



Winds of Change

By Marcus Rand, BWEA CEO

Over the past few months we have seen some changes. A new Government, a new Minister (see later in *Real Power* for the interview with Malcolm Wicks) the election of a new BWEA Board and Chris Shears elected by the Board as our new Chair. Despite the changes some things remain the same. The need to maintain the momentum we have built onshore, the urgent requirement to find a solution to ensure our larger offshore projects can be sustainably financed and the importance of maintaining strong political and regulatory support for wind's role in the future are paramount objectives of the team here.

There are interesting and positive signs emerging. In his first speech as Minister, Malcolm Wicks confirmed the key role that renewables, and wind in particular, will play in delivering our short-term 2010 renewable and climate targets. The industry itself is beginning to sharpen its message and provide visible proof that we are delivering in a more co-ordinated and powerful way. We have been helped of course by the fact that after 14 years we have collectively broken the 1,000 megawatt barrier and that our

industry is on the move. We have 20 projects amounting to over 800 MW of capacity being built right now.

We now face an interesting phase. We must continue to develop and deliver to provide the evidence back to the politicians who have put faith in our industry. We must demonstrate that we can, provided solutions to the log jams and economic constraints are found, deliver the bulk of the 2010 target. But at the same time we must raise our heads and engage in a key debate, likely to begin in early 2006, on what the future holds for our industry beyond 2010. There will be a major debate on energy policy - that is clear. We must use this next six months to prepare the ground and ensure we enter this debate in a strong position and emerge from it even stronger. We have much to gain. That will require us as an Association remaining strong and working together to ensure we do meet our overall objective: a long-term sustainable market for our members - wind, wave and tidal.

I cannot end without saying a special thank you to Alan Moore, our Chair for the past two years. Alan's work for BWEA was immense and his energy, enthusiasm and support for myself and the team here was as renewable as our industry's fuel source. □

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Win a Free Ticket to BWEA27!

Latest Wind Farm

The UK is now one of only eight countries around the world to have installed over a gigawatt of wind energy capacity, a landmark which was reached in June 2005 with the opening of the UK's largest onshore wind farm to date, the 39 turbine 58.5 MW Cefn Croes project in Ceredigion in Wales. □

Cefn Croes © GE Wind



On the Record with BWEA's New Chairman

By Chris Shears, BWEA Chairman

It is a great honour to be Chairing the Association at such an exciting and crucial time in our evolution. I would like to thank Alan Moore for his huge commitment over the last two years; it is a comfort to know his wise head is still on the Board. The membership is a broad church but we have a common aim – the delivery of more quality wind and marine energy schemes as quickly as possible, with as much UK content as possible. I am truly humbled by the enthusiasm and expertise of the staff, Board and membership and look forward to working with all of you.

Wind energy is in the political and energy spot light as never before and the chance to be, and importantly be seen to be, a real, credible and popular component of the UK's energy mix is I believe within our reach. However, it seems axiomatic that the more success we have the greater the challenges become! We have now passed the 1 gigawatt barrier and getting there has at times seemed like pulling teeth. There will doubtless be a few more teeth lost along the way but I'm confident that the second gigawatt will arrive in not much more than 14 months rather than the 14 years it took to reach the first.

We should therefore be positive – we know we have a strong technology that can deliver. However, we must also now be more realistic that if the barriers to development be they, technical, non technical or institutional are not constantly kept in focus we will under perform. We are not masters of our own destiny and much depends on the positive cooperation of government in all its guises. I believe there is now the need and the opportunity to take a more forceful approach to dealing with the barriers to delivery. I do not mean we moan more, I mean we offer to help and we present solutions. The message is simple, the success of the RO, and therefore the renewables future of the UK, depends on us building more wind farms on and offshore more quickly. The more we build the cheaper we will be. The headline message to all decision makers should be that the best way to control wind development is to take proactive sequential decisions – good or bad, but do not delay or prevaricate. There are quick wins to be had, for example, additional human resources in consenting teams would I'm sure deliver quicker decisions.

I am acutely aware that most of what the public read about wind energy is in a Sunday broadsheet which I have noticed are often not altogether complimentary. The Embrace campaign has set us on a proactive path that we need to build on by getting the true facts out there about



BWEA Chairman Chris Shears © BWEA

our technology. Our first priority should be to nail the intermittency issue once and for all because I think it underpins a lot of the 'intellectual' opposition to wind. However, a constant source of amazement to me is the unwavering massive support we have amongst the public despite all the nonsense that gets printed. That bedrock of support gives me great confidence for the future.

BWEA is battling for all of us on many fronts and I am aware that because we are all busy, communicating everything that is going on to the membership is difficult. I hope that this quarterly publication will help. Somewhat foolhardily I have established a new Chairman's email address chairman@bwea.com. I would welcome any and all thoughts and ideas you have about the priorities and work of the BWEA. I look forward to meeting you at our October conference if not before. □

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BWEA Board Members 2005 - 2007 and Main Responsibilities

BWEA elected a new Board and Chairman in May 2005, listed below in alphabetical order:

Megan Arnold, SLP Energy - Supply Chain. Megan has worked in both the onshore and offshore marine energy markets in the UK. A returning Board member, Megan has also held roles with the DTI, and other regional initiatives. Megan is the expert when it comes to supply chain issues, contracting, risk distribution and supply chain security.

Nigel Crowe, PMSS Ltd - Technological Issues (inc. Small wind). Nigel is a returning Board member who recently joined consultants PMSS after five years with GE. He has been involved in the wind industry since 1997 in a variety of roles from development through to operation. As well as his activity on the Board dealing with technology issues he also helps out on offshore, risk management, project execution and supply chain matters.

Paul Dowling, Airtricity Development Ltd - Scotland, Wales and Northern Ireland. COO of Airtricity since its inception in 1999, Paul has overseen its growth from a start-up company in Ireland to one of Europe's leading pure renewable energy companies. Paul is a first-timer on the BWEA Board.

David Farrier, E.ON UK Renewables - Health & Safety. David is a Development Manager at E.ON UK Renewables with 11 years wind experience. A returning Board member, David is known as BWEA's Health & Safety guru, and has been working with members to revise BWEA's health & safety guidelines and develop database and training initiatives to enhance the industry's safety performance.

Rob Hastings, Shell WindEnergy Ltd - Offshore. Rob has spent the last seven years developing and managing onshore and offshore projects in the UK wind industry. A returning Board member, Rob is responsible for offshore work in the Board. He is a founding member of the UK Government's Renewables Advisory Board (RAB) representing the BWEA.

Kevin McCullough, npower renewables - Grid. Kevin started his career in the energy sector in 1984 and has held several managerial positions in the UK and USA, before heading the Integration/Transformation process within npower's then newly formed Retail business. In January 2004, Kevin was appointed Director of npower renewables and now joins the BWEA Board for the first time.

Richard Mardon, Your Energy Ltd - Onshore, RO & Economics. Richard is an Investment Director for Platina Finance, advisors to the Mistral private equity company which has made several investments in the UK and France, most notably Your Energy, of which Richard is the Managing Director. Richard joins the BWEA Board for the first time.

Alan Moore, Low Carbon Futures - Marine. Alan worked in the UK electricity industry for more than 37 years. Retired from his position as MD of npower renewables (formerly National Wind Power Ltd), Alan now has several diverse interests within the renewables industry. Alan is co-Chairman of the Government's Renewables Advisory Board. He was elected to the BWEA Board in 2001 and was its Chairman from January 2003 to May 2005.

Alan Mortimer, ScottishPower - Scotland, Wales and Northern Ireland, Aviation. Alan has worked for ScottishPower for 15 years during which time the company has become the largest developer of onshore wind in the UK. His responsibilities on the BWEA Board include Scotland, and assisting Chris Shears with aviation issues.

Charles Rose, Hainsford Energy Limited - BWEA Financial Control. Charles has been the Chairman of Hainsford Energy Limited, an established developer, owner and operator of wind energy projects since 2000. At Hainsford he has gained great insight into the planning process, not all of it voluntary, and an interest in the use of renewable energy as a catalyst to economic regeneration and engineering skills.

Chris Shears, RES Group - Chairman, Overall strategy and communications. Chris has been developing wind projects since 1994 initially in Scotland and then across England and Wales. He also spent two years as New Markets Manager which included establishing the entry of RES into the Australian wind energy market. He is now a Director of RES UK and has served on the BWEA Board since 1997, having served as Vice Chairman for the last two years.

Marcus Trinick, Bond Pearce Solicitors - Legal Issues. Marcus has 16 years wind energy experience and is a returning BWEA Board member. Marcus and his team are heavily engaged in onshore and offshore project work across the whole of the UK. Marcus chairs the Stakeholder and Consent Sub-Group for Offshore Developments within BWEA.

Review Reaches Half-Way Point with End of Preliminary Consultation

By Gordon Edge, Head of Offshore

The Government's fundamental Review of the Renewables Obligation (RO) has reached the end of its first stage with the close of a preliminary consultation. Gordon Edge has been leading BWEA's work in responding to this consultation and has written a response with full input from the membership that can be found on the BWEA website at www.bwea.com/pdf/RO_Review_condoc.pdf.

The Government pledged to hold a Review of the RO in the Energy White Paper of 2003, and this promise led to a process that started last year with a consultation on the terms of reference. BWEA lobbied for a restrictive set of terms which would mean minimal change to this mechanism, crucial for the health of the renewable industries, and the Government responded with a framework that assured the sector of no change to the main features of the RO such as the recycling of buyout money. The main areas that the Review is focused on are the lower-cost renewables – with a view to proposing an "exit strategy" for certain technologies were the economics shown to justify such a move – and the development of the profile of the Obligation post-2015, when the RO will have reached 15.4%. There are also proposals to extend the eligibility of waste resources for the RO – currently only waste-burning projects using advanced technologies such as gasification can gain Renewables Obligation Certificates (ROCs) – and exempt exported power from combined heat and power (CHP) projects from the base from which the Obligation is calculated, plus a raft of detailed changes to the administration of the system.

The need to look at the economics

of lower-cost renewables was given extra impetus by the report into support for the sector by the National Audit Office earlier this year, which recommended that the possibility of an exit strategy be examined carefully. In order to assess this possibility, DTI commissioned research from consultants Enviro and Oxera to find out the remaining resource, at what cost, of the lower-cost technologies, namely landfill gas and onshore wind. BWEA is concerned about the analysis of onshore wind, as the cost curve calculated by Enviro appears to show that the resource is much smaller and higher-cost than shown in earlier analyses. In the Association's response, this work was examined critically, and BWEA has been working with DTI and Enviro to refine this work. In any case, BWEA is arguing that for investor confidence reasons onshore wind should remain fully within the RO for the immediate future. The issue of an exit strategy should only be examined once the price either of carbon under the EU Emission Trading System or the wholesale price of power has risen to a pre-negotiated trigger level. Once this threshold has been reached, a review of the matter should be launched to set appropriate parameters for the phase-out of new onshore wind from the RO. This phase-out should take the form of a cap on output from such projects that qualify for ROCs.

When it comes to the level of the RO after 2015, DTI has shown some scepticism that there needs to be a decision on raising the profile in this Review. BWEA is arguing that unless a decision is reached, then the issue would have to be revisited in 2-3 years in order to keep momentum in the market – developers need the confidence of a rising Obligation over the first ten years or so of their projects' lifetime in order to secure financing – and so whatever is done, doing nothing now is not an option. The Association's first preference is for the profile to rise at 1% a year to 2020, so that it reaches 20% in that year. If that is not deemed acceptable, BWEA's second choice is



Rheidol wind farm © E.ON UK Renewables

for a rolling target, set 5-10 years in advance. Failing this, the Association is looking with some interest at the Government's proposal for "fixed headroom" – under this system, after 2015 the RO level would be fixed each year so that the gap between expected RO generation and the Obligation was set and known, perhaps at 2% above generation. This would effectively fix the recycle value and thus the price of ROCs; by making income for renewables projects more certain, this would allow higher debt leverage and thus increase equity returns. While BWEA has reservations about how this proposal would be implemented in practice, it may be a useful way of reducing risk in the RO.

DTI will now consider the responses it has received, and issue another more formal consultation later in the year, probably around September. This will set out in detail the changes to the RO that the Government proposes to make, with a view to implementing them through changes to the RO Order, to come into effect on 1 April 2006. If anything that it proposes requires primary legislation, then implementation would have to wait until space in the parliamentary timetable can be found.

Contact Gordon Edge on 020 7689 1967 / gordon@bwea.com. □

Successful Completion for Onshore Wind Initiatives

By Chris Tomlinson, Head of Onshore

It has been quite a year so far for onshore wind. The industry has commissioned 11 schemes and 180 MW with a total of 600 MW expected to be completed by year end. Altogether over 800 MW are currently under construction. We have received 17 consents worth 513 MW at an approval rate of 68% and the appetite for new projects continues with 44 new submissions totalling 1,439 MW onshore - plus of course 1,000 MW from the recently submitted London Array offshore scheme. Onshore wind energy is truly delivering, but key decisions on major projects are still needed if we are to meet the 700 MW of approvals required year on year to 2007 in order to build the 4 GW of onshore capacity expected by 2010.

The current approval rate is down from 2004's high standard of 83%, but we are only half way through the year and BWEA will be reassessing this in December to see how 2005 truly compares.

There are, as ever, still challenges to overcome. In order to sustain the level of capacity being built, the consistency of decisions must improve across the UK while the speed of decision making must accelerate. Furthermore, should there be any faltering from other technologies in meeting their intended contribution to 2010, onshore wind, as the most commercially and technologically viable option with an industry ready to deliver, will be expected to fill the gap.

BWEA has been working on a number of projects and initiatives in an attempt to break down these challenges into bite size chunks. While work will continue relentlessly to further erode the problem areas, we have reached completion on a number of onshore initiatives.

Regional Planning Conferences

Over the last 12 months, BWEA has been touring the UK with a series of Regional Planning Conferences jointly funded by BWEA and DTI, and managed by BWEA. The final three in the series were held in May and June in Wales, the East Midlands and Northern Ireland, completing the total of 10 events dedicated to the needs of planning officers and Councillors. The events have been a great success, attracting well over 1,000 delegates. An event has now been held in every region in England (with the exception of London), Wales and Northern Ireland. The programme did not reach Scotland as the Scottish Executive have been running their own programme of awareness building events for planning authorities on the subject of renewable energy.

The events presented comprehensive information on wind farm development, from Government policy, technical and planning issues to the most important part of the day – a trip to see a modern working wind farm. Details of all the events including programmes and presentation materials can be found at www.bwea.com/planning.

The element of surprise at the peace and power of a working wind farm is a common exclamation from the



Above and below: Local planners and Councillors visiting a wind farm during East Midlands Regional Planning Conference © BWEA

delegates who see the technology in action, often for the first time.

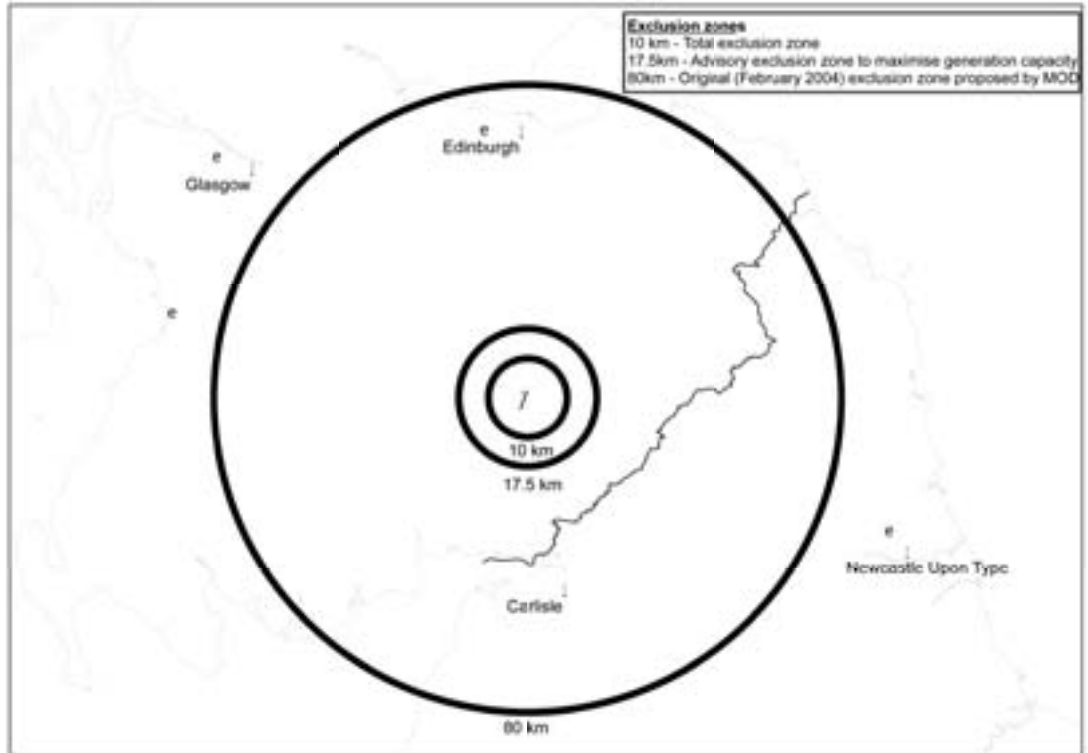
The conferences would not have been a success without the input of a great many people. BWEA would like to thank all the speakers from industry, Government and non-government organisations who found time in their busy schedules. Particular thanks go to Natacha Terrot (E.ON UK Renewables) and Gary Freedman (Ecotricity) for hosting six site visits between them. So successful were the events that BWEA is actively considering a second phase of awareness building in the near future.

□



Eskdalemuir Solution

In addition to more conventional planning challenges, there are also technical issues which have placed great constraints on wind farm development and have led to growing pressure being placed on the planning system in locations where these constraints are not apparent. Working closely with stakeholders, BWEA is beginning to make breakthroughs.



On New Years

Day 2004, the wind industry and Government awoke to a new technical issue which could scupper the renewable energy targets for 2010. An exclusion zone was put in place by the Ministry of Defence (MOD) to prevent wind farm development within an 80 km radius of the Eskdalemuir Seismic Array in southern Scotland, a sophisticated facility used to monitor the comprehensive nuclear test ban treaty by registering underground explosions from great distances. Information from the USA had suggested wind turbines may mask sensitive seismic readings due to small vibrations arising from their foundations. The effective ban sterilised 1,600 MW of onshore wind capacity either in planning or being prepared for planning. This is nearly 600 MW more than is already installed in the UK and equates to 40% of the expected onshore wind contribution to the 2010 renewable energy targets.

In swift response, the Eskdalemuir Working Group (EWG) was established with immediate effect to involve all the relevant stakeholders including BWEA, DTI, MOD departments and the Scottish Executive. Their intention was to increase understanding of the problem and take a more

scientific approach to better inform future policy and action. The EWG commissioned Professor Peter Styles, an expert in seismological research from Keele University to conduct this study. This complex task involved highly sensitive recording equipment, kindly loaned from around the globe from a number of different sources.

The research has now been completed and the EWG supports both the findings and recommendations. The results confirmed that the impact of wind turbines is much less than was initially feared and reduces exponentially with distance from the array. An exclusion zone of 10 km has been put in place to protect the function and performance of this internationally important monitoring station, with a strong recommendation that development up to 17.5 km is not pursued unless and until engineering solutions can be found to improve turbine design.

The revised zones demonstrate the area affected at the outset and the resultant scale of success. MOD objections have now been lifted on 1,600 MW of proposed developments within 80 km of the array.

UK Energy Minister Malcolm Wicks said: *"Eskdalemuir is an excellent example of how industry and government departments can work together to solve problems that could impede progress towards our energy and environmental goals. This agreement is based on solid research, and reflects the goodwill and constructive approach shown by all the parties. It is a welcome boost to our efforts to build a sustainable future energy supply that doesn't harm the environment."*

Chris Tomlinson, Head of Onshore Wind at BWEA welcomed the MOD announcement by saying: *"We are delighted that the wind industry was able to work with Government to find a swift and effective solution to a complex problem that could have jeopardised the UK's chances of meeting it's targets on renewable energy."*

Contact Chris Tomlinson on 020 7689 1963 / chris@bwea.com. □

Aviation Update

By Chris Tomlinson, Head of Onshore

Significant progress is being made from a range of approaches on the issue of aviation and wind energy development. Once again this is largely due to interdepartmental working in Government and close cross party working between industry and Government. Mitigating the impact of aviation on wind farm development (or vice versa depending on your point of view), means not only freeing up geographical areas that can contribute to the renewable energy targets, but will also have the effect of reducing pressure on the planning system in more constrained areas which are currently hot-spots for development.

BAE Systems Advanced Digital Tracker

It is possible for mitigation solutions to be applied at both the radar and turbine end. The leading option currently being explored at the radar end is the Advanced Digital Tracker (ADT), aimed at reducing radar clutter and false tracks caused by wind turbines while maintaining coverage of real targets and aircraft.

BAE Systems (the new name for AMS) have been developing their software package at risk for some time and in June the contract was signed to formally commission BAES to demonstrate the ADT. BAES is now ready to test the software against a working radar with wind farm clutter on the display. Thanks to generous contributions from MOD and in particular the efforts of Wing Commander Brian George, a mobile Watchman Radar has been secured to be installed at a site in mid Wales. The site has been intentionally selected to enable the radar to see a range of turbine sizes and numbers from four wind farms in different directions and distances from the radar site.

The ADT project, now well on course



RAF Kinloss Nimrod over Findhorn Institute Wind Turbine
© BWEA

for reporting back in September/October, has been generously supported by no less than 18 BWEA member developers and the DTI, without whom this project would not have got past the starting line. All funding partners are invited to the flight trials on 27th July in Wales where a wide range of aircraft will be employed to allow rigorous testing of the ADT.

While the trials take place, BWEA and DTI are working with BAES to prepare for Phase II which will place the ADT in operating conditions, increasing confidence and preparing for the ultimate test - building a new wind farm in an area affected by radar. It is envisaged this process will commence in summer 2006. Discussions are also underway to investigate an appropriate pricing mechanism for the final product. Meanwhile, other radar manufacturers are beginning to show an active interest in finding a solution to the wind turbine and radar problem and other mitigation options at the turbine end are being progressed with Phase II of the QinetiQ Stealth Blades research.

Windfarm Information Notification Database (WIND)

In order to improve turnaround times for pre-planning proposals Defence Estates on behalf of MOD and other wind energy stakeholders

have devised a Windfarm Information Notification Database (WIND). This incorporates an electronic version of the pre-planning consultation proforma traditionally found at Annex E of the Wind Energy and Aviation Interests Interim Guidelines. The original system launched in January has had teething troubles with compatibility across different stakeholder needs. The MOD are piloting the electronic system and have been working closely with the Civil Aviation Authority (CAA). The final system is due to be launched in weeks if not days. The National Air Traffic Service retain a separate consultation system which can be accessed at www.bwea.com/aviation/nats.html □

PRASEG Wind Briefings

Offshore Wind Briefing

Monday 18 July 2005
Portcullis House, Westminster

This is the second PRASEG Wind Forum seminar, which will address offshore wind issues, including an overview of the sector, policy mechanisms, and examples of new projects and how wind farms can contribute to local economy through the supply chain and other measures.

With Guest Speakers:

- * Dr Gordon Edge, Head of Offshore Wind, BWEA
- * James Beal, Managing Director, Renewables East
- * London Array Ltd

A previous briefing on 7 June looked at onshore issues, with a presentation from the Sustainable Development Commission (SDC) of their new report, *Wind Power in the UK*. Chaired by Dr Alan Whitehead MP, speakers included Dr Bernard Bulkin, SDC Commissioner and Chris Tomlinson, Head of Onshore, BWEA. Delegates were then taken for a visit to the Dagenham Ford wind farm.

UK Breaks 1 GW Barrier - and the Next is Already in the Pipeline

By Alison Hill, Head of Communications

The UK wind industry is truly moving into mainstream power generation. Recent progress in the sector has been phenomenal, demonstrating the very real potential of this carbon free electricity source to contribute to the UK's targets on renewables and climate change.

In May we saw the opening of what was the most powerful onshore wind farm in the UK to date, the 22 turbine 50.6 MW Rothes project near Elgin in Morayshire. This is the second project to be commissioned by Fred Olsen Renewables, through its agent Natural Power Consultants, which broke the 50 MW barrier, supplanting the June 2004 commissioning of Crystal Rig in the Scottish Borders, who's 20 turbines came in at 50 MW.

However, the record of the UK's most

powerful onshore wind farm was soon broken with the official commissioning of Cefn Croes in June. The 39 turbine 58.5 MW project, owned by Falck Renewables Limited, was developed by the Renewable Development Company and will supply power for 42,000 homes in Wales each year - more than all the households in nearby Aberystwyth.

Cefn Croes was also the project which tipped the UK over the gigawatt mark, one of only eight countries around the world to have done so, placing the UK firmly in the big league globally. With projects under construction and recent planning consents gained, the next gigawatt of wind should be in place much sooner than it took us to achieve the first.

The honour of the largest onshore wind farm in the UK is expected to change hands before the end of 2005, returning to Scotland, with the race on to see who will complete first, Scottish and Southern Energy's Hadyard Hill or ScottishPower's Black Law. Meanwhile, joint holders of the overall title of the most powerful



Ness Point 2.75 NEG Micon which was switched on this year © SLP Energy

wind farm in the UK, the 60 MW North Hoyle and Scroby Sands offshore projects, will themselves be supplanted by year end by the 90 MW Kentish Flats, off the coast of Whitstable. Indeed, so rapid is progress in the UK offshore wind sector that sometime in 2006, the UK will become the world's number one offshore generator - truly a world-beating industry! □

BWEA's UK Wind Energy Database Goes Live

BWEA have relaunched a brand new online version of their UK wind energy database, UKWED. After some time ensuring a quality product and accurate data, Government, media, BWEA members and the public can all access a range of up to date information on wind energy projects in the UK from the most definitive source of data.

www.bwea.com/ukwed will now hold statistical information on projects built, under construction, consented and currently in the planning system - all presented in a user friendly format. This will be accompanied by short progress reports each quarter for onshore and offshore developments. The website will also contain four tables of specific data relating to individual projects in the same categories of development. Finally, a map facility is being provided to identify the geographical whereabouts of projects either operating or under construction. BWEA members will have additional access via the members area of the website to the database itself containing detailed information about every project that has entered the planning system.

BWEA staff are now able to query the data with ease, to enable BWEA to prioritise its work programme, highlight progress and future forecasts, identify key issues and geographical area performances and of course, inform Government effectively on the challenges that threaten our meeting the 2010 targets.



Wind Farms of the UK					
Operational Wind Farms					
Onshore	Projects	MW	Offshore	Projects	MW
England	46	188.96	England	2	63.80
Northern Ireland	11	89.70	Wales	1	60
Scotland	28	429.34			
Wales	20	232.15			
Total Operational Onshore	105	940.15	Total Operational Offshore	3	123.80
Total Operational Wind Farms Onshore and Offshore	108	1,063.95			
Wind Farms Under Construction					
Onshore	Projects	MW	Offshore	Projects	MW
England	5	80.00	England	2	180
Northern Ireland	1	16.90			
Scotland	9	491.60			
Wales	3	38.25			
Total Under Construction Onshore	18	626.75	Total Under Construction Offshore	2	180
Total Wind Farms Under Construction Onshore and Offshore	20	806.75			
Approved Schemes					
Onshore	Projects	MW	Offshore	Projects	MW
England	28	372.75	England	5	534
Northern Ireland	2	19.50	Scotland	2	180
Scotland	25	746.40	Wales	2	189
Wales	8	60.20			
Total Approved Onshore	63	1,198.85	Total Approved Offshore	9	903
Total Approved Schemes Onshore and Offshore	72	2,101.85			
Schemes in Planning					
Onshore	Projects	MW	Offshore	Projects	MW
England	41	729.15	England	3	1,360
Northern Ireland	16	328.95			
Scotland	74	5,375.10			
Wales	14	140.73			
Total Schemes in Planning Onshore	145	6,573.93	Total Schemes in Planning Offshore	3	1,360
Total Schemes in Planning Onshore and Offshore	148	6,573.93			
Up to date summaries of UK wind energy statistics are available at www.bwea.com/statistics					

embrace the revolution

Progress Starts to Manifest Itself

By Gordon Edge, Head of Offshore

In the offshore wind sector, progress is often hard to discern, even though much work is going on behind the scenes. However, this quarter some significant milestones were reached which should be the start of a string of news stories resulting in offshore rising up the public consciousness.

The most prominent of these milestones was the submission by the London Array project for official consent to build. This is the first of the Round Two projects to make its submission, and since it will be 1,000MW, if built to its maximum extent, and sited in the Thames Estuary near London, it is an iconic project that will be a key test of the viability and acceptance of offshore wind. London Array Ltd is a consortium made up of Shell, Eon and CORE, the latter a joint venture of Energi E2 of Denmark and Farm Energy of the UK. The project partners intend to build out the farm over four years, in blocks of roughly equal size. Around 270 turbines will be installed in total.

Apart from the concerns of the shipping industry, the main challenge for London Array will be the concentrations of rare sea birds on site, specifically the Red-Throated Diver. Given this, the publication by the Royal Society of a paper on the behaviour of migrating birds around the Nysted offshore wind farm in Denmark in the same week as London Array's submission, was timely. Researchers at the site have tracked migrating birds using radar and shown that the vast majority of birds note the presence of the farm and take avoiding action – less than 1% of the birds go close enough to the turbines to even be at risk of collision. This work confirms similar research at smaller projects off the southern coast of Sweden, which also concluded that migrating birds are at very low risk of collision with wind turbines. While

the issue at London Array is more to do with displacement of birds from feeding areas, the coincidence of the two pieces of news was a useful boost.

Up to six more Round Two projects will be submitting for their consents this year, which will mean a considerable workload for DTI and DEFRA, and their advisory bodies. Among those aiming for submission are Warwick Energy, with their Thanet project, and Scira, the development vehicle for the Sheringham Shoal site – both these companies held public information meetings in the last two months to introduce their local communities to the developments. In this context, it is with mixed feelings that BWEA learned the news that Sue Reed of DEFRA's Marine Consents and Environment Unit is leaving the civil service. We wish her well in her new role in the private sector, but are concerned that her departure leaves a large hole in DEFRA's consenting capability at a crucial time. BWEA will be following DEFRA's attempts to recruit Sue's replacement with considerable interest.

While Round Two projects are seeking permission to build, Round One construction is really starting to pick up. After two years when one project was built in each year, there are now two projects simultaneously under construction in UK waters. The towers and turbines started to go up at Kentish Flat in the Thames in May, and the project is on target for full commissioning before the end of this year.

Work has also started on site at the Barrow project, with first piles being driven in May. MPI's Resolution vessel is undertaking the work using the Harland and Wolff yard in Belfast as a base. While MPI is aiming to finish construction this year, the wind farm is expected to go online in 2006. The Middlesborough firm's job was complicated when the company it had lined up for the cabling work at Barrow was forced into receivership in May. CNS Renewables had worked on both the North Hoyle and Scroby

Sands projects, but had been suffering cash flow problems for some time when one of its creditors decided to pull the plug. BWEA will be working in the future to help build a viable supply chain for UK offshore projects, so committed companies like CNS do not end up bankrupt.

Notwithstanding supply chain concerns, a number of Round One projects are nearing financial close and should be announcing completed contracts shortly. Up to 180 turbines could start construction in 2006, which, added to the 300MW that will be complete or nearly so by the end of 2005, will see the UK sailing ahead of Denmark in the offshore wind capacity league table. Making its first entry on that table next year will be the Netherlands. Its first project reached financial close in June, with the contract between project partners Shell and Nuon and a construction consortium led by Vestas and Ballast Nedam sealed. The NoordzeeWind (NZW) project will be made up of 36, V90-3 MW turbines, giving total capacity of 108 MW. With Dutch policy on offshore wind now in chaos after a moratorium was announced recently, German and French policy still in doubt, and the next Danish projects not due until 2008, the UK is clearly the most active market for offshore wind.

Another market that has yet to take off is Ireland. Development has stalled after the initial demonstration phase of the Arklow Bank project. The seven GE 3.6 MW turbines there were officially opened by the Taoiseach Bertie Ahern on May 26. Apart from the fact that GE had arranged for a glorious sunny day with just enough wind to keep the blades of the enormous turbines circling, the most impressive part of the opening was the demonstration of support for the project by the local community of Arklow. BWEA looks forward to finding out if Whitstable's residents are as positive at the opening of Kentish Flats.

Contact Gordon Edge on 020 7689 1967 / gordon@bwea.com. □

Building Confidence on the Route to Resource

by Michael Hay, Marine Renewables Development Manager

Since the last *Real Power* newsletter the marine renewable energy sector has begun to evolve from an industry emerging from R&D into one focusing its sights on commercial reality. This change in momentum has been driven by both confirmation of Government support and industry developments and looks set to continue throughout, and well beyond, 2005.

Despite the mixed response to the DTI scheme for distributing the £42 m support pot, the principals of the proposals that emerged from the consultation period were built around the recommendations in BWEA's lobbying last year, namely revenue support and capital grants. The DTI stuck with the funding caps of £9 m per project and also kept the revenue support level at £100/MWh and the capital grant percentage at 25% but increased the length of time revenue support can be received from five years to seven, as suggested by the BWEA Marine Steering Group.

Coupled with this, changes such as allowing developers to choose their commissioning date, flexibility between capital grant milestones, and making grid connection an eligible cost were made. It is vital that this funding package produces successful projects in order for industry to prove to government that it can generate electricity and drive down costs on the path towards the commercial renewables market. BWEA will continue to work with DTI to ensure this happens.

Nevertheless, any amount of support will be rendered inaccessible unless a process of consenting for first small arrays and beyond is rapidly facilitated. Following the DTI developer and stakeholder workshops, BWEA has been working with the consents departments of DTI and DEFRA in order to ensure an effective

process is developed efficiently. DTI have now stated that they will produce a policy statement around the beginning of July. BWEA has also been discussing leasing options with the Crown Estate and will continue to provide support to them in this area by voicing the concerns and expectations of the sector.

In parallel with consenting discussions with regulators BWEA has also been increasing our engagement with statutory consultees and strategic stakeholders over the past couple of months. Following guidance from marine members BWEA represented the sector at the annual meeting of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) in Paris. This cumulated in IALA drafting international recommendations for the marking of marine renewables that will go to the IALA Council for approval towards the end of the year.

English Nature, RSBP and WWF have also received briefings from BWEA on wave and tidal stream development following invited gatherings. These meetings have built greater confidence amongst such bodies around the industry approach to deployment challenges by clarifying the present position of the sector and emphasizing that we are learning from the experiences of offshore wind in terms of stakeholder engagement and consultation.

Such discussions invariably end up centering on the industry perspective of the proposed Marine Bill and its internal facet, Marine Spatial Planning. BWEA has therefore set up a Marine Bill Focus Group in order to define the position of offshore renewable energy developers on this potentially significant political development. This group has representatives from the offshore wind, wave and tidal energy sectors together with a number of individuals with a wealth of experience around the marine environment and its users.

In terms of industrial development, BWEA's members have also witnessed



Pelamis device © Ocean Power Delivery

significant progress recently. Tidal developers SMD Hyrdovision received a DTI grant of £2.68 m to further develop their TidEL device in the newly confirmed EMEC tidal berths in May. In the world of wave energy, OPD signed a deal with Enersis to develop the world's first offshore wave project in Portuguese waters and more recently announced that they will be using Camcal on the Western Isles of Scotland to develop the steel for this project. UK based OPT Ltd have also just signed an agreement with Total and Iberdrola to develop a wave project off the coast of France. Furthermore, Wavegen were bought by the German multi-national Voith-Seimens in May but will remain in Scotland for the foreseeable future. Such developments only serve to underline the strength of the sector in this country and to emphasize its potential in the eyes of others. However they also highlight how important it is to ensure that this potential is realized in UK waters in order to reap the economic and environmental benefits of this new and exciting energy sector.

BWEA's Marine Focus Group now has 110 company members made up of, amongst others, device and project developers, utilities, investors, environmental consultants and manufacturers. With the support of this group and the guidance of the BWEA Marine Steering Group, chaired by Alan Moore, we are in a good position to push for what will be needed to build a successful industry in the UK.

Contact Michael Hay on 020 7689 1937 / michael@bwea.com. □

How Many Households Can a Wind Turbine Supply?

by Richard Ford, Head of Grid and Technical Affairs

To an engineer, the most meaningful description of the electricity output of a wind turbine is measured in megawatt hours (MWh). A 1 MW turbine with an annual load factor of 30% could be expected to generate 2,600 MWh over the course of a year. However, this figure holds little meaning to the wider public and so comparative measures are often employed. The most common of these is to express output in terms of household equivalent i.e. the number of households whose combined energy consumption over the year matches the electricity output of the turbine or wind farm in question. To derive the household equivalent figure, all you need to know is the average electricity consumption of a household. This, sadly, is not as easy as you might imagine.

Firstly, not all households will have the same levels of electricity consumption. Most houses do not make use of electrical heating systems. Ofgem estimates the demand of these houses to be 3.3 MWh each year. However those households with electric heating will use substantially more electricity (anything up to double). There are no publicly available figures for the number of households with all electric heating. Secondly, households in different parts of the country may have different levels of consumption. Anecdotal evidence suggests that average electricity consumption may be lower in Northern Ireland households but higher in Scotland. There are, as yet, no robust, publicly available figures to assess this.

The approach of BWEA has been to derive an average household electricity consumption figure by dividing UK domestic electricity consumption by the number of UK households, as follows:

Domestic electricity consumption in the UK can be derived from the Digest of UK Energy Statistics (DUKES). In 2003 domestic consumption was 115,761,000 MWh¹. There is no central figure for number of households in the UK in 2003 but there is some country specific data.

- The ODPM's Housing Statistics Summary 24 gives the number of households in England as 21.109 million²
- The Welsh Assembly's Statistical Bulletin SB2/2005 gives the number of households in Wales as 1.213 million³
- The Scottish Executive estimates the number of households in Scotland as 2.217 million⁴
- The Northern Ireland Statistics and Research Agency estimates the number of households in NI as 0.645 million⁵

From these sources we can derive a figure for number of households in the UK in 2003 as 25.184 million. Average household electricity consumption in 2003 was thus 115,761,000 MWh divided by 25,184,000 or 4,597 MWh. This number will vary over time as statistics on number of households and domestic electricity consumption vary. Recent growth in number of households has been around 0.8% per year whilst recent growth in domestic electricity consumption has been around 1.5% per year. If these trends were to continue then the figure for average domestic consumption might also be expected to increase at between 0.5 and 1% per year.

Although the household equivalent figure for 2003 has been calculated at 4.6 MWh, BWEA considers that it is prudent to use a slightly higher figure to allow for variations in the underlying data. Use of a higher figure avoids any perception that the number of households supplied is being overstated. BWEA recommends that members use the figure of 4.7 MWh per household when deriving figures for household equivalents. On this basis, a 1 MW machine with a 30% load factor would supply the annual energy consumption of 560 homes whilst a 3.6 MW machine would supply the annual energy consumption of 2012 homes.

Time for Reflection

As noted in the last edition, the British Trading and Transmission Arrangements went live on 1 April 2005. Other changes also took place on that date such as the commencement of new Distribution Price Controls. As a result, the charging arrangements for both transmission and distribution companies have changed. These are significant changes that will have left some issues unresolved. The electricity industry is now in a period of reflection and review which has done nothing to reduce the number of consultation documents. One review of note is NGC's review of the treatment of intermittent generation in the setting of transmission charges. NGC has already sought views from industry and will be issuing a further questionnaire this summer.

GB Grid Code

The GB Grid Code also took effect on 1 April but has already been amended. In May, Ofgem approved changes to the Grid Code that impose new restrictions on intermittent generation such as wind farms. Whilst the new requirements are strict, they are much improved from earlier proposals and the final decision has clearly taken on board the responses provided by BWEA and member companies.

References

- ¹ www.dti.gov.uk/energy/inform/energy_stats/electricity/dukes5_3.xls
- ² This document is available from the Bournemouth library www.bournemouth.gov.uk/Library/PDF/Living/Planning/Research/Mid%20year%20household%20estimates%202000%20to%202003.pdf
- ³ www.wales.gov.uk/keypubstatisticsforwales/content/publication/housing/2005/sb2-2005/sb2-2005.htm
- ⁴ www.scotland.gov.uk/Topics/Statistics/14844/18147
- ⁵ www.nisra.gov.uk/statistics/financeandpersonnel/DMB/datavault/lgdtotals.xls

Contact Richard Ford on 020 7689 1938 / richard@bwea.com. □

Time for a Strategy

by Mari Martiskainen, Programme Officer

BWEA's work on small scale wind is continuing with a focus on the Microgeneration Strategy. The first draft of the consultation document has now been published and was circulated to the microgeneration community at the end of June.

The cross-Government strategy for the development of microgeneration, includes technologies such as micro-hydro, micro-wind, solar power, fuel cells, micro-combined heat and power, and ground and air source heat pumps. The consultation is divided to six main areas:

1. Product development and deployment - R&D, skills base.
2. Communications - promotion and information.
3. Economics - economic instruments, access to Renewable Obligation Certificates and a reward for the export of excess electricity.
4. Installation - regulations such as planning policy and the Building Regulations.
5. Low Carbon Buildings Programme - development of the successor scheme to the Clear Skies Initiative and Major PV Demonstration Programme.

BRE/BWEA Small Wind Event

There was a breeze of excitement in the air as over 200 delegates gathered at the Building Research Establishment for a one day small wind conference. BWEA supported the *Wind Power - Small Scale and Building Integrated* event which took place at BRE HQ in Watford at the end of April. Delegates ranged from small wind turbine manufacturers and suppliers to Local Authorities, Government bodies and large commercial organisations. The event was a success for both the organisers and the industry alike and received good press coverage.

6. Physical infrastructure - technical issues such as identifying the most effective metering arrangements and connection of microgenerators to the distribution network.

The Strategy consultation is very timely and in general support for small scale renewables is on the increase. A recent NOP survey found that over 90% of people in Scotland support small scale renewables, whilst about 70% would consider installing a renewable energy device in their home. This consultation will be a corner stone for microgeneration, and BWEA looks forward to working with members, DTI and other stakeholders in order to achieve best results particularly on the issues of targets, market mechanisms and regulation.

Domestic rooftop trials take off

The new breed of small scale, rooftop turbines has been in the news lately with the announcement by British Gas to start a trial on 1 kW Windsave rooftop turbines in the Autumn. Two locations, Scotland and the South West, have been selected for the domestic trials and if all goes to plan, British Gas hopes to roll out the product to the mass market in 2006.

Meanwhile, Edinburgh-based Renewable Devices has been busy with building more of their Swift 1.5 kW rooftop turbines. Scottish and Southern Energy invested some £9 m in the company earlier in the year and is now expecting to see the first batch of the 2,000 turbines to be ready towards the end of the summer.

Renewable Devices has won the electricity generation award of £30,000 for the UK category of the Ashden Awards, announced on 29th June. The awards support small scale sustainable energy projects in the UK and the developing world.

Health and Safety

BWEA has been in talks with the Health and Safety Executive (HSE) on the possibility to provide Health and Safety guidelines for small scale

Events Diary 2005

20-24 September 2005
HUSUMWind Trade Fair,
Germany

www.husum-wind.de

17-18 October 2005
Wind Turbine Noise:
Perspectives for Control,
Berlin

www.windturbinenoise2005.org

18-20 October 2005
BWEA's 27th Annual
Conference & Exhibition,
Cardiff

www.bwea.com/27

8 February 2006
BWEA Marine Conference,
Gateshead

www.bwea.com/events

27 Feb-2 March 2006
European Wind Energy
Conference & Exhibition,
Athens

www.ewea.org

16-19 May 2006
WindEnergy International
Trade Fair, Hamburg

The European Wind Energy Association (EWEA) will be the official international cooperation partner at WindEnergy 2006.

www.hamburg-messe.de

wind energy. At present there are no industry wide guidelines in place for installation, maintenance and decommissioning of small scale wind, thus BWEA will establish whether there is scope for providing Health and Safety guidance for this sector. The second meeting with the HSE is set for August, at which BWEA and HSE will review any existing Health and Safety information. Look out for the next issue of *Real Power* on updates.

Contact Mari Martiskainen on 020 7689 1935 / mari@bwea.com. □

BWEA Takes to the Road

By Helen Barnes, Events Manager

BWEA27 - 18-20 October

Preparations are well underway for the industry's 27th annual conference and exhibition in Cardiff this autumn, sponsored by ScottishPower Renewables. The new UK Energy Minister has confirmed his presence and the rest of the conference programme will be online 15 July. Sessions will include wind energy in Wales, finance & the RO, development considerations, grid, project delivery, health & safety, technical issues, wave & tidal energy, supply chain, small wind systems, aviation & MOD and hearts & minds. Other event sponsors include GE Energy, Fred Olsen Renewables, npower renewables, PB Power and Regen SW. There are some sponsorship opportunities remaining. For more information contact Helen Barnes.

BWEA27 Exhibition – book your stand!

Over 75% of exhibition space has already been sold. If you have yet to book your stand at the UK's largest dedicated wind, wave & tidal exhibition visit www.bwea.com/27 as soon as possible to secure the best location! Online registration will be up and running 15 July - members will receive an email alert.

HUSUMwind

BWEA is hosting the UK Village at HUSUMwind on 20-24



September 2005. This is the largest dedicated wind trade fair in the world and is attended by industry representatives the world over. BWEA can offer selected UK registered companies UK Trade & Investment funding to exhibit at Husum. This amounts to 50% of your stand space, build and shipping costs, to a maximum of £2,500. Contact Emma Owen, BWEA Events Administrator, for more information, emma@bwea.com.

BWEA out and about

BWEA has been very busy since our last newsletter was published, representing the industry and gathering hundreds of signatures for the *Embrace the Revolution* campaign! BWEA took its regular stand at All-Energy Aberdeen, with Scottish Renewables, attended by 2150 people from 30 countries. BWEA supported the Building Research Establishment's Small Scale/Building Integrated Wind Seminar in Watford, which drew together a wide range of companies working in small wind, and Ecobuild 2005, an inaugural event which saw industry professionals debating the challenges faced when designing and building a sustainable future. BWEA exhibited at another new event, the Clean Energy Technology & Investment Expo, held at the Business Design Centre in London, which focused on the clean use and production of energy including the latest developments in alternative fuels and renewables generation.

BWEA has been involved in several events as part of London Sustainability Weeks (5-19 June 2005). 400 people signed up to *Embrace the Revolution* at two events on Sunday 5 June, World Environment Day: the London Green Lifestyle Fair at Greenwich Park, organised by Ken Livingstone and the Camden Green Fair & Bike Fest in Regents Park. BWEA also took part in Imagine Islington on Sunday 19 June, a green lifestyle event organised by Islington Council.

BWEA stall at Glastonbury 2005 © BWEA



Alison Hill signing yet another supporter for Embrace at the London Green Lifestyle Show at Greenwich © BWEA

Four BWEA staff were amongst the 150,000 people who fought the mud at this year's Glastonbury Festival. BWEA joined Greenpeace in their field with the *Embrace the Revolution* campaign to raise awareness of wind energy. Despite the thunderstorms and muddy fields, interest for BWEA's stall was constant and over 250 festival goers a day joined the thousands already sporting their *Embrace* badges, and *Embrace* balloons were a big hit amongst the younger audience.

Wave & Tidal Conference

BWEA is pleased to announce that its third annual wave and tidal energy conference will take place on Wednesday 8 February 2006 at The Sage Gateshead. More information will be available soon.

Contact Helen Barnes on 020 7689 1968 / helen@bwea.com. □

Loving the Power of the Wind!

By Alison Hill, Head of Communications

The momentum of the *Embrace the Revolution* campaign shows no signs of stopping as BWEA continues its programme of activity to ensure that the voices of those who support wind energy are heard.

Country launches

Following on from the successful launch of the campaign in Scotland, with a new opinion poll and celebrity champions to match, this was repeated in Northern Ireland and Wales, in April and May respectively.

The people of Northern Ireland voted overwhelmingly in favour of the need for wind energy, with an amazing 87% agreeing that wind farms are necessary to meet current and future energy needs. Strong messages of support came from new celebrity champions, including Tim Wheeler, lead singer of pop band, Ash. The survey by Millward Brown Ulster also found that two-thirds of people - 66% - would be happy to have a wind farm in their local area, rising to 73% in the West of the Province.

Meanwhile, the launch of Cofleidiwch y Chwyldro found that 75% of people in Wales agree that wind farms are necessary to help meet the country's current and future energy needs, with a majority 50% supporting the idea of having a wind farm in their local area. Celebrity champions included long time campaign supporter Sian Lloyd, who added her voice to the launch, talking of her pride in being one of



BWEA, B9, Action Renewables, Airtricity and DETI launch embrace in Northern Ireland © Action Renewables

the people of Wales who are thinking clearly about the future of the planet.

Each country launch was concluded by an evening reception where the *Embrace* Magnum photography was on display for the gathered industry players and stakeholders.

Many of BWEA's members have also been availing themselves of the opportunity to have the Magnum photos as part of their community activities, with the mobile exhibition appearing at venues across the country from Aberdeen to Cornwall.

Team Embrace Wind

In May *Embrace* joined with the Scottish Renewables Forum to support extreme sportsman Sebastien Chastin in representing Scotland in the Paris-Dakar wind-powered races – a 600 km race across the Sahara desert.



Sebastien Chastin on his kite buggy

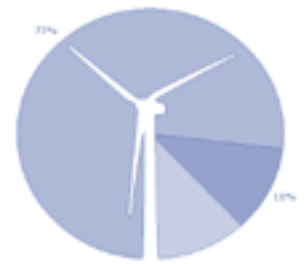
Competing as 'Team Embrace Wind', Sebastien pitted himself against 40 of the most experienced kiting pilots from 10 countries around the world in the nine-day Transat de Sables in Morocco. A determined Sebastian was among only three competitors who made it to the final day of the challenge when changeable conditions resulted in a draw being called.

Wind Tracker

With the world's media attention looking to the UK presidencies of both the EU and G8, with their focus on climate change, *Embrace* seized the opportunity to release the results of the third in the series of its 'Wind Tracker' in advance of the deliberations at G8 at the beginning of July.

Conducted by leading independent research company, NOP World on behalf of BWEA, the results were yet

Do you think that wind farms are necessary to help meet current and future energy needs in the UK?



The Wind Tracker, conducted by NOP World, May 2005

further confirmation of the continuing high levels of support for wind energy, with more than three quarters of the public - 77% - agreeing with the statement that wind farms are necessary to help us meet current and future energy needs in the UK.

This compares well with previous results, which have show 74% (August 2004) and 79% (January 2005) agreement. The 'Wind Tracker' will continue to be conducted regularly throughout the year, with the next results due for publication at BWEA's 27th annual conference and exhibition, being held in Cardiff 18-20 October, and fittingly titled *embrace the revolution*.

Wind Weekend

The next big event on the *Embrace* calendar is Wind Weekend, when one in five UK wind farms will open their doors for a celebration of wind energy. Scheduled for 27-28 August, the last Bank Holiday weekend before the schools go back, the first ever nationwide opening of wind farms will be ideal for families looking for something to do with the kids!

Wind Weekend will be a great opportunity to get communities engaged with and interested in wind farms by providing them with a fun, exciting day out and a chance to learn more about wind energy. Full details of sites participating can be found online at www.embracewind.com/weekend - and if you have a wind farm, it's not too late to join in!

Contact Alison Hill on 020 7689 1966 / alison@bwea.com. □

From Pensions to Power

BWEA caught up with the new Minister for Energy, Malcolm Wicks, to hear his views on the new job and the UK's wind, wave and tidal industries.

As you take over this key position, what do you consider to be the top three priorities for you as Energy Minister over the next couple of years?

In the Energy White Paper we highlighted the threat of climate change; the decline of our indigenous energy sources and the updating of the UK's energy infrastructure as key challenges and these still remain a priority. Renewables and especially wind, in the years up to 2010, will play a key role in contributing to our climate change targets and we will use the Climate Change Programme Review to look at ways to get to our domestic goals. As we move from being a net exporter to a net importer of energy, we need to make sure that the infrastructure investment needed for future security of energy supply is happening, although new indigenous supplies such as wind power will help provide the UK with diversity in its energy mix. Updating the transmission system will become increasingly important as we move towards 2010 to ensure that all the new wind build can be connected to the grid to allow us to meet our 10% target.

The Renewables Obligation has now been in operation for just over three years: how do you think it is progressing?

The Renewables Obligation is working well and there has been a marked acceleration in developments since it was introduced, particularly in terms of wind energy. 2004 was a record year for wind projects built and consented and we expect to double this achievement in 2005. This year we are undertaking a review of the Obligation to ensure it is working effectively. The review is

Malcolm Wicks MP, Minister for Energy Biography

Malcolm Wicks has been a Member of Parliament in north Croydon since 1992, first representing Croydon North-West and since 1997 representing Croydon North.

Before becoming an MP, Malcolm Wicks worked in the Urban Deprivation Unit of the Home Office, was a lecturer and was Director of the Family Policy Studies Centre. He has been the author and co-author of many publications, including a pioneering work on hypothermia, *Old and Cold: hypothermia and social policy*.

Malcolm Wicks holds several positions at national organisations. He is a vice-president of Carers UK and the Alzheimers Society and a trustee of the Croydon-based National Benevolent Fund for the Aged. He also has interest for local organisations and is president of Carer to Carer, a vice-president of South East Cancer Help Centre and the Croydon Philharmonic Choir, and a patron of the West Croydon Refugee Centre and the Bangladesh Welfare Association.

Malcolm Wicks has served in the Government since 1999 when Tony Blair appointed him a junior Minister in the Department for Education & Employment. In July 2001 he moved to the Department for Work & Pensions where he was promoted in 2003 to Minister of State for Pensions. Following the General Election he was appointed Minister for Energy in the Department for Trade and Industry.



limited in scope and our key priority is to improve the effectiveness of the Obligation whilst ensuring that investor confidence is maintained.

What do you see as the most pressing priorities for a) onshore and b) offshore wind in delivering their share of the 2010 renewables target?

For onshore wind, as I have already mentioned, we need to upgrade the transmission system so that the electricity from new onshore wind farms can be transported to the areas of the country where it is most needed. We are working hard with Ofgem, and the transmission owners to ensure that upgrading happens in a timely manner so that there is sufficient network capacity for new renewable generators to connect to.

We are also working hard to overcome the myths that surround the development of wind farms. There is a small but vocal minority who are opposed to development of future wind projects and we need to promote a balanced discussion of the arguments for and against. Interestingly surveys show that people with first hand experience of living near to a wind farm tend to be more in favour of them than those who have had no experience, indicating that many of the issues are unfounded.

For offshore developments we are working with new technology in a difficult environment and this presents many technical challenges that we need to overcome. The most pressing priority is to get projects up and running, and to develop a regulatory

regime to connect the large, Round 2 projects to the onshore grid. We have made a good start on Round 1 projects with North Hoyle and Scroby Sands commissioned, and Kentish Flats and Barrow under construction. Offshore wind offers an exciting potential and I want to see us make the most of it.

What do you see as the key actions that the DTI needs to be taking to ensure that the wave and tidal sector plays it's part post 2010?

As with other emerging technologies wave and tidal have exciting potential and that is why we have supported research and development in this area for a number of years. Early results have been encouraging and so we have put in place the Marine Renewables Deployment Fund worth up to £50 m over the next 3 years. The new fund responds directly to the recommendations of the Renewables Innovation Review, that the Government should support pre-commercial trials, and also reflects the Industry's desire for a mechanism that rewards success through a mix of capital and revenue support.

We have also supported the development of necessary infrastructure such as European Marine Energy Centre wave centre and the new tidal extension.

DTI is now working to put in place a consents framework for the first demonstration projects that balances the needs of developers with the needs of environmental stakeholders and other marine users. As part of this process two stakeholder workshops have been held and we expect to issue a policy statement shortly.

At this stage, and in the absence of any results from the demonstration scheme, it is difficult to say what measures may be needed to support the continued development of this sector post 2010. However, I can assure you that where these technologies meet the challenge of proving themselves and we can see a clear route to the costs reductions that will be necessary for these technologies to succeed and be brought to market, Government will respond accordingly.

What do you see the role of the DTI in promoting renewable energy, and particularly wind power, given that this technology will be providing the lion's share of meeting the 2010 target and has been subject to much high profile media attention in recent months?

It is important that people have access to the facts and we will continue to work with trade associations such as the BWEA to put this information out there. We all need to recognise that climate change is real and that local issues, such as the siting of a wind farm, need to be balanced with the wider environmental issues that we are faced with.

As I've already mentioned we are also reviewing the Renewables Obligation to make sure it works as effectively as possible in bringing forward new renewable developments. As well, we need to consider the longer term – while wind will make the main contribution in the years up to 2010, thereafter I want to see a wider portfolio of renewable technologies, including wave and tidal. □

Minister Shows Commitment and Support for Renewables from His First Speech Onwards

Malcolm Wicks, MP and Minister for Energy gave his first keynote speech as Minister for Energy at the All-Energy Conference Aberdeen on 25th May 2005. His speech showed both commitment and warm hearted support for renewables, not only for wind energy but also for wave and tidal as well as other technologies such as PV, and highlighted the Government's continued commitment to the expansion of renewables.

Malcolm Wicks has a long interest in fuel poverty and this was also mentioned in his speech, of the four key goals of the Energy White Paper he pointed out the need to ensure that every home is adequately and affordably heated. In addition, climate change and the decline in the UK's indigenous energy supplies still play a very big part in Government's energy policy, with security of supply being and remaining a fundamental objective.

The Minister also praised the work of the Renewables Advisory Board and noted the views of the Sustainable Development Commission, with a mention that the SDC report "*Wind Power in the UK*" was particularly perceptive, authoritative, and well timed. In the Minister's view, wind farms, both onshore and offshore, will make the most significant contribution towards the 2010 target, but the Government is seeking to bring forward a wider range of renewables into the longer term.

Since his first speech at All-Energy Aberdeen, Malcolm Wicks has been flying the flag for renewables by making several important announcements on policy issues. The Secretary of State and Minister for Energy announced in June that Non-Fossil Fuel Obligation (NFFO) 3, 4 and 5 projects will all remain eligible for the full support of the Renewables Obligation when their contracts expire, which is likely to reassure investors and developers of renewables projects. Wicks also announced a £2.68m grant for tidal devices testing in May and launched the Microgeneration Strategy consultation, a cross-Government strategy for the development of micro-generation, in June 2005.



Gordon Edge, Head of Offshore speaking at BWEA Offshore 2005 conference © BWEA

BWEA has yet again been busy representing the wind industry at various events and conferences, as well as responding to several

consultations that have an effect on the wind industry. In addition, BWEA has also been active in its media work, giving several interviews to various local and national radio and television programmes.

RO Review

One of the most important of consultation responses in the last quarter has been the Renewables Obligation Review, of which there is a larger report on page four.

GB Grid Code changes for intermittent generation

Ofgem consulted on changes to the GB Grid Code which will apply to intermittent generation. Ofgem's

decision, which accepts many of the points raised in the BWEA response, was published on 27 May 2005 and is available from www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11576_Binder1.pdf

Download responses from BWEA website

BWEA policy and consultation responses are available from www.bwea.com/ref/consultation-responses.html. BWEA's planning representations are available to the members of the Association, go to www.bwea.com/membersarea for more information. □

Consultation responses	
Subject	Date
2005-06 Renewables Obligation preliminary consultation document	June 2005
Scottish Executive Preliminary Consultation on the Renewables Obligation (Scotland) Review	June 2005
Onshore	
30 local and regional planning representations	May-June 2005
14 'Statement of Community Involvement' Consultations Responses - not available online	May-June 2005
Offshore	
Consultation on Nature Conservation Guidance to Developers of Offshore Windfarm Developments	July 2005
BMT Navigational Risk Modelling Guidance Consultation	July 2005
Grid and Technical	
Ofgem Consultation on CAP048 Compensation Costs	May 2005
Transmission Network Use of System Charges Condition 3 on Intermittent Generation and Condition 4 on Long Term Fixed Price Products	June 2005
Structure of electricity distribution charges - Consultation on the longer term charging framework	June 2005

BWEA Presentations	
Presentation	Organisation
Offshore wind in the UK: The Long March to power	BWEA Offshore Wind 2005
Offshore wind power – a business opportunity for marine contractors	Seaworks 2005, Southampton
Wave and Tidal Stream Energy Devices	DTI Wave and Tidal Stream Stakeholders Workshop
An Overview of Wave Energy in the UK	British Ornithological Union Annual Conference
Marine Renewables in the UK: 'Into the Blue' and beyond	Co-ordinated Action on Ocean Energy, Aalborg, Denmark
Wave and Tidal Stream Energy Devices	IALA Aids to Navigation Committee meeting, Paris, France
Wave and Tidal Stream Energy – How, Why and When?	Clean Energy Expo, London
The Route to Resource	All-Energy Aberdeen
An Overview of Wave and Tidal Stream Energy in the UK	Seawork 2005 International Conference
Small Scale Wind - An Industry View	All-Energy Aberdeen
Onshore Wind	Synnogy Seminar
Onshore Issues	All-Energy Aberdeen
Onshore Issues	PRASEG Briefing
Grid Presentation	5th International Conference on Large Scale Integration of Wind and Offshore Transmission Networks
Embrace the Revolution	All-Energy Aberdeen
UK wind industry	UKTI US journalists mission



embrace the revolution

www.embracewind.com

New Briefing Sheets from BWEA

Two new documents have been added to BWEA's popular series of briefing sheets, *Wind Power and Intermittency: The Facts* and *Small Wind Energy Systems*.

Wind Power and Intermittency

Wind generation is often described as intermittent, as the wind does not blow continuously. This is a misnomer as it implies an 'all or nothing' delivery of energy. An individual wind turbine will generate electricity for 70-85% of the time and its electricity output varies between zero and full output in accordance with the wind speed. However, the combined output of the UK's entire wind power portfolio shows less variability, given the differences in wind speeds over the country as a whole. Whilst the amount of wind generation varies, it rarely (if ever) goes completely to zero, nor to full output. This briefing sheet addresses some of the most common questions associated with the variability of the wind. It concentrates on the issues that apply to modest contributions of variable renewables to a power system - up to 20%, say. This is not a ceiling and many argue higher amounts can be accommodated. The aim is to clarify the short to medium-term issues, drawing upon the considerable body of analysis that has been carried out during the past 25 years. To download, go to www.bwea.com/energy/intermittency.pdf.

Small Scale Wind Energy Systems

Small scale wind turbine technology is well-established and due to its flexibility, can be utilised practically anywhere. There are two basic systems available for using wind turbines to generate electricity - stand-alone or grid-connected. Wind turbine design can be either the more common horizontal axis type or vertical axis design, and there is

now a new breed of rooftop turbines entering the market. This four-page briefing explains the basics of small scale wind energy systems, including different technologies, planning, costs and available grants. The briefing sheet is available from www.bwea.com/energy/small_wind.pdf.

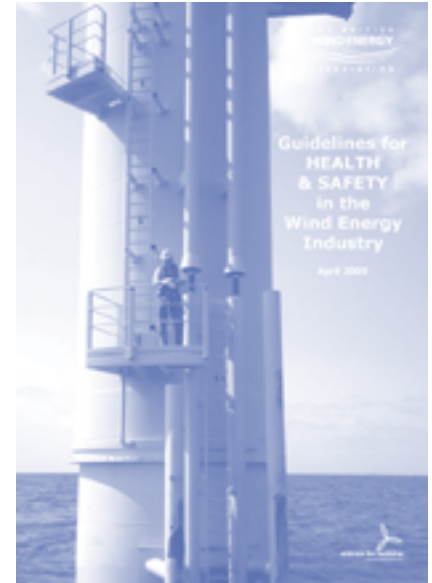
Other briefing sheets in the series cover a wide range of issues in wind energy including *Wind Energy Technology*; *Benefits of Wind Energy*; *Wind Energy and the 10% Target*; *Offshore Wind*; and *Public Opinion*. All of the existing briefing sheets will continue to be updated and reprinted in 2005. In the mean time, electronic versions are available to download from www.bwea.com/energy/briefing-sheets.html.

Planning for Wind Energy

The Town and Country Planning Association (TCPA) and BWEA are working together to raise awareness of the need for renewable energy policies to be present in emerging local development documents (LDDs), in line with national planning policy PPS22: Renewable Energy.

A working group of planners and developers, members of TCPA and BWEA, has been set up with the intention of creating a best practice model criteria-based planning policy for the development of renewable energy. Once finalised, the model policy will be forwarded to all local planning authorities in England for use as guidance material.

Given the pressing timeframes for local planning authorities to prepare their new local development documents, BWEA and TCPA have jointly put together an Outline Briefing Sheet entitled *Planning for Wind Energy: Informing Local Development Documents*, which can be downloaded from www.bwea.com/planning. A hard copy of the briefing sheet was sent to all local planning authorities in England in mid-May. □



Health & Safety Guidelines

BWEA now has a new Health & Safety section on the BWEA website. This area is currently in development and there will be a number of changes over the coming months as the various Health & Safety initiatives currently being implemented are completed and uploaded.

This website area was launched on the 19 April 2005 with the publication of the revised BWEA Guidelines for Health and Safety in the Wind Energy Industry which are available to download in pdf format. The Guidelines are the result of an extensive review over the past year of the earlier version, published in April 2002, and incorporates lessons learned from early experience in the UK offshore wind industry. To download the Guidelines, go to www.bwea.com/safety/HSGuidelines.pdf

BWEA welcomes feedback on the Guidelines. If you have queries or comments please forward them to Richard Ford at richard@bwea.com. □

Why Wind Power Does Work

Jonathon Porritt, Chairman of Sustainable Development Commission gives highlights of their latest report on wind energy.



The Sustainable Development Commission (SDC) believes wind power can and should be a major contributor to the UK's efforts to reduce emissions of carbon dioxide from electricity generation. This is the conclusion of our recently published report, *Wind Power in the UK*, which aims to provide local decision-makers, such as planners and councillors, with a comprehensive guide to the key issues surrounding onshore wind power development in the UK. The report is accompanied by a much smaller booklet aimed at a general public audience.

The SDC believes that the development of wind power needs to be part of a wider renewable energy programme that includes both large and small-scale technologies, combined with much greater energy efficiency, and policies to reduce emissions from business and transport. However, the report recognises that wind power is one of the most developed and cost effective renewable energy technologies, which looks set to become a leading contributor to the UK's renewable electricity targets. It is therefore essential that the planning system works effectively to minimise delays, and accurate information is essential for this to happen. The report aims to provide clarification on issues such as intermittency, CO₂ abatement, cost, landscape, noise, and the impact on birds, so that future proposals can be judged on the basis of sound information rather than outdated myths. Some of our findings are highlighted below.

Intermittency

The variability of the wind is often used as an argument to dismiss the output of wind turbines as unreliable, insignificant and inefficient. This has become a key element in the various anti-wind campaigns, so it's critical that the facts are well understood so that misrepresentation does not occur. The report describes the electricity system in some detail before explaining how wind is integrated into a system where demand and supply vary continuously, often with sudden and large changes. We show that wind plant does indeed displace some conventional plant, so there is no need for 'additional' or 'dedicated' conventional capacity to provide 'backup' for when the wind isn't blowing as is commonly assumed.

CO₂ Abatement

Claims are often made that wind turbines take many years to 'pay back' the energy used in their manufacture and construction. This has become one of the more preposterous and overblown claims advanced by opponents of wind power. Our report looks at the available evidence on the energy balance of wind turbines, and concludes that the payback period is most likely in the region of 3-10 months. In addition, the CO₂ associated with a small increase in balancing services as a result of wind's variability has been shown to result in a 1% carbon penalty, meaning that 99% of the output from wind farms reduces emissions.

Cost

The chapter on cost aims to show the complexity of this issue, and the variety of different costs that are often discussed. The generation cost of wind at good sites is increasingly competitive, but this is hidden by the Renewables Obligation. We also look at the likely 'system cost' of incorporating 20% wind power, which is shown to represent an increase in bills of 3.8% with gas at current prices.

Landscape

The report is clear that landscape and visual issues are highly subjective, with limited ability to influence peoples views. However, we point out that the effects of serious climate change on landscapes could be widespread and dramatic. This fact must be balanced against concerns over the visual impacts from wind turbines, which are temporary structures with a limited environmental impact when compared to conventional energy sources. What's more, public opinion on this is nothing like as hostile to wind power as opponents make out. In fact, there are large majorities in favour in most surveys, including surveys of opinions in communities living near wind farms.

Noise

Although noise is often raised as a concern, the evidence shows that modern wind turbines are much quieter than previous technologies, with the noise at 350 m equivalent to the noise inside a quiet bedroom. With good siting, noise should not be a serious problem for local communities.

Birds

The evidence on birds and other wildlife is that with good initial siting, comprehensive (and fully implemented) Environmental Impact Assessments and early consultation, negative environmental impacts can be avoided. The UK has so far avoided the mistakes made on a couple of well-known overseas developments that resulted in significant bird collisions, and this record must be maintained.

The full report or a booklet for householders can be downloaded from www.sd-commission.org.uk/wind. □

Climate Change Watch - Melting Glaciers and Shrinking Crops

British Antarctic Survey (BAS) scientists have found that most glaciers on the Antarctic Peninsula are retreating due to climate change. Based on aerial photographs spanning over 50 years and covering all 244 marine glaciers on the west side of the Peninsula, the most comprehensive study of its kind found that 87% of the glaciers were in rapid retreat. www.antarctica.ac.uk

Chinese scientists researching the world’s tallest peak, Mount Everest, have found that global warming is resulting in increased melting of glaciers on the Tibet side of the mountain, while WWF have found that Himalayan glaciers are receding an average 10-15 metres per year, a rate that is accelerating as global warming increases. www.wwf.org.uk

Meanwhile, in Switzerland officials at the Gemsstock skiing resort above Andermatt have wrapped part of part of the shrinking ice-cap in a giant blanket in a bid to reduce increasing summer melt in the Alps.

The European Environment Agency (EEA) has said that the middle of Europe could become crowded by climate change refugees as melting ice on the Arctic and increased drought in southern Europe impact their livelihoods. www.eea.eu.int

Research suggests that if serious action is not taken to stop global warming, central London could end up underwater in 100 years time. Other studies have predicted that low-lying coastal towns and cities could be affected as a result of rising sea levels. Around 40% of the world’s population lives within 40 miles of the coast. www.wwf.org.uk

Defra has launched a Rural Climate Change Forum to inform policy development and research on how to reduce greenhouse gas emissions from land based activities and land management. The programme aims to raise awareness among stakeholders about the impacts of climate change in rural areas. www.defra.gov.uk

Climate change is likely to damage global food production as higher temperatures and droughts are expected to depress crop yields in the coming decades. The UN Food and Agriculture Organisation has predicted that this is likely to have an impact on food distribution systems and increase famine, particularly in sub-Saharan African countries. www.fao.org



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New Report Praises Renewables; Condemns Costs of Nuclear

A new report by nef (the new economics foundation) suggests that the cost of new nuclear power has been underestimated by almost a factor of three and the potential of small scale renewables critically overlooked.

According to the report - *Mirage and Oasis: Energy choices in an age of global warming* - nuclear power has been promoted as the answer to climate change and energy insecurity. But the authors say nuclear power is too slow, too expensive and too risky to solve global warming. nef sees renewable energy as a safe, secure and clean technology, which produces no toxic waste and is available cheaply globally. The use of both large and small scale renewable energy sources can meet the world's energy needs and provide access to heat and electricity for millions of people.

The report says that the UK nuclear industry has underestimated the cost of new nuclear power by almost a factor of three – and has not included all the risks associated with nuclear such as insurance costs, terrorist threat and the cost of realistic construction times.

According to nef, research and development invested in renewables will bring more benefits to the UK due to its vast renewables resource base and the large potential for new jobs. Furthermore, the report points out that the potential of decentralised small-scale renewable generation has been critically overlooked: nef estimates that if one third of UK electricity customers installed 2 kW of microgeneration it would match the capacity of the UK nuclear programme.

The report also points out that a number of key steps must be taken to realise the full benefits of renewable energy. In addition to support

from increased funding, fiscal and regulatory support measures, the report calls for a fundamental shift in public support away from fossil fuels and nuclear power, to renewables.

For more information, log on to www.neweconomics.org. □



Ashden Award winner Swift turbine © Renewable Devices

Windforce 12 Launched

Greenpeace and the Global Wind Energy Council (GWEC) have launched *Windforce 12*, a global wind energy blueprint that describes how wind power can supply 12% of the world's electricity by 2020.

The report is a crucial tool in the race to cut greenhouse gas emissions, showing that by 2020, 1,250 GW of wind power can be installed saving a cumulative 10,771 million tonnes of carbon dioxide, a key contributor to climate change. *Windforce 12* demonstrates that there are no technical, economic or resource barriers to supplying 12% of the world's electricity needs with wind power alone by 2020 - against the challenging backdrop of a projected two thirds increase of electricity demand by that date.

The report also highlights that thirteen key countries, including the UK, can play a leadership role to help unlock the major market deployment envisaged by this industry blueprint. The UK is now one of only eight countries around the world to have installed over a gigawatt of wind energy capacity, a record which was broken in June with the opening of the UK's largest onshore wind farm to date, the 58.5 MW Cefn Croes project in Ceredigion in Wales.

In the report, the value of the global market for wind turbines is to move from the current €8 billion to an estimated €80 billion annual business by 2020. Wind power is one of the most effective power

technologies that is ready today for global deployment on the requisite scale, and can be installed far quicker than other conventional power stations. Today, wind power installed in Europe is saving over 50 million tonnes of CO₂ a year and is on track by 2010 to deliver one third of the EU's Kyoto commitment. In the UK, wind power is set to grow rapidly as the Government implements its plan to generate 10% of the nation's electricity from renewables by 2010. The majority, some 7-8 GW of new power, will be met from on and offshore wind energy.

Marcus Rand, CEO of BWEA said:

"Wind energy has now firmly arrived in the UK. This year the wind industry is breaking all records as we expand to meet the bulk of the Government's renewable targets. This new report makes clear that the UK is a critical market in the global roll out of this exciting carbon free source of power. For us to deliver our potential here in the UK it is essential that the progress that has been made over the past few years is built upon and maintained."

Windforce 12 is the main global wind energy assessment, and has been conducted annually since 1999 by EWEA (the European Wind Energy Association) and Greenpeace International. The 2005 report was completed by Greenpeace and EWEA on behalf of GWEC.

Copies can be downloaded from www.bwea.com/pdf/wind_force12_05.pdf.

Scotland on Course to Meet Renewables Targets

The Forum for Renewable Energy Development in Scotland (FREDS) has concluded that Scotland is well placed to meet its domestic target of 18% renewable generation by 2010. Their recent report - *Scotland's Renewable Energy Potential: Realising the 2020 Target* - suggests that these targets are better expressed in terms of installed capacity, allowing better monitoring of progress, and also says that targets should be based on estimated electricity demand in Scotland, with around 6 GW of capacity required, though this should not be regarded as a cap. The report also found that the renewable energy capacity already installed, plus capacity consented but not yet built, will be sufficient to meet the 2010 target for Scotland.

FREDS found that it is technically feasible for renewable generation to be contained on the electricity system without threat to security of supply. Furthermore, continuing support for onshore wind is essential in order to maintain investor confidence in the renewables market while accelerated support for marine and biomass technologies is needed to ensure their contribution as soon as possible.

In meeting future targets, FREDS believes that issues such as security of electricity supply, transmission infrastructure and Scotland's contribution to the UK's targets, should all be taken into account.

The FREDS report is available at www.scotland.gov.uk/Topics/Business-Industry/infrastructure/19185/FREDSFutureGenPDF. □

STOP PRESS: Consent has just been awarded for the largest onshore wind farm in the UK. The Crystal Rig extension will see a further 52 turbines totalling up to 164 MW join the existing 50 MW in the Scottish Borders.

London Launches Climate Change Agency

In order to help businesses in London tackle climate change, the Mayor of London, Ken Livingstone, has launched the London Climate Change Agency. The Mayor's Energy Strategy has set a target for London to cut its CO₂ emissions by 20% by 2010. The new agency, headed by Allan Jones, will play a key role in achieving emissions reductions in London. The Mayor wants the Agency to become established as a municipal company in partnership with private sector firms, which will design, finance, build and operate low and zero carbon capacity. Cooling, heat and electricity, energy efficiency and renewables will all have a key part in new and existing developments in London. Go to www.lda.gov.uk for more information. □

Wind Turbine Makes Its Own Worth ... Over and Over Again

A life cycle assessment (LCA) by Vestas has concluded that a 3 MW offshore wind turbine will pay back the energy used in its design lifetime in 6.8 months. In other words, this turbine model will earn its own worth more than 35 times during its design lifetime.

If installed on a good site, the V90-3.0 MW wind turbine will generate approximately 280,000 MWh in 20 years – saving approximately 230,000 tons of CO₂, as compared to the figures for energy generated by a coal-fired power station. Vestas now has plans to undertake life cycle assessments - which assess production, transport, construction, operation, maintenance and decommissioning of the turbine - on all the wind turbines in their product range. Vestas LCAs are available online at www.vestas.com/uk/environment/2005_rev/lifecycleassessment.asp □

Birds Avoid Turbines

According to Danish research, geese and ducks learn to avoid the blades of offshore wind farms. The research was carried out by the National Environmental Research Institute in Grenåvej, Denmark using a radar to monitor bird migration patterns over Nysted offshore wind farm in the Baltic Sea.

The research found that the percentage of birds entering the area decreased significantly from pre-construction to initial operation, and a larger proportion of birds flew close to the wind farms at night. Overall the study found that less than 1% of the birds migrated close enough to the turbines to be at risk of collision. More at www.pubs.royalsoc.ac.uk/biologyletters.shtml

£2.68 m for Tidal Device Testing

The Government has announced £2.68 million funding for Newcastle-based SMDHydrovision's "TidEI" tidal energy prototype to be developed and tested at Orkney's world-leading European Marine Energy Centre.

SMDHydrovision plans to construct the 1 MW TidEI prototype device, building on the 1/10 model tests carried out at the NaREC facility in Blyth, Northumberland. TidEI uses a pair of buoyant turbines anchored to the sea bed by mooring chains, to extract power from tidal flows. The new tidal energy testing facilities at the European Marine Energy Centre are set to boost the sector in the UK, demonstrating the opportunities for UK companies to develop and install these technologies. □

First Order for Wave Machine

Ocean Power Delivery (OPD) has secured an order with a Portuguese consortium, led by Enersis, to build an initial phase of the world's first commercial wave farm to generate electricity from the ocean waves.

The first phase of the project will consist of three Pelamis P-750 machines located 5 km off the northern coast of Portugal. The €8 million (£5.36 m) project will have an installed capacity of 2.25 MW and is expected to produce enough electricity for more than 1,500 homes, saving over 6,000 tonnes of CO₂ emissions per year. If all goes well, then an order for a further 30 Pelamis machines (20 MW) is anticipated. The first order meanwhile will mean the creation of 40 new jobs at a Western Isles manufacturing yard, taking the total number of employees to 65.

LM Glasfiber Builds Wind Tunnel for Blade Aerodynamics Testing

LM Glasfiber is constructing the world's first wind tunnel dedicated to the testing of rotor blades. The wind tunnel, to be built next to LM Glasfiber's test facilities in Denmark, will be custom-made to recreate the complex aerodynamic conditions in which blades operate. The project is expected to cost around €3.4 million (£2.27 m) and is scheduled to be completed by mid-2006. The new wind tunnel will give the scientists at LM Glasfiber a unique opportunity to enhance the output capacity of their blades, allowing testing of larger subjects than the wind tunnels currently available, in wind speeds of 105 metres per second. □

Building Co-operatively

The Co-op has teamed up with ScottishPower to build an eight turbine wind farm on one of its farms at Coldham, Cambridgeshire, with the turbines to be supplied by Vestas Celtic, based in Campbelltown. The Co-op estimates that the project will be completed later this year and once complete, will generate enough power for 10,000 homes, saving around 35,000 tonnes of CO₂ emissions each year. The company also has plans for other wind farm projects, including installing 24 small wind turbines on their office buildings in Manchester. □

Triodos Secures £1.7 m for Renewable Energy

Triodos Bank launched a major share issue in April, enabling thousands of people to invest in renewables. The response was good and in June Triodos announced that they had secured £1.7 million, with an average investment of £2,600. The fund aims to raise £5 million for projects across the country, linking its community of shareholders with people living closest to these projects. One such project is 'Gulliver', the UK's largest single wind turbine, at Lowestoft. □

Queen's Award for Renewable Energy

RES Group's success as a wind energy developer and the company's commitment to the environment and social responsibility has been recognised with a Queen's Award 2005 - the UK's most prestigious business award. Singled out for praise was RES's eco-friendly HQ at Beaufort Court (a world first in



zero emissions office design) and the company's "comprehensive approach to environmental and social impact assessment prior to the commencement of every wind farm project." □

OPT to Develop a Wave Power Station in France

Ocean Power Technologies (OPT) has signed an agreement with Total Energie Développement and Iberdrola to develop a wave power station in France. The deal follows a previous agreement between OPT and Iberdrola in 2004 to develop a wave power station in northern Spain. Total will now also become a joint partner in the Spanish project - the first of its kind in Europe. The first phase will see the partners identify potential sites around the French coastline, and following a suitable site and consenting process, the second phase could see a wave power station of 2 to 5 MW capacity, using OPT's patented PowerBuoy™ technology. □

Powergen Supports Community Projects

Powergen, part of E.ON UK, is inviting local community groups, schools and non-profit organisations to apply for support of up to £25,000 from the Powergen GreenPlan Fund, which supports renewable energy projects. Powergen's GreenPlan electricity product matches every unit of electricity supplied to its customers with one generated from a renewable source. In addition, Powergen donates an average of £9 per customer to the GreenPlan Fund. The GreenPlan Fund is dedicated to supporting environmentally-responsible projects that benefit local communities, for instance schools that install wind turbines. Closing date for applications is 25 July 2005. □

The Beautiful Game

Good news for all football fans heading for the next world championships. FIFA World Cup® 2006 in Germany is being organised with the environment in mind. "GreenGoal", the environmental concept for the games, will utilise energy efficiency and use renewable energy sources as well as clean transport.

FIFA's commitment to the environment follows an example from our home turf, when npower renewables last year became the official energy supplier for the new Wembley Stadium. Due for completion in 2006, the Stadium will be the world's greatest sporting and entertainment venue with an anticipated 1 million spectators every year and 90,000 seat capacity, all powered by renewables. □

Switching to Renewables

Yet again, switching to renewable energy or indeed, installing renewables onsite, has been a popular corporate strategy in recent months. Following is BWEA's pick of the crop:

Hospital leads the way

Antrim Hospital in Northern Ireland has set an example to others in the region and beyond by installing its own wind turbine on the grounds. The 40 metre wind turbine is expected to save the hospital around £90,000 a year, equivalent to a quarter of the hospital's annual bill. Savings from the turbine are reinvested in improved services for patients. Antrim is not however the first hospital to have its own turbine: Wansbeck Hospital in Ashington, Northumberland has been home to a 100 kW turbine since the 90's.

David Wilson Homes

David Wilson Homes has become the first national housebuilder to connect

all of its new homes to a renewable energy tariff. The renewable energy supply scheme set up with London Energy is estimated to save around 10,000 tonnes of CO₂ in 2005 and more than 20,000 tonnes in the following four years. In addition, householders will be given energy-saving light bulbs and a contribution from fuel bills will go towards continued investment in renewables. David Wilson Homes' parent company Wilson Bowden has been using 100% renewable energy since 2004 in all its permanent offices across the group.

First renewable energy ice cream?

Ice cream manufacturer Mackie's of Scotland has installed a 45 metre wind turbine, which will supply enough power for the whole business, including the ice cream dairy. Mackie's produces six million litres of ice cream a year. The company will add a wind turbine icon to its tubs to show that the ice cream is made with renewable energy. Any surplus energy is sold to Good Energy, which supplies renewable electricity to homes and firms throughout the country. □

NGC Launches Seven Year Statement

The National Grid Company has published its 2005 Seven Year Statement, which covers the years 2005 to 2012 and for the first time applies to the complete Great Britain (GB) transmission network. The introduction of the new British Electricity Trading and Transmission Arrangements (BETTA) on 1 April 2005, has meant that National Grid now has to produce a single Seven Year Statement covering the whole of the GB transmission system. The report assists users of the GB transmission system and contains a range of technical and non-technical information. The statement can be downloaded from www.nationalgrid.com/uk/library/documents/sys05/. □

Quotes of the Quarter

Malcolm Wicks MP, Minister for Energy: "Wind farms, both onshore and offshore, will clearly make the most significant contribution towards our 2010 target."

Nick Winser, Group Director responsible for UK and US Transmission operations and Chief Executive of National Grid Company: "There may be an upper limit to the amount of intermittent generation that can be connected to the electricity network, but if so, it's pretty high. Certainly there is no technical barrier to the levels of intermittent generation envisaged for the governments 2010 and 2020 targets for renewable energy. If there is an upper limit it's still many years away."

SDC Chairman, Jonathon Porritt: "Climate change will have a devastating impact unless urgent action is taken to boost the contribution of renewables, alongside energy efficiency measures."

Wind Turbine Boost for Scottish Communities

Scottish renewable energy company GreenPower International has launched an initiative which would allow community ownership of part of a proposed wind farm. 'GreenFutures' has been launched for proposed Little Law wind farm in the Ochil Hills near Auchterarder, Perthshire and would benefit local communities by enabling ownership of and income from one of the proposed project's 14 turbines. □

Wind Energy Around the World

According to a report by Danish consultancy BTM, global wind power capacity is expected to rise 16.6% on average per year in the next four years. In 2005, growth is expected to be around 26%, with Europe leading the way. In 2004, total wind energy capacity grew 20%, to 48,000 MW, and 73% of which was installed in Europe. Due to ever increasing energy demand and climate change, new renewable energy markets are emerging around the world as countries seek energy security and new, clean, sources of power generation.

Canada's wind power capacity increases by 25%

Canada's wind power capacity, the fastest-growing form of electricity generation in the country, has received funding for two new wind-power projects in Murdochville, Quebec.

Together, the 60 turbines at the Mount Miller and Mount Copper wind farms provide 108 MW of wind energy capacity, lifting Canada's total wind-power generation capacity from 444 MW to more than 550 MW, an increase of nearly 25%.

China passes renewable energy law

China's Government has passed a renewable energy law which is expected to boost the use of renewable energy capacity up to 10% by 2020, including hydro, wind, solar geothermal and marine energy.

Coming into force in 2006, the law requires power grid operators to purchase resources from registered renewable energy producers. The new law also offers financial incentives, such as a national fund to foster renewable energy development, discounted lending and tax preferences for renewable energy projects.

In 2003, China's renewable energy consumption accounted for only 3 percent of the country's total energy consumption. However, the UN has estimated that China has potential for more than 100,000 MW of renewable energy. Offshore wind is expected to play an important part in China's renewable energy programme in the next two to three decades.

Vietnam builds first wind farm

Vietnam is developing its first wind farm in the central coastal province of Binh Dinh 404 miles north of Ho Chi Minh City. Turbines for the project are supplied by Vestas and the project is expected to generate up to 170 million kilowatt hours annually. Loans from Denmark's development agency Danida are helping to finance the project. Vietnam's electricity is generated mainly by gas-fired power plants, around 40%, whilst hydro and coal-fired plants produce 41% and 17% of the country's total power, respectively.

South Africa approves first commercial wind farm

Danida is also helping to finance a project in South Africa, which has approved the construction of its first commercial wind farm in the Darling district of Western Cape. The wind farm will include four 165 ft high Vestas wind turbines with a combined capacity of 5.2 MW.

South Africa has also launched a green power credit scheme Amatola Green Power, under which South African companies can buy electricity from renewable sources over the national grid and will be able to trade certificates proving their green power credentials. South Africa's target is to use more than 10,000 GWh of electricity from sustainable sources by 2013.

And others have large potential...

A group of 25 global institutions organised by the UN's Environment

World Wind Map

The world's energy demand could be met entirely from wind energy according to a study by Stanford University in California. Using wind data from 7,500 weather stations and 500 weather balloons the "World Map of Wind" assists climatologists in choosing effective locations for new wind farms.

The study estimates that if locations worldwide with sustainable wind speed of 6.9 m/s were equipped with wind farms, 72 terawatts of electricity could be produced. This would be equal to more than 40 times of the total global energy consumption in the year 2000. In comparison it would take 500 nuclear power plants and thousands of coal power plants to produce the same amount of energy.

news-service.stanford.edu/news/2005/may25/wind-052505.html

program, the Solar and Wind Energy Resource Assessment (SWERA), has estimated renewable wind and solar power potential in 13 developing nations in Africa, Asia, and South and Central America.

SWERA found that the potential for wind and solar power in developing nations is much larger than the 50,000 MW of total current installed capacity from those sources in the entire world. The installed total is estimated to be enough to power 50 million average American homes on windy days.

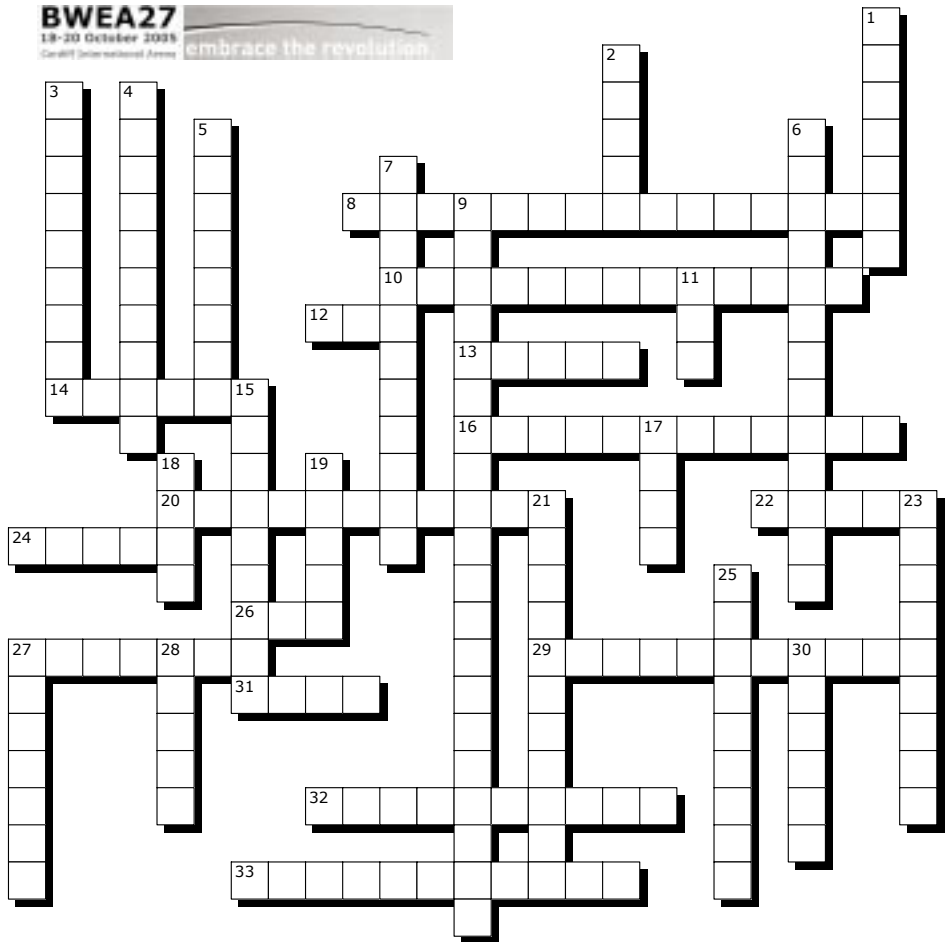
Examples include Sri Lanka, which has a wind power potential of 26,000 MW, 10 times the country's installed electricity capacity, and Nicaragua which has potential for 20,000 MW of renewable power. □

The Crosswind Challenge - Win a Free Entry to BWEA27!

Fill in and return to BWEA (details at the bottom of this page). The first correct entry will win a free conference pass to BWEA27, and four runner-ups will receive an embrace the revolution t-shirt.



Last Crosswind Challenge winner Julia Rhodes from RES sporting her embrace t-shirt at Souleilla/Corbières wind farm near Fitou in France © Julia Rhodes



Across

- 8. This newly launched strategy will bring power to the people (15)
- 10. Orcadian community project which pipped the post at the Ashden Awards (7,6)
- 12. Authors of the Seven Year Statement which says that there are no technical barriers of intermittent generation envisaged for the Government's 2010 and 2020 targets for renewables (3)
- 13. Newly published planning policy could mean this region is open for business (5)
- 14. Cutting new Chairman of BWEA (6)
- 16. Aberdeenshire windy baby for British Gas (4,2,5)
- 20. Nationwide celebration of wind energy to be held this August Bank Holiday (4,7)
- 22. This new Energy Minister must burn a lot of candles (5)
- 24. Vital but expensive artery to the grid (5)
- 26. UK company making good in French and Spanish waves (3)
- 27. Town and _ Planning Act (7)
- 29. This wet gigawatt could one day power a quarter of the Olympic city's homes (6,5)

- 31. Post election short lived name for DTI with Orwellian overtones (4)
- 32. Tube plan for offshore wind (4,3,3)
- 33. Wind turbine average lifetime energy payback period (5,6)

Down

- 1. Power engineering company that just got a Bonus! (7)
- 2. Magic Roundabout mollusc installed off the coast of Orkney (5)
- 3. Latest and most powerful Welsh title holder (4,5)
- 4. Location of the G8 which puts climate change and poverty at the top of the agenda (10)
- 5. Lilliputian giant turbine to be funded by Triodos (8)
- 6. Paul's boat (3,10)
- 7. NOP World's regular assessment of public opinion for BWEA (4,7)
- 9. This cornerstone industry legislation is being reviewed (10,10)
- 11. Smoking new celebrity champions of Embrace (3)

- 15. Welsh weather girl who loves wind turbines (4,5)
- 17. Publishers of PPS22 - the missing link between energy policy and local plans (4)
- 18. Newly established body to represent wind power around the world (4)
- 19. This speedy new turbine could be on rooftops across the UK (5)
- 21. Sustainable _ Commission: authors of the new bible of wind energy (11)
- 23. Percentage of people in a recent ICM poll who would support a wind farm within 20 miles of their home (5,4)
- 25. _ 12: new blueprint that describes how wind power can supply 12% of the world's electricity by 2020 (9)
- 27. Location of BWEA's 27th annual conference and exhibition (7)
- 28. Geordie innovation award winners topped off with a recent DTI grant (5)
- 30. This Scottish project was title holder, but only for a month (6)

Real Power is published by BWEA, the professional association championing the UK wind and marine renewables industry, representing 325 companies active in the sector

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BWEA27

18-20 October 2005

Cardiff International Arena



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The UK wind industry's 27th annual conference and exhibition

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The UK wind industry is embarking on a period of major expansion as it will deliver the bulk of the Government's 10% renewable energy target, representing an investment of some £7 billion over the next 5 years

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- Additional conference sessions addressing wave & tidal energy and small wind systems
- 900 square metres of exhibition space, 80 companies exhibiting
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- Full conference pass - 3 days including Gala Dinner:
Early-bird rate £599 BWEA members / £725 non-members
- Full programme and online registration published 15 July 2005 at www.bwea.com/27
- Cardiff International Arena is situated in the city centre and has excellent transport links including a local airport

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