

Wind Energy in the UK

State of the Industry Report 2012

October 2012



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Executive Summary

In a growing industry it is important to track our progress and mark successes. RenewableUK's 2012 State of the Industry report does just that. Looking back over the year and charting experience of developers across offshore and onshore wind, including large and small developments, we can see a clear picture of an industry delivering for the UK economy.

As the planning and financial landscape transformed itself between July 2011 and June 2012, development continued, both in terms of projects and the industry. Newly installed wind turbines generated electricity from Orkney in Scotland to Suffolk in England, and the wind industry continued to employ people and foster growth in areas across the UK.

This report draws three key conclusions:

1. Wind is becoming an ever more important part of the UK's electricity mix.
2. Developers are working to bring forward the best projects and are seeing results from this.
3. There is a viable and growing wind industry that needs to be nurtured to ensure maximum benefit to the UK.

Wind – part of our electricity system

The report highlights that renewables now generate just under 10% of the UK's electricity requirements in terms of terawatt hours (TWhrs) of electricity, and wind has become the sole largest contributor to the renewables mix. Based on current levels of growth, wind will be powering one in ten homes in two years' time, and renewable power as a whole could be providing more electricity than nuclear sometime between 2014 and 2016.

A new era of onshore development

For the first time in five years, the UK is seeing a rise in the amount of UK capacity approved at a local level. While larger schemes above 50MW are approved by one of our national Governments, locally approved schemes are seen as a vital part of our industry, so this changing picture is very welcome. The reasons for this are a higher approval rate, which is also being matched by faster determination times. For example:

- There was a 15% increase in approval rates for onshore wind schemes below 50MW this year compared to last year across the UK.
- The effect of this is demonstrated most significantly in England, where capacity approvals at the local level increased by 60% compared to last year.
- Planning decisions are also becoming quicker at every level. Local Authority approvals were 10% quicker than last year; national Government approvals were 19% quicker than last year, and at appeal the UK saw a 54% improvement over last year.
- Overall, onshore capacity approval rose by just under 50% compared to last year.

What this means for the UK is that decisions are being made more positively and more quickly. This welcome trend is coupled with continued strong support for wind energy, with two thirds of the population in favour of continued development of wind energy. What is more, this support rises in rural areas.¹

The report shows that onshore developers are working with Local Authorities and communities to bring forward projects that are acceptable to the local area, and reaping the rewards in terms of quicker, more favourable decisions.

Over 50% of new submissions this year were for projects below 5MW. We welcome the decision to retain the Renewables Obligation (RO) for these projects up to 2017, to ensure that the Feed-in Tariff (FiT) budget can both be constrained and retained for what it was intended – domestic and community schemes.

Continued growth offshore

For offshore wind two schemes were consented in 2011/12: a demonstration turbine in Fife and the Westermost Rough project in the Humber. It is key that swift consenting for both projects and the associated infrastructure continues if we are to see the levels of activity needed over the next decade to secure both our energy supply and a world-leading industry.

Wind – a growth driver across the UK

Overall, the period up to the end of June 2012 saw 1.7GW of onshore wind approved, and to the end of July 2012 1.3GW of offshore wind was approved.

At a time of continued economic hardship, the wind industry has continued to create jobs and growth. RenewableUK's analysis estimates that:

- Offshore wind saw total investment of £1.5bn in the period surveyed, an increase of 60% on the previous year.
- The value these projects bring to the UK can be estimated at a minimum of £150m and a maximum of £600m. As the level of UK content grows, with offshore developers intending to source more than 50% of content from the UK, this value will increase significantly.
- The onshore wind projects that have been developed in the last year bring £737m to the UK, through O&M contracts, over their lifetime.

- Over the last two years the industry as a whole has expanded by a quarter, and now provides full-time equivalent direct employment for over 12,200 people.
- It is also significant to note that these jobs are UK-wide, with companies benefitting from the wind industry in areas as diverse as Orpington, Loughborough, Devon, Grantham Powys, Glasgow and Belfast.

This year's report demonstrates that we have a vibrant and growing industry creating wealth and UK-wide employment.

Challenges remain for the industry, particularly in the form of the Energy Bill, which will transform the investment landscape. To guarantee an industry that will see many tens of thousands employed, the securing of turbine manufacturers is crucial. For manufacturers to base themselves in the UK, they need to be assured of a continued market from confident developers, happy with the financial support system and able to progress projects swiftly. With manufacturers in place, the UK's burgeoning supply chain will be able to step up and create many more thousands of direct and indirect jobs.

Introduction

This report provides a snapshot of the wind industry in 2011/12. The year was a significant one for the wind industry, both in terms of planning and financial policy.

2011/12 saw continued strong public support for renewable energy and wind specifically. A host of separate opinion polls, including those commissioned by the Government, found regular approval ratings for onshore and offshore wind at or above two thirds of the population, with the next highest groupings being those undecided or neutral.

In 2012 renewable electricity is expected to increase its share per annum to over 10% of total supply for the first time. At present wind supplies around 5% of the nation's electricity, but this contribution is expected to grow to around 10% by the end of 2014, at which point renewables as a whole could be supplying around 15%.

Post-2016, renewable electricity's share is expected to overtake nuclear, with wind becoming the biggest contributor of electricity in the UK after natural gas in 2020. It is a remarkable trajectory, taking wind from a 1% share of the nation's electricity to around 30% in less than 15 years.

The 2011/12 figures set out in this report are for the period 1 July 2011 to 30 June 2012, with the same format used for previous years to allow direct and accurate comparison of our industry's progress over time. Where data is for a different period we make this clear in the report, and where available we have also included information for the period 1 July 2012 to 30 September 2012 to give an early indication of what is happening in 2012/13.

Policy in the last 12 months

UK Renewable Energy Roadmap

The 2020 UK Renewable Energy Roadmap, which sets out a path as to how the United Kingdom intends to fulfill its obligation to the European Union of sourcing 15% of its energy from renewables by 2020, was published by the Department of Energy and Climate Change (DECC) in July 2011. While the Roadmap follows the Renewable Energy Strategy of 2009 and the 2010 update, some notable changes were made in terms of wind energy deployment scenarios. The current central scenario for offshore wind sees scope for 18GW by 2020, up from 13GW in 2009. The headline scenario for onshore wind, however, is reduced from 15GW to 13GW by 2020.

Offshore Wind Cost Reduction Taskforce

The publication of the Roadmap led to the formation of a DECC-sponsored Offshore Wind Cost Reduction Taskforce (CRTF), chaired by Andrew Jamieson (RenewableUK Chairman), which was tasked with producing a list of actions to ensure that the industry would reach £100/MWh by 2020. The CRTF, comprising of senior industry professionals, held a series of evidence-gathering meetings focusing on key areas for costs reductions in 2011/12. The group also looked in detail at the results of The Crown Estate's Cost Reduction Pathways Project. The CRTF's report was launched on 13 June 2012 at RenewableUK's Global Offshore Conference and Exhibition. The report found that £100/MWh by 2020 was challenging, but achievable if the 28 recommendations in the report were delivered.

Habitats Review

Following the Autumn Statement in 2011, the Department for Environment, Food and Rural Affairs (DEFRA) undertook a Review of the Implementation of Habitats and Wild Birds Directive. This review will report in April 2014 and will make recommendations to improve the process in four key areas – facilitating Nationally Significant Infrastructure Projects, streamlining guidance, improving the quality, quantity and sharing of data, and improving the customer experience. This review has been welcomed by the industry.

Localism Act

The Localism Act 2011 received Royal Assent on 15 November 2011 and introduced new freedoms and flexibilities for local government, as well as new rights and powers for communities and individuals. The Act also returned decision-making powers on nationally significant infrastructure projects in England and Wales to the Secretary of State for Energy.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) for England was published on 27 March 2012. It aims to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. Following its publication, and the removal of the previous series of planning policy statements, RenewableUK is considering the development of specific guidance for wind under the NPPF.

Renewable Obligation Banding Review

The Government's response to the RO Banding Review, published on 25 July 2012, set out support levels for onshore wind from April 2013. The Government confirmed its intention to reduce the level of support to 0.9ROCs/MWh for new accreditations and additional capacity added in the banding review period 1 April 2013–31 March 2017. Following this announcement, the Government launched an Onshore Wind call for evidence in two parts: (a) community engagement and benefits; and (b) costs, due to close in November 2012 and report in May 2013.

Offshore wind RO banding levels were confirmed at 2ROCs to April 2015, 1.9ROCs to April 2016 and 1.8ROCs to April 2017. The industry considered this to be consistent with the cost-reduction trajectory required for 2020.

Feed-in Tariff Review

The first Comprehensive Feed-in Tariff review was launched in February 2011. The results of the Phase 2B Review, which considered all non-solar PV technologies including wind, were published on 20 July 2012. Changes resulting from this Review, including new generation tariffs and a preliminary accreditation process will come into effect from December 2012. The Review also introduced a degression mechanism, based on which tariff degression between 2.5% and 20% will be triggered depending on deployment in the previous year. The degression mechanism, unlike other changes to FITs, will take effect from 2014. RenewableUK has asked DECC to reconsider these degression thresholds.

Electricity Market Reform

As part of Electricity Market Reform (EMR), the draft Energy Bill was published in May 2012, along with a draft framework for the Contract for Difference. Pre-legislative scrutiny was conducted by the Energy and Climate Change Committee in summer 2012. Further work is underway following the publication of the Committee's report. EMR's focus is on the development of a long-term vision in which low-carbon technologies are competing on cost.

Wind Energy Performance

Consents

Onshore

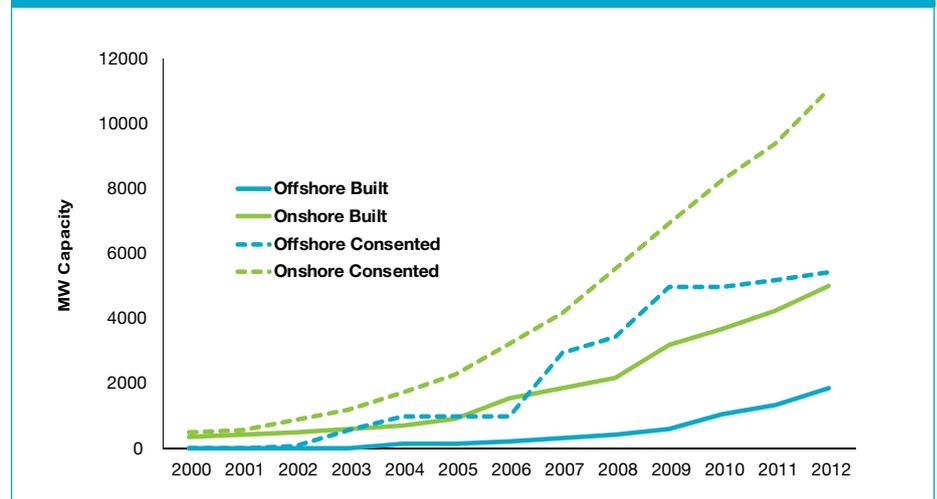
The amount of generation capacity approved across the UK this year rose for the first time in three years to reach a new high of 1,701MW consented. An important part of this success was the consent of four large Section 36 projects over 50MW, beginning with 75.9MW at Strathy North in the Highlands in November 2011 and Shetland's 370.8MW Viking Wind Project in April. The consents were followed in May with the approval of 299MW Pen Y Cymoedd in South Wales and a successful legal challenge for the 177MW Dorenell project in Moray, which received consent in June of this year. This consent record exceeds the UK's previous 2008/09 record of 1,472MW consented overall. This year also marks a record for capacity consented at the local level, with 1,281MW approved locally in 2011/12, an increase of over 60MW on the previous high of 1,219MW achieved in 2007/08.

In total, the UK saw 110 projects consented in the year to the end of June, with 54 schemes (1,028MW) coming forward in Scotland and 44 schemes (274MW) in England. Seven schemes, totaling 73MW, were given the go-ahead in Northern Ireland, while a record 327MW of capacity was consented in Wales, with the approval of Pen Y Cymoedd in Neath Port Talbot accompanied by the approval of four sub-20MW schemes.

Scotland maintains its lead on the rest of the UK, exceeding English consented capacity in 2011/12 by a factor of almost four. This is despite an increase in English consented capacity of 35% last year – accompanying, though not quite matching, Wales' record.

Despite this recent run of approvals for large-scale projects, the trend towards smaller average capacities for consented schemes continues, with the

UK Wind Energy Capacity Consented & Commissioned Mid 2000 – Mid 2012



average consented project size sitting at 15.5MW for the second year running. This represents the smallest average consented project size since 2000/01, and reflects both falling availability of large sites and the increasing uptake in smaller-scale projects (of less than 5MW), with the best options for sites being discussed with Local Planning Authorities and communities during the pre-application period.

The trend towards smaller schemes is particularly clear in England, where there has been a healthy increase in both the consented capacity and number of projects having come forward this year. In 2011/12 the average size of a consented English project stands at 6.2MW, compared to just over 7MW in 2010/11.

Offshore

The year to the end of June 2012 saw the consent of two schemes. In November 2011 the single, 7MW turbine at Methil Offshore Wind Farm Demonstration Site in Fife was approved. December saw the consent of the 210MW Westermost Rough project, which will be built 8km off the coast and 25km north of Spurn Head on the Humber estuary. These consents were most welcome following their submissions in December 2009 and April 2010 respectively.

As 16GW of submissions are expected to enter the planning system in the next 12–18 months it is key that both decision-makers and statutory consultees are resourced to handle applications swiftly.

These consents were followed in early 2012/13 with approvals of the 560MW Dudgeon project and 580MW at Race Bank in July 2012, both located around 30km off the north Norfolk coast.

The consents of Dudgeon and Race Bank were accompanied by the rejection of the 540MW Docking Shoal scheme, also located off the Norfolk coast in the Greater Wash. Docking Shoal is the first offshore application to be refused planning consent since 1999, when the UK's first offshore project – the two-turbine Blyth Offshore scheme – was consented.

Finally, on 1 October 2012, and after initial rejection by DECC and Department for Communities and Local Government (CLG), consent was given by Breckland Council to build and operate an onshore substation near Necton, Norfolk, servicing the Dudgeon project.

Wind energy in the UK: Current status

To help us look at progress, let's take a snapshot of the UK wind industry on 30 June 2012 (which, for this report, we define as the end of 2011/12). At that point, 6,856MW of wind capacity was operational in the UK, with 4,174MW under construction. A further 5,129MW was consented, awaiting construction. This totals 16,159MW consented, under construction or operational. This is an increase of 1,500MW on the 14,612MW recorded as consented, under construction or operational on 30 June 2011.

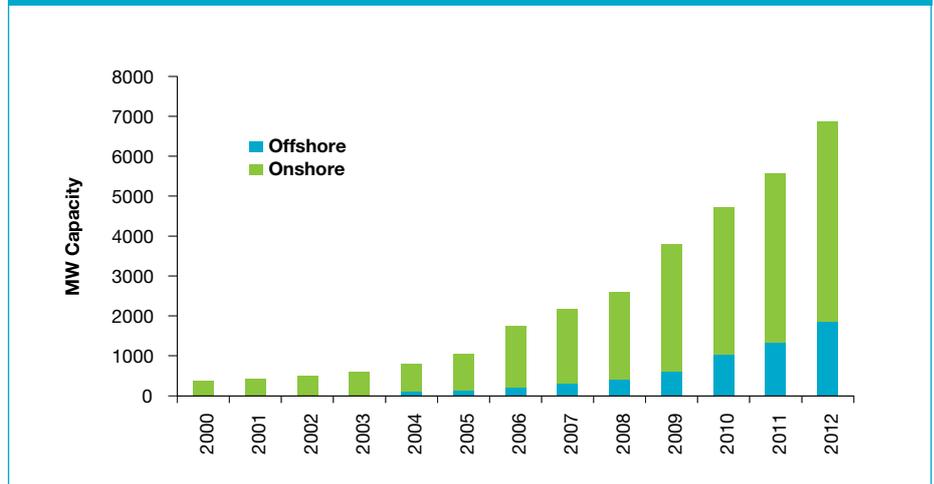
Onshore

Total onshore capacity in operation at the end of 2011/12 stood at 4,998MW. Over the course of the previous 12 months an additional 44 schemes – some 774MW – were delivered. This represents a small increase in the rate of deployment over 2011/12, against last year's build-out of 43 schemes (685MW). In the early part of 2012/13, two onshore projects have become operational after successful commissioning. These are the 28.6MW Drone Hill farm in Northumberland and the 2MW West Hill farm on the Isle of Flotta in Orkney.

The volume of capacity under construction at the end of 2011/12 stood at 1,815MW (66 projects), up by over 400MW on the capacity under construction in mid-2011. In early 2012/13, a further 19 projects and 377MW have entered construction, with a record of 2,161MW from 83 projects now being built out.

The amount of onshore wind capacity awaiting construction remains high, with 258 projects totaling 3,922MW awaiting completion at the end of 2011/12. Already we have seen consent of an additional 19 projects in the first three months of 2012/13, and the progression into construction of a further 19 schemes. Because of this, current

UK Operating Capacity Mid 2000 – Mid 2012



UK Onshore Status – 30 Jun 2012

	Schemes	MW
Operational	340	4,998
Under Construction	66	1,815
Approved (Not Built)	258	3,922
In Planning	305	6,892

capacity awaiting construction has fallen slightly to 3,866MW. This figure remains above the 3,740MW awaiting construction at the end of 2010/11.

At the end of 2011/12, 6,892MW onshore capacity was in planning across the UK, down slightly from the figures reported for both 2010/11 and 2009/10 which stood at 7,124MW and 7,333MW respectively.

Offshore

Over the course of 2011/12, 517MW was deployed offshore. All this activity was at three offshore projects off the Cumbria coast commissioned this year: the Walney I and II and Ormonde schemes. Walney I went live in July 2011 and Walney II in January 2012, with a combined capacity of 367MW. The 150MW Ormonde scheme was completed in February 2012.

In the first three months of 2012/13, Greater Gabbard has gone operational,

UK Offshore Status – 30 Jun 2012

	Schemes	MW
Operational	16	1,858
Under Construction	6	2,359
Approved (Not Built)	6	1,207
In Planning	11	5,093

and the 140 turbines were fully commissioned in September this year. At 504MW, Greater Gabbard is almost equal to the 2011/12 deployment figure.

Beyond those projects actually commissioned, 2011/12 has been a bumper year for construction, with over 2GW recorded as under construction at six sites on 30 June 2012. Many of these projects are vying for the title of 'largest offshore wind project in the world', including London Array (630MW phase 1), Gwynt y Môr (576MW), Greater Gabbard (now operational, 504MW), Sheringham Shoal (317MW) and Lincs (270MW) as well as the last Round 1 project Teeside (62MW). This highlights that the industry can deliver significant amounts of capacity and shows that the 2020 targets can be delivered. It will also extend the UK's world-leading position in offshore wind with 3GW of offshore wind expected to be operational by mid-2013.

Submissions

Onshore

A total of 206 projects were submitted into planning at all levels in 2011/12, representing the highest annual rate of project submissions to date. While this increase is largely due to an increasing number of smaller schemes, the volume of capacity submitted has also increased, with 3,015MW submitted in 2011/12 against 2,131MW and 199 schemes submitted in 2010/11.² This is primarily, though not solely, due to the submission of a number of large projects.

Following the submission of four Scottish projects of above 100MW (totaling 695MW), the average UK project size for newly submitted schemes increased this year, up from 10.7MW in 2010/11 to 14.6MW in 2011/12. In comparison, between 2009 and 2011 only two projects above 100MW in size were submitted; Kilgallioch at 297MW (2009/10) and Stornoway at 129.6MW (2010/11). This ongoing interest in larger projects demonstrates that there remain some opportunities for large-scale development even if the general trend is for smaller schemes.

In England, the average size of projects submitted into planning fell again, with the average project size for submitted schemes now at just under 7MW. This is a fall from just above 7MW in 2010/11. In Scotland, the average project size for newly submitted schemes rose to the highest levels since 2007/08, with the 108 schemes submitted in 2011/12 averaging at a project size of just under 21MW (due in large part to the S36 schemes mentioned above).

In Wales, the average project size for newly submitted schemes fell dramatically for the second time, falling by two thirds to 10MW on the heels of a 39% fall in 2010/11. These falls reflect significant changes in the

type of projects coming forward in Wales, with two thirds of schemes submitted in 2010/11 having a capacity of above 30MW, compared to 75% of submissions this year comprising less than 10MW each.

Across the UK, the popularity of smaller-scale schemes of sub-5MW has continued, with projects at this scale constituting just over 50% of new submissions in 2011/12. This compares to the 38% of sub-5MW submissions recorded at the end of 2010/11 and the 15% in 2008/9.

The growth of smaller projects demonstrates the emergence of a market for smaller schemes and turbines, with projects relying on both the Renewables Obligation and the Feed-in Tariff for support.

Offshore

In the year to June 2012 seven projects were newly submitted into planning, with a combined total of 3,305MW. The long-awaited submission of Triton Knoll, Kentish Flats II and Galloper has been followed by the submission of Beatrice (1,000MW), Neart na Gaoithe (450MW), the AREG demonstration site in Aberdeen Bay and the NAREC demonstration site off Blyth. These projects are now the only offshore schemes awaiting determination.

All offshore demonstration sites have now been submitted, with Gunfleet Sands 3 and Methil Offshore Wind Farm Demonstration Site in Fife now consented. Gunfleet is soon to enter construction.

	Schemes	MW
Local Level	241	3,027
Ministerial Level	40	3,503
Appeal	22	310
Judicial Review	2	55
Total	305	6,895

2. Current data differs to that given in the last issue of the State of the Industry Report, in response to new information provided by our members

A Review of Planning Performance

While many major planning reforms are ongoing, industry is hopeful that the planning systems in England and Wales may be moving into a period of greater stability. In the year to 30 June 2012, we have seen the assent of the Localism Act in 2011, the publication of the National Planning Policy Framework in March 2012, and the transition from the Infrastructure Planning Commission (IPC) to the National Infrastructure Directorate within the Planning Inspectorate. We have also seen decision-making powers returned from the IPC to the Secretary of State for Energy.

Offshore decision-making

Over 2011/12 the UK saw the consent of two projects; the Methil Offshore Wind Farm Demonstration Site in Fife and Westermost Rough, 25km north of Spurn Head on the Humber estuary, with a combined capacity of 217MW. These consents were followed shortly afterwards by the approval of Dudgeon and Race Bank in early 2012/13, totaling 1,140MW.

Onshore decision-making

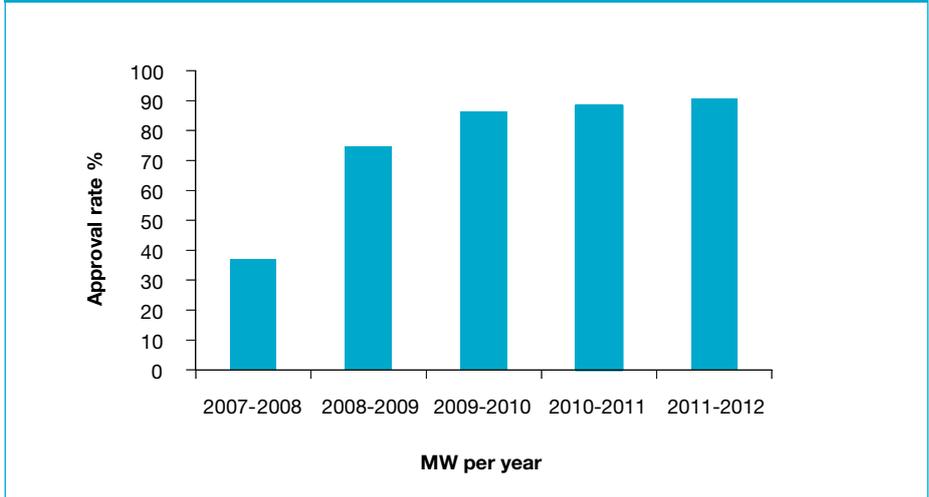
Onshore decision-making has shown a substantial, positive improvement this year, with 110 schemes and 1,701MW approved, against the 77 projects and 1,142MW consented in 2010/11, a leap of nearly 50% in terms of capacity approved. The success of the onshore industry in gaining consent for projects is outlined below, and it can be seen across all levels of decision-making.

Approval rates:

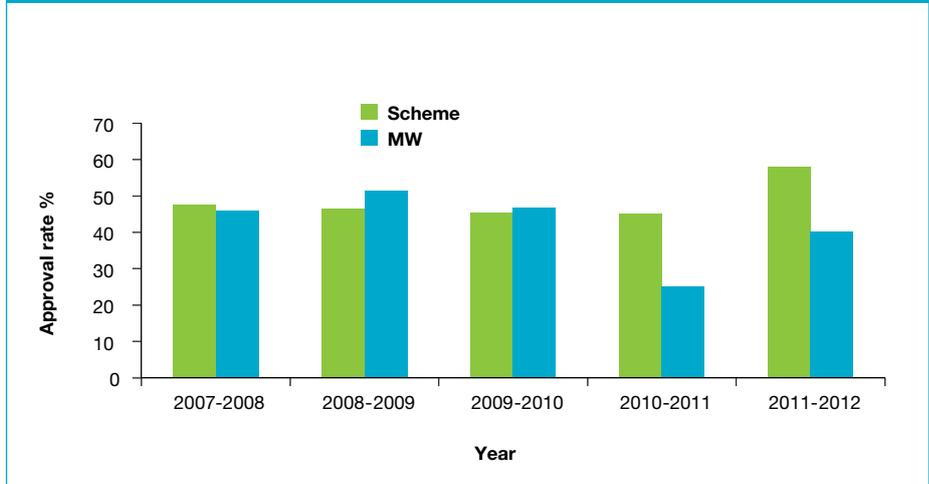
Ministerial approval above 50MW

2011/12 saw five decisions on projects above 50MW, including the consent of the Strathy North and Viking Wind Projects in Scotland and Pen Y Cymoedd in Wales, giving a combined total of 746MW. This was followed by the refusal of 77.5MW Spittal Hill, and the approval at judicial review of 177MW Dorenell, both in Scotland.

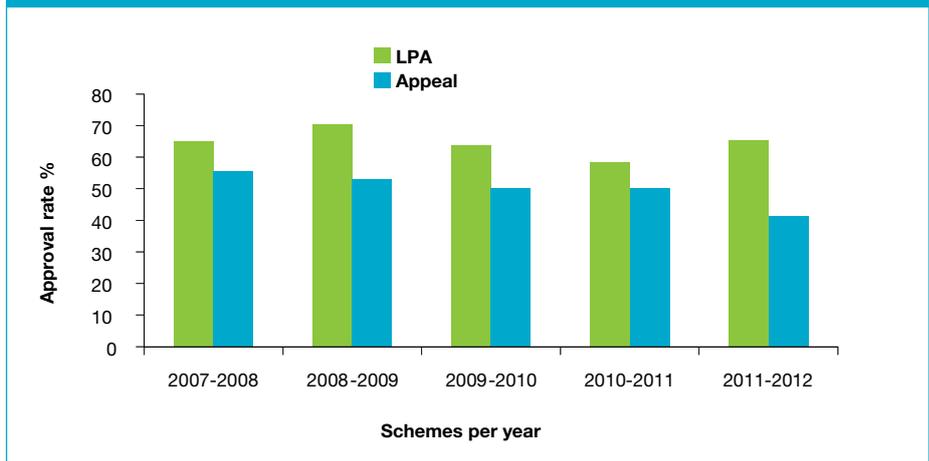
UK Onshore Approval Rates at Ministerial Level above 50MW



English Onshore Approval Rates at the Local Level – MW & Scheme



UK Onshore Approval Rates at the Local Level and at Appeal – Scheme



As a result, UK approval rates for projects subject to a Ministerial decision reached a high of 91% by capacity this year, against previous consent rates of 88% and 86% in 2010/11 and 2009/10 respectively, demonstrating a continuing trend towards greater capacity-based approval rates.

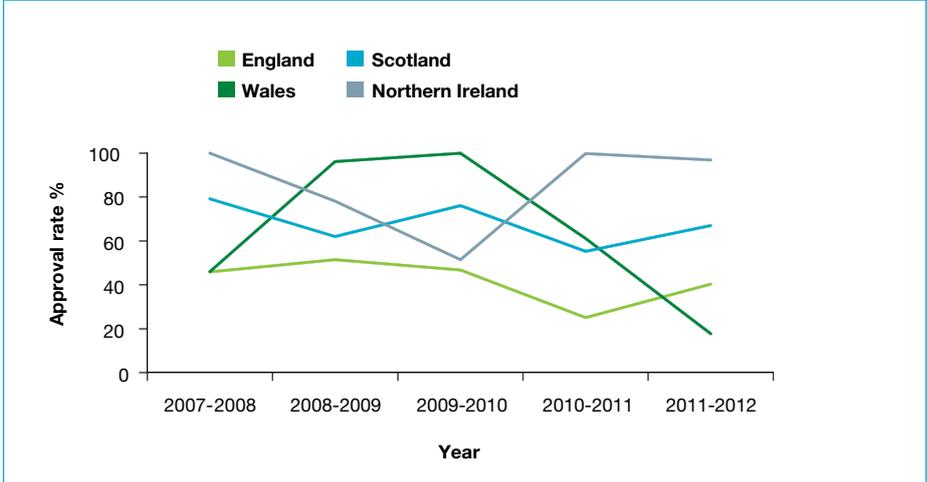
The consent of Pen Y Cymoedd represents the first Ministerial approval for a development in Wales in the last ten years, since the approval of 58.5MW Cefn Croes in 2002. No Ministerial decisions have been taken in England in the last two years, since the approval of the 56MW Ray Estate scheme and the refusal of Steadings (66MW) in March 2010.

**Approval rates:
Local level under 50MW**

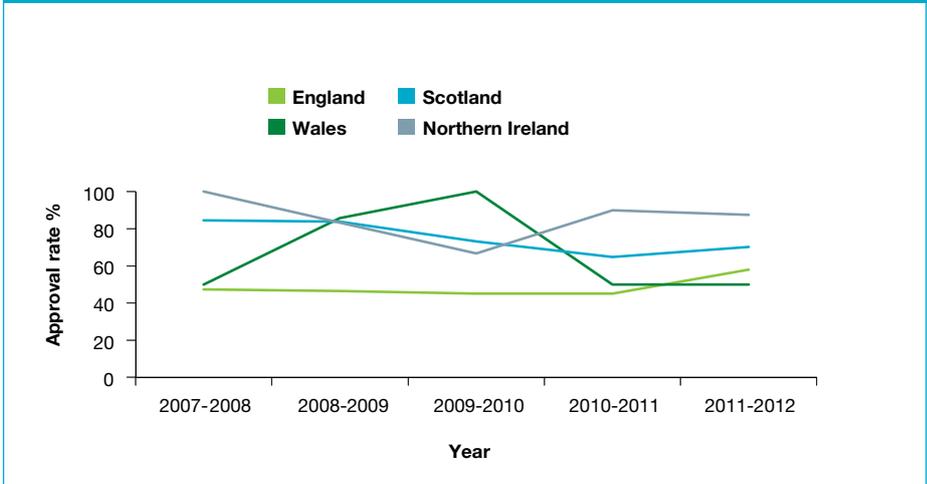
Our assessment shows that average UK consent rates at the local level look more positive than had originally been expected. The average UK approval rate for schemes below 50MW has shown some variation from year to year, falling from 63% (by MW) in 2009/10 to 51% in 2010/11. In 2011/12 it has risen again, with an approval rate of 59%. Approvals data from the last five years shows that UK average consent rates at the local level appear to be stabilising at around 65% by scheme and 62% by MW. It is also worth highlighting that this year's improved figures for the UK are the result of improved approval rates in both England and Scotland.

In England, approval rates improved both in terms of project numbers and capacity levels consented, with approval rates at 58% and 40% respectively. These figures represent significant improvements on the previous year's consent rates of 45% by project and 25% by capacity, and suggest that the trend for declining approval rates in England over the last five years may have abated. The number of projects decided this year has increased by 25% on last year, with 29 of 50 projects

Onshore Approval Rates at the Local Level – MW



Onshore Approval Rates at the Local Level – Scheme



approved against the 40 projects determined in 2010/11. It is notable that this is accompanied by a decrease in the average size of projects in England. This suggests that developers are consulting closely with communities and Local Planning Authorities to deliver projects that are more acceptable to local decision-makers. However, there remains substantial progress to be made if the industry is to secure higher rates of approval overall and ensure the delivery of projects needed to transform our electricity system over the next decade.

In Scotland, approval rates at the local level rose from 65% approval by project

in 2010/11 to 70% this year, matched by an increase in consented capacity from 55% in 2010/11 to 67% in 2011/12. The number of projects determined in Scotland this year has also risen significantly, with 47 schemes consented against a total of 67 brought forward for decision. This figure compares with just 24 approvals in 2010/11 resulting from just 37 decisions.

In Wales, approval rates by scheme were constant this year with 50% of projects decided gaining consent across 2010/11 and 2011/12. However, the capacity-based approval figures for this year are

less positive, with only 10.1MW consented of the 57MW decided by local planning departments; an approval rate of just 18%. With only six schemes determined this year, the number of projects decided at the local level in Wales remains very low, despite the increasing interest in smaller, sub-5MW schemes.

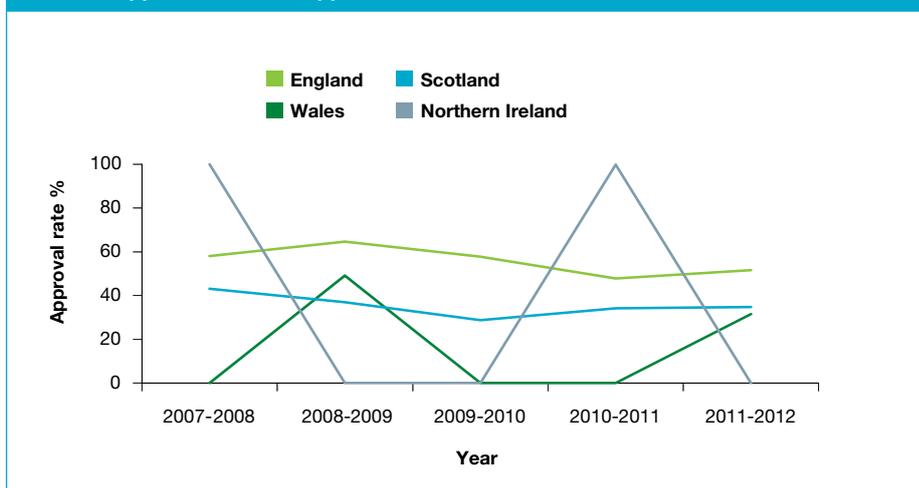
Only in Northern Ireland did approval rates by both capacity and by project decline this year, but these falls reflect the historically high rates of approval recorded in 2010/11, with rates falling from 90% to 88% by project and from 99% to 97% by capacity. The consistently high rates of approval that have been seen in Northern Ireland are extremely encouraging, showing a five-year average approval rate of 85% by project and also 85% by capacity.

Approval rates: At appeal

Across the UK as a whole, 41% of projects and 44% of capacity were approved at appeal for projects below 50MW, with 239MW out of a potential 546MW approved in 2011/12. These figures compare unfavourably with figures for 2010/11 which saw an approval rate of 50% by project and 51% by capacity. However, looking at approval rates in each country individually, this recent fall in UK average approval rates is the result of recent decisions in Northern Ireland, where two projects were re-determined and rejected over this period.

Approval rates at appeal in England and Scotland remain relatively stable, with a five-year average rate of around 56% and 36% respectively. While the approval rate at appeal is significantly lower in Scotland, this is perhaps reflective of the fact that a much higher proportion of English projects are re-determined at appeal, having been refused or un-determined at the local level. This is further reflected in the fact that, over the last five years, 124 schemes in England have gone to appeal, compared to only 55 schemes

Onshore Approval Rates at Appeal – MW



in Scotland over the same period (58% fewer schemes).

Approval rates in Wales have been similarly variable to those in Northern Ireland, with very few schemes determined at appeal each year. While only four projects have been decided over the last two years, three of these schemes (17.5% capacity) have been refused.

Across the UK, no projects above 50MW were determined at appeal in the year to the end of June. Only two projects which were rejected at the Ministerial level have been determined at appeal in the last five years. The schemes – Cowans Law (50MW) and Greenock (55MW) – were rejected in June 2011 and October 2007 respectively.

Onshore decision times

This year has seen an improvement in the average decision times of projects both at national and local level. UK average decision times currently stand at 42 months for projects above 50MW determined by Ministers in 2011/12, down from the average of 52 months taken to determine schemes in 2010/11, as reported last October. Decision times to appeal averaged just below 25 months in 2011/12; significantly below the 46 months reported in 2010/11. Average UK decision times at local

authority level have also fallen, sitting at just above 14 months on average, down from the 15.5 months reported last year. There is still work to do on these figures, however, particularly for larger schemes, to ensure that the planning system functions in a timely manner to deliver continued capacity and economic growth from projects.

Current electricity mix

The evolving role of wind and renewables in the UK's electricity supply

In Quarter 4 of 2011 renewables' share of electricity generation went over 10% for the first time in a single quarter.³ At 11.7% this share (standing at 11.1% in Q1 2012) was a significant landmark, as it clearly pointed to the possibility of 2012 being the year when the UK would finally achieve the aim of having 10% of its electricity per annum from renewable sources.

Although largely symbolic, the '10% target' has important ramifications for the renewable industry's upward trajectory and for wind energy in particular. Wind farms have become the largest renewable energy contributor by a wide margin, surpassing hydro in terms of energy delivered to the grid. In total, based on Q4 2011 and Q1 2012 statistics, onshore and offshore wind combined have supplied over 5% of the UK's electricity, or over 50% of all the renewable electricity in the UK over this period.

The percentages also demonstrate that ambitious growth targets are achievable and that policy aims, formulated at a high political level, do make a difference. In 2004 renewable sources provided around 3.5% of total electricity. Political consensus on the need to develop the UK's renewable energy industry, which resulted in setting the UK targets and the endorsement of the EU-wide 2020 target in 2007, does matter. This support has allowed renewable energy capacity, and consequently the share of electricity from renewables, to steadily increase.

Within renewables, wind farms are the best example of this growth trajectory. At the end of 2004, eight years ago, the UK had 892MW of installed onshore and offshore wind capacity. In 2007 the largest wind farms were given the status of Major Power Producers by the

Department of Business Enterprise and Regulatory Reform (BERR), and it was the first year in which wind's contribution was recorded in the Government's energy statistics. Back then, it stood at around 0.9%. In 2012, eight years ahead of 2020, the industry is expected to pass the 8GW mark, having increased capacity by nearly ten-fold since 2004.

By Quarter 4 of 2012 wind should be supplying up to 7% of the UK's electricity. Overall, renewables should supply 12%. This process demonstrates that delivery of the 15% 'all energy' target – which is expected to consist of around 30% of electricity from renewables – for 2020 is both realistic and achievable.

The Future

The renewables industry, with wind energy leading the way, is expected to reach a number of important landmarks in the near future. These progress estimates are based on the pipeline of projects in operation, construction and planning, long-term load factor averages, and the expected changes in the UK's energy generating portfolio.

As of the end of June 2012, the total operational capacity of UK wind farms was 6.9GW, with a further 4.2GW in construction and 5GW with planning consent. Given current lead times, it is estimated that by the end of 2014 the UK should have up to 13.5GW of wind capacity in operation, delivering 35TWh per annum. This is equivalent to 10% of the UK's electricity needs. This is based on a load factor of 30% which factors in the long-term load factor averages and increased role of offshore wind.⁴

At this stage, even if we follow the conservative assumption that other sources of renewable electricity will not grow but will remain at their 2011/12 output levels, renewables in total would be supplying around 55TWh per annum,

or around 15% of total electricity. This compares to 62TWh generated by nuclear in 2010 and 69TWh generated in 2011.

However, if the nuclear decommissioning plan goes according to schedule, with the whole of Wylfa closed down by 2014, the end of that year could see renewables start to rival nuclear in terms of contribution to the electricity supply. The trend is expected to be accelerated with the decommissioning of Hinkley Point B and planned decommissioning of Hunterston B in 2016. At that point renewables would have overtaken nuclear by a wide margin in terms of share of electricity supplied.

By 2020 a total of at least 13GW of onshore wind and 18GW of offshore wind should be operational, pursuant to the Government's delivery plan published in 2011. This capacity could deliver around a third of the UK's electricity on an annual basis. Owing to a reduction in the use of coal due to the coal plant decommissioning programme mandated by the Large Combustion Plant Directive, wind will be the greatest contributor to the nation's electricity supply after natural gas. This significant milestone will be the culmination of a delivery programme which will have increased wind's share from less than 1% to 30% of electricity supplied to the UK in under 15 years.

3. DECC Energy Trends, available at www.DECC.gov.uk

4. Digest of United Kingdom Energy Statistics (DUKES), available at www.DECC.gov.uk

The Benefits of Wind to the UK

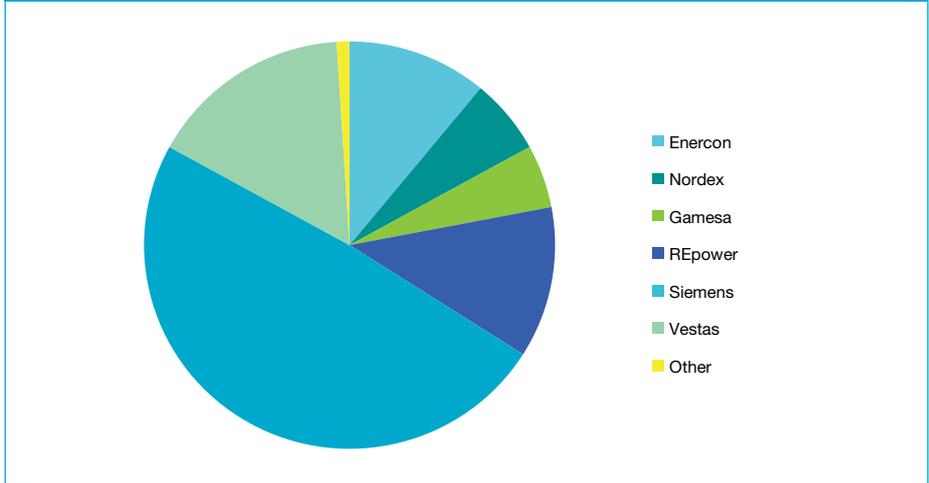
Turbine market share

Onshore

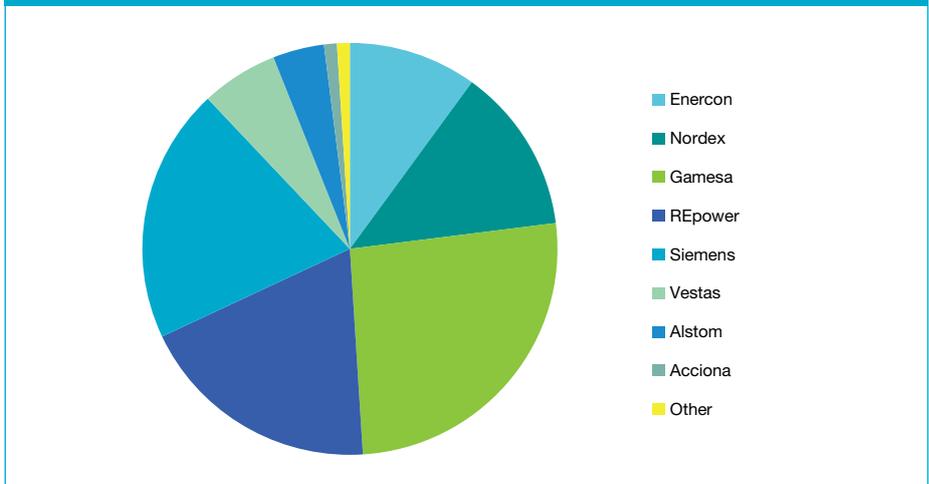
The year 2011/12 saw 774MW of onshore capacity commissioned, with three turbine manufacturers – Siemens, Vestas and REpower – providing turbines for over 75% of this market. At 49% of newly commissioned capacity, Siemens was the largest single contributor of turbines to the onshore market in 2011/12, helped in large part by the commissioning of Clyde South (128.9MW) and Griffin (156.4MW) in December 2011 and February 2012 respectively.

Gamesa held the largest share of the onshore turbine market in 2010/11, providing turbines to 26% of all onshore project capacity commissioned that year. This market lead in 2010/11 was achieved through the commissioning of over 184MW from four schemes and contrasts with a share of just 5% of the market in 2011/12. Such variations in annual turbine market share are illustrative of the range of project types, developer / operators and turbine manufacturers in the UK onshore market.

Percentage of UK Onshore Turbine Market Share Mid 2011 – Mid 2012



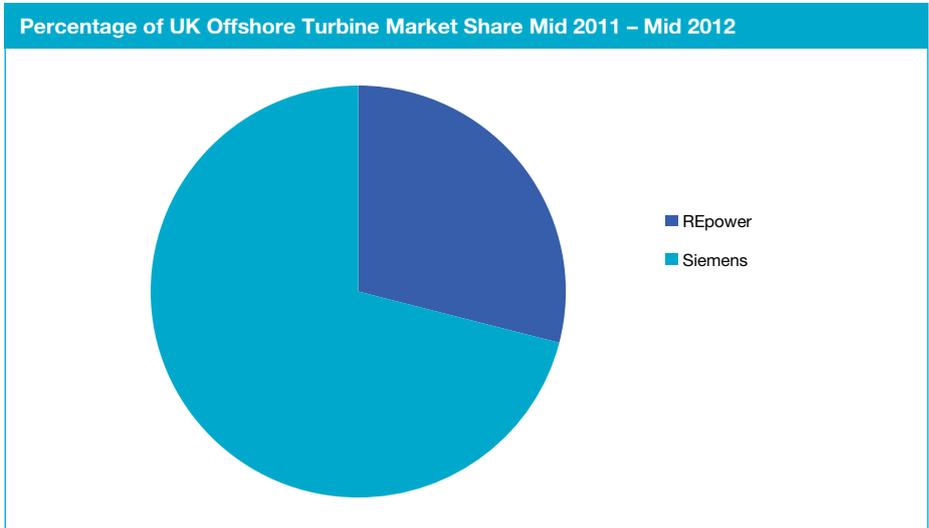
Percentage of UK Onshore Turbine Market Share Mid 2010 – Mid 2011



Offshore

Changes in the offshore turbine market are more pronounced, due to the ‘lumpy’ nature of offshore wind deployment, as a result of the annual commissioning of a small number of very large schemes.

Based on offshore capacity deployed in 2011/12, REpower and Siemens captured the turbine market in 2011/12, holding 29% and 71% of the market respectively. This market consisted of the three projects to have gone operational in 2011/12, with REpower supplying Ormonde and Siemens supplying Walney I and II. Market share this year looks very different to 2010/11, in which Vestas secured 100% of offshore capacity deployed following the commissioning of Thanet; the only offshore development to be commissioned over that period.



	Total MW	Sum of MW from those who provided data	Extrapolated total cost (millions)	Spend in UK (millions)	GVA (millions)
2010/11	559	438	£741.9m	£332.4m	£130m
2011/12	774	653	£1,053m	£471.9m	£185m

UK Capital Investment

In preparing this year’s State of the Industry report, RenewableUK has contacted the developers of all the on and offshore capacity built in the UK in both 2010/11 and 2011/12 to request data on the capital expenditure on these projects. Using figures on onshore economics derived by BiGGAR Economics⁵ approach (for RenewableUK and DECC), we have used the results of our survey to calculate the effect of these projects on regional and UK economic activity.

Because of consenting cycles, the number of offshore projects commissioned in this period is low, so in order to avoid data being attributable to specific projects, we are not reporting results for this sector. The data we have been given, however, is consistent with earlier estimates of capital cost, which indicate a leveling out at about £3m/MW. Therefore, the 300MW of offshore wind installed in 2010/11 and the 517MW installed in 2011/12 had

capital expenditure of about £900m and £1.5bn respectively. The amount spent in the UK and the resulting employment is highly project-specific, so it is not possible to assess with accuracy the impact of this spend on the UK economy. Estimates for projects up to now have seen a typical range of 10–40% local content, which would imply that £90–360m was spent in the UK in 2010/11 and £150–600m in 2011/12.

The response rate to our onshore survey was 83% by MW, and there are sufficient projects across categories for us to report data by size of project and by UK nation, though we have had to consolidate data for all projects over 20MW, and projects in Wales and Northern Ireland. This is due to the relatively small numbers of projects in those two areas. Average figures for cost/MW in each category were calculated across the projects for which data was obtained and a total capital spend figure then derived by using that average to extrapolate for the

total capacity. While data was sought specifically for the amount spent on turbine supply and balance of plant contracts, it is possible that additional costs, such as initial operations and maintenance (O&M) contracts, have been packaged up into these totals. More detailed research would be required to ensure complete consistency of the dataset.

In 2010/11 a total of 559MW of onshore wind projects were completed, rising to 774MW in 2011/12. This deployment resulted in UK capacity spend estimated at £742m in 2010/11, increasing to £1.05bn in 2011/12. Approximately £804m of this investment was retained by UK businesses in 2010/11 (£332m) and 2011/12 (£472m) respectively⁶ and resulted in gross value added (GVA) of £130m in 2010/11 and £185m in 2011/12.

In addition to the benefit deriving from this capital investment, there will be an ongoing benefit to the UK economy

5. Onshore Wind – Direct and Wider Economic Impacts, May 2012, available at www.RenewableUK.com

from spending on O&M. The 1.33GW of onshore capacity installed over 2010/11 and 2011/12 will result in £63.5m per year retained in the UK economy – a total in excess of £1.25bn over the 20-year lifetimes of the assets.

Analysing the data by size of project reveals interesting information. As might be expected, smaller projects have a higher specific cost per MW, though the largest projects, over 20MW, appear to have higher cost per MW than projects in the 5–20MW range. This data may be skewed by a few larger projects with specific extra costs, for instance for grid infrastructure. What is clear is the trend to larger projects in Scotland. It also tends to explain the increase in average turbine size between the two years, from 1.74MW in 2010/11 to 2.03MW in 2011/12.

The breakdown across each country in the UK shows that it is Scotland that is benefitting the most from onshore wind development. Nearly £1.2bn was spent on projects in Scotland over the two-year period, with nearly £350m of that spend retained within the Scottish economy. In contrast, England benefitted from only £110m of retained spend. Scotland will also benefit on an ongoing basis from the O&M spend on the 865MW installed there in 2010/12, with £29.6m retained in the Scottish economy annually, compared with only £9.3m in England.

Onshore wind capital spending by size of project – Mid 2010 – Mid 2012				
Year	MW Size	Total MW	Sum of MW from those who provided data	Extrapolated total cost (millions)
2010/11	0-2MW	6	2	£11.3m
	2-5MW	43	36	£59.2m
	5-20MW	181	128	£224.7m
	>20MW	330	272	£446.7m
2011/12	0-2MW	12	5	£21.9m
	2-5MW	18	9	£22.7m
	5-20MW	119	101	£135m
	>20MW	625	537	£875.3m

Onshore wind capital spending by region – Mid 2010 – Mid 2012					
Year	Country for Report	Total MW	Sum of MW from those who provided data	Extrapolated total cost (millions)	Spend in region (millions)
2010/11	England	128	109	£158.5m	£46.1m
	Northern Ireland and Wales	92	55	£109.7m	£31.9m
	Scotland	339	273	£471.4m	£137.2m
2011/12	England	143	61	£216.3m	£62.9m
	Northern Ireland and Wales	106	103	£128.6m	£37.4m
	Scotland	526	488	£721m	£209.8m

UK content: Supply Chain Investment and employment

Since our 2011 State of the Industry report, there have been developments in the onshore and offshore wind sectors.

Onshore manufacturing

In onshore wind, manufacture of towers is the most significant direct input to UK projects. Mabey Bridge, based in Chepstow, has continued to grow its tower business and has built on the foundations laid in 2011. Successful business with REpower, EWT, Nordex and Vestas led to the announcement in December 2011 that the facility will be a 24-hour operation, with the company recruiting to increase the workforce to 197 full-time staff. Wind Towers Ltd, a joint venture between Scottish and Southern Energy plc (SSE) and Marsh Wind Technology Ltd, announced intentions to diversify into offshore wind and continues to supply towers to the Clyde onshore wind farm near Abington which, when opened in September 2012, will be the UK's largest. Tata steel announced in January 2012 that it had secured a contract with Siemens to supply steel plate for approximately 150 wind turbine towers from its mills in Scunthorpe and Motherwell.

Balance of plant supply ranges from the manufacture of major electrical infrastructure by ABB, Alstom T&D and Siemens T&D, down to the supply of smaller components, including substation housings manufactured by Kingsley Plastics (Winkleigh, Devon) and cattle grid supply by Hopkins Steel (Newtown, Powys). These examples demonstrate the strength, breadth and variation within the wind industry supply chain.

UK manufacturing also contributes directly to the turbine components' supply chains. While industry focuses on building up a UK supply chain, many UK businesses are successfully exporting to turbine manufacturers in continental Europe. UK export successes include

companies such as GE Power Conversion (previously known as Converteam) from bases in Kidsgrove, Rugby and Glasgow, BGB in Grantham, SEM Motors in Orpington, HV Wooding in Hythe, Mettex in Banbury, Morgan AMT in Swansea, Friction Technology in High Peak and Moog in Reading and Southampton.

Importantly, the UK continues to be a world leader in small wind turbine manufacturing with around a dozen companies exporting more systems than any other country. Larger employers include Gaia Wind in Glasgow, Ampair in Milbourne St Andrew in Dorset, Evance in Loughborough, Evoco in Brighouse in West Yorkshire, Marlec in Corby and Quietrevolution in Pembroke. However, as highlighted elsewhere in this report, these successful manufacturers now have less confidence in future UK order books because of drastic cuts and proposed degressions outlined in the UK Government's Feed-in Tariff Review.

Offshore manufacturing

In March 2012 Gamesa announced that it plans to pursue a memorandum of understanding with the Port of Leith, making Edinburgh its UK manufacturing base for blades and nacelles. In May 2012 Siemens secured planning permission for the proposed development at the Alexandra Dock in Hull for a £80m UK manufacturing facility for its new 6MW turbine. Set against this, in June 2012, Vestas announced that it would not be proceeding with its plans to build a manufacturing facility at the Port of Sheerness in Kent.

Details of sites for General Electric and a number of other turbine manufacturers have yet to be announced, with final decisions to be made based on the assessment of orders and clarity of the policy environment.

Beyond the turbines, Harland and Wolff in Belfast completed the supply of two offshore substations for Siemens T&D for

delivery to the Gwynt y Môr offshore wind farm in August 2012, complementing delivery of the onshore export cable by Prysmian cables in Wrexham for RWE npower. In September 2012 OGN Group secured planning permission to build a £50m Jacket manufacturing facility in Newcastle with the potential to create 1,000 jobs. September 2012 also saw Tata steel launch its capability to supply steel tubular sections for jacket foundations following a £2m investment in Hartlepool.

In the subsea market, JDR cables secured the contract to supply array cables to the 80 turbine Meerwind project in German waters being built by WindMW GmbH. Tekmar, based in Darlington supplied cable protection systems to the Teesside, Ormonde and Gwynt y Môr UK offshore windfarms and has secured contracts to supply the Belgian Thornton Bank phase 3, Danish Anholt, and German Global Tech and Riffgat projects. Pipeline Engineering supplied cable protection systems for the export and array cables on the London Array project.

2012 also saw significant investment in new construction facilities and operations and maintenance services for offshore wind. Belfast Harbour progressed the construction of a £50m logistics facility for DONG Energy and ScottishPower Renewables created 150 construction jobs and 300 long-term positions. Construction of the RWE npower Gwynt y Môr project off the North Wales coast has resulted in a £5m investment at Cammell Laird in Birkenhead and a £50m investment in a new O&M facility at the Port of Mostyn, Flintshire creating 100 long-term jobs.

Operations and maintenance of offshore wind farms require crew transfer vessels, and the UK has a number of leading boat manufacturers including South Boats on the Isle of White, Blyth Boats in Canvey Island in Essex, Alicat in Great Yarmouth, CTruk in Brightlingsea in Essex, Buckie Shipyard in Buckie in

Scotland and Alnmaritec in Blyth. The map on page 18 is designed to highlight areas where there have been significant investments and job announcements across the sector, focusing on manufacturing activity.

2011/12 saw an increase in UK manufacturing capability in the onshore and offshore wind sectors and demonstrated how the industry is making great strides forward. However, a fully developed manufacturing base in the UK will only be achieved if the market for renewables, particularly offshore wind, continues to be supported by stable renewable energy policy combined with a proactive approach to supporting business growth.

Industry employment

Our estimate for UK employment figures for 2011/12 is 12,242 people as of April 2012. This is based on the 2010 figures presented in the report 'Working for a Green Britain'.⁷ This report concludes that the wind sector employed 9,756 full-time equivalent staff. To arrive at the 2012 figure, we have analysed forecasting models developed for the Working for a Green Britain Volume 2 report, using actual installation data to 2012. Revised figures will be available in 2013 when RenewableUK commissions a comprehensive survey update to Working for a Green Britain.

Our analysis illustrates a significant increase in the employment contribution of the small and medium wind industry up to 500kW. This increase is largely driven by increases in employment in the construction and installation phase, following the growing deployment of turbines at this scale.

Offshore wind is showing a 45% increase in direct employment, driven by the increase in deployment (operations and maintenance activity) and construction of projects.

Employment growth in the large onshore wind sector shows a moderate increase, with calculations based on the Government's 2011 Roadmap projections of 13GW by 2020. There is some discrepancy between these projections, based on an extrapolation of modelling used in the Working for a Green Britain report and those reported in RenewableUK/DECC-commissioned BiGGAR Economics analysis. The BiGGAR analysis identified around 8,600 jobs in 2011. This difference stems from to the inclusion of indirect jobs created or sustained in the wider supply chain as a result of contracts with the wind industry, in addition to direct jobs.

Examples of indirect jobs include turbine tower manufacturing jobs and jobs involved in the supply of raw materials to balance of plant contractors. Detailed modelling of indirect jobs for 2012 has not been possible; however, applying a similar ratio of indirect jobs to direct jobs as used in the 2011 study reveals an estimated total of just over 17,000 direct and indirect jobs across the wind sector.⁸

Where the UK stands globally

According to the Global Wind Energy Council, the United Kingdom was ranked 8th worldwide in terms of installed capacity at the end of 2011. This represented no change in position from the 2010 rankings.

Given the installation in the UK anticipated in the year to the end of December 2012 of approximately 2GW, and rates of installation in Canada, France and Italy are not expected to exceed 1.5GW each, we predicted that the UK will rank 6th in the world for installed capacity at the end of this year.

	Country	MW Installed end 2011
1	PR China	62,364
2	USA	46,919
3	Germany	29,060
4	Spain	21,674
5	India	16,084
6	France	6,800 ⁹
7	Italy	6,737
8	UK	6,540
9	Canada	5,265
10	Portugal	4,083
	Rest of World	32,143

Source: GWEC, Global wind report: annual market report 2011

7. Working for a Green Britain, 2011, available at www.RenewableUK.com

8. It should be noted that other publicly available employment studies will employ differing methodologies and definitions of direct and indirect employment, thus arrive at differing employment estimates

9. Provisional figures

No	Company	Location	Text
1	David Brown Gears	Huddersfield	Established gear systems manufacturer and new entrant to the wind sector in 2008. David Brown is now actively working in the tidal and wind energy markets. In the UK, David Brown is investing in two new facilities to support both service and original equipment manufacture of drive train solutions for renewable energy generation. In China, David Brown has a state of the art wind gearbox manufacturing facility.
2	Evoco	Brighouse	Manufacturers of 10kW wind turbines with 18 employees as of January 2012.
3	Siemens	Leeds	15,000m ² unit manufacturing, assembling and servicing mechanical drives, employing 60 staff. An authorised service centre for Winery and equipped with overhead cranes with 25 tonne lift capacity.
4	Cammell Laird	Birkenhead	Awarded three year logistics support contract by RWE npower for build of Gwynt y Môr offshore wind farm.
5	Harland & Wolff	Belfast	Awarded a £20m contract by Siemens Transmission & Distribution to supply two substation platforms for Gwynt y Môr offshore wind farm, the first of which was completed in August 2012.
6	JDR Cables	Hartlepool	Built an initial factory in 2009 with further expansion in 2010, completing a £30m investment in the Hartlepool facility in 2012. JDR is supplying inter-array cables for the London Array offshore wind farm and exporting cables to Germany for the Meerwind Sud/Ost Offshore Windfarm.
7	Moog	Reading/Fareham/ Ulverston/Aberdeen	Supplies systems and components for blade pitch control in wind turbines, including control electronics, slip ring, actuators and blade sensing systems. Moog also supplies slip rings and alternators for smaller turbines. Moog is active in onshore/offshore wind turbines, underwater tidal turbines and surface wave energy devices. In August 2012 Moog acquired Tritech, an acoustic sonar producer supplying systems detecting mammal activity near underwater marine current turbine structures.
8	Harbon Wind Turbines	Doncaster	New entry to the medium wind market, supplying 60kW turbines. Majority of components used are UK sourced.
9	Quietrevolution	Pembroke Dock	Manufacturing facility in South Wales is home to the manufacture and assembly of wind turbines with 35 employees as of January 2012.
10	SlingCo	Rochdale	Recently entered the wind sector, manufacturing exporting cable grips to Nordex Wind in the US. Growth with other components for areas such as offshore wind subsea cables means the wind sector accounts for high proportion of turnover, sustaining 50 jobs.
11	TAG Energy	Stockton-on-Tees	£20m investment in a new factory, which opened in September 2011 to fabricate and supply monopiles and jackets to the offshore wind sector and onshore tower elements. Completed monopiles for Riffgat, a German offshore wind farm.
12	Ellis	Malton	Supplier of cable cleats, for JDR Cable Systems to use on the London Array offshore wind farm.
13	Nylacast	Leicester	Exporter of components for onshore wind turbines.
14	Prysmian	Wrexham	Awarded £15m contract to supply onshore export cable for Gwynt y Môr offshore wind farm. Prysmian group has recently acquired Global Marine Systems Energy Limited (GME), extending the company's capability in wind farm cable installation.
15	Granada Material Handling	Rochdale	Awarded multimillion pound contract by RWE npower to supply Davit cranes for Gwynt y Môr offshore wind farm. As of July 2012, 116 cranes have been supplied.
16	CTruk	Brightlingsea	Builder of boats already supplying 4 boats to Siemens for use on the London Array offshore wind farm. Secured first export order in May 2012 for Dutch company Sima Charters.
17	Port of Mostyn	Mostyn	Awarded contract by RWE npower for an operations and wind turbine installation base for Gwynt y Môr offshore wind farm from 2014, creating at least 100 long-term skilled engineering jobs and supporting a further 120 local jobs in the construction phase.
18	MTL Group	Rotherham/Blyth	New facilities opened in Rotherham and Blyth. Awarded contract in 2011 to supply German supplier WeserWind with components for foundations.
19	E-Tech	Great Yarmouth	Providing electrical systems for 30 work boats. Workforce has increased by 20 people recently to support demand. Also installers of small and large wind turbines.
20	SLP Engineering	Lowestoft	Manufacturers of substations for offshore wind farms, metmasts and suppliers to tidal energy projects. Manufacture of Thanet offshore substation and foundations for prototype tidal stream turbine. Jobs in Lowestoft were recently secured following Sembcorp Marine buying SLP's parent company.
21	SSE / Forth Ports	Dundee	MoU signed in December 2011 to develop the Port of Dundee, leading to the creation of 700 jobs.
22	GE Power Conversion (formerly Convertteam)	Kidsgrove/Rugby/Glasgow	Supplier of power conversion technologies and components for onshore and offshore wind turbines, and offshore installation vessels – generators from standard speeds to direct drives, converters at low voltage AC, medium voltage AC and DC, and for high voltage DC transmission. Also supplier to support vessel power and propulsion, automation and dynamic positioning systems.
23	Steel Engineering	Renfrew	Fabricator of renewable structures on the West Coast of Scotland including wave and tidal devices. In September 2012 awarded a contract to supply met mast fabrications for East Anglia Array Round 3 wind farm.
24	General Electric	To be confirmed	In 2010, General Electric announced its intention to manufacture offshore wind turbines in the UK, creating 1900 jobs. Location and investment date is still to be announced depending on clarity of the policy environment.
25	Dunston Ship Builders	Paull	A new company forming a partnership between Rix Shipping and Dunston Ship Repair to build a new fleet of 20 metre offshore service boats for Alicat under licence. Initial order for 3 aluminium vessels at the Hepworths yard in Paull.
26	Morgan AM&T	Swansea	Supplier and exporter of brushes and related products for the wind sector.
27	DRB Group	Deeside	£275k two year contract awarded by Granada Material Handling for the manufacture of the main structural elements of 164 'Python' crane units to be installed on the Gwynt y Môr offshore wind farm.
28	Leading Edge Turbines	Pontrilas	Recently manufactured and installed 5 towers, nacelles, rotor hubs and blades for REPower at Seamer. 6 employees as of January 2012.
29	Goodchild Marine	Burgh Castle	Awarded a multimillion pound contract to supply Gardline Alicat with 12 aluminium hulls. Wind farm business provides 20% of company's revenue.
30	Oceaneering	Rosyth, Fife	Manufacturer of subsea power cables and umbilical systems at its Fife factory. £15.2m investment into a new facility at Rosyth, which is expected to create more jobs over time.
31	Tekmar	Newton Aycliffe	Supplying sub-sea cable protection systems for Gwynt y Môr, Ormonde and Walney projects. Exporting to Danish (Anholt), German (Borkum West) and Belgian (Thornton Bank II) projects.
32	Gaia Wind	Glasgow	£5m investment in new premises in Glasgow 2011. Employment grew to 30 in January 2012 with plans to employ 50 staff assembling, testing and deploying Gaia turbines by 2013.
33	Celsa Steel	Cardiff	Manufacturer of steel for the reinforcement of concrete, providing technical steel reinforcing solutions for both on and offshore wind reinforced concrete foundations. Sourced steel is 98% recycled.
34	Gamesa	Leith	Intention to pursue an MoU with the Port of Leith to establish an offshore manufacturing base in the UK was announced in March 2012. Gamesa plans to invest up to £125m in the UK offshore wind industry, including a wind turbine manufacturing facility at Leith supporting up to 800 jobs directly.

No	Company	Location	Text
35	Hopkins Steel Ltd	Newtown, Wales	Around a fifth of business is supplying heavy duty cattle grids to onshore wind farms across the UK.
36	Mettex	Banbury	Established speciality connector manufacturer employing 40+ people in Banbury. Mettix supplies components to multiple customers in the onshore and offshore wind sector, and are growing their renewables turnover which accounts for approximately one third of their £4-£5m turnover.
37	Kingsley Plastics	Winkleigh	Designer, manufacturer and installer of glass reinforced plastic sub-station housings. Awarded the design and supply of over 70 housings installed at projects in the Scottish Highlands.
38	Tata Steel	Hartlepool/Scunthorpe	Invested in a £2m central supply base for tubular steel components for jacket foundations in Hartlepool which opened in September 2012. Tata has been awarded 2 major contracts to supply components for jacket foundations in Europe. Secured a contract to supply 25,000 tonnes of high-quality steel plate for Siemens onshore wind towers.
39	AJ Woods	Harwich	Marine engineering and construction company completing contracts for the fabrication and installation of small and large aluminium, steel and stainless steel structures. Manufacture and installation of decks, hatches, cable chutes, wind turbine blade racks, boarding ladders and other large fabrications for offshore wind farms and ships that service them. Previously provided maintenance and construction teams for Greater Gabbard Wind Farm involving 40 personnel offshore daily.
40	HV Wooding	Hythe	Established supplier of components, sub-assemblies and busbars for power conversion systems, LV and MV converters, transformers and switchgear used in the manufacture of 1MW to 7MW Wind Turbines.
41	Heerema	Teesside	Completion of offshore substation platforms and HVDC-converter stations for North Sea wind farm developments. Additionally, Heerema Hartlepool was awarded a contract to fabricate and load out two substation platform topsides for the Sheringham Shoal offshore wind farm by AREVA.
42	Siemens	Hull	Plans for an £80m investment in a wind turbine factory have gained local planning approval in May 2012. The investment has the opportunity to create 700 direct local jobs and more indirectly.
43	James Walker Group	Cockermouth/Greenock/ Bordon/Dudley	A number of manufacturing facilities across the UK, manufacturing and supplying seals for wind turbines.
44	Alnmaritec	Blyth	Boatbuilding firm with ten years experience of wind farm service vessel development. The company has delivered over 20 boats for the offshore wind support sector and recently invested in a new facility at the Port of Blyth to allow it to continue the development of its vessels.
45	Ampair	Milborne St Andrew	Manufacturer of small wind turbines that has installed 30,000 units worldwide. The company has recently attracted £1.36m of new investments and expanded its workforce, signalling further growth for Ampair.
46	MCPS	South Shields	Supplying corrosion protection to UK London Array project and exporting to Anholt (Denmark) and Borkum West (Germany) projects.
47	Subsea Protection Systems (SPS)	Great Yarmouth	Supplied concrete fleximats for cable protection for the Greater Gabbard Wind Farm and supplying rock filter bags, pipe collars and J-tube Stabilisation Blocks for Sheringham Shoal Wind Farm.
48	Houlder	London	Turbine Access System manufacturer. First contract awarded by Holyhead based Turbine Transfers. Sub contracted manufacture in Tyneside.
49	Pipeline Engineering	Richmond	£7.75m contract for Phase 1 of London Array Wind Farm for the supply of cable protection system between 175 turbines. Currently constructing a purpose-built manufacturing facility for the project in Catterick, North Yorkshire.
50	SEM Motors	Orpington	Manufacturer of electric motors for industrial automation applications worldwide. Since 2006 SEM has been supplying electrical pitch-motors for multi MW wind turbines, as well as for tidal turbines – sectors which are taking an increasing share of the company's £15-20m turnover.
51	Cerdic Foundries	Chard	Supplier of cast components to turbine manufacturers in the onshore and offshore wind sector.
52	Buckie Shipyard	Buckie	Built seven wind farm service vessels to date, ranging from 15m to 17m, employing a local workforce of 56.
53	Marlec Engineering	Corby	Manufacturer of micro wind turbines, with in-house manufacture of generators and other components. 25 employees as of January 2012.
54	International Paints	Gateshead	Supplier of marine and protective coatings. Recent projects include substations for Lincs, Sheringham Shoal, transition pieces for Belwind and foundations for Ormonde offshore wind farm. Involved in Wave and Tidal projects for Pelamis and Oyster.
55	Optech Fibres	Morecambe	Supply and commission fibre optic solutions for onshore and offshore wind farms.
56	Belfast Harbour	Belfast	£50m investment for DONG Energy and ScottishPower Renewables to support construction of West of Duddon Sands offshore wind farm. 300 permanent jobs post-construction, 150 jobs in construction phase.
57	Roballo	Peterlee	Roballo Engineering, part of the Rothe Erde group of companies, manufactures slewing bearings for wind turbines and marine turbines. Specialising in yaw, pitch and rotor bearings. Also manufacture seamless rolled rings for wind tower flanges and foundation rings. Currently involved in collaborative projects with Ricardo and the University of Sheffield to develop more reliable and longer lasting drive train bearings.
58	Hutchinson Engineering	Widnes	£1.2m contract with XZERES Wind Europe to supply wind turbine towers. Awarded a £2m contract to supply structures for 400 vertical axis turbines by Quietrevolution.
59	SMD	Wallsend	Manufacturers and suppliers of subsea cable installation and burial vehicles. Involved in the design and testing of tidal turbine "TidEL" and previous manufacture of a 1MW prototype tidal turbine for Atlantis Resource Corporation. Supplying to the renewables sector accounts for 30% of the company's turnover.
60	Spencer Group	Hull	Awarded a contract in August to prepare the civil infrastructure for the onshore substation for E.ON's offshore Humber Gateway offshore wind farm.
61	Wind Towers Ltd	Machrihanish, near Campbeltown	Manufacturers of wind towers and welded components for onshore and offshore wind farm developments. Projects have included supplying for Clyde wind farm and working with ScottishPower Renewables. Also sub-contracted for manufacture and supply to London Array. Currently supporting 120 jobs in the local area.
62	Friction Technology	Whaley Bridge/Brierley Hill	Manufacturer of components for wind turbine braking systems.
63	South Boats	Isle of Wight	Multiple contracts including £13m from Holyhead based Turbine Transfers and £14m from south coast based Seacat Services. South Boats launched its 54th offshore wind vessel in April 2012, and vessels 63 and 64 were delivered to Seacat Services, commencing operation at the Anholt windfarm in Denmark in August 2012. Builds circa 25 wind farm crew transfer vessels annually.
64	BiFab	Methil, Arnish	Suppliers of the jacket substructures for Beatrice, Alpha Ventus and the 30 jacket foundations for Vattenfall's Ormonde Irish sea offshore wind project from Methil. BiFab is investing in Methil and Arnish to support production of 150 structures per annum.
65	BGB Innovation	Grantham	Established supplier of slip ring and brush holder assemblies for rotary applications in the wind industry since 1994. Recent growth and investment has swelled the workforce to 110 people. Components exported to Europe, the US, China and India.
66	Mabey Bridge	Chepstow	£38m investment in new factory, opened in May 2011 with 102 employees. Framework agreements with turbine manufacturers REpower and EWT. December 2011 announcement of expansion of workforce to 197. Announced 35 tower order for Nordex Wind in January 2012. An 11 tower order for Vestas was announced in March 2012.

No	Company	Location	Text
67	Blyth Work Cats	Canvey Island, Essex	Built multiple boats for UK offshore wind farms.
68	Spanwall	Carryduff, Belfast	Architectural facade specialists. Recently provided louvers and doors for substations to be located at Gwynt y Môr in collaboration with Siemens and Harland & Wolff.
69	Fenner Precision	Lincoln	Supplier of specialist reinforced polymer grout seals used in foundations of UK offshore wind farms at Thanet, London Array and Greater Gabbard as well as 3 German projects: Borkum West 2, Nordsee Ost & Baltic 1.
70	Siemens	Manchester	Siemens Transmission & Distribution will create several hundred jobs over the next few years after opening its new Renewable Energy Engineering Centre in Manchester. The centre will focus on the design and build of HVDC systems.
71	IXYS UK Westcode	Chippenham	Supplier of high power semiconductors to the wind industry.
72	Evance	Loughborough	30 employees as of January 2012. As of March 2012, Evance has manufactured and installed in excess of 1,000 small wind turbines.
73	Aquind (OGN Group)	Newcastle	Plans approved in September 2012 for a new offshore wind fabrication facility attracting a £50m+ investment for a new 36,000m ² facility at Hadrian Yard to construct offshore wind jacket foundations with the estimated creation of up to 1,000 jobs. OGN aims to start construction in 2013 and have the facility up and running in 2014/15.
74	Gardline Alicat	Great Yarmouth	Alicat Workboats are part of the Gardline group established in 2009 and have built multiple vessels for UK offshore wind farms, including three catamarans for Dalby Offshore Renewables.
75	Windspeed Limited (Vector Instruments)	Rhyl	Manufacturer and supplier of wind speed and wind direction measuring equipment, together with other weather sensors and associated equipment.
76	Lynx Metmasts	Bromsgrove	Lynx Metmasts manufactures a full range of met masts at its facility in Tranent, East Lothian. The company has successfully completed projects for SSE Renewables, E.ON, Nordex, ABO Wind, Energia, ESB International and others throughout the UK and Ireland. In 2012, 4 new positions were created bringing the total workforce to 23.
77	DMM Professional	Llanberis	Designer and manufacturer of height safety equipment.
78	Lofrix	Timperley	Specialists in surface engineering and lubrication to improve the efficiency of mechanical and moving parts. Lofrix is now used to improve the performance of 400 large wind turbines in the UK after being involved in in-depth trials with Scottish Power.
79	GenDrive	Cambridge	Manufacturer of inverters for small wind turbines. Currently employing 12 people, with plans to hire another 6 employees by the end of 2013.
80	Kingspan Wind	Stewarton	Small wind turbine manufacturer employing 30 people.

Conclusions and Look Ahead

This report shows a vibrant, successful industry, deploying projects and creating growth.

Both of these are crucial for the future health of the UK economy. Over the next decade, as conventional power sources reach the end of their viable lives and we seek to decarbonise both our electricity system and our economy, continued deployment of clean, domestic sources of energy is key. A significant number of wind projects are “shovel-ready”, and provided security is retained amongst developers, will contribute significantly to growing the economy and creating new employment.

A significant change this year is a reversal to what some had feared was an inevitable fall in approval rates. Improvements in both approval rates and time taken to determine projects is a positive step, and can be partially attributed to the efforts being made by developers to engage closely with decision-makers and communities as part of bringing forward acceptable projects.

Confidence, however, remains somewhat fragile. Without confidence that developers will be bringing forward projects and receiving consents with regularity, manufacturers will shy away from basing themselves in the UK and will prioritise investment in more predictable markets.

To ensure that this confidence is bolstered and a steady stream of projects come online it is vital that planning trends continue to follow the pattern outlined in this year’s report. A healthy UK approval rate, combined with decreasing times of decision, remain critical benchmarks for this industry. This also needs to apply for both the projects themselves and associated infrastructure. It is therefore fundamental that there is both clear guidance to all those who will be participating in, or advising on, decision-making, and that sufficient resources are provided

in local planning authorities, statutory consultees and national planning bodies. Industry has particular concerns over offshore wind and low staffing levels in statutory consultees. With 16GW of power expected to enter the consenting system over the next 12–18 months it is important that coming offshore wind schemes are properly appraised, but the UK risks creating consenting delay without adequate resourcing inside these bodies.

By the end of June 2013 we expect to see the Energy Act enshrined in law. The Act will set the market framework for low-carbon generation beyond 2017. Great expectations are being placed on the offshore wind sector to reduce costs and deliver manufacturing to these shores. Industry is signed up to this task, but can only do so if there is volume in the market and if turbine manufacturers have sufficient certainty to justify inward investment in the UK.

In next year’s report, we both hope and need to be able to document continued and significant growth in employment, income to the UK and MW deployed, but it is key that confidence is retained in order to do so. Confidence comes through the efficient operation of the new planning system, providing certainty on the final shape of the Government’s Electricity Market Reform, and strong leadership and belief from the very centre of Government to override the vocal minority that oppose this growing, developing and essential industry.

With these necessary components in place, there is no reason that our industry cannot continue to grow, delivering affordable, reliable, clean generation to meet the energy needs of our homes and businesses while making a vital contribution to growing our economy and creating high-value development, construction and manufacturing jobs that are part and parcel of the UK’s continued international competitiveness.



RenewableUK

Greencoat House, Francis Street
London SW1P 1DH, United Kingdom

Tel: +44 (0)20 7901 3000
Fax: +44 (0)20 7901 3001
Web: www.RenewableUK.com
Email: info@RenewableUK.com

Our vision is for renewable energy to play a leading role in powering the UK.

RenewableUK is the UK's leading renewable energy trade association, specialising in onshore wind, offshore wind, and wave & tidal energy. Formed in 1978, we have a large established corporate membership, ranging from small independent companies to large international corporations and manufacturers.

Acting as a central point of information and a united, representative voice for our membership, we conduct research, find solutions, organise events, facilitate business development, advocate and promote wind and marine renewables to government, industry, the media and the public.

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