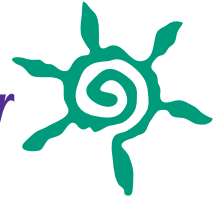




part of the **Natural Power** group

natural power



PROJECT INITIATION & SITE SCREENING

Careful site identification is critical for renewable energy development. The choice of site determines the regulatory regime, pricing structure and outlines physical characteristics that will be encountered. Our in-house team of GIS specialists, ecologists, experienced project managers and wind analysts consider infrastructure, grid accessibility, outline resource and socio-environmental constraints which allow developers to carefully select locations best suited for successful project development. Offshore, our experienced team assess met ocean constraints, ports & harbours, water depths and soils to support bid submissions for site leases.

Our services include:

- **PROSPECTING AND RANKING**
- **ENERGY RESOURCE MAPPING**
- **GIS CONSTRAINT MAPPING**
- **LAYOUT DESIGN & OPTIMISATION**
- **PRELIMINARY FEASIBILITY STUDIES**



PROSPECTING & RANKING

By employing our broad range of skills and knowledge, Natural Power can assist clients in undertaking detailed site prospecting exercises and also in ranking project portfolios according to risk and opportunity.

A typical prospecting and ranking exercise would involve mapping, analysis and screening of key site issues such as environmental constraint, permitting prospects, energy resource and quality, construction and access, access to grid infrastructure, land availability and project economics.

GIS CONSTRAINT MAPPING

Natural Power possess the skills and technology to undertake bespoke GIS based mapping exercises to support renewable energy projects throughout their life-cycle, from early prospecting through the consenting process and onwards to construction and asset management.

We apply our GIS tools in a wide variety of applications, and our first-hand experience with renewable energy projects allows us to make optimum use of the power of GIS, by combining comprehensive project data with our in-depth understanding of what makes renewable energy projects successful and profitable.

PRELIMINARY FEASIBILITY STUDIES

We provide an initial desktop assessment of relevant issues and reporting on:

- Site topography and potential development area
- Ecological designations (Nature Reserves, SNH Sensitivity Mapping, RSPB Important Bird Areas etc.)
- National & local designations
- Civil and MoD air traffic & radar designations
- Historic designations
- Potential neighbour constraints (noise sensitivity)
- Potential land and access requirements
- Indicative planning policy issues
- Initial wind flow and wind resource issues
- Regional context and constraints maps
- Potential grid connection opportunities
- Recommendations for progression to detailed feasibility studies

ISO CERTIFICATION – Natural Power has established rigorous procedures and work instructions for all aspects of our business. All staff currently work to a list of core procedures for quality & environmental business management. Full details of our integrated QE management system are available on request. The following scopes for ISO 9001:2008 have been achieved, applicable to all our UK operations

Technical Services UK – Resource management, analysis, modelling and design for the pre-construction phases of onshore and offshore renewable energy projects, including the application of tools and the methods for assessing complex flow environments for wind, wave and tidal environments.

Asset Management
Wind Farm Operational Site Management

LAYOUT DESIGN & OPTIMISATION

Natural Power have a proven track record in designing realistic wind farm layouts that optimise the balance between a wide range of technical, environmental and physical constraints and parameters, typically including the following design aims:

- Maximise wind turbine energy yield
- Minimise cost of energy (all project costs)
- Minimise wind flow quality issues
- Minimise environmental impact (ecology, noise, visuals etc.)
- Recognise ground slope and soil conditions to optimise construction activities
- Avoid infrastructure conflicts (pipeline, microwaves etc.)
- Consider future asset management activities and health & safety issues

Our ultimate aim is to deliver realistic wind farm layouts that are consentable, buildable, financable and operable.

We apply our skills throughout the project lifecycle including:

- Conceptual layout studies to inform early project feasibility
- Intermediate designs, iterating through the development cycle
- Optimised final designs for consenting, financing and construction

We have designed over 800MW of consented wind farms onshore, and 1200MW offshore.

ENERGY RESOURCE MAPPING

Natural Power have proven experience in delivering resource mapping exercises for wind, wave and tidal energy projects, from regional scale right down to device scale.

We employ a wide variety of tools, methods and data sources to create resource maps for any given purpose or region, allowing us to optimise our approach on a case by case basis.

As well as mapping fundamental criteria such as resource magnitude and density (such as mean wind speed, tidal velocity or wave power density), we are also able to provide clients with a statistical analysis of temporal resource variation (such as monthly or annual), and also to provide maps of crucial resource parameters and flow characteristics, such as turbulence, shear and flow inclination for wind energy applications, or flood/ebb directional offsets for tidal energy applications.

Development Consultancy Services – Project management, consent management, due diligence and consultancy services including initial site feasibility studies, land agreements, management of the EIA process and planning applications, stakeholder consultations, permitting and discharge of planning conditions of renewable energy projects (onshore & offshore wind, wave & tidal, biomass, PV, hydro and associated infrastructure).

Construction & Ecology Management Group
Project Management, due diligence and consultancy services (to include pre and post construction phases) for the construction of wind farms and biomass energy projects with associated site investigation services and onshore/offshore ecological surveys.

