

**Shropshire County Council – Beacon Council for Sustainable Energy**

Shropshire has achieved Beacon Status with its approach to 'sustainable energy'. The Council has reduced its own carbon emissions by 34% (below 1990 levels) and is working with local communities to reduce the emissions from the whole county.


Shropshire is a rural county with a population of around 280,000 spread over 3,200 sq km. Much of the county has no access to mains gas and the effects of this rural sparseness are significant in terms of energy and its environmental and economic consequences.

The Council has developed a vision for the future at the heart of which is sustainable development. There is a real ambition to find positive, practical and locally appropriate solutions to tackling climate change in this beautiful part of the country and to encouraging local people to accept responsibility for their own futures. This is integrated into all relevant strategies and programmes.

A Climate Change Strategy has been guiding this area of work in Shropshire since 2000. Within this framework, corporate and community actions have been developed, recognising that there is no



one single solution to climate change, but rather a portfolio of locally appropriate solutions covering a variety of issues, including transportation, education, waste and construction.


The Council established Marches Energy Agency (MEA) in 1995 which provides the capacity and skills in promoting sustainable energy and in the piloting of practical and innovative local solutions. The Council consults and involves local communities and organisations and feedback from them is used when developing actions and deciding on appropriate technologies. 

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Community Engagement in Tackling Climate Change

Climate change is the greatest threat facing the environment and society and there is widespread agreement that the time for action is now. Marches Energy Agency is working with Shropshire County Council to find ways to engage local communities and by doing so, to reduce emissions of carbon dioxide within Shropshire. Marches Energy Agency shared the award for Beacon status in sustainable energy with the Council, presented in July of this year.

Current projects include Congregations for a Low Carbon Future – working with local churches to

reduce emissions from church buildings and the homes of clergy and congregation members – whilst the Wasteless Society of Bishop's Castle is pioneering a community-based approach to achieving an 85% cut in CO2 emissions by 2050. In addition, the results of a recent study into the potential for savings within local Women's Institute groups proved highly promising and there are plans to build on this in coming months. 

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The challenge of energy and the built environment

The built environment is a major consumer of energy. It accounts for some 50% of total energy consumption and 50% of CO₂ emissions. But it is the carbon dioxide emissions that are the primary cause of concern, rather than energy consumption per se - which has brought many economic benefits that we will want to continue to enjoy into the future. Cutting back on emissions and substituting non-polluting fuels for fossil fuels are major themes of the West Midlands Energy Strategy.

The Government's preferred route to reducing emissions from energy consumption from buildings has been through a progressive tightening of the building regulations to higher standards of insulation and air tightness. Even so the UK has some way to go before it achieves standards equivalent to parts of the EU, although a further revision coming in next year will take us a step closer.



Planning policy is a comparative latecomer to the energy agenda. Whilst design policies have covered matters like passive solar gain for sometime, energy is but one matter among many covered by design guidance. Merton LBC became the first planning authority to include a policy within their UDP that sought 10% of energy needs from non-residential development to be sourced from on site renewable production technologies. (Telford & Wrekin BC has just introduced a similar policy into its Preferred Options LDF). This approach seemed to gain credence in PPS22 (although some doubts now appear to be emerging) and variants of the policy are now being adopted within Local Development Frameworks around the country.

However, much still remains to be done. The strategic regional development planning framework still lacks any global carbon reduction targets through which both planning and building regulations could act in concert with one another. Currently, the only mechanism for translating national Energy White Paper targets on carbon emissions to the regions

comes from the West Midlands Regional Energy Strategy which stands outside the planning system and is, in any case, voluntary.

In the future, building regulations compliance is likely to be judged on meeting a carbon emissions benchmark through a trade-off between the use of energy efficiency design/materials and renewable energy technologies. Under the new regime, a building inspector might reach an agreement with a developer that fell short of a 'Merton style renewables' percentage by using more energy efficiency measures, unless close co-ordination is achieved between building regulations and planning.

A policy of promoting energy efficiency first might actually make a lot more sense than prematurely pushing renewables through the planning system. People are still learning how to operate renewable technologies and mistakes can lead to these systems failing. Energy efficiency is less dependent upon the human factor typically being designed into the fabric of a building from the start. If renewables do not work, then the options for retro-fitting energy efficiency are not always economic. Experience with the BedZed housing development, commonly regarded as a model of UK sustainable housing, illustrated this problem all too clearly when its biomass combined heat and power plant was decommissioned by the operating company because it found itself unable to operate effectively within the terms of the original planning conditions placed on the hours of operation of the CHP plant.

The issue of planning for energy, however, goes beyond the fabric and design of a development to the way buildings are used and their relationship to the surrounding environment. Voluntary standards (at least outside the Housing Corporation) like Eco Homes have been developed to capture a whole range of issues including access to public transport options, pointing to the need for energy to feature across a wide policy agenda, rather than simply being restricted to the environment chapter in a Regional Spatial Strategy.

Even greater issues surround the future of development needed to support a production and distribution system for energy produced from 'renewables', which operate in very different ways to centralized fossil fuel generation. Future energy generation is likely to be dispersed throughout the distribution network, rather than being concentrated in a limited number of places. Network reinforcement/redesign may be necessary leading to new styles of development. Energy production technology may also appear as part of mixed use developments, opening up awkward questions about operational compatibility as illustrated by BedZed.

Whatever happens, we are all likely to become much more familiar with different approaches to energy generation in our midst in the future than has been the case since the war. ☰

Michael Thompson is Senior Regional Planner for Advantage West Midlands, the views expressed in this article are his own.

English Partnerships rate environmental excellence

The heat is on - the Ozone layer continues to take the strain of the modern world and the modern world is putting the pressure on us to act - influencing the way we build our homes and communities.

The **Lightmoor development** in Telford, a joint venture between the Government's national regeneration agency, English Partnerships and Bournville Village Trust, gives an insight into how things could be. The first phase of the scheme is now under construction by Persimmon Homes, with every home being built to the Building Research Establishment's (BRE's) Eco Homes rating of 'excellent'.

The Eco Homes rating addresses seven environmental issues: water, pollution, materials, transport, ecology and land use, health and well-being, all of which must be considered at every stage of the construction process.

The aim at Lightmoor is to achieve exemplar design while remaining environmentally sensitive at all times. High quality design and construction methods and materials will ensure that the existing land is respected and renewable resources are used to meet the high standards set by the BRE.

The Lightmoor scheme will offer homeowners in the new community:

- Sustainable urban drainage for surface water
- Rainwater storage butts
- Internal and external low energy lighting
- Insulation throughout the property to increase standards for less energy use
- 'Low E' double glazing
- Excellent public transport links – 80 per cent of dwellings within 500 metres of nearest bus stop
- Local amenities less than 1000 metres away from the development – including food shops, post box, post office, bank or cash machine, pharmacy, school, medical centre and community centre

The layout of paths and cycle routes around the sites will serve to reduce what has become an over-reliance on cars to reach local facilities such as shops, cafes and schools. To compliment this, almost a third of the development will be maintained as open and green spaces.

David Rhead, English Partnerships' senior regeneration manager believes that the new development at Lightmoor will be among the most eco-friendly in the country as well as a very popular place to live. "Together with our partners, we are providing an inclusive, sustainable community where people can work, shop and socialise. Through design and best practice in construction, the ultimate aim is to maximise quality of life and environment. We believe the Bournville Village Trust's presence as long term steward of the development will create a sustainable management of the area."

For example, cycle storage will encourage increased cycle use; the provision of rotary dryers and drying spaces should minimise the use of tumble dryers and

with room for potential home/office space, the scheme will accommodate more flexible ways of working.

Lightmoor is one of four key housing projects in Telford being brought forward by English Partnerships. These include the country's largest sustainable urban extension at Lawley, an urban village at Woodside and the Telford Millennium Community at East Ketley. Together these sites will bring over 5,000 new homes to Telford.

A detailed planning application for **Telford Millennium Community** at East Ketley was submitted this year. Like Lightmoor, the 750 homes proposed will encompass the Eco Homes excellent standard. This scheme will also be built to the challenging Millennium Community Standards set by the Government, which were launched to realise exceptional and sustainable development on brownfield land across the country.

A number of benchmarks have been set to assess the success of the project, ensuring that energy consumption is reduced within the home, as well as a typical 50 per cent reduction of energy used during construction.

This site is considered one of the most challenging in Telford but with a vision to be a modern, flourishing neighbourhood which will demonstrate the latest thinking in sustainable housing design and will exemplify how higher density housing using modern constructive techniques can be developed attractively.

The urban community being created at **Lawley**, also in Telford, is the largest of its kind in England, covering some 70ha to include approximately 3,300 homes and ancillary facilities. Mainly constructed on a former open cast mining site, the development will meet a good proportion of the demand for new housing in Telford. The rigorous planning approach taken by English Partnerships and the Borough of Telford & Wrekin was recognised earlier this year with a regional RTPI commendation. The project is also notable for the Enquiry by Design approach established by English Partnerships and the Princes' Foundation. This process will ensure that local people, contractors and stakeholders continue to work together in maintaining a development that 'looks after' the residents, the buildings, the community and the environment.




David Rhead



English Partnerships rate environmental excellence (contin...)



Sustaining our communities will help us reach the long term goal of sustaining our environment. With the support and involvement of our many partners, English Partnerships is constantly raising the bar, challenging developers to deliver new design and construction techniques. This is a process of evolution - we're seeing some really interesting work coming through, that will be implemented on our sites over the years and for future generations. 

For more information please contact:
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Creating the environment for business

Energy: The other 90%

Many column inches in the planning and environmental press deal with renewable energy. Yet renewables only generated some 3.2% of the UK's electricity in 2004 and the Governments target is to increase this 10% by 2010 and 20% by 2020. This article briefly describes how the vast bulk of the country's energy supply system works.

It is now over 15 years since the electricity industry in the UK was privatised and in that time we have seen the switch from a nationalised centrally planned electricity generation and supply network to a market led approach in the provision of new power generation. A myriad of different supply companies now operate in the market, selling electricity and gas to consumers. But the industry structure that lies behind this front end is not always obvious.

Electricity companies are granted licences by Ofgem under the Electricity Act 1989 to either generate, transmit, distribute or supply electricity.

National Grid owns, maintains and operates the National Electricity Transmission System in England and Wales which operates at 275,000 and 400,000 volts and operates the system in Scotland providing electricity supplies from generating stations to local distribution companies. They do not distribute electricity to individual premises, but National Grid's role in the wholesale market is key in ensuring a reliable and quality supply to all. As transmission lines have a higher capacity than those of a lower voltage, proportionately fewer lines are required to carry equivalent amounts of power. For example one 400kV transmission tower carries the equivalent power of three 275kV towers or eighteen 132kV towers.

The transmission systems in the UK are fully interconnected. National Grid's system in England and Wales is connected to that of Scottish Power, which in turn is interconnected with that of Scottish and

Southern Energy. The Scottish Power system is also connected via an undersea cable to Northern Ireland's system. The transmission system in England and Wales is connected to the grid belonging to Electricite de France through an undersea cross-Channel link.

There are 12 licensed Distribution Network Operators (DNO) in England and Wales and two in Scotland, each DNO owns and operates the local electricity distribution system which operates at 132,000 volts and below within its authorised area. In the Midlands our local DNOs are Central Networks – West and Central Networks – East. These DNO companies supply almost all consumers.

Electricity from the National Grid is much too powerful to use in our homes and businesses. The power lines go into substations near businesses, factories and homes for transfer to the DNO's. Here transformers reduce the very high voltage electricity in stages down to 11,000 volts. The voltage is once again reduced to 230 volts at local DNO substations to deliver electricity to most homes and businesses.

Traditionally the bulk of the electricity used in the UK was produced at large power stations located on the coal-fields in the north of the England, with centres of demand in the south east and other major conurbation's. Power must be moved in bulk from generating stations to these centres of demand and in the UK this is facilitated by the high voltage transmission grid. In general the dominant flow of power is from north to south. The grid is therefore a fundamental part of our nation's infrastructure in the same way as the motorway or railway network. It contributes to a sustainable future, providing secure supplies of electricity to meet the needs of industry and commerce as well as schools hospitals and homes.

Historically in Great Britain the demand for power was always higher in the winter and lower in the

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Call Hector Person on 01926 655874

www.nationalgrid.com/uk/senseofplace



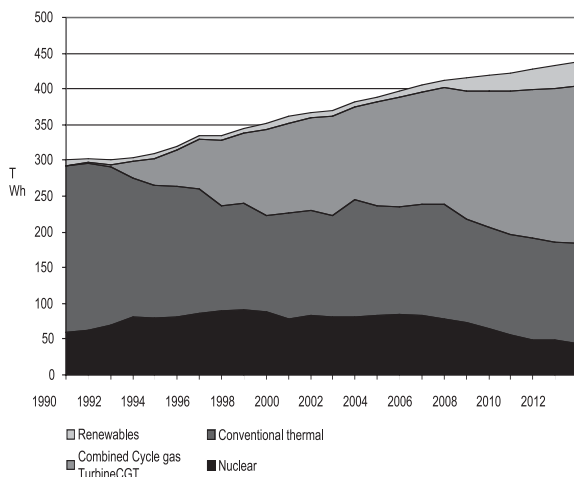
National Grid does not benefit financially from the development of land beneath or close to its overhead lines, nor is it a statutory consultee in the planning application process. However, we are committed to working with others to find sustainable, creative and practical ways of reducing the impact of our overhead lines on new development.

nationalgrid

tripwire

summer. However modernisation and the increased use of technologies such as air conditioning has meant that our reliance on power is at an all time high – all year round. This increase in summer demand means that generators can no longer be shut down for maintenance – increasing the need for alternative back ups and reliable forms of generation.

The market led approach, and increasing environmental standards which drive to reduce emissions, has led to a



Graph showing the % generation from different sources.

significant rise in the amount of gas fired generation over recent years. The increase in demand for gas has come at a time when there is a decline in North Sea reserves precipitating changes in the gas transmission network to a reliance on imports of natural gas via transcontinental pipelines and liquefied natural gas (LNG) by ship.

This graph shows the shift away from coal fired generation to gas and the expected increasing contribution from renewables such as wind power.

Renewables are at the forefront of the debate about clean energy however the impacts these have on the grid system and in the UK are not well understood. Changing patterns of supply from traditional power stations to intermittent generation will necessitate changes in how our transmission networks operate. The areas which would be most productive and reliable for renewables will predominately be geographically distant from London and the South-east and often remote from the existing grid. This will require further expansion of the grid and regional infrastructure. The current debate in Scotland over a new transmission line shows how these can be more controversial than the wind farms themselves. So how do we connect new Scottish renewables to the demand centres of London and the South East?

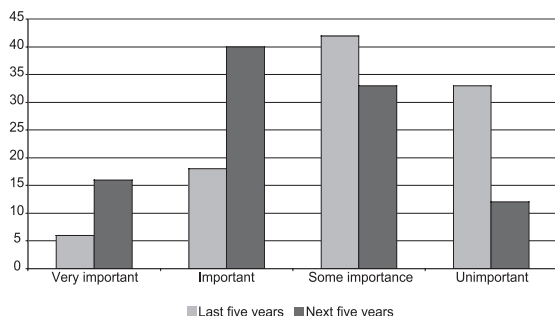
Aileen Smith, Amy Jones National Grid

Commercial Property, Energy Use and Sustainability

Research undertaken by international property firm GVA Grimley reveals how sustainability is becoming a key issue for the commercial property industry. The research found that occupiers and investors are increasingly willing to demonstrate commitments to Corporate Social Responsibility (CSR). This, combined with increasingly stringent legislation, particularly concerning energy-use, will drive change towards the occupation of more environmentally efficient property in the future.

The results from two surveys carried out by GVA Grimley indicate that the UK may be witnessing a key change in corporate attitudes towards property related environmental issues. For instance, when occupiers were asked to rate the importance of 'green issues' to their accommodation strategies, only 24% stated environmental issues had been either 'very important' or 'important' over the last five years, whereas this more than doubled to 56% when they were asked about the next five years.

The importance of environmental and 'green' issues when considering accommodation strategy



According to GVA Grimley's research, this increased level of awareness was being particularly driven by a growing perception of the need to reduce energy consumption and the growing body of policy designed to enhance the environmental performance of property. Of the legislation, arguably the most relevant and pressing is the EU Energy Performance of Buildings Directive (EPBD), which will be adopted by the UK government in the New Year. The research also found that pressure from shareholders, employees and customers was actually deemed rather less significant in driving property-related urban change.

EPBD main requirements

Given that buildings are responsible at least 40% of all CO₂ emissions in the EU15 states, the purpose of the EPBD is clearly to drive forward energy efficiency of property as a key means to tackle climate change and reduce the consumption of fossil fuels. The EPBD sets minimum energy performance standards for all new buildings and all existing buildings above 1,000m² subject to major refurbishment (incorporated into a revised Part L of the UK Building Regulations).

The EPBD also requires that all buildings, domestic and commercial, possess an Energy Performance Certificate (EPC). This will grade the building in terms of its energy efficiency and should be made available whenever a building is constructed, refurbished, sold or rented out. The certificate would be valid for 10 years and, if a building is visited by large numbers of the public, the certificate should be prominently displayed. For the first time, EPCs will allow prospective tenants or investors to make an objective comparison between buildings based on energy performance. It will have a bearing on property valuation and could therefore be a

factor in investment decisions. As a result, it should help to raise the level of environmental awareness of investors and occupiers about their buildings.

Green buildings as 'sustainable buildings'

While the issue of efficient energy use is of critical importance, it is not the only consideration when assessing a building in terms of its sustainability - in essence a more holistic assessment of social, environmental and economic impacts. Highlighting research undertaken by Kingston University, GVA Grimley present a number of key considerations in sustainable building design:

Sustainable Criteria

<p>Adaptability Buildings that are readily adaptable to incorporate new technologies and working practices.</p>
<p>Location and Accessibility Accessible to a range of transport options including both public transport and private transport. Locating on brownfield sites rather than greenfield sites.</p>
<p>Low energy consumption (and water) Measures to increase energy efficiency include: Combined Heat and Power, use of energy efficient lighting and Zero ODP insulation. Reducing use of fossil fuel energy by incorporating renewable systems. Reduce consumption of water through rainwater harvesting and use of efficient taps and toilets. Achieving the right the balance between thermal and glazing characteristics in building design</p>
<p>Longevity (long term, life-cycle) Optimise the life of the building to make the most of the materials and energy that has gone into constructing the building – referred to as embodied energy. Use of recycled or responsibly sourced building materials.</p>
<p>Appeal to occupants Examples includes natural lighting, thermal comfort, air quality and worker-controlled temperature and ventilation.</p>

The benefits of green buildings

Beyond simply benefiting the environment, 'greener' buildings offer additional benefits. First, they provide a visible means of demonstrating commitment to CSR obligations, thereby serving to enhance corporate image. Currently the BRE Environmental Assessment Method (BREEAM) is the leading assessment tool in the market, used by corporates to 'rubber stamp' the environmental credentials of their property. Secondly, there is the more tangible benefit of long term operational cost savings through reduced energy and water consumption. While such savings currently represent just a fraction of overall business costs, as oil prices escalate get and legislation gets more stringent, consideration of energy will become much more important in the future. There is also evidence that such buildings can also have a positive impact on employee satisfaction leading to increased productivity. The implication is, therefore, that sustainably designed buildings bring commercial and user benefits in addition to wider environmental benefits.

Encouragingly, from the occupier point of view, GVA Grimley's survey of office occupiers found that close to 50% of office occupiers would be prepared to pay a higher rent in order to occupy a more environmentally friendly building. Furthermore, investors and developers should be encouraged by research from BRE and Cyril Sweet which demonstrates the additional capital costs required to deliver Excellent rated BREEAM certified buildings is a matter of a few per cent.

Environmental concerns aside, if sustainably designed buildings enhance corporate image, have lower operating costs and are beneficial to staff productivity, why are they not appearing everywhere, particularly when evidence suggests occupiers are receptive to them? The key to unlocking the so-called 'circle of blame' in the failure to provide sustainable buildings may well have its roots in the forthcoming legislation which, it is hoped, will guide the market towards 'greener' buildings. 🏢

Stuart Morley

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Bridgnorth swimming pool heated by solar power

A swimming pool at the Severn Centre, Highley (in Bridgnorth District) is now being heated by solar panels - unveiled by the Chairman of Bridgnorth Council (Cllr Les Winwood) recently. The system generates an estimated annual yield of 150,000kwh which (according to the Council's press release) is good enough to run a 19" colour television set for 68 years – though why anyone would want to watch television whilst swimming in the pool is not entirely clear!

Bridgnorth DC co-ordinated raising funds for the £160,000 sustainability schemes from the Clear Skies Renewable Energy Grant and SITA Environmental Trust. Paul Walker is quoted as saying that 'this scheme helps to reduce energy consumption at the Severn Centre and shows what can be achieved by using renewable energy'. 🏢

University of B'ham; Survey of Sustainable Energy Capacity

The Innovation & Technology Council, established by AWM, has commissioned Birmingham University to undertake a survey of current innovation and business potential in the West Midlands in the field of energy.

respect to energy - identifying business needs and demand. The exercise is being led by Professor Green who is Director of the University's Institute of Energy Research and Policy. 🏢

The results of this survey will be used to set up a working group to provide a strategic direction with

For further information please contact Dr Marina Ciaraldi at the University of Birmingham, Edgbaston, B15 2TT 0121 414 3898.

The energy debate has over the last 12 months or so has been framed by well known “greenies” such as David Bellamy and James Lovelock supporting nuclear energy and damning wind turbines and wind technology. While this makes for easy newsprint, behind the scenes things are changing rapidly and in the theme of Jonathon Freedland’s Radio 4 programme “The Long View” we may be on the crest of an energy revolution which repeats much of the municipality’s behaviour of the 1800s.

At the time Joseph Chamberlain led Birmingham as the “best governed City in the World”, there were already a number of municipal gas companies around the country. They could deliver heat and light and fund various civic amenities from the profits. This resulted in vast improvements for example in drinking water and sewage systems. Investments were also made in public baths, recreation areas, libraries and schools.

This was led by local decision-making, not central control. It came as a result of frustration with a highly centralised state and poor living conditions for many people who were increasingly working and living in rapidly expanding urban areas.

Fast forward to 2005, and there are huge frustrations at the inability of local authorities to raise money and then spend it on services for their people. The debacles over Council tax and providing effective public services shows just how centralised we have become.

However we may well be about to repeat a form of ‘localism’ in terms of meeting some of our energy, electricity AND heating needs. Could a local energy revolution be around the corner? Could this, once and for all, bury any notion of a bright new future for nuclear? Most importantly could we generate energy in our communities for the benefit of those communities, not only in terms of energy but also as a way of raising revenue for other services? Then, because that money had been raised locally, how it should be spent could be determined locally too, not in Whitehall. The centralists will hate it, but many on the planet may thank us for not only getting out of ‘nukes’ but also starting to genuinely face up to the challenges of climate change.

The only problem with this ‘green sky rhetoric’ is that it is already happening – despite, not because of, Whitehall. The shame is that, as yet, it has not been mainstreamed.

A visit to Woking website <http://www.woking.gov.uk/environment/Greeninitiatives> shows how they are widely recognised as being the most energy efficient local authority in the country. So successful has this been that Mayor Ken has taken some of Woking’s staff off to London. Over the next 10 years our Capital City will gradually switch its energy production from fossil fuels and other environmentally harmful sources to renewable energy sources.

Currently we waste more energy in the production and transmission of electricity than we actually consume. Some 70% or more can be wasted from a traditional power plant. The grid is currently designed to be a one-way system, but it could be two-way allowing every home in the country to become a power station supplying its excess energy into the grid for local and national distribution when needed. The grid and its associated infrastructure could act as an energy sink for the surplus energy from solar, wind, micro-combined heat and power as well as other renewables such as heat pumps and water power.

Developing on this and going back to the future, local communities and indeed large conurbations could raise local bonds from their residents, or even from pension schemes, to invest in community energy projects which would raise revenues as well as supply locally generated energy. That energy would be greener and cleaner whilst also capable of meeting a variety of scales. The grid would still exist as a back up and more importantly for storage and distribution. The business end would alter from one of energy generation and control to one of services. The incentive to become efficient would increase dramatically while the waste and pollution decrease in very measurable tonnes.

So maybe Lovelock and Bellamy have tricked us all into the wrong debate. What we should be focussing on, is meeting local needs locally and thinking smaller plant not huge. As a nation we require numerous energy solutions, not one size fits all. This sort of thinking will not only herald a revolution in green-collar jobs but enable us to have security of supply as well as taking some small steps on the road to a renewable future. It will also return some pride back to our great cities as well as self-sufficiency to numerous settlements both small and large. 🏡

Chris Crean Chris Crean is the Regional Campaigner for the West Midlands Friends of the Earth.