

Local Project Support Fund 2011/12

Project Report:

Exploring the Potential for Renewable Energy Development in Blackburn with Darwen and Hyndburn, Lancashire

- **Developing the evidence base for renewable energy planning policy development**
- **An approach to assessing potential deployment of wind energy at a local authority level**
- **Measuring the theoretical visibility of potential wind energy deployment**

In March 2010 planning permission was granted for the development of a large scale wind farm on Oswaldtwistle Moor comprising 12 turbines each of which was over 120m in height. The visual impact of the development was one of the key considerations and, understandably, concerns were raised about the degree of impact the development would have on the landscape.

Nationally, there is a need to diversify sources of energy and to provide an increasing proportion of the nation's energy from renewable sources. There is a need to balance this requirement against the impact renewable energy development may have on our landscape. To do this effectively it is necessary to understand the potential that exists in an area for wind energy development to enable local authorities to develop a more detailed planning policy framework to manage wind energy development, in line with the recommendations of the National Planning Policy Framework.

The purpose of this study was to consider the extent to which local wind energy resources could be utilised within the study area and the extent to which the potential deployable resource identified by the Lancashire Sustainable Energy Capacity Study could be delivered. The study was also intended to act as a case study that could be applied by other authorities in the development of policy.

Project Leads

Hyndburn Borough Council and Blackburn with Darwen Borough Council. Delivered by SQW and Maslen Environmental. Lancashire County Council also assisted with the development of the project brief.

Rational for the Project

A large bank of data exists on the renewable energy capacity of England's northwest, Lancashire and its constituent local authorities, produced to assist Local Planning Authorities with the preparation of planning policies on renewable energy. Further work, completed in March 2012, provided capacity projections and theoretical targets for renewable energy deployment in each Lancashire authority to 2030.

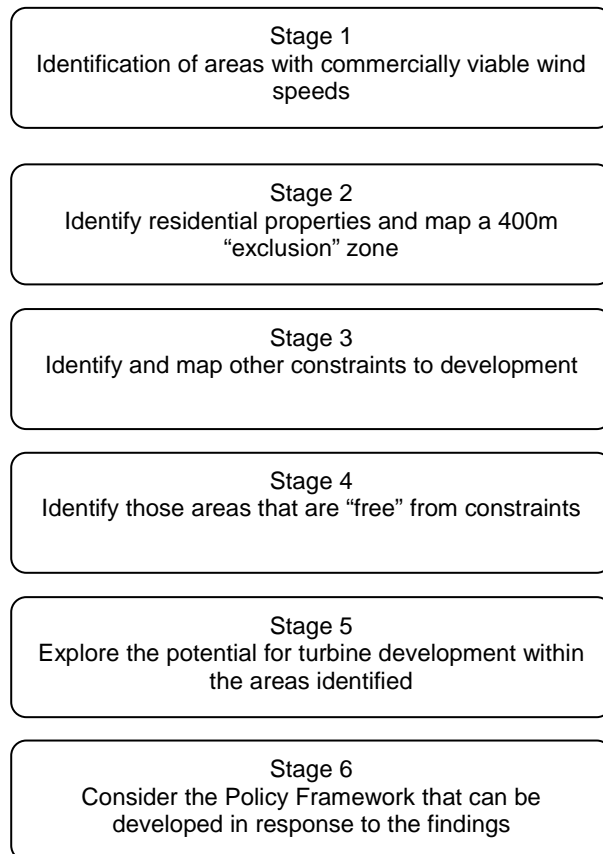
This study used two authorities to assess the planning implications of meeting 'targets' through wind

energy development, the processes involved and considerations for policy development. The object was to provide examples of using the data compiled in the various studies, turning the theory into practice. Both authorities possess adopted Core Strategies and are in the process of developing more detailed policy that would be presented within a site allocations and/or development management DPD.

Methodology

A mapping exercise to identify those areas of the selected boroughs that have the potential to accommodate wind turbine development, based upon recognised constraints, using a geographical information system. This mapping took into account geographical constraints, commercially viable constraints and the impact of existing and proposed wind farms.

The initial stage involved data collection from a range of sources including Blackburn with Darwen Borough Council, Hyndburn Borough Council, Natural England, the NOABL (Numerical Objective Analysis of Boundary Layer) dataset, English Heritage, and the Ordnance Survey. The data collected included wind speed data, residential addresses, all designated areas, national trails and cycle routes, landscape character areas, road and river networks and all known existing and proposed wind farm details and locations.



The second stage of the work involved linking appropriate datasets together, and then presenting these as an integrated set of figures to 'walk the reader through' the sequential aspects of potential wind energy capacity. The figures were assembled with a technical planning audience in mind.

Strategic Search Areas

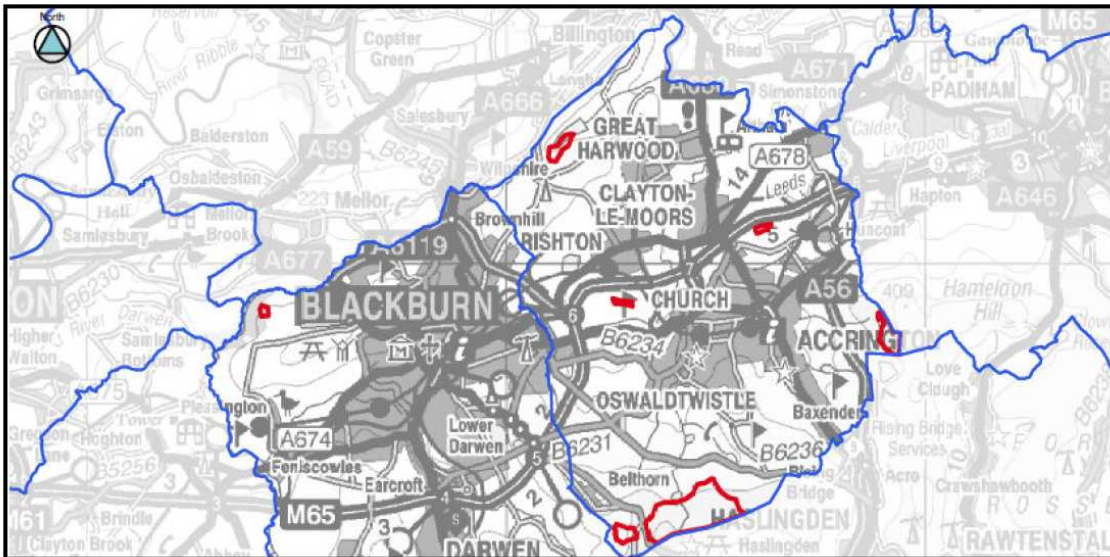
Strategic Search Areas (SSA) were generated by buffering out a number of areas such as those with average wind speed below 6m/s and around housing. Once the SSAs were identified the number of turbines each area could accommodate was assessed on the basis of an average of 400m spacing between turbines. This distance was derived through studying several existing wind farm developments and the theoretical maximum calculated.

Once the number of maximum theoretical turbines each SSA could accommodate had been identified a more likely scenario of 'mock' turbines were evenly placed within the SSA, taking account of micro-siting issues such as

- Proximity to major watercourses
- Steep slopes
- Footpaths

This created maximum 'mock' wind farms within each SSA.

Once the maximum number of 'mock' turbines that could fit into each SSA had been identified example commercial wind farm developments were created to show how renewable energy 'targets' might be reached.



Extract from Map of Plan illustrating potential areas of search.

Zones of Theoretical Visibility

A second set of figures show the existing and example wind farms within sight of the study area and their zones of theoretical visibility.

'Theoretic Visibility' is the term used to describe the visibility of the wind turbines from the surrounding area. The visual influence of a wind farm on the landscape is an important issue, especially in regions with high population density. The use of computational design tools allows the zone of theoretical visibility (ZTV), or visibility footprint, to be calculated to identify from where a wind farm would be visible.

The figures were produced using an in house methodology. Such maps tend to exaggerate the actual visual effect of a wind farm, as they do not clearly indicate the effect of distance on the visual appearance or obstructions such as buildings or woodland. These factors can be incorporated into the ZTV but only work on a much smaller scale. The figures show the cumulative ZTVs for existing,

potential and study wind farms.

Workshop

Maps and analysis were presented at a workshop attended by officers and elected members from the two councils. In addition to a presentation on methodology and outcomes the workshop addressed the opportunities and impacts arising from wind development.

Conclusions

Planning policy for wind energy should be developed on the basis of a good understanding of the potential of an area for turbines to be developed. It is not possible to develop large turbines in close proximity to housing, roads, railways, or watercourses. At the heart of this study was a mapping exercise that was intended to identify constraints to development as a means of then identifying potential sites that were not subject to constraint. Some simple modelling was then undertaken in respect of some of the sites identified.

The study provides a useful insight into the ability of the area to develop potential wind energy resources and will form part of the evidence base for the development of more detailed renewable energy policy in Hyndburn and Blackburn with Darwen.

To View The Report

Reports have been prepared for each authority. To view contact [Simon Prideaux](#) at Hyndburn BC.

Acknowledgements

The project brief was undertaken with limited resources. Thanks must go to Rachel Brisley (SQW) and Steve Maslen (Maslen Environmental) for their commitment to the project and for providing the data in a variety of formats so that it could be constructively used by the local authorities.

Planning Permission

The study comprises a desk exercise that was intended to inform the development of policy. It is based on existing geographical entities and does not make any judgements about the acceptability of sites for large scale wind turbine development other than indicating that they may, or may not, be within an area of constraint. Planning permission is required for the development of large scale wind turbines.

Contact

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References:

SQW Ltd '[Northwest renewable and low carbon energy capacity and deployment project report](#)' September 2010

SQW Ltd Lancashire Sustainable Energy Study: Technical Report and Individual Borough Reports March 2011

SQW Ltd Renewable Energy Target Setting & Policy Development March 2012

<http://www.claspinfo/lancashire>



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