gaining insight and accuracy beyond that possible by purely automated reporting systems. All reporting is intended to be independent of manufacturer and turbine model and figures can be derived in terms of actual generation in order to trace every last kilowatt-hour lost or gained.

**ForeSite™** forecasting for wind farms providing a site specific energy forecast for any wind farm worldwide on a daily or hourly basis. Wind farm owners now have the ability to address trading / dispatch risks and to optimise downtime scheduling. This best-of-breed meteorological forecasting is merged with Natural Power's industry-leading practical wind farm consulting and management services, bringing knowledge from the ground up to improve the accuracy and relevance of forecasts for individual wind farm sites.

**SeaPlanner™** offshore GIS, site and data management utilising a range of customised software tools and consultancy services to support the best use of project information. Modules include Personnel, Marine, Health & Safety, Metocean and Document Manager to provide an end-to-end solution for your offshore project or portfolio of sites.



**Web interface and summary showing current operational / real time status** ensuring an actively managed site to the highest standards against customised KPI's

**Web based customised reports** providing daily / weekly / monthly benchmark reports across the portfolio with customisable fields delivered to your desktop

**Real time alarm analysis and notification escalation based on customer defined rules, alarm levels and asset details** providing an immediate fault response service

**Tracking of all alarms, even transients** ensures monitoring of turbine performance

In conjunction with Natural Power's additional tools:

**Site centric weather forecasts, coupled with specific wind regime per turbine power curves, turbine availability and planned works** all contributing to the most overall accurate production forecast possible

**Web based real time status tracking of all service vessels, all asset status, all work order activity** enables tracking of activity around the offshore windfarm, in real time

**Web status of work orders, assigned work, scheduled works, staff on site and activities underway**

**Data warehousing of complete windfarm data sets with comprehensive search functionality** providing full audit trail of all activities and events



