

GOVERNMENT UNVEILS ENERGY WHITE PAPER

Released on 24 February, the White Paper set out four goals for the Government's energy policy:

- to work towards cutting emissions of carbon dioxide by 60% by 2050
- to maintain the reliability of energy supplies
- to promote competitive energy markets in the UK and beyond
- to ensure that every home is adequately and affordably heated.

Ms Hewitt announced a range of measures including:

- An ambition to double the share of electricity from renewables by 2020 from the existing 2010 target of 10%
- £60M in new money for renewables projects bringing spending on renewable energy up to £348 million in total over four years
- reforming planning rules to unblock obstacles to renewable energy
- a new carbon trading system to come into effect from around 2005 that will give energy suppliers and consumers incentives to switch to cleaner energy
- creating a new Energy Research Centre to help develop the latest cutting edge energy technologies
- setting up Fuel Cells UK to put UK industry at the forefront of clean fuel technologies.

A clear strategy to reduce carbon emissions over the next 50 years with major expansion of renewable energy and energy efficiency was set out in the Government's White Paper: **Our Energy Future - Creating a Low Carbon Economy.**

Within the context of the need to cut carbon emissions, the White Paper sets out the Government's policy on nuclear power. It states that the priority is for renewables and energy efficiency, and although nuclear power is currently an important source of carbon-free electricity, its current economics make it an unattractive option. There are also important issues of nuclear waste to be resolved.

Commenting on the White Paper, Patricia Hewitt Secretary of State for Trade & Industry said: "Our country needs a new energy policy. We need to make sure we have secure energy at affordable prices, but we need to use energy more efficiently and urgently address the impact we make on the environment.

"The Government is serious about cutting carbon emissions, but we know this cannot be achieved without a fundamental review of the way we produce and consume energy. We need to use less by improving energy efficiency and we must match this with a major expansion in renewable energy.

"With this challenge comes great opportunity - for UK scientists, engineers, manufacturers and businesses. We have world-class energy companies and a wealth of expertise in this country which will help put us in the lead in delivering cleaner energy and lower energy consumption across the globe.

"The Renewables Obligation [...] together with the Climate Change Levy exemption will be worth around £1 billion a year to the renewables industry by 2010. This White Paper builds on that foundation.

"Today we set out a policy not only for now but also for our future generations. We are giving the clear direction that businesses need in order to make longer-term decisions to invest and innovate. Competitive energy markets are a cornerstone of our policy; we will create markets that simultaneously help us achieve our environmental goals.

"Competition in our energy markets is also essential to help us achieve our goals of affordable prices - particularly for the vulnerable in society - and the success of our economy depends on this and on secure energy supplies. These objectives are all achievable but we have to take action now."

In drafting the White Paper over 6500 individuals and groups took part in the consultation, representing the most significant consultation on energy policy ever carried out in the UK.

The White Paper is available (summary and full versions) on the DTI Web site at www.dti.gov.uk/energy/whitepaper/index.shtml



The Government's White Paper:
Our Energy Future - Creating a low Carbon Economy

NEW
REVIEW

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POWERING THE FUTURE

The first round of the SUPERGEN initiative for sustainable power generation and supply is launched this spring.

SUPERGEN, an initiative which will invest over £25M during a five-year cycle to address the broad challenges of sustainable power generation and supply, will be launched by the Engineering and Physical Sciences Research Council (EPSRC) in the spring of 2003.

There is a general recognition that the first few decades of the 21st century will witness a significant change in focus of energy supply in the UK. The main drivers for this include political, social, environmental, and economic factors covering climate change, fossil fuel extraction rates, emissions control, and public awareness of environmental concerns.

The report of the Royal Commission on Environmental Pollution, 'Energy – The Changing Climate', highlighted the need to consider a sustainable approach to power generation in terms of low- or zero-carbon technologies. This view is supported by a number of recent studies including

the Government Foresight initiative and the output of the Cabinet Office Performance and Innovation Unit Energy Review.

In the first round of awards, the following areas have been supported:

- Marine energy – energy from the seas around our coastline
- Hydrogen – the fuel of the future?
- Biomass – using fast growing crops as a renewable fuel supply
- Networks – ensuring a reliable supply of power to the UK.

EPSRC is supporting consortia of universities, industry users, and stakeholders to tackle these strategically important areas and is working in the initiative with the Economic and Social Research Council, the Natural Environment Research Council and the Biotechnology and Biological Sciences Research Council.

Contact: Dr. Edward Clarke, e-mail: edward.clarke@epsrc.ac.uk or telephone 01793 444441

BIOENERGY GRANTS AWARDED

Brian Wilson, Minister for Energy, announced 11 new biomass projects across the UK on 23 January 2003.

The seven heat and small-scale combined heat and power (CHP) projects have each won a share of the £4.2 million grant awarded under the first round of the £66 million Bioenergy Capital Grants Scheme. Seven of the projects, which comprise clusters of small CHP and heating installations, will be supported by the New Opportunities Fund 'Transforming Communities' initiative. The four remaining projects, larger-scale industrial heating installations with a heat capacity of more than 0.5MW, will benefit from grants awarded by the DTI.

The second round of the scheme, which is aimed at large-scale state-of-the-art electricity generation and advanced conversion technologies closed on 31 October 2002. 21 applications have been submitted and an announcement is expected in Spring 2003.

As part of the scheme, Brian Wilson has announced a £5M grant to Energy Power Resources Scotland Limited (EPRL) to help with the construction of a wood-fired CHP generator for Fort William paper manufacturer, Arjo Wiggins.

The CHP generator at Arjo Wiggins will replace the existing 40-year-old fired generator. In addition to supplying the factory's entire heating requirements it will also contribute up to 80% of its electricity needs, with the remaining spare capacity going straight into the national grid.

For more information, visit www.dti.gov.uk and click on 'Press Notices'

OFFSHORE WIND CAPITAL GRANT SCHEME

The DTI has had a good response to Round 2 of its Offshore Wind Capital Grant Scheme and will shortly be seeking bids for grants under the scheme's third round.

The competition is open to offshore wind projects that have met 'pre-qualification' requirements that were set by the DTI. The first of the three competition rounds in the scheme was completed in September 2002. This resulted in the award of two £10M grants for two 60MW wind farm projects being developed by National Wind Power Offshore Ltd and Powergen Renewables Offshore Wind Ltd.

Nine project bids with a total installed capacity of 757.5MW were received at the start of 2003 for initial consideration under Round 2 of the competition. The total grant requested by bidders was £80.5M. Round 2 bidders had until 14 March 2003 to submit evidence of all the necessary consents and Crown Estate's lease for their projects. Assessments would be completed by 31 March, with notification and announcement of awards made by the end of June 2003.

The competition deadline for receipt of Round 3 sealed bids is 5pm 30 June 2003. This round will include funding from the New Opportunities Fund which is in the process of finalising its eligibility criteria. Assessments will be completed by the end of September and notification and announcement of awards will be made by the end of December 2003.

For further information on the Scheme, contact Mark Thomas on 01235 436806. Round 3 guidance notes and application forms will be available from the DTI Web site at www.dti.gov.uk/renew/eoi.htm towards the end of April 2003.

WAVE AND TIDAL DEVICES WIN APPROVAL

The harnessing of wave and tidal power has been brought one step closer with the announcement that £3.7 million of DTI funding has been awarded to Wavegen and Tidal Hydraulic Generators Ltd (THGL) (featured in issue 54) in separate grants under the DTI's New and Renewable Energy Programme.

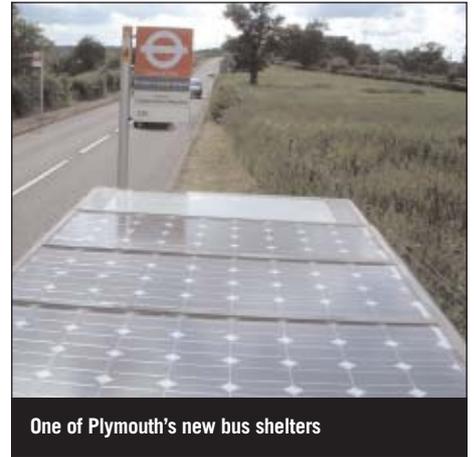
The announcement comes after both companies satisfied the Programme's independent technical assessors of the merits of their designs; the grants will help them advance towards prototype development.

Wavegen, based in Inverness, has been awarded £2.1 million to construct a device to harness wave power. Pembrokeshire-based THGL will receive £1.6 million to test a tidal stream prototype.



A barge takes one of the turbines for the THGL trial rig in Milford Haven Waterway

For more information please contact Mr David Langston, Wavegen, Tel 01463 238094 and Mr Richard Ayre, THGL, Tel 01437 781072.



One of Plymouth's new bus shelters

Solar Boost for Urban Bus Shelters

London Buses, part of Transport for London, has identified two hundred bus shelters within the Greater London area which could be illuminated using renewable energy sources. The locations of these unlit shelters are such that the cost of connection to the mains electricity supply would be prohibitive.

Initially, three bus shelters along The Ridgeway in Enfield, North London, have been fitted with photovoltaic systems from Solar Century, Carmanah and Sepco. This trial will be used to identify the technical specifications for a suitable system which could be retrofitted to unlit shelters.

The project forms part of a London Buses initiative to enhance the environment around its bus shelters, making information more legible throughout the night, enabling drivers to see passengers, and improving safety.

Meanwhile, the largest installation of this kind in the UK is starting in the city of Plymouth in the Spring. In partnership with JCDcaux, a supplier of street furniture, Solar Century is developing and installing 300 solar-powered bus shelters across the city. These include both advertising and non-advertising shelters which will be provided with environmentally friendly and cost-effective lighting.

The system was first successfully installed in the UK in 1999 by SEPCO for Worcestershire County Council, where three winters have passed with 100% reliability.

For more information, please visit the companies' Web sites at www.tfl.gov.uk, www.carmanah.com, www.solarcentury.com and www.sepcopl.com/ or e-mail: Kathryn.hull@solarcentury.co.uk

CLEAR SKIES AHEAD FOR RENEWABLES

A £10M campaign to encourage homeowners, schools and communities across the UK to take the initiative in developing and installing their own renewable energy schemes was announced in January by Energy Minister Brian Wilson.

The 'Clear Skies' initiative is a vital component of the Government's renewables strategy to capture the imagination of individuals and local communities that want to play their part in the renewables revolution. It will support: solar water heating, wind, hydro, ground source heat pumps, automated wood pellet stoves and wood fuel boilers. The Scottish Executive is putting up £3.7 million over three years to fund its own parallel scheme, with shared Web-site and criteria. The Scottish scheme will also cover off-grid PV installations.

The 'Clear Skies' initiative will distribute grants of between £500 and £5000 to residents and up to £100,000 for community organisations in England, Wales and Northern Ireland and will accredit installers across the UK. Scotland's scheme, the Scottish Community Renewables Initiative (SCRI) was launched at the same time by Scottish Environment and Rural Development Minister Ross Finnie.

Anyone with a green energy idea for their home, school or community should go to www.clear-skies.org or phone the 'Clear Skies' hotline on 0870 2430930. For more information on the SCRI, visit the Clear Skies Web site and click on 'Scottish Community Renewables Initiative' on the home page, or phone the SCRI helpline on 0800 138 8858.

Single Electricity Grid a Step Closer

The first steps have been taken to create a single electricity market for Great Britain with the publication of the draft Electricity Trading & Transmission Bill. Brian Wilson, the Energy Minister has also launched a series of consultation documents on the creation of the British Electricity Trading and Transmission Arrangements (BETTA).

BETTA will see the introduction of a single set of trading rules and connection policies for Great Britain and will reduce the barriers that existing independent generators face.

Mr Wilson said "We must assess this issue in light of the Government's targets for the development of renewable energy generation across Great Britain. We must be sure that its impact does not create barriers to the development of renewables in peripheral and offshore areas".

The consultation papers can be viewed on www.dti.gov.uk/energy/consultation/index.shtml

The Future's Bright, The Future's Low Carbon

A groundbreaking initiative to promote innovative low-carbon vehicles and fuels in the UK has been officially launched by Science Minister Lord Sainsbury of Turville and Transport Minister David Jamieson MP. It will ensure that UK industry is fully involved in the shift to low-carbon transport, maximising competitive advantage for UK businesses and securing a brighter cleaner environment for the future.

The launch of The Low Carbon Vehicle Partnership (LowCVP) demonstrates the Government and industry's commitment to promoting the shift towards the use of low-carbon vehicles and fuels.

For more information about the Partnership please visit the Web site at www.lowcvp.org.uk.



BRITAIN'S BUILDINGS GET A PLACE IN THE SUN

Homes, schools, and leisure centres will soon be able to turn solar energy into electricity, thanks to Government funding announced by Energy Minister Brian Wilson.

In all, 18 building projects in England and Wales have been identified to share £2 million of funding which will enable them to fit photovoltaics to roofs and walls. The projects will have a combined output of 565 kWp, enough to meet the electricity needs of 140 homes.

These projects are the third set of proposals approved under the DTI's £20 million Photovoltaic Demonstration Programme, launched a year ago.

For more information, visit the DTI's Web site at www.dti.gov.uk, click on 'Press Releases' and on the 10 March 2003 press release.

Draft Energy Strategy for London

The Mayor of London has produced a draft Energy Strategy document which aims to reduce London's contribution to global climate change, tackle the problem of fuel poverty and at the same time promote London's economic development through renewable and energy-efficient technologies. 'Green light to clean power' also aims to minimise the impacts on health and on the local and global environment of meeting the essential energy needs of all those living and working in London. Policies stated in the energy strategy include the Mayor's support for the development of hydrogen and fuel cell technologies.

In April 2002 the London Hydrogen Partnership was launched, to work towards a hydrogen future for London, producing quiet, efficient and eventually zero-emission energy.

In spring 2002 the draft strategy was sent to the London Assembly and to the Greater London Assembly group organisations for their observations. In January 2003 the public consultation draft was published.

The 400-page report, a highlights summary and a leaflet with questionnaire may be downloaded free from <http://www.london.gov.uk/approot/mayor/strategies/energy/index.jsp>

LATEST NFPA AUCTION PRICES

Another NFPA on-line auction of green electricity from NFFO contracts was completed in February.

The auction began on Wednesday 5 February and contracts were finally awarded to a total of 13 successful bidders. In all, 245 contracts representing some 622MW of green electricity were successfully auctioned. The contracts are for electricity produced between 1 April and 30 September 2003 .

The average price, at 6.26p/kWh, is slightly below the 6.50p obtained in the previous auction, which was held in August and covered a Winter period.

PRICES BY TECHNOLOGY BAND ARE GIVEN BELOW:

Technology	Capacity MW	Average price (unweighted) p/kWh	Last auction average price (unweighted) p/kWh
Small hydro	14	6.45	6.69
Landfill	337	6.56	6.76
Waste	123	1.64	1.93
Biomass	76	3.68	5.88
Wind	71	6.41	6.65
Average		6.26	6.50

These prices are for electrical output together with, depending on the generation technology, Climate Change Levy Exemption Certificates (LECs) and Renewables Obligation Certificates (ROCs).

The next main green electricity auction is expected to be held on 12 August 2003.

For Scotland, the second NFPAS auction of Renewables Obligation Certificates from generating stations holding Scottish Renewables Obligation contracts was held in January. Three successful bidders secured ROCs via the auction and paid an average of £47.46 per ROC. This was very slightly above the average price of £47.13 obtained in the previous NFPAS auction in October. A total of 64,337 ROCs was successfully auctioned.

For more information contact Melanie Reay, NFPA, on 0191 245 7338 or visit the NFPA Web site at www.nfpa.co.uk



Left to right: Paul Dimond, British Ambassador, Brian Wilson, President Gloria Macapagal - Arroyo, Vicente Perez, Energy Secretary

UK SUPPORTS PHILIPPINES SUSTAINABLE ENERGY DEVELOPMENT

Brian Wilson, Minister for Energy, visited the Philippines from 10 to 13 January 2003 to further strengthen the excellent relations between the two countries.

Mr Wilson met Gloria Macapagal-Arroyo, President of the Philippines to discuss areas of mutual interest in the energy sector and international policies, prior to signing a Memorandum of Understanding with the Energy Secretary, Vince Pérez, to further collaboration on power sector management and sustainable energy technology transfer.

This high-level visit was arranged by the British Embassy in the Philippines to support recent initiatives on electricity reform, renewable energy promotion and development within the oil and gas sector. In a busy programme, Mr Wilson visited Shell's Malampaya deep water gas platform, and witnessed the signing of a major contract between Fluor Amec and the Korean National Oil Company, and held discussions with the Philippines National Oil Company on proposed commercial development of clean energy technologies.

During the various meetings, Mr Wilson expressed his desire to see increased co-operation between the two countries to promote the transfer of appropriate technologies and strategies for utilising the sustainable natural resources of the Philippines to meet future energy demands. The Memorandum of Understanding signed by the two countries' Ministers of Energy on 13 January will reinforce the commitment of the UK and the Philippines to collaborate on improved power sector management and promotion of clean, sustainable energy technologies.

INPUT REQUESTED ON US/UK DIALOGUE

Following a meeting of G8 Energy Ministers chaired in Detroit last year, the US and the UK have engaged in a dialogue on a range of energy policy issues, including energy technology development and the deployment of clean energy technologies in developing countries.

Renewables form an important element of these discussions and the DTI would be very interested to hear from the renewables' community of any suggestions for collaboration with the USA, or of topics that you feel might usefully be taken up with the Americans during the course of the dialogue.

Please contact David Irving, Department of Trade & Industry, 1 Victoria Street, London, SW1H 0ET or by e-mail at david.irving@dti.gsi.gov.uk

Lisbon Hosts Workshop for UK Renewables

The British Ambassador in Lisbon, Dame Glynne Evans, hosted a dinner and workshop for the Portuguese Secretary of State for Economy, Dra Dulce Franco de Carvalho, and 60 senior members of industry and government, to discuss the policies and developments of Portugal and the UK in renewable energy. UK companies active in this sector in Portugal were able to present their credentials.

The event was held in the embassy residence. After introductions from the Ambassador, Dra Franco described the position of Portugal in responding to the pressures of its Kyoto obligations, and preparing for the introduction in May of procedures to streamline responses to applications for grid connection. Portugal has a target to build a further 4000-5000MW of renewable energy capacity by 2010, doubling the capacity of renewables, and increasing its share of electricity supply to 39%.

DTI Trade Promoter John Buckley covered the UK's policies and programmes, and introduced the UK companies. Short presentations were given by Andrew Wood of Bronzeoak, Paul Apps of Fibrowatt, Mike Ling of Waste to Energy, Chris Eden of CLP, Matthew Oakley of Pipeline Services, Max Carcas of Ocean Power Delivery, and David Langston of Wavegen.

All the UK companies were encouraged by the serious interest shown by the Portuguese delegates. They are hopeful that business opportunities on which they have been working for some time are now likely to be concluded following the introduction of the new procedures this year.

This initiative was organised by the Commercial Officer Renata Ramalhosa and the team of Trade Partners UK in the British Embassy, Lisbon. UK companies that are interested in the business prospects in Portugal are invited to contact Ms Ramalhosa on renata.ramalhosa@fco.gov.uk or Trade Promoter Barry Holmes on ebholmes@pavilion.co.uk.

PHILIPPINES RENEWABLE ENERGY ROADSHOW, LONDON



Vince Perez, Philippines Secretary for Energy, Brian Wilson, UK Minister for Energy, and Bernard McNelis, IT Power at the Philippines Mission Dinner



Iain Todd (DTI), Vince Perez, Paul King (WWF-UK) and Lasse Holopainen (Philippines Department of Energy) at the opening of the Philippines Business Forum

The Philippines Minister of Energy Vince Pérez brought a senior delegation of industrialists to the UK to promote new business opportunities in the Philippines renewable energy sector. The companies represented in the 18-strong delegation are developing renewable energy projects in the Philippines and are looking for technical and financial support to progress their commercial ventures. This mission, initiated by the WWF-Philippines, was supported by the British Embassy, the Philippines and the DTI's New and Renewable Energy Programme.

Mr Brian Wilson, UK Minister for Energy hosted a dinner on 21 November to welcome the Philippines delegation. The dinner was a great success with 41 UK-based delegates joining the party from the Philippines to hear brief welcoming presentations by Francis Sullivan, WWF-UK and Brian Wilson, and the response from Mr Pérez. There was a general wish for greater collaboration between the two government departments in the promotion of clean energy technologies in the Philippines.

The New and Renewable Energy Programme arranged a one-day Business Forum for the Philippines delegation to introduce the commercial opportunities to UK investors, developers and equipment suppliers. Around 100 delegates attended the event, to hear a series of presentations on the Philippines energy scene and business opportunities and then to hold one-to-one meetings with the delegates after the main presentations.

This was the first commercial mission from the Philippines to the UK for the renewable energy sector, indicating an increasing commitment to expanding the role of new commercial renewable energy sources and technologies in the Philippines power sector. This reflects a move under the present Philippines Department of Energy leadership to move renewables from study to action and aid to business. This dynamic process will create new opportunities for UK companies to promote their goods and services in this expanding developing country market.

Companies interested in future promotional activities in the Philippines and S E Asia region should contact either Barry Holmes, Renewable Energy Trade Promoter (ebholmes@pavilion.co.uk) or Fidel Ventura, Commercial Section, British Embassy, Manila (fidel.ventura@fco.gov.uk) for further information.

The area in question is the district of Teesdale in County Durham, no less than half of which is officially designated as an Area of Outstanding Natural Beauty. Now a powerful consortium of local and regional interests wants to provide the area with a new selling point - as a beacon of sustainability.

This group has come together to form The Teesdale Renewable Energy Challenge (TREC) and has recently unwrapped a number of ambitious projects to realise the natural energy-producing potential of the area.

And there's plenty of it. Covering an area of 325 square miles, Teesdale has a topography that presents unique opportunities for developing hydro, wind and solar power, together with the creation of a market for wood fuel.

Long term the TREC partners, led by Teesdale District Council and The Northern Energy Initiative (TNEI), hope to put Teesdale on a path towards 100% supply from renewable energy.

The first steps have had a positive reception from local people following a consultation event, 'Making Renewable Energy Work for Teesdale', at which plans for a small wind farm within Hamsterly Forest and generating hydro power from existing reservoirs in upper dales, were unveiled.

The consultation marked the half-way point of an 18-month study, funded to the tune of £360,000 through the EU's ALTENER Programme, to investigate how TREC's objectives can be put into practice. ALTENER encourages the spread and development of renewables and TREC will share its data and experiences with partner projects in Ireland, Italy and Sweden. The North East's regional development agency, One NorthEast, supports the study with a grant of £30,000.

Other key partners in the TREC partnership include Northumbrian Water, AMEC Wind Energy, the Forestry Commission, Durham County Council and the largest private and public sector employers in the locality, GlaxoSmithKline and HM Young Offenders Prison Deerbolt.

Research carried out by TREC has established broadly how energy is used in Teesdale as a benchmark for measuring progress towards the 100%

renewables target. Of the 600GWh of energy used annually in Teesdale some 41% is supplied by gas and 27% by electricity. Oil and coal for heating make up the rest.

It is estimated that hydro (8%) and the single wind farm (30%) could produce nearly 40% of electricity needs in Teesdale: a useful start, but only 10% of overall energy use.



TREC Co-ordinator Adrian Smith of TNEI's renewable energy agency Renew North, said: "We have made significant progress since TREC was first mooted and there has been enthusiastic support from all sectors.

"At present the Government does not have a target for supplying space heating from renewable sources. Our work within TREC shows that while it is possible to achieve a high percentage of renewable electricity, replacing fossil fuels used for heating presents an even greater challenge. This is especially true in the context of current fuel prices.

"During 2003 we will try to persuade and help householders and small businesses to consider converting to wood pellets when they come to replace boilers," he said.

Northumbrian Water has carried out a study of the six reservoirs it is responsible for in upper Teesdale. Operations Director Henry Wilson said: "Our total capacity is 19 thousand million gallons and we calculate we could generate a steady 2.8MW, enough to power 200-watt street lamps from Teesdale to London every night."

The Forestry Commission, too, has vast resources of potential energy at its feet and is now looking at ways of exploiting almost 12,000 acres of mixed woodland. It is also playing a leading role in encouraging the use of wood fuel in its various forms including chips and pellets.

Teesdale has some photovoltaic demonstrations, notably at Langdon Beck Youth Hostel. TREC is actively seeking to connect interested parties with PV and solar hot water suppliers and installers. One of the project's key objectives is to raise awareness of renewables technology.

Durham County Council has a policy of phasing out the use of oil and solid fuels in its schools by 2005, and the dozen or so centres it administers in Teesdale are being lined up to be fitted with wood burning boilers. "Ideally we want to heat our buildings using wood chips, and most schools would have a natural supply on tap within a radius of five miles," said Energy Management Co-ordinator for the County Council, Jeff Kirton.

Where TREC goes today, Regional Development Agency One NorthEast hopes that jobs will follow tomorrow.

The days when the North Pennines buzzed with activity from lead mining are long gone and, in common with other rural areas, the fall-out from foot and mouth is still being felt. Coupled with a second major renewables project a few miles away in Teesdale, the TREC project strengthens the area's appeal as a base for companies serving the renewable energy sector.

For more information on TREC, contact Ms Jane Welsh – Environment and Health Co-ordinator, Teesdale District Council on 01833 696273 or Adrian Smith of The Northern Energy Initiative on 0191 233 9303

An Energy Partnership With Nature

A groundbreaking initiative to harness the natural potential of a land of rugged landscapes, extensive forests and spectacular waterfalls has taken a decisive step forward.

State of the Art

Field Trials Push PV Forward

Over 500 homes will enjoy the benefits of PV as a result of the DTI's Domestic PV Systems Field Trials. By increasing UK experience of Building Integrated Photovoltaics (BIPV), the trials will also promote the development of future projects harnessing this sustainable energy technology.

Even in the UK's climate, PV has significant potential as a clean energy provider. In particular, BIPV could find comparatively widespread application around the country, helping to meet the electricity needs of domestic, commercial and other buildings and exporting surplus power to the electricity network. A key barrier that has inhibited take-up of BIPV to date has been lack of experience of installation and associated issues, which in turn has limited the number of systems that have been installed. This classic 'Catch 22' situation is, of course, a problem commonly suffered by 'new' energy technologies.

Three years ago, to help break this cycle, the DTI's New and Renewable Energy Programme set up the Domestic PV Systems Field Trials (complemented by the Large-scale PV Systems Field Trials). The overall aim has been not only to provide support for BIPV installations but also to use the design, construction and monitoring of supported projects as a

learning opportunity for utilities, building developers and other relevant players. The installation experience generated can then stimulate confidence in the technology and underpin increasing deployment. Improved knowledge of key areas such as operating performance, reliability, maintenance and safety will be channelled directly into future installations.

So far, the Domestic Field Trials programme has allocated £5.4 million to installation projects covering 30 sites. As a result, over 500 homes will enjoy the benefits of clean PV electricity provided by systems with a total capacity of over 750kW (peak). These systems are complemented by 'exemplar' energy efficiency features and good overall energy design. Employing mainly innovative technology, the Field Trials include both new-build and refurbishment projects, while social housing features strongly, reflecting PV's ability to help reduce fuel poverty. Moreover, participating projects cover a wide range of locations, housing types

(ie flats, houses and bungalows) and electricity suppliers, to enhance the value of the initiative.

Thirteen of the 30 installations have been completed, with another two in progress, and monitoring has begun at three of the sites. The installations are running smoothly, resulting in significant expansion of the UK's pool of experience in this field – a vital prerequisite to higher deployment of BIPV in the years ahead. Delays experienced by the projects have tended to be caused by the main building programme or by the installation and verification of the monitoring equipment, rather than by the PV system itself. A workshop held last summer for participants helped to highlight the lessons that have been learned and ensure that experiences generated by the initiative have been shared widely.

Overall, the Domestic PV Systems Field Trials show all the signs of representing a key step towards the realisation of PV's potential in the UK.

For more information on the Large-scale and the Domestic PV Systems Field Trials, or PV in general, please contact: Renewable Energy Helpline, Tel: 01235 432450, E-mail: nre-enquiry@aeat.co.uk

SUPPLY CHAIN GAP ANALYSIS SURVEY

Renewables UK, Scottish Enterprise, Highlands and Islands Enterprise and the Scottish Executive have initiated a ground-breaking study to ascertain the health of the supply chain for the entire renewables market. The purpose of this is to determine the capability of the UK industry to rise to the challenge of developing and maintaining a viable, long-term, globally active renewable energy industry.

Renewables UK is a small unit of the DTI whose over-arching aim is to maximise the UK content of renewables developments at home and abroad. Scottish Enterprise and HIE are working towards growing the Scottish business economy, and the Scottish Executive is committed to the promotion of renewable energy across Scotland.

By highlighting the status of the industry down to the regional level, the study aims to identify the resources and activities of government and associated agencies which will best catalyse this market growth. Non-commercial data will be made publicly available and so provide a directory for the sourcing of components, products and services within the UK. Obviously this is only possible in collaboration with the industry and Renewables UK will be issuing a questionnaire, to be followed up by interviews

with selected organisations. Renewables UK is keen to get a good response to the questionnaire, and has expressed a hope that organisations will be willing to make the time to respond to it and take part in interviews if selected.

A good response rate to the questionnaire will help develop a clear picture of the various supply chains. A brief summary of the project is outlined below:

Aim

To determine the capability of UK industry to rise to the challenge of developing a viable, long-term, globally active renewable energy industry.

Objectives

1. To present a clear statement describing the status and monetary value of the renewable energy industry in the UK.

2. To identify the UK renewable energy industry's strengths and weaknesses for each technology by geographic region and sub-region. This will also cover skills and design/manufacturing capacity.
3. To identify, with reasoned justification, the issues which will affect the evolution and development of the industries associated with each technology in the UK.
4. To estimate the size and monetary value of the UK market, in ten years' time, for each renewable technology.
5. To undertake a gap analysis which maps the existing and potential supply chain for each technology by region and sub-region looking at the following:
 - Jobs
 - Skills
 - Design and manufacturing capability
 - Research capability
 - Investment, diversification and export potential.
6. To identify potential new entrants to the industry and detail any obstacles, with suggested possible solutions, encountered in diversifying into this market sector.

As at 30 September 2002, 409 projects contracted under the Non-Fossil Fuel Obligation (NFFO) in England and Wales, the Scottish Renewables Obligation (SRO) and the Northern Ireland (NI) NFFO had been commissioned and were generating electricity, totalling 1033MW declared net capacity (DNC). These figures include those projects formerly contracted under NFFO-1 and 2, whose contracts expired on 31 December 1998. The breakdown is shown in the table:

LARGE-SCALE PV FIELD TRIALS

Alongside the Domestic PV Systems Field Trials, the DTI is also supporting a programme of Large-scale PV Systems Field Trials. Recent highlights include:

Birmingham High Performance Centre

Officially opened in February, the High Performance Centre at Birmingham's Alexander Stadium provides a unique indoor training facility for athletes, used during the World Indoor Games held in Birmingham in March. The roof of the Centre has been fitted with a 1500m² PV array, which has a larger area than any other array currently operating in the UK. Comprising 1760 modules with a total rating of 102kW (peak), it is estimated that the system will generate 80,000kWh/year – enough to meet all the Centre's power requirements, with surplus exported to other facilities nearby. DTI funding for the installation has been supplemented by private sponsorship. It is hoped that the project will encourage the local manufacturing base to consider diversifying into the renewable energy market.

GAIA ENERGY CENTRE

The Gaia Energy Centre in Cornwall sets out to educate visitors about sustainable energy technologies and their applications. In keeping with this objective, it has been equipped with a 63kW (peak) roof-mounted PV system comprising 420 BP Solar modules. In addition to electricity generation, the aim is to draw off the solar-heated air from behind the array and route it into the Energy Centre via ductwork. To complement DTI support, EU THERMIE funding has been secured by this scheme.

7. To map onto the strengths and weaknesses in design/manufacture (identified above) a suggested list of companies capable of plugging any of the identified gaps in the supply chain.
8. To provide an overview of the UK's position in the international renewable energy market covering:
 - who is exporting
 - what is being exported and to where
 - an indication of the export trend
 - market share difficulties encountered
 - any other issues to provide a foundation for future export support/strategies for each renewable technology.
9. To identify for each technology the greatest threats to UK domestic growth.
10. To list suggested actions for maintaining a competitive edge for those companies already established in the UK market.

For more information, contact Clare Rhodes-James at Mott MacDonald on Tel: 01273 365177 or Suzanne Evans at Renewables UK on Tel: 01505 874911, or visit the Web site at: www.energy-directory.com/renewablesanalysis/home.htm

Order	Technology Band	No. of Projects	Capacity MW (DNC)
NFFO-1	Hydro	21	10.001
	LFG	19	30.776
	MIW	4	40.63
	Other	4	45.48
	SGas	6	5.98
	Wind	5	8.138
Totals :		59	141.005
NFFO-2	Hydro	10	10.457
	LFG	26	46.393
	MIW	2	31.5
	Other	1	12.5
	SGas	18	19.059
	Wind	23	52.452
Totals :		80	172.361
NFFO-3	ECAFW - Other	2	69.5
	Hydro	8	11.738
	LFG	42	82.071
	MIW	6	77.419
	Wind Large	10	41.021
	Wind Small	11	10.835
	Totals :		79
NFFO-4	AW	1	1.43
	Hydro	8	2.297
	LFG	53	139.431
	MIW - CHP	3	22.48
	Wind Large	4	12.97
	Wind Small	4	2.755
Totals :		73	181.363
NFFO-5	Hydro	3	80.64
	LFG	55	110.355
	Wind Small	4	3.647
Totals :		62	114.642
NI-NFFO-1	Hydro	8	2.325
	Wind	6	12.664
Totals :		14	14.989
NI-NFFO-2	Biomass	2	0.304
	Hydro	1	0.075
	Wind	2	2.567
Totals :		5	2.946
SRO-1	Biomass	1	9.8
	Hydro	8	7.82
	Wind	7	25.13
	WTE	2	3.78
Totals :		18	46.53
SRO-2	Hydro	2	1.46
	Wind	5	31.29
	WTE	4	15
Totals :		11	47.7
SRO-3	Wave	1	0.2
	Wind Large	1	8.29
	Wind Small	3	2.47
	WTE	3	8.1
Totals :		8	19.06
Grand Total		409	1033.18

NOW ON-LINE

Schemes that have come on-line since the last update include:

Order	Technology Band	Site Name	MW (DNC)
NFFO-5	Landfill Gas	PG2 Bolam Power Generation	0.985
NFFO-4	Wind	Blaen Bowi Windcluster	1.524
NFFO-4	Biomass	North Tamar Environ Project	1.43
SRO-2	Wind	Roughside Hill	6.17
SRO-2	Wind	Emly Bank	6.17
SRO-3	Landfill Gas	Auchencarroch Landfill	1.98
SRO-1	Hydro	Garry Gualach Hydro Scheme	0.78

LIFE ON THE OTHER SIDE OF THE FENCE

David Still has been seconded to the DTI from AMEC for a period of two years to work as its Renewables Advisor. He is also a member of the Renewables Advisory Board.

NR: Why did you take up this position?

David Still: I have worked in the renewables industry for over eighteen years, including the last five years as the Chairman of the British Wind Energy Association. I have been heavily involved in representing the industry and my company to Government in formulating new policies. The invitation to work on the other side of the fence was intriguing and challenging, and my brief is wide ranging.

NR: What will you be doing as Renewables Advisor?

DS: I am based within the DTI's Renewable Energy Team. As such I am able to be involved in the important issues surrounding Government's renewable energy policies, including the implementation of the outcomes of the Energy White Paper. I am keen to look at the perceived barriers surrounding renewable energy projects, and how they impact on the Government's 10% by 2010 target.

NR: In your opinion what are the key barriers?

DS: There are common barriers for the wide spread of renewables technologies and others that are technology-specific. In general terms the common barriers include planning, access to the electricity network, and winning over the 'hearts and minds' of everyone involved in the outcomes of a renewable energy policy.

Offshore wind is set to be a major contributor to the country's electricity supply over the coming years. There are many activities currently under way led by the DTI. These include a Strategic Environmental Assessment of planned development areas and reviewing how large developments planned for the future will be connected to the electricity network, including who pays for the required works.

A key deliverable for the Renewables Advisory Board is setting a strategy for how we communicate the benefits of renewables to all stakeholders – from the general public right up to all Government departments. I am championing the Communication Group set up by the Board, and we hope to develop in the near future a Vision and implementation plan in order to widely disseminate the benefits of renewable energy.



David Still

Connecting new distributed generation to the network will be a major challenge. Renewable generation is likely to be located in areas not served by the present transmission network, for example remote areas of Scotland and the islands. Offshore renewable energy plant, including wind, tidal and wave, will all require significant investment in the network to allow the significant amounts of generation required by the Government's renewable energy targets to be connected.

NR: What is the most useful input you have to the DTI?

DS: I have worked in the industry for many years and this allows me to be consulted by colleagues as required enabling, I hope, a rapid exchange of industry views with forthcoming Government policies.

NR: What is your relationship with Renewables UK?

DS: Renewables UK is tasked with delivering a UK supply chain to support the emerging UK manufacturing industry and the running of the Renewables Advisory Board. I am working closely to ensure that my industry knowledge can be used by the team in identifying partners for future investment in the UK.

NR: What will you have achieved in two years?

DS: Personally I will have learned a lot about how Government works. I hope to have found routes around some of the barriers facing the renewables industry. I hope to have made a significant contribution, along with the rest of the Renewable Energy Team, in making the 10% target a reality.

NR: What else have you done?

DS: I spent two years in Papua New Guinea as a volunteer where I became serious about making a difference for developing countries. My next work saw me using my commercial skills in a renewable energy business, which eventually led to forming a wind energy development company, Border Wind, which pioneered offshore wind development and construction in the UK with the two projects at Blyth. The first in 1992 saw floating cranes used for the first time in the UK, a valuable learning experience for the first offshore project built in the UK during 2000.

VESTAS CELTIC WIND PLANT GETS INVESTMENT

Argyll and the Islands Enterprise (AIE) has committed over half a million pounds to carry out additional infrastructure works at the Vestas plant at Machrihanish. The investment will be used to help Vestas accommodate the new V80 2MW turbines that are due to be installed at North Hoyle offshore wind farm.

The investment by AIE is for the strengthening of roads, additional storage areas and the refurbishment of existing buildings.

Vestas CWT employs over 150 workers and won an award for the best company of the year in the field of sustainable energy in Scotland from the Scottish Renewables Forum.

For more information, contact: Mandy Crompton at AIE on Tel: 01546 605415.

MOTORISTS URGED TO SWITCH TO LPG

UK motorists have been urged to switch from petrol to Liquefied Petroleum Gas (LPG) which is cheaper and better for the environment.

Energy Minister Brian Wilson recently announced a £1 million LPG fund to help train garage mechanics as LPG converters and is encouraging fleet managers, car hire firms, taxi companies and ordinary motorists to consider LPG.

For more information on grants available to garages and motorists, please visit www.est.org.uk

Lendrum's Bridge Phase 2 Completed

The second phase of development work has been completed at the Lendrum's Bridge wind farm being built at Fivemiletown in County Tyrone in Northern Ireland.

The wind farm was commissioned in January 2003 and the power generated is being sold to the electricity supplier Energia.

For more information visit www.b9energy.co.uk or www.res-ltd.com

AWARDS FOR COMMUNITY SCHEMES

The National Grid Community 21 Awards were presented at a ceremony in London on 28 January and included renewable energy projects among the ten prize-winners.

The awards help councils in England and Wales to encourage sustainable development by offering prizes of up to £5000 for innovative projects run in partnership with community groups. They are organised by National Grid in partnership with the Improvement and Development Agency and sustainable development charity Forum for the Future.

Barnsley Metropolitan Borough Council's award will support the Pinfold Community Garden Project at Cudworth by enabling it to install solar heating. The award will buy equipment and pay for workshops where volunteers will learn to build solar panels to heat the garden's polytunnel and washrooms and provide under-soil heating for plants.

London Borough of Hillingdon is supporting Harlington Community School's Renewable Energy Scheme, which could lead to a wind turbine being installed at the Hayes school and clean electricity produced for the community. The award will pay for a feasibility study and public consultation. The feasibility study will assess wind levels at Harlington, energy use, planning issues and the potential for exporting Harlington electricity to community facilities on the school site.

Ross Hayman, National Grid's external communications manager, said: "The judges were impressed with the very varied ways in which local authorities are helping to put the theory of sustainable development into action through link-ups with their communities."

For further information please contact Wendy Upton or Nadir Farrell, National Grid Community 21 Awards Office, Tel: 01727 850761



The wind farm under construction

WILSON BOOSTS OFFSHORE WIND

The Minister for Energy, Brian Wilson has given his approval to plans to build 30 wind turbines in the Thames Estuary and 30 more in the Irish Sea off the Cumbria coast.

The projects will provide electricity for 180,000 UK homes and build on the Energy White Paper's aim for a 60% reduction in greenhouse gas emissions by 2050.

The wind farm to be built in the Thames Estuary will be located on the Kentish Flats 8.5km north of Herne Bay and is to be constructed by GREP UK Marine Limited. Cumbria's first offshore wind farm will be located 7.5km south west of Walney Island, Barrow and will be built by Warwick Energy Limited.

Construction on both projects is due to start in 2004 with the Cumbria work expected to be completed by the autumn.

Brian Wilson said "As the most commercially viable renewable power source it is vital that we harness the energy of the wind both on and offshore now. Britain is the windiest country in Europe and these locations provide the shallow waters currently needed for offshore wind technology."

For more information on the Cumbrian project please contact Mark Petterson, Warwick Energy Limited, on Tel: 01789 471091

For more information on the Thames Estuary project, please contact Peter Clibbon, GREP UK Marine Limited on Tel: 01784 221415 or visit www.kentishflats.co.uk



Renewable Energy Hits Television

Powergen has launched a television campaign which focuses on the generation of energy and in particular Renewable Energy. Powergen say that the advert, which depicts an offshore wind farm as the alternative to fossil fuel power generation, is the first it has run to highlight its growing commitment to renewable energy.

For more information, please contact Jag Kahlon at Powergen on Telephone 024 7642 4655

REVIEWS

CAMPAIGN FOR TAKE-OFF AWARDS

The European Community rewarded the foremost European achievements in the field of renewable energy at the third annual Campaign for Take-Off awards.

The awards ceremony was held on 9 December 2002 at the Colegio Arzobispo Fonseca in Salamanca, Spain.

The grand prize was won by Energy 21: the Energy Action Plan of Upper Austria. Other winners included Powys Energy Agency and Powys County Council, for their project to develop a community wind power scheme. The project aims to reduce carbon dioxide emissions by linking energy efficiency with renewable energy in a community application.

The Campaign for Take-Off (CTO) forms an integral part of the Community Strategy and Action Plan for Renewable Energy Sources by 2010. It was launched in 2000 and is designed to kick-start investment in renewable energy in key sectors and underpin credibility by achieving substantial investment by 2003.

It encourages public and private institutions and organisations to promote renewable energy by means of Renewable Energy Partnership declarations. It sets out quantifiable targets for the key sectors within the industry, supports communities and regions which are planning for 100% energy provision from renewable energy sources, and includes the Campaign for Take-Off awards competition to reward model Renewable Energy Partnerships.

For more information on the Campaign for Take-Off, visit the Web site at: http://europa.eu.int/comm/energy/en/pfs_altener_en.html

For more information on the Powys scheme, contact Matthew Knight, Innovation Programme Manager, Energy Saving Trust on Tel: 0207 227 0326



World Sustainable Energy Day: The Megatrends of Sustainable Energy

6-7 March 2003, Wels, Austria

World Sustainable Energy Day aims to cover the most recent trends in energy policies as well as the technological and economic field, and so to look at the future of energy supply and society as a whole.

Under the title 'The Megatrends of Sustainable Energy', the two-day event has two focal points: green building and green electricity and consists of three parts.

The opening conference is called 'Tomorrow's Buildings - the Megatrends in Building and Energy Technologies'. It covers the entire spectrum from energy efficient architecture and building shells, via heating, cooling and ventilation technologies, to planning tools, including planning for new buildings and for renovation as well as housing, commercial and public buildings. The 'European Green Electricity Forum' provides an overview of the latest developments in key technologies such as photovoltaics, biomass and fuel cells and green electricity trends in different parts of the globe. A special highlight of the conference is the exclusive evening event 'The Megatrends of Sustainable Energy' which organisers say is a gathering of international key figures from the fields of sustainable energy, economy, science and philosophy.

For more information please contact: Christine Oehlinger, Tel: +43 732 7720 14861, E-mail: office@esv.or.at, or visit the Web site at: www.esv.or.at

PREVIEWS



Beennageeha, Co. Kerry Photograph by Michael Keitz

'LARGEST EVER' EUROPEAN WIND ENERGY CONFERENCE

16-19 June 2003, Madrid

This summer the European Wind Energy Association (EWEA) hosts what it says will be the largest and most important international wind energy event ever held. Over 1000 delegates are expected to attend the 2003 European Wind Energy Conference (2003 EWEC) which will take place in the Juan Carlos I Exhibition and Conference Centre in Madrid from 16-19 June.

The conference programme will include over 120 oral, 300 visual presentations and 14 parallel workshops, chosen from 600 abstracts submitted by the world's leading wind power experts.

The 10,000m² exhibition hall will include many major manufacturers (Bonus, Ecotecnia, Enercon, Gamesa, GE Wind Energy, Made, NEG Micon, Nordex, Vestas) as well as investors, project developers, materials and component manufacturers, researchers and technical advisers, utilities, public authorities, insurance companies, banks and environmental organisations. Over 120 companies have so far confirmed.

2003 EWEC is supported by the Spanish Energy Agency IDAE, the Spanish Renewable Energy Association and the European Commission.

For more information contact EWEA, Tel: +32 2 546 1940, e-mail: info@ewea.org, or visit www.ewea.org

INTRODUCTION TO RENEWABLE ENERGY WEEKEND COURSES, WALES

The next three-day Introduction to Renewable Energy Weekend Courses will take place at the Centre for Continuing Education, University of Wales, Aberystwyth, on 11-13 April and 23-25 May.

The courses aim to give an overview of the technology of renewable energy and outline the basic principles of solar electricity, small-scale wind power and micro-hydro power and their applications for homes, businesses and farms. The organisers say that post Kyoto, this is an ideal way to learn about the nuts and bolts of this increasingly important range of technologies.

The courses are aimed at those in the business, non-profit, public and academic sectors who wish to have a comprehensive introduction to renewable energy electrical technology in general, as well as those wishing to install renewable energy systems in both urban or rural settings.

The emphasis will be on how things work, what is practicable to do, and participants will have the opportunity to develop their own projects. At the end of the course participants should be able to do basic designs for renewable energy systems.

Course themes include:

- Introduction to energy use
- Introduction to renewable energy technologies
- Project design
- Electricity from the sun - the technology
- Electricity from the sun - the resource
- Electricity from wind - the technology
- Electricity from wind - the resource
- Electricity from water - the technology
- Electricity from water - the resource
- Small system design
- Small system sizing

The course costs £35 for the three days.

Courses can also be held at other venues and designed to suit participants' needs.

Visit the Green Dragon Web site at www.greendragonenergy.co.uk/ for an overview of the technologies covered on the course, or contact Green Dragon Energy on 01974 821 564 or e-mail: dragonrg@talk21.com

To register, contact the Centre for Continuing Education, University of Wales, 10-11 Laura Place, Aberystwyth SY23 2AU, Tel: 01970 622 677, e-mail: bff@aber.ac.uk. It is advisable to register early as demand for places is usually high.

LISTING

UK EVENTS

3-4/4/03	UK-ISES Conference C79: Photovoltaic Science, Applications and Technology	Loughborough	Christiane Buckle The Solar Energy Society Tel: +44 (0) 1865 484367 Fax: +44 (0) 1865 484263 E-mail: uk-ises@brookes.ac.uk http://www.thesolarline.com or http://www.thesolarline.co.uk
21-22/5/03	All-Energy Opportunities Conference and Exhibition	Aberdeen	All-Energy Opportunities Tel: +44 (0) 20 8241 1912 Fax: +44 (0) 20 8940 6211 E-mail: info@all-energy.co.uk
22/05/03	The Fourth Annual Distributed Generation Conference	Birmingham	Tara Clipperton DTI New and Renewable Energy Programme Tel: +44 (0) 1235 433770 Fax: +44 (0) 1235 433737 E-mail: tara.clipperton@aeat.co.uk
24-26/9/03	Eighth Grove Fuel Cell Symposium	London	Sarah Wilkinson Elsevier Science Ltd Tel: +44 (0) 1865 843691 Fax: +44 (0) 1865 843958. E-mail: sm.wilkinson@elsevier.com Web site: www.grovetfuelcell.com

EVENTS ABROAD

7-12/04/03	Group Exhibit on Hydrogen + Fuel Cells, HANNOVER FAIR 2003	Hannover, Germany	Arno A. Evers FAIR-PR Tel: +49 8151 99892 3 Fax: +49 8151 99892 43 E-mail: arno@fair-pr.com Web site: www.fair-pr.com
12-16/5/03	3rd World Conference on Photovoltaic Energy Conversion	Osaka, Japan	Prof. Kosuke Kurokawa, Tokyo A&T University Tel: +81 4 238 87132 Fax: +81 4 238 56729 E-mail: wcpec3@cc.tuat.ac.jp
13-15/5/03	SUSTAIN2003 The World Sustainable Energy Exhibition & Conference (in conjunction with ECOTECH2003)	Amsterdam, The Netherlands	Amsterdam RAI Diana Jaensch (international) Tel: +31 20 5491212 Fax: +31 20 5491889 E-mail: sustain2003@rai.nl Nigel Hurcomb (UK) Tel: +44 173 7242803 Fax: +44 173 7221149 E-mail: hurcomb@ntworld.com Web: www.sustain2003.com www.ecotech2003.com
25-30/5/03	European Geothermal Conference 2003	Szeged, Hungary	Diamond Congress Ltd Tel: +36 1 214 7701 Fax: +36 1 201 2680. E-mail: diamond@diamond-congress.hu Web site: www.diamond-congress.hu/egc2003
8-11/6/03	Hydrogen and Fuel Cells 2003 Conference and Trade Show	Vancouver, BC, Canada	Canadian Hydrogen Association, Fuel Cells Canada, and the National Research Council Contact: Tel: +604 688 9655 Fax: +604 685 3521. E-mail: hfc2003@advance-group.com Web site: http://www.hydrogenfuelcells2003.com
21-25/6/03	SOLAR 2003: ASES National Solar Conference	Austin, USA	American Solar Energy Society (ASES) Tel: +1 303 443 3130 Fax: +1 303 443 3212 E-mail: cnelson@ases.org Web: www.ases.org
14-19/6/03	ISES World Congress 2003	Göteborg, Sweden	International Solar Energy Society (ISES) Tel: +46 31 708 60 00 Fax: +46 31 708 60 25 E-mail: ISES2003@gbg.congrex.se Web: www.congrex.com/ISES2003
30/6-4/7/03	Fuel Cell 2003	Lucerne, Switzerland	European Fuel Cell Forum, Tel: +41 56 496 7292 Fax: +41 56 496 4412 E-mail: forum@efcf.com Web: www.efcf.com

Sky 2000 - Bids Requested

European contractors are currently preparing bids for Germany's largest offshore wind farm in the Baltic Sea, the £150 million Sky 2000 park which will be located in Mecklenburger Bay, 19km off the Schleswig-Holstein coast.

Eon, the company representing the SHOW GmbH consortium, has invited a wide range of companies to submit bids for the supply and installation of 50 turbines which would be capable of up to 3MW each.

Conditions in the Baltic Sea are likely to cause problems: contractors will have to contend with unstable soil conditions at a depth of 15m below the mudline and ice formation.

For more information on the project, please visit www.geo-mbh.de/uk

POWER'S ON IN SUNNY SPAIN

Spain's largest solar power station was officially opened in January 2003. The inauguration was carried out by The President of the Government of Navarre, and attended by representatives of National and Regional Government, industry and international environmental organisations.

The Photovoltaic Solar Energy Plant near Tudela is the largest solar power station in Spain in terms of installed capacity (1.2 MWp). It covers an area of 70,000m² with an average solar radiation of 1600kWh/m²/year, and estimated production is 2GWh/year.

The plant has 12,602 PV panels and 400 sun trackers with a novel programming system. The central area (for highest electricity production) has 10,080 panels manufactured by BP Solar, with 280 trackers. This area was connected to the national grid in November 2001. The remainder constitutes the distributed generation area designed for experimental purposes. Its 2,522 panels of 11 types were produced by nine manufacturers and represent five different PV technologies. This was connected to the grid last summer.

Promoted by EHN, with 10% participation by the IDAE, the project has obtained the support of the Framework 5 Programme of the EU and the Programa de Fomento de la Investigación Científica (PROFIT) of the Spanish Ministry of Science and Technology. It represents an investment of €10.85 million.

For more information visit www.ehn.es/eng/textos/solar.html



The refinery site, Nerefco

Nerefco up and running

Operations have begun at the Nerefco site in Rotterdam following completion of the wind farm. The Nerefco oil refinery site, jointly owned by BP and ChevronTexaco, is the first large-scale wind farm on a brownfield refinery site in Europe.

The project cost \$23 million to build, and will produce 22.5MW of power. A spokesman said that the aim of building the wind farm within the refinery site was to optimise the use of company assets and minimise any visual or noise impact on the surrounding area.

For more information please contact BP Netherlands, Jacqueline Poldervaart, Tel: 0031 10 417 5372 or ChevronTexaco, Jane Wharton, Tel: +44 207 719 4459.

More Action Needed on Kyoto Targets

The European Commission has published its annual report on greenhouse gas emissions. The report highlights the difficulty EU member states are having in reaching their Kyoto targets. The Kyoto targets call for a reduction in greenhouse gases of 8% by 2010. Greenhouse gas emissions were down by 3.5% in 2000 compared with 1990, and CO₂ emissions by 0.5%. Member states such as Germany and the UK have lowered their emissions but the report states several member states are failing to meet their targets.

The Environment Commissioner Margot Wallström said "It is encouraging that the EU has met its commitment under the UN Climate Change Convention to stabilise its CO₂ emissions between 1990 and 2000. But this is the result of emission cuts in only a handful of member states. More than half of the member states are not on track towards their Kyoto targets. They have to do more".

For more information, visit the EU Web site at: http://europa.eu.int/comm/environment/climat/home_en.htm

EU Emissions Trading Agreement

At their December meeting, European Union Environment Ministers came a step closer to agreeing to create the world's first international greenhouse gas emissions trading system. The scheme will start in 2005 and will cap the amount of carbon dioxide that large factories and power plants can emit. Arrangements will be made for companies affected to trade emissions rights with other companies in the 15-nation bloc. Member states will be able to apply for sector-wide opt-outs until 2008 when the scheme will become compulsory. The European Parliament will then have a second reading of the Directive and is free to suggest further amendments if it wishes. The text then goes back to the Council for final adoption.

For more information, visit the EU Web site at: <http://europa.eu.int/comm/environment/cli>

Gamesa sells more wind to Electrabel

The Spanish company Gamesa has announced it plans to sell some of its Italian wind farms to the Belgian company Electrabel. The deal worth €200 million follows an earlier sale by Gamesa of Portuguese wind farms to Electrabel for €320 million.

The Italian wind farms will generate 175 MW once they come on line in 2004.

For more information, visit www.gamesa.es

Net Review

The Centre for Sustainable Energy (CSE) is a charity, registered in 1988, whose primary purpose is to improve the environment and alleviate poverty by promoting and delivering sustainable energy and environmental initiatives.

One of the initiatives run by the CSE is the Solar Club (part of a network of over 20 Solar Clubs), a not-for-profit community initiative for householders, designed to make solar water heating cheaper and easier to install. It operates by training members to install professional solar water heating systems as DIY projects.

The CSE also runs the Bristol & Somerset Renewable Energy Advice Service, one of six pilot services in the UK funded by the DTI's Renewable Energy Programme and launched by the Energy Saving Trust in July 2002. This helps householders, local authorities and community groups to obtain information on renewables and more generally encourages co-operation in developing sustainable energy policies and action plans within local authorities.

A non-profit body, CSE works with individuals and organisations on a wide range of other initiatives operating at local, regional and national level, which are featured on its Web site. The main sectors for these activities are:

- Local Authorities
- Policy & Research
- Community
- Energy Advice
- Business
- Education & Training.

Each of these sectors on the Web site directs the visitor to projects undertaken, with a description of each. There is also a 'Featured Projects' section, and 'Latest News' which gives an update on new initiatives, conferences and visits.

To access the site, go to www.cse.org.uk



New Publications, CD-ROMs & Videos

Fast Pyrolysis of Biomass: A Handbook Volume 2

Bringing together the latest European and North American research, Fast Pyrolysis of Biomass: A Handbook, Volume 2 provides an insight into the latest developments in advanced thermal biomass conversion.

It covers the benefits offered by bio-oils as well as updating the developments in research and technology introduced in Volume 1 of the Fast Pyrolysis Handbook, and addresses production, commercial and safety issues.

Additionally, Volume 2 discusses pyrolysis in relation to combustion and gasification of biomass, and makes suggestions for the strategic development of this technology in the future.

ISBN 1 872691 47 1 EUR 20341

Fast Pyrolysis of Biomass: A Handbook Volume 2 is published by CPL Press and is available online from www.cplbookshop.com, price £95.00, which includes free delivery in the UK.

Renewable Energy 2002

IEA Statistics

ISBN 92-64-09952-2

This is the first publication in the IEA series detailing renewable energy statistics in OECD countries. Renewable Energy 2002 defines, clarifies and classifies renewables and waste energy statistics and includes notes on energy sources, country notes, geographical coverage and conversion tables.

The publication provides a comprehensive range of statistics and focuses on electricity and heat production, supply and final consumption as well as installed capacity of renewable and waste sources in the 30 OECD member countries.

For more information, visit www.iea.org/stats/files/renewables.htm

Low Carbon Technology Assessment

Last summer, the Carbon Trust invited tenders for a study to help inform the future development and shaping of its Low Carbon Innovation Programme (LCIP) project portfolio.

Low Carbon Technology Assessment 2002 – Making Our Investment Count was published in January 2003. The study looked at around 50 technologies, based on the list given in the Chief Scientific Adviser's energy research report to the PIU Review. Each technology was assessed for its carbon savings potential and the ability of Carbon Trust's investment to be material in the context of the wider level of investment in the technology. The study categorised the technologies into four groups:

- focus technologies with high carbon savings potential and where LCIP investment would be material;
- consider technologies with lower carbon savings but where LCIP investment could be material;
- monitor technologies with high carbon savings potential but where LCIP investment would not be material; and
- review periodically technologies which have low carbon savings potential and where LCIP investment is unlikely to be material.

This categorisation has enabled Carbon Trust to identify and prioritise those technologies which will form the core of the LCIP's investment programme. Carbon Trust considers that its low carbon technology assessment study is a useful tool to inform decision making. It is not a substitute for the rigorous assessment process applied to specific proposals to LCIP. Neither is it sufficient for proposals just to be in a high priority category so far as Carbon Trust is concerned. Proposals will need to meet the published criteria (see the LCIP section of Carbon Trust's web site) and will need to score sufficiently highly compared with other proposals to merit LCIP funding.

The aims of the publication are to give potential proposers to LCIP and co-investors a clear view of how LCIP intends to focus its resources, and to make stakeholders aware of the Assessment and its purpose. Carbon Trust will keep the Assessment under review and will commission further work as necessary to ensure it is kept up to date and covers key technologies in sufficient depth.

Feedback and comments are invited by e-mail to LCTA@thecarbontrust.co.uk

Low Carbon Technology Assessment 2002 – Making Our Investment Count is available as a pdf on Carbon Trust Web site www.thecarbontrust.co.uk

A COMPETITIVE EDGE FOR TURBINE BLADES



The development of innovative processes has helped one wind turbine blade and hub manufacturer take a technology lead.

In 1998 NEG Micon A/S of Denmark, one of the world's leading suppliers of wind turbines, acquired Aerolaminates Ltd, a specialist manufacturer of wood epoxy wind turbine blades and The Wind Energy Group (WEG), a wind turbine manufacturer. Both businesses had developed a number of exciting technologies but were limited by the slow emergence of wind energy in the UK at the time.

In making the acquisition, NEG Micon A/S gained in-house expertise for both blade manufacture and variable pitch turbine technology.

NEG Micon quickly concluded that significant capital investment would be required to gain maximum benefits from the new acquisitions and set about an investment programme to establish a blade-making capacity equivalent to 400 megawatts of turbine blades per annum.

This investment led to the relocation of Aerolaminates (now renamed NEG Micon Rotors Ltd) from its Southampton base to a new rotor blade factory on the Isle of Wight. Situated on a nine-acre plot next to the River Medina, the modern 13,000m² facility houses both production and R&D. The unique technology centre has equipment capable of fatigue and load testing rotors up to 120M in diameter. The total investment of £16M was aided by a grant of £2.5M in Regional Selective Assistance development funds.

The choice to locate on the Isle of Wight in preference to a mainland location was predominantly due to the availability of a waterside location which was in close proximity to the port of Southampton (for onward shipping of the blades to their final destinations worldwide), and the pool of expertise in high-strength composite materials, as a result of the local high-tech boat-building industry.

In 2003 the renamed NEG Micon Rotors Ltd employs over 400 staff, including 50 professional engineers; it produced over 800 blades in 2002. New variable pitch hub designs developed by the hub design team have been incorporated in the whole NEG Micon product range worldwide.

UK government support has helped NEG Micon Rotors take a technology lead through innovative R&D projects, many of which are now turning into commercial products.

A major example is the new wood/carbon blade technology developed at the new UK Technology Centre. The UK team has been making wood composite blades for 20 years and has benefited

from the qualities of wood: high specific stiffness and fatigue strength, stability, low cost and sustainability, to produce stiff, light and competitive blades. Wood has been used in combination with epoxy resin and glass skins to produce an optimum sealed structure, combining natural and man-made composites. The wet lay up technique was used in the manufacture of wood composite blades.

Now the demands for longer, stiffer and lighter blades to feed the growing market for multi-megawatt machines have led to a unique wood/carbon solution. By using just 3% by weight of carbon efficiently where it is needed, the blade weight is reduced by 30%, for no extra material cost. At the same time, a dry lay up method with vacuum infusion has been introduced improving quality and health and safety, and halving the production cycle time. The technology is being used on 35m and 40m blades now in production, but is capable of making much larger blades on the same cycle.

Wood/carbon offers a challenge to the glass reinforced plastic route used by many manufacturers, having naturally higher stiffness, a lower dependence on resin properties for integrity and stability, and a larger proportion of renewable materials in construction. So far, in NEG Micon's 72m and 82m (low wind) 1.65MW machines, the promise of wood/carbon technology is being fulfilled.

Another example of the hub technology has been the 2MW rotor which has now become a mainstay of NEG Micon's mid-range product. This technology was developed in partnership with other UK manufacturers, helping introduce them to the wind turbine industry.

The challenge for the wind industry has always been to compete with conventional sources of electricity production. The only measure for this is the cost per kilowatt hour (kWh). As a result, the whole industry strives to reduce kWh prices year on year whilst meeting the growing demand for renewable energy production worldwide.

For NEG Micon Rotors this means continuing to invest in engineering concepts for increased turbine performance in larger product sizes whilst reducing unit costs using innovative production technology in manufacturing processes. The latest project targets tomorrow's offshore market with blades in excess of 55m in length.

For further information about NEG Micon Rotors, contact Julian Brown, Managing Director, Tel: +44 (0)1983 8247600

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Contact the Editor (see below for details).

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