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INTERVIEW

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Wind Directions is published five times a year.
The contents do not necessarily reflect the views and policy of EWEA.

Publisher: Christian Kjaer

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Design & production: www.inextremis.be

Cover photo: Comstock

Additional design and photographic input: Jesus Quesada, Jason Bickley

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A truly unreliable power source

By Sarah Azau
Editor



A couple of months ago the desperate actions of a vegetable seller in Tunisia, who set himself on fire when told he could no longer work, led to uprisings not only in Tunisia itself but in nearby Egypt and, more recently, Libya. But even before any action was taken, the global energy supply fears triggered by Egyptian rumblings of discontent had caused oil prices to surge to over \$100 and the share prices on stock markets to wobble. Except those of the oil companies, which did just fine.

Our world is still in thrall to the dark god of oil and the global economy mirrors and accentuates any blip, real or imagined, in its supply.

It is no wonder then that environmentalists and a fast growing number of industrialists have been calling so long and hard for a switch to indigenous renewables. Depending on fossil fuel imports rather than renewable energy is like crossing town to buy somewhat irregularly imported sugary drinks to quench our raging thirst when there is a stream of fresh water in the back garden. It's inconvenient, costly and bad for us, and there's a clean, local and free alternative, but we do it anyway.

As Europe's Heads of State met in February 2011 to discuss energy, it seemed possible that they would put forward proposals for taking EU energy policy towards a healthy, renewables-based future and away from fossil fuels. However, their meeting was marked by leaders' limp reiteration and affirmation of decisions already taken rather than any new initiatives for the post-2020 period.

This showed a disappointing lack of vision. As things currently stand, the EU will meet its renewable energy targets of 20% by 2020 and fulfil the ambitions of the 2009 Renewable Energy Directive, but then face a policy vacuum. Legislation for the years after 2020 is needed if the EU is to reduce its carbon emissions by the pledged amount - 80-95% - by 2050. Chris Rose and myself examine the post-2020 world and what needs to be done to eliminate carbon in the power sector on pp. 30-40.

A question of technology

Talking of the future, it is always exciting to think about the technology we might expect to see a

few years down the line. Who would have predicted 20 years ago (except perhaps the Steve Jobs of the world) that we would one day have phones that could take photos, surf the internet and show us exactly where we are on a map?

In the sphere of wind energy technology, the turbines are also getting more sophisticated – although as phones seem to get smaller, the turbines are getting bigger. On p. 14 I report on the UpWind project which looked at the feasibility of 20 MW turbines.

A year of activities

And in terms of the recent past, we celebrate on p. 50 EWEA's year-long 'Breath of Fresh Air' campaign now coming to a close. Have a look at the photos and find out about the blade in Brussels, the photo exhibition, dancing wind energy figures, high-level public debates, a turbine adoption contest, trips to Switzerland and Copenhagen and so much more. Or go to the website: www.ewea.org/freshair

Finally, you may be reading this at EWEA 2011 (formerly EWEC), our annual event being held this year in Brussels. If you are there, do make the most of the sessions and exhibition, not to mention the networking opportunities. And why not come and find myself and Chris based in the press room with any interesting stories or news for *Wind Directions*? We will also be blogging live from the event on www.ewea.org/blog, and uploading photos and other news onto the event website: www.ewea.org/annual2011.

It is through events like EWEA 2011, where representatives from all sectors of the industry come together with political decision-makers, financial experts and scientists, that we can discuss how to build up the wind energy sector and wean the world off its traditional fuels and onto domestic sources of power, so that Europe, at least, is protected from the shifting sands of carbon-intensive fossil fuels and their unpredictable availability and cost. ■

European wind power growth slowed by financing squeeze

By Chris Rose

Offshore and Eastern Europe new growth drivers for wind power in Europe.

In 2010, wind energy's rate of growth shrank compared to previous years. Strong growth in newer onshore wind markets in Eastern Europe could not make up for the drop in new onshore installations elsewhere.

In 2010, 9,295 megawatts (MW) of wind power capacity, worth close to €13 billion, was installed in the EU. Wind power installations accounted for almost 17% of total new installations in Europe last year, the first year since 2007 that the EU did not install more wind power than any other generating technology. Installed wind energy capacity increased by 12% to 84,278 MW, compared to the previous year.

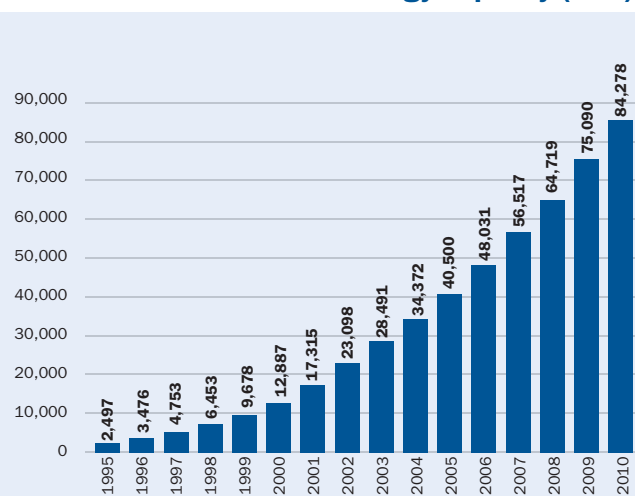


Photo: Iberdrola

Wind energy is growing massively in parts of eastern Europe but less strongly in traditional markets such as Spain

"Remarkable growth in the onshore wind markets of Romania, Poland and Bulgaria could not make up for the decline in new onshore installations in Spain, Germany and the UK. Strong development of the offshore wind market was led by the UK, Denmark and Belgium," said Christian Kjaer, Chief Executive Officer of EWEA.

Cumulative installed wind energy capacity (MW)



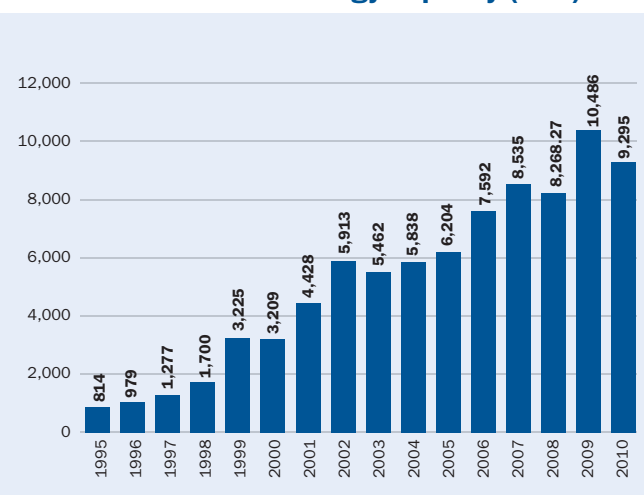
Source: EWEA

According to EWEA statistics, 8,377 MW were installed last year in the onshore wind sector while the offshore sector saw 883 MW being installed.

The EWEA analysis — 'Wind in power - 2010 European statistics' — showed that last year the annual onshore market contracted by 15% compared to 2009, while the offshore market grew by 51% compared to the previous year.

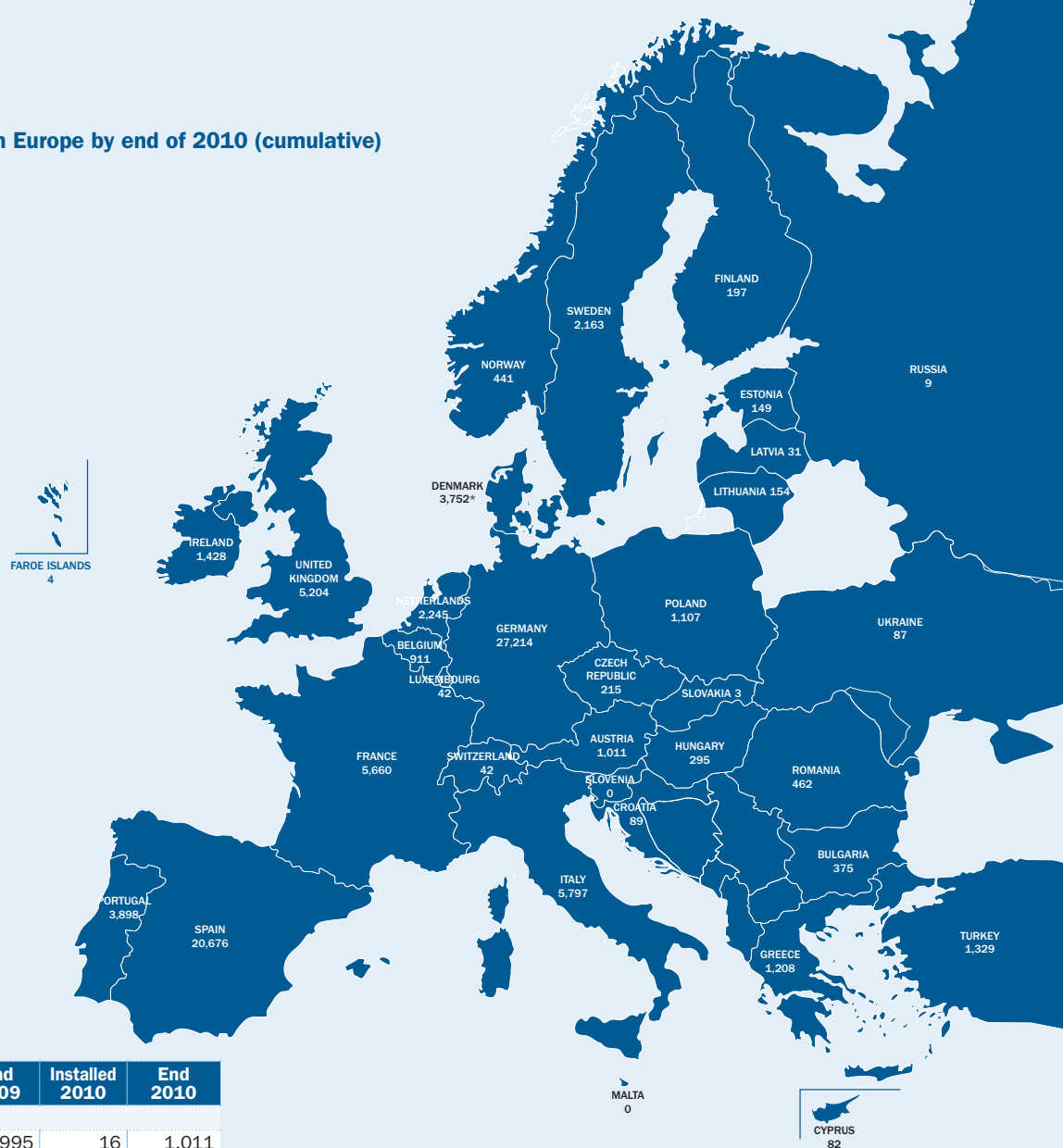
The statistics show that the European wind power industry in 2010 faced some problems caused by the ongoing financial crisis and credit slowdown. The 9,295 MW of additional capacity installed in EU nations last year represents a decrease in the trading bloc's annual wind power installations of 11% compared to 2009.

Annual installed wind energy capacity (MW)



Source: EWEA

Wind power installed in Europe by end of 2010 (cumulative)



	Installed 2009	End 2009	Installed 2010	End 2010
EU Capacity (MW)				
Austria	0	995	16	1,011
Belgium	149	563	350	911
Bulgaria	57	177	198	375
Cyprus	0	0	82	82
Czech Republic	44	192	23	215
Denmark*	334	3,465	327	3,752
Estonia	64	142	7	149
Finland	4	147	52	197
France	1,088	4,574	1,086	5,660
Germany	1,917	25,777	1,493	27,214
Greece	102	1,087	123	1,208
Hungary	74	201	94	295
Ireland	233	1,310	118	1,428
Italy	1,114	4,849	948	5,797
Latvia	2	28	2	31
Lithuania	37	91	63	154
Luxembourg	0	35	7	42
Malta	0	0	0	0
Netherlands	39	2,215	32	2,237
Poland	180	725	382	1,107
Portugal	673	3,535	363	3,898
Romania	3	14	448	462
Slovakia	0	3	0	3
Slovenia	0.02	0.03	0	0.03
Spain	2,459	19,160	1,516	20,676
Sweden	512	1,560	604	2,163
United Kingdom	1,077	4,245	962	5,204
Total EU-27	10,486	75,090	9,295	84,278
Total EU-15	10,025	73,516	7,997	81,406
Total EU-12	461	1,574	1,298	2,872
Of which offshore and near shore	582	2,064	883	2,946

Note: Due to a difference in methodology, some figures in this table may differ from figures communicated by national wind energy associations

*2010 figures are provisional

European Union: 84,278 MW
Candidate Countries: 1,418 MW
EFTA: 483 MW
Total Europe: 86,279 MW

	Installed 2009	End 2009	Installed 2010	End 2010
Candidate Countries (MW)				
Croatia	10	28	61	89
FYROM**	0	0	0	0
Turkey	343	801	528	1,329
Total	353	829	461	1,290
EFTA (MW)				
Iceland	0	0	0	0
Liechtenstein	0	0	0	0
Norway	2	431	9	441
Switzerland	4	18	25	42
Total	6	449	34	483
Other (MW)				
Faroe Islands	0	4	0	4
Ukraine	4	90	1	87
Russia	0	9	0	9
Total	4	99	1	101
Total Europe	10,845	76,471	9,918	86,279

**FYROM = Former Yugoslav Republic of Macedonia

Note: Due to previous-year adjustments, 106.7 MW of project de-commissioning, re-powering and rounding of figures, the total 2010 end-of-year cumulative capacity is not exactly equivalent to the sum of the 2009 end-of-year total plus the 2010 additions.

What exactly are “megawatts” and what do they mean?

The ability of a wind turbine or power plant to generate electricity - or what is known as its “capacity” - is measured in watts. Watts are very small units, so the terms kilowatt (kW, 1,000 watts), megawatt (MW, a million watts), and gigawatt (GW, a billion watts) are most commonly used.

Electricity production and consumption are most commonly measured in kilowatt-hours (kWh). A kilowatt-hour means one kilowatt (1,000 watts) of electricity produced or consumed for one hour. One 50-watt light bulb left on for 20 hours consumes one kilowatt-hour of electricity (50 watts x 20 hours = 1,000 watt-hours = 1 kilowatt-hour).

A turbine with a capacity of 2.5–3 MW can produce more than 6 million kWh in a year – enough to supply 1,500 average EU households with electricity.

Want to know more? Find answers to all your wind energy FAQs on www.ewea.org by clicking on ‘About’ and ‘About wind energy’.

Doubling the money

The EWEA analysis was published the same day as the European Commission presented its Communication on the progress of renewable energy in the EU.

Presenting the Communication, EU Energy Commissioner Günther Oettinger said Europe will have to double its spending on renewables if it wants to meet its 2020 energy commitments.

“Some Member States have made progress and are in line to meet their targets, or have gone beyond them, but some are lagging behind,” Oettinger said. “We’re on the right track but we have to step up the pace.”

To achieve the EU’s energy goals, Oettinger called for a doubling of capital investments in renewable energies from €35 billion to €70 billion.

The EWEA analysis showed that total investments in new wind power plants last year were unchanged at nearly €13 billion, compared to 2009, due to the larger share of offshore wind capacity. The analysis showed that €10.1 billion was invested in onshore wind during 2010, while the offshore wind power sector accounted for about €2.6 billion.

“The 2010 figures are a reminder that we cannot take for granted the continued growth of the European wind energy market”, commented Kjaer. “Better access to financing is urgently needed, and the European Union must act without delay to maintain Europe’s leadership in wind power and other renewable technologies given the ambitious challenges from abroad.”

Newer markets

Annual installations of wind power have increased steadily over the last 15 years from 814 MW in 1995 to the 9,295 MW in 2010, the analysis noted, adding that represents an annual average market growth of 17.6%.

The overall market for new renewable power capacity, including wind, solar, hydro and biomass, reached record levels in 2010, increasing 30% from 17.5 GW in 2009 to 22.6 GW in 2010. Renewable energy accounted for 41% of all new installations.

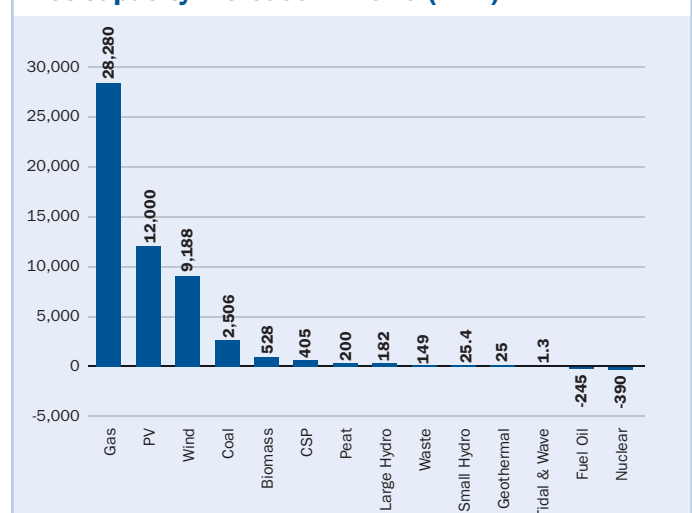
Last year was the first year since 2007 that the EU did not install more wind power than any other generating technology.

The EWEA analysis indicated the EU continues to move away from fuel oil and nuclear power for electricity production, decommissioning more old capacity than installing new capacity. However, for only the second time since 1998, the EU installed more coal power capacity than it decommissioned in 2010.

With regard to all new electricity generating capacity, 55.4 GW was installed last year, compared to 27.7 GW in 2009. Gas represented 51% of all new power capacity in 2010. Solar PV, which came in second, installed 12 GW (21.7% of total capacity), followed by wind with close to 9.3 GW, according to the analysis.

In addition, 4,056 MW (7.3%) of coal, 573 MW (1%) of biomass, 405 MW (0.7%) of CSP, 208 (0.4%) of large hydro, 200 MW (0.4%) of peat, 149 MW (0.3%) of waste, 145 MW (0.3%) of nuclear, 25 MW of small hydro, 25 MW of geothermal, and 1.5 MW of tidal and wave capacity were installed. Significantly, no fuel oil capacity was added in the EU during 2010.

Net capacity increase in 2010 (MW)*



*The ‘net’ value takes decommissioned capacity into account. This is why the figures in the graph are smaller than those mentioned in the text above.

Source: EWEA

Country matters

In terms of annual wind power installations, Spain was the largest market in 2010, installing 1,516 MW, compared to Germany’s 1,493 MW. France was the only other country to install over 1 GW (1,086 MW), followed by the UK (962 MW) and Italy (948 MW). Sweden (604 MW), Romania (448 MW), Poland (382 MW), Belgium (350 MW) and Portugal (345 MW) also all performed strongly and, for the first time ever, two new Member States (Poland and Romania) are among the top ten largest annual markets. Offshore installations accounted for 9.5% of total EU installations in 2010.

Germany remains the EU country with the largest installed capacity, followed by Spain, France, the UK and Italy. Eight other countries have over 1 GW of installed capacity: Portugal, Denmark, the Netherlands, Sweden, Ireland, Greece, Poland and Austria. For more information on the individual countries, see the wind map on p7.



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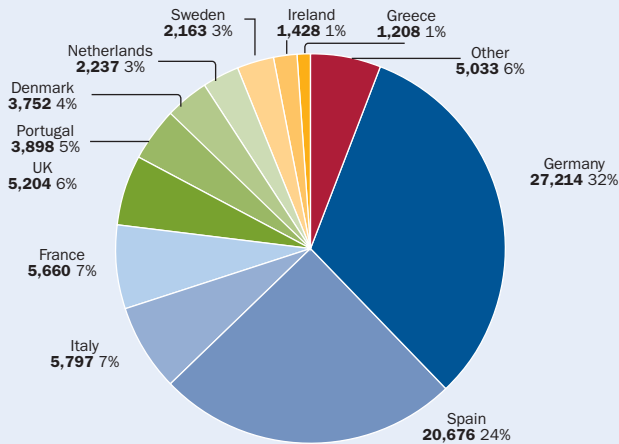
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The wind power capacity installed by the end of 2010 will, in a normal wind year, produce 181 TWh of electricity (up from 163 TWh), meeting 5.3% of overall EU electricity consumption (4.8% in 2009).

Denmark is the country with the highest penetration of wind power in electricity consumption (24%), followed by Spain (14.4%), Portugal (14%), Ireland (10.1%) and Germany (9.3%).

Installed wind energy capacity by country by end 2010 (MW)

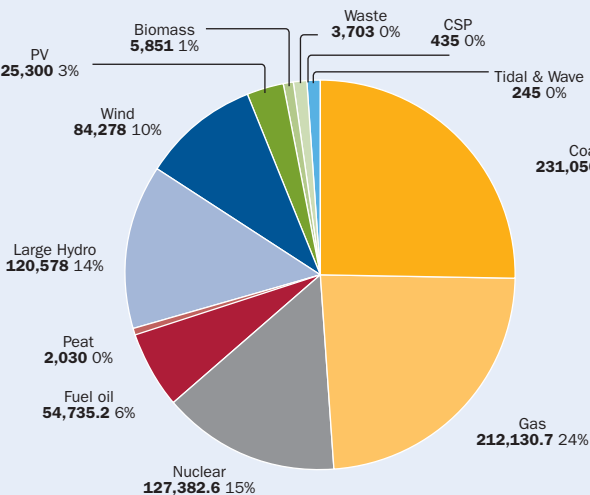


Source: EWEA

Overall, 2010 was a record year in the EU with 55.4 GW of new electricity generating capacity installed, more than double 2009 installations (a 102% increase).

Last year was also the fifth year in a row that wind power and other renewables represented more than 40% of total new EU electricity generating installations.

Total installed capacity per technology by end 2010 (MW)



Source: EWEA and Platts

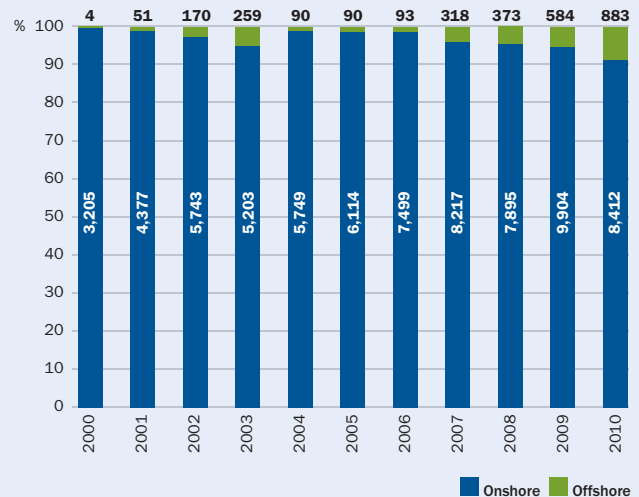
Out at sea

The still developing offshore sector seems poised to begin realising its considerable potential sooner rather than later.

The amount of installed offshore wind capacity added last year (883 MW) was significantly bigger than in 2009 (582 MW), which was greater than in 2008 (357 MW). And 2011,

according to predictions from EWEA, is expected to continue this same upward trend. EWEA forecasts that between 1,000 and 1,500 MW of new offshore wind capacity will be fully grid connected in Europe's northern waters this year.

Annual installed onshore and offshore wind capacity (MW)



Source: EWEA

Ten wind farms, totalling 3,000 MW, are currently under construction, EWEA notes, adding upon completion Europe's installed offshore capacity could increase to 6,200 MW. Another 19,000 MW are currently fully consented.

Announcing the 2010 offshore statistics in mid-January, EWEA noted 308 new offshore wind turbines were installed last year, which represented an increase of 51% in installed wind power capacity over 2009.

The 883 MW of new capacity, worth some €2.6 billion, was installed in 2010 in nine wind farms in five countries, making a cumulative total of 2,964 MW.

The installed offshore wind power capacity now supplies the equivalent of 2.9 million average EU households with electricity — comparable with the amounts of power consumed by the cities of Berlin and Brussels together — from a total of 1,136 offshore wind turbines. In a normal wind year they would produce 11.5 Terawatt hours (TWh) of electricity.

"With over 50% percent market growth, 2010 sets a new record for European offshore wind energy," Kjaer said.

"Meanwhile, the 29 new offshore turbine models announced during 2010 show a growing commitment to the offshore wind energy sector by large, global industrial players, offering a real boost for Europe's economy, its efforts to tackle climate change, create green jobs and exports while reducing our dependence on imported fuel".

Following the trends

EWEA's annual offshore statistics — published as 'European offshore wind industry - key trends and statistics 2010' — show that work was carried out on 18 offshore wind farms last year. Nine wind farms were completed, eight of which were fully grid-connected. One wind farm was partially

completed and grid-connected. In four other projects, work has begun but no turbines were connected during 2010. Preparatory onshore work was carried out for four other projects.

Britain was the European and world leader in offshore wind, with a total installed capacity of 1,341 MW. The UK is followed by Denmark (854 MW), The Netherlands (249 MW), Belgium (195 MW), Sweden (164 MW), Germany (92 MW), Ireland (25 MW), Finland (26 MW) and Norway with 2.3 MW.

"In 2010, Thanet in the UK became the biggest offshore wind farm in the world with a capacity of 300 MW installed," the report noted. "In 2009, Horns Rev 2 in Denmark was the biggest offshore wind farm with a capacity of 209 MW. The third biggest offshore wind farm is also in Danish waters, and was connected to the grid in 2010 — Rødsand 2 (207 MW)."

Britain also has the largest number of offshore wind farms (13) and the largest number of turbines (436). Denmark has 12 wind farms and 400 turbines. The Netherlands has four offshore wind farms and 128 turbines.

Unlocking finance

In terms of other highlights, EWEA noted 2010 saw two major deals come to financial close: Thornton Bank C-Power (325 MW) and Trianel Wind Farm Borkum West II (200 MW). Both projects use turbines of 5 MW or more

"Finance remains a big challenge but we are seeing improvements with more banks and other financing institutions ready to invest in large offshore wind projects," Kjaer said.

The report pointed out last year saw the arrival of financial investors — pension funds — as investors into the sector, with two notable transactions in the second half of 2010.

European wind energy in 2010: an overview

- 9,295 MW of wind power capacity (worth €12.7 billion) was installed in the EU during 2010, down 11% compared to the previous year.
- 8,412 MW of the new capacity was onshore, 883 MW offshore.
- Wind power accounted for 16.8% of total 2010 European power capacity installations.
- Wind power increased its cumulative installed capacity to 84,278 MW (9.6% of EU power capacity).
- Annual installations of wind power in Europe have increased on average by 17.6% over the last 15 years.
- Germany remains the EU country with the largest installed capacity, followed by Spain, Italy, France and the UK.
- The wind capacity installed by the end of 2010 would in a normal year produce 181 TWh of electricity, representing 5.3% of electricity consumption.

Offshore wind last year experienced a flow of investment announcements from utilities which have continued to increase their balance sheet commitments to the sector, the report said, adding national and international finance institutions such as

Global wind energy in 2010: an overview

- 35,800 MW of wind power capacity (worth €47.3 billion) was installed in the world during 2010, down 7% compared to the previous year.
- Wind power increased its cumulative installed capacity to 194,400 MW.
- For the first time in 2010, more than half of all new wind power was added outside of Europe and North America, mainly due to China which accounted for nearly half the new wind installations (16.5 GW).
- The US, traditionally one of the strongest wind markets, saw its annual installations drop by 50% from 10 GW in 2009 to just over 5 GW in 2010.
- However, China and many other countries increased their wind capacity growth, including India, which added 2.1 GW in 2010, Brazil (326 MW), Mexico (316 MW), and 213 MW were installed in North Africa (Egypt, Morocco and Tunisia).
- Wind energy now provides 2.5% of the world's electricity.

Source: GWEC

the European Investment Bank (EIB) and export credit agencies have been critical for the development during a critical juncture.

"They are likely to remain active in the sector in the near future, providing critical liquidity at a low cost, and will help ensure that a smooth transition can be engineered towards a more mature market when commercial banks are able to do large transactions without them", said the report.

It added that European manufacturers are developing 6 and 7 MW prototypes, including dedicated offshore concepts, while foreign companies are mainly developing 5 MW turbines.

A bit of networking

A future offshore grid at the centre of EU energy policy came closer to realisation, the report said, with the signing of the memorandum of understanding by the North Seas Countries' Offshore Grid Initiative, and the European Commission's Communication 'Energy infrastructure priorities for 2020 and beyond - A Blueprint for an integrated European energy network.'

The report also noted that significant steps were taken in 2010 on planning, financing and constructing specific offshore cables – in particular NorGer, CobraCable, East-West interconnector, BritNed, NorNed 2, UK/Norway, Kriegers Flak, and NordBalt.

Ten European wind farms are currently under construction with a total of 3,000 MW – these will more than double the installed capacity in the 45 already grid connected offshore wind farms.

EWEA research also shows that, if constructed, the 19,000 MW of offshore wind capacity already fully consented would generate 66.6 TWh of electricity in a normal wind year — enough to supply 14 of the largest capitals in Europe with electricity, including Paris, London and Berlin. Not included in this figure is large additional offshore wind energy capacity planned but not yet fully consented in the UK.

More information: www.ewea.org ■



Connecting the compass points

By EU Energy Commissioner Günther Oettinger

The Commissioner argues that an extended power network is needed to optimise the use of renewables in Europe and create an internal energy market.

“Networks are the arteries of our energy system.”

Renewable energy, whether generated off the German coast or from solar panels on the roof of your own home: these days, more than just about any other energy sector, this is where investment is going. In 2009 alone, renewable energy accounted for 60% of new, additional electricity production in Europe. And rightly so: if

we want to achieve our energy and climate targets and maintain our technological lead, then we must invest heavily. For the independent index for renewable energy shows that other countries are in the forefront: it's not Europe, but China and the United States that are currently the best investment locations for renewable forms of energy.

But investing in wind farms, water power or solar energy alone will not be enough: the electricity produced by wind in the North Sea or sun in Spain must find its way to the consumer. We need new electricity connections between south and north, east and west, because economically it is certainly more attractive to produce solar energy in Spain, with twice as many hours of sunshine as Germany, and to produce wind energy in the North Sea rather than anywhere else – and to transport that electricity via power lines to where it is consumed most, in conurbations and cities such as London, Paris or Hamburg. Only if we make optimum use of these geographical advantages and attain a critical mass in production can we reduce costs significantly. We also need storage capacity and smart electricity meters, enabling supply and demand to be optimised so that consumers can save money, for example through favourably priced night time electricity.

Günther Oettinger was born in 1953 in Stuttgart, Germany.

- He was a member of the youth organisation of the Christian Democratic Union (CDU) party and became chairman in Baden-Württemberg from 1983 to 1989. He became a member of the State parliament of Baden-Württemberg in 1984.
- From 1991 to 2005 he was leader of the CDU parliamentary party.
- From 2001 to 2005 he was chairman of the CDU party in North Württemberg. He was also chairman of the federal committee for media politics of the CDU.
- In April 2005 he replaced Erwin Teufel as Minister President and Chairman of the Baden-Württemberg CDU, and was re-elected in 2006.
- On 24 October 2009, Angela Merkel's government nominated Oettinger to become a Commissioner in the next European Commission. He stepped down as Minister President of Baden-Württemberg and took office as EU Energy Commissioner on 10 February, 2010, replacing Latvian Andris Piebalgs.



Commissioner Oettinger flanked by EWEA's Christian Kjaer and GWEC's Klaus Rave at EWEA's 2010 event in Warsaw

Photo: EWEA

“If we want to achieve our energy and climate targets and maintain our technological lead, we must invest heavily.”

But there is also a huge need for investment in gas networks, above all in order to guarantee security of gas supply. Here, too, we need a genuine internal market and further diversification of the European gas supply via new supply routes in the Caspian region.

A European vision

If each Member State makes its own plans, however, we stand little chance of creating an internal market in energy. We need a European vision and a long-term strategy on how the energy infrastructure is to look in the coming decades, or at least the next 20 years. To that end, the European Commission presented its infrastructure plan last November. The aim is to define what we need by way of energy infrastructure in order to have clean and safe energy and, beyond that, to be competitive in this area. We therefore designated projects of European significance and analyse the preconditions which will have to be met for those projects to be implemented.

These preconditions include, for example, a simplified planning and approval procedure, as was adopted in Germany after unification in order to facilitate construction projects in the new Länder. The EU can only suggest this, not lay it down. But we can see that, for example in the Netherlands, matters are already greatly facilitated for project developers if the authorities have a central office coordinating all approval procedures for their project. But full account is still taken of environmental and citizens' interests. More efficient procedures in no way mean denying people their say.

What exactly is an EU Commissioner?

The EU is governed by several different institutions. The European Commission is the institution responsible for proposing EU laws, implementing decisions, upholding the Union's treaties and the general day-to-day running of the EU.

The Commission is made up of 27 Commissioners, one per EU Member State. The Commissioners represent the interests of the EU rather than their home countries. One of the 27 is the Commission President (currently José Manuel Barroso) appointed by the European Council. The other 26 Commissioners are nominated by their national governments and appointed by the European Council and the nominated President, subject to approval from the European Parliament. Each of the Commissioners apart from the President has a portfolio (such as energy, development, environment).

The investment issue

Then there is the question of funding. It is estimated that over the coming ten years around €200 billion need to be invested in electricity and gas. Can the market take care of this on its own? It is clear that this investment must be made first and foremost by businesses. But there will be cases where it is not worthwhile for firms to expand the networks because the market is simply too small. This applies, for example, to the Baltic countries or Malta. We will therefore also have to discuss whether, in such cases, the EU will provide funding for connecting pipelines.

My aim is to bring Europe closer to the long held vision of a European energy policy based on a sound network. Networks are the arteries of our energy system. By investing in them, we will be investing in the economy and helping consumers. ■

“If each Member State makes its own plans, we stand little chance of creating an internal market in energy.”

On the way up

Wind turbines have been increasing in size ever since the industry took off. These days, offshore farms are seeing machines of 5 MW or more with rotor diameters that are longer than a football pitch. But is it economically viable to keep increasing in size? And how much bigger can turbines realistically get? The EU-funded UpWind project has been researching the answers to such questions.

By Sarah Azau

“If you scale up to the power of two, the weight goes up to the power of eight.

This means you’ve got eight times as much cost!”

20 MW turbines are technically feasible and could be the most cost efficient option for expanding Europe’s offshore wind energy capacity. That’s according to the just-published results of UpWind, the largest EU-funded wind energy project ever.

The project, financed by the EU’s sixth Framework Programme, had over 40 partners and ran for five years, and explored the design limits of the upscaling and integration of turbines. This included a design of a 20 MW turbine.

“UpWind was about seeing what is technically feasible in terms of bigger turbines, and incorporating all the different aspects into one model so that researchers know what to work towards”, explains Jos Beurskens from the Netherlands’ Energy Research Centre (ECN), who led UpWind along with Peter Hjuler from Danish research institute Risø DTU.

The thinking behind the project was the large amounts of offshore wind power expected in Europe in the near future. In order to meet EWEA’s target of 33% electricity from wind energy by 2030, 400 GW of installed capacity will be needed, including 150 GW offshore. By 2050, this should increase to 400 GW, with 350 GW offshore.

To meet the required amounts, offshore wind energy needs to become more cost effective, and one way of doing this is through “upscaling” - that is, taking a current wind turbine design and increasing all the measurements proportionally.

The enlargement question

UpWind initially created a computer model of a 20 MW turbine by taking a 5 MW turbine design from the US’s national renewable energy laboratory (NREL) and scaling it up to 20 MW. However, this was quickly revealed not to be the best option.

“The extrapolated virtual model was unanimously assessed as almost impossible to manufacture, and uneconomic”, explains the project report. This is because increasing the size of the turbine has an impact on more than just its height and rotor diameter.

“Upscaling the rotor by a factor of two gives a rotor area of four times the original, which means a 5 MW turbine becomes a 20 MW turbine”, explains Bernard Bulder from ECN, who led the upscaling work package for UpWind. “However, scaling laws show that if you scale dimensions to the power of two, the weight goes up to the power of eight. This means you’ve got four times as much energy but eight times as much weight, and therefore, cost!”

The project partners therefore began investigating innovations that could potentially make the larger turbine more cost efficient. One thing they tried to tackle, for example, was the overly strong ‘load effect’ – the resistance the blade encounters in the air as it moves - on the larger blades.

“Rather than using full pitch control, as we do now, where the whole blade can be controlled and moved depending on the wind, we found that with

Turbines can get bigger and more cost efficient

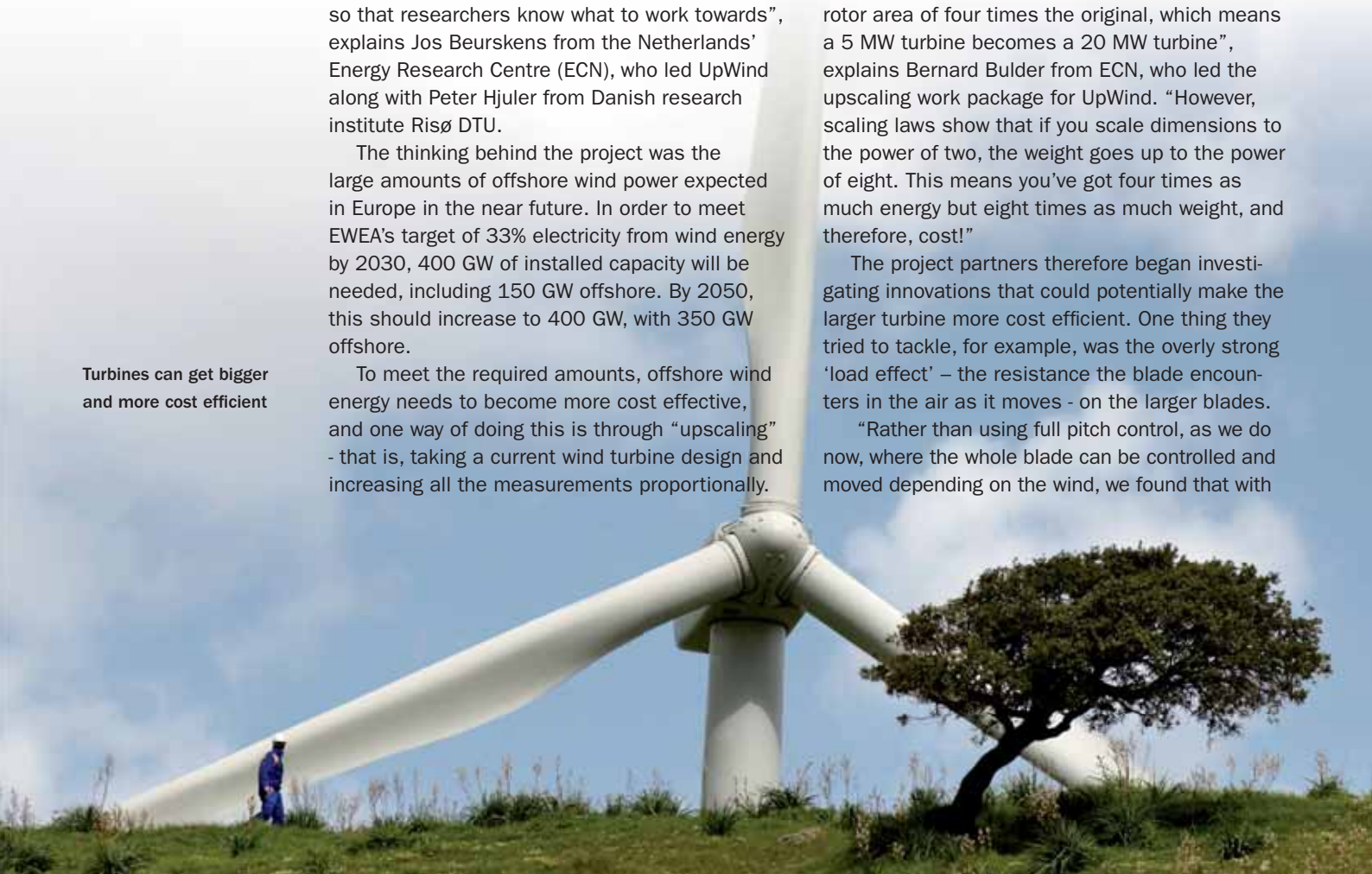


Photo: ENEL Green Power

the really large turbines we have to mimic an aeroplane or a bird, using smart control on a blade that has a 'flap' on its trailing edge that moves separately", explains Beurskens. It was found that this could reduce the weight of the blade by up to 25%.

While this model seems to work in the lab, the difficulty is in knowing in reality what would happen, and above all, the effect on the cost and weight of the blade.

"With innovations like the rotor blade flap we're adding complexity, so we need to study the effect on reliability and also on costs of maintenance", explains Bulder. "With an aeroplane, the wings get checked before every flight. But once this device is on a turbine rotor, it is very difficult to carry out such checks – especially when it's offshore."

UpWind looked at many different components of a wind turbine and how they should be designed for a bigger machine. It examined support structures (this refers to everything below the rotor blade), wind farm layouts and ways of monitoring how the turbine is doing ("condition monitoring technologies") and whether it is likely to encounter problems ("fault prediction systems"). More information on the project results can be found in the box opposite.

However, one issue the project groups ("Work Packages") came across was how to work out which of their design innovations are compatible with which others, and which would add unnecessary complexity. Bulder gives the example of a smart controlled blade and LIDAR, the laser-based measuring system also investigated by UpWind that, installed on a wind turbine, could give information on the characteristics of the wind two or three seconds before the gust arrives at the turbine so that the rotor can be adapted. Will these two systems work together and what will be the combined effect? The next stage would be to investigate such questions of compatibility.

A complicated business

Overall, many elements of the design and costs of the 20 MW turbine turned out to be more complex than expected at the start, explains EWEA's Dorina Iuga, in charge of communication and dissemination for the project.

"We are now working on a model that will integrate all the work of the different researchers in order to find the optimal combination for cost effectiveness", says Beurskens. "This way, the researchers will be able to see, for example, that a certain type of material – lighter than the current fibreglass – is needed for the blades, and work towards it".

Tell me more

UpWind was such a wide-ranging project that it is impossible to provide an overview of all its results in just two pages (the full report is available on www.ewea.org). But for Beurskens some of the key developments, aside from those mentioned above, include:

Wind farm design: it was discovered that it may be more efficient to place wind turbines in a farm in a stochastic, that is, 'random' way, as this lessens the effect a turbine has on the others nearby. This may mean today's regularly spaced wind farms will disappear.

Support structure: UpWind also paved the way for potentially significant cost reductions concerning the support structure – that means all of the turbine below the nacelle, including the foundation – of larger machines. Deeper water and larger turbines require a bigger, heavier support structure which increases in complexity and costs. Because UpWind integrated the different elements into one overall turbine design, it should be feasible to design a more cost efficient support system for the turbine.

Cost of electricity: the UpWind team has also been working on an instrument that will show the change to the cost of electricity when parts of the turbine are modified.

The 20 MW turbine design may well be feasible, but it sounds as though it is not about to go on the market. Realistically, when can we expect

to see these giants rising out of the waves? While Bulder believes the current trend of increasing sizes will become less dramatic, and the smaller 10 MW machines will only become commercially available by the end of the decade, Beurskens is more optimistic about the prospects for the 20 MW turbine.

"I can only give an intuitive answer, but I believe we'll see the 20 MW turbines used within 10 years," he says. "That is, providing they are the

cheapest option."

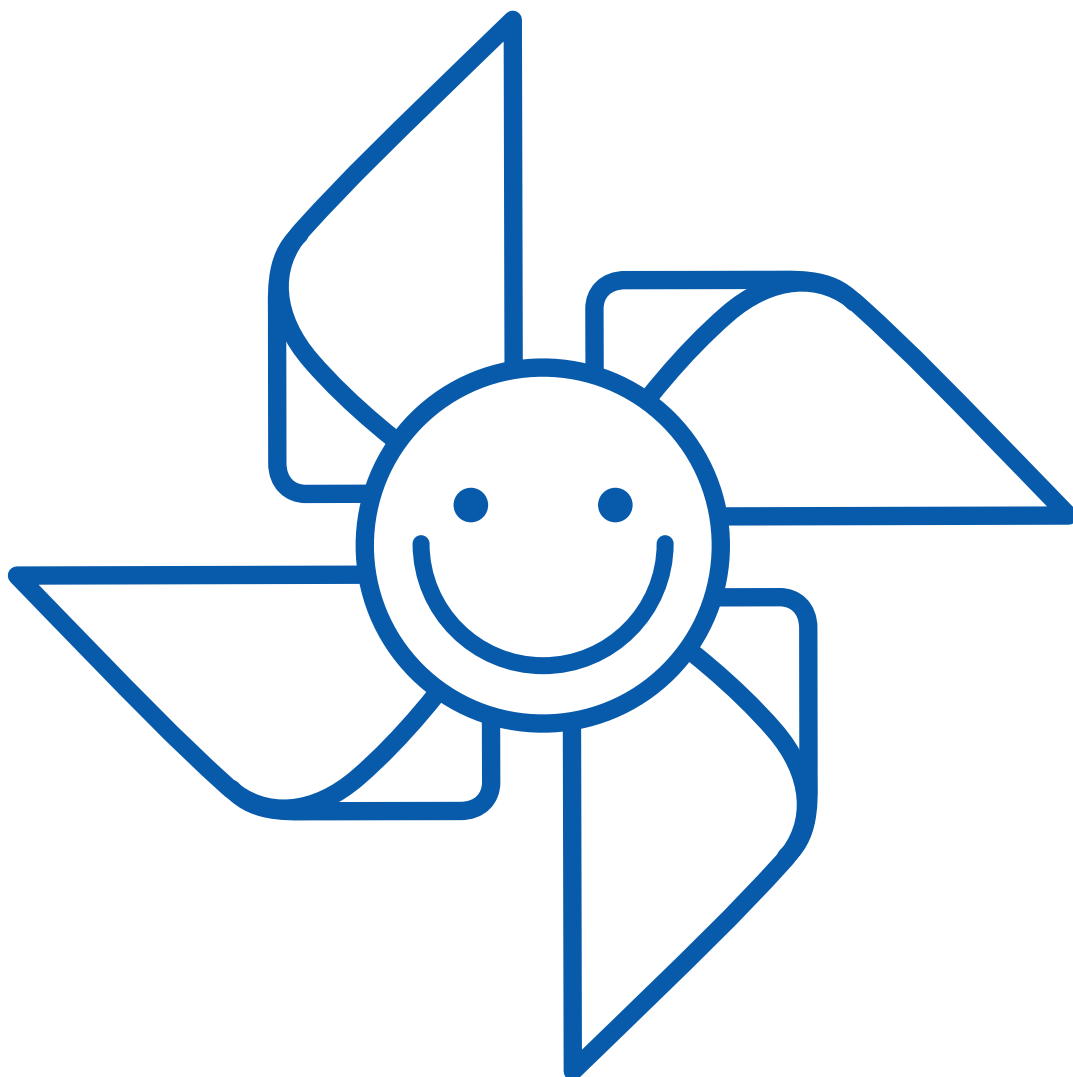
And now...

Overall, what UpWind showed is that there are various ways in which a 20 MW turbine could be designed and made cost effective. The next stage is to try and build up the integrated cost model by taking the information out of the lab, applying it to real turbines to see what happens and work out the way to produce the most efficient 20 MW machine at the least cost.

"We found that with the really large turbines we have to mimic an aeroplane or a bird."



Find out more: www.ewea.org; www.upwind.eu ■



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Heads of State and companies support single electricity market

On 4 February the 27 EU Heads of State concluded at a summit on energy that “legislation on the internal energy market must be speedily and fully implemented by Member States” by 2014. As part of this, Europe’s energy infrastructure must be expanded and interconnected, the statement said.

“No EU Member State should remain an energy island after 2015 or see its energy security jeopardised by lack of the appropriate connections”, it added. Although many of the original energy-related topics got pushed off the agenda by the crisis in Egypt, Heads of State supported the bulk of the important financing costs for infrastructure investments being delivered by the market, with costs recovered through tariffs, but with public finance for priority projects.

Prior to this, EWEA launched a declaration asking European leaders to show the same determination in achieving a single market in electricity as those of 25 years ago did when they adopted the Single European Act which created free


movement of goods, services, people and capital.

Describing the benefits of a single electricity market, such as increased competition, security of supply and clean renewables in the energy mix, signatories called on the EU to develop “the infrastructure to transport electricity from one part of Europe to another, and a common set of market rules” to enable this market to function.

The same week, EWEA also organised a public debate on the single energy market, with 100 participants and speakers including representatives of the European Commission, the electricity industry and consumers. For more see p. 50.

“It is good to see that Europe’s Heads of State realise the importance of a single energy market and the fundamental role an interconnected grid will play in creating it. Now the European Commission needs to propose the legislation to make this happen, and ensure it is implemented”, commented Justin Wilkes, EWEA’s Policy Director.

In 25 years Europe has changed a lot...



when will it have a single electricity market?

A Europe without its single market is unthinkable. It has boosted trade, competition and prosperity in Europe, created millions of new jobs, provided wider consumer choice, and a hugely expanded market for business.

But 25 years after the signing of the Single European Act there is still no single market in electricity.


European legislation has guaranteed some choice of electricity provider, but only 5% of Europe’s electricity is traded across borders. As a consequence, competition is inefficient and allows electricity suppliers to pass any increase in the price of the coal, gas - or in the future carbon - straight onto the consumer without risk of significant loss of business. This is not acceptable.

A properly functioning European market in electricity would have many benefits:

- increased competition leading, in the long term, to reduced electricity prices
- improved security of supply (and reduced risk of blackouts)
- reaping the full advantages of fuel free, pollution free renewable energy sources produced in ever greater quantities in many parts of Europe
- opportunities for increased trade in electricity regardless of the source

In order to achieve a single market in electricity, Europe needs both the infrastructure to transport electricity from one part of Europe to another, and a common set of market rules. An interconnected system of roads, railways, shipping and air routes throughout Europe is a precondition for maintaining Europe’s four freedoms, created by the Single European Act 25 years ago: the free movement of goods, services, capital and labour. Europe needs a fifth freedom – the free movement of electricity across borders – and effective competition and an interconnected electricity grid are key to establishing it.

25 years ago European leaders showed courage and vision by creating a single European market. Today’s leaders must show similar determination in achieving a single market in electricity, and the Heads of State have the opportunity to show such courage and vision by agreeing on 4 February to create a single market for electricity by 2015.



Many leading companies supported EWEA’s statement of support for a single electricity market

Companies supporting the declaration included Acciona, ENEL, Enercon, EON, GE Energy, Mainstream Renewable Power, PPC Renewables, Siemens, Vattenfall and Vestas.

Made in the wind industry

An initiative by leading businesses and non-profit organisations, including the Global Wind Energy Council (GWEC), to develop the first global consumer label for companies using wind energy, has been launched. The initiative, called ‘WindMade’, is “a direct response to increasing consumer demand for sustainable products”, according to GWEC’s press release.

The WindMade concept was launched at the World Economic Forum in Davos by Vestas CEO Ditlev Engel in February.

“We want to build a bridge between consumers and companies committed to clean energy, and give consumers the option to choose more sustainable products”, said Engel. “We hope that this will create a strong element of consumer pull which will accelerate the pace of wind

energy development globally. We strongly encourage forward-looking companies to join us in this effort.”

“Governments are dragging their feet, but consumers want to see change now. The private sector needs to step up to provide the solutions we need to respond to the global energy and climate crises. With WindMade, we want to facilitate the change that the public demands,” said Steve Sawyer, Secretary General of GWEC, and interim CEO of WindMade.

While a recent survey shows that the vast majority of people would prefer products made with renewable energy, there is currently no way of knowing this at a glance.

To use the WindMade label for their communications or products, WindMade

members will undergo a certification process to verify their wind energy procurement. The standard for certification is currently being developed by a technical expert group. The aim will be to drive the development of new wind power plants, over and above what would be developed anyway.

A public consultation will be held from March 2011 to inform the development of the certification standard.

The founding partners of WindMade are GWEC, WWF, the LEGO Group, the UN Global Compact, Vestas Wind Systems, PricewaterhouseCoopers (the Official WindMade Verification Partner) and Bloomberg (the Official Data Provider to WindMade).

More information: www.windmade.org.



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Turbine blades made in Europe
will cost more with the new anti-
dumping duty

Anti-dumping duty on fibreglass approved despite wind industry opposition

The EU Member States have passed a proposed anti-dumping duty of 13.8% on all fibreglass products. EWEA had written to the European Commission expressing its concern on the proposal, which it fears will negatively impact the costs of manufacturing wind turbine blades in the EU. EWEA mobilised its National Association Network as the decision was to be made by the 27 EU countries, on the basis of a proposal from the European Commission. The duty will mean EU-manufactured blades will cost more, which will increase the cost of European manufactured wind turbines compared to turbines made abroad, and so lead to reduced exports and hurt the

European wind turbine manufacturers' and component suppliers' global competitiveness, said EWEA.

"It is disappointing that the permanent anti-dumping duty has been approved by the EU", said Justin Wilkes, EWEA Policy Director. "The added costs will make wind energy less competitive compared with other electricity sources and wind turbine blades manufactured in the EU less competitive than imported blades, thereby impacting negatively on the fight against climate change, energy security and EU employment."

More information on the fibreglass case:
<http://trade.ec.europa.eu>

Spending on renewables must double, says Commissioner

Europe will have to double its spending on renewables over the next few years if it wants to meet its 2020 energy commitments, EU Energy Commissioner Günther Oettinger said earlier this year.

His comments came at the launch of a new communication from the European Commission assessing Member States' progress toward meeting the 2020 targets, which showed they had largely failed to meet their 2010 renewable electricity and transport targets.

To achieve the EU's energy goals, Oettinger called for a doubling of capital investments in renewable energies from €35 billion to €70 billion "over the next few years".

EWEA's Chief Executive Christian Kjaer agreed that "Better access to financing is urgently needed, and the European Union must act without delay to maintain Europe's leadership in wind power and other renewable technologies to ambitious challengers from abroad."

The communication from the Commission on the financing of renewables is a start, but it needs to be followed up quickly by actions, he said.

Read Commissioner Oettinger on electricity infrastructure, p. 12

EU bans use of international carbon credits from HFC CDM projects

The European Council's Climate Change Committee has voted to ban the use of credits from the reduction of Hydro-Fluoro-Carbon 23 (HFC23) emissions in the EU's Emissions Trading System (ETS). For the wind energy industry, this is a welcome development which will help ensure the efficiency and integrity of the ETS.

Over recent years, the reputation of the ETS's 'clean development mechanism' (CDM) - which allows the EU to work towards its climate targets by financing emissions reduction projects in

non-EU countries - had been tarnished by reported abuse of the HFC23 credits system.

Companies that produced HFC23 - a greenhouse gas 1,000 times more potent than CO₂ - as a by-product, qualified for carbon credits. However, as the HFCs could be destroyed at a lower cost than the value of the credits, the companies were then able to sell the credits back to the market and make money.

"The decision will help ensure economically efficient emission reductions through the ETS and CDM",

commented Rémi Gruet, EWEA's Senior Regulatory Affairs Advisor. "It will also ensure the environmental integrity of the ETS by avoiding the current situation whereby companies can abuse the HFC possibility."

Another positive impact from the ban is that, in a carbon market currently flooded with credits due to the crisis, the price of carbon is at risk of crashing to zero at some point. The ban on HFC credits will remove a small yet significant amount of credits from the market, which should ease the situation somewhat. ■

“It is my job to remove barriers to wind energy”

Charles Hendry is Minister of State for Energy in the UK. He gave his thoughts on the UK's natural resources, investment from big business and the planned Green Investment Bank to Sarah Azau.



The UK has a renewable energy target of 15% by 2020 which you expect to meet. What contribution will wind energy make?

We have a fantastic natural wind resource here in the UK. We think that by 2020 around two-thirds of our renewable electricity could come from wind – both on and off shore.

But 2020 is not the end of our ambition. We are reforming the electricity market to make the most sweeping changes since privatisation. And we are doing this because we need massive investment in low-carbon, secure and affordable electricity generation, not just for the 2020s but the decades beyond.

The UK is currently world no 1 in terms of installed offshore wind energy capacity. Why do you think the sector has taken off so successfully? What does the future look like?

With the natural resource we have here in the UK it would be disappointing if we were not leading the field in offshore wind capacity.

We need a five-fold increase on 2009 levels to meet our overall EU renewable energy target, so there is a lot of work to be done across a range of technologies.

Going forward though we're keen for the UK to be the number one place to invest in the research, development and deployment in offshore wind. Our recent announcement of up to £60m (€71 million) to support the establishment of

manufacturing bases at coastal locations has prompted a number of positive signals from industry, notably from companies like Siemens, GE, Gamesa and Mitsubishi.

What are the main barriers to wind energy development in the UK? How can they be addressed?

I know that there are areas in which barriers need to be removed, and I see it as my job to do all I can to remove them. I meet regularly with industry as co-chair of the Offshore Wind Developers Forum, which provides a platform for all developers investing in UK offshore wind projects. And the Office for Renewable Energy Deployment (ORED) has the job within Government of ensuring that we meet our targets for renewable energy.

We are making progress with the issue of grid connections, but we know we need to do more on skills and establishing a UK manufacturing base. That's why our funding for ports infrastructure can make a real difference, and why we also have committed to setting up a Green Investment Bank, capitalised with at least £1 billion (€1.18 bn).

Some people in industry have expressed concerns around planning approval for onshore wind farms. In the coalition agreement we made a commitment to reform and streamline the planning framework and to give more powers to communities to shape their surroundings.

This commitment is being taken forward in the Localism Bill, currently being considered by

“We are reforming the electricity market to make the most sweeping changes since privatisation.”



Parliament, and the new National Planning Policy Framework which we plan to consult on later this year. The new National Planning Framework which will apply to developments in England up to 50 MW – including onshore wind – will reflect the importance of planning to cutting carbon emissions and delivering on our climate change and energy security ambitions.

The Localism Bill will also abolish the Infrastructure Planning Commission and return decisions for major infrastructure projects to Ministers. We will ensure that applications transfer seamlessly from the IPC to the new Major Infrastructure Planning Unit so that developers do not have to start the application process all over again.

In the Coalition Agreement we also made clear that local authorities in England, on behalf of individual communities, will be able to retain the business rates generated by renewable energy developments.

Do you have any intentions to review or change the current renewable energy support scheme in the UK, the Renewables Obligation Certificates?

The Renewables Obligation has served us well but we know that more needs to be done to bring forward the rapid deployment of low carbon energy.

As part of the electricity market reform package we are looking at a proposed 'contract for difference' Feed-In Tariff. Under this, the Government will agree clear, long term contracts, resulting in a top up payment to low carbon generators if wholesale prices are low but recouping money for consumers if prices become higher than the cost of low carbon generation.

We are committed to supporting investment in renewables, so we are currently consulting on how we would make a transition from the Renewables Obligation to the new scheme.

Your national renewable energy action plan mentions the possibility of setting up a Green Investment Bank to create financial products to provide opportunities to invest in infrastructure needed to support a green economy. How might this work and how might it affect your renewable energy industry? Do you have any idea of possible timing?

Low carbon investment is a vital part of economic recovery and a Green Investment Bank will be part of ensuring we take full advantage of the opportunities a green growth agenda offers. The GIB will focus on tackling risk that the market currently cannot adequately finance in order to catalyse private sector investment and facilitate the entrance of new types of investor into green infrastructure. We aim to undertake market testing of potential interventions in February and



Photo: GWEC
For the UK, investment in zero carbon sectors is key to economic recovery, creating jobs and building an industry

March, and will announce the detailed design of the GIB by spring 2011, and for it to become operational by September 2012.

Significant grid infrastructure development is being planned at EU level. What do you think of the plans and how will they affect the UK?

It's an exciting concept. An electricity supergrid could take green electricity produced in one country to another through thousands of kilometres of sub-sea cables. Wind farms built out at sea could also be connected to a number of countries.

The Prime Minister also recently announced that Energy Ministers will work together through the North Seas Offshore Grid Initiative and share experience with Ministers in the Baltic Energy Market Interconnection Plan (BEMIP) to ensure planning, market, regulatory and technical challenges are properly addressed and the right framework created for industry to invest in future projects.

The outcome of the Cancun climate summit did not lead to a binding global climate change treaty. In the run-up to this year's meeting in Durban, what do the EU and national European leaders need to do?

A global climate deal is in the UK's national interest and Cancun shows other countries also want to get on with getting an international deal. A global deal on climate change is now back on track.

We now have to use this momentum to make urgent progress and lock down that deal. We will now be pushing Europe to increase its emissions cut offer to 30%. ■

"We're keen for the UK to be the number one place to invest in the research, development and deployment in offshore wind."

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No climate deal in Durban?

By Chris Rose

As international climate change negotiators continue trying to come to a new binding global treaty on limiting and then reducing greenhouse gases, they might stop and reflect a moment on a disturbing scientific trend.

Towards the end of 2010, studies and news reports showed that levels of carbon dioxide in the air had registered at or close to 390 parts per million (ppm), about 40 ppm higher than many scientists, politicians and environmentalists say is the healthy atmospheric limit for CO₂.

Negotiators involved with the climate change mitigation file have known for some time that the level of CO₂ in the atmosphere before the Industrial Revolution began its love affair with coal about 200 years ago was approximately 270-280 ppm.

They also know that scientific studies indicate that if greenhouse gas emissions caused by burning fossil fuels are not drastically and quickly reduced, humankind could expect to experience more than 550 ppm to 1,100 ppm by the end of this century. This would bring with it more deadly thunderstorms, a potential six metres sea level rise, severe fresh water shortages and a vastly hotter, much more inhospitable, planet.

With such a potentially terrible future ahead, many have wondered why the negotiators at last December's UN Conference of the Parties on climate change — also known as COP16 — in Cancun could not find a way to agree on a new legally binding treaty to cut greenhouse gas emissions.

True, the international community in Cancun did reach an agreement on the need to curb global warming and set the world on a path to a more sustainable future. But, as in years gone by, no deal was struck on reducing greenhouse gas emissions caused by burning fossil fuels.

Christiana Figueres, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), noted nations agreed to deploy the money and technology that developing countries need to build their own sustainable futures. The countries also agreed to act to preserve forests in developing nations.

“Only because of the extremely low expectations going into Cancun can it be judged a success.”



Photo: iStockphoto

“They also agreed that countries need to work to stay below a two degree temperature [C] rise and they set a clear timetable for review, to ensure that global action is adequate to meet the emerging reality of climate change,” she said.

Acknowledging that the agreements were much better than the non-binding Copenhagen Accord reached at the 2009 UN climate change conference, many observers noted there is still work to do before negotiators endorse a new emissions reduction treaty to replace the Kyoto Protocol which ends in 2012.

Steve Sawyer, Secretary General of the Global Wind Energy Council (GWEC), gave the Cancun agreements a mild endorsement.

“Only because of the extremely low expectations going into Cancun can it be judged a success, and because the process is now more or less back on track,” said Sawyer.

“The agreements do not actually move us a great deal further down the road towards saving the

climate, but they constitute a renewed commitment by the global community to the multilateral UNFCCC process, and rekindle hopes for a global, binding climate agreement in the future.”

GWEC is calling on governments to re-double their efforts to establish a framework within which greenhouse gas emissions can peak and begin to fall well before the end of the current decade, as science recommends in order to avoid the worst climate change.

“A meaningful climate agreement must move us gradually towards a global price on carbon”

“Failure to deliver on the key outstanding issues will significantly undermine investment in clean energy technologies and other concrete action on mitigation,” Sawyer warned. “A meaningful climate agreement must move us gradually towards a global price on carbon, to enable the private sector to play its key role in financing the energy revolution. The wind industry stands ready to play its part in this revolution.”

Remi Gruet, Senior Regulatory Affairs Advisor for EWEA, agreed with Sawyer and noted that the Cancun conference can only be described as a success because many people were half-expecting the talks to collapse.

“It is certainly good news that they didn’t, since it keeps the [climate change mitigation] topic on the radar, but the progress made at COP16 leaves us a long way from the goal.”

Gruet said, however, Cancun did produce some noteworthy results.

“The idea of a standardisation of procedures to apply for UN money in the form of a Clean Development Mechanism (CDM) was enshrined in a COP decision, after some years of discussion,” he said.

“This means that stakeholders, including wind associations or companies, can propose new methodologies to streamline registration of potential CDM projects, therefore saving time and effort that have been put into the paperwork since the start. Further work will be done to make this happen, but it’s a very good start.”

Gruet added that, considering the slow pace of discussions and a lack of international cooperation, he doesn’t think a new binding agreement will be signed at the COP 17 meeting in Durban in December.

“The main conclusion of Cancun remains that we have pushed back the deadline for a comprehensive, international, legally binding agreement by another year: it won’t happen before 2012,” he noted.

The Guardian newspaper noted that while the Cancun agreements commit for the first time all the major economies to reducing emissions, it was not enough to meet earlier promises of keeping the global temperature rise to 2°C.

“Governments failed to reach agreement on how far overall global emissions should be cut,” the Guardian said. “Researchers from the Climate Action Tracker said the pledges would set the world on course for an average 3.2°C warming and a potential 4°C – a catastrophe for many of the poorest countries.”

“The main result of Cancun is that we have pushed back the deadline for a legally binding agreement by another year.”

One of the most critical reactions to the Cancun conference came from Friends of the Earth, which said the agreements could lead to a devastating 5°C warming. “This is a slap in the face of those who already suffer from climate change,” said Nnimmo Bassey, chair of the environmental group.

In late December, The New York Times published a story about the Mauna Loa Observatory in Hawaii which measures the levels of carbon dioxide in the air.

“On 11 December, another round of international climate negotiations, sponsored by the United Nations, concluded in Cancun,” the story said.

“Late at night, as the delegates were wrapping up in Mexico, the machines atop the volcano in the middle of the Pacific Ocean issued their own silent verdict on the world’s efforts.

“At midnight Mauna Loa time, the carbon dioxide level hit 390 [ppm] — and rising.”

By mid-January, Secretary-General Ban Ki-moon was encouraging climate change negotiators to build on the Cancun agreements.

Listing climate change as one of the eight priorities for 2011, he noted advances made at the Cancun meeting on reducing greenhouse gas emissions, forest protection, climate finance, adaptation and technology.

“Once again, there is much to build upon,” Ban said. “Let us lead with action.”

Several days later, Ban called for a global revolution to address the world’s energy challenges.

“Our challenge is transformation. We need a global clean energy revolution – a revolution that makes energy available and affordable for all,” said Ban, adding that the prevailing fossil fuel-based economy is contributing to climate change.

“This is essential for minimising climate risks, for reducing poverty and improving global health, for empowering women and meeting the

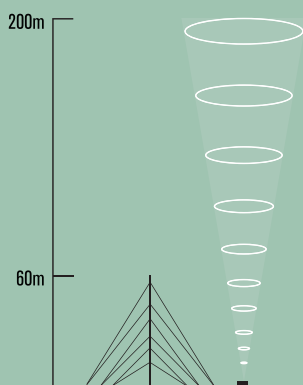
Millennium Development Goals, for global economic growth, peace and security, and the health of the planet,” he was quoted as saying.

As a footnote, it’s worth pointing out that in late January the World Meteorological Organisation (WMO) announced that 2010 ranked as the warmest year on record, together with 2005 and 1998. A press release noted data received by the WMO show no statistically significant difference between global temperatures in 2010, 2005 and 1998.

“The 2010 data confirm the Earth’s significant long-term warming trend,” said WMO Secretary General Michel Jarraud. “The ten warmest years on record have all occurred since 1998.” ■

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A closer look at Austria...

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

By Chris Rose

The development of wind energy in Austria is expected to take off again in 2011 after almost four years of stagnation, according to the country's wind energy association.

Eight wind turbines with a total capacity of 16 MW were installed in Austria in 2010, IG Windkraft said. EWEA's recent statistics show that the 625 wind turbines in the country by the end of the year had a total cumulative capacity of 1,011 MW. These produce 2.1 TWh of electricity, which represents 3.9% of Austrian electricity production and can supply the equivalent of approximately 600,000 households.

IG Windkraft CEO Stefan Moidl expects 120 MW to be installed this year.

"In the eastern region of Austria, especially in the province of Burgenland and in the eastern part of Lower Austria, we have outstanding wind conditions," Moidl said. "Although a landlocked country, Austria has very good wind speeds."

The report added that proposed wind farms with a total of 780 MW capacity have obtained all planning permits and have applied for a contract. Those wind farms could be built in the next few years, depending on changes in the Green Electricity Act (GEA).

The Ökostromabwicklungsstelle (OeMAG) is in charge of buying green electricity at the feed-in tariff and selling it to the electricity traders. The OeMAG has to give contracts to green electricity producers as long as there are enough funds for new projects.

The association and the International Energy Agency (IEA) have noted that a new feed-in tariff was fixed (0.097 €/kWh)



for projects that applied for a purchase agreement before the end of 2010.

The IEA added that an amendment to the Austria's GEA that finally took effect in October 2009 has helped improve the climate for wind park planners and raises funds for new green electricity projects.

"The feed-in tariff is set by an ordinance of the Ministry for Economic Affairs and not fixed in the GEA itself," the IEA report says. "The tariff is applicable only for the year 2010; in 2011 a new tariff will be fixed bringing some uncertainty for investors."

The IEA expects Austria to realise at least 160 MW of new wind capacity by the end of the year.

The GEA set the country a target of 15% of renewable energy supply without large hydro and a specific target of an additional 700 MW of wind power capacity by 2015.

IG Windkraft says one of the major problems for wind energy producers has been that the €21 million earmarked annually for the feed-in-tariffs is too low

for all of the 780 MW of proposed wind power capacity that applied for contracts. The feed-in-tariff funds are only enough for approximately 160 MW of new wind capacity each year.

The association noted, however, that recently there have been signs from the Energy Ministry that there will be an amendment of the Green Electricity Act this year, removing this barrier and granting more annual funds.

"There are good reasons to expect an amendment," the association said. "In the National Renewable Energy Action Plan of Austria, [the nation] has set a target of the construction of an additional 950 MW wind power by 2015 and 1,570 MW by 2020."

IG Windkraft estimates that about 2,500 jobs have been created in the wind power sector so far.

The association sees a positive future for wind power in Austria. It says up to 7.4 TWh of wind energy could be produced by 2020 if politicians amend the Green Electricity Act and provide additional funding for feed-in-tariffs.

"What will be exciting this year is the installation of two Enercon E-126 wind turbines with a capacity of 7.5 MW each in Burgenland," Moidl said. "This is a world sensation and demonstrates the good potential for wind energy in Austria." ■

Austria – the wind energy facts

TOTAL INSTALLED WIND ENERGY CAPACITY	1,011 MW
2020 RENEWABLE ENERGY TARGET	34%
MAIN POWER SOURCE	Hydro (55%)



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Photo: Leitwind

CANADA

Large onshore order for Canada

REpower has won a contract with Saint-Laurent Energies in Canada to supply it with 150 turbines – totalling 300 MW of capacity. REpower will deliver, install and commission the turbines in two phases. The turbines have a total power of 300 megawatt (MW) and are destined for the Lac Alfred wind farm project in Québec.

More information: www.repower.de

CHINA

50 MW order for China

Vestas has received an order for 25 turbines of 2 MW for China. The order has come from Hebei Construction Investment New Energy Company (HCINEC), and the turbines are destined for the Daqinghe Yanchang wind farm in Laoting County, Hebei province, China.

This new order is the third time the two companies have worked together, and it brings the total accumulated wind energy capacity signed between the parties to approximately 150 MW.

More information: www.vestas.com



Photo: GWEC

FRANCE

Three new projects in Champagne region

18 new 2.5 MW GE turbines have been ordered for three new wind farms in the Champagne-Ardenne region of France. The total capacity of the three sites will be 45 MW, which will supply power to the equivalent of 45,000 people.

More information: www.gepower.com

Offshore development to begin

The French government has launched a call for tenders for five different offshore wind farm sites in the English Channel and the Atlantic. The tenders represent €10 billion of investments and will contribute to the country's first ever offshore wind farms.

UK

New offshore farm comes online

The Walney 1 offshore wind farm, off the shore of Cumbria in north-west England, has now started producing electricity.

The construction of Walney 1 began in March 2010, and all 51 turbines have now been installed. The second phase of the project, Walney 2, also with 51 turbines, will begin installation in March 2011 and is expected to be fully operational by the end of 2011. The wind farms will employ around 60 people.

When fully operational, the Walney 1 and 2 wind farms will have a



Wind farms are changing hands in Mexico

Photo: Iberdrola

MEXICO

Change of hands for 26 MW wind farm

Iberdrola Renovables has bought a 26 MW wind farm in Mexico from Gamesa. This brings Iberdrola's capacity in Mexico to 106 MW.

The Bee Nee Stipa wind farm is located in Juchitán de Zaragoza, in the State of Oaxaca. The farm has 31 Gamesa wind turbines of 850 kW each.

More information: www.iberdrolarenovables.es

capacity of 367.2 MW, enough to power the equivalent of 320,000 homes. The total cost of the two wind farms is around £1 billion (€1.1bn) and is owned by DONG Energy (50.1%), Scottish & Southern Energy (25.1%) and a consortium of PGGM and Dutch Ampère Equity Fund, managed by Triodos Investment Management (24.8%).

More information: www.dongenergy.com

ROMANIA

30 MW wind farm to open

A new 30 MW wind farm by ENEL Green Power, Salbatica I, has begun operation in the North Dobrogea area of Romania. It brings the company's total installed wind capacity in Romania to 64 MW.


Its estimated annual power production will be able to supply the equivalent of 29,000 households and avoid the emission of about 48,000 tonnes of CO₂ per year.

More information: www.enelgreenpower.com

TANZANIA

Tanzania approves 100 MW project

A 100 MW wind energy project has been given the go-ahead by the Tanzanian government. The farm is being developed by Sino-Tan Renewable Energy, a joint Norwegian-Chinese company. The 100 MW wind farm will be built on the outskirts of Makambako Township in Iringa Region, central Tanzania. ■



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Keeping up the momentum

The target year of 2020 is coming up fast and 2030 is just around the corner. Where will we be in terms of wind energy in ten years and what needs to happen next?

By Chris Rose

For European wind power and other renewable energies, 2011 got off to a roaring start with the news that the EU-27 will exceed its target of meeting 20% of its gross final energy consumption from renewables by the end of this decade.

EWEA's recent analysis of the plans which outline renewable energy development in each EU country in the next ten years shows that Europe will remain a global leader in incorporating renewable electricity into its power mix.

Submitted as required to the European Commission by Member States, the plans, known

as the National Renewable Energy Action Plans (NREAPs) outline how each country will meet its binding renewable energy target by 2020. Altogether, the plans show that at least one-third (34%) of EU electricity demand will be supplied from renewables by then. Renewables will also supply 22.2% of heating and cooling, and 11.2% of transport, the analysis added.

EWEA's analysis shows that onshore and offshore wind energy will generate 14% of Europe's total electricity demand in 2020, more than any of the other renewable sources.



Photo: Brand X Pictures

“Onshore wind is set to have the largest installed capacity in the renewables sector (35% of total capacity installed) in 2020, followed by hydro at 28%,” according to the analysis. “Solar photovoltaic installations will represent 17% of total installed renewable energy capacity, followed by offshore wind and biomass. In all, total installed renewable energy capacity is set to more than triple from 175 GW installed in 2005 to over 487 GW in 2020, including 213 GW of wind power capacity.”

“Taken together, the action plans show that the EU-27 will meet 20.7% of its 2020 energy

consumption from renewables”, said Jacopo Moccia, Head of Policy Analysis at EWEA.

According to the 27 action plans, wind energy production will increase seven-fold from just over 70 TWh in 2005 to 495 TWh in 2020. This would provide electricity for the equivalent of 126 million households.

“Adding up the 27 NREAPs, total wind power capacity increases from just under 84.5 GW in 2010 to 213.3 GW in 2020,” the analysis noted. “From 2.5 GW forecast in 2010, 43.3 GW of offshore wind energy capacity is set to be operating by 2020.”

“Onshore wind energy is a mature technology and also a cheap technology to move ahead.”

"I would not be surprised to see more than 34% of electricity demand being met by renewables in 2020."

Planning for action

MEP Claude Turmes, who served as rapporteur – that is, the lead author - on the Renewable Energy Directive that came into force in 2009, was also happy that the EU will exceed its 20% target within 10 years.

"My first reaction is I'm completely pleased to see the target we set is realistic and we see today that this is what the 27 governments want to do," Turmes, Vice-President of the Greens/EFA group in the European Parliament, said in an interview.

The NREAPs are also beneficial in that they force government to commit to change, he added.

"Those ideas now have to be enshrined and transformed into national legislation to create national momentum for the investments . . . I see big momentum in a lot of countries."

"Almost all Member States plan to reach or go beyond their renewables target by using their own resources," Hercsuth said, adding there is still much to be done.

"This directive requires continuous implementation within a stable, attractive and predictable regulatory environment and adequately designed measures: concerning support schemes, revision of administrative procedures or the needs regarding electricity infrastructure, to mention some."

"Wind energy has a huge potential, in most of the Member States still onshore, and of course offshore. We have seen that wind can become an important energy source in the energy mix in a small but well interconnected country as Denmark, or in an 'electricity island', such as Spain and the Iberian Peninsula, if the right tools are used and all the players are committed.

"There is still a huge potential to grow. And this will change the whole electricity system. Wind is growing up, and is becoming an equal player of the electricity system and market."

Hercsuth said she is confident that renewables are becoming fundamental in the EU's energy mix, and that some of the technologies, such as onshore wind, can become cost competitive in most of the regions of Europe by the end of the decade.

She added that she expects renewables will be able to cover most of Europe's energy needs by 2050.

"The obstacles? We need to think about this future system: how it will function, and what requirements it should fulfil. How wind, solar, hydro, biomass, geothermal or marine energy plants, demand side, transmission and distribution networks can support each other to maintain the whole system, secure and reliable in each moment."

Ioannis Tsiouridis, Chief Executive Officer of Greek utility PPC, says he expects wind energy to generate at least 14% of Europe's total electricity demand in 2020.

"In Greece, for example, according to the Ministry for Environment, Energy and Climate Change, wind in 2020 will account for 25%", he says.

He added, however, that a single European electricity market and a pan-EU grid need to be created to allow wind power to fully develop its potential. In addition, he said, it is crucial that the cost of offshore wind farms be lowered so that they are more attractive to potential investors.

Tsiouridis said he is optimistic, despite continuing economic challenges, that Greece can exceed its NREAP target by the end of the decade.

"In Greece, we used to face three main obstacles to the development of renewable



Turmes believes the NREAPs force government to commit to change

Turmes added he was not surprised that the EWEA analysis shows that at least one-third of EU electricity demand will be supplied from renewables by 2020 and that wind energy will generate 14% of Europe's total electricity demand within a decade.

"It was evidenced that onshore wind would be the biggest chunk of renewables investment because it's a mature technology and also a cheap technology to move ahead."

In terms of offshore wind, he said he was encouraged by its development and that the companies involved in the sector are making huge progress on the logistics chain.

Andrea Hercsuth, policy officer at DG Energy of the European Commission who works in the 'Regulatory policy and promotion of renewable energy' unit, said she thinks it a positive sign that all the national action plans were submitted and confirm the Commission's ambition regarding renewable energies.

energy sources: the complicated legal framework, the public acceptance and the grid inadequacy. The new legal framework along with the creation of a one-stop shop for investors has significantly accelerated the licensing procedures,” he said.

“However, much more has to be done regarding public acceptance and of course regarding grid capacity. We are also committed to this target as we believe that boosting investments in green energy is one of the best ways to reshape our economy.”

Going over and above

The analysis noted that while much remains to be done to achieve the 20% target, EWEA believes that it will be exceeded.

“Indeed, EWEA’s ‘baseline’ scenario assumes a total installed capacity of wind power in the EU by 2020 of 230 GW, producing 581 TWh of electricity, meeting between 15.7% and 16.5% of electricity consumption”, it says. “EWEA’s ‘high’ scenario assumes that total installed wind power capacity will reach 265 GW by 2020, producing 681 TWh of electricity. This compares to 213 GW installed capacity producing 494.7 TWh according to the NREAPs.”

“We need to think about this future power system: how it will function, and what requirements it should fulfil.”

Moccia thinks that some of the NREAPs might be somewhat conservative in terms of targets for wind power and other renewables in 2020.

“I am confident that the wind industry can deliver more capacity and power in 2020 than is stated in the action plans. The same goes for a number of other renewable technologies. I would not be surprised to see more than 34% of electricity demand being met by renewable energy in 2020.”

National analysis

Looking at the Member States individually, the Austrian action plan shows renewables meeting over 70% of electricity consumption by the end of

this decade. Meanwhile, Hungary is the EU country with the smallest forecast penetration of renewables, as the NREAP assumes that only 11% of the nation’s electricity consumption will be met by renewables.

The analysis revealed that 15 Member States plan to exceed their national renewable energy target, led by Bulgaria at 2.8% above its target, Spain (+2.7%), Greece (+2.2%), Hungary (+1.7%) and Germany (+1.6%). Austria, the Czech Republic, Denmark, Lithuania, Malta, the Netherlands, Poland, Slovakia, Slovenia and Sweden also plan to exceed their targets.

“The case for moving towards a renewable power sector speaks for itself.”

National plans, national targets - tell me a bit more

What is an ‘NREAP’?

‘NREAP’ stands for ‘National Renewable Energy Action Plan’. The NREAPs are roadmaps showing what each EU country will do to meet its 2020 binding target for renewable energy and how it will overcome any barriers.

Where do they come from?

The NREAPs came about as a result of the 2009 Renewable Energy Directive or, to use its full name, “Directive 28/2009/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources.”

Article 4 of the Directive required Member States to submit by 30 June 2010 “detailed roadmaps of how each Member State expects to reach its legally binding 2020 target for the share of renewable energy in their final energy consumption”.

A template was designed for the plans with a legal obligation to answer every question in detail.

What happens if a country doesn’t meet its target?

Failure to meet the 2020 target or if Member States fall behind on their “indicative trajectory” – that is the goals between now and 2020 taking them to the final target - or do not submit an updated action plan, will lead to infringement proceedings.

Does each country have a different target? How does that work?

Yes, each Member State was given different binding targets for renewable energies by 2020. As much as 34% of Austria’s energy mix is to come from renewables, for instance, while the United Kingdom’s target is 15%. At 49%, Sweden has the highest target while Malta, at 10%, has the lowest.



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The 10 Member States that will meet their national targets are Belgium, Cyprus, Estonia, Finland, France, Ireland, Latvia, Portugal, Romania and the United Kingdom.

Only two Member States indicate that they will not be able to meet their binding national target domestically: Luxembourg (-2.1%) and Italy (-0.9%). However, their deficits remain marginal compared to the surpluses forecast in the 15 Member States that indicate they will exceed their targets.

"It is very encouraging that 25 of the 27 EU countries intend to either exceed or meet their target," said Moccia. "This shows that the vast majority of EU countries clearly understand the benefits of deploying renewable energy technologies, particularly wind power."

According to the NREAPS, the 34% of EU electricity demand met by renewables in 2020 will be made up of 14% from wind energy (10% onshore, 4% offshore), 10.5% from hydro, 6.6% from biomass, 2.4% from solar photovoltaic, 0.5% from CSP, 0.3% from geothermal and 0.1% from ocean.

Annual wind power capacity additions, the analysis noted, will increase steadily from 11.5 GW in 2011 to 15.4 GW in 2020, an average increase of 3.1%.

A windy way up

In terms of European onshore wind capacity, the analysis revealed that the sector's annual capacity increase will remain fairly constant, between 10 GW in 2011 to 8.9 GW in 2020, an average net decrease in installations of 1.5% per year.

"Onshore re-powering – which is not made apparent by the NREAPs – will, according to EWEA, represent an increasing part of the annual market from 2010 onwards. The annual repowering market will grow by an average of 40.3% per year from 200 MW in 2011 to 4.2 GW in 2020."

The annual increase in offshore wind capacity is expected to grow steadily, from 1.1 GW in 2011 to 6.5 GW in 2020, an average increase of 21.5% per year.

The analysis added that the annual wind power market – which is not made apparent by the NREAPs – would therefore grow by an average 6.1% per year from 11.6 GW in 2011 to 19.6 GW in 2020.

Cumulative installed capacity is expected to more than double from 84.5 GW at the end of 2010

"The vast majority of EU countries clearly understand the benefits of deploying renewable energy technologies."



Photo: DONG Energy

to reach 213.4 GW in 2020, a compound annual growth rate of 9.7% over 10 years.

Cumulative onshore capacity will increase steadily, from 92 GW in 2011 to 170 GW in 2020, the analysis noted, adding cumulative offshore capacity will increase steadily, from 3.7 GW in 2011 to 43.3 GW in 2020.

The EWEA analysis underlined the likelihood that wind power will play a bigger role in the EU by 2020 than the 213 GW of total installed capacity producing 494.7 TWh that the action plans suggest.

Indeed, EWEA's 'baseline' scenario assumes a total installed capacity of wind power in the EU by 2020 of 230 GW, producing 581 TWh of electricity, meeting between 15.7% and 16.5% of EU electricity consumption. EWEA's 'high' scenario, meanwhile, assumes that total installed wind power capacity will reach 265 GW by 2020, producing one-fifth of Europe's electricity.

Asked where he saw Europe being in 2020, Turmes said he thought the region will have passed the overall 20% target. He also believes that renewables are likely to meet closer to 40% of total electricity demand. "The deployment rate, especially for wind, can be very, very fast."

For more on the NREAPs including EWEA's analysis document, EWEA members can log on to the members' lounge on www.ewea.org and go to "Obtain key information" and then "NREAP". ■

Focusing on 2050

A new fuel power plant can expect to run for 35 years or more. So what will our energy investment choices be in the next few years, and what difference will they make in 2050?

By Sarah Azau

Photo: iStockphoto

It may feel as though we've only just finished welcoming and commenting on the important 2009 Renewable Energy Directive, but its end date, 2020, is under ten years away, and it is more than time to consider what will happen afterwards.

As things currently stand, on 1 January 2021, the wind energy industry will wake up to something approaching a policy vacuum – an alarming prospect. However, certain steps will be taken this year which will give us a better idea of what may happen. One of the most significant will be the publication by the European Commission of its Roadmap to a low carbon economy in 2050 as well as an Energy Roadmap, both of which should outline upcoming legislative measures that will guide Europe in the next 40 years.

Indeed, “2050” seems to be on everybody's lips these days. Several bodies have released energy visions for 2050, such as the report organised by Greenpeace and the European Renewable Energy Council (EREC), called ‘Energy [R]evolution: A Sustainable World Energy Outlook’, through which several hundred businesses have shown their support for 100% renewable energy.

EWEA has in its turn just released its own report and recommendations on EU energy policy from 2020 to 2050. (“EU energy policy to 2050 - achieving 80-95% emissions reductions”) is based on the wind energy sector's own vision for 2050:

that all our electricity in Europe will come from renewables, with half of this from wind. In this context, the report looks at what has happened so far in terms of EU legislation, the Member States' renewables ambitions for 2020, and what is needed in terms of legislation in the longer term to get to 50% wind and 100% renewable energy in the electricity mix by 2050.

“It is essential to present our views on how Europe's renewable energy policy should evolve post-2020 as early as realistically possible”, explains EWEA's Policy Director Justin Wilkes. “The National Renewable Energy Action Plans give us a good idea about the expected growth of wind energy in the next ten years and we should exceed the 20% renewables targets, but we need to ensure this growth can continue afterwards”.

To provide 50% of Europe's power by 2050, 600 GW of wind energy capacity would be needed – 250 GW onshore and 350 GW offshore.¹ Assuming a total electricity demand of 4,000 TWh in 2050, this amount of installed wind power could produce about 2,015 TWh and hence meet 50% of the EU's electricity demand². This is in line with EWEA's targets and wind energy's current and foreseen growth. But can we be sure of getting from today's 84 GW of installed wind energy capacity to 600 GW in 40 years just by sitting back in our arm-chairs and admiring the yearly statistics from the likes of EWEA as they roll into our inboxes?

1 See : Pure Power, 2009, page 69: http://www.ewea.org/fileadmin/ewea_documents/documents/publications/reports/Pure_Power_Full_Report.pdf

2 Ibid.



Photo: C-Power

The wind could
power half of
Europe by 2050

Cutting out carbon

There is of course already one commitment the EU has made for 2050, which is at the heart of EWEA's policy recommendations for the renewables sector. This is the EU's commitment to cutting greenhouse gas emissions by 80-95% by then, compared with 1990 levels. The EU made this commitment in October 2009 after scientists warned that industrialised countries needed to reduce their domestic carbon output by that proportion in order to keep the global temperature rise under 2°C and avoid catastrophic climate change.

"The issue with the 2050 greenhouse gas reduction objective is that there are some sectors of the economy – such as farming or transport – which would find it difficult or prohibitively expensive to achieve a 95% emissions reduction", explains Rémi Gruet, EWEA's Senior Regulatory Affairs Advisor. "This means that the power sector has to play the major role in reaching the target; in fact, in order to reach an 80-95% economy-wide reduction in 40 years' time, the power sector's carbon emissions need to be zero."

Although renewable energy grows phenomenally every year – over 40% of the new power capacity installed in 2010 was renewable – the fact that in 2010 we saw 2.5 GW of coal being added is a step away from the EU's climate change goals.

"Coal plants have a long lifetime, so those we are building and adding now will still be running

and therefore emitting carbon in 35 to 45 years' time", says Gruet. "Therefore, the logical consequence of the 27 EU Heads of State's political commitment to meet the 80-95% target in 2050, is that Europe cannot be installing any more carbon emitting power plants after 2015. And we need to be replacing those carbon emitters with renewables."

A renewable energy target for 2030

There are several ways of ensuring that the fossil fuel plants coming offline are replaced by renewable energies, and experience has shown the most effective is through binding renewable energy targets.

"We have seen the important stimulus to wind energy growth brought about by renewables targets such as the 2001 EU Renewable Electricity Directive's 2010 target of 21% of electricity from renewables, and the 2009 EU Renewable Energy Directive's 20% energy target by 2020, which translates into 34% electricity", explains Wilkes.

"Such objectives have always been at the core of the EU's policies to promote energy from renewable sources. It is due to ambitious EU targets that European companies are world leaders in wind power technology and other renewables, and have a leading share of the global market. That is why EWEA is calling for ambitious renewable energy targets for 2030."

A binding 2030 target will provide investors in the renewable power sector with the necessary stability and predictability beyond 1 January 2021.

"The EU needs to decide on a 2030 renewables target by the end of 2014."



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the spirit of safety

This would be a stepping stone taking the power sector from 34% renewable electricity in 2020 to 100% in 2050.

“The EU needs to decide on a new regulatory framework for the renewable sector during the course of the present Commission and Parliament – that is, by the end of 2014 – to ensure the continued growth of and financial support for the wind energy sector post-2020”, says Wilkes.

For MEP and Green Party member Claude Turmes, “The wind industry can be the number one energy provider in the world but in Europe that means keeping the policy makers on the right track.”

Staying ambitious

A binding renewables target, important though it is, should not stand alone. Decarbonisation and increased use of renewable energy go hand in hand, and so the legislation that sets the 2030 renewable energy targets should also set an emissions reduction pathway leading the way to the 2050 goal of 80-95% emissions cuts.

Currently, the EU has said it will reduce its carbon emissions by 20% by 2020 compared to the levels they were at in 1990.

“The path to the 80-95% goal should be kick-started by a move to a 30% domestic emissions reduction target for 2020, from the current 20%”, says Gruet. “The 20% target is not ambitious enough. Because of the growth in renewable energy, and our lower energy consumption because of the financial crisis, Europe will easily reach this target – in fact, we have already reduced emissions by 17% compared to 1990 levels without much effort or long-lasting change to the way we work.”

If the wind industry's installed capacity targets are met, the 230 GW of wind energy due to be installed in Europe by 2020 (up from 84 GW today) will avoid the emission of 333 million tonnes of CO₂ per year - 29% of the 20% emissions reduction target, or 19% of a 30% emissions reduction target. That is to say, if we increase to a 30% emissions reduction target, wind energy alone will take us one-fifth of the way there.

What is more, the cost of reaching the 30% target has been estimated at €81 billion per year in 2020 - just €11 billion higher than the price tag for the 20% target two years ago because of the recession. And the wealth and jobs created by the increase in renewable energy would give a 0.6% increase in GDP, create one million jobs in the EU, save €40 billion in gas and oil imports and bring health and financial benefits from lower pollution of €12.6-22 billion per year.³



Europe needs to be more ambitious to successfully decarbonise and fight climate change

And a 30% cut is essential if Europe is to maintain its leadership in renewable energy technologies and become more competitive, and not lose ground to other countries.

A boost for the ETS

The other major benefit a move to a 30% emissions reduction target would have on the way to 2050 is to tighten up the efficiency of the EU's Emissions Trading System (ETS). The ETS is a system which makes industries pay proportionally for the pollution they emit. Polluters receive a number of “emission allowances” which allow them to produce a certain amount of carbon. If they pollute more, they have to buy extra allowances. If they have too many allowances for the amount they emit, they can sell them to bigger polluters. In short, those who pollute more, pay more.

However, carbon emissions, and therefore companies' need for allowances, are currently lower than usual in all sectors due to the financial crisis, as most industries have slowed production. This means that less carbon is being emitted than planned for, and emissions are below the cap set for the 2008-2012 period of the ETS. This means that there are emissions allowances to spare.

“The extra emissions allowances should mean the carbon price gets devalued and crashes, but in fact heavy industry, which is producing less because of the crisis, is holding onto its spare allowances and selling them cheaply to the power sector - which will have to buy over 90% of its allowances after 2013. This means that the power

“The 20% emissions reduction target is not ambitious enough.”

³ All figures from the European Commission communication: “Analysis of options to move beyond 20% greenhouse gas emissions...” (COM(2010) 265).

“Heavy industry is making a profit on emissions allowances it received for free.”

sector is stocking up on cheap allowances for the future, and heavy industry is making a profit on allowances it received for free”, explains Gruet.

EWEA's report concludes that raising the emissions reduction target to 30% would tighten up the ETS, eliminate the problem of oversupply of allowances, and prevent polluters from using the system to their advantage. The 30% target will also bring Europe in line with the top end of the 80-95% reductions goal for 2050.

Fossils of a fuel age

The first of the various deadlines on the decarbonisation pathway - 30% emissions cuts by 2020; 80-95% by 2050 – is the need to stop installing any carbon-emitting plants by 2015.

The simplest way to do this would be to impose a ban on all carbon emissions from new power plants installed after 2015. EWEA's new report says the simplest way to do this would be to put in place an ‘Emissions Performance Standard’ (EPS) – that is, a maximum level of emissions – of zero CO₂ for new power plants.

“The preferred EPS would be zero grams of CO₂ emitted per kilowatt hour (kWh) of electricity produced,” says Gruet. “An alternative EPS could be around 350g/kWh to allow some flexible gas to act as a bridge but decreasing over time as gas technology becomes more efficient.”

The reason for the 350g/kWh level is that it is about equivalent to the emissions of a new gas plant. The EPS should go down over time to take account of, and incentivise progress in flexible gas plant technology and reduce the amount of carbon emitted. And as the infrastructure is built and power system itself becomes more flexible,

EWEA's new report: key facts

What is EWEA calling for?

- An EU regulatory framework for renewable energy post-2020
- The framework to include a 2030 renewable energy binding target potentially of 45%
- An Emissions Performance Standard on new power plants of 350g/kWh initially, then decreasing
- Tighter emissions reduction targets - 30% reductions by 2020, and further targets for 2030 and 2040, leading to a 95% target in 2050

and greater amounts of renewables can be brought online, there will be a decreasing need for any kind of other power-generating technology.

Obviously such a switch to a new system would come at an initial cost – before the massive benefits in terms of slowing climate change, increasing air quality, creating jobs and maintaining European technology leadership and a world-class renewables energy industry are taken into account.

See you in 2050

Of course, there are other essential steps to 100% renewables in the EU's power sector in 2050, including the 50% that can come from wind energy. The grid infrastructure is crucial and a ‘supergrid’ needs to start being built today to allow wind energy to be taken from where it is produced – particularly areas like the north-west of Europe – to the consumers. This will also allow the creation of a European single energy market, improving Europe's energy dependence and ensuring consumers have access to affordable, clean electricity.

“Our biggest obstacle is the old incumbents who are basically surprised by the speed of deployment of renewables,” believes Claude Turmes. “The challenge comes from the actors who are in the old world — coal and nuclear and oil, of course.”

Aside from this, the R&D sector also needs additional public funding to promote innovation and ensure the technology is the most cost-efficient possible.

Long-term planning is helpful for most areas of life: from buying property, to building a career, to starting a family. It is even more essential when it is Europe's energy and climate future that is at stake. We need to start planning for 2050 and beyond now: taking Europe's carbon-emitting power plants offline and building up renewable energy as we fully decarbonise. ■

Extending the grids across Europe and offshore will bring more wind power online

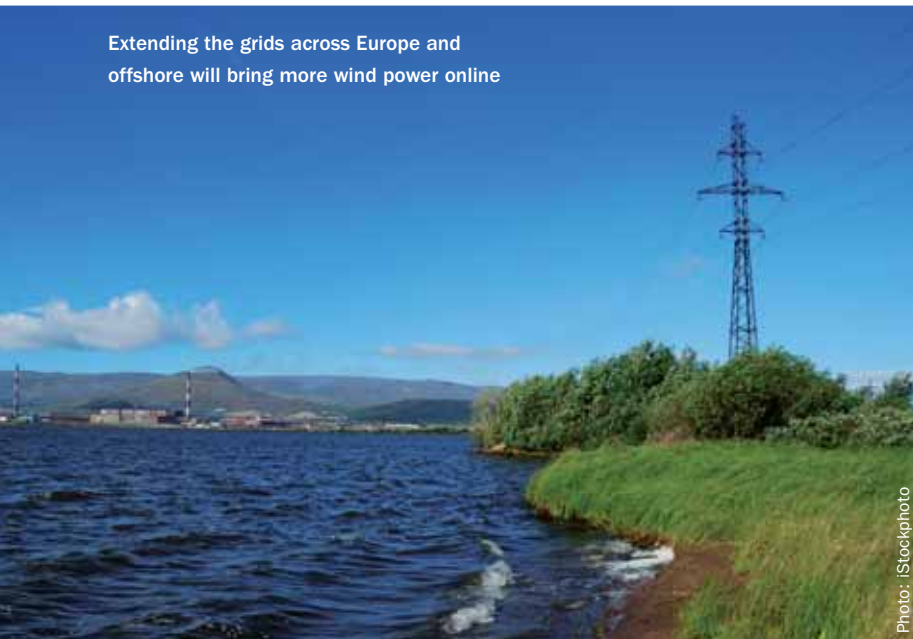


Photo: iStockphoto

Wind Worker

Meeting some of the over 200,000 people who make the European wind industry tick.

Esther Bayo, wind farm operator, Iberdrola

Esther Bayo was the first woman to work in a wind farm in Spain and is now a wind farm operator at the Maranchón wind complex. The wind farm, which is the second largest in Spain, is situated in Guadalajara, an hour from Madrid. She told Luisa Coll and Sarah Azau all about her job.

What does your work involve?

Typically I arrive at the office in the morning, check the computer which lists all the problems the turbines may have had during the night and how they were resolved. I transfer the data to the main Iberdrola database, and if there are any outstanding problems, I contact our maintenance team. I also manage some staff and make sure they know why they need to do, and quite often I go to the wind farm itself. It varies from day to day.

How long have you been working in the wind industry?

I started in September 2005 as a trainee at Iberdrola and worked for a year on another wind farm in Guadalajara. Before that I was a student, so this was my first job. When the internship was up, I got a proper job with Iberdrola.

Have you found that being a woman has affected anything in your job?

It was maybe a little bit harder to start with

because of this year-long internship, but now I don't feel there's any difference at all. Despite that, I don't know of any other women in my position and all my bosses are men!

How much time do you spend onsite?

It really depends. Sometimes I'm there all day, sometimes just in the morning... It depends on the problems we have and on the weather. But overall I'm onsite quite a lot.

Do you have to travel for work?

No not really. We have training sessions once or twice a year and then I travel a bit, but always in Spain.

What part of your job do you like the most?

I like everything! But especially when I go up the turbines – that's where I learn the most every time I go up there.

Do you have a least favourite part?

I don't really like sitting in front of a computer as I have to do in the mornings. But generally it's great as it's never monotonous.

"I don't know of any other women in my position."



Esther Bayo at Maranchón wind farm

Willem Klomp, project manager, Energie Baden-Württemberg (EnBW)

Willem Klomp, project manager of the offshore construction, talks in this interview about his experience in building EnBW Baltic 1, Germany's first commercial wind farm to have been built at sea, which will have a total capacity of around 50 MW and produce electricity for 50,000 households. He will also be involved in the construction of EnBW's next offshore project, EnBW Baltic 2, which will be even larger.

What does your job involve?

My job as project manager for offshore construction requires a constant coordination of activities. The numerous individual projects that start on land have to be pieced together out to sea to form one large, functioning installation. In doing so, it is important also to ensure safety and quality as well as adhering to the project's budget and time frame.



Photo: EnBW

Willem Klomp on the way to Germany's first offshore wind farm

You need a top-class production planning to be able to construct successfully at sea. Due to the size of the components, it is almost impossible to undertake any corrections. If individual materials or tools are missing, it is incredibly time-consuming to procure them. Always having a plan B is essential.

The sea is a difficult project partner as our work out at sea is determined by the weather. For this reason, we always superimpose two weather reports from different providers over one another and develop a forecast from them. We can only plan for the next three days. When you're working with

crane and pipe-installing ships, currents and wind direction play an important role.

We've learned a lot as far as logistics are concerned for at times, we work with up to 25 ships in the construction site. During the process, we had the Danish wind turbines delivered from Aalborg, the central substation platform was transported by a floating platform from Bremerhaven via the Kiel Canal and all parts, such as the foundations, tower, nacelles and rotors, always had to arrive at the right time.

How long have you been doing the job and what first attracted you to the wind energy business?

As a Dutchman, my affinity with the sea is something that I was practically born with. I am now 55 years old and have spent roughly the past 30 years working on the construction of bridges, ports and canals. Of course, EnBW Baltic 1 was an extraordinary job, even for me, on which I worked almost daily at the site in the middle of the sea for many months.

I gained my first offshore experience in the 70s already when working for a Dutch hydraulic engineering company: we laid submarine cables and rammed in stakes using cranes and pontoons. Later on, various bridge and platform building projects led me to Kuwait, Nigeria, Malaysia and Bangladesh. It makes me very proud when I see some of the building projects such as port facilities or bridges that I have worked on in the various countries. However, EnBW Baltic 1 was a

very special challenge for me as Germany's first commercial wind farm was also pioneering work.

What does a typical day involve for you?

Just as for some people reading the newspaper headlines is the first thing they do on a day, mine is to look at the weather. Thereafter, we have our daily meeting where we discuss the next steps we need to take with our work. This entails drawing up timetables and assessing risks. In my report to the management, I then provide information regarding the work status. In the ensuing meetings, we plan the workflows in details with the contractors being deployed.

What is the best part of your job?

For me, my moment of happiness comes when, after months of preparation, work with the large components and equipment gets underway. The suspense begins when the transport ships enter the port and start to load. The questions I have to think about are have we thought of everything and is everyone in position? It is extremely rewarding when you have made the right decisions. In such a moment, every member of our team is aware of the responsibility he or she has been entrusted with.

The installation of the substation was a very special occasion. We were under tremendous time pressure as the floating crane was already on its way while we still had to carry out remaining work on the foundation that had already been installed at sea. We then had to position the 1,000-tonne

"The sea is a difficult project partner."

substation precisely on top of the foundation. While still on the way to the site, we had to check the strength of the already-installed foundation and document this in order to be able to start with the assembly. We had only the eight hours of transportation time to carry out both checks and approvals. In this way, the project always provided us with situations where we experienced hope, fear and huge relief when we were able to achieve our target together.

Do you have a least favourite part and why?

Sometimes during the construction phase, I really missed my wife and our three children. For several months I was only able to contact my family at home in Drachten by telephone as sea and weather forced us to be permanently present during the main construction phase in order to take advantage of the favourable weather conditions. ■



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Formerly 

“The renewables sector is in a phase of transformation”

Francesco Starace, CEO of Italy's ENEL Green Power talked to Sarah Azau about support schemes for renewables, wind energy development the world over, and the impact of the financial crisis.



Photo: ENEL Green Power

Why did the ENEL group decide to set up ENEL Green Power just over two years ago?

ENEL Green Power was set up in order to focus ENEL's renewable energy input into one single unit to become more effective and have better focus on growth and performance. It was also important to be able to show the investors in ENEL the scale of our effort in renewables.

How do you see the role of utilities such as ENEL in the development of renewable energy?

I think we have a very large role to play. Today the renewables sector is in a phase of really dramatic transformation. For a decade the renewables industry was dominated by very active small developers, and an abundance of incentives drove speculation and growth, rather than a cost effective industrial growth. This is rapidly changing as renewable energy is now a major industry rather than an area of speculation. This means there is a lot more attention put on costs and efficiency and that is a job for large groups working with big volumes. Set-ups like ENEL Green Power fit better with this kind of industry and way of working.

Italy is one of the only two EU Member States to say in its national renewable energy action plan that it may fall short of meeting its 2020 renewables target through domestic action alone. Why do you think this is?

When the initial discussion on targets took place – a bit before the financial crisis began, Italy was worried that it wouldn't be able to reach the 2020 renewables target. Now things have changed a little because Italy's renewables sector has grown and the crisis has meant a lower power consumption. But for Italy the challenge remains that of our heavy dependence on fossil fuels both

for power generation and other sectors such as transportation and heating, although actually I believe we could get close to the electricity goal by 2020, but for the transport and heating sectors, we may fall a little short of our target. So I think it was wise of Italy to recognise that it would need outside help to meet the targets - as allowed by the Renewable Energy Directive.

How do you see wind energy developing in the world and in Italy?

Quite a few areas are now beginning to exploit this kind of energy now. We are working in Chile for example – it has fantastic wind resources and there's a growing demand for power, so it's got real potential as has the rest of North and South America.

There's been some disappointment this year with the US, because of the expectations people had concerning the potential legislation. But maybe this was overplayed because the US has a huge amount of untapped wind energy potential.

In both the Americas, a key issue is infrastructure – putting the transmission lines in place to bring wind energy from where it is produced to the consumers.

For Europe, there's a question of maturity. Some parts of Europe are very mature wind markets with lots installed onshore. Other parts may have less abundant wind resources but their installed wind energy capacity has grown thanks to huge incentivisation measures, so in these places we may see a contraction.

I think Europe will grow above all offshore where there is abundant wind, and I expect to see strong growth in parts of Europe that have lagged behind until now but where there is strong potential - for example, Romania, Bulgaria and Greece.

“The wisest thing the EU could do is try and harmonise renewable energy policies.”

There are other parts of the world where the wind resource is basically untapped – Russia for example. There it's a question of getting the administration to focus on renewables, which is not currently among its priorities.

I think the next surprise will come in Africa. We are already active in the southern Mediterranean region and South Africa also has lots of potential.

As for Italy, I believe that wind energy has been growing at a very satisfactory rate considering the crisis. Wind energy will continue to be added to the renewable energy portfolio in Italy but you can't compare it to other countries because of its small size and wind conditions. It is not the largest wind energy market in the world.

Overall, I believe wind energy will grow much faster than people think in the next four to five years because of its incredible potential and the need for more electricity.

We've discussed the EU's 2009 Renewable Energy Directive and the 20% renewables targets it set for 2020. What would you like to see happen in terms of EU legislation after 2020?

The wisest thing the EU could do is try and harmonise renewable energy policies to limit and try to optimise cost throughout Europe. At the moment we have targets, but it's left up to the state decide on and implement the way to reach them. We would be much better off after 2020 if big effort to harmonise the support schemes, making them less fragmented, and focus on those energies that are not yet mature but which may be needed – such as tidal energy, sea energy and thermal solar.

With the support schemes there are three forces to take into account. Firstly, the need to attract capital. Secondly, the need to look at how technology is changing in terms of cost reductions. Thirdly, the need to optimise final cost to consumer, who should be paying as little as possible. The technologies keep changing as they mature and cost base keeps moving so the support schemes need to be updated constantly in order for the customers pay as little as possible so it is unfortunate but inevitable that support schemes need to be constantly reviewed. The exact type of support scheme that is chosen for the EU is not really the main issue, if the underlying evolution in time of the scheme itself is clearly understood.

What are your thoughts on the development of the EU's single energy market?

A larger, more unified market is intrinsically less costly than a fragmented one. So all efforts in that direction are good so definitely for the best.

Do you foresee offshore wind energy taking off in Italy? When? What needs to be done to ensure this happens? Is ENEL involved in its development?

Offshore wind energy is two to three times more expensive than onshore wind in terms of Euro/MW and also in terms of operations and maintenance costs. So to justify investment in offshore you need wind at least twice as strong as there is onshore, and support schemes packages that are higher than for onshore. Most of the Mediterranean sea does not fall into the right category as most of the coasts do not have shallow waters but get deep very quickly so it's a challenge from an engineering standpoint. There is also a lot of navigation and traffic in the Mediterranean, so we don't see it as the best solution for offshore.

That said, we think the technology will evolve and become competitive, and will probably become interesting for us in about ten years.

What did you think of the outcome of the COP climate change summit in Cancun? Do you think a global agreement can be reached this year in Durban?

I think that the results of Cancun conference were better than originally anticipated. I believe that the next conference in Durban will probably be moving in same direction as Cancun – that is, not using these big meetings to sort out quantitative targets but to reach an alignment on the principles of climate change, the need to change our industries and shape our energy so as to have less impact on the environment.

For me the scope of these conferences is to build a consensus and to clear the way for subsequent, separate actions regarding quantitative targets that could be established in separate meetings. It is not wise to attempt to establish numerical rules at the COP summits because of the short time available and the number of delegations.

I'm happy that Cancun moved in this direction. ■

Photo: ANEV



Wind energy is growing in Italy - these Italian children showed their support at Global Wind Day 2009

“We think offshore technology will probably become interesting for us in about ten years.”

Who are ENEL and ENEL Green Power?

ENEL is Italy's largest power company, and Europe's second listed utility by installed capacity. It produces, distributes and sells electricity and gas.

ENEL Green Power was founded in December 2008 in order to develop and manage renewable energy generation at an international level. Its installed capacity from wind, solar, geothermal, hydroelectric water flow and biomass energy sources is over 4,500 MW and there are 618 plants in operation around the world. Its headquarters are in Rome.



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Now and forever

A year of fresh air

Looking back at EWEA's campaign.

By Elke Zander

For the past year, a breath of fresh air has been sweeping through Brussels and Europe – powered by EWEA.

"The idea behind the 'Breath of Fresh Air' campaign was to bring the messages about the benefits of wind energy to a wider audience", said Julian Scola, Communications Director. "We used images of toothpaste, chewing-gum and mints to symbolise the cleanness and freshness of wind power."

As the campaign draws to a close at the EWEA Annual Event 2011 in Brussels, we look back at some of the highlights of a year of campaigning.

Public debates - bringing together wind energy and the Brussels community

EWEA organised several public debates in Brussels with speakers from a range of sectors on some of the hottest topics affecting the wind energy industry.

Are green jobs and green growth possible?

The first debate, in June 2010, was entitled "Green jobs and a green economy: more than a pink elephant?", and moderated by the Financial Times' environment correspondent, Fiona Harvey. The debate brought together high level speakers from political parties and trade unions and industry associations.

"If we make good investments, we are talking about thousands of jobs – a whole new energy sector. Now, European institutions must create an economic environment that makes further expansion of wind energy possible."

Poul Nyrup Rasmussen,

Former Prime Minister of Denmark and President of the Party of European Socialists, PES



EWEA also used adverts to promote the campaign's messages



Sugar-free mints with the campaign logo were given out to symbolise wind's clean nature

"During the crisis that we have today we need to make the right investments [...] Clean energy is one of the keys – it helps all of us to pay less for energy, to have better health and air quality and protect against climate change.

Maria Da Graça Carvalho

MEP, Group of the European People's Party (Christian Democrats)

Should we move to 30% emission reduction targets?

In October, EWEA's second public debate was organised with the title "Wind of Change – how Europe can benefit from reducing emissions by 30%", again moderated by the Financial Times' Fiona Harvey. Over 160 people listened to speakers from the European Commission, European Parliament, business and industry associations discussing the possibility of moving from a 20% CO₂ emissions reduction target to 30% by 2020.

“We could lose jobs in Europe if we are not ambitious enough, because others are moving fast [...] we must not make it too easy to achieve the targets and so lose the innovation we need.”

Connie Hedegaard,

European Commissioner for Climate Change

“Europe has to take climate change leadership or we risk losing leadership. Maybe not on the negotiation table, because others are more reluctant, but in reality. We have to make the next step to a low carbon economy.”

Jo Leinen MEP,

Chair of the Environment Committee

When will Europe have a single electricity market?

February's debate number three evolved around the 25th anniversary of the Single European Act asking: “When will Europe have a single electricity market?”. Speakers from the European Commission, industry and consumer representatives as well as from think tanks presented to and discussed with 100 attendees.

“We do not have a single energy market in the EU. It is our ambitions to complete it as soon as possible.”

Hans van Steen,

Head of Unit for Regulatory Policy & Promotion of Renewable Energy, European Commission

“An internal market has been created for practically everything. But for probably the most important sector in a modern economy it has not.”

Brendan Halligan,

Chairman of the Sustainable Energy Authority of Ireland and moderator of the debate

Global Wind Day – renewable energy activities and fun worldwide

With a white turbine blade standing nearly 30 metres tall in the middle of Brussels' EU area, EWEA certainly focused attention on the climate, energy and employment benefits of wind energy in June 2010.

EWEA organised the two week exhibition of the blade to mark Global Wind Day on 15 June, but also for the beginning of the EU's Green Week (1-4 June) and Brussels' Fête de l'Environnement (6 June).



Photo: Ribaucourt

Speakers including EU Commissioner Hedegaard discuss carbon reduction targets at an EWEA debate

For anyone going to work into the European Commission and European Council main building, the aerodynamic feat of engineering was visible up close - a rare and impressive experience showing the Brussels community that wind energy is not only providing environmental and economic benefits but can also be an aesthetic object, a symbol for a renewable energy future.

Weighing in at 4,100kg, this type of blade is used in 1-1.3MW turbines which can produce enough electricity to meet the annual average electricity consumption of over 760 households.

Hard Rain – climate change and one of its solutions

For two weeks in September, EWEA brought the stunning photo exhibition ‘Hard Rain’ to Brussels, displaying over 40 harrowing images of climate change in our world today just in front of the European Parliament.

Designed by photographer Mark Edwards, the exhibition takes a photo to illustrate each line of Bob Dylan's prophetic song ‘A Hard Rain's a-Gonna Fall’. From birds covered in oil to barren land that was once pristine forest, the images highlight the impact our fossil-fuel and environmentally-damaging lifestyles can have on our planet.

EWEA added information on wind energy as one of the solutions to climate change and during Brussels' ‘Car Free Sunday’ a band played and acted out the renewable energy versus fossil fuels battle as EWEA staff members distributed information and wind energy goodies to passers-by.

Mobilising supporters all over Europe – 10,000 cast their vote for wind energy

A major part of the Breath of Fresh Air campaign was an online competition on the campaign website, www.ewea.org/freshair, which allowed visitors to adopt a European turbine via an interactive map. They could then vote – and ask their friends to vote – for a turbine. The aim was to spread the word to the maximum of friends and get the most votes.

Altogether, over 10,000 people participated in the Breath of Fresh Air campaign, adopting turbines all over Europe or voting for those their friends adopted.



Photo: EWEA/Bickley



Contest winner Wiet (second from right) with his family and Elke Zander visiting the wind farm in Switzerland.

The top five countries for adoptions were Spain (499 turbines adopted), Italy (438), the UK (431), France (428) and Germany (233). But wind energy enthusiasts adopted turbines everywhere in Europe: from the Faroe Islands to Turkey, from Norway to Portugal, from Poland to Switzerland.

With an exciting battle between a brother and sister, the competition came to an end on 20 December 2010, with 17 year olds Lien and Wiet van Hout from Geel in Belgium the overall winners. Their prize is a weekend trip and a wind farm visit in Copenhagen and the Swiss Jura.

Lien commented: "I think EWEA's Breath of Fresh Air campaign was a great chance to inform as many people as possible about the benefits of wind energy. I was able to make my family, friends and neighbours more conscious about wind energy being an environment-friendly energy source that reduces CO₂ emissions drastically. The support I got was overwhelming; a lot of people were very interested and therefore helped by voting for us!!"

Wiet found out about the campaign via *Wind Directions*. He chose a turbine in the northernmost city of Sweden, Viscaria Kiruna. His interest in and passion for wind energy originates from his hobby, flying glider planes: "I am a glider pilot and when I am in the sky, you can see wind turbines very well. It is beautiful to see the wind turbines in the. I really think renewable energy is the future."

EWEA congratulates Lien and Wiet and also thanks in advance the Danish Wind Industry Association helping organise the visit to the Danish wind farm

and sol-E Suisse, which operates Juvent, Switzerland's largest wind farm and has donated the trip to Switzerland, including a guided tour to the wind farm site at Mont-Crosin.

Wind Directions will be accompanying the winners on the trip to

Copenhagen and will report back soon with photos from the wind farm trip – so keep a look out in the next issues of the magazine!

Although the contest is closed, it is still possible to adopt wind turbines to show your support for wind energy at www.ewea.org/freshair ■

Bringing a breath of fresh air to Europe

EWEA had a portable 'kiosk' on which it was possible to adopt turbines. Elke Zander and colleagues travelled with the kiosk to various events in cities across Europe to encourage people to join in.



EWEA Events: The Winning Formula



www.ewea.org/events

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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.



Shape the biggest offshore wind energy event

The call for abstracts is now open for EWEA's upcoming offshore conference. OFFSHORE 2011 will be held in Amsterdam from 29 November to 1 December. If you would like to contribute and present a new project or research results with the over 4,000 expected participants, you can submit an abstract in one of the following categories:

Topic themes include:

- Speaking from experience: wind energy lessons learned, availability and new ideas;
- The offshore sector - beyond technology: legal, finance, planning and environment, markets, policies, education and human resources;
- Hardware: turbines, support structures, components and floating concepts
- Grids and infrastructure: electricity markets, grid connection and operation technologies
- Logistics: O&M, health and safety, transportation and installation, supply chain and decommissioning
- Wind, waves, current and soil: measuring, forecasting and modelling the offshore resources.



Former EU Energy Commissioner Piebalgs with EWEA directors at OFFSHORE 2009 in Sweden

Check out all the details on www.ewea.org/offshore2011. The call for abstracts will close on 4 May 2011.

As usual, there will be a major exhibition running alongside the conference. Over 90% of exhibition space is now sold: to book contact Sanna Heinonen on Tel: +32 2 213 18 37 or e-mail: she@ewea.org.

You can also get maximum visibility for your company by seizing a sponsorship opportunity. For more information please contact Christi Newman, Tel: +32 2 213 18 07 or e-mail: cne@ewea.org
Event website: www.ewea.org/offshore2011

Bruce Douglas to leave EWEA

After 10 years at EWEA Bruce Douglas is leaving his post as Chief Operating Officer at the end of March to pursue new challenges. He will join 3E, a global renewable energy consultancy company to help grow and diversify their business.

Bruce has played a pivotal role alongside CEO Christian Kjaer in the development of EWEA as the voice of the wind industry. Since Bruce joined the association in early 2001 its influence, credibility and outreach have increased substantially, alongside dramatic growth in EWEA conferences and exhibitions, number of members (from 70 to nearly 700) and staff (from three to 53). His experience, expertise and dynamism

will be missed by the staff, Board and members of EWEA. He will, however, be taking the 3E seat on the EWEA Board so will remain closely involved in EWEA activities, contributing positively to the future success of the wind industry.

Bruce Douglas said "I have enjoyed, achieved and learnt more than I could ever have dreamed when I first started 10 years ago. It has been a privilege and pleasure to work with Christian and Arthouros to develop EWEA, and set up GWEC, in close collaboration with the world's leading wind industry figures. 3E offers me a great opportunity to further develop my career."

Christian Kjaer commented "I am devastated to lose Bruce but I know



that with our team of Directors, and the quality and commitment of our staff and Board, EWEA can be confident about its future."

Follow EWEA's 2011 Annual Event online

Europe's premier wind energy event is currently taking place in Brussels – maybe you are there now – but did you know the following facts?

- Over 10,000 wind professionals from over 60 countries are expected to attend;
- There will be 200 speakers from across all industry sectors;
- You can attend 40 sessions covering topics like technology, science, finance and policy;
- There will be 300 specialist poster presentations on display throughout;
- More than 400 exhibitors will be there, representing the wind power industry of Europe, North America and Asia.

Got a session clash?

You can't be in two places at once, and whether you are attending the EWEA 2011 Annual Event or missing out altogether, you will not be able to attend all the conference sessions on offer. But we've got a solution - EWEA's Sarah Azau and Chris Rose will be following as many



Thousands of participants are making their way to Brussels Expo, venue of EWEA 2011

Photo: EWEA-Wimmer

sessions as possible and bringing you the latest news from all over the event on EWEA's blog: www.ewea.org/blog. They will also be Tweeting live on www.twitter.com/ewea.

Thinking ahead

It's never too early to book your stand: the EWEA 2012 Annual Event will take place in Copenhagen on 16- 9 April

and exhibition space is already selling fast. Contact Sanna Heinonen on tel: +32 2 213 18 37 or e-mail: she@ewea.org.

EWEA 2011 Annual Event website:

www.ewea.org/annual2011

EWEA 2012 Annual Event website:

www.ewea.org/annual2012

For information on all EWEA's upcoming events:

www.ewea.org/events

Workshop on measuring the wind resource

EWEA is organising a technology workshop on wind resource assessment, which will take place on 10-11 May 2011 in Brussels.

The workshop will cover the following topics:

- Mesoscale modelling – chaired by Andrea Hahmann, Risø DTU
- Remote sensing – chaired by Oisín Brady, Natural Power
- Advanced modelling - chaired by Christiane Montavon, ANSYS Ltd
- Wakes - chaired by Andrew Tindal, GL Garrad Hassan

- A comparison of resource assessment procedures – chaired by Mike Anderson, RES - Renewable Energy Systems Ltd.

How do the others do it? If your company carries out resource assessments you can find out by taking part in our anonymous survey and attending the workshop to hear the results.

Programme, registration and details of the resource assessment comparison: www.ewea.org/events



EWEA blog – a breath of fresh air for the community

In April 2010, alongside the launch of the 'Breath of Fresh Air' campaign, EWEA launched its blog on www.ewea.org/blog. Since then, we have posted around 200 times on a huge range of subjects - from the businesses turning to renewables to the latest surveys on wind energy.

Follow the blog for regular updates on relevant news and views from round the world. ■

Networking for EWEA members

The 2011 edition of the EWEA Members' Directory is available. Containing contact details for up to six different roles within EWEA's over 650 member companies, this is an indispensable networking tool for every

business interested in the wind energy sector.

Not a member yet? Discover the five reasons to join EWEA at: www.ewea.org/membership or contact Christi Newman at: + 32 2 213 18 07, cne@ewea.org

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Promoted by the magazine:

WindEnergy elettricità dal vento

Organized by:

ARTENERGY PUBLISHING Srl

Via Antonio Gramsci, 57
20032 Cormano (MI) Italy

Tel.: +39-02-66306866

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www.eolicaexpo.com

EWEA welcomes new members

Catalonian Institute for Energy Research (Spain)

The Catalonia Institute for Energy Research (IREC) is specialised in technological research and development activities related to energy efficiency and renewable energies. One of its main areas of research is offshore wind energy with a particular focus on aerodynamics and blades, electrical systems, grid integration, etc. Its most significant project is the ZÉFIR Test Station, a deep-water wind turbine lab.
www.irec.cat

Conwx Aps (Denmark)

www.conwx.com

DeTect Inc (USA)

DeTect is the developer and manufacturer of the MERLIN Avian Radar System, the most advanced, proven and widely used bird radar system for terrestrial and offshore wind energy project bird and bat survey, mortality risk assessment, and operational monitoring with over 60 systems operating worldwide since 2003. With the MERLIN SCADA software the system also provides real-time mortality risk mitigation.
www.detect-inc.com

DRS (USA)

DRS Technologies has applied over 25 years of real-world experience to create ARMOR, a line of rugged mobile computers certified to survive the effects of dust, sand, glare, moisture, impact, temperature extremes, vibration and more. ARMOR goes to extremes, and back.
www.drs.com

ERASMUS UNIVERSITY COLLEGE (Belgium)

Energy Competence Centre GmbH (Germany)

www.ecc-renewables.com

Global Steel Service (Latvia)

Global Steel Service specializes in the supply of steel sheets and plates, production of steel structures for general building and industrial application. The company provides standard and special metalworking services as well as up-to-date metalworking equipment. Operating a modern steel service centre by 2012, GSS intends to enter wind energy market as a wind tower producer, located in Riga, Latvia
www.globalsteelservice.com

Hopeful Wind Energy Technology Co. Ltd (China)

www.hopefulenergy.com

HydrauRent (Netherlands)

www.hydraurent.com

I.L.M.E S.p.A. (Italy)

www.ilme.com

INGENIUM AS (Norway)

www.ingenium.no

Lindoe Offshore Renewables Center (Denmark)

www.lorc.dk

Logic Energy (UK)

www.logicenergy.com

MeteoGroup (UK)

MeteoGroup is Europe's largest private sector weather provider with a worldwide customer base and operations in Europe and the USA. It is a full-service weather business supplying tailored forecasting and consultancy to professional markets. Founded in 1986, the company has an unrivalled reputation for quality and innovation in weather forecasting with bespoke solutions for the renewables market.
www.meteogroup.com

NDE SWEDEN AB (Sweden)

www.nde.se

Newcastle University (UK)

www.ncl.ac.uk/energy

OCAS AS (Norway)

www.ocas-as.no

OSIRIS PROJECTS (UK)

www.osirisprojects.co.uk

Power Climber Wind (Belgium)

www.powerclimberwind.com

PRENECON ROMANIA SRL (Romania)

Prunus Energy Systems Ltd (Kenya)

RAPID-TORC SA (Belgium)

www.rapidtorc.com

Serbian Wind Energy Association (Serbia)

www.sewia.rs

SET Sustainable Energy Technologies GmbH (Austria)

www.ghp-set.com

TECHNIP (UK)

www.technip.com

Telvent Servicio Compartidos S.A. (Spain)

Telvent (NASDAQ: TLVT) is a global IT solutions and business information services provider dedicated to helping improve efficiency, safety and security for the world's leading companies. Telvent offers the most accurate wind power forecasts to utility markets worldwide.
www.telvent.com

WINDMASTER TECHNOLOGIES AS (Norway)

www.windmaster.no

ZF Friedrichshafen AG (Germany)

www.zf.com

Zarges Aluminium Systeme GmbH (Germany)

www.zargestubesca.com

Events

EWEA Technology Workshop: Resource Assessment

10 May 2011

Brussels, Belgium

www.ewea.org/events

E-mail: jmc@ewea.org

Tel: + 32 2 213 18 21



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 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








Discover five reasons to join EWEA

For further information visit
www.ewea.org/membership

EWEA is the voice of the wind industry, actively promoting the utilisation of wind power in Europe and worldwide

Did you know? As an EWEA member you receive 5 key benefits:

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-  Representation at the highest level



EWEA

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60%*

think it's so good they've told their colleagues

Truth in advertising

David R. Jones, editor of the fortnightly news service *Platts Renewable Energy Report*, describes how UK anti-wind campaigners are more likely than advocates to run afoul of industry regulators



David R. Jones,
editor of the fortnightly
news service *Platts*
Renewable Energy Report

The saying long attributed to Mark Twain that a lie can get halfway around the world before the truth gets its boots on holds special importance for the wind energy industry, as developers confront opponents determined to halt development.

A *Platts* analysis of wind farm advertising from 2004 to 2009 in the UK showed that more than 85% of challenges to anti-wind farm advertising have been upheld as misleading by the nation's advertising watchdog, the Advertising Standards Authority. ASA has the authority to crack down on misleading print and digital ads, both commercial and non-commercial, using written standards in assessing the validity of advertising statements.

Regulators have cited both wind farm proponents – primarily project developers and utilities – and critics, most of them local community organisations, for advertising that ASA said failed to meet advertising standards, such as truthfulness, substantiation and environmental claims. But the authority has come down hardest on wind farm critics' claims while dismissing most of their challenges to pro-wind farm advertising.

In one case, an anti-wind energy group in Norwich, UK published two leaflets opposing a planned Ecotricity wind farm, warning residents that "your property would be devalued by between 15% to 20%," "your sleep will be affected" and that "the constant noise (24 hours a day) will be heard up to five miles away."

Ecotricity challenged 10 of the claims, and the community group declined to respond. ASA upheld all 10 challenges. The agency directed the community organisation to remove the claims from future marketing, and it asked the UK Committee of Advertising Practice to advise its members of the problems with the organisation.

More than twice as many complaints to ASA alleging advertising distortion have been made against wind farm advocates than against anti-wind

farm campaigners. Yet ASA documents show that while the overwhelming majority of challenges to opponents' statements were affirmed, less than a third of challenges to pro-wind farm claims were upheld.

One case involved nationwide advertising, focusing on an advertisement placed by Danish wind turbine manufacturer Vestas Wind Systems in the national press. The advertisement, contested by an unnamed complainant, challenged whether Vestas could substantiate its claims that the company's wind turbines generate more than 50 TWh annually.

Vestas won the ruling, apparently by keeping its claims modest. "Vestas had taken a number of precautions to try to ensure that the estimated data for the turbines for which they did not have specific data was not overestimated. We noted they had used a capacity factor of 0.21 for the estimated data to ensure they underestimated the figure," according to an ASA January 2008 adjudication.

What do the UK advertising wars over wind energy show? First, wind farm companies appear most likely to have their advertising claims upheld by sticking to what they can prove beyond all doubt – and, like Vestas, perhaps understating wind energy paybacks to be on the safe side.

What's more, wind power proponents need to act quickly to counter the sometime bizarre claims of their opponents. With the internet shaping up as the new battleground over wind farm advertising, lies can now spread halfway round the world with the click of a mouse. Whether clean-energy advocates win public support can hinge on how rapidly they can put their boots on and challenge false claims in communities while demanding that regulators set the record straight.

More information:

www.platts.com/products/renewableenergyreport. ■

David R. Jones

will be presenting on this subject at EWEA 2011, at the session 'Social and Environmental Acceptance' being held on Thursday 17 March at 9am.

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