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## Our office network



## dates for your diary

Carter Jonas is delighted to be attending a number of events over the summer months across the regions, these include:

- All Energy, Aberdeen from 19–20 May
- Cereals 10 at Vine Farm, Near Royston from 9–10 June
- The Great Yorkshire Show, Harrogate from 13–15 July
- CLA Game Fair, Alcester from 23–25 July
- The Dairy Event, Birmingham from 7–8 September
- BWEA, Glasgow from 2–4 November

## your feedback... update

- To obtain further copies of this publication
- To update your details
- To add a colleague to the mailing list
- To request further details on topics covered or give us feedback

Contact us at: [marketing@carterjonas.co.uk](mailto:marketing@carterjonas.co.uk)

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# Energy View

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The Property People

Spring 2010

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# Welcome

Welcome to our Spring 2010 Energy View, which includes a number of articles on the renewable energy sector which I hope you find of interest.

There have been some important developments following on from the Copenhagen climate talks held in December 2009, including the Round 3 Offshore Wind Development Zonal awards to developers, and also the Department of Energy and Climate Change's recent announcements regarding the Feed-In Tariff (FiT).

Unfortunately the Copenhagen talks were largely viewed as a weak outline of a global agreement, falling way short of what Britain and many other countries are seeking to achieve and necessitating major negotiations that will have to be undertaken in the future.

Following on from Copenhagen, on 8 January 2010, The Crown Estate announced the successful bidders for each of the nine Round 3 Offshore Wind Zones within UK waters. The expansion of electricity generation from offshore wind represents a major long-term investment opportunity which has the potential to generate thousands of jobs in the UK, as well as securing a marine renewable electricity source. The Round 3 Offshore Wind Energy Generation aims to deliver a quarter of the UK's total electricity requirements by 2020.

All the parties are understood to have signed the exclusive zonal Development Agreements with The Crown Estate, who has responsibility for renewable energy in UK waters, to take the proposals through the planning and consenting phase.

On 1 February 2010, the Department of Energy and Climate Change (DECC) announced the details for the Feed-In Tariff (FiT) for small-scale (sub 5MW), low-carbon electricity which will take effect from 1 April 2010. Households, communities, land and property owners who install generating technologies such as small wind turbines and solar panels along with other eligible technologies, will from April be entitled to claim payments under the Feed-in Tariff for the low-carbon electricity they produce, even if they use it themselves, this is covered in greater detail on pages 4 & 5 of this newsletter.

The Energy and Climate Change Secretary, Ed Miliband, announced the Feed-in Tariff levels and also published a blueprint for a similar scheme to be introduced in April 2011 to incentivise low-carbon heating technologies. The Renewable Heat Incentive (RHI) will be a world first. These schemes are designed to bring about a significant increase in the amount of locally produced green energy.

The level of payment depends on the technology and is linked to inflation. Operators will get a further payment for any electricity they supply into the grid and these payments will be in addition to benefiting from reduced electricity bills, as they reduce the requirement to purchase electricity.

We view the FiT as a major development in the renewable energy sector for smaller scale installations across the UK, in many cases promoting not only an acceptable financial return for the investors but also significant additional employment.

In the future land and property owners and investors appear to be well placed to assist with energy generation making use of property assets and payment mechanisms for generating technologies either under the Renewables Obligation (RO) or the Feed-in Tariff (FiT).

Finally, with the Budget announcements having been made by Mr Darling including the £2 billion to set up the new Green Investment Bank and a handful of specific measures to encourage green energy, including only £60 million for the offshore wind sector, there is no doubt that the Government will have to make greater commitments on commercial scale generation going forward, if we are to have any chance of meeting the targets set in the future.

Please do not hesitate to contact any member of the Team, should you want to discuss any aspect of a potential site or project.



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Image of E-33 (330kW) Wind Turbine courtesy of Enercon GmbH

# Environmental Planning Capability

The Carter Jonas Energy Team has recently expanded its offering to the energy sector through the recruitment of established and experienced renewable energy planning specialists.

This enables the Team to offer assistance to the renewable energy industry from land assembly and economic feasibility, through to planning management and submission. Projects we are involved with include: undertaking site searches, feasibility studies, promoting potential sites, providing valuation and funding advice, in addition to site acquisition and disposal negotiations plus access, way leave and easement negotiations.

Through our knowledge of the sector and the planning system, we are now able to assemble a team of well-respected environmental specialists who have demonstrable track records of delivering successful projects.

## How we work

To provide best value to the client by identifying and agreeing an effective and efficient delivery team from the outset.

To undertake a collaborative approach which involves significant early and on-going engagement with stakeholders to achieve consensus.

Extensive experience of operating with public bodies and communities on consultation and communication exercises.

To minimise risk to the client through adopting a methodical step by step approach to planning and the EIA process.

## Particular areas of focus

### Small-scale renewables

With the proposed changes to the renewable energy incentive schemes (or Feed-in Tariff) due in April 2010, Carter Jonas would be pleased to provide assistance to householders, businesses and landowners to take potential projects from feasibility, through planning, to delivery.

### On-site generation

We have recognised that many commercial property owners are well placed to derive advantage from generating renewable energy on both new and existing sites. Facilitating delivery of local renewable and low-carbon energy in this manner has the potential to:

- **Achieve a sound financial return and have an operational life in excess of 20 years**
- **Benefit from forthcoming financial incentives and avoid forthcoming financial penalties**
- **To improve corporate 'green' credentials**
- **To reduce financial risk from fluctuating energy prices by securing their own energy supply**
- **Introduce economies of scale, through the promotion of multiple sites, to renewable energy developers.**



Clive Fagg has an environmental planning background, with considerable experience in renewable energy projects. He has undertaken a significant number of Environmental Impact Assessments (EIAs) for energy-related developments and has extensive experience of working with wind energy developers. He has also advised both the UK and Scottish Governments on developing planning policy for renewable energy developments.



Jane Spence has a background in minerals and waste planning with experience in planning for waste minimisation and energy recovery. She has undertaken Environmental Impact Assessment for a number of developments including the processing and treatment and recycling of waste, and the production of refuse derived fuel. She has also prepared representations on energy from waste initiatives and policy, to local and regional policy documents.

**Introducing two of our experts**

# Renewable Energy Projects – Major Development!

## Feed-in Tariff details announced by the Department of Energy and Climate Change (DECC)

The Government has committed to having Feed-in Tariffs (FiTs) in place by April this year (2010), following extensive consultation in the latter half of 2009 regarding the implementation of the scheme, the proposed tariff levels and how the scheme will work 'on the ground'. This should be a major step in encouraging further development in the renewable energy sector, especially in technologies such as wind and solar photovoltaics.

The Government's announcement in February confirmed the details of the FiT scheme which 'will allow many people to invest in small-scale low-carbon electricity, in return for a guaranteed payment for the electricity they generate'.

FiTs are intended to encourage the uptake of small-scale, sustainable energy technologies up to a maximum capacity of 5MW through a simple, user-friendly system designed to provide a fixed price for the electricity generated – but not heat. In addition, for surplus electricity exported to the grid, operators can opt to receive a guaranteed payment of 3p/kWh or to sell electricity on the open market.

FiTs will provide much needed financial certainty in order to encourage individual households, communities, businesses, schools, hospitals, universities etc to consider installing small-scale, low-carbon electricity generation technologies. At this stage the scheme will only provide incentives for electricity provided from the following technologies:

- **Anaerobic Digestion**
- **Hydro**
- **Solar Photovoltaic**
- **Wind**
- **Non-renewable Micro Combined Heat and Power (CHP)**

From 1 April 2010, eligible projects under 50kW installed capacity will only be able to utilise the FiT mechanism as a means of a financial incentive. Those larger projects with an installed capacity between 50kW and 5MW, will have a one-off choice between the Renewable Obligations (RO) or alternatively the FiT mechanism.

Existing projects with an installed capacity between 50kW and 5MW, eligible under both the FiT or the RO, will have a one-off choice between staying with the RO incentive

scheme or switching to FiT – however, this choice will only be possible until December 2010.

The tariffs for new projects will be fixed for 20 years (25 years for solar photovoltaics) and differ according to the technology and scale of projects. Indicative tariffs for 2010–11 are set out below. The tariff levels for new projects for wind and photovoltaics will decrease by pre-determined rates each year.

Technology	Scale	Proposed Initial Tariff (p/kWh)	Tariff Lifetime (years)
Anaerobic Digestion	<500kW	11.5	20
Anaerobic Digestion	>500kW	9.0	20
Hydro	<15kW	19.9	20
Hydro	15-100kW	17.8	20
Hydro	100kW-2MW	11.0	20
Hydro	2MW-5MW	4.5	20
Micro CHP pilot	<2kW	10.0	10*
Solar PV	<4kW (new build**)	36.1	25
Solar PV	<4kW (retrofit**)	41.3	25
Solar PV	4-10kW	36.1	25
Solar PV	10-100kW	31.4	25
Solar PV	100kW-5MW	29.3	25
Solar PV	Stand-alone system**	29.3	25
Wind	<1.5kW	34.5	20
Wind	>1.5-15kW	26.7	20
Wind	>15-100kW	24.1	20
Wind	>100-500kW	18.8	20
Wind	>500-1.5MW	9.4	20
Wind	>1.5MW-5MW	4.5	20
Existing micro-generators transferred from RO		9.0	To 2027

\* Micro CHP pilot will support up to 30,000 installations

\*\* 'Retrofit' means installed on a building which is already occupied; 'New Build' means installed on a new building before first occupation; and 'Stand-alone' means not attached to a building and not wired to provide electricity to an occupied building.

Over and above the FiT and RO incentive schemes, the Energy Act 2008 made provision for a Renewable Heat Incentive (RHI) which will provide financial assistance to generators of heat from sustainable sources and producers of renewable biogas and bio-methane. It is understood that the development of this scheme is due out for consultation with the RHI being in place by 2011.

Should you wish to discuss renewable energy opportunities in further detail please contact me.



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# Wind Farm Constraints and Site Suitability

Sites suitable for commercial scale wind energy development are increasingly difficult to come by. Technical constraints and the assumed criteria demanded by the local planning authority to permit a wind farm development serve to constrain areas. When assessing a land holding there are a number of key issues to consider:

## Wind Speed

A site with wind speeds in excess of 6.1 m/s at 45 metres above ground level is generally seen as worth investigating in further detail in light of the financial returns possible from modern wind turbines.

## Noise Impact and Shadow Flicker

Typically unacceptable noise and shadow impacts from a wind turbine will travel around 500 metres. As a result the majority of sites that are proposed as 'developable' will exhibit a large enough area for large-scale turbines after taking into account a 650 – 750 metres separation distance from dwellings.

## Ecological Issues

Ecological studies are required to support a planning application in order to ascertain whether a development will impact upon any protected species. If protected species are in close proximity to a site they can present significant issues.

## Statutory Designations

Statutory designations generally denote an area of environmental or historic importance. Those that can impact upon a wind farm development at the planning stage include: Sites of Special Scientific Interest (SSSI's), Natura 2000 sites, Scheduled National Monuments and Designated Ancient Woodland.

## Aviation Issues

Aviation constraints in relation to wind farm developments are linked to the impact of tall moving structures on both radar and established low-level flight paths. They can present a navigation hazard, as well as showing up as interference on radar screens due to the turning blades reflecting radar energy.

## Access

The most notable issue is the necessity to transport turbine rotor blades to the site, as they cannot be delivered in sections. This leads to a requirement for loads of approximately 45 metres long and 7 metres wide to access any given site.



Example: High level constraint map

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### **Telecommunications**

Microwave links from mobile telephone masts can reflect off turbine blades causing interference. These links exist between masts across the national telecommunications network and as a result OFCOM need to be consulted in relation to all proposed wind farm developments to confirm what impacts there may be. These links have the ability to sterilise areas of a site, potentially rendering it undevelopable.

### **Public Rights of Way**

Public rights of way can again act to limit the developable area available at a site as it is planning convention to site turbines at least 'fall distance' away. For commercial scale wind turbines this is ordinarily between 100 – 140 metres depending on the size of the machines proposed.

### **Landscape**

Wind turbines often have a significant impact upon the landscape as a result of their height. Adjusting the height of the turbine towers and strategically locating the machines can mitigate this impact.

### **Grid Connection**

The two key issues are proximity to transmission infrastructure, being an electricity substation within a realisable distance of the project, and local grid capacity. Capacity relates to the amount of additional electricity the local infrastructure is able to accommodate.

Should the local wires and supporting infrastructure be close to capacity, cable and substation upgrades may be required to accommodate the additional electricity from the wind farm. This can result in significant additional costs and affect project viability.

### **Net Developable Area**

In order to accommodate large-scale wind turbines, a site must be suitably large so as to allow adequate spacing and prevent turbulence and wind shear between the machines. This distance is a factor of the rotor diameter of the specific turbines used.

Carter Jonas is adept at assessing sites for wind energy developments using the latest GIS tools. If you think your holding may be suitable and would like it assessed, please contact a member of the Energy Team.



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# Decentralised Energy Generation

Over recent years a number of large national and international organisations have been exploring ways to achieve an economic advantage from decentralised generation of renewable energy. Decentralised energy is 'energy that is generated at, or near to, its point of use and does not rely on the national grid transmission network'.

There are a number of principle drivers behind the movement towards decentralised energy generation, namely:

- To contribute to the Government's green energy agenda
- Taking advantage of financial incentives such as the Renewable Obligation Certificates (ROC) and Feed-in Tariffs (FiTs)
- To avoid carbon taxes such as the Carbon Reduction Commitment (CRC), which in 2010 will apply to circa 5,000 organisations
- To contribute to corporate resource efficiency and environmental aspirations

To reduce the ever increasing financial risk associated with fluctuating energy price, in April 2010, the Government is proposing to expand the CRC programme to include businesses which have an annual usage of at least 6,000MWh and have at least one half-hourly meter. It is predicted that the 'price of carbon' will be in the region of £12 per tonne of CO<sub>2</sub> and therefore a business which uses the minimum 6,000MWh of electricity per year could be liable for an additional 'carbon tax' of up to £38,000 per annum.

<sup>1</sup>DECC Low Carbon Transition Plan 2009

<sup>2</sup>DECC Feed-in Tariffs: Government's Response to the Summer 2009 Consultation

As shown in the graph opposite, certain industry sectors have made significant reductions to their energy consumption over the last 18 years. However, some industrial sectors including the chemicals, food, drink and tobacco and paper related industries have not seen a significant reduction. It is therefore suggested that it is within these sectors that considerable gains from the installation of a sustainable energy source can be made.

This observation has been supported further in the pre-budget report (PBR) in December, in which Alastair Darling announced £30 million of financial support focused on the Teeside chemicals industry, to help the sector demonstrate new technologies and techniques to save energy, it remains to be seen how effective this will be in rolling out similar technologies and techniques to the rest of the UK.

National Government has also been active in the promotion and facilitation of decentralised and renewable or low-carbon energy considered vital in achieving the planned reductions in carbon emissions<sup>1</sup>. For example, renewable electricity produced and consumed on-site by a business which falls within the CRC threshold, will be exempt from the carbon tax and is one measure being considered by business in order to considerably, reduce the financial burden of the CRC.

The introduction of the Feed-in Tariff in April 2010 will make achieving realistic payback periods for decentralised renewable energy projects easily achievable as demonstrated in the example below which is based on the tariffs set out by the Government in February 2010<sup>2</sup>.

Carter Jonas' Energy Team has developed a business model to provide a structured approach to assist businesses and industrial estate owners develop decentralised renewable energy. In terms of delivery, it is recommended that a four stage approach be utilised in order to develop a bespoke renewable energy business model for individual commercial, property and business owners namely:

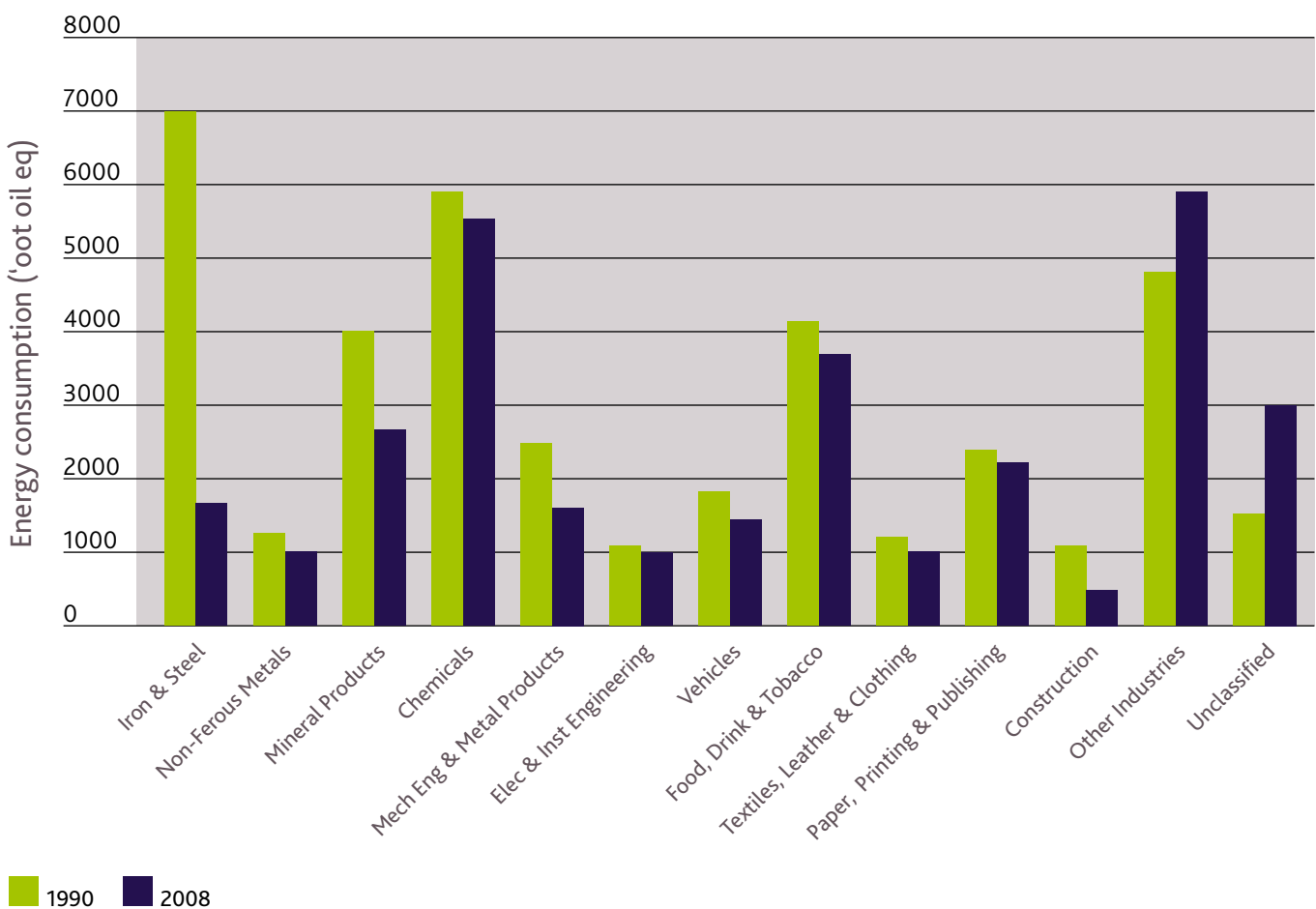
- Assist clients to develop strategic objectives
- Assess and screen the site in line with the strategic objectives
- Facilitate the development of a viable project
- Provide assistance and management for project delivery



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## Energy Consumption by Industrial Sector 1990–2008





## Energy Conference Report

Ed Bailey, Carter Jonas' Energy Team Contact for the Western Region, gave a presentation on Anaerobic Digestion opportunities in Wales at the conference on Developing Welsh Biogas 2009 in Cardiff. With the Government determined to reduce carbon emissions and increase the reliance on renewable sources of energy, he highlighted the role Anaerobic Digestion could have in meeting the UK's renewable energy contribution. Ed's presentation followed Jane Davidson, the Minister for Environment Sustainability and Housing's address and Question and Answer session. He spoke about opportunities for Welsh farmers to derive value from slurry or low value forage crops to secure an alternative source of income through the production of 'green' electricity.

### Grass Silage as an input component

The typical biogas yield potential of grass silage medium quality compared to Maize silage of similar quality and yet widely regarded as being the most suitable crop is 142 cubic meters of biogas generated per tonne of raw material compared to 129 cubic meters for Maize. The Welsh climate means that grass grows particularly well at less cost and has the added advantage of being a better understood energy crop making that transition easier for Welsh farmers.

### Government support

The programme has been initiated by WAG's MAP (Materials Action Programme) and will be delivered and managed on behalf of Welsh Assembly Government by WRAP (Waste & Resources Action Programme). The aim of the programme is to encourage the development of more Anaerobic Digestion (AD) facilities in Wales in order to provide a step change to significantly increase the amount of Biodegradable Waste that is diverted from landfill – in particular from commercial and industrial sources such as food and drink manufacture and catering.

- Double Renewable Obligation Certificate Availability targeted to encourage AD
- Forthcoming Feed in Tariff (FIT's) which commences in April 2010 and the Renewable Heat Incentive which is due in 2011
- Enhanced Capital Allowances

### Smaller AD Plant

This is this important because 1MW is increasingly becoming a measurement currency by which AD is compared to other renewable energy technologies such as Wind. A 1MW plant may require typical inputs that are only akin to the larger dairy or pig farm units. In England the average farm size is around 50 hectares, however for Wales and Northern Ireland, sizes are smaller at around 40 hectares. Smaller AD plant may therefore better compliment the average farm size in Wales.

### Investment in slurry storage

Slurry stores constructed post 1991 will require at least 4 months storage otherwise units may find themselves in breach of section 4 of the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991. There may be considerable cost savings by virtue of the digester vessels providing the storage requirements of cattle slurry.

He summarised, by providing an example of where Anaerobic Digestion could be made possible by listing the number and locations of redundant airfield strips and concluded by referring to such sites as having the following benefits:

- 1 They are usually located within close proximity to settlements which once relied on airfield sites as being an important source of employment. Such settlements have energy demands and the development of AD plant on such sites could provide both local employment and energy to meet these demands.
- 2 The topography of redundant airfield sites makes them best placed for utilising energy crops and facilitating vehicular access.
- 3 The quasi-industrial nature of airfield sites is likely to mean that sufficient grid connection may once again be made possible and there may also be a useful planning precedent set by virtue of the planning history.



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