



UK Small-Scale Wind Survey

Installed Capacity,
Annual Generation &
Market Growth

Executive summary

**Report to
Department of Energy and Climate Change**

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Executive summary

Interest in microgeneration technologies has been increasing in recent years supported by a number of policy measures, most notably the Governments Microgeneration Strategy 2006. Potentially, such systems including small-scale wind turbines could make a significant contribution towards meeting UK renewable energy targets and climate change goals.

The study gathers data relating to turbines between 0 – 100 kW in order to estimate the number of installations and installed generating capacity at the end of 2008. Also discussed is the likely development of the small-scale wind industry and the possible drivers and barriers that may affect future uptake.

On the basis of available data, it is estimated that there are approximately 14,000 small-scale wind turbine installations up to 100 kW in the UK in 2008, with an installed generating capacity of around 26 MW. 84% of all small-scale turbine units installed in the UK are Micro-Wind Turbines i.e. with a power rating between 0 – 1.5 kW which provide 9 MW of generating capacity. Turbines with a power rating between 1.5 – 10 kW account for approximately 10 MW of generating capacity in the UK.

Electricity generated from small-scale wind has been estimated to be in the region of 16 GWh/yr. This figure is based on a review of recent studies to determine appropriate capacity factors for small-scale turbine generators – previous values are known to have overestimated likely turbine energy output. However the estimated electricity generation is still very uncertain – the value could be as high as 33GWh or as low as 3GWh. As more turbines undergo operational testing in order to achieve industry approved accreditation standards and appropriate siting improves, more accurate estimations of energy output can be made.

In order to offer figures for the number of small-scale wind units by devolved nation, numbers for England, Wales, Scotland and Northern Ireland have been extrapolated. This assumes that the relative uptake of small-scale turbine grants awarded to each country is representative of market share. Using this method, over half of the UK's small-wind turbines are in England with an installed capacity of over 16 MW. Wales, Scotland and Northern Ireland account for approximately 6%, 13% and 23% of units respectively.

The future development of the small-scale wind industry is dependent on a great number of factors and the interplay between market drivers and barriers to growth. Government environmental targets, escalating fossil fuel prices and a call for greater energy security are all serving to promote small-scale wind and boost sales. However, there exist a number of significant hurdles to overcome in order to achieve widespread penetration in the UK.

Table 1: UK Small-Scale Wind Turbine sector summary in 2008

| Turbine Size (kW) | Estimated No. of Units | Installed Capacity (MW) | Energy Generated (MWh/yr) ¹ |
|-------------------|------------------------|-------------------------|--|
| 0 - 1.5 kW | 11,996 | 9.0 | 4,729 |
| 1.5 - 10 kW | 2,014 | 10.1 | 6,175 |
| 10 - 20 kW | 198 | 3.0 | 2,081 |
| 20 - 50 kW | 47 | 1.6 | 1,297 |
| 50 – 100 kW | 29 | 2.2 | 1,905 |
| Total | 14,284 | 25.9 | 16,187 |

¹ Assuming 'Average' capacity factor scenario (see Section 3.1)

Table 2: Small-Scale Wind Turbine grants awarded in the UK

| | No. of Grants | % |
|------------------|---------------|------------|
| England | 1,119 | 57.6 |
| Wales | 117 | 6.0 |
| Scotland | 257 | 13.2 |
| Northern Ireland | 449 | 23.1 |
| Total | 1,942 | 100 |

Table 3: Estimated Small-Scale Wind Turbine sector details by country, based on grant allocations

| | Estimated No. of Units | Installed Capacity (MW) | Energy Generated (MWh/yr) ² |
|------------------|------------------------|-------------------------|--|
| England | 8,231 | 16.6 | 9,327 |
| Wales | 861 | 1.7 | 974 |
| Scotland | 1,890 | 3.8 | 2,142 |
| Northern Ireland | 3,303 | 6.7 | 3,742 |
| Total | 14,284 | 28.8 | 16,187 |

² Assuming 'Average' capacity factor scenario (see Section 3.1)



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