

## Renewable energy

The Government is serious about its commitment to renewable energy and has set a target that 10% of electricity supplied in the UK is to be from renewable energy sources by 2010. This is a challenging task when in 2001 renewable energy accounted for just 3% of UK electricity supply. The utilities industry has consequently been the subject of increasing legislation, measures and penalties to increase renewable generation and develop a more sustainable approach to energy use.

Sources of renewable energy are diverse and several represent a credible alternative for the industry. In addition to solar and hydro-electricity, onshore wind generation is expected to expand significantly. Onshore wind farms represent one of the cheapest forms of renewable energy for the UK; it is one of the windiest countries in Europe and conditions are ideal for electricity generation.

A number of parties are involved in the identification and development of these sites and it is vital that these opportunities are investigated accurately and cost-effectively. While corporate social responsibility is a strong business driver, the industry's key players need to work with only those locations that are commercially viable long-term options.

### Benefits of GI

Geographic information can help the utilities sector identify possible opportunities for renewable energy development, ascertain the practical viability, communicate effectively between parties and review developments.

Ordnance Survey's digital map framework, combined with third party data, enables the most detailed, accurate and current picture of sites to be obtained. Ordnance Survey has some 350 field-based surveyors working to ensure the absolute integrity of its data; some 5,000 changes to the database are made every night. OS MasterMap®, its most detailed digital data of Great Britain, offers complete and consistent coverage of the whole country.

Planning the sites of onshore wind farms can be fraught with difficulties. The ideal site for energy generation must be feasible for development in terms of environment effect, access, land ownership and surrounding land usage – it is crucial to have clear and up-to-date information about what is on the ground and the ability to communicate this with other parties.

### Remote control

In order to avoid unnecessary expenditure, planning a new energy infrastructure must be done remotely, particularly in the initial stages. To enable organisations to manage the development from the onset, it is imperative accurately to identify

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existing networks, details of land and property ownership, site access routes and details about the surface area.

This information can be derived from the layers of OS MasterMap or sourced from other data and linked to the digital mapping using unique identifiers (TOIDs), which are a key part of the Topography Layer. This layer is a large-scale digital database of the detailed surface features of the landscape; some 440 million features are included, each with a TOID number that provides the framework for additional information.

This resource enables utility companies to evaluate sites remotely – a distinct competitive advantage in the sector. When combined with height data and third party weather systems analysis, wind corridors can be identified and potential sites selected. The Topographic Layer alone enables the relative positions of every building and every tract of land to be identified.

Many disparate organisations including distributors, suppliers, local authorities and central government are involved in site selection, construction and maintenance of the systems. Consistent mapping between all involved stakeholders enables the mapping system to become the enabler for all parties to communicate and work in a coherent manner, increasing the confidence and speed of communication.

## Picture perfect

A combination of the Topography Layer and the Imagery Layer gives an even more detailed impression of what is on the ground. Created from high-quality aerial photography, the Imagery Layer provides a seamless aerial picture of Great Britain.

The Imagery Layer offers a detailed visual impression of a site with all images fully orthorectified to represent truly and accurately what is on the ground. When combined with the Topography Layer it provides an impression of the location almost as clearly as if you were there – you can see not only that there is a line of trees but gauge the extent of the branch overhang. When considering planning, line-of-sight and access this level of information is essential.

The ability to present planning propositions visually is invaluable when communicating with diverse audiences. While professionals in the utilities industry are often accustomed to interpreting and discussing mapping data – for example with members of the public at planning meetings – aiding understanding through an easy-to-use visual demonstration could be essential in overcoming potential controversy.

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## Find out more

OS MasterMap – [www.ordnancesurvey.co.uk/osmastermap](http://www.ordnancesurvey.co.uk/osmastermap)