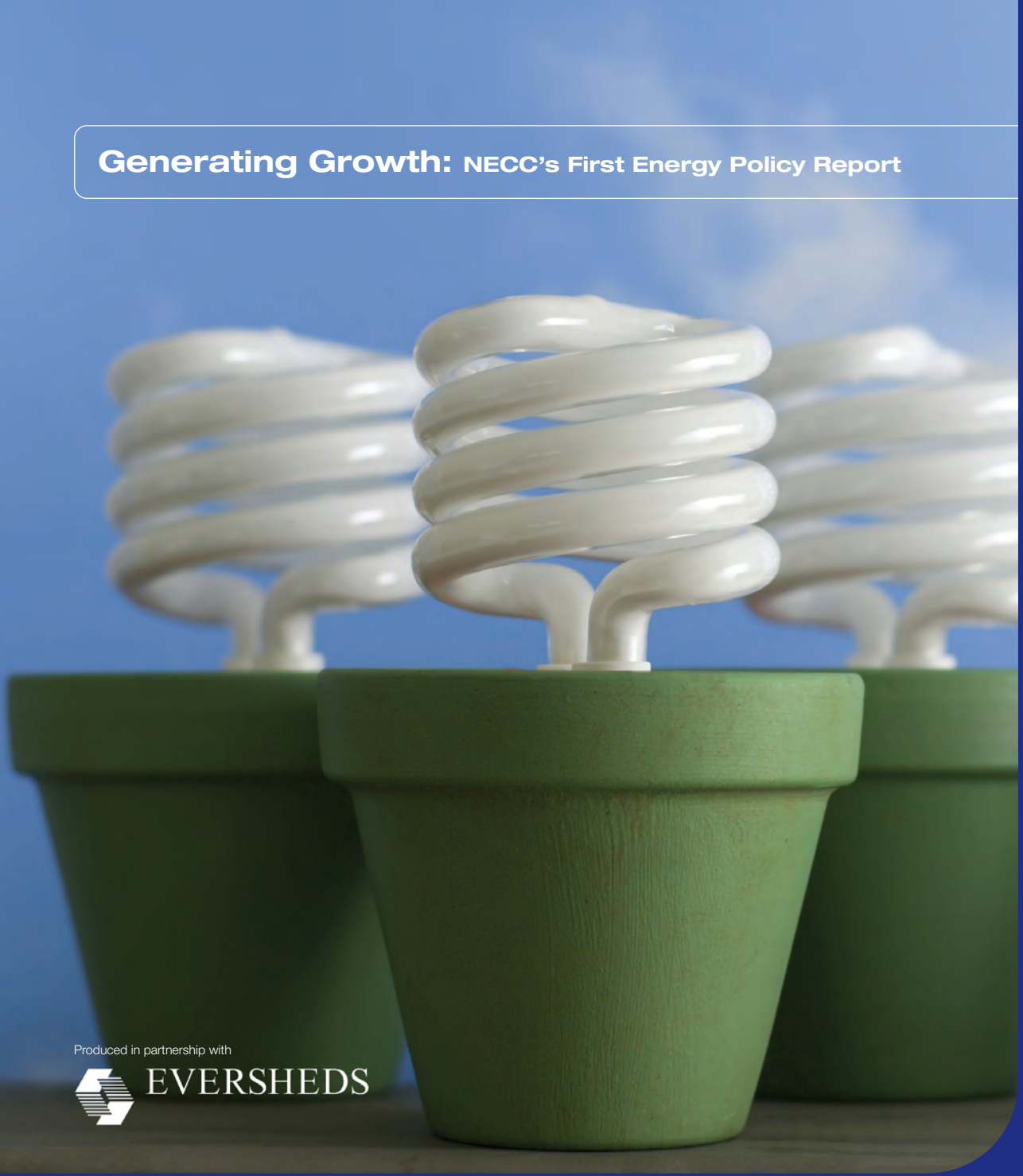
Generating Growth: NECC's First Energy Policy Report

necc
North East Chamber of Commerce



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Generating Growth

NECC's First Energy Policy Report seeks to provide a private sector assessment of the challenges and opportunities facing the energy sector in the North East of England and is focused on helping to unlock growth potential in this important sector of the North East economy. It has been produced by the North East Chamber of Commerce with the guidance of the NECC Energy Policy Working Group, which includes representatives from a variety of energy related businesses and organisations with an important part to play in the various debates that surround the energy challenge.

NECC

The North East Chamber of Commerce (NECC) is the North East's leading business membership organisation and the only regional chamber of commerce in the country, representing 4,200 businesses on a regional, national, and international level. Its members are drawn from all sizes of business across all sectors and employ about 30% of the region's workforce. NECC lobbies on behalf of members on a variety of issues in order to improve the conditions for business in the North East.

Eversheds

Eversheds has 47 offices and over 3,500 legal and business advisers across Europe, the Middle East, Africa and Asia. Its vision is to be a great place to work and the most client-centred international law firm. As one of the world's largest law firms Eversheds provides expertise, resources and local service delivery.

Eversheds' Newcastle office provides a full service covering five main practice areas; company commercial; human resources; legal systems; litigation and dispute management; and real estate. It also focuses on a number of key industry sectors, one of which is energy and natural resources.

Foreword

Eversheds has partnered the North East Chamber of Commerce to establish the Energy Policy Working Group, which I was delighted to chair. The views of this group, consisting of representatives of various businesses both within and connected to the energy sector, have formed this Energy Policy Report.

In chairing the Energy Policy Working Group, my aim was to ensure that we captured a wide range of experiences from the private sector, concentrating on the challenges and opportunities facing our region's energy industries. I am pleased that the case studies that we have uncovered as a working group do not simply serve to highlight the barriers facing the sector but also exemplify how we might react more positively to improve our position as a region.

As the UK's first Low Carbon Economic Area, a centre for energy related innovation and with significant natural resources, the North East is ideally placed to take advantage of the significant growth that is occurring within the energy sector. However, energy policy and regulation is changing rapidly to respond to global issues such as climate change and the economic downturn as well as national issues like the threats to security of supply caused by the imminent closure of a number of oil, gas and nuclear power plants without timely and effective replacements.

If we are to grasp the opportunity as a region, then immediate action is required in some key areas and the working group has provided a number of recommendations that are considered most likely to be effective in realising our aspirations.

Peter Nesbit
Eversheds LLP

Executive Summary

Ensuring the future security and sustainability of the UK's energy supply is a major and growing concern for national policy makers and businesses alike. However, meeting the twin challenges of climate change and security of supply present a huge opportunity for the North East of England: conservative estimates put the level of potential private sector investment into the North East at £6 billion between now and 2030.

In order to achieve this, it is paramount that the public policy environment is supportive and enables the growth of our energy industries. This report identifies six key areas to be addressed:

- **Planning:** The current planning system is not fit for purpose. The development control approach implicit in the planning system is a drag on the future growth of energy industries in the North East, which must be addressed. Failure to do so will leave the North East at a disadvantage to international competitor regions.

- **Regulation:** Energy industries face a complex and ever-changing regulatory environment. Certainty in regulation is crucial if investments are to be forthcoming.

- **Infrastructure:** The North East loses out to other regions of the UK because national grid capacity is insufficient. This must be addressed alongside a more coordinated approach to the gas distribution network and a greater consideration of the opportunities of redistributing waste heat from industry.

> "Meeting the twin challenges of climate change and security of supply present a huge opportunity for the North East of England"

Executive Summary

- **Supply chain:** Businesses across the North East must be mobilised to meet the economic opportunities presented by the new energy industries.

- **Skills:** Greater coordination between industry and skills providers will halt the drain of technical and professional talent from the North East's energy industries and address the demographic time bomb of an ageing workforce in the sector.

- **Innovation:** The North East has already achieved much but cannot rest on its laurels. Businesses must make greater efforts to work collaboratively and seize the talent and expertise growing in our universities. Access to finance to allow innovations to be taken to market is also required.

Addressing these issues is not for public policy makers alone. It is crucial that the general public in our region recognises the opportunity available to the North East and supports the innovation and investment needed to realise it. Businesses must also invest in the skills and resources which are necessary to effectively capitalise on the energy related opportunities that could underpin the North East economy for many decades to come.

The North East has proven in the past that it can lead the world in innovations in the energy industries. In the challenges of the 21st century it has the opportunity to do so again.

Introduction

Generating Growth: NECC's First Energy Policy Report addresses the policy response necessary to ensure that the North East of England is best placed to benefit from the predicted growth in new power generation and related industries. It sets out the issues facing energy and related industries across six themes: planning, infrastructure, regulation, skills, supply chain and innovation. Policy in these areas has the potential to support new and emerging industries or to constrain them and neuter their potential. A proactive and enabling approach in each of these areas could serve to equip the North East with a genuine competitive advantage, one that provides the springboard for industrial leadership and the basis for an economic renaissance in the region.

However, this report steers clear of assessing the technologies that may be at the heart of a future energy landscape. Similarly, opportunities which will arise in the region for mitigating power usage amongst businesses and consumers through greater energy efficiency and the growth of low carbon technologies will be addressed in a subsequent report.

Energy security and sustainability are crucial issues exercising the minds of policy-makers and business people alike. A substantial proportion of UK energy generation capacity is due to become obsolete in the next decade and many of the likely new facilities also remain years from completion. At the same time there is a pressing need to respond the challenges of climate change with a greater degree of focus on low carbon energy.

Together they represent perhaps the biggest challenge facing industry in the 21st century yet they also represent tremendous opportunity for firms and regions that can effectively develop and sustain energy and related businesses.

The North East of England is in a prime position to lead this charge. Its heritage is one of continued innovation in the energy industries: from Sir Joseph Swan and the first electric light bulb, through Parsons' leading contribution to the evolution of the turbine generator, to the present day and the many businesses and innovators in the North East involved in areas as diverse as electric vehicles, energy from waste, clean coal technology and wind turbine manufacture.

The North East stands to benefit from investment that has taken place so far in infrastructure which supports the energy sector, for example the New and Renewable Energy Centre (Narec) at Blyth in Northumberland and Hebburn in Tyne and Wear, and the Centre for Process Innovation (CPI) in Tees Valley. This is helping to attract further investment to the region by companies seeking to exploit the opportunities that are unique to the North East.

However, the scale of investment that is necessary in order to cater for the needs of an expanding energy sector is enormous, with up to £100 billion needed to ensure that off-shore wind generation realises its potential in the UK and over £3 billion needed to finance planned carbon capture and storage (CCS) projects in the North East.

The impact of this investment could be tremendous. There is an opportunity to generate growth based upon businesses rooted in the North East for specific reasons, such as our skilled workforce, unique geography, and industry-friendly infrastructure. This could benefit the North East with up to 40,000 jobs and over £6 billion for the regional economy between now and 2030 – which equates to about 15% of North East Gross Value Added (GVA).

"There is an opportunity to generate growth based upon businesses rooted in the North East"

Furthermore, One North East has estimated that if the full potential of the North East's market opportunities across a range of energy technologies are realised, the North East economy could grow by up to 1.8% annually.

Our region also has a particular drive to succeed with these innovations: the needs of its industry leave the North East as the highest energy consuming region in the UK when measured on a per capita basis. We must not shackle the industries that contribute so significantly to our economy, but in a world where the language of climate change is becoming ubiquitous, our region must do its best to find and exploit new technologies that will enable the UK to continue to compete and grow in a sustainable way.

This report recognises that regional public policy in the North East has to date been forward thinking and dynamic in its approach to the energy and related industries. One North East, some local authorities and the region's universities have together contributed much of which the region can be proud. But there remains more to do.

In this regard, this report sets a number of challenges to three important groups within the region:

- **Public policy makers:** those whose decisions serve to underpin the environment and culture in which energy and related businesses can prosper;
- **Businesses:** who will be the engine for growth in a burgeoning energy sector but who must equally support the development of their workforces and invest in new technologies;
- **The general public:** who stand to gain considerably from the improvements a prosperous North East economy will bring, but whose support and backing is equally crucial if businesses are able to build that economy.

The following sections identify a number of areas where these three groups can contribute directly to making possible the vision for a North East that is at the forefront of the new energy industries and is able to reap the rewards that this will bring.

Planning

The planning system is not fit for purpose to support the burgeoning energy industries. From micro-generation wind turbine installations to large nuclear power facilities, investments are delayed or even cancelled due to the costs and uncertainty inherent in the current planning system that embraces a culture of development control rather than enabling investment.

North East England is competing on an international scale for energy industry investments and a proactive planning regime has already been adopted as an advantage for some competitor regions.

Boomtown Bremerhaven

The German seaport of Bremerhaven, located in a region with a similar economic history to North East England, has successfully taken a proactive stance on planning regulations to allow planning decisions on renewable energy investments to be fast-tracked.

Bremerhaven's Mayor, Jörg Schulz illustrates the advantages that this approach can have, explaining how the permit for Franco-German company Multibrid's first M5000 prototype offshore turbine was issued within a six-week period. He claims a similar process elsewhere can easily take up to two or three years. "In return for helping them out with a test location, we asked Multibrid to consider establishing a manufacturing facility in Bremerhaven," says Mayor Schulz. "Such a request is by no means legally binding and only has the status of a gentlemen's agreement. However, a decision process can sometimes be made easier for potential partners, when their R&D efforts are also supported by the federal state of Bremen."

Source: www.renewableenergyworld.com

For large scale (50 megawatt and above) power generation facilities, the Planning Act 2008 is helpful with its creation of the Infrastructure Planning Commission. The Commission has an important role that goes some way to addressing the uncertainties and complexities that businesses often face as they seek to invest in the development of energy related projects. Some of the features of the Commission could, however, be emulated for infrastructure projects of regional or sub-regional importance, such as faster decision making, a unified consenting regime and decision making in accordance with unambiguous policies.

This approach should go further by establishing maximum time limits on consultations alongside the current minimum period, and should also be adopted by local authorities and other public bodies involved in the planning system. Late or drawn out consultation processes add to levels of uncertainty. This uncertainty can compromise investments and it is important that appropriate consultation strengthens rather than undermines the decision-making process.

The new Planning Policy Statements may begin to address this, but too often energy investments are delayed and their economic potential overlooked due to over-concentration on parochial concerns. This represents a challenge to local policy makers and the public at large to recognise the contribution to the North East and UK economy of many of these investments.

Narec

In early 2008 the New and Renewable Energy Centre (Narec) proposed an acoustic testing facility for a three-month long test of a single, 50 kilowatt, 32 metre high wind turbine at a site in Myres Hill in East Renfrewshire, in the radar shadow of an already approved wind farm. Despite the neighbouring wind farm having approval for an array of turbines at a maximum height of 100 metres, an individual planning officer at East Renfrewshire Council deemed the temporary installation would benefit from scrutiny in the planning process.

The application was then subject to a holding objection by Defence Estates that was removed five weeks later following completion of a pro forma intended for large wind farm developments. Later, concerns were raised by Glasgow Airport and Prestwick Airport, both of which worked with Narec to overcome their apprehensions.

However, National Air Traffic Services Limited, the UK's air traffic control service, also expressed its disquiet at the plan and would only respond to full planning applications, or offer self assessment guidance or pre-planning services at a cost ranging from £750 to £9,450.

In total a three-month test site a third of the height of a neighbouring facility took six months to complete the planning process. The project was subsequently cancelled.

Planning

Best practice should be shared among local authorities to help replicate successes and generate a progressive culture of planning in which there is a presumption in favour of approval if certain conditions are met.

National Government must not abdicate responsibility when it comes to local planning decisions on energy related investments. These are often dictated by local political considerations and rarely take account of the national need for greater security and sustainability of our energy supply. There must be greater consideration given to the silent majority who are either ambivalent towards or in favour of energy related planning applications. All too often local action groups stall planning processes without having had to justify the merit of their objections. Planning objections should be given the same scrutiny that planning applications are afforded, while recognising it is incumbent upon businesses as well as local authorities to ensure that they engage with residents and think strategically about the nature and number of applications in a given area.

It is also imperative that planning guidance is open to on-going revision to take account of new technologies and innovations. Developments which may once have been inappropriate can become viable as new technologies enable objections to be overcome, such as new types of turbines that operate with reduced noise or a much smaller radar footprint.

“National Government must not abdicate responsibility when it comes to local planning decisions on energy related investments”

Actions

- Training of planning officers in North East councils should promote a culture of enabling economic development rather than development control
- The features of the Infrastructure Planning Commission that make the consenting process quicker should be emulated for projects of local, regional and sub-regional importance
- A maximum period of consultation should be established for planning decisions
- Feasibility studies and site assessments must take into account improvements in technology over time
- Strict criteria should be established for planning objections and innovative methods to understand the views of the silent majority should be attempted by North East councils
- Best practice should be shared amongst local authorities in order to help replicate successes
- National planning policy statements should establish clear guidelines for developments with presumption in favour of applications which conform
- Agencies with planning responsibility in the North East should consider the lead set by competitor regions and seek to establish a proactive planning environment as a competitive advantage

Infrastructure

For the North East's energy and related industries to be successful in the future there is a clear need for continued infrastructure investment.

The region's existing physical assets such as its roads, railways and ports will require continued investment to support the growing energy industries. Alongside this there is a pressing need for capacity on the national grid to be upgraded in order to allow for power generation investments to be realised. Any substantial power generation project planned in the North East will be unable to effectively feed the UK's national electricity grid until this is forthcoming.

Transmission Use of System Charges

The National Grid levies a charge on energy generators for connection, use of the system and engineering works. However, these charges vary depending on the location of a generation facility. They are not calculated precisely on local authority boundaries, but an analysis of the average charge by local authority area shows that in broad terms, charges are higher for the most northerly areas of the UK.

Average charges in Northumberland are set at £11.73 per kilowatt, and for the rest of the North East at £9.85 – higher rates than any other area in England. This compares to an average charge of 36p in Hertfordshire, 25p in Kent, and effective subsidies in other areas including Surrey, Sussex and Greater London.

This therefore creates an inbuilt incentive to prioritise development on areas where there is greater pressure on use of land. The North East, which has brownfield sites available and expertise in the energy sector, is rendered a less attractive location for energy generation on the basis of these charges.

Similarly, the growing number of projects that involve the gasification of waste demand an improved gas distribution network to support the projected massive increase in energy resources produced in this way. Plans are currently uncoordinated in this regard.

There must be greater coordination between the public and private sectors if plans relating to gas or heat distribution are to be realised. The private sector needs clarity over where investment is going to come from – it is unreasonable to expect businesses to invest during a time of legislative and general economic uncertainty; therefore plans for Government support must be clearly communicated in order to ensure that market confidence is not undermined.

North East England has an industrial geography that offers a tremendous opportunity to consider a heat distribution infrastructure of similar standard to that seen elsewhere in Europe. In Germany and Scandinavia, heat distribution infrastructure can stretch up to 50 kilometres from the heat source; whereas the UK is limited to 9-10 kilometres.

This situation is being exacerbated by an adversarial system of grid planning without a coherent single grid simulation that can be shared by all parties involved in future energy investments. This is reflected in the overly complex and theoretical approach adopted by the energy regulator, Ofgem, that makes access to information more difficult and problems harder to resolve.

Proposals for new nuclear generation facilities illustrate the challenges facing planning for large scale infrastructure investment. The nuclear power generation facility at Hartlepool is subject to assessments every five years on its ability to safely generate power with current expectations that the site will cease operations in 2019. For a smooth switch over to a new facility to be enabled, investment decisions need to be taken now and planning processes enacted swiftly or vital skills and expertise in the industry will be lost.

> “Without strategically planned infrastructure to support energy industries in the region, the North East will be unnecessarily constrained”

Infrastructure

Fossil fuels will inevitably remain an important element of the UK's energy sources. However, the issue of climate change cannot be ignored. It is therefore imperative that carbon capture and storage (CCS) infrastructure is developed. The North East's growing expertise in this field and location on the North Sea coast gives it a critical role to play in this. It is estimated that up to £3 billion of private sector investment will be required to finance this in the region, and there is the prospect of a large financial dividend if it is developed. With use of coal expected to grow exponentially in fast developing economies such as China and India, the potential will exist for such expertise in the North East to be exported overseas.

Without strategically planned infrastructure to support energy industries in the region, the North East will be unnecessarily constrained, hindering our future economic growth and our contribution to the UK as a whole.

Actions

- National Grid plans to upgrade capacity must be accelerated and acknowledged as a key infrastructure requirement for the North East
- One North East should undertake a comprehensive assessment of grid capacity and potential future access needs and clearly communicate findings to both Government and industry
- Work should begin on producing a single grid simulation that could be shared between Ofgem, National Grid and potential investors in energy production.
- Plans for gas distribution should be better coordinated with greater cooperation between waste processing businesses, energy producers and planning authorities
- Infrastructure requirements to support the distribution of more waste heat from industry should be examined

The regulatory framework for the energy industry is complex and can act as a disincentive to new investment, but in many cases it is presenting significant opportunities, specifically in the renewables sector.

The introduction of Renewables Obligations Certificates (ROCs), Heat ROCs, proposals for Feed in Tariffs and the Carbon Reduction Commitment are examples of incentives that will lead to greater investment in the renewables sector.

Sembcorp Utilities

In 2007 Sembcorp Utilities commissioned a 35 megawatt biomass-fired power station on its Wilton Site on Teesside, the first large scale wood-fired power station in the country. The total investment was over £60m, supported by a £11.9m bio-energy capital grant from the Big Lottery Fund. The plant uses a variety of wood fuels sourced from the North East and surrounding regions, including recycled waste wood, forestry residues, and sawmill co-products.

At the time of construction, renewable electricity produced qualified for Renewable Obligations Certificates, but renewable heat did not. Therefore, even though the plant is adjacent to a large heat load, it was configured to be fully condensing, which is less efficient than co-producing heat. Now that the government has introduced incentives for renewable heat, Sembcorp is converting the plant from one producing electricity only to a combined heat and power plant, providing renewable heat to its process industry customers. It means that the biomass fuel will be utilised even more efficiently, thus making an even larger contribution to the government's renewable energy targets.

Regulation

Swift action is required, however, in order to avoid potential regulatory inconsistencies which threaten investment in the North East. For example, the new Carbon Reduction Commitment scheme prevents businesses from offsetting renewable energy generated on-site against their carbon emissions targets. This creates an overly complex situation whereby a business that has a renewable installation for which it claims ROCs or a Feed in Tariff will have to buy emissions allowances to cover the energy produced.

This 'silo approach' to regulation fails to grasp the wider issues; for instance there are still concerns about the definition of waste and when waste can be considered to be biomass, a potential energy resource. There is a case for a simpler, consolidated and joined up approach to regulation which would encourage investment and wider engagement from businesses.

Graphite Resources

Graphite Resources Limited is a Newcastle upon Tyne based waste recovery and recycling company with a £50m waste treatment facility on the banks of the Tyne at Derwenthaugh, Blaydon. The market for conventional recycled materials is reasonably well developed, and Graphite foresees no problem in selling plastics, glass, grit and metals into the recycling marketplace. However, Graphite believes a further by-product of its waste treatment process, a biogenic cellulosic fibre product, can be sold as a refined renewable biomass fuel, but this currently has no established market and certain regulatory barriers exist to developing this.

One such barrier is Waste Incineration Directive (WID) compliance. If the processed organic material continues to be labelled as 'waste' and not 'product', then only WID compliant boilers can be considered suitable for use, which limits the potential market. The Environment Agency has recently issued an application process that considers waste derived fuels on a case-by-case basis, with the view to classifying them as non-waste subject to specific criteria being met. Graphite is currently pursuing this route. However, new generic regulations would massively increase the potential for the generation of this type of renewable resource for the power and related industries.

The enforcement rather than enablement approach of regulators, particularly Ofgem, is also of concern because it is linked to the management of key infrastructure, such as the National Grid. Difficulty with grid connection remains a significant barrier to realising the North East's potential. There must be a genuine shift in mindset to one of connect and manage.

> "There must be a genuine shift in mindset"

Actions

- Ofgem and National Grid must agree a coherent strategy that permits a genuine switch in approach to one of 'connect and manage'
- Regulations should be required to pass economic impact assessments, and must not be set without full consideration of the impact that they will have upon the performance of the energy sector as a whole
- There must be a more joined up approach in the formation of regulations so as to avoid inconsistencies that hamper investment
- Regulations surrounding the treatment of biogenic waste must be simplified so that new gasification and related power generation technologies can be effectively exploited

Skills

The energy sector in the North East has traditionally relied on attracting skilled workers from other manufacturing industries. This strategy now sees a dwindling and ageing talent pool for energy companies to draw upon, with particular concerns in attracting talented early- to mid-career candidates. For North East England to realise its potential as a global centre for the burgeoning energy industries, it will require a significant strengthening of the skills base of its workforce.

For many years, large manufacturing and process industry businesses committed to training large numbers of apprentices and new graduates, many of whom dispersed into the wider workforce and particularly the energy industries. The changing industrial structure in the region now sees only a very small number of new entrants to the workforce via this route and exposes the short-sighted nature of skills investment adopted by many businesses.

There have been substantial efforts to stimulate demand for jobs in the sector amongst talented young people, and the North East's universities rank among the best in the UK for engineering and other energy industry related disciplines. However, the demography of the current workforce and the demands of the new energy industries threaten to create a skills crisis that demands renewed vigour from industry and policy makers if it is to be effectively addressed.

Practically, this must involve greater cooperation between energy sector businesses and the schools, colleges and work-based learning providers who set the expectations and provide the training in craft and technical skills in order that the supply and demand of skilled workers can be coordinated. This must be at a much more local level than that currently provided the Sector Skills Councils so that employment opportunities in the local economy can be better addressed.

Addressing these future challenges will be made more difficult with the current changes facing skills funding bodies. It is imperative that all businesses, and particularly those in the energy and related industries for whom this agenda is most pressing, are able to navigate the learning and skills arena as simply as possible.

> "It is imperative that all businesses are able to navigate the learning and skills arena as simply as possible"

Parsons Brinckerhoff Graduate Development Scheme

Parsons Brinckerhoff's (PB's) success relies on the quality and performance of its people. The business is therefore committed to the professional development of all employees to ensure they have the knowledge, skills and behaviours necessary to reach their full potential and to ensure the organisation delivers on its strategic plan.

PB is committed to training and developing its employees in accordance with industry best practice. This development may take the form of internal PB delivered activities, external courses/seminars, on-the-job training, e-learning via PB University (its online learning portal), or further education courses delivered by colleges or universities or project specific training initiatives.

A key area for delivery is in the development of graduate employees. PB sponsors a Graduate Development Scheme covering its UK-based staff, which is intended to serve the requirements of the three PB business divisions in its Europe Africa region: Power, Transportation and Communities.

The objective of the Graduate Development Scheme is to:
- provide job focused development to enable the trainee to make an effective return to the PB business;
- provide a structured pathway to membership of a professional institution.

All graduates who join the scheme have the opportunity to become accredited with the most appropriate professional body. Graduates will also receive assistance in setting up their training agreement. A large proportion of the learning during the scheme is on-the-job with real hands-on technical projects and responsibility. However, alongside this experience, PB provides support to make the transition from study to business with dedicated structured courses, for example working with competencies, technical report writing and presentation skills.

Skills

Actions

- Efforts to raise the profile of the energy sector in schools, colleges and universities must continue and be strengthened
- Businesses must seek to develop better relationships with schools and colleges on the skills needs in industry
- Businesses in the energy and related industries must commit to long term investment in apprenticeships and graduate employment programmes
- One North East and the local and regional offices of the emerging skills funding bodies must coordinate effectively to minimise confusion surrounding the new skills funding arrangements
- Incentives should be considered to allow businesses of all sizes to participate in a group training association to de-risk the investment needed for those training in technical skills

For the North East to fully realise the economic opportunity presented by the new and growing energy and related industries it is essential that they are supported by an effective regional supply chain. Failing to do so will see these investments treated as simply branch plants rather strategic regional assets.

This demands both that existing regional businesses recognise the opportunity presented by investments in the energy sector and transform their businesses to meet this opportunity; and that larger businesses understand the productivity dividend available through working with a committed and highly skilled network of regional suppliers.

West Durham Wind Farm

Situated on land near Tow Law, County Durham, the 12-turbine West Durham Wind Farm provides enough renewable energy to power about 15,700 homes.

Each wind turbine consists of nine separate components - the foundation can, three tower sections, the nacelle, the hub and the three blades. These components were made in Germany, Hungary and Denmark, imported into Immingham on Humberside and then transported to site by specialist hauliers. The main erection tool was a 500 tonnes mobile crane which required a specially prepared working platform.

The RePower erection team reflected the international nature of the wind farm industry, consisting of an Australian erection manager, a German supervisor and an Irish erection squad.

Supply Chain

With the emergence in the 1980s and the more recent renewal of the automotive sector in the North East, and the diversification to address the opportunities that North Sea oil and gas represented in the 1970s and since, there are examples of how the region's industries have adapted to take advantage of new opportunities.

These industries were supported in their transformation and the jobs boosts they represented were clearly understood, with many new investors to the region being welcomed by supportive economic development, planning and regeneration bodies and the public at large. In meeting the 21st century opportunity that the energy and related industries represent, the region must adopt a similarly welcoming outlook.

> "Smaller businesses should be encouraged to identify diversification opportunities for their businesses in the growing energy and related industries"

Clipper Wind/One North East

Wind turbine manufacturer, Clipper Wind and One North East have been working together for the last four years on different aspects of Clipper's investment into North East England.

Clipper is a global player in the renewable energy sector and one that the Regional Development Agency is keen to see embedded in the North East. Clipper is currently in the process of designing a 10 megawatt offshore wind turbine. It is considering setting up a manufacturing plant to make composite 75 metre long blades, and another facility to assemble gearboxes and nacelles in the North East of England over the next few years. The design of the turbine will be extensively tested at the New and Renewable Energy Centre (Narec) facilities in Blyth.

Clipper is currently looking for companies who can supply components for their turbines. They are keen to work with local suppliers as they want to promote the industry within the region and help establish a cluster; which is why One North East stepped in to facilitate a 'meet the buyer' event with benefits for both Clipper and indigenous North East businesses.

Actions

- Large companies in receipt of public investment must be expected to develop an indigenous supply chain in the North East to support their operations in the region
- Smaller businesses should be encouraged, through education and incentives similar to those adopted for large scale publicly funded capital projects, to identify diversification opportunities for their businesses in the growing energy and related industries
- Economic development policy must adopt a 'whole industry' approach and seek to develop a wider supply chain in addition to single major investors
- Investments in skills and infrastructure should take account of the wider supply chain impacts of the energy and related industries

Innovation

The North East has rightly focused on innovation in the energy and related industries as a driver for future economic growth. With a key role, alongside life sciences and process industries, in the three pillars of One North East's Strategy for Success, the industry has also seen the creation of the Energy Leadership Council to spearhead public investment in the sector. Alongside this, the region's universities are amongst the most prolific and successful in the field of energy research with many notable successes.

In practice this has seen the creation of the New and Renewable Energy Centre (Narec), a centre of excellence in innovation based on the model provided by the German Fraunhofer Institutes, and private sector led investment across a wide number of areas ranging from wind turbines, through energy from waste installations to proposals for future technologies such as hydrogen fuel cells and clean coal.

The North East now has much to boast about in terms of innovation linked infrastructure that will pay dividends as the region seeks worldwide recognition for its energy sector. It is crucial that investment is made in unproven technology and support shown for ideas and products which are in developmental stages. There are areas in the North East where this practice occurs, for instance the NETPark science hub in Sedgefield and the Centre for Process Innovation (CPI) in Tees Valley.

> "The North East now has much to boast about that will pay dividends as the region seeks worldwide recognition for its energy sector"

Thorn Lighting

Thorn Lighting is leading a consortium (co-funded by the Technology Strategy Board) to produce a single polymeric material that will emit white light. The idea of project Topless (Thin Organic Polymeric Light Emitting Semiconductor Surfaces) is to apply this material to glass substrates, in a similar fashion to applying paint with a roller. The resulting layer is ultra thin - just 1/2000th the width of a human hair - and is capable of producing high quality white light when electricity passes through it.

As with all new technologies, the ability to turn exciting laboratory developments into commercially viable products is the key. It has to be reliable, scalable and produced at a price consumers are prepared to pay.

The products that will arise from project Topless have the potential, when integrated with renewable power sources, to take lighting off the grid. The light emitting polymer is also incredibly long-lasting and a single kilogram of active material is capable of coating 10,000 square metres of device – the size of two rugby pitches.

With the technology now proven, Topless is ready to move to production, subject to raising the necessary funding for the pilot manufacturing phase. This will also require continued fundamental material research by the University of Durham and Cambridge Display Technology to continue this work.

Thorn Lighting is now in a position to contemplate manufacturing with the potential to produce up to 9,000 square metres of solid-state lighting per year by 2013, which could then rise exponentially to between a half and one million square metres per year in a high volume production facility by 2016. That is equivalent to 5% of the annual consumption of fluorescent tubes in the UK. The organic light emitting diode (OLED) lighting market is projected to have revenues reaching $6bn by 2018.

Innovation

For these to have maximum impact, businesses in the energy industry and its supply chain must be given clear, up-to-date guidance on the facilities and services which Narec and other innovation connecters with relevance to this sector can offer. It is also critical that investment continues to update facilities in response to new technologies and emerging business opportunities. Having established such high quality assets, they must be maintained.

To provide both a supply of future innovators and the opportunity for collaboration with universities, strong focus should be placed on ensuring post-graduate studies are directly relevant to the private sector opportunities that exist in the region, such as Durham University's MBA with process industry specialism. An easily accessible directory of the expertise in the region's Higher Education Institutions and the opportunities to build networks with these institutions is important. The region's five universities should put significant investment into mechanisms to provide joined up information and brokerage of support.

Businesses with complementary expertise in the energy industries should have access to 'smart' networking opportunities, in which they can be directly introduced to potential collaborators on projects. In order to achieve this, One North East or the innovation connecters should maintain a high quality understanding of the capabilities of businesses in this field.

Attracting Government-funded research posts to the North East will increase networking opportunities and the capacity of North East businesses to respond quickly to new developments. The region failed to secure the hub for the national Energy Technologies Institute, but has scope to carry out work on its behalf. However, the policy environment to support innovation remains mixed: the often competing priorities of the Government's Department for Communities and Local Government and Department for Energy and Climate Change regarding low carbon housing are a case in point, as is the arbitrary balance sheet requirements preventing new, innovative entrants into the energy from waste arena.

It is important that there is also a sufficient supply of debt and equity finance for planned projects.

For smaller projects of less than £10m it can be difficult for lenders and investors to justify the costs involved in due diligence, therefore these are often more difficult to deliver than larger debt/equity-led projects. The projects that are receiving finance are generally those with established developers or management teams with an exceptionally strong track record of delivery.

More must be done to enable a broader group of businesses and developers of new technologies to identify sources of finance and be supported in doing do.

Actions

- The drive provided by One North East and the Energy Leadership Council must continue with a challenge to stimulate further innovative advances in the region
- National government policy should aim for consistency to effectively stimulate innovation and allow for risk to be appropriately rewarded
- Initiatives to support links between universities and businesses in the energy sector must be strengthened and remain a key priority for industry and higher education institutions alike
- Business collaboration opportunities for innovation and supply chain improvements should be identified and supported
- Support must be provided to help businesses access finance for energy projects.

Conclusion

It is well established that the North East has many advantages when it comes to attracting energy sector businesses, yet it would be complacent to assume that investment and growth are inevitable because we enjoy these assets. The North East must give businesses every ounce of reason necessary in order to stimulate greater investment in our region.

NECC will address the actions set out in this report. We will, where necessary, challenge our members to play their part in delivering the economic prize that can be achieved. But we will also robustly challenge public sector organisations to offer maximum support to enable them to do so.

National policy makers must target economic stability, energy security and price stability, while diluting the regulatory burdens which fall upon businesses. Regional and local policy makers have a duty to ensure this region maximises its competitive advantages. NECC will also challenge the general public to recognise the opportunities that exist in our region and support the growth that can be delivered here.

There will be widespread social and economic benefits for the North East if the energy sector reaches its full potential. As a region we must not let the challenges overwhelm us. A strategic approach to energy generation is needed to deliver sustainability and security of supply. This could in turn herald a watershed moment for the North East economy; ensuring that it is not a false dawn is a central challenge not only for policy makers, but for businesses and the general public.

> “Regional and local policy makers have a duty to ensure this region maximises its competitive advantages”

Peter Nesbit, Eversheds (Chair)

Peter is a solicitor for Eversheds LLP and leads their North East and Yorkshire planning teams. He is also part of Eversheds' national Energy Sector Group and works within the renewables team on a diverse range of projects such as wind farms, biomass and waste to energy proposals. He also acts for a range of organisations with strong connections to the energy sector such as ports and One North East.

Peter began his career with a niche planning firm in the midlands where he practised principally in the area of contentious planning for housing schemes. He then joined Eversheds, initially working within the retail sector. For the last four years he has advised on major planning and Electricity Act applications, public inquiries and High Court Challenges. He is an experienced advocate and frequently appears for clients at public inquiries.

Jon Bird, CE Electric

Jon Bird is Head of Sustainability for CE Electric UK, the electricity distribution business for Yorkshire and the North East. He has been with CE Electric since 2000. He worked for 18 years in several government departments including the Department of Energy and HM Treasury, mostly on energy policy including the privatisation of the gas and electricity industries. He was then Head of Government Relations with BNFL for seven years. He is a member of the CBI Energy Policy Committee and a Fellow of the Energy Institute.

Dr John Bone, Sembcorp

John Bone is Vice President, responsible for the commercial, regulatory and trading functions of Sembcorp. John has more than 15 years' experience in the energy industry including electricity, gas and coal markets, trading of renewables and carbon emissions and the supply chain for biomass. John was a member of the team which developed the Wilton 10 Biomass power station. John is also a director of Wilton Energy Limited, which is a licensed electricity supplier. In the mid 1990s he was ICI's UK electricity buyer and prior to that he worked as a physicist. He is a Chartered Engineer and a member of the Institute of Physics.

Energy Policy Working Group

Ian Burdon, PB Power

Ian is Technical Director, Energy Strategy Consulting, at Parsons Brinckerhoff at Newcastle upon Tyne. He led the Parsons Brinckerhoff team which produced Powering the Nation – A Review of the Costs of Generating Electricity. He is active in the affairs of the Institution of Engineering and Technology (IET), Institution of Mechanical Engineers, the Association for Consultancy and Engineering and the Environmental Services Association. He is a founding member of the Energy Leadership Council in North East England and is a member of the Technical Advisory Panel of the New and Renewable Energy Centre (Narec) at Blyth in Northumberland. He maintains close contacts with developers and banks involved in energy projects for which he acts as their technical advisor. He is a past-Chairman of the IET in North East England.

Mark Dowdall, Banks Group

Mark Dowdall is the Environment and Community Director for the Banks Group, the North East based mining, property, renewable energy and waste company with developments and operations throughout the north of England and Scotland. Mark heads the teams responsible for environmental management, corporate sustainability and external affairs including community engagement and media relations.

Dr Keith Farmery, Graphite Resources

Dr Farmery has 30 years' experience in multi-national oil and chemical industries in business leadership, manufacturing, business planning, technology/R&D and new business development. He has worked with Graphite Resources Ltd since 2006 as Special Advisor to the Board focused on strategy development, technology, acquisition and new company formation with international partners.

Other activities have included Honorary Fellow and Advisory Board member of Lancaster University Business School, a senior position in the UK arm of an international consultancy in business leadership and performance improvement, Trustee and Chairman of the Industry Nature Conservation Association (a Tees Valley partnership involving several local authorities, major businesses, regulatory authorities and environmental/conservation interests) and member of leadership/steering groups for a number of Government-funded university/industry partnerships developing new sustainable energy and technology concepts.

Ian Finch, New and Renewable Energy Centre (Narec)

Ian Finch is the Distributed Energy Business Development Manager for Narec - the New and Renewable Energy Centre, which is at the forefront of research, innovation and deployment of renewable energy technologies. Narec is home to one of the world's leading wind turbine blade test facilities and is a national centre of excellence supporting technologies as diverse as wind, wave, tidal, photovoltaic, HV transmission and low carbon vehicles. Narec also helps organisations cut their carbon emissions by offering energy efficiency consultancy and implementation support. Ian has been the chairman of the Institution of Engineering and Technology Northumbria Network since 2007.

Daniel House, ARUP

Daniel House is an Associate Director of Arup in the Newcastle office leading the Consulting group. The group includes skills in energy, sustainability, transport planning, environmental and planning skills. Since joining Arup, Daniel has focused on energy projects, to deliver sustainable solutions, ranging from energy centres to energy service companies, wind farms to heat, power and utilities distribution across the 2012 Olympic park.

In conjunction with his role as Divisional Director he presented to the 2004 Institute of Highways and Transportation (IHT) procurement seminar on the subject of local authority Early Contractor Involvement. He also sits on the County Surveyors' Society service improvement committee and continues to be an IHT Yorkshire and Humber Committee member.

Wayne Johnson, British Energy, part of EDF Energy

Wayne Johnson is the Continuous Improvement Project Engineer at Hartlepool Nuclear Power Station. Wayne has more than 25 years of experience in the nuclear industry, during which time he has undertaken various roles including business review and audit, the management of environmental and radiation protection at Hartlepool Power Station and secondment to the World Association of Nuclear Operators as an international nuclear safety inspector. Wayne is a Chartered Radiation Protection professional.

Energy Policy Working Group

John McCabe, Rio Tinto Alcan

John McCabe is Rio Tinto Alcan's Corporate Affairs Director in the UK. He joined the company in 2002 and has many years' experience in communications and public affairs. In addition to his role at Rio Tinto Alcan, where he is responsible for government affairs and external relations, John is a Council Member of the North East Chamber of Commerce; Member of the EU Emissions Trading Working Group; Member of the Aluminium Federation Public Affairs Committee and has contributed energy policy documents to the Centre for European Policy Studies.

Martyn Pellew, PD Ports

Martyn is Group Development Director at PD Ports, based in the Tees Valley. Martyn is also President of the North East Chamber of Commerce. Martyn joined PD Ports in August 2002 and has considerable experience of the logistics sector. Martyn previously held several senior positions within the Unipart Group, including Director and General Manager of Unipart Rail Logistics (a leading supplier to the rail industry). Prior to 1995, he held a variety of senior positions within NFC plc, and Exel plc – now known as DHL.

Professor Dermot Roddy, University of Newcastle upon Tyne

Dermot Roddy is Director of the Sir Joseph Swan Institute for Energy Research, which integrates energy research across Newcastle University and links with an external industrial base in the energy sector. Outside of the university he is Chairman of North East Biofuels, Finance Director of the UK Hydrogen Association and Vice President of the Northern England Electricity Supply Companies Association. Prior to coming to Newcastle University he was Chief Executive of Renew Tees Valley Ltd – a company which he set up in 2003 to create a viable and vibrant economy in the Tees Valley based on renewable energy and recycling – where he was instrumental in a wide range of major renewable energy and low-carbon projects relating to biomass, biofuels, hydrogen, carbon capture and storage, wind and advanced waste processing technologies. From 1998 to 2002 he ran the crude oil refinery on Teesside as site director for a $5bn-turnover facility before moving to the Netherlands to work on Petroplus' international growth plans.

Andrew Sugden, NECC

Andrew Sugden is responsible for the policy and membership functions of the North East Chamber of Commerce. This includes the development and communication of policy, and representing business at a local, regional, and national level on behalf of NECC's members. Prior to joining NECC, Andrew worked for the regional development agency, One North East, where he was closely involved in the production of the regional economic strategy. Andrew moved to the North East in January 2000 from London where he worked in research and marketing roles in the IT industry.

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