

BWEA Small Wind Systems UK Market Report 2008



The voice of the UK micro and small wind industry

“

BWEA plays a crucial role in bringing together all the key players around vital issues affecting industry ”





ABOUT **BWEA**

BWEA is the leading renewable energy trade association in the UK as well as the voice of the UK's micro- and small-wind industry.

Our primary purpose is to promote the use of wind, wave, and tidal power in and around the UK, both onshore and offshore.

We act as a central point for information for our membership and

as a lobbying group to promote wind energy and marine renewables to government. We also research and find solutions to current issues affecting industry and act as the forum for the UK industry.

Members of BWEA range from small companies to the largest international corporations, from manufacturers to installers, from certification bodies to academic institutions; providing

us with a united and representative voice and our members with fantastic networking opportunities.

Through our industry working groups and events, BWEA plays a crucial role in bringing together all the key players around the vital issues affecting industry. BWEA also owns and operates the national standard for small wind systems, the *BWEA Small Wind Turbine Performance and Safety Standard*.



ABOUT **THIS REPORT**

The UK has the best wind resources in Europe, a world leading manufacturing industry for small wind systems (SWS), and a progressively aware consumer base. With escalating fossil fuel prices and declining technology costs, interest in microgeneration is only going to increase, with more and more homes and businesses generating their own clean, green energy.

The *BWEA Small Wind Systems UK Market Report - 2008* is the first of its kind in Europe and draws on contributions from across the UK micro- and small-wind industry. The report assesses the current size and dynamic of the UK small wind system sector and offers indications towards future market development. Its content aims to provide an introduction to small wind system technology, give

“
This report is the first of its kind in Europe and draws on contributions from across the UK...”

industry greater clarity as to current UK and export market, as well as support policy development within national Government.



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Building mounted



Freestanding



HAWT

ABOUT SWS TECHNOLOGY

MICRO-WIND TURBINES

Typically with a diameter of less than 2.1m (Swept Area – 3.5m²). Micro-wind turbines tend to be either free-standing or mounted directly to the side or top of the attached building. Micro-wind turbines are usually mounted 3-4m above the ridge line of the attached building, or up to approximately 16m for free-standing system setups

With over a dozen UK based manufacturers there exists a wide variety of small wind system designs and setups. The two main designs include the horizontal axis wind turbines (HAWT) and vertical axis wind turbines (VAWT).

Small wind systems generate clean renewable energy and can be connected to mains electricity supply (Ongrid) or alternatively used to charge batteries (Offgrid).

Within the umbrella of micro-generation (<50kW), small wind system technology can be sub divided into two categories; micro-wind turbine and small-wind turbines.



The production of energy by small wind systems over a year depends critically on the annual mean wind speed at the site...





ABOUT SWS TECHNOLOGY



The production of energy by small wind systems over a year depends critically on the annual mean wind speed at the site - higher wind

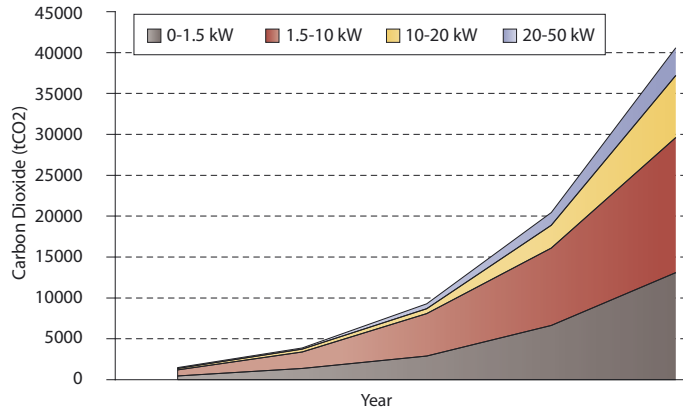
speeds produce more energy. Sites located only a hundred metres apart can be significantly different. To assess the average wind speed at a particular site, a general indication can be established by using the UK wind speed database, available at www.bwea.com/noabl

If you would like to find out more about small wind systems please visit the BWEA small system website: www.bwea.com/small

SMALL-WIND TURBINES

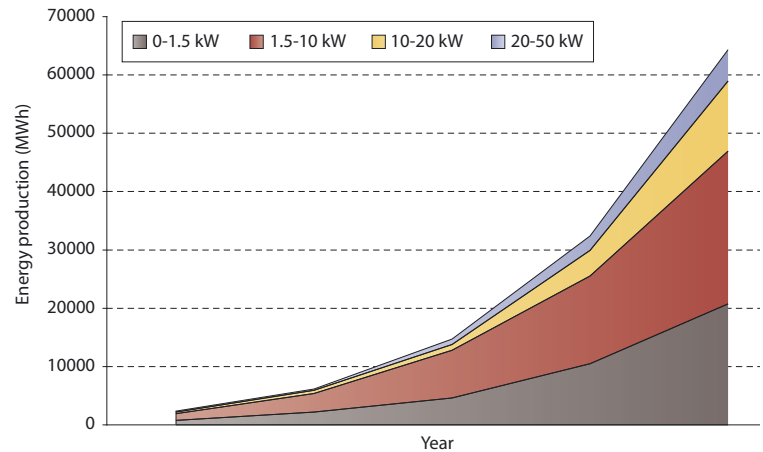
Typically with a diameter of more than 2.1m (Swept Area – 3.5m²). Small-wind turbines are predominately free-standing, although interest in mounting units on top of large residential and commercial buildings is growing. Free-standing small wind turbines can reach over 30m in total height.

Annual CO2 abatement by UK small wind systems



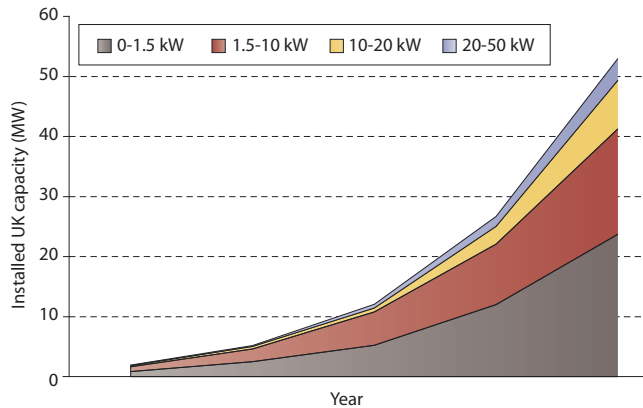
Unit size	2005	2006	2007	2008	2009
0-1.5 kW	476.22	1378.95	2898.24	6627.39	13097.88
1.5-10 kW	727.87	2000.48	5179.65	9457.68	16515.72
10-20 kW	183.14	366.28	619.86	2789.40	7579.29
20-50 kW	98.61	131.48	591.69	1544.97	3385.79

Annual UK small wind systems energy production



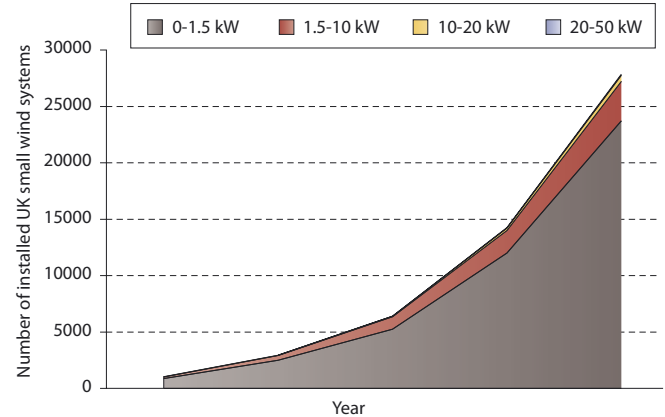
Unit size	2005	2006	2007	2008	2009
0-1.5 kW	755.11	2186.49	4595.49	10508.49	20768.20
1.5-10 kW	1154.13	3171.99	8212.93	14996.24	26187.58
10-20 kW	290.39	580.78	982.87	4422.92	12017.84
20-50 kW	156.36	208.48	938.19	2449.734	5368.56

Cumulative installed UK capacity



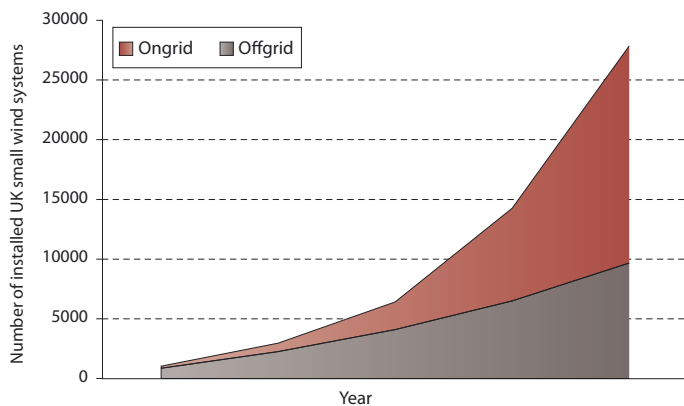
Unit size	2005	2006	2007	2008	2009
0-1.5 kW	0.862	2.496	5.246	11.996	23.708
1.5-10 kW	0.775	2.13	5.515	10.07	17.585
10-20 kW	0.195	0.39	0.66	2.97	8.07
20-50 kW	0.105	0.14	0.63	1.645	3.605

Cumulative number of installed UK small wind systems



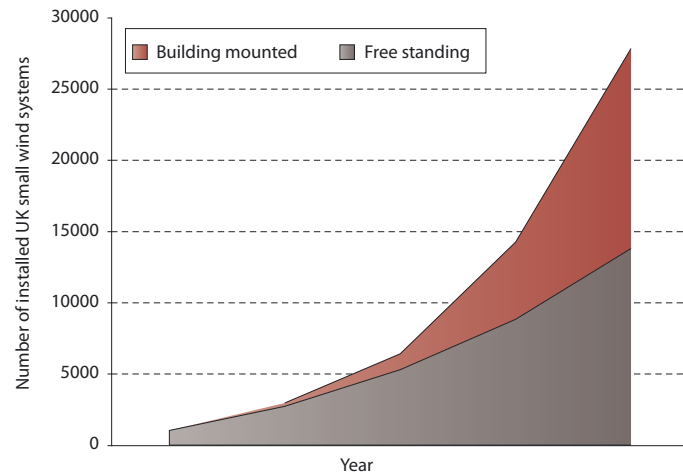
Unit size	2005	2006	2007	2008	2009
0-1.5 kW	862	2496	5246	11996	23708
1.5-10 kW	155	426	1103	2014	3517
10-20 kW	13	26	44	198	538
20-50 kW	3	4	18	47	103

Cumulative number of installed UK small wind systems



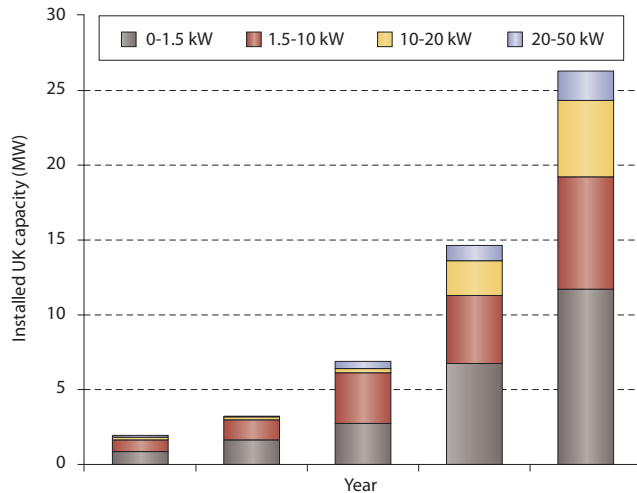
	2005	2006	2007	2008	2009
Ongrid	165	700	2323	7767	18201
Offgrid	868	2252	4088	6488	9665

Cumulative number of installed UK small wind systems



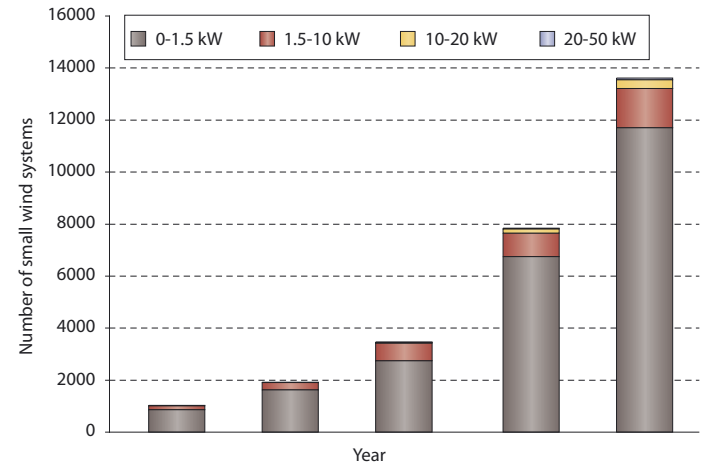
	2005	2006	2007	2008	2009
Building mounted	2	225	1106	5422	14065
Free standing	1031	2727	5305	8833	13801

Annual deployed UK small wind system capacity



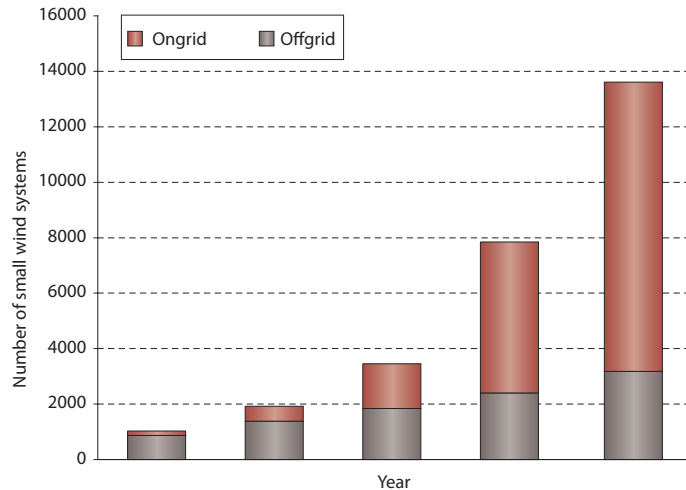
Unit size	2005	2006	2007	2008	2009
0-1.5 kW	0.862	1.634	2.75	6.75	11.712
1.5-10 kW	0.775	1.355	3.385	4.555	7.515
10-20 kW	0.195	0.195	0.27	2.31	5.1
20-50 kW	0.105	0.035	0.49	1.015	1.96

Annual deployed number of UK small wind systems



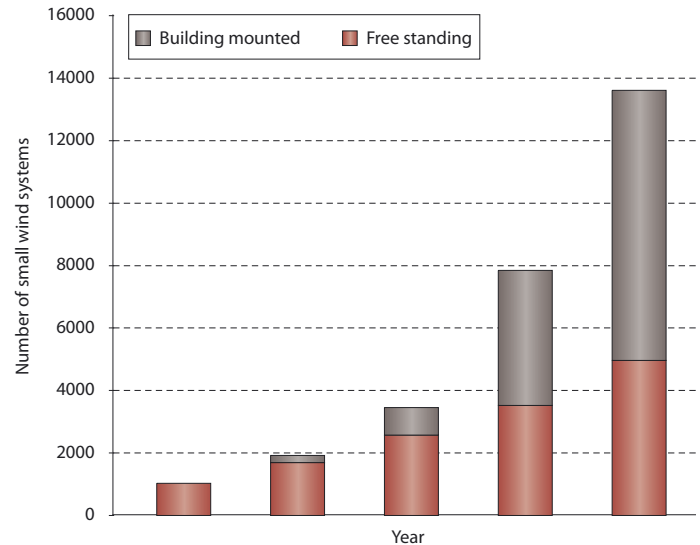
Unit size	2005	2006	2007	2008	2009
0-1.5 kW	862	1634	2750	6750	11712
1.5-10 kW	155	271	677	911	1503
10-20 kW	13	13	18	154	340
20-50 kW	3	1	14	29	56

Annual deployed number of UK small wind systems



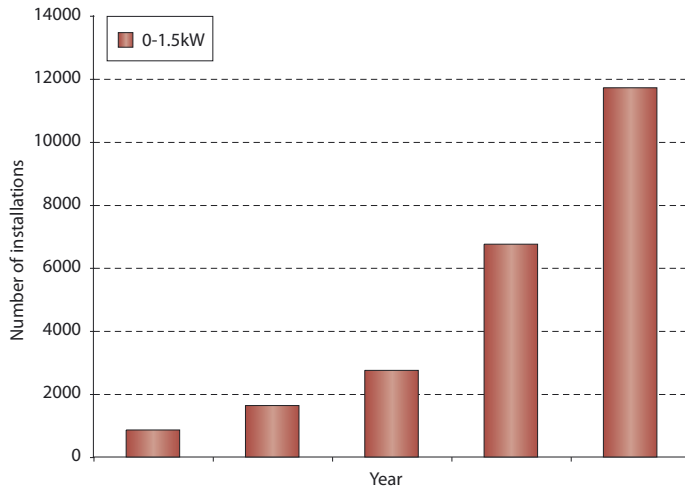
	2005	2006	2007	2008	2009
Ongrid	165	535	1623	5444	10434
Offgrid	868	1384	1836	2400	3177

Annual deployed number of UK small wind systems



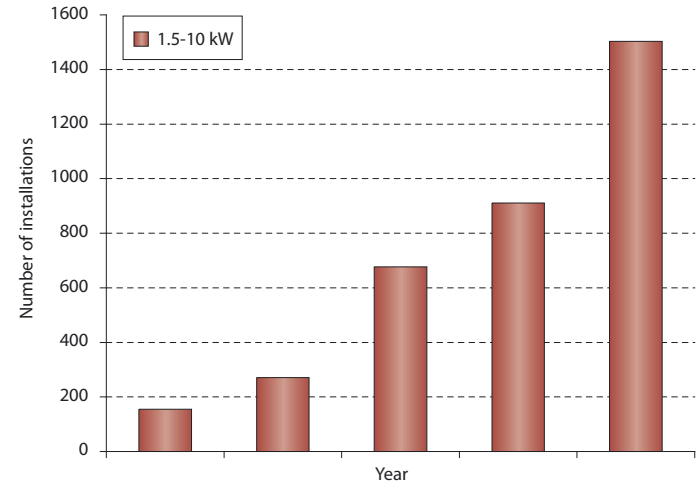
	2005	2006	2007	2008	2009
Building mounted	2	223	881	4316	8643
Free standing	1031	1696	2578	3528	4968

Annual number of UK installations (0-1.5 kW)



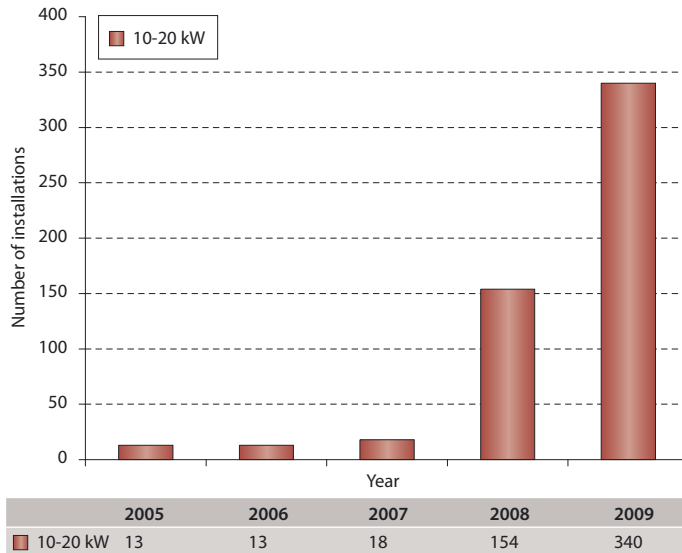
	2005	2006	2007	2008	2009
0-1.5kW	862	1634	2750	6750	11712

Annual number of UK installations (1.5-10 kW)

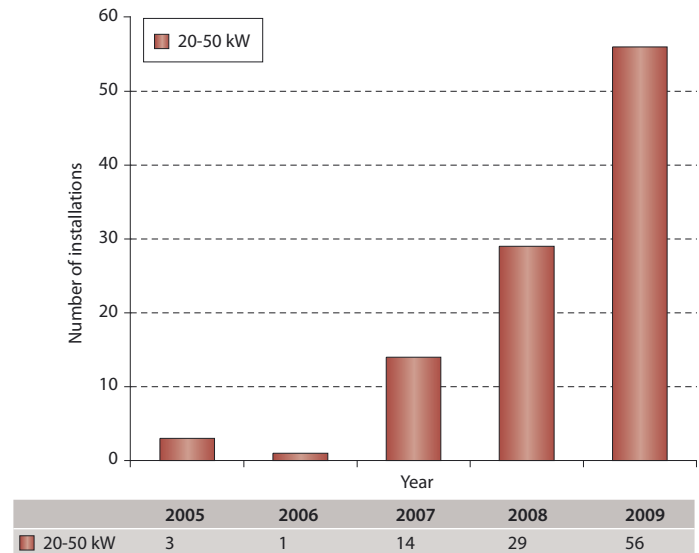


	2005	2006	2007	2008	2009
1.5-10 kW	155	271	677	911	1503

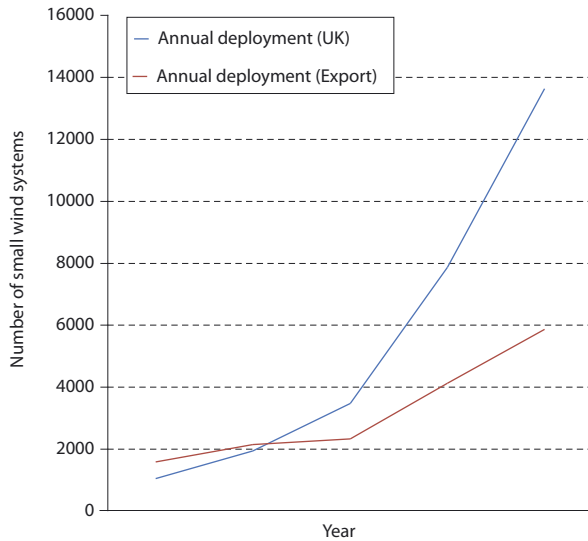
Annual number of UK installations (10-20 kW)



Annual number of UK installations (20-50 kW)

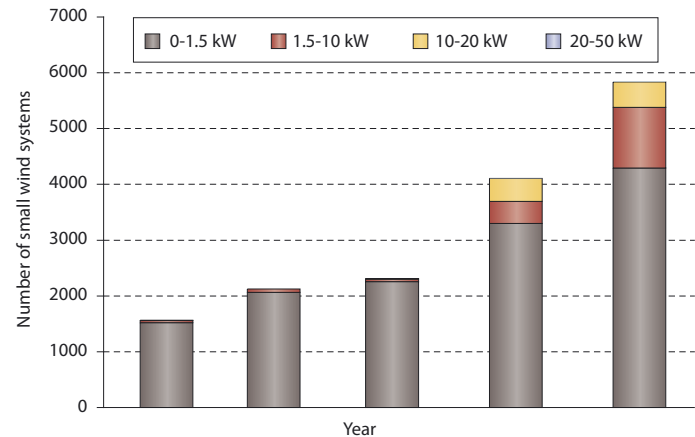


Annual deployed number of small wind systems (UK + Export)



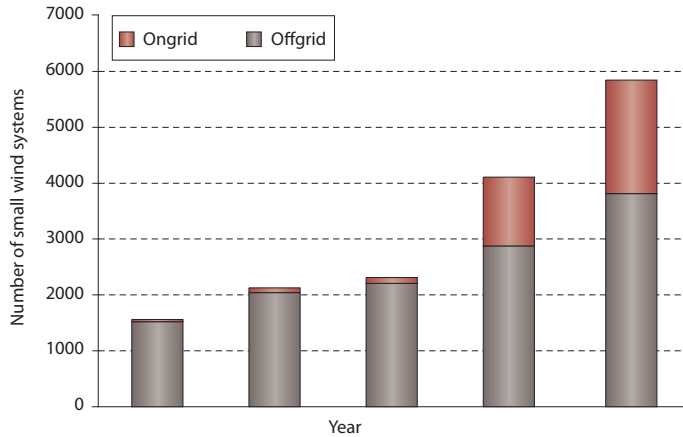
	2005	2006	2007	2008	2009
— Annual deployment (UK)	1033	1919	3459	7844	13611
— Annual deployment (Export)	1562	2126	2310	4110	5846

Annual number of exported small wind systems



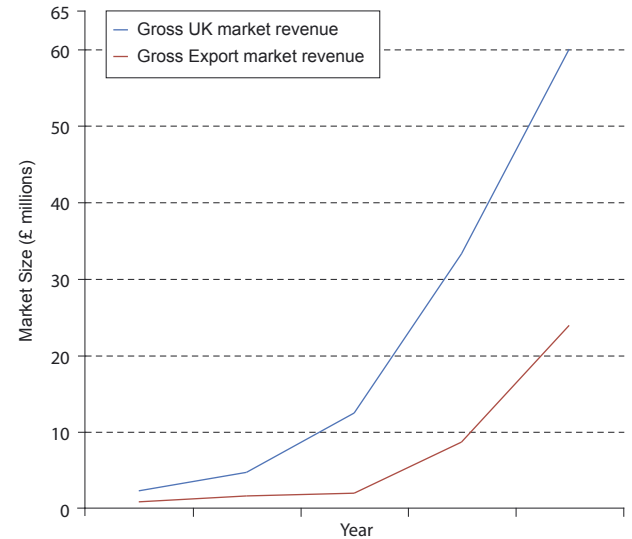
Unit size	2005	2006	2007	2008	2009
■ 0-1.5 kW	1520	2064	2255	3301	4294
■ 1.5-10 kW	38	61	45	396	1087
■ 10-20 kW	4	1	10	410	455
■ 20-50 kW	0	0	0	3	10

Annual number of exported small wind systems



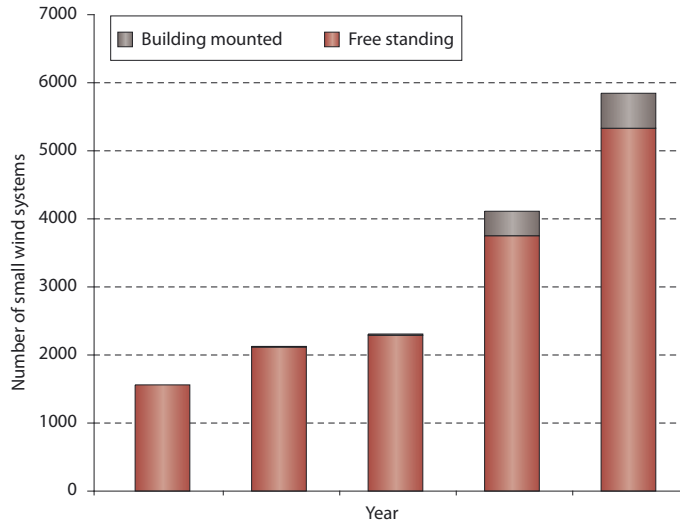
	2005	2006	2007	2008	2009
Ongrid	40	86	104	1235	2033
Offgrid	1522	2040	2206	2875	3813

Market size (UK, Export, £)



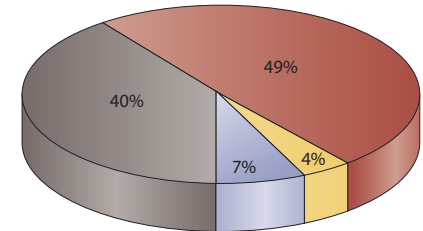
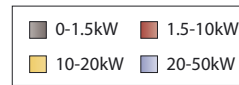
	2005	2006	2007	2008	2009
Gross UK market revenue	2234620	4677249	12449033	33205317	59988215
Gross Export market revenue	831430	1597000	1961500	8638025	23878830

Annual number of exported small wind systems

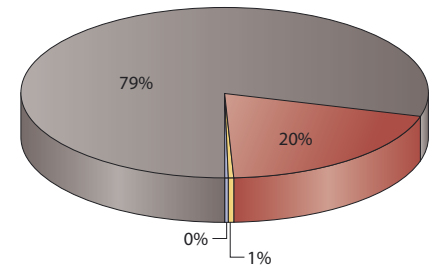
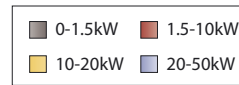


	2005	2006	2007	2008	2009
■ Building mounted	0	7	20	356	514
■ Free standing	1562	2119	2290	3754	5332

UK Capacity installed in 2007 (6.9 MW)



UK small wind systems deployed in 2007 (3459 Systems)



MARKET DATA

BWEA Annual SWS Market Report

	UK 05	TOTAL 05	UK 06	TOTAL 06	UK 07	TOTAL 07	UK 08	TOTAL 08	UK 09	TOTAL 09
Employees	415		590		910		1230		1520	
Annual number of deployed units										
0-1.5kW	862	2382	1634	3698	2750	5005	6750	10051	11712	16006
1.5-10kW	155	193	271	332	677	722	911	1307	1503	2590
10-20kW	13	17	13	14	18	28	154	564	340	795
20-50kW	3	3	1	1	14	14	29	32	56	66
Total	1033	2595	1919	4045	3459	5769	7844	11954	13611	19457
Ongrid	165	205	535	621	1623	1727	5444	6679	10434	12467
Offgrid	868	2390	1384	3424	1836	4042	2400	5275	3177	6990
Building mounted	2	2	223	230	881	901	4316	4672	8643	9157
Free standing	1031	2593	1696	3815	2578	4868	3528	7282	4968	10300
Sales (£)										
0-1.5kW	442,620	1,028,050	1,272,000	2,157,000	2,800,500	4,002,000	9,929,025	12,503,050	18,298,830	21,078,660
1.5-10kW	1,301,000	1,481,000	3,132,249	3,784,249	7,669,533	8,139,533	15,869,805	19,379,805	25,343,611	38,539,611
10-20kW	251,000	317,000	201,000	261,000	359,000	649,000	3,719,102	5,823,102	9,589,566	15,992,566
20-50kW	240,000	240,000	7,2000	7,2000	1,620,000	1,620,000	3,687,385	4,137,385	6,756,208	8,256,208
Total	2,234,620	3,066,050	4,677,249	6,274,249	12,449,033	14,410,533	33,205,317	41,843,342	59,988,215	83,867,045

Total = UK deployment + Export from UK Manufacturers

2005, 2006 and 2007 data based on historic manufacturing records

2008 and 2009 data based on manufacturing forecasts

MANY THANKS

BWEA would like to thank the following organisations for their support and contribution towards building this report:

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Ecotricity
Engenius Ltd
Fortis Wind Energy
Futur Energy
Gaia-wind Ltd
Gazelle Wind Turbines Ltd
Iskra Wind Turbines Ltd
Llumarlite Energy Systems Ltd

Marlec Engineering Co. Ltd
NaREC
Next Generation Turbines
npower
Nuon Renewables
Perpetual Energy
Proven Energy Ltd
Quietrevolution
Renewable Devices Ltd
Samrey Ltd
Segen Ltd
Solar Energy Alliance
Sustainergy
TUVNEL
UK Climate Change Center Ltd
Windsave Ltd



JOIN BWEA

BWEA is the leading business organisation for the UK micro- and small-wind industry and welcomes closer participation with any individual or organisation interested in becoming more involved with industry, or simply in accessing the latest news and publications for this fast expanding sector.

To join BWEA, or find out more about the benefits of membership visit our website:

www.bwea.com/members

BWEA



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