WIND DIRECTIONS

September 2011
Volume 30/Nº 4

EWEA
THE EUROPEAN WIND ENERGY ASSOCIATION

INTERVIEW

WALDEMAR PAWLAK
Polish Deputy Prime Minister

Living with a wind farm

The public acceptance issue

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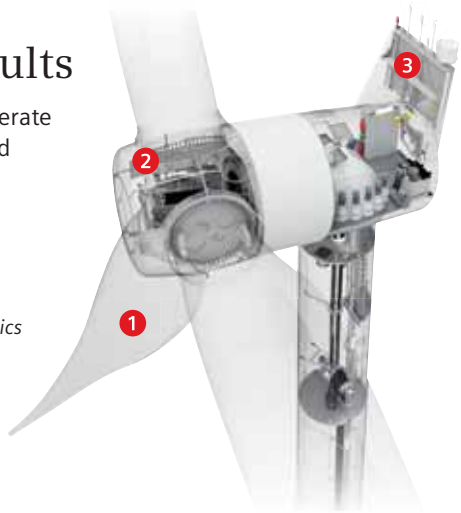

1. *B55 Quantum Blades with optimized aerodynamics*
2. *Compact and lightweight direct drive generator*
3. *50% fewer parts compared to geared turbines*

WIND DIRECTIONS

THE EUROPEAN
WIND INDUSTRY
MAGAZINE

September 2011
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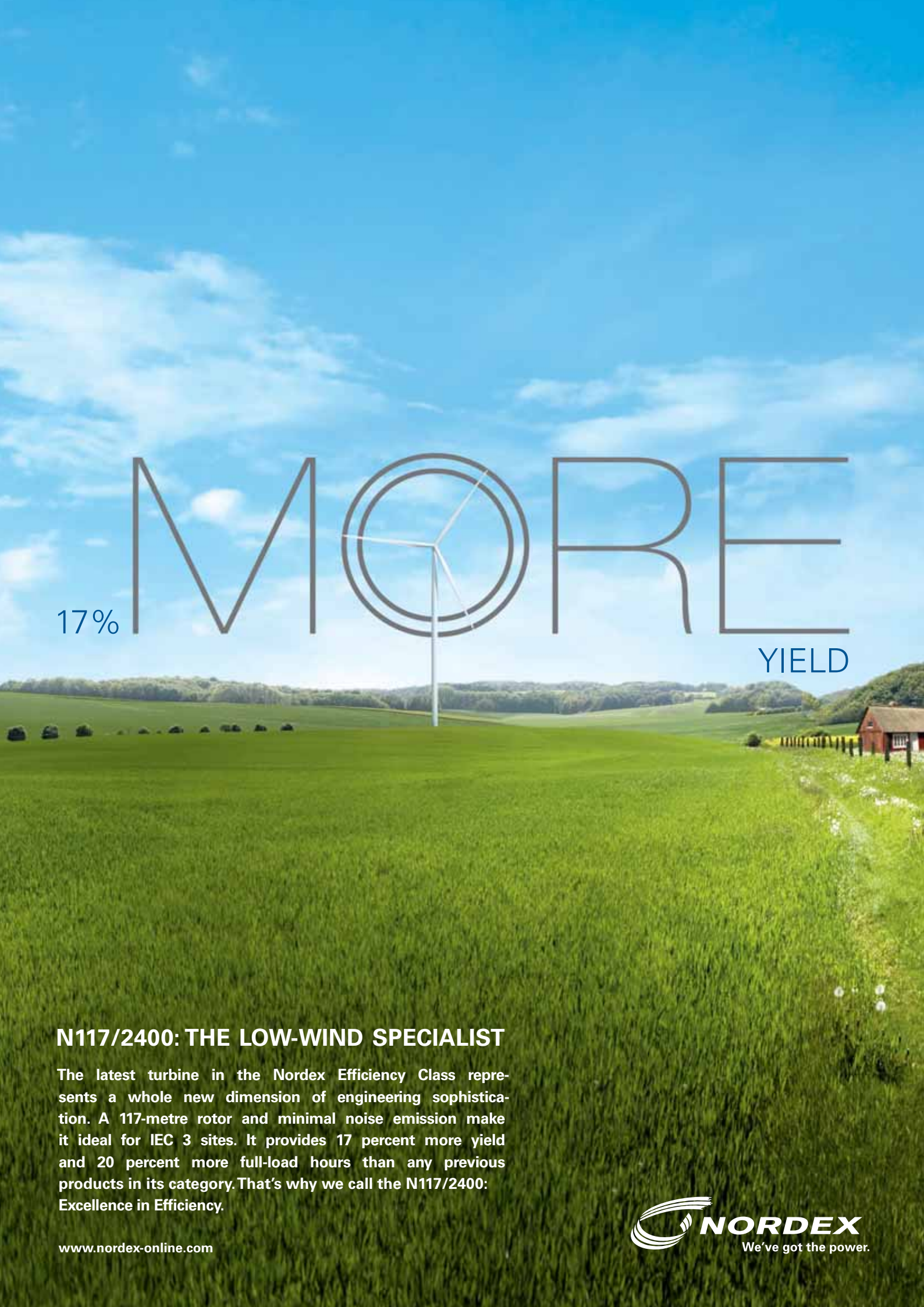
Cover photo: Potato farmers Stephan and Ralph de Clerck from Swifterbant, the Netherlands, have been using wind energy for over a decade. Together the two brothers have 8 MW of wind energy capacity and they sell the electricity produced to the grid. They continue to farm their land, planting potatoes and the wind mills run in the background. For more photo stories, see the Focus, p. 30.



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By Sarah Azau
Editor

Managing the misconceptions

There is a saying in English, "Home is where the heart is", and it is a normal part of the human condition to be very attached to the area we consider to be our home. It is perhaps unsurprising, then, that when we feel that area is about to change, we can become wary.

Local-level opposition to wind farms is often linked to fears of the effect they might have on familiar surroundings or landscape or habitat, local birds and animals or even people's own health. And yet, once the fears have been proven unfounded, and the wind farm is up, community support has been shown to increase dramatically. In this issue of *Wind Directions*, I investigate why those misconceptions arise in local communities, and how they can be countered early on - see p. 30.

Across the globe

One country which could, if it chose, put up hundreds of wind farms out of sight of everyone except a couple of kangaroos is Australia. Australia boasts some of the best wind resources in the world, the so-called "roaring forties" which sweep the south coast and refer to latitudes between 40°S and 49°S which experience strong, dependable and often gale-force westerly winds.

Chris Rose, who was down under earlier this year, found out a whole lot more about the growing wind energy business in the country, why its energy companies are now calling for a price to be put on carbon, and how Australia intends to reach its very own 20% renewable energy target by 2020 - read about it on p. 26.

I have also been travelling to exotic climes for *Wind Directions* – but in my case, they were a bit chillier. In June I was in a small village near Glasgow in Scotland, which owns a turbine at a nearby wind farm and is trying to become a zero-carbon community – or as close to it as possible. Read more on p. 38.

Understanding budgets

Although at the time of writing it is the summer holidays for many of us – the EWEA office is certainly quieter than usual – in a few weeks Brussels will set its cogs back in motion and work will have started again in earnest by the time *Wind Directions* goes out. One topic for discussion is the EU budget, both for 2012 and the next multi-annual budget to take us to 2020. But how does this work exactly, and how does it affect our industry? Find some answers to your questions on p. 18.

Sustaining our events

It seems as though EWEA is often just finishing a big event or conference or preparing for the next one! OFFSHORE 2011 in Amsterdam is just a few weeks away in November, and in this *Wind Directions*, Chris takes a detailed look at the state of the industry and what exactly is in store at the event. Read the event preview on p. 50 and find out more at www.ewea.org/offshore2011.

One aspect of its events EWEA is trying to improve is their sustainability, and we have set in place an external audit system to grade our efforts and show us where we can do better. The report on every aspect of the sustainability of EWEA 2011 in Brussels has now been published, showing we got an overall score of 62%, against an average of 44% for other events monitored by our auditors. Although this is great news, we can still of course do lots more. Read Zoë Casey's summary of the report on p. 42.

Another more general area in which more can be done by us all - given the right market, political and technological conditions - is of course Europe's wind energy development itself. Despite the ongoing growth in installed capacity to over 84 GW by the end of 2010, the potential is still huge. EWEA's latest report, Pure Power, looks at wind energy scenarios up to 2050 and shows that 50% of our electricity can come from wind energy by then. Find out more on p. 10. ■

CHINA

Order for 21 wind turbines for Jiangsu

Siemens has received an order for 21 turbines with an output of 2.3 MW and a rotor diameter of 101 metres each for an offshore project in Rudong County, Jiangsu, China. Commercial operation is expected in late 2011 and the supply includes a five year service and maintenance agreement.

According to the Chinese Renewable Energy Industries Association, China will expand its offshore wind power installed capacity to 5 GW by 2015 and 30 GW by 2020. China is currently the world's largest wind power market today with almost 45 GW installed and a growth rate of 73% from 2009 to 2010.

More information: www.siemens.com

DENMARK

Prototype 6 MW turbine set up

Siemens Energy has installed its first 6 MW turbine as a prototype of the next generation offshore turbine. The SWT-6.0-120 wind turbine with rotor diameter of 120 meters uses direct drive and rotor technology in its location in Høvsøre, Denmark. It is setting a new low weight standard for large offshore machines with the nacelle and rotor weight less than 350 tonnes together. Siemens believes the low weight will help reduce the cost of offshore wind plants.

The company is testing and validating the performance of the new turbine before it is officially launched for sale in the near future.

More information: www.siemens.com

SPAIN

50 MW wind farm started up in Aragon

The Aguilón wind farm will have an annual production of 139.3 million kWh – enough energy to power over 51,000 households every year — and will avoid 103,000 metric tonnes of CO_2 emissions.

It has 25 G-87 2 MW wind turbines. With this new farm, the community of Aragon will be up to 275 MW and 1,568 MW of renewable energy on the Iberian Peninsula.

The CEO of Enel Green Power, Francesco Starace, thinks that the new wind farm "confirms Enel Green Power Espana's commitment to deliver on the planned development in the Spanish market, rapidly deploying profitable projects listed in the Preregistro".

More information: www.enelgreenpower.com

SWEDEN

New wind farm for Gällivare

Vestas has received a confirmed order for 30 new V100 turbines, making 78 MW of capacity. The project is to be called the Sjisjka wind park in Gällivare, Sweden. Commissioning is scheduled to take place in the summer and autumn of 2012 and the final delivery will be made early in the fourth quarter of 2012.

More information: www.vestas.com

UK

Newly initiated offshore wind project

A new offshore wind energy project, West of Duddon Sands, is to have a capacity of 389 MW — enough to meet the electricity consumption of 300,000 households in the UK. It is due to become operational in 2014.

Iberdola Renewables and DONG Energy have already completed the fill project design, are splitting the investment cost 50/50.

Work is expected to start next year, and the construction is expected to create 500 jobs with more to be added through operation and maintenance tasks.

More information: www.iberdrola.es; www.dongenergy.com

WORLD

"Stealth" turbines could help with radar issues

Vestas has successfully tested a "stealth" rotor on a wind turbine, which may allow for wind power plants to be located near military and airport areas without interference with their radar. Preliminary test results showed that a Vestas V90 turbine with stealth rotor achieved a reduction in radar cross section of approximately 99% compared to standard turbines.

There are currently 20 GW of wind power blocked by concerns of radar interference worldwide. The modifications do not affect the performance of the turbine.

More information: www.vestas.com ■

Photo: DONG Energy

A new offshore farm is to be built in the waters of the UK, currently market leader

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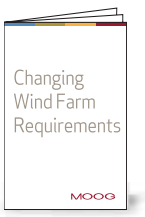

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Half of Europe's power from wind energy by 2050

EWEA's new report sets out the probable expansion of the massive contribution wind power is already making in the next few decades. Chris Rose explains.

Europe will increasingly depend on wind energy to meet electricity demand, strengthen its economy and protect an environment already feeling the brunt of climate change caused by burning fossil fuels.

That is the overarching conclusion that EWEA has arrived at in the third edition of its Pure Power report, an analysis of Europe's wind energy sector between now and mid-century.

Indeed, the report notes that EWEA's scenarios show wind energy in 2020 should meet at least 15.7% of EU electricity demand from 230 GW — 190 GW onshore and 40 GW offshore — and by 2030, 28.5% from 400 GW. In addition, EWEA believes wind energy can provide half of Europe's power by 2050, with the remainder from other renewable sources.

Wind power currently meets 5.3% of the EU's electricity consumption from an installed capacity of 84.3 GW.

"At a time when fossil fuel prices are spiralling, the threat of irreversible climate change is on everyone's minds and serious questions are being raised over the cost and safety of nuclear, wind energy is considered more widely than ever a key part of the answer," EWEA President Arthouros Zervos and CEO Christian Kjaer note in the report's Foreword.

Zervos and Kjaer refer to the benefits the EU gets from the continual annual growth of wind energy such as well-paying jobs, stronger and more robust R&D activity, a lowering of carbon emissions and a reduction in costly fossil fuel imports.

But they warn that EU renewables legislation is needed now for the period after 2020 to ensure the continued buoyancy of the wind energy sector and the path to 100% renewables by 2050.

"This should follow the successful legislation so far by setting an ambitious, binding renewables target for 2030," Zervos and Kjaer say. "Such a target would take the EU from 19% renewable electricity today, to an expected 34% in 2020, and to 100% renewable electricity by 2050."

In addition to post-2020 legislation, investment is urgently needed in electricity infrastructure in order to transport large amounts of wind energy from where it is produced to where it is consumed and to create a single electricity market in the EU.

"Over the past five years, the global annual market for wind turbines has grown by 151%."

Based on the EU Member States' National Renewable Energy Action Plans (NREAPs), the updated Pure Power report said wind power, with an expected 213 GW of installed capacity, is forecast to produce 495 TWh of electricity in 2020.

"Taking the 27 NREAPs' additional energy efficiency scenario, EU gross electricity demand is scheduled to grow to 3,529 TWh in 2020," the report said. "Wind energy would, therefore, meet 14% of the EU's demand."

A scenario for growth

The report noted that EWEA had come up with two of its own scenarios for 2020.

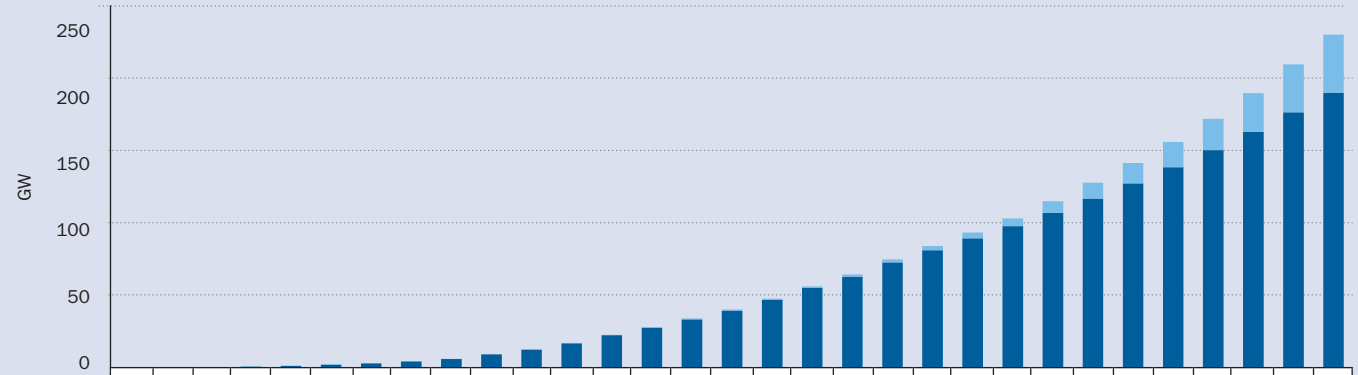
These consist of a "baseline" scenario, which is reflective of EWEA's traditionally conservative approach to setting targets for wind energy and assumes a total installed capacity of wind power in the EU of 230 GW, producing 581 TWh of electricity, meeting 15.7% of electricity consumption (see the graph on p. 11).

EWEA's "high" scenario acknowledges that wind power — as the most affordable of the renewable electricity technologies in most EU Member States — could meet a higher share than the 14% of electricity demand by 2020 indicated by the NREAPs or the 14.2% assumed by the European Commission, if EU policy certainty beyond 2020 is achieved before 2014; additional R&D efforts are made; and if the necessary infrastructure investments and power market reforms are undertaken.

The report said that, under such conditions, the "high" scenario assumes that total installed wind power capacity will reach 265 GW by 2020, producing 682 TWh of electricity, meeting 18.4% of electricity consumption.

EWEA's "baseline" scenario also requires EU installed capacity to increase from 84.3 GW at the end of 2010 to 230 GW in 2020 — meaning an average annual increase in capacity of 14.6 GW between 2011 and 2020. Meanwhile, the "high" scenario requires installed capacity to increase to 265 GW by the end of this decade — meaning an average annual increase in capacity of 18.1 GW between 2011 and 2020.

Cumulative EU wind power capacity (1990-2020)



	1990	1191	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Offshore	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.6	0.7	0.9	1.1	1.5	2.1	2.9	3.9	5.3	8.1	10.9	14.0	17.4	21.6	26.7	33.1	40.0
Onshore	0.4	0.6	0.8	1.2	1.7	2.5	3.4	4.7	6.4	9.6	12.9	17.2	22.8	28.0	33.8	39.8	47.1	55.4	63.2	73.0	81.4	89.6	98.0	107.1	117.0	127.5	138.6	150.4	163.0	176.4	190.0
Total	0.4	0.6	0.8	1.2	1.7	2.5	3.5	4.8	6.5	9.7	12.9	17.3	23.1	28.5	34.4	40.5	48.0	56.5	64.7	75.1	84.3	93.6	103.3	115.2	128.0	141.5	156.0	172.0	189.7	209.5	230.0

Going abroad

Turning to international wind power figures, and using data compiled by the Global Wind Energy Council (GWEC), the report noted 38.3 GW of wind power capacity was installed around the world during 2010, reaching a total of 197 GW by the end of the year.

"Over the past five years, the annual market for wind turbines has grown by 151% from 15.2 GW in 2006 to 38.3 GW in 2010," the report said. "The total installed wind power capacity increased from 74 GW to 197 GW over the same period."

The report added that 139 GW of new wind power capacity was built globally compared to 8 GW of new nuclear capacity between 2006 and 2010.

That 139 GW of new wind power capacity produces electricity equivalent to 52 nuclear power reactors, or 41.5 GW of nuclear capacity, the report said. "Hence, on average, the wind power industry — in electricity terms — has constructed the equivalent of more than 10 new nuclear power plants per year in the past five years."

In 2009 and 2010 alone, the report added, the wind power capacity installed globally (77 GW) produces electricity equivalent to 29 nuclear power plants. "Therefore, in electricity production terms, the wind power industry installed the equivalent of 1.2 nuclear power plants per month over the past two years."

Returning its focus to Europe, the report said Germany (27.2 GW) and Spain (20.7 GW) continue to be the EU's undisputed leaders in terms of total installed wind energy capacity. Indeed, as much as 57% of the EU's installed capacity is located in the two countries.

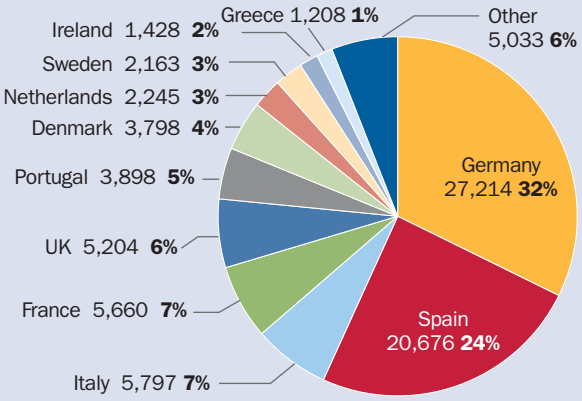
The report said that by the end of last year five countries — Germany, Spain, Italy (5.8 GW), France (5.7 GW) and the UK (5.2 GW) — had passed 5 GW of total capacity, and that 25 of the 27 EU Member States utilise wind power (see the graph below).

In 2010 alone, Spain (1,516 MW) installed the most European wind power, followed by Germany (1,493 MW), France (1,086 MW), the UK (962 MW) and Italy (948 MW).

The report noted that the three pioneering countries of EU wind power — Germany, Spain and Denmark — are now home to 61.3% of the installed wind power capacity in the trading bloc. But it pointed out that the three nations' share of new annual installations has dropped from 85% in 2000 to 36% in 2010.

"All EU Member States except Malta are now investing in wind power, partly as a result of the EU's Renewables Directives."

Member State wind power capacity (MW) and share (%) of total EU capacity at end 2010 (total 84,324 MW)



As a consequence, the report said it is now possible to distinguish an important second wave of wind markets in Europe, led by Portugal, the UK, France and Italy, and significant growth in emerging markets amongst the EU's new Member States such as Poland and Romania.

"Assuming that EWEA's targets are met, more than 462,000 people will be employed in Europe's wind energy business in 2020."

"All EU Member States except for Malta are now investing in wind power, partly as a result of the EU Renewable Electricity Directive passed in 2001 and its 'successor', the Renewable Energy Directive passed in 2009," the report added.

Offshore's growing role

Pure Power noted that, with 2.9 GW installed at the end of 2010, offshore wind accounted for 3.5% of installed EU wind energy capacity (up from 2.7% in 2009) and 9.5% of new annual capacity.

The report said that 883 MW of offshore wind were installed in 2010, beating the previous year's record of 582 MW.

Although Denmark was the historical front-runner in offshore wind, the report said the UK became the first country to total more than 1 GW of offshore capacity by the end of last year. In Europe, there are now eight EU Member States, and Norway, with installed offshore capacity.

Incorporating data from the consultancy BTM Consult, the report noted the EU wind energy industry continues to install increasingly sophisticated and larger wind turbines.

"There has been a significant increase in average turbine capacity from some 200 kW onshore and 450 kW offshore in 1991 to over 1,700 kW onshore and 2,800 offshore in 2010," the report said.

The report said a total of 81,380 MW of onshore wind has been brought online via the installation of 70,488 turbines during the past 20 years. In addition, a further 1,132 wind turbines, totalling 2,944 MW, have been installed in European offshore locations.

Wind energy increased its share of total power capacity in the EU to 9.6% in 2010.

"However, it is wind's contribution to new generation capacity that is even more striking; 27.7% of all power capacity installed since 2000 has been wind energy, making it the second largest contributor to new EU capacity over the last 10 years after natural gas (48.3%)," the report said.

Clean and green

Turning to avoided CO_2 emissions, the report said EWEA estimates that the EU-installed wind power capacity by 2012 will avoid 35% of the Kyoto Protocol target. By 2020, wind should represent 31% of the EU's current target of 20% reductions from 1990 emission levels.

At a CO_2 price of €25/tonne, wind power avoided €3.1 billion in carbon costs in 2010, the report said, adding that at the same price, wind power is estimated to avoid carbon costs of €8.5 billion in 2020 and €25.8 billion in 2030, assuming the price of CO_2 reaches €40/tonne.

In terms of avoided fuel costs, and using the European Commission's fuel price assumptions, the production of wind energy avoided €5.92 billion of fuel costs in 2010.

Using EWEA's targets, wind energy is expected to avoid €25.3 billion of fuel costs in 2020 and almost €58 billion in 2030.

What is more, EU wind power investments in 2010 totalled €12.74 billion, of which €2.65 billion was in the offshore sector (see the graph to the left). The EU wind power investments in 2020 are, using EWEA targets, expected to reach €26.60 billion, of which €10.39 billion will be offshore. By 2030, €25.27 billion will be invested, with €17.04 billion earmarked for offshore wind.

In 2010, the wind energy industry employed 189,000 people directly and indirectly in Europe. "Assuming that EWEA's targets are met, more than 462,000 people will be employed in the wind energy business in 2020," the report said. Employment in the offshore wind sector is expected to exceed onshore by 2025.

The report said that the EU's current renewables policy is successfully transforming Europe's power sector. But it warned that if Europe is serious about reaching 80%-95% reductions in CO_2 emissions by 2050, "the most effective post-2020 framework would be to replicate the successful approach and set an ambitious, binding 2030 target for renewable energy that is compatible with the necessary carbon reductions in the power sector." ■

Download the report: www.ewea.org

Wind power investments 2000 - 2030

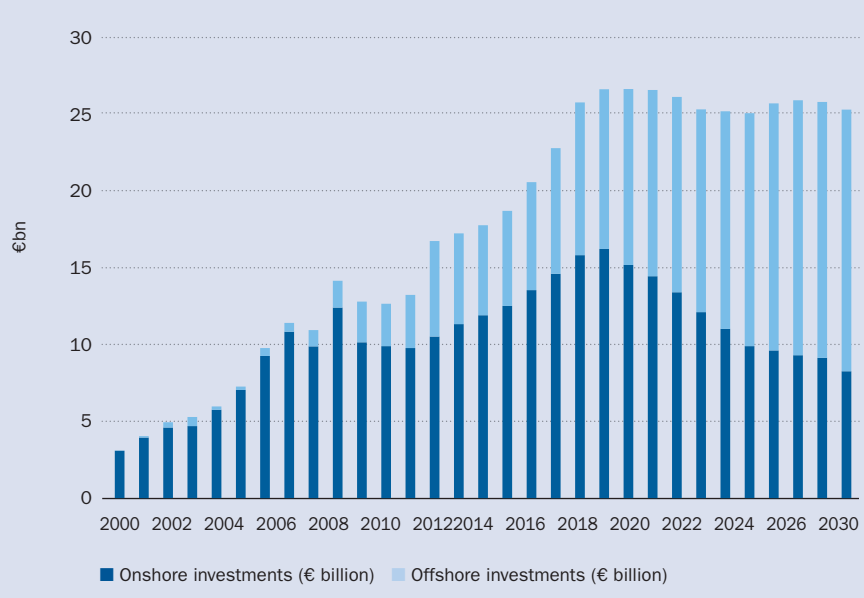


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Photo: EWEA/Bickley

CEOs from EWEA member companies, just before meeting MEPs and EU Commissioners

Commissioners stress need to consider 2030 renewables targets

Connie Hedegaard, European Commissioner for Climate Change, has been voicing her support for a 2030 renewable energy target.

"It is high time to start discussing a 2030 renewable energy target" in order to "provide the [renewables] sector and investors with predictability," she said a few months ago.

"A discussion on a renewables target for 2030 is needed in the aftermath of the Fukushima nuclear accident in order to avoid locking ourselves into fossil fuels, which would make it extremely expensive or even impossible to reach our long-term climate goals," she stressed. She was speaking at the Brussels launch of the IPCC's report 'Renewable Energy Sources and Climate Change Mitigation'.

The IPCC's report, which was welcomed by the wind energy industry, states that total global potential for renewable energy "is substantially higher than both current and future projected global energy demand". Renewable energy production will increase "anywhere from roughly three-fold to more than ten-fold by 2050", by which time it could meet up to 77% of global energy demand, says the report.

Also at the launch the European Commission's president, José Manuel Barroso, said that "2020 is already around the corner and we need to think of intermediate steps up to 2050".

Energy Commissioner Günther Oettinger addressed the launch in a video speech.

"The renewable energy industry has already called for 45%," he said. "Our current work will review all the literature and explore different possible pathways for the European Union."

He was referring to the European Renewable Energy Council's (EREC) call for a target of 45% share of renewable energy by 2030 to build off the 20% target by 2020.

EWEA is calling for the renewables target to be included in the European Commission's upcoming 2050 Energy Roadmap, due to be released in autumn this year, and to be made legislation by the end of this Parliament and Commission's term in 2014.

Although Europe has always been a leader in the world of renewables, other developed and developing countries are catching up.

"Our partners are stepping up the renewables challenge. This is great news for the planet, and I want to congratulate all of them for their efforts," Barroso said. "But it is not an economic challenge Europe should leave unanswered. Europe will do more to retain and deserve our leadership place in renewables technologies in the 21st century."

"If Europe is to maintain its leadership in renewable energies, it should keep following its current successful policy and set a binding target for 2030 which would be a stepping stone taking renewables from meeting the expected 34% electricity of Europe's electricity in 2020 to 100% in 2050", said Stéphane Bourgeois, EWEA's Head of Regulatory Affairs.

Earlier this year, CEOs from EWEA's leading sponsor companies recently met the Climate and Energy Commissioners, as well as various relevant MEPs, in a meeting organised by EWEA. CEOs were able to ask questions and raise issues of concern with the Commissioners and MEPs.

Issues raised at the meetings included the Energy Roadmap and the possibility of 2030 renewables targets, emission reduction targets, electricity infrastructure and retroactivity (that is, the possibility of changing national renewable energy support schemes).

Plan to link UK and Irish grids

The UK government has drawn up a plan to expand electricity grid connections throughout the whole of the British Isles including links to electricity grids in both Ireland and Britain. These would help to transmit the power generated by coastal wind farms back to Ireland and Britain.

The aim of the 'All Islands Electricity Plan' is to stimulate the building of wind farms, as well as future tidal farms and wave plants on Irish coasts and waters by building grid links so the electricity they produce can be transported it to Britain. The plan also covers Northern Ireland, Jersey, Guernsey and the Isle of Man.

A grid link is already being built to further join up the Irish and British power networks. It will go from Rush North Beach, Co. Finegal to Barkby Beach in North Wales and cost around £500 million (€567mn).

A new consumer label will commit companies to using more wind power

One of the interesting events that occurred on this year's Global Wind Day involved the introduction in the US of the newly-appointed CEO of the first global consumer label for companies using wind energy.

Both the WindMade™ initiative and its new leader, Henrik Kuffner, were presented to the public and the media in New York City on 15 June.

Beginning a two-month public consultation period, the proposed WindMade™ technical standard requires participating companies to source a minimum of 25% of their electricity demand from wind power, according to a Global Wind Energy Council (GWEC) press release.

"This level is set to strike a balance between an ambitious target and an achievable goal for progressive companies striving to make a tangible impact," the GWEC release added.

"The initiative is backed by the wind power industry, and we believe that the label will build a bridge between consumers and companies committed to clean energy," Steve Sawyer, Chairman of the WindMade™ Board and Secretary General of GWEC, was quoted as saying.

The development of the WindMade™ label — which is to be managed through a non-profit organisation — progressed swiftly since its introduction at the World Economic Forum in Davos in January 2011, the release noted. Work on the more multi-faceted WindMade™ standard for products is scheduled to begin later this year.

Kuffner said he was extremely excited to be given the opportunity to spearhead the new effort.

"I firmly believe that today's launch is the beginning of a movement that will make a real difference to investments in wind power around the world," said Kuffner, who served as Director General of the International Wool Textile Organisation between 2002 and 2011.

Prior to the Global Wind Day festivities, Kuffner said he believes that WindMade™ has the potential to develop into a truly global movement, with consumers around the world demanding transparency on the companies and sustainable products they choose.

The proposed WindMade™ standard was developed by a technical committee, consisting of experts from the World Wildlife Fund, the American Wind Energy Association, LEGO, Climate Friendly, Gold Standard, and Vestas, with Öko-Institut and PricewaterhouseCoopers acting as advisors.

In addition, the first draft of the standard has been reviewed by representatives from international companies and organisations including Walmart, 3Degrees, Better Place, Dong Energy and others.

Angelika Pullen, who will become WindMade's Communications Director in mid-September, believes the new organisation is a great idea and the timing for it perfect.

"The climate talks are not going anywhere, and the public is getting increasingly frustrated with governments dragging their feet," Pullen, who formerly worked for GWEC, said in an interview.

"Consumers want to see change now, and they are increasingly aware of sustainability issues. With WindMade, they can finally vote with their wallets,

WindMade Communications Director Angelika Pullen at the launch of the label in New York on Global Wind Day

Photo: GWEC

Ditlev Engel, President and CEO of Vestas Wind Systems, said he was very pleased to see how far the WindMade™ initiative had progressed since January.

"Vestas is very proud to be a member of this impressive group of WindMade's founding partners and I look forward to the day in the near future when consumers can power change and choose products made with wind energy," Engel was quoted as saying.

The release added the final WindMade™ standard for companies is expected to be presented in September. This will mark the starting point for companies to officially begin applying for WindMade™ membership and to undergo the certification process.

favouring companies and products that use wind power. And this is turn will have a pull effect and increase corporate investments in wind power."

Pullen added WindMade will allow consumers to identify one of the key ingredients going into the products they buy: energy.

"This kind of transparency is urgently needed, and many companies already have strategies to increase the renewable energy share of their electricity demand," she said. "So now, finally, they will be able to prove their commitment to a sustainable energy future."

Details of product certification and labelling will follow later this year.

More information: www.windmade.org

As talks continue, the climate change problem becomes worse

Climate talks are making slow progress, while the environment suffers

Photo: Getty

While seemingly stalled by the continuing economic crisis, international negotiations to reach a new agreement on reducing global greenhouse gas emissions roared briefly back into the media spotlight in late July with a dire warning by UN Secretary-General Ban Ki-moon.

"Extreme weather events continue to grow more frequent and intense in rich and poor countries alike, not only devastating lives, but also infrastructure, institutions, and budgets — an unholy brew which can create dangerous security vacuums," said Ban, addressing a Security Council debate on the impact of climate change on international peace and security.

Ban said a United Nations Framework Convention on Climate Change meeting in Durban, South Africa, in December must make progress in reaching a new agreement on reducing greenhouse gas emissions (GHG), adapting to climate change and funding mitigation efforts.

"Durban must provide a clear step forward on mitigation commitments and actions by all parties, according to their responsibilities and capabilities. Developed countries must lead, while at the same time emerging economies must shoulder their fair share," Ban was quoted as saying.

The discussion about whether to consider establishing a climate change peacekeeping force underlines the growing importance of emissions-free wind power in mitigating the toxic effects of greenhouse gas emissions.

The UN session occurred a week after a new 96-page report from Pike Research showing that global wind power capacity should almost triple by 2017.

Pike, a market research and consulting firm based in Boulder, Colorado, forecast that total wind generation capacity, including both onshore and offshore projects, will increase from 194.3 gigawatts (GW) in 2010 to 562.9 GW in the next six years.

Ban's call for nations to work harder at getting an agreement to fight growing levels of emissions from burning fossil fuels has long been shared by Rémi Gruet, EWEA's Regulatory Affairs Advisor who attends and monitors the climate change talks.

"Wind energy and other renewables are already avoiding greenhouse gas emissions and will do so more and more in the future," said Gruet.

"That [renewable energy sources] have a considerable impact on GHG emission reductions shows promoting wind and renewables is the way to go both to achieve climate targets and help the EU economy by developing an industry that is internationally competitive," he said in an interview.

"Wind energy results in emission reductions and reduction targets promote wind energy — it is a virtuous circle that is well worth exploiting."

Gruet noted that, even at EU level, the focus on reducing emissions is being challenged by the financial crisis.

"Because of the current financial situation in the EU and the lack of adequate economic growth, minds are focusing on other issues than climate change," he said.

"Sadly, [climate change] won't go away on its own, just by not looking at it. Pushing a solution back in time might be politically appealing, but the climate doesn't follow a linear evolution and if a 'tipping point' is reached the consequences could rapidly be out of control."

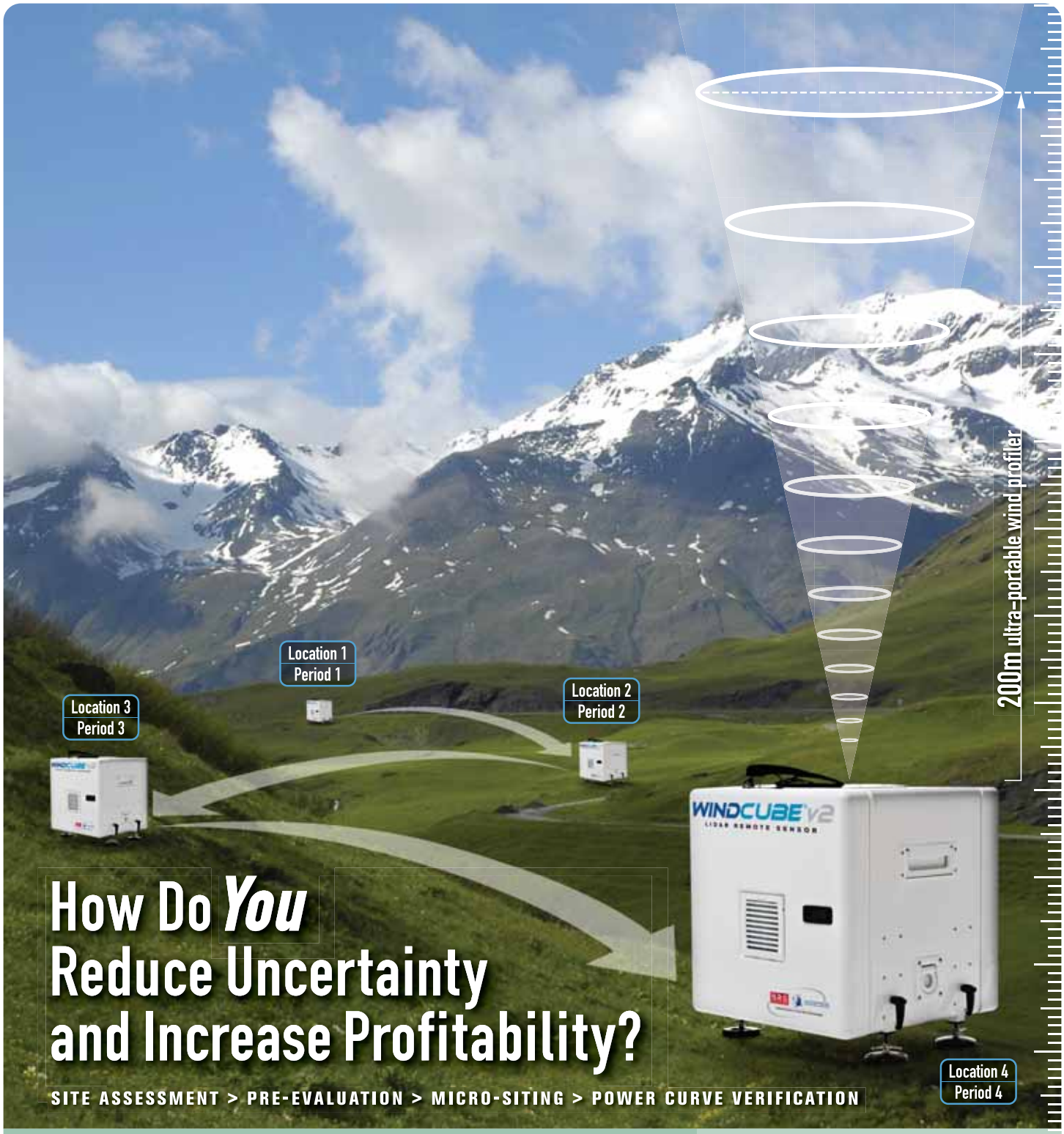
Gruet added that EWEA has long argued that aggressively addressing climate change is beneficial for the economy. "The European Commission, in its '2050 Low Carbon Roadmap' released in February, makes a very strong case for the benefits to be had from more ambitious climate action."

Unfortunately, he noted, on 5 July the European Parliament voted against a 30% greenhouse gas cutting target by 2020 — a disappointing move that could, at its worst, damage European leadership in climate-fighting technologies.

Zoë Casey, EWEA's Blog Editor, agreed.

"Raising the bar — from today's 20% binding target to 30% lower than 1990 levels — would have sent an additional signal to investors that renewables, and wind energy in particular, are the future for the EU's electricity supply," Casey pointed out in a posting to the blog (see www.ewea.org/blog).

Casey added that Europe cannot relax its climate ambitions even if international climate negotiations are not making substantial progress. ■



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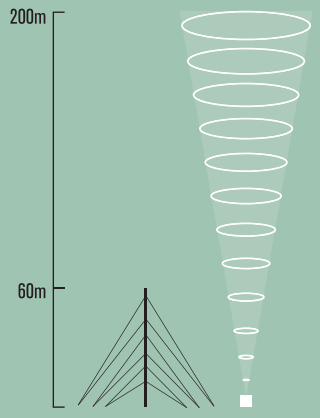

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De-mystifying the EU budget

In the EU quarter of Brussels, discussions are ongoing about the EU budget for 2012 – and for the years up to 2020. But how does the EU budget work? What is EWEA pushing for? And how will the outcome of the negotiations affect the wind energy industry?
With the help of EWEA's Regulatory Affairs Advisor Vilma Radvilaite, Sarah Azau found out more.

EWEA's Vilma Radvilaite explains how EU money comes to wind energy projects

How is the EU budget structured?
An overall EU budget is decided for a period of seven years. This is known as a "multi-annual financial framework", or MFF. The MFF is divided into categories, each of which has a 'ceiling' - a maximum amount of money it can contain. The proportion of the overall money to be spent for each of the seven years is negotiated alongside legislative proposals on EU programmes and policies. The same goes for the money that can be committed to be spent – for example, via a contract – in any one year.

Within each budget, there are ten different 'sections' representing the revenue and expenditure of each EU institution or body. The vast majority - 95% – is managed by the Commission, which is in charge of the implementation of the EU policies. Within the Commission's section, there are about 30 spending areas based on EU policy. Energy is one of these.

Just how much money is it?
At the moment the EU is in an MFF running from 2007 to 2013. The overall budget for those seven years is €976 billion in commitments. Currently negotiations are going on in the European Parliament and Council about the annual budget for 2012, which should be about €147 billion in total.

The next MFF (for 2014 to 2020) was proposed in June this year, with the total put at €1,025 billion. Member States will have to agree on this amount by the end of 2012.

Where does the money come from?
Nearly all – 99% - of the EU budget revenue comes from the EU itself. Some of this is in the form of import duties on products from a non-EU country. Also, a proportion of the value added tax (VAT) paid by all EU citizens, and a percentage (just over 1%) of each EU Member State's gross national income, go to the EU.

The other 1% of the budget revenue comes from a range of other sources such as income from third countries for participating in EU programmes.

Who decides what money goes where?
The EU budget proposal – both the MFF and the annual budget - is made by the European Commission. The annual budget then goes into what is known as a co-decision procedure whereby the European Parliament and Council can propose amendments to the final budget until they reach an agreement.

For the MFF, the European Parliament has a little less influence. It can say "yes" or "no" to an MFF proposal but cannot suggest amendments. However, it has equal say with the Council on the legislative decisions for EU programmes and policies.

What funding does the wind energy sector get?
Funding can come from the private sector or the public sector. The majority of funding comes from the private sector. However, public money from the EU has a key role to play. Currently, EU money comes in several forms.

- Research and development (R&D) funding
  The EU's R&D funding programme is called the seventh Framework Programme (FP7) – this will become known as 'Horizon2020' in the next MFF. The FP7 contains €2.35 billion for energy R&D, of which about half is for renewables and energy efficiency. Between 2007 and 2010, the EU funded €84.6 million of wind energy projects. FP7 funds various different wind energy-related projects (see "What kind of projects are being funded?").

  In 2007 the EU proposed a plan to boost low carbon technologies, called the Strategic Energy Technology Plan (SET-Plan). It identified wind energy as a key technology. Linked to this, in 2010 the European Commission, together with the industry and the Member States, launched a 10 year wind energy R&D plan totalling €6 billion – the European Wind Initiative (EWI). About 30% of the €6 billion should come from the EU budget. So far, however, the EU has not put any money into the SET-Plan budget line – EWEA would like to see a dedicated SET-Plan sub-budget line for the EWI with €1.3 billion in the next MFF.

- Cohesion policy
  The EU grants Member States certain sums of money to reduce regional disparities. Each country can decide to spend the sum as they see fit. In the current MFF (2007 to 2013), €785 million of Cohesion funds were announced for wind energy projects across the EU.

- European Investment Bank (EIB)
  The EIB provides loans and other financial services for projects in all kinds of sectors, including wind. Between 2005 and January 2011 the EIB provided €6.08 billion over for wind energy projects –15% of its overall lending.

What kind of wind energy projects are being funded at the moment?

EWEA is involved with five EU-funded projects at the moment, although there are many others.

The 'OffshoreGrid' project is funded by the EU's Intelligent Energy – Europe programme. It looks at the development of an offshore grid in northern Europe and the Mediterranean region, focusing on infrastructure and the power market. The project's final publication will be launched in Brussels on 5 October. See www.offshoregrid.eu.

TWENTIES is a €57 million project (€32 million provided through FP7) which aims to demonstrate how to operate grid systems with large amounts of wind and other renewables. See www.twenties-project.eu.

The 'TOP Wind' project is funded through FP7. It works with the European Wind Energy Technology Platform – TPWind - whose Secretariat is funded by the project and hosted by EWEA - on research. See www.windplatform.eu.

'ORECCA' aims to create a framework for knowledge sharing on offshore wind, wave and tidal energy foundations. In September, this project will publish its research Roadmap. ORECCA is also funded by the 7th Framework Programme. See www.orecca.eu.

SEANERGY 2020, funded by the Intelligent Energy - Europe Programme, will analyse national and international Maritime Spatial Planning (MSP) practices. It will make recommendations on how to remove obstacles to maritime spatial planning policy. See www.seanergy2020.eu.

What does EWEA think of the proposed 2012 budget?

EWEA was disappointed with the proposal, stating that it put other sectors before energy.

EWEA pointed out that while the European Commission pinpointed energy as a key policy area for 2020, energy would only get 0.5% of the overall EU budget - €695.1 million of €147 billion.

While the Commission mentioned that €115 million for energy research was "intended" to go towards the SET-Plan technologies – which include wind energy – it failed to put any money into the SET-Plan budget line.

And while FP7 is set to get 17.6% more money committed to it, within FP7 energy payments will only go up by 1.5%. Yet the Commission proposed to increase by €750 million the budget of the nuclear 'ITER' project.

EWEA's overall opinion was also expressed by the European Parliament and the Energy Committee (ITRE).

ITRE underlined concerns about "the mismatch between the political priorities for the EU budget and actual financial allocations – in particular in the energy policy area". It highlighted the "very minor share" of R&D programmes' support for "sustainable energy priorities". The Parliament upheld ITRE's proposals for more budget allocation to EU energy infrastructure, including a European supergrid.

"While the Commission pinpointed energy as a key policy area, energy would only get 0.5% of the overall budget."

On a more positive note, the Competitiveness and Innovation Programme for Intelligent Energy Europe – which supports some wind industry projects – would double, going to €79.2 million.

EWEA wants greater emphasis put on renewables funding next year. Securing and dedicating funds for the implementation of the EWI is crucial. The budget is due to be adopted in December 2011.

What does EWEA think of the proposed multi-annual budget for 2014-2020?

EWEA welcomed the key features for wind energy: a 40% increase in overall R&D funding, a proposed doubling of renewable energy and energy efficiency 'Cohesion funds', and a significantly increased energy infrastructure budget (from €163 million to €9.1 billion).

However, EWEA will be pushing for a higher proportion of R&D funds for energy and for the dedicated €1.3 billion budget line for EWI, which would stimulate greater investment from the industry and help the EU to meet its climate and energy targets.

The MFF and legal proposals for each policy area will be finalised and approved by the end of 2013. ■

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"More wind energy will help our energy independence"

As Poland took over the Presidency of the EU Council on 1 July 2011, EWEA's Chris Rose asked Deputy Prime Minister Waldemar Pawlak, who is also Minister of the Economy, a few questions about what his nation hopes to accomplish during its six-month leadership and the role wind power and other renewable energies will be expected to play.

Photo: EWEA

What do you think Poland's main energy objectives will be during its six-month EU Council Presidency? Why are these issues important to Poland?

During its EU Council Presidency, Poland will first of all continue the EU's energy policy referred to in the Treaty of Lisbon. We would like to focus on how to maintain the security of energy supplies, support energy efficiency and develop renewable energy sources. We will also support European Member States and European institutions on their way to complete implementation of already accepted solutions such as the third liberalisation package. The situation on the EU energy market is changing therefore all the European Member States will have to join their efforts to meet the Treaty requirements.

The EU's external energy policy is another important area of interest to Poland. We are planning to conduct a debate on development directions of the policy over the years to come as well as on such mechanisms which would help to enhance the EU's position in a global dialogue on energy. We will also conduct discussions about an infrastructural package and legal acts concerning energy efficiency which constitute the main part of energy legislation.

Following Hungary's Presidency, we would like to continue negotiations on various legal acts such as, among others, the regulation on the coherence and transparency of the energy market. We hope for the completion of the task by the end of our Presidency.

Despite being a nation rich in coal, Poland installed 382 MW of new wind power capacity last year, which has been described as "remarkable growth" by EWEA. What do you attribute that increase to?

An increase in the use of renewable energy sources, such as in particular wind energy, will help to satisfy a growing demand for energy. Moreover, it will allow to make the country independent from the imports of energy supplies which will have a direct effect on Poland's energy security. In addition to the above, renewables make it possible to create favourable conditions for the development of dispersed energy based on raw materials available at the local level and the diversification of supplies. The scattering of small windmill farms over various areas will, in turn, help to boost less developed regions. The making of investment in renewable energy sources will bring about an increase in the employment rate of the country.

"The scattering of wind farms over various areas will help to boost less developed regions."

Poland's National Renewable Energy Action Plan (NREAP) expects 6,650 of MW to be installed by 2020. This is nearly 4,000 MW less than in EWEA's low scenario for the country. What are the main barriers to wind energy development in Poland, and what is being done to tackle them?

Our priority is to ensure the continuity and reliability of energy supplies to energy users. Wind energy development should correlate with such

system solutions which will ensure the energy security of the country over a long period of time. Wind energy needs special balancing by, among others, making reserves of relatively high capacity in conventional power plants and other stable sources. As the power of wind in Poland is very changeable, wind energy production levels will vary considerably. Windmill farms cannot ensure continuous generation and supplies of such amounts of electricity that will be enough for balancing the country's demand at any time.

A problem of reserve capacity for wind energy has been solved by the relevant planning of wind energy development in the National Renewable Energy Action Plan. The document was adopted by the Council of Ministers on 7 December 2010. In accordance with the NREAP, the capacity of windmill farms in 2015 and 2020 will amount to 3,350 MW and 6,650 MW respectively.

Poland expects its first 500 MW of offshore wind energy to be installed between 2019 and 2020. What are the reasons preventing offshore from taking off in Poland before then? How do you see offshore developing in Poland after 2020?

Any earlier action is not possible because the currently binding legal acts and a system of support do not allow to carry out such projects on the Baltic Sea. The situation will soon change. The Polish Senate is working on an act amending the act on the Republic of Poland's offshore areas and on the maritime administration. The act will allow to offshore wind energy to be developed as it will lay down regulations concerning the issue of permits for the erection and use of artificial islands as well as constructions and devices necessary to carry out an investment process of offshore wind energy. The act will also introduce a number of facilities which will allow to erect windmill farms faster and more effectively.

Additionally, the Ministry of Economy is preparing a new draft act on energy from renewable energy sources. It includes the provisions of the 2009 Renewable Energy Directive as well as the modification of the present mechanisms of support.

The document provides for the introduction of new principles which will differentiate the levels of support for electricity generated from renewable energy sources. The detailed principles of support will help to reduce electricity prices as well as to boost investment in offshore wind energy.

Earlier this year the European Commission came up with a Communication called "A Roadmap for moving to a competitive low carbon economy by 2050." Your comments?

The government of Poland supports a low-emission economy. A discussion of possible ways to achieve reduction objectives by 2050 will require a comprehensive analysis. It is necessary to examine the reduction's impact on the national economies of EU Member States and their industrial sectors. However the European Commission's Communication refers to a plan of cutting greenhouse gas emissions for the whole European Union thus treating it as a single economy. The government of Poland is worried to learn that there are no detailed scenarios presenting the impact of the reduction on the competitiveness of national economies.

"The government of Poland supports a low-emission economy."

The Roadmap states that a 93-99% cut in CO_2 emissions in the power sector by 2050 is essential to achieve the 80% reduction in Europe's overall greenhouse gas emissions. What are your thoughts on this?

A long-term emission reduction objective for the European Union has not been established yet. The European Council's Conclusions include the 80-95% reductions by 2050 which refer to the 1990 level for all the developed countries. So far, the EU has not adopted any detailed undertakings in that respect as they have not been assigned to EU Member States. The Communication includes only general proposals on how to achieve the objectives. One cannot find there an analysis of real possibilities of using certain technologies. The taking of a decision on the basis of such an incomplete document may lead to the adoption of unachievable undertakings.

A European Commission analysis of different scenarios shows that domestic emission reductions of the order of 40% and 60% below 1990 levels would be the cost-effective pathway by 2030 and 2040, respectively. In your opinion, is this achievable and what needs to be done to make it become reality?

Coal cannot be completely excluded from the energy generation sector. However, more efforts should be made to develop alternative clean coal technologies other than carbon capture and storage (CCS). Coal, as forecasts show, will remain an important source of energy all over the world for a long time. Clean coal technologies can become an important source of building a competitive advantage. They can be widely used on a global scale, particularly in the situation when, in accordance with the European Commission's assumption, the CCS technology might become popular as late as about 2030. ■

A closer look at **The UK...**

In 2011, *Wind Directions* will take a look at a selection of wind energy markets across Europe and beyond.

By Zoë Casey

Surrounded all sides by the sea and frequently buffeted by strong winds – it is the windiest country in Europe - the UK is one of Europe's most suitable sites for wind power developments. Globally, it occupies eighth position on the scoreboard of countries with the most wind energy.

The country's first wind farm was built onshore at Delabole, Cornwall in 1991 after a local family spearheaded a move to green energy in opposition to plans to build a nuclear power station in the area. However, the UK was a slow-mover in wind energy. It wasn't until 2007 that wind energy overtook hydropower to become the UK's largest renewable energy source, contributing to just 2.2% of the UK's electricity supply.

Today it has a total installed capacity of 5,204 MW (2010 figures) which accounts for 6% of the EU's total wind power capacity - the sector is beginning to catch up with its European cousins. The UK's National Renewable Energy Action Plan for 2020 envisages a target of 27,880 MW with a 12,990 MW slice of that in offshore wind energy. Such a level of wind power would help to meet the national target of generating 15% of all energy from renewables by 2020, meaning that 35%-45% of electricity will come from renewables. RenewableUK – the wind and marine power association - estimates that the wind power expansion that this will entail will deliver over £60 billion (€68 bn) of investment creating 160,000 green jobs.

With 12,429 km of coastline and shallow coastal waters, the prospects for offshore are considerable. In fact, in 2010 the UK led the offshore market accounting for 52% of all new offshore capacity in Europe, making it a world leader. 149 turbines were connected last year at three farms: Gunfleet Sands in Essex, Robin Rigg in Scotland and Thanet in Kent – the world's largest offshore wind farm.

Photo: iStockphoto

In July the UK government published new proposals for offshore wind energy raising its offshore objective to 18 GW by 2020, up from 13 GW. National renewable energy association RenewableUK said that given the right conditions, future offshore costs could fall by 30%.

Also in July the government outlined new plans for the biggest overhaul of the country's electricity market in 30 years. It will set a price for carbon, introduce feed-in tariffs for all low carbon generation including nuclear and set an emissions performance standard meaning that no new coal power stations can be built without a system to capture and store CO_2. RenewableUK said the proposal "properly addressed most of the industry's concerns." However, the industry is worried that some aspects of the reform might impact the deployment of renewables. Gordon Edge from RenewableUK said, "there is still a huge amount of detail that has to be worked out...so the uncertainty the [proposal] has introduced is not yet over."

Being Europe's windiest nation, the UK's wind power sector is growing, but the industry frequently faces local 'NIMBY' (not in my back yard) opposition often aided by the national press. Recently published figures reveal that last year 32 applications out of a total 66 for onshore wind farms were turned down for planning permission (for more on public acceptance, see the Focus on p. 30). While the current focus is on offshore, this should not turn attention away from the country's significant onshore wind potential. ■

The UK – the wind energy facts

INSTALLED WIND ENERGY CAPACITY . . . . . 5,204 MW
SHARE OF OFFSHORE INSTALLED CAPACITY, EU 2010 . . . . . 52% (458.4 MW)
WIND ENERGY JOBS . . . . . 91% increase in jobs in the sector between 2007/8 and 2009/10

Driving wind energy down under

Sun, red sand and kangaroos? Australia may not yet count wind turbines amongst its national icons, but in a nation with abundant coal, wind energy is finally starting to take off. Chris Rose was there, and he went to find out.


Photo: GWEC

Stretched across a series of undulating semi-arid ridgelines near Bungendore in New South Wales (NSW) are 67 wind turbines that have become powerful symbols in the battle Australia is waging against drought, climate change and increasing demands on energy supply.

The two-year-old Capital wind farm — which has a total installed capacity of 141 MW and can satisfy the electricity needs of about 60,000 homes — has captured the attention of policy makers, planners, environmentalists, journalists and grid operators.

In addition to the many benefits usually associated with wind power, the Capital wind farm is also producing green electricity that powers a new desalination plant supplying drinking water to Sydney — Australia's largest metropolitan area with a population of close to 4.4 million people — located about 265 thirsty kilometres away.

The Capital wind farm, described as being the first large-scale wind farm in NSW, commenced full operations in October 2009, with a total installed capacity of 140.7 MW. Built at a cost of €163 million, it comprises 67 Suzlon S88 wind turbines which all have a rating of 2.1 MW. It has a net capacity factor of approximately 36% and an expected energy production of 443.3 GWh per annum.

The company that owns the wind farm says that at the peak of construction activity, the Capital wind farm provided direct employment opportunities for over 120 people on the site, with up to 10 people directly employed for ongoing operation and maintenance.

"We expect at least 75% of the renewable energy target to be met by wind power."

Richard Farrell, Investor Relations Manager for owner company Infigen Energy, said that in total the company already has 508 MW of installed wind capacity in Australia from five existing wind farms and is currently completing construction of a 48.3 MW wind farm.

Farrell said that Infigen is also in the process of developing at least nine other sites around the country.

"Australia has a renewable energy target of 20% by 2020 which provides many challenges but also significant opportunities for both electricity retailers and renewable power producers," Farrell said.

"The wind industry has advanced to become the clear leader in terms of cost effectiveness for utility-scale renewable energy production. We expect at least 75% of the renewable energy target to be met by wind power. The introduction of a carbon tax and a complementary renewable energy target will help Australia transition to a low-carbon economy."

Since the conversation with Farrell, the Australian government has indeed taken a further step to boost renewable energy and fight climate change. In July, it passed new environmental legislation including a moderate carbon tax starting at $23 (€18) a tonne to help meet a carbon emission reduction target of 5% below 2000 levels by 2020. Moreover, in 2015 a market-based emissions trading scheme is due to be introduced.

A few months prior to the announcement, on 23 March, Prime Minister Julia Gillard had made an official visit to Capital wind farm during which she made her support for a carbon price to drive renewables clear.

"If we are going to drive this clean energy future we must price carbon, and here is a practical example of the difference that it can make: a stream of revenue for farmers; clean energy; young people getting the skills that they need for the future," Gillard had said.

"This is one of the reasons that I am so determined to price carbon. It will drive a clean energy future for this country. We will see more energy

Photo: GWEC

Australia has traditionally relied on its natural minerals for energy, but is now waking up to the benefits of renewables

coming from sources like wind, solar, tide and hot rocks."

A watery solution

In a 20-year Power Purchase Agreement, the Capital wind farm is providing Sydney Water with enough green electricity to run its new desalination plant just south of the city.

Sydney's desalination plant, which came on line in January 2010, produces up to 250 million litres of water a day and has been designed so it can be doubled in size if required in the future. The facility removes salt from seawater through a process known as reverse osmosis filtration.

Treated water from the €1.3 billion desalination plant, the third such facility in Australia, is designed to reach up to 1.5 million people with all or part of their daily water supply — which represents about 15% of the metropolitan area's needs.

The electricity generated at Capital is fed directly into the TransGrid network via an on-site substation with the first 35 MW earmarked for the desalination plant in Sydney. If the wind isn't blowing at the Capital wind farm, Infigen provides electricity from other renewable energy sources to the desalination plant. After the desalination plant receives its 35 MW, it sells the rest of the electricity onto the market.

"The supply of baseload renewable power to the Sydney desalination plant demonstrates that despite wind being an intermittent source of energy, it can still play an important part in a diverse electricity supply network," Farrell said. "As New South Wales' and Australia's energy demand increases it is important to provide industry with alternative sources of energy to manage their carbon footprints."

An enviable situation

Located between the South Pacific Ocean and Indian Ocean, Australia is the sixth largest country in the world. The CIA's World Factbook says that mineral-rich Australia is the world's largest net exporter of coal accounting for 29% of global coal exports. Blessed with plentiful open spaces but ravaged by persistent drought, the mostly desert or semi-arid island continent currently has a population of close to 22 million people, the vast majority of whom live in seaside cities.

An affluent democracy with, in 2010, an estimated and enviable unemployment rate of 5.1%, Australia is grappling with increased energy demands, an obligation to do its part in reducing the worst of climate change caused by burning fossil fuels, and a stated desire to tap into the bounty of renewable energies such as wind and solar power.

Indeed, according to the Global Wind Energy Council (GWEC), wind power is expected to play a major role in helping Australia's transition to a low-carbon economy.

In its 2010 annual report, GWEC noted Australia boasts some of the best wind resources in the world, the so-called "roaring forties" which sweep the south coast and refer to latitudes between 40°S and 49°S which experience strong, dependable and often gale-force westerly winds.

The Australian government mentions the 20% Renewable Energy Target (RET) by 2020 and adds that wind power currently supplies over 5,100 GWh annually, which represents about 2%

"Mineral-rich Australia is the world's largest net exporter of coal."

Drought-prone Australia would be one of the countries worst affected by global warming

Photo: GWEC

Capital wind farm provides electricity for the equivalent of 60,000 homes

Photo: Infigen Energy

"These wind turbines are generating energy as we stand here. It's creating a stream of income for the people who own this land."

of national electricity consumption. The RET has now been complemented by a carbon tax and an emissions reduction target, as mentioned above.

GWEC said that by the end of last year 1,880 MW of wind capacity was installed in Australia, consisting of 1,052 operating wind turbines spread over 52 wind farms.

"The amount of wind generation capacity has increased by an average of 30% per year over the past decade," the report optimistically noted.

"While policy uncertainty, the low price of renewable energy certificates and the financial crisis made it difficult for developers to secure financing in 2010, recent changes to the implementation of the Renewable Energy Target should go a long way toward returning stability to the industry."

The report added that eight additional wind farms totaling 1,047 MW are currently under construction and expected to be completed within the next three years.

The report went on to say that an additional 8.8 GW of projects are proposed and have either received planning and environmental approvals or are currently applying for them, and another 5 GW of projects are undergoing feasibility studies.

"There is no shortage of available prime onshore wind sites in Australia, and as a result, there are currently no plans to develop offshore wind farms."

Wind energy and Australia – the facts

- Like the EU, Australia has a 20% renewable energy target by 2020.
- Australia currently has just under 2,000 MW of wind energy capacity installed, providing 2% of its electricity.
- Wind energy generation capacity in Australia has grown by around 30% per cent each year for the past 10 years.
- There are currently 54 wind farms operating across Australia generating around 5,500 gigawatt hours of electricity annually.
- There is another 1,200 MW of wind capacity currently being built in Australia and another 8,700 MW of projects proposed.

The report says that while wind farms are present throughout the country, the state of South Australia accounts for nearly half of the total national wind capacity.

"Vestas dominates the Australian market with a market share of 38%, followed by Suzlon with 25%," the report notes, adding the nation's RET is not only crucial in supporting investment in the renewable energy industry but provides the main incentive for wind power development in Australia, unlocking an expected investment of more than €15 billion over the next decade.

"As it is the least expensive large scale renewable energy, much of this target is expected to be met with investment in wind energy," the report says.

In early May, Bloomberg New Energy Finance reported that Australian policies to encourage the development of renewable energy projects will drive at least €25 billion of investment by 2020.

The report added that about €19.4 billion will be spent to build large utility-scale power projects such as wind farms.

Cutting down on carbon

According to the Clean Energy Council (CEO), which represents Australia's wind power industry and eight other green energy sectors, wind generation saved the country 5,100,000 tonnes of carbon dioxide in 2010 — equivalent to the removal of 1,133,000 cars from the nation's roads.

On its website, the CEO — which notes that wind power is the lowest cost form of large-scale renewable energy generation — also said the RET "is projected to deliver more than 45,000 gigawatt hours of electricity in 2020."

On her 23 March visit to Capital wind farm, Gillard said the turbines were symbolic of what Australia needs for a clean energy future.

"These wind turbines are generating energy as we stand here. It's creating a stream of income for the people who own this land," Gillard was quoted as saying. "It's good for farmers, creating a stream of income they can rely on. It's good for generating electricity, harnessing the power of the wind, and it means that that clean energy can then be used right around the national electricity grid."

The Capital wind farm — which reportedly employed the nation's first wind energy apprentices — was officially opened by former prime minister Kevin Rudd on 18 November 2009.

"Wind energy is part and parcel of our energy future," Rudd was then quoted as saying, adding the federal government was committed to supporting renewable energy.

"We are on the cusp of seeing a whole new energy industry and a whole new a set of employment opportunities take off." ■

Nurturing public acceptance

While surveys repeatedly show that people support wind energy, specific wind farm projects can cause concern and resistance within a local community. Why is this, what are people's fears, and how can public acceptance best be increased and managed?

By Sarah Azau

The pictures and accompanying stories on these pages are from the 'Force' project, the brainchild of photographer Robert van Waarden. It aims to show people living and working with wind energy internationally through pictures and stories.
Photos: Robert Van Waarden, Force Project

More information:
http://vanwaardenphoto.com

When I tell people I work in wind energy, the reaction is generally one of approval. I am perceived to be doing something "good". Wind energy is green, environmentally friendly, it helps the planet. People like it.

This perception is backed up by the regular opinion polls showing widespread approbation for wind energy. The latest of these - a Eurobarometer survey published earlier this year - found that 89% of EU citizens are very positive about wind energy. Only solar power reached a slightly higher acceptance level (94%), whereas gas, coal and nuclear were right at the other end of the scale[1]. Polls often also show that once the wind farm is in place, support amongst people in the surrounding area goes right up.

And yet despite this, most developers of wind farms will have had to deal at one time or other with some form of uncertainty, doubts or even resistance amongst a local community at the project stage. The phrase 'not in my back yard' or 'NIMBY' is familiar to all of us. In 2010, the EU-funded 'WindBarriers' project found that 30% of non-finalised wind farm projects in Europe are stopped due to lawsuits and public resistance.

Any obstacle that slows down a wind farm project costs time and money to a developer – and delays the environmental and economic benefits

[1] Gas was "strongly" supported by 32%, coal by 11% and nuclear power by 12%. See http://ec.europa.eu/public_opinion/index_en.htm

Petr Pavek, organic farmer and former mayor of Jindrijovice, Czech Republic. Through his initiative and vision, his hometown of Jindrijovice now owns two wind turbines. For the small town of 700 people, this is an important source of local power and local economy. The income from the wind is fed into the community and used on further environmental projects.

"Any delay to a wind farm project costs time and money to a developer – and delays the environmental and economic benefits from the wind farm."

Tulip farmer, wind turbine owner and pilot Jaap van der Beek walks in his fields in Middenmeer, the Netherlands. Van der Beek is currently working with other wind turbine owners nearby to secure a location for a wind farm.

both the local and wider community will get from the wind farm. If any concerns can be identified and addressed from the start, it will be helpful for both the developer and for the community itself.

A question of habit

Clearly, with an issue such as social acceptance, each locality – not to mention each region and each country – has its own characteristics and issues. In some places, wind farms have been part of the landscape of years, in others they are a rarity, and this can affect the public's perception, as Nick Medic from British renewable energy association RenewableUK points out.

"In countries like Canada or Australia there's a quite vociferous opposition, but in those countries the numbers of wind turbines is miniscule. In countries such as the Netherlands and Denmark there is far more pragmaticism and relaxed attitude with far more turbines as they are more used to them".

Chris Forrest from the Canadian wind energy association, CanWEA, makes the same point.

"Wind energy is a relatively new idea in Canada", he says. "The majority of Canadians have never seen or visited a wind farm so they have a lot of questions on the basics – like the sound turbines might make, their height, any impacts on wildlife. So we have a lot of communication work to do to provide factual information."

Pat Blount approached two farmers in the area of Collon, Ireland to form a joint business venture for wind energy development. Pat agreed to take the financial risk and the landowners provided the site.
"I was overwhelmed by the level of goodwill and support that we got. I remember the first turbine when it was being lift into place, I counted about 120 people just sitting in the field, it was almost like a picnic, a day out." They are now equal partners in the wind farm. Developing this initiative with local support and involvement meant there have been only good comments.

Pat Blount from Ireland took the financial risk for a join business venture into wind energy

Once the wind farm is in operation, he says, acceptance levels "go up really high".

To counter this fear of the unfamiliar, CanWEA has been organising trips for citizens and journalists to visit wind farms.

"We organised a trip a week ago", Forrest tells me, "and on the bus ride back everyone was saying 'wow! It was amazing, and much quieter than I thought!' So it was a very positive experience for us."

Most Europeans, however, have seen a few wind turbines in the distance or even closer up, and nowhere is this truer than in Denmark, which has the highest amount of wind energy for its land mass in the EU – an average of 88 MW for every 1,000km^2. Denmark also boasts, unsurprisingly, one of the highest levels of support for wind energy in Europe - a recent opinion poll showed that over 90% of Danes think wind power should grow further. [2]

"Often the sentiment in the mainstream newspapers is not the same as the broad public opinion."

"In Denmark we have the advantage that turbines are a normal part of our landscape – we have over 5,000 onshore", agrees Karina Lindvig from Danish Wind Industry Association, DWIA.

However, she points out that now the Danish turbines are gradually being replaced by bigger, more modern machines – otherwise known as "repowering". This means that while Danes are used to the smaller turbines that dot the countryside, the newer, bigger ones are relatively unfamiliar, and this has raised some questions.

In Germany, wind turbines were historically clustered in the north of the country. Alex Sewhol from German wind energy association BWE compares northern German attitudes to wind energy projects to those in the south.

[2] http://www.windpower.org/da/planlaegning/danskerne_mener.html

"The people in the northern Länder (federal states) with their decades of experience with modern wind turbines are less sceptical then the people in southern Germany. Studies show that the acceptance of wind energy projects is particularly high where people already live side by side with these parks."

Seeking the truth

The unknown naturally causes wariness, and this wariness and lower general acceptance can in the case of wind energy translate into specific fears about visual impact, health worries, the effect on wildlife. If these fears are not assuaged or discussed – or if they are reinforced by misinformation - they can harden into reticence or full-blown opposition.

Stefanie Huber worked for the International Energy Agency (IEA) on a task entitled 'Social Acceptance of Wind Energy Projects',[3] which identified the main concerns the public had over wind energy.

"Most issues occur in all countries", she says. "Birds are a topic almost everywhere, and it's the same with annoyance and health."

A bit of research

Stefanie Huber worked on the IEA Task 28 on the social acceptance of wind energy. She spoke to Raha Obaei about what she found out.

What is your research about?

"We are a working group of the International Energy Agency Implementing Agreement for Co-operation in the Research, Development, and Deployment of Wind Energy Systems (IEA Wind).

We have nine countries [Canada, Denmark, Finland, Ireland, Japan, Norway, Switzerland, US] that we focus on. We try to get information on social acceptance of wind energy from these countries. We try to process current knowledge and how to enhance current knowledge on social acceptance. We give interviews and write articles."

What have you found so far?

"There has been a lot of research gathered in the last few years and we need to now put these things in practice. The concerns that the people have are real and have to be taken seriously. They have an identity that is coupled to the landscape they live in and it is important to take this seriously. You have to go into the community and talk to them and give your best. It is possible to do a good project and have social acceptance."

What are the key issues affecting social acceptance of wind energy?

"We divided our findings into three sectors:

Socio-political: teachers, lawmakers, good acceptance. People want renewables.

Market dimension: profit from legislations and feed in tariffs, as consumers this is what they would like.

Community acceptance: people living with the wind turbines, annoyance and health issues, standard of living (impact on property values and landscape, impacts on local ecosystem,) the profits, the distribution of costs and benefits, how you treat the people."

How do these vary between countries/regions?

"Most issues occur in all countries. Birds are a concern almost everywhere; so is health. The weight of the different arguments is different but there is a great potential in exchange of experience because we can learn from each other."

What role do the media play in your experience?

"The media really form the public opinion on wind energy, but they leave a topic early when something else comes up. The media influences the discussion but then they move on quickly. Media likes to pick up things that are disputed, so we would really like them to report on both sides of the story and pick up the good stories as well. It's enough for two people in a community not to like wind energy – even if everyone else in the community does - it can spark a controversial story in the press.

An important point as well today is social media. It can be helpful but negative as well depending on who uses it. It can also play an important positive role."

Have people's attitudes changed over time?

"If you look at the official opinion polls, it has always been pretty positive. If you look at individual projects, and it has been a good project, most people have a positive view, but if there is a bad project then that can be negative."

What are the best practices - for developers, for local authorities?

"Many different things have been done. The shareholders' names were in the foot of the turbine in Japan and they took that example to Switzerland and it was a great success. They have similar models everywhere now. In Ireland, they invited the people and kids from the region to put their handprints on the turbine - it brought a sense of community. I think in the next few years countries like Brazil, Russia, and China will become big players and it will be interesting to talk to these people about their social acceptance issues.

Overall, you cannot think that I have this recipe and it is always going to work, but go to a community and looking at that particular local situation. You must take people's concerns seriously, it's a reality for them and they care for their environment and their living standards."

[3] www.socialacceptance.ch

Nick Medic believes that the reasons given for opposition in the UK often boil down to something very personal.

"You often find a huge amount of so-called 'evidence' about why we shouldn't be developing wind, but when you get to the fundamentals it's usually always worries about how a wind farm will affect house prices, or an attachment to one idea of the landscape."

The situation in Spain is somewhat different. Like Denmark, Spain was one of the first leaders in wind energy - a 2010 survey by Havas Media showed that 95% of Spaniards support renewable energy technologies - and takes pride in the economic and environmental advantages this has brought. Recently, however, some negativity surrounding wind energy has been fuelled by the perception that the government's debt to the power utilities – to keep electricity prices down for customers – is caused by "expensive" renewable energy.

Portugal is another country with lots of wind energy and very high public support, but its power prices have risen by 3% since the financial crisis and in some circles – especially in the media – this is being blamed, like in Spain, on renewables, despite the fact that oil and gas prices have increased more than that.

Clearly, the more verified and verifiable information that is made available and pro-actively communicated to communities on the reality of wind energy and topics from electricity prices to birds and bats to health, the better. But how can this be done?

A medium for discussion

As in the Portuguese case, the media certainly has a role influencing public opinion for good or ill. Everyone I spoke to at the national associations said they spent a significant amount of time answering press requests and providing information and interviews.

"The media is a significant consumer of our time and resources, and we take media response very seriously", acknowledges Forrest. "We are constantly checking facts and reporters' information. The opposition to wind energy – in Canada there is a very vocal anti-wind lobby in Ontario – can say whatever they like, and even it's not factual, it can get in the news."

However, Sonia Franco from Spanish wind energy association AEE points out that "often the sentiment in the mainstream newspapers is not the same as the broad public opinion. Via social media and blogs you can often see much more support than you might believe to be true from just reading the mainstream press."

Lindvig has the same feeling, saying that from the media you can sometimes get an image of widespread local scepticism which doesn't match with reality.

Busting the myths

Certain misconceptions have sprung up about wind energy. Read the truth below.

Wind energy... and birds

Major environmental and nature conservation groups including WWF, Greenpeace, Friends of the Earth, and Birdlife support wind energy.

The British Royal Society for the Protection of Birds (RSPB) has stated that "in the UK, we have not so far witnessed any major adverse effects on birds associated with wind farms". A 2003 study in Navarra (Spain) of 692 turbines in 18 wind farms found that the annual mortality rate of medium and large birds was 0.13 per turbine.

Deaths from birds flying into wind turbines represent only a small fraction of those caused by other human-related sources such as airplanes and buildings. Avian studies are routinely conducted at wind sites before projects are proposed, and any changes monitored afterwards.

Wind energy... and wildlife

Wind farms are routinely subject to an Environmental Impact Assessment to ensure that their potential effect on the immediate surroundings, including fauna and flora, are carefully considered before construction is allowed to start.

In a wind farm the turbines themselves take up less than 1% of the land area. Once up and running, existing activities such as agriculture and hiking can continue around them.

Wind energy... and the environment

Wind power has a light footprint. Its operation does not produce greenhouse gas emissions or any hazardous waste. It does not deplete natural resources, nor does it cause environmental damage through resource extraction, transport and waste management. It uses no water.

Wind energy... and noise

At a distance of 300 metres, a modern wind turbine is no noisier than a kitchen refrigerator or a moderately quiet room. The most audible sound is the light swishing sound of the wind interacting with the rotor blades. Even in generally quiet rural areas, the sound of the blowing wind is often louder than the turbines.

Wind energy... and the landscape

Wind farm developers have to take into consideration the potential landscape and visual impact when selecting a site. Visual simulations are produced and discussions held with the local community.

More information: www.ewea.org/faq

Roman Juriga from Vilemov, Czech Republic, was an outspoken anti-communist in his youth (he learned English from textbooks to escape communism). Juriga's faith led him to join the Orthodox church and to study theology at a time when anti-communists were prohibited from studying.

His vision to create a renewable energy future for Vilemov was realised through the support of the church.

Juriga is currently the director of the Orthodox Academy, which helps educate school kids about clean energy. The Academy runs solar, wind and hydro installations and is supported by the revenue generated from the wind energy.

In the first photo, Juriga is praying in the Orthodox church in Vilemov. In the second, he is looking at the icon of the prophet Saint Elias inside a wind turbine.

At EWEA, we try both to pro-actively and reactively engage with the media, writing articles, giving interviews, sending press releases, answering questions and requests. The more positive, well-researched story material they have, the more likely it is to get coverage.

RenewableUK, for example, recently launched the results of a study with Garrad Hassan which showed that England stood to gain over £1.3 billion (€1.48 bn) at local and regional level in wind energy investments by 2030, if all onshore wind farm developments currently seeking approval are agreed.

"The regional and local media picked up on this document, saying 'if we refuse, the local community will be left poorer", says Medic.

The power of interaction

Apart from monitoring and actively engaging with the media, the most important step to a successful wind energy project is to involve local communities, answer their questions and ensure any myths and misperceptions and tackled from as early as possible, say the associations.

DWIA recently published a report on good planning processes[4] with the national association of local governments, the Danish Society for Nature Conservation and the Danish Wind Turbine Association.

"In this publication, we recommend that neighbours and local people are involved as early as possible in the process", says Lindvig.

[4] http://www.e-pages.dk/windpower/3

Piet Willem Chevalier, from The Hague, the Netherlands, is bringing wind power to Mali. One day Chevalier found himself driving off the road while staring at some wind turbines. As a mechanical engineer he was transfixed by them. He discovered a design by Hugh Piggot to create affordable, self made turbines.

Since learning to build these turbines, he has set up an organisation, I Love Windpower, which uses the technology to bring power to Mali. In Africa, where the poorest often pay the most for electricity, Chevalier's vision, workshops and hard work are providing knowledge and skills for cheap, reliable clean energy that is transforming communities. The technology is simple, easy and made from local materials, making it a perfect solution for small communities in Africa.

"Do all you can to make sure the community understands the benefits of what you're giving them", agrees Franco.

"A good way to improve the acceptance of a wind farm project is to involve all of the stakeholders as early and as much as possible", Sewhol also says.

The most extensive work on how to do this has perhaps been done by the Canadians. CanWEA has developed, alongside people from local communities, a guide to best practices for community engagement.[5] This extensive document advises on every aspect of community engagement and how to go about it – examples of what it covers include the project website, open houses, one-to-one meetings, setting up a toll free phone line, site visits, keeping an onsite presence. It also contains a chapter on engaging with the local media. CanWEA back the guide up with training sessions for their developer members.

"In some places, wind farms have been part of the landscape of years, in others they are a rarity, and this can affect the public's perception."

"My number one point would be that it is essential to meet and communicate with the local people – the community leaders, the media, the mayor, the business community – as early and as often as possible", says Forrest. He tells as an example of what not to do, the story of an editor of a local newspaper who only found out about the proposed wind farm in his area through an advert in his own publication.

In the end, the many successful projects – those often never mentioned in the press – which go through without any issues with the local community do so because of openness, dialogue and early community involvement. As Lindvig puts it. "The more information you can give, the better." ■

[5] Free download at http://www.CanWEA.ca/about/communityengagement_e.php

Have them embrace the force of wind

In 2010, the EU institutions agreed to €6bn for wind energy research up to 2020. To implement this, the EU must commit €186 million per year – just 0.15% of the EU budget.

Properly funded, Europe's wind energy industry could provide 16% of EU electricity, avoid 340 million tonnes of CO_2 and employ over 460,000 people by 2020.

It's called value for money. But without the money, the EU could miss out on the value.

European Wind Energy Technology Platform

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"People used to think we were delusional, now they want renewables too!"

Clean energy has become part of the lives of inhabitants of a tiny village in Scotland, thanks to the vision of four men. Sarah Azau went to visit.

The main street of Fintry, the quiet Scottish village with the big vision for renewables

Photo: Tony Flisch

Fintry is under an hour from Scotland's biggest southern cities, Edinburgh and Glasgow. Yet the drive from the airport takes you through rolling lowlands stretching to the horizon, dotted with sheep and splashes of yellow "broom" - a typical flowering plant.

But although innovation and modernity may be associated more with big cities than the countryside, 500-strong Fintry is a real entrepreneur in terms of renewables and carbon emissions reduction. Today, the village "owns" one of the turbines at a nearby wind farm and the income it makes from selling the electricity is ploughed into further green projects, run by the Fintry Development Trust, a registered charity.

The whole thing started small, as many of the best ideas do. Two men from the village, Bill Acton and Martin Turner, who both had a background and experience with renewables, decided it would be great to launch a renewable energy project that could benefit the whole community. In around 2003 they were joined by two other visionaries - Gordon Cowtan, now the Director of Fintry Development Trust (FDT), and David Howell.

The "Fintry Four" (Acton, Turner, Cowtan and Howell) presented their vision to the Fintry community council, which was enthusiastic. Then they learned that a developer was planning a wind farm almost on the doorstep of the village – a couple of kilometres up the road.

"When we learned about the wind farm development, it seemed logical to join forces", Cowtan tells me.

They initially considered a cooperative scheme – such as those used in Denmark – whereby residents could invest in the wind farm. However they felt this was unfair on those who didn't have the money to invest.

"The negotiations with the developer took a long time – three or four years – but in the end they agreed to lend us the £2.5 million (€2.8 mn) to buy a turbine and so added a fifteenth to the planned farm".

Since it owned one out of fifteen turbines, the village would get one fifteenth of the money made from selling the power to the grid, and some of that would go towards paying off the loan over a certain number of years. Since 2007, when the wind farm came online, the village has received about £450,000 (€507,000) per year from the turbine, which after repayments and running costs are deducted leaves about £50,000 (€56,000). The FDT was set up as a development trust with charitable status which would manage the money and invest it in sustainability and renewables projects in Fintry itself with the ultimate goal for the village of "getting as close to zero carbon as possible." In combination with the wind turbine money, the FDT became adept at working out how best to obtain grants and funding for their initiatives from the Scottish and UK governments.

"One of our first projects was combining an energy survey of the households in the Fintry with free roofing and cavity wall insulation, and about 80% of Fintry's residents accepted", explains Cowtan. The work was paid for by the Climate Challenge Fund, a Scottish government initiative.

From there, the FDT began encouraging house owners to implement various different renewable energy and energy efficiency measures, such as

installing heat pumps and biomass boilers. As take-up grew, they were able to negotiate deals for heat pumps and biomass boilers.

To help in these tasks an Energy Advisor, Stephen Strachan, was hired to answer questions from anyone in the village about any renewable possibilities, to advise them on potential government grants and to help them navigate the paperwork involved. Although everyone I spoke to considers that Fintry has always been a particularly outward-looking, forward-thinking community, Strachan has seen attitudes to renewable energy and green initiatives change over time.

"Maybe three years ago there was a lot more interest in the green side of things because those taking up renewables possibilities were the early adopters. But now since money is generally tighter, the general population are looking first at financial benefits. They do care about green side of things but what motivates them first is the financial side."

Strachan says he is sometimes surprised by the small things people do not realise they can do to save money and be greener.

"Very simple things like extra insulation, changing the way you run the heating, or using low consumption light bulbs already make a difference financially."

Cowtan and Strachan believe that those who have invested in a heat pump or a biomass boiler are making even more considerable savings. Cowtan cites his own experience.

"At home we had an old oil boiler with which we replaced with a ground source heat pump. We're now saving about £1,000 (€1,130) a year and the house is warmer to boot!"

Fintry is yet another example of the fact that once people get used to something like renewable energy, and realise the benefits it can bring, their support goes right up.

"Initially we were seen as a bit 'out there' and bizarre", admits Cowtan. "I remember we used to joke that people thought we were delusional! But now it's swung the other way and people are getting impatient to have their own renewable energy installation."

He believes that other towns and villages could certainly follow suit, and the FDT are often now asked to go and speak at other community events.

The key, he says, is showing the benefits – especially financial – of renewables and of getting the community involved in projects as soon as possible.

"Also I reckon every community should have a Stephen who's there to offer unbiased, informed advice", he adds.

Finally, he stresses the power of the crowd. "It's good when people see their neighbours doing something - they want to follow."

More information: www.fintrydt.org.uk ■

Fintry on the boil

While I was in Fintry I visited some buildings which use renewable energy for heating. The heart of Fintry is the building known as the 'sports centre', but which doubles as a bar, café and tiny shop (Fintry's sole other shop closed down a few years ago). The sports centre has now been equipped with its own biomass boiler, and one the final controls are carried out, it will be turned on.

Fintry's carpenter Billy McGhee is pleased with his new biomass boiler

Photo: Tony Flisch

A few minutes away, carpenter Billy McGhee makes furniture in his small workshop (see photo). He also recently had a biomass boiler installed and is pleased with the result.

"I'm happy with it, it gives off lots of heat and warms the house great!"

One day, he hopes, there will be a way of using all the sawdust in his shop to make the pellets that are then burned in the boiler, rather than having to buy them in – the ultimate low-resource solution!

Gordon Cowtan, Sarah Azau and Stephen Strachan visit Fintry's turbine, which brings in over € 500,000 a year

Photo: Tony Flisch

Working towards sustainable events

By Zoë Casey

Emitting no greenhouse gases and using no water in its production, wind energy is well known for its green credentials. Here at EWEA we are working hard to ensure that our events reflect wind energy's green image by ensuring they have a minimal impact on the environment.

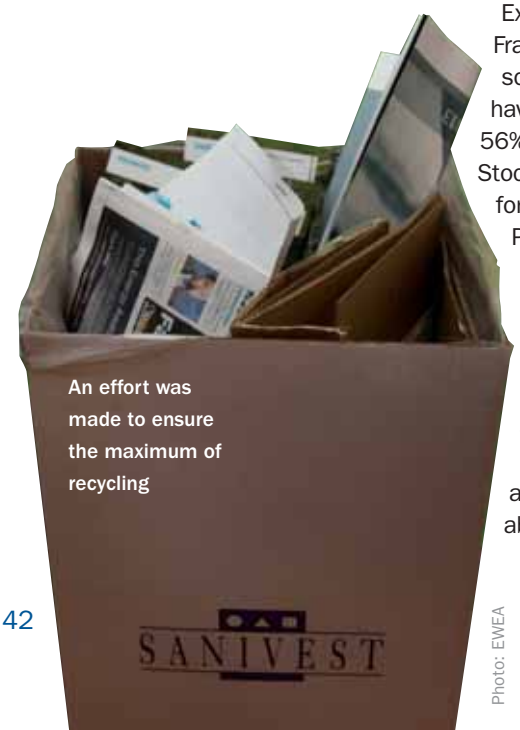
EWEA 2011 delegates queue for coffee - in washable ceramic cups

"The EWEA 2011 Annual Event scored higher on sustainability - 62% - than the 44% average for all non-EWEA events."

Since 2009 EWEA has monitored the sustainability of our events as we believe we can achieve future viability only through smart and responsible practices which balance the needs of our communities, environment and sound financial stewardship. Recently, we received the sustainability results from the EWEA 2011 Annual Event, which scored higher - 62% - than the 44% average for all non-EWEA events, according to our independent auditor MeetGreen™.

"It is very satisfying to see EWEA's relatively high score this year, and the fact that our events have steadily been getting more sustainable since we started monitoring them in 2009, although of course there's always more we can do", commented Luisa Coll Hellyer, EWEA Event Manager, who has been working to promote and improve event sustainability, and who put together the EWEA 2011 results in a report, available on www.ewea.org.

The first time EWEA monitored its event sustainability was two years ago at the European Wind Energy Conference and Exhibition (EWEC) in Marseille, France when we achieved a score of 42%. Since then we have risen up the ranking to 56% for OFFSHORE 2009 in Stockholm, Sweden and 59% for EWEC 2010 in Warsaw, Poland. While we are not quite on a par with the MeetGreen score for the greenest non-EWEA event – 75% - we hope to carry on improving over the years to come.



An effort was made to ensure the maximum of recycling

Photo: EWEA

What did we do to achieve a higher sustainability rating this year? With 9,000 participants and 13,000m^2 of exhibition space at the 2011 EWEA Annual Event, it was clear from the start that we'd need a plan, so we followed the guidelines set out by MeetGreen™ on sustainable event management. Broadly speaking, they monitor our green performance relating to the destination and venue of the event, accommodation and transportation for participants, food and beverage selection, communication and marketing and the onsite office.

EWEA's chosen venue for this year – Brussels Expo – is powered by electricity from renewable sources. Just over 84,000 Kilowatt hours (KWh) of electricity were consumed during the four day event. This is equivalent to the average amount of electricity two 2 MW onshore turbines would produce over four days. In the overall 'venue' sustainability category, we achieved a score of 57%.

As for the exhibition itself, the modular stands will be reused at future events, creating zero waste. In other areas, however, waste is inevitable. In order to minimise its environmental impact, we collaborated with Brussels Expo to create a customised strategic waste management plan before, during and after the event. We are proud to state that nearly 90% of event waste - totalling some 83.243 tonnes - was recycled. This figure includes the fact that 100% of the exhibition hall carpet was recycled. Towards the final hours of build-up to the event, however, waste sorting was abandoned by the contractors: this indicates the need for better communication and oversight next time.

In the transport category we were greatly supported by the City of Brussels which generously supplied 3,000 four-day public transport tickets free covering the duration of the event. While we can't be sure how many of these were used, if just half were used to get to the event, around 8.5 tonnes in emissions of CO_2 would have


Photo: EWEA

Photo: EWEA

Free passes for Brussels' public transport system were available to delegates

been avoided. However, transport was one of the categories in which we didn't score so well since 78% of the total carbon emissions of EWEA 2011 were related to transport.

Looking at overall carbon emissions relating to EWEA 2011, 2,488 tonnes of CO_2 were produced. That's the equivalent to the annual emissions from 496 passenger cars. Delegate transport from their home countries to the event produced the most CO_2 (as mentioned above, 78% of total emissions were from transport), followed by accommodation and food and beverage (8%).

When it comes to accommodation, EWEA asked all hotels it had recommended to the event's participants to fill out a questionnaire on their sustainability practices. A 'green score' was then accorded to each of the 36 selected hotels. All hotels selected agreed to participate in energy efficiency actions outlined by MeetGreen™ and some hotels in particular excelled in their green credibility rating. The Radisson SAS Brussels, NH Grand Sablon and the Aloft Brussels Schuman all have documented sustainability policies, active 'green teams', state of the art energy efficiency, community actions, and Green Leaf eco-certifications.

While food and beverage arrangements accounted for 8% of the event's carbon emissions, we had put in place several successful measures to minimise the impact that hungry and thirsty event participants can have on the environment. A significant 60% of all food consumed was sourced within 300 km of Brussels, helping to cut down on food miles. Providing a vegetarian option every day not only catered to delegate needs but could have helped cut the impact on the environment that meat eating could have. Moreover, 45% of all food and drink provided at the venue was organic which is known to be less impacting on the environment.

Other measures like serving water, milk and sugar in bulk rather than individually packaged and using reusable crockery helped further reduce waste packaging. At the event EWEA did have a strategy for food donation should there be much left over, but in the end the quantities of food and drink ordered were almost spot on.

By choosing paper that was certified by the Forest Stewardship Council (FSC), we hope to have minimised the carbon footprint of printing. FSC paper is verified from the forest of origin through the supply chain. It ensures that forest products are responsibly harvested and from verified sources.

EWEA didn't only think of its green credentials during the 2011 Annual Event, but the well-being of participants too. By creating a relaxation area – maybe you were one of the 396 participants to receive a massage - and yoga and Tai Chi classes, we hope we were able to help dissipate some of the tension that can build up at such big events.

As a final measure to be sustainable and give back as much as possible, EWEA donated €9,000 – the equivalent of €1 per attendee - to Renewable World for a wind powered irrigation water pumping system for the Mipande Farmers Association in Mozambique. Renewable World works with local partners in poorer communities to install community-based renewable energy projects which can pump clean water, power homes, schools and health centres and run small businesses in a sustainable way. For more see www.renewable-world.org.

While we are pleased with our sustainability performance this year, and with our continuously improving trend towards green events over the last three years, we hope to do better again next year when the EWEA 2012 Annual Event will be held in Copenhagen. For more see www.ewea.org/annual2012.

To find out more on EWEA's sustainable events, you can read the full report on www.ewea.org. ■

"2,488 tonnes of CO_2 were produced at EWEA 2011 - the equivalent to the annual emissions from 496 passenger cars."

"60% of all food consumed was sourced within 300 km of Brussels."

Transporting turbines

Or how to get an 85 metre blade from A to B

By Crispin Aubrey

Photo: Vestas

In an increasingly global market, wind turbine parts now regularly travel round the world by road, rail, sea and air. Blade manufacturer LM recently flew a 42 metre blade from China to its Danish technology centre, the longest cargo ever to have been carried by air. Vestas components regularly cross the sea from Europe to the US, where they continue their journey on trains of special rail wagons up to 1.5 kilometres long.

Some of the most difficult journeys, however, are by road, especially on the final stretch to a remote and inaccessible wind farm site. These trips are made even more complex by the increasing size of turbines, with blades now being planned of up to 85 metres in length and 200 tonne weight nacelles and towers, requiring a constant updating of vehicles and equipment.

"We are designing new equipment all the time," says Carsten Pedersen of KR Wind, a specialist wind transport business recently acquired by Dutch company Mammoet. "We have to move up a gear every two to two-and-a-half years." Such issues mean that transport can contribute up to 10% to the total delivered cost of a machine.

"Manoeuvring turbine parts round such steep bends was only made possible by bringing four specialist vehicles from Denmark to Spain."

As an example of the complexities involved, Pedersen describes the experience of the La Nogueria wind farm near Turrillas in Andalucia, southern Spain, where 13 Siemens 2.3 MW turbines had to be taken up a hillside road with eight kilometres of twisting "hairpin" bends in order to reach their eventual location at 1,100 metres above sea level.

"We started planning this more than a year in advance," says Pedersen. "We measured up the roads and suggested some roadworks to make the transport easier, but the community wouldn't accept that. So we looked at many different solutions before coming up with something that would work."

The 13 turbines were first brought from Siemens' Danish factory to the port of Almeria by ship, and then taken by normal road transport to a holding point at the bottom of the mountain. For Pedersen, who oversaw the whole operation, that was when the difficult part began.

Manoeuvring turbine parts of up to 50 metres length round such steep bends was in fact only made possible by bringing four specialist vehicles all the way from Denmark. These are trucks with traction on all wheels towing load-bearing "trolleys" with wheels that can rotate in any direction and "pendle" axles that can be raised and lowered depending on the gradient. A dedicated member of the team is assigned to constantly optimise the position of each trolley so that it doesn't tip out of balance. The steepness of the gradient at La Nogueria meant that the vehicles often had to travel both backwards and forwards, steadily making progress a few metres at a time.

The most challenging turn on the hill had a 14% vertical slant and a 22% horizontal climb. This required constant and difficult adjustment to keep the load within the normal Siemens limit of an 11% vertical and 2% sideways movement. Altogether, it took 153 trips to get the turbines up to the top at La Nogueria, with an average of 2½ machines per week. No turbine parts or anything else was damaged during this major exercise, however, says Pedersen proudly.

Although blades might seem the most awkward parts of a turbine to transport in such situations,

in fact greater problems are associated with the tower sections, which are much heavier and therefore more likely to shift during their travels.

Pedersen says that the biggest innovation by his company during the 20 years he has been employed has been the introduction of a system which allows the tower sections to hang between the axles of a trailer, substantially lowering their centre of gravity and increasing stability. "If they were on top of a trailer in a situation like we had in Spain, it would have been impossible to stop them tilting," he says.

This system is also useful for journeys on normal roads, especially where, for instance, there are tunnels to negotiate with a very small amount of headroom above the trailer. The hanging system allows the tower to be suspended at only a few centimetres above the ground. This occurred during a recent wind farm delivery carried out in Norway, for instance, Pedersen explains.

The Spanish mountain was not a one-off experience for KR Wind. The company has since been working on an equally difficult site near Londonderry in Ireland, where one of the gradients reached a 26% incline. Most recently it has been installing turbines at the massive Clyde wind farm in Scotland, where six of its specialist vehicles have been employed on steep climbs. In total, the company has now delivered about 2,100 MW of capacity in the UK and Ireland alone, and all entirely without incident, says Pedersen.

One issue which clearly needs to be addressed is that of the permitting process that transport companies like KR Wind need to go through before they can organise a journey requiring road closures or restricted traffic flows. "The time it can take to get a permit can vary from six months in Eastern Europe to six to eight weeks in the UK and just a few days in Denmark," says Pedersen. "For some countries, where it can cost €10,000-20,000 for a permit, it's obviously seen as a source of income. We need an EU level standardisation."

Mette Bülow, Vice-President for Transport Excellence at Vestas, agrees. "Permitting is completely different across European countries," she says. "In Spain you can only transport by night, for example, in France you can only move by day." One idea would be to introduce wind turbine "transport corridors", she suggests.

Would it be possible to shift more transport to trains, as Vestas does in the US? Trains have the advantage of both lower costs and lower carbon emissions. "I hope it will happen in the future," says Bülow. At present, however, there is not either the infrastructure, in terms of obstacle-free tracks, or the rail wagons available in Europe for transporting large turbine parts.

What is the biggest challenge for Bülow, who is responsible for overseeing transport solutions for Vestas turbines by sea, land and air? "The most important thing is to find a partner in the transport business who understands the complexity of the product," she says, "that these are fragile components which need to be handled with care. But at the same time we need to establish routines which, as for any industry, keep the costs within limits."

For more information: www.krwind.com; www.vestas.com ■

"In Spain you can only transport by night, in France you can only move by day."

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Bjarne Christesen, offshore engineer, Vattenfall

Photo: Vattenfall

Bjarne Christesen is an offshore engineer at the Horns Rev wind farm in Danish waters.

Tell me about your job.
It involves maintaining the wind turbines at Horns Rev and ensuring they are running well as possible. I have to repair any that have stopped working. I am involved in the yearly inspections and in other projects as well helping to improve the turbines – for example, we are currently looking at adding an automatic greasing system.

"Inspecting the gearbox is interesting - plus I'll last longer that way, rather than jumping around on turbines!"

How long have you been in the wind energy industry?
I've been in the industry in the nine years since the wind farm was built. I trained as an electrician but I've always been particularly interested in renewables.

What does a typical day involve?
I start at 6am by checking the computer for any faults that may have occurred during the night, then I make a new transportation list for any parts we may need to ship out to the wind farm - I'm in charge of this task with the stockholder. Then we pack the spare parts and set sail. The blade repairers leave at 6am, the service people leave at 6.30 and we leave once we've prepared the transportation list, at 7am.

Of course there are sometimes weather issues meaning we can't go out. This happens probably once or twice a week in summer. If there's an emergency we can take a helicopter out, but of course this is more expensive, and we can only fit four people in it.

The sailing takes one hour. Then we have about seven hours up the turbines before sailing back, with two people per turbine. Our official day is long – from 6am to 6pm – which is why we work one week then have one week off.

Do you work in teams?
Yes. In one team we have ten people repairing blades and ten more people with a crane-boat to replace gearboxes, plus around twelve others doing the service. We often hire in extra people, especially in the summer, to help with the yearly inspections we have to do. We have a smaller, half-year inspection which lasts about two days and a main one every year for the electrical and safety tests. That lasts about three days.

What is your favourite part of the job?
I like it when there are faults to repair, that's the most exciting part. Inspecting the gearbox and the bearings – we now have an endoscope to do that – is interesting. It's detailed and complex – plus I'll last longer that way, rather than jumping around on turbines!

Disassembling the gearbox is a heavy job. When we need to exchange gearboxes it takes two people two days to prepare it, then six to seven days to do the exchange with the crane-boat, then four days to put it back.

Do you have a least favourite part of the job?
I don't enjoy so much the service part, the yearly inspections, as it's just a standard job so it never changes much. That's why we hire people in too – they don't need a specialist training for it. However they work well, there are some very skilled people.

Dr Wandon Joo, wind engineering manager, Doosan Power Systems

Dr Joo is a wind turbine design expert who transferred from Korea to work for DPS in Scotland.

Photo: Doosan Power Systems

What does your work involve?
My main role has an engineering focus and involves wind turbine blade development and system design including system load calculation. It is a very exciting time to be an engineer in this field. I also help coordinate the work between the UK branch of Doosan Power Systems (DPS) and our parent company, Doosan Heavy Industries, in Korea. I contact them every other day, sometimes every day, to discuss development issues.

I don't really have a typical day – every day is new and exciting. Some days I spend solving engineering issues, other days are dedicated to meetings with engineers from potential suppliers and communication with the internal development team and engineers in Korea.

At the moment I'm working on blade development and system design for a large-scale offshore turbine which we are developing for the European market. Right now we are at the beginning stage of turbine development and trying to figure out the system layout.

How long have you been working in the wind industry?
I've been working in the wind industry since I got my first full time job over five years ago. Before that I was doing my PhD on helicopter rotor blade design. There are similarities and differences between helicopter and turbine blades – while maintenance is conducted very regularly on helicopters, offshore turbines are inspected once or twice a year. Therefore wind turbines need very robust and reliable blades, and we have to balance quality requirements with costs.

I switched my focus from aviation blades to wind turbine blades as they're bigger and represent bigger challenges. I like large blades and the fact that wind turbine blades are about making energy for people. Also, when I design a blade I have to take into account factors such as risks, manufacturing limitations, blade aerodynamics, aeroelastics, dynamics, control, electricity, vibration and so on.

Do you work in an office?
We are currently at the product development stage, and, therefore, most of my time is spent in the office working on the engineering and design processes or in meetings with suppliers. I enjoy this part of the job, but I am also looking forward to manufacturing, commissioning and measurement processes when I would be spending my time near wind turbines.

Do you work in a team?
The UK business is new and growing. We work as one team trying to leverage on experience and expertise from internal departments and involve engineers from the UK and Korea. I also cooperate a lot with external consultants and potential suppliers to solve technical challenges associated with blade design and development.

What part of your job do you like the most?
My favourite part is the discussion with the engineers on advanced technologies and their implications on our product. It's very exciting to learn something new. But every decision must be carefully considered – we are using innovative concepts and special care must always be taken. ■

"There are similarities and differences between helicopter and turbine blades –wind turbines need very robust and reliable blades."

Photo: GWEC

OFFSHORE 2011: the developing offshore wind sector gathers speed

With EWEA's next offshore conference just a few short months away, Chris Rose took a peep at what's planned.

Participants arriving in Amsterdam for the EWEA OFFSHORE 2011 conference and exhibition in Amsterdam can expect to learn the latest about marine-based wind power technologies and how the sector is expected to grow and assume a dominant role in Europe's energy portfolio during the next four decades. They will also be able to meet hundreds of the companies involved in the offshore wind industry.

People attending the conference, which will run from 29 November to 1 December, will hear experts discuss logistics, grids and infrastructure, business and policy practices, the latest technological innovation, the importance of bringing down the cost of offshore generation, forecasting, the next generation of wind farms and demonstration sites.

It is fitting all this activity will occur against a Dutch backdrop made up of hundreds of years of history, engineering and human ingenuity solely devoted to controlling the immense power of rising water and howling wind.

Indeed, with more than 1,250 bridges, 160 canals and connected to the often volatile North Sea, Amsterdam remains acutely aware that its ability to survive or perish are forever inextricably linked.

That's partially because, as Jaap Warners, President of the Netherlands Wind Energy Association, points out, Amsterdam is "close to the shores of the North Sea, the place the wind seldom sleeps!"

Delegates attending the biennial conference, considered the world's largest offshore wind energy event, will be looking towards a not so distant future of armies of giant offshore wind turbines generating increasing amounts of emissions-free electricity for Europe and the world.

Building on the 2009 offshore event in Stockholm, which attracted over 260 exhibitors and 4,850 participants in total, the Amsterdam event offers 8,000 metres^2 of total exhibition space – three times the size of the exhibition in Stockholm - and is expected to be the biggest and busiest offshore wind expo in the world. At press time for this article, almost 300 exhibiting companies had confirmed their participation and around 7,500 participants were expected.

On and off

One of the main topics to be discussed is whether the growing European offshore wind power industry can replicate the success of onshore wind technology in terms of market deployment, cost-competitiveness and technology maturity.

Photo: EWEA

The exhibition space has grown three times since 2009

As such, leading political and industry figures will address prospects for growth in the sector and what is needed from governments, the European Union, industry itself and the financial community.

Needless to say, a lot is riding on the outcome of the conference considering that investments in offshore wind farms — a relatively new industry with tremendous potential in which Europe is leading the world — account for 20% of the €13 billion annual market in new wind energy.

Attendees will hear that while the European wind power industry has developed onshore wind energy technology over the past two decades to a point where it is cost-competitive with building new coal or gas-fired power stations, the offshore sector is trailing onshore by approximately 15 years in terms of market maturity.

They will also hear, however, that there is nothing to suggest that the success of onshore wind energy cannot be replicated at sea providing there are commitments from governments, the European Union, and the financial sector.

Through keynote speeches and moderated debates, discussions will centre around the offshore wind industry requiring long-term policy certainty, new offshore and onshore power grids, effective financing tools, increased R&D, a more streamlined supply-chain and European cooperation. EWEA will also be launching its new offshore report at the event.

In the pipeline

The stakes for Europe and industry are immense. Already 150 GW of wind power is planned by governments and developers. EWEA estimates that by 2030 there will be 150 GW of offshore wind power providing 14% of EU electricity demand. As the sector grows, so do the numbers of jobs and business opportunities it brings.

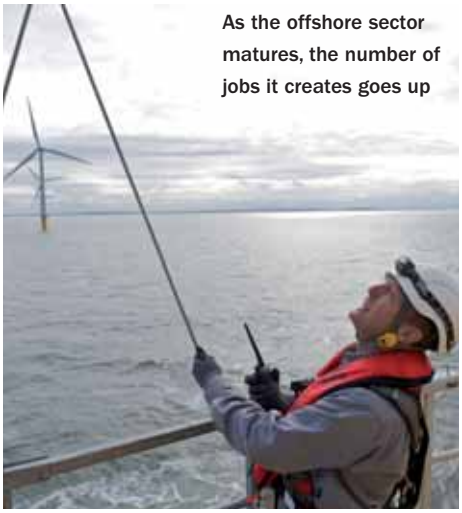

Photo: GWEC

As the offshore sector matures, the number of jobs it creates goes up

By 2025, offshore capacity is expected to exceed the capacity of wind operating onshore at the end of 2010, and is expected to exceed onshore capacity beyond 2030.

Simply put, the impressive European offshore statistics speak for themselves.

A total of 308 new offshore wind turbines, worth some €2.6 billion, were fully grid-connected between 1 January and 31 December 2010, equaling 883 MW – a 51% increase on the previous year.

Eight wind farms were fully completed and grid-connected, one wind farm was partially grid-connected, and one wind farm was completed but not grid-connected.

Offshore work began on a further four projects and preparatory onshore work on four new projects.

Cumulatively, by the end of last year the 1,136 turbines installed and grid-connected totaled 2,946 MW in 45 wind farms in nine European countries. The offshore wind capacity installed by the end of 2010 will in a normal year produce 11.5 TWh of electricity.

In just the first six months of 2011, 101 new turbines with a total of 348 MW of power capacity were fully grid connected in the EU - a 4.5% increase on the same period in 2010.

For its part, EWEA believes that to enable industry to develop the market, governments and EU must ensure a progressive and stable policy framework including a binding 2030 renewable energy target, implementation of a single market in electricity, and actions to ensure the constructions of an offshore grid.

In addition, EWEA has long called for governments to facilitate R&D investment to enable the technology to follow the same cost reductions as onshore wind.

Industry, meanwhile, must work with the private sector to overcome supply chain bottlenecks and with the relevant institutions to deal with skills shortages while the financial sector needs to become more familiar with opportunities and challenges of offshore wind.

Sessions for everyone

On the conference side of the event, the technology panel is sure to be interesting to many as a key issue in the sector is which technologies will enable the European offshore wind power industry to replicate the success of onshore wind energy over the coming decade. Panel participants are more than likely to discuss concepts that currently exist while comparing them in terms of quality, reliability, supply and cost. Accordingly, the session will focus on a major issue for the offshore industry, namely the use of direct drive technology versus gearboxes, and the bearing this choice has upon turbine weight, cost and maintenance.

Other session titles include “Breaking down the barriers to an offshore supergrid,” “Big is Beautiful: why larger wind turbines improve cost of energy for offshore wind” and “Not in my back water: public planning and social acceptance.”

In all, there are almost two dozen sessions taking place over the 2.5-day conference.

And, for those new to the wind industry who want an overview of the sector prior to the conference, EWEA, building on the success of its ‘Wind Energy – The Facts’ publication, widely considered to be the most authoritative reference on the subject published to date, will offer an introduction to wind energy on 28 November with a particular focus on the offshore sector.

Photo: EWEA

OFFSHORE 2011 participants will be able to do business, meet contacts and network

All this is not to forget the many social events and opportunities to network. These include an opening reception at the Amsterdam Stock Exchange building – an apt location for the exchange of business knowhow and contact details – and the conference dinner. This year’s venue for the dinner, the national maritime museum (“Het Scheepvaartmuseum”), is one of Amsterdam’s biggest 17th century buildings, a storehouse for the Dutch war fleet dating from 1656.

For further information, please go to: www.ewea.org/offshore2011 ■

Photo: C-Power

Wind industry loses valued colleague and friend

Filip Martens, CEO of Belgian wind energy developers C-Power, died suddenly on 1 July. Filip was married and had a son.

Described by his team at C-Power as "passionate, motivating and inspirational", Filip was the driving force behind the first offshore wind farm in the Belgian North Sea, Thornton Bank.

He had been at C-Power since 2000, where his vision and persuasive skills helped overcome many obstacles and see the realisation of the Thornton Bank project. He was also president of the Board of Directors for Belgium's Inland Navigation and director of Antwerp's Chamber of Commerce.

Prior to 2000, he worked in port development and held various posts within both the Flemish and Belgian federal governments.

"Filip was a dear friend of EWEA", said Christian Kjaer, EWEA's Chief Executive. "He was a great communicator with an immense drive and dedication to offshore wind energy in general and his brainchild, Thornton Bank, in particular. Filip's political experience made him an invaluable asset and a great ambassador for the offshore wind power sector and EWEA. We have lost a good friend and one of the most committed and passionate driving forces behind the development of offshore wind power."

Those who knew Filip and who wish to leave a word of condolence to his family can do so on http://filipmartens.squarespace.com.

Over 85% satisfaction amongst EWEA members

100% of the EWEA Lead Sponsors who replied to EWEA's 2011 membership survey are 'extremely satisfied' or 'satisfied' with EWEA's products and services. 85% of the members who replied to the survey reported similar levels of satisfaction. The findings are consistent with the 2010 survey results.

Amongst the results, 70% agree that 'EWEA's website provides me with up-to-date information on the wind energy sector' and 75% that EWEA's newsletters are useful to them. 69% would recommend joining EWEA to another company or association.

"We're very pleased with these results and with the high levels of participation in the survey", commented Christelle Roche, EWEA's Head of Membership and Business Development.

Altogether, almost 100 members participated in the 2011 EWEA Membership online survey, representing a range of industry sectors.

In terms of future activities, 60% of EWEA members support the idea of EWEA organising more events on topics such as technology and science.

For more on EWEA membership, go to www.ewea.org/membership

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SEANERGY 2020: EEZs needed to help offshore wind in Mediterranean Sea

The limited amount of exclusive economic zones (EEZs) in the Mediterranean Sea means maritime spatial planning (MSP) is more difficult. Greater numbers of EEZs would facilitate MSP and therefore offshore wind energy development.

These were some of the conclusions of the workshop of the SEANERGY 2020 project held on 24 May in Athens. More than 60 people (policy makers, developers, TSO, research institutes) attended the event, which focused on the Mediterranean basin.

The workshop also discussed how deep water and a rocky sea basin are an issue for potential wind energy development in many areas of the Mediterranean. The floating turbine technology which could enable wind energy development in these areas is not advanced enough yet.

SEANERGY 2020 is an project funded by the EU's Intelligent Energy Europe programme on MSP and how it can be developed so that it supports the growth of offshore renewable energies.

The four regional workshops – three of which have now taken place - address the specificities and MSP-related concerns in each sea basin.

SEANERGY 2020 is running for 24 months until April 2012. The final regional workshop will focus on the countries spanning the Atlantic Coast on 22 September 2011 in Lisbon.

More information: www.seanergy2020.eu/events


Photo: EWEA/Bickley


Photo: Enercon


Photo: Denise McSweeney


Photo: Mediamaster Team


Photo: IG Windkraft


Photo: Infigen Energy

Global Wind Day 2011 – abseiling, films, exhibitions and more

Celebrating Global Wind Day 2011 in (clockwise from top left): Portugal, Austria, Australia, Serbia, Ireland. Across left: the Wind Day parade in Brussels

Global Wind Day this year – 15 June - saw hundreds of events happening all over the world – from wind farm open days, photo and art contests and exhibitions and open-air concerts at the foot of wind turbines, to lively policy debates and workshops.

While it's difficult to estimate how many thousands of people exactly took part in Global Wind Day events, it is certain that the number of events organised all over the world remained stable in comparison to 2010. The quality of the events is considerably and steadily increasing from year to year.

Here's a snapshot of what went on where:

The 2011 edition of Global Wind Day was heralded by the Austrians who gave journalists the chance to abseil down a wind turbine, after which they organised several public events around wind farms in Austria.

On 15 June, in Brussels, Belgium, street performers livened up the EU quarter with a display of brightly coloured flowing lanterns representing the wind. Viewers received a 'seeded paper' detailing the benefits of wind energy which they could then plant, water and watch grow into flowers. On the same day EWEA also organised a public debate on 'EU energy policy after 2020'. Over 100 people came to hear speakers from the European Parliament, the Cabinet of Climate Commissioner Hedegaard, BUSINESSEUROPE and the European Renewable Energy Council.

Also in Brussels, the Party of European Socialists (PES) used Global Wind Day to reiterate its call for at least 95% renewable energy by 2050. PES President Poul Nyrup Rasmussen commented: "Every year the need to replace fossil energy and nuclear energy becomes more urgent. Wind power represents a clean, safe and cheap source of energy we have to exploit as much as we can".

In Leuze-en-Hainaut, Belgium, thousands of local residents turned up for the official inauguration of a new wind farm and the chance to tour the inside of a wind turbine, while in Estonia, the focus was on a virtual wind day with wind-inspired video clips being widely viewed on social media.

In Australia, the first ever Global Wind Day was held – turns out, it was about time: six times more people registered to visit a wind farm than expected. Joining in for the first time as well were Serbia and Croatia, holding successful events featuring information campaigns, art exhibitions, windsurfing competitions and regattas.

On the other side of the globe, in New York, WindMade - a new brand to be displayed on products made using wind energy - was launched (see p. 15 for more), and in Berlin, Germany wind energy was the star of a new exhibition at the Berlin Technical Museum, just like a similar exhibition that was opened on 15 June in the National Polytechnic Museum in Sofia, Bulgaria. In the UK, a film featuring TV personality Bill Oddie on the benefits of renewable energy was screened in London while in Czech Republic, Canada, New Zealand, Portugal, Mexico, Ukraine, Finland and many other countries, wind farms were open to the public, performances were held to entertain audiences in city centres, information events were organised to address frequently asked questions among the public and workshops or press events were organised to stress the power of wind energy around the globe.

Many of these activities were featured on the EWEA blog, including many guest bloggers from Finland to Australia and EWEA and GWEC established a stable social media presence for Global Wind Day on Facebook and Twitter, with lots of wind energy enthusiasts following and commenting on Global Wind Day and the ongoing activities.

Like in previous years, EWEA provided its partners with Global Wind Day gadgets, of which half were sustainably produced, a concept that EWEA will continue to promote in coming years.

More on Global Wind Day: www.globalwindday.org

EWEA blog: www.ewea.org/blog

Wind energy in Bulgaria: from impasse to opportunity


Photo: EWEA/Berrino

EWEA's 2009 policy workshop in Bulgaria attracted a large audience

'Wind Energy in Bulgaria: from impasse to opportunity' is the third event in EWEA's series of policy workshops in Bulgaria. Taking place in Sofia on 3 November 2011, the event is organised in cooperation with the Association of Producers of Ecological Energy (APEE) and the Bulgarian Wind Energy Association (BGWEA).

Speakers will share their views on the Bulgarian market and the challenges and opportunities it presents. The workshop will cover issues including project finance, the legal framework for project development as well as grid issues and electricity trading. The event will close with a high-level panel discussion on the direction of the wind industry in Bulgaria.

More information: www.ewea.org/events

Majority of EWEA 2012 exhibition space sold

Over 75% of the spots on the exhibition floor are now sold for EWEA's next annual event, from 16 to 19 April 2012. The conference programme will start to be defined in the next few months with the upcoming launch of the call for abstracts. If you want to book a stand in the exhibition or submit a proposal for the conference, keep an eye on the event website: www.ewea.org/annual2012.

EWEA 2012 will be held in Copenhagen – capital of wind energy's pioneer country, Denmark. The supporting organisation, the Danish Wind Industry Association will be organising activities ranging from site visits to investor meetings.

We are always keen to improve our events. Share your ideas with us by sending an email to Maura at events@ewea.org.

Event website: www.ewea.org/annual2012

Photo: EWEA

Danish EU Climate Action Commissioner Hedegaard talks with journalists at EWEA 2011

OffshoreGrid final workshop taking place in October

On 5 October, the OffshoreGrid consortium will launch its final publication during the project's final workshop. The workshop is targeted towards policy makers, transmission system operators, regulators, energy utilities, wind farm developers, energy agencies and other stakeholders.

The objective of the OffshoreGrid project, led by 3E, is to provide policy recommendations for the process towards an offshore electricity grid in northern Europe. The project's intermediary results provided input for the future European Commission Blueprint for a North Sea offshore grid.

Programme and registration: www.ewea.org/events

More information on the project: www.offshoregrid.eu

TPWind: grids R&D workshop

The European Wind Energy Technology Platform (TPWind) – a network of EU wind energy R&D experts - is hosting its first public event on 4 October 2011 in Brussels, Belgium. The workshop will focus on grids and grid integration of renewables. This cross-sectoral conference will provide participants with an opportunity to discuss grid integration R&D issues shared by wind energy and other operators and stakeholders.

Programme & registration: www.ewea.org/events

TPWind has just made a call for expression of interest to select new TPWind Steering Committee members – see www.windplatform.eu.

EWEA welcomes new members

Baltic Wind Park (Latvia)
The Baltic Wind Park (BWP) was established in 2008 with the goal of developing the biggest offshore wind energy project in the Baltic States. In 2009, the Latvian government issued the permit to BWP granting them the rights to install new equipment for energy production with a capacity of 200MW in eight exclusive locations in the Baltic Sea, near the western coast of Latvia. The project is expected to become operative in 2018.
www.bwp.lv

BLG Logistics Group AG & Co. KG (Germany)
BLG is a logistics provider with 15,000 employees worldwide. The roots date back to the year 1877 when BLG was founded as a port operating company in the seaport of Bremen, Germany. Today the company is engaged in the business divisions container, automobile, and contract logistics. Part of the contract division is logistics supply chains for the construction of wind turbines, onshore and offshore.
www.blg.de

CN System AB (Sweden)
CN System provides highly advanced fire detection systems and detectors developed and tested for the most demanding applications. Our solutions are EN-54 and CPD approved. CN System AB's advanced fire detection systems can be customized to the specific installation and thereby fulfilling each specific need of the fire detection system for the wind power plant.
www.cnsystem.se

Environmental Protection Engineering S.A. (Greece)
EPE S.A. is a pioneer in the field of cathodic protection of marine, offshore and onshore constructions and one of the most reputable international anode manufacturers, operating one of the largest factories and the most modern factory in Greece. Dedicated to its customers, EPE S.A. is in the position to understand each customer's needs and develop for them the most cost effective, efficient and reliable products and services exceeding their corporate expectations.
www.epe.gr · www.polcor.gr

Hexicon AB (Sweden)
www.hexicon.eu

International Enterprise Singapore (Germany)
International Enterprise (IE) Singapore is the government agency driving Singapore's external economy. It spearheads the overseas growth of Singapore-based companies and promotes international trade. With its global network in over 35 locations spanning many emerging markets, the agency helps Singapore-based companies identify project and investment opportunities in Europe, and European companies in finding suitable partners in Singapore.
www.iesingapore.com

IRATA (UK)
IRATA is the sole global trade association in the work-at-height sector; it has member companies in every continent. Industrial rope access has been developed by IRATA in the last 20 years to a point where it is the chosen means of access for much of the work in the offshore oil and gas industry as well as a range of projects in construction, civil engineering, the built and natural environment and much more. Its success is based on thorough training and strict work guidelines
www.irata.com

Irish Sea Contractors (Ireland)
Irish Sea Contractors is a leading Irish based global provider of underwater engineering services to the Marine Contracting industry. We provide following underwater services to Offshore Windfarm industry: Cable installation, burial and protection, 'J' tube installation, Cathodic Protection – supply & install, Survey/Inspection & offshore maintenance works. ISCs containerized offshore diving systems are built to IMCA D023 specification with LARS diver access systems. ISCs senior dive personnel have 30 years experience of working in extreme marine environments to strict client deadlines and our reputation is built entirely on client satisfaction.
www.irishseacontractors.com

P&O Maritime Services (Ireland)
P&O Maritime Services Europe provides a range of vessels and services to the Offshore Renewables industry; including operation, maintenance, survey, construction, cable lay and inspection services. In operation since the 1960's, P&O Maritime Services provides specialist maritime solutions including; vessel management, chartering and ownership solutions to Government and Industry Clients.
www.pomaritime.com

Samsung Heavy Industries (South Korea)
www.shi.samsung.co.kr

Updraft GmbH (Germany)
The direct line to the top - Updraft GmbH supplies advanced lifting technologies for the renewable industry. Updraft GmbH focus is on designing, manufacturing, distributing and maintains high-speed hoists and premium lifting slings for the fast-growing wind turbine market. Updraft draws on the extensive know-how and renowned state-of-the-art production capabilities of its parent company Gleistein Ropes, one of the world's most prolific rope specialists.
www.updraft.eu

Events

Romanian Wind Energy Forum 2011
6 - 9 September 2011, Constanta, Romania
http://windenergyforum.ro

SEANERGY 2020: Atlantic Ocean & Irish Sea Regional Workshop
22 September 2011, Lisbon, Portugal

TPWind: Grids R&D Workshop
4 October 2011, Brussels, Belgium

OffshoreGrid Final Workshop
4 October 2011, Brussels, Belgium

Wind Energy in Bulgaria: from impasse to opportunity
3 November 2011, Sofia, Bulgaria

Further information on all the above:
www.ewea.org/events

OFFSHORE 2011 AMSTERDAM
ORGANISED BY EWEA

EWEA OFFSHORE 2011
29 November – 1 December 2011
Amsterdam, The Netherlands
www.ewea.org/offshore2011
E-mail: events@ewea.org
Tel: + 32 2 213 18 00

EWEA 2012 COPENHAGEN
EUROPE'S PREMIER WIND ENERGY EVENT

EWEA 2012 Annual Event (formerly known as EWEC)
16-19 April 2012
Copenhagen, Denmark
www.ewea.org/annual2012
E-mail: events@ewea.org
Tel : + 32 2 213 18 00

EWEA Events: The Winning Formula

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OFFSHORE 2011 AMSTERDAM
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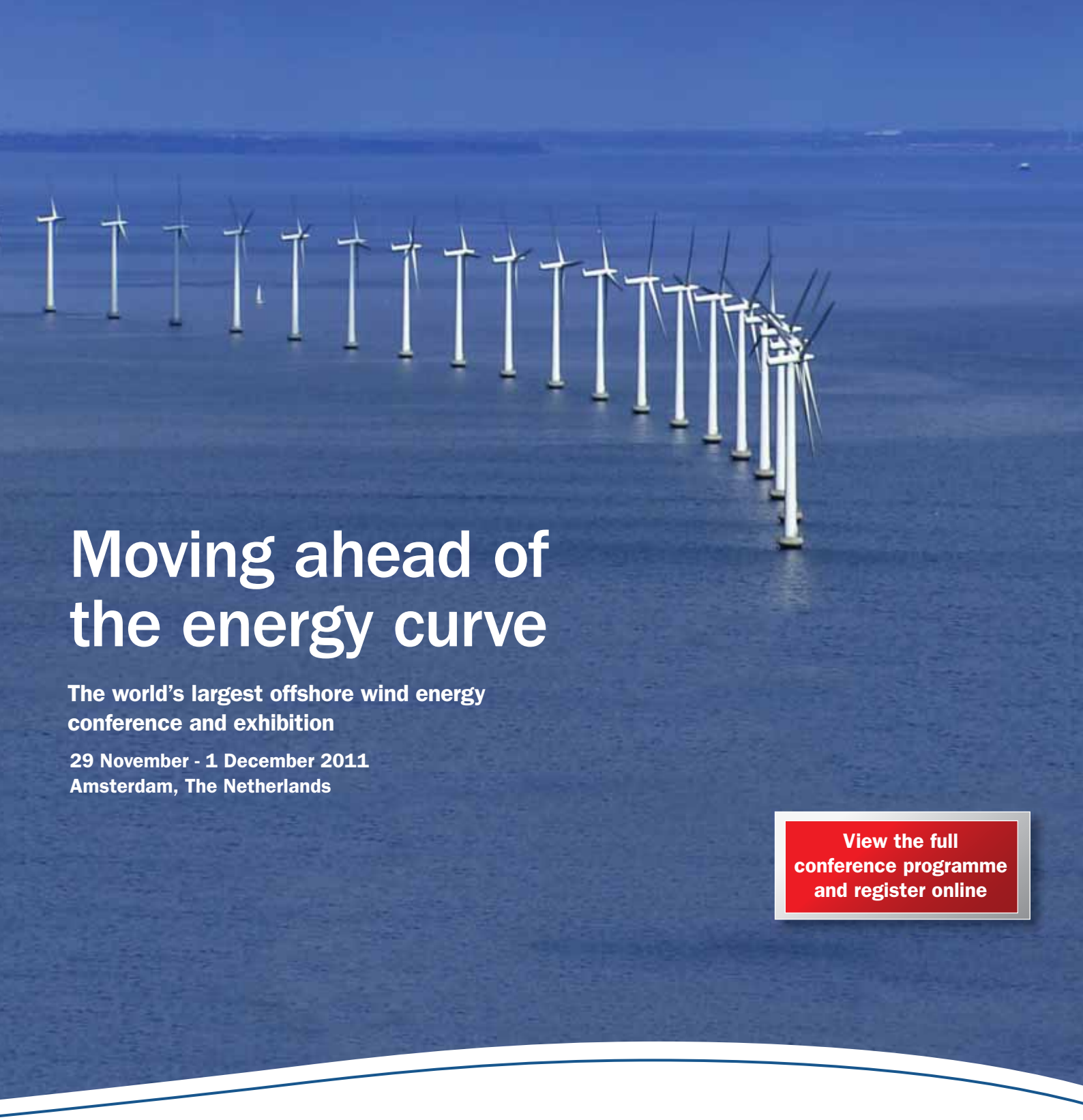
EWEA 2013 VIENNA
EUROPE'S PREMIER WIND ENERGY EVENT

www.ewea.org/events

EWEA events:

high quality conference + targeted exhibition + unique networking opportunities = the winning formula

The industry is still growing rapidly, creating exciting opportunities for new and existing businesses. Year after year, the European Wind Energy Association, EWEA, continues to serve the wind industry with the most valuable and professionally organised events in Europe. The success of EWEA events mirrors the booming wind industry and they are considered“un-missable” for any business serious about its future in the wind energy sector.



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(Almost) blown away by the power of the wind

By Rosey Grant
expert on wind resource measurement

We were approaching our field site from the south, up a steep path through the forest. We were no more than twenty metres away, but there was still very little to see. This was a worry, because only a week earlier we had constructed two 30m masts, complete with five sonic anemometers, six cup anemometers and six temperature sensors. These masts were two of three and, together with a network of automatic weather stations, were supposed to be collecting the data for my PhD.

I'm an extremely keen mountaineer so anything to do with orography always appeals. While studying physics as an undergraduate I came to realise that it would be possible to combine this passion with work. I spent a year at the Swiss Federal Institute for Snow and Avalanche research in Davos. We were investigating the formation of wind slab on the snowpack. I met my future supervisor there, and the seed was sown for my PhD, which is how, several years later, I came to be picking bits of sonic anenometer out of a forest on a small island off Scotland. We were studying air flows within and above a forest canopy on a ridge.

One aspect of this project that really appeals to me is the fact that it has applications in wind energy. The world's increasing investment in wind energy is forcing new wind farm sites to areas of greater complexity, for example, forested hills. Numerical air flow models are being developed to predict the yield of these new farms. However, until recently there have been no specific field observations of air flows above forested hills, which makes it impossible to validate the theories on which these models are based. So that was the primary objective of our project - to collect a dataset of flow measurements from within and above a forest on a hill that could be used to validate model simulations.

"Just a week after we constructed the first two masts, they were torn down in some very spectacular winds."

We worked for six months between November and May on the Isle of Arran, a small island about 14 miles off the south-west coast of mainland Scotland. Just a week after we constructed the first two masts, they were torn down in what can only have been some very spectacular winds. The site, when we arrived, truly beggared belief; the metal mounting tripods had buckled, many of the aluminium mast sections had sheared, instruments, steel cabling and remnants of mast were dangling within the canopy. It was another two months before we were able to start logging data again, with slightly shorter masts and fewer instruments.

Despite this setback, and despite the cold, the wet and the occasional extreme wind, it was time incredibly well spent. This dataset is a really exciting step forward in the investigation of air flows within and above forest canopies on complex terrain. It is the first of its kind, collected specifically to study these types of air flows. It allows us to observe the variation of velocity profiles over the ridge. We can study the formation and structure of separated flows on the lee slope of the ridge. It will also allow us to study how the structure of turbulence within the forest canopy is affected by the presence of orography. This last, as we learnt rather painfully early on, is clearly a very important consideration when developing new wind farm sites if the turbines are not to meet the same fate as our masts. ■

Rosey Grant completed a Masters in Physics at the University of Bath in 2005. During her degree she also worked with Dr Michi Lehning at the Swiss Federal Institute for Snow and Avalanche Research in Davos, studying the processes involved in the formation of wind slab. In 2011 she completed her PhD, studying forest canopy and atmosphere interactions on complex terrain, and gathering a unique observational dataset of air flow measurements from within and above a forest situated on a ridge. She recently started working for the British Antarctic Survey.

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