



Helpu Cymru i leihau
ei Hôl Troed Carbon
Help Wales reduce
its Carbon Footprint



Llywodraeth Cymru
Welsh Government

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Energy Wales: A Low Carbon Transition Delivery Plan

March 2014



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Contents

First Minister's Foreword	4
Introduction	5
The Welsh Context – Areas of Focus	6
Intended Outcomes	10
Summary Delivery Plan 2014-2015	11
Delivery Themes	12
Low Carbon Energy	12
Anglesey Energy Island	14
Energy Efficiency	16
Distributed Energy Generation	17
Cross-Cutting (Enabling) Themes	19
Regulatory Regimes	19
Skills	20
Strategic Infrastructure	21
Communications, Marketing and Engagement	22
Areas for Further Development	23
Marine Energy	23
Unconventional Gas	24
Energy Intensive Industry	25
Smart Living	26

First Minister's Foreword



In publishing Energy Wales: A Low Carbon Transition in 2012, I described my determination that Welsh Government would lead the creation of a sustainable low carbon economy for Wales.

Two years on, the Energy Wales Delivery Plan articulates an enormous amount of progress in enabling investment and driving benefit for Welsh businesses and communities. It also describes what we will be doing in the coming years to achieve our ambition.

Since the launch of 'Energy Wales' we have focused our efforts on the immediate opportunities whilst preparing the ground for the longer term. I am pleased to say we have made great strides.

We are bringing transparency and urgency to our planning and consenting regimes through the creation of Natural Resources Wales and the publishing of our draft Planning (Wales) Bill and the Positive Planning consultation.

We are ensuring that Wales' businesses and communities benefit from energy developments, working for example with onshore wind developers to identify the barriers to development and also the opportunities for Wales to derive benefit.

The new nuclear build at Wylfa is a huge investment opportunity for Wales and has significant current and ongoing support from the Welsh Government. When the previous owners of Horizon Nuclear Power Ltd, chose to sell their concern, we played a significant part in securing the investment of Hitachi-GE Nuclear Energy Ltd.

We have also continued to prioritise our domestic energy efficiency programmes with further funding to address the scourge of fuel poverty.

Whilst we have made progress in countless other areas, I remain frustrated by the way Wales is held back by the current devolution settlement. I continue to press the UK Government for the regulatory and fiscal controls to achieve our ambitions. The recently published report by the Commission on Devolution in Wales supports my calls. Further regulatory and fiscal powers will enable Wales to greater influence the transition to low carbon and would enable Wales to publish credible targets for energy. The transfer of powers would enable Wales to go further in supporting industry and householders burdened by high energy prices, over which Wales currently has little influence.

Despite these significant constraints we are clearly demonstrating how we are using the powers we do have to best effect. Our approach to the energy transition is long-term and must be responsive to change, whether that is technological, environmental, social or economic. The publication of this delivery plan marks another step along the path. We will publish further iterations of the Delivery Plan as we deliver and develop new initiatives and as we respond to a fluid landscape. However, as we move forward, the strategic aims and ambitions set out in Energy Wales remain and this document describes how we are going about delivering them.

Rt. Hon Carwyn Jones AM
First Minister of Wales

A handwritten signature in black ink, appearing to read 'Carwyn Jones'. The signature is fluid and cursive, with the first name 'Carwyn' being more prominent than the last name 'Jones'.

Introduction

This Delivery Plan shows how we will develop the proposals set out in *Energy Wales: A Low Carbon Transition*ⁱ. Published in March 2012, it set out the Welsh Government's ambition to take full advantage of the transition to a low carbon economy with the aim of securing a wealthier, more resilient and sustainable future for Wales.

Welsh Government is committed to focusing and prioritising our effort in three key areas:

- providing leadership to ensure that Wales has a clear and consistent framework for investors, regulators and decision makers, and the infrastructure, coordination and stability needed to ensure that Wales is a great place to do business;
- maximising benefit for Wales in terms of jobs and wider economic benefit at every stage of development and operation whilst also ensuring that our communities derive long term benefits;
- acting now for Wales' long term energy future through support for innovation, research, development and commercialisation in the areas that offer the greatest potential for long-term benefit for Wales.

The Energy Wales Programme was mobilised in July 2012 to help coordinate and prioritise delivery across all Welsh Government departments in ways that maximise the benefits for Wales. The Energy Wales Delivery Plan presented in this document is an important step in making progress towards the commitments made in *Energy Wales: A Low Carbon Transition*. It describes in more detail the approach that we are taking to deliver on our commitments; it should be read alongside *Energy Wales: A Low Carbon Transition*.

The delivery plan will be updated and refined on a staged basis as we achieve our goals and as additional policies and activities are developed.

ⁱ www.wales.gov.uk/topics/environmentcountryside/energy/energywales

The Welsh Context – Areas of Focus

Energy Wales: A Low Carbon Transition set out in high-level terms the economic, social and environmental opportunities for Wales. Subsequent research has added to our understanding and enabled Welsh Government to prioritise activity in areas where the opportunity is greatest. As the Energy Wales Programme develops, we will continue to adapt our plans and approaches to ensure that Wales secures ever more benefit from the transition to low carbon.

In a difficult investment climate, Welsh Government will respond in a positive way and continue to work with investors to make viable projects happen for the benefit of Wales. Welsh Government also recognises the cost of energy as one of the key issues affecting business competitiveness in Wales and we are committed to helping businesses become more efficient and competitive through energy efficiency measures and green growth opportunities. Furthermore Welsh Government continues to press UK Government on the cost of energy which not only impacts on competitiveness but also investment decisions.

Over 20GW of energy generation is in the pipeline in Wales, either consented, in planning or in pre-planning phases – Figure 1 on page 7. With established and future Welsh Government programmes driving energy efficiency from our households and our businesses we have a significant opportunity in Wales.

The areas of focus set out below are not exhaustive, but offer an explanation of the scale of opportunity and the reasoning behind our current priorities in driving economic, social and environmental benefit for Wales.

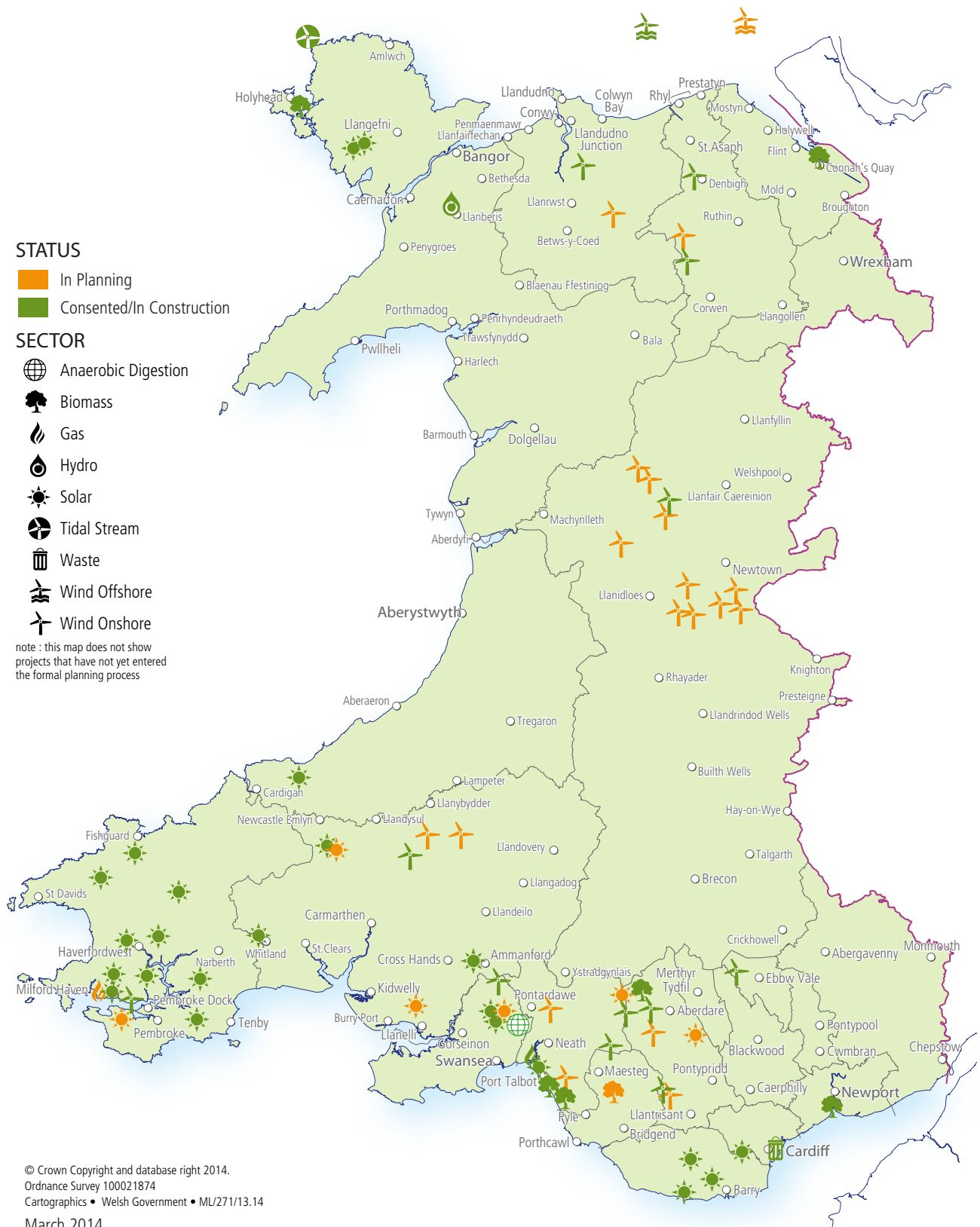
Onshore Wind

At the end of 2013, Wales had an onshore wind capacity of approximately 520MW, approximately 8.5% of the UK total.

A report commissioned by Welsh Government, onshore wind developers and Renewable UK Cymruⁱⁱ concluded that, if 2,000MW of capacity could be developed by 2025, this would deliver up to £2bn to the Welsh economy and support over 2,000 jobs for the lifetime of the projects.

ⁱⁱ www.renewableuk.com/download.cfm/docid/107A0752-6FD5-4776-9B4067941F0ADB16

Figure 1 – Pipeline of Commercial Scale Low Carbon Generation (projects greater than 5MW)



Anglesey Energy Island

The Anglesey Energy Island™ Programme is a collective effort between Government and business, working in partnership to put Anglesey at the forefront of energy research and development, production and servicing, bringing with it potentially huge economic rewards. This includes maximising the benefit of energy development projects, such as Wylfa Newydd, tidal stream energy and offshore wind projects and supporting infrastructure projects.

From similar projects around the world it is estimated that the new nuclear build on Anglesey will employ up to 6,000 people on site at the peak of the construction period of 3 to 4 years. Once operational in the second half of the 2020's there will be up to 1,000 permanent jobs for its estimated 60 year lifespan, plus indirect jobs providing services, outage maintenance etc. Further opportunities exist in decommissioning nuclear sites, utilising existing Welsh skills.

The Rhiannon Offshore Windfarm in the Irish Sea will also provide opportunities for construction, operations and maintenance (O&M) services and jobs for Wales.

SeaGeneration (Wales) Ltd, a development company set up by Siemens-owned Marine Current Turbines (MCT), is proposing to develop a tidal stream array at a site off the north west coast of Anglesey referred to as the Skerries. MCT are recognised as being one of the world's leading tidal energy system developers having developed the SeaGen tidal energy converter, the first of which was installed in Strangford Lough in April 2008.

Nuclear Energy

There are massive opportunities at Wylfa Newydd along with current projects at Trawsfynydd; leading into wider opportunities in the UK and global markets. Wales already has a key nuclear workforce and these opportunities enable skills to be retained in Wales. According to the UK Government's data on Low Carbon and Environmental Goods and Services (LCEGS) figuresⁱⁱⁱ, the civil nuclear sector is estimated to have contributed around £3.9bn in sales to UK companies in 2011/12, demonstrating that sector opportunities are already significant. Of the £3.9bn, activities related to nuclear power plant operations were valued at around £1.5bn.

In 2011/12, Wales had 71 companies whose business was predominantly the civil nuclear sector employing over 1,500 and generating sales of £165m and an annual growth of 4.4%.

The granting of a development consent order for the build and operation of Hinkley Point C in Somerset offers an opportunity for Welsh businesses to develop further alongside Wylfa Newydd.

Distributed Generation

By the end of 2012, there were in excess of 36,000 renewable energy installations in Wales, with a combined capacity of over 1,500MW saving approximately 120,000 tonnes of CO₂ per annum in the process. The generation capacity has nearly doubled since 2008. The vast majority of these schemes are small scale domestic, with a significant number of 'community scale' developments. Distributed generation contributes to energy security and offers the opportunity to reduce fuel poverty, to create jobs in local installation and maintenance, and to create an income stream for communities that helps build their resilience.

ⁱⁱⁱ www.gov.uk/government/publications/low-carbon-and-environmental-goods-and-services-2011-to-2012

Energy Efficiency

In 2012, 30% (386,000) of Welsh households were estimated to be in fuel poverty. Whilst in Wales we have little control over energy prices, we can build resilience against price increases by investing in energy efficiency savings in housing, commercial and public buildings.

Wales is rare in having within its boundaries a comprehensive energy efficiency supply-chain, from manufacturing to installation. Insulation materials and equipment, and micro-generation technologies are made by businesses in Wales. We also have a strong installer base, which we have helped to grow. Over 80% of the businesses that delivered phase 1 of the Arbed programme operate primarily, or solely, in Wales.

Marine Energy

Wales has 1,200km of coastline, deep sea ports, accessible grid infrastructure and equalisation of 5 Renewable Obligation Certificates (ROCs) for wave and tidal projects across the UK from April 2013 to 2017. Welsh waters are therefore ideally suited to meet the current requirements of the industry and to grow a new industry in Wales.

Twelve large scale prototype devices are deployed in the UK at present, which is more than the rest of the world combined. In Wales there are currently four pre-commercial (demonstration) projects proposed off the Pembrokeshire coast alone, and Wales also has significant potential and interest in harnessing energy from tidal range.

Welsh Government commissioned economic research into the economic opportunities of tidal stream and wave energy in 2013^{iv}, which concluded that for three scenarios, the following employment in Wales could be created:

- 60MW scenario, possible in the next 3-4 years, could lead to 2,000 person-years of employment;
- 300MW scenario, possible in the next decade, could lead to 8,500 person-years of employment;
- 1GW scenario, possible in the next 10-20 years, could lead to 23,500 person-years of employment.

European Funding

The new round of European Funding Programmes present an opportunity to focus substantial funding on our areas of priority. It is envisaged that over £200m of European Structural Funds will be allocated to low carbon and energy efficiency activities in Wales over the life of the programme. Further opportunities exist through Horizon 2020 funding and the Connecting Europe Facility, both of which have strong links to energy. The Rural Development Plan will also provide an opportunity to create resilience in our rural communities through increased focus on resource efficiency, business growth, tackling rural fuel poverty and generating a long term income for rural communities.

^{iv} www.wales.gov.uk/topics/environmentcountryside/energy/renewable/marine/economic-impact-of-developing-marine-energy

Intended Outcomes

Energy Wales: A Low Carbon Transition describes coordinating activity to deliver benefits that meet the Welsh Government's commitment to sustainable development, which means delivering economic, social and environmental benefit to Wales. Measuring our impact is complex but is something we are committed to do. Whilst we continue to develop measures of our success, in high-level terms we wish to see future progress against the data shown in the following areas:

End Benefit	Measure		2010	2011	2012
Economic Benefit	Employment (FTE) ¹	Low Carbon	17,234	17,740	17,644
		Renewables	13,261	13,662	13,559
	Sales (£m) ¹	Low Carbon	2,148	2,245	2,342
		Renewables	1,796	1,899	2,015
Environmental Benefit	Greenhouse Gas Emissions (Mt) ²		46.6	43.84	
	Renewable Generation (GWh)		1,610	2,184	2,277
	Percentage of Electricity Generated from Renewable Sources (%)		5	7.9	8.7
	Total Energy Consumption by Sector (GWh) ²	Industry and Commercial	47,389.0	46,681.5	
		Domestic	26,360.1	24,296.3	
		Transport	22,457.5	21,936.8	
Social Benefit	Onshore Wind Community Benefits recorded on the Welsh community and economic benefit register ³		N/A	N/A	N/A
	Percentage of Welsh homes in fuel poverty				30%

¹ UK Government are currently reviewing the BIS LCEGS data source and Welsh Government is engaged to ensure we are able to offer continuity of evidence through this transitional period.

² 2012 data not yet available on a Wales basis.

³ Due to be launched April 2014.

Summary Delivery Plan 2014-2015

The graphic below summarises key deliverables in the next 18 months, which are expanded upon in further sections.

	2014	2015	
Provide Leadership on Energy in Wales	Nuclear supply chain mapping concluded	Low carbon energy investment routemap made public	Economic Benefit
Improving the planning and consenting regime	Onshore wind benefit register operational	Joint mid Wales wind approach agreed	Employment
Putting in place a 21st century energy infrastructure	Serviceability in place	Rhiannon planning applications submitted	Sales
Coordinating and prioritising delivery through an energy programme	Broadband programme preparation	Horizon public consultation	Environmental Benefit
	Commence the design of future distributed generation programmes	Future programme operational	Greenhouse Gas Emissions
Maximise the Benefit Energy Can Deliver for Wales	Arbed year 3 surveys commenced	Nest annual report published	Renewable Energy Generation
Ensuring Wales benefits economically from energy developments	Resource efficiency advice contract award	Advice service operational	Percentage of Electricity from Renewables
Ensuring Welsh communities benefit from energy developments	Welsh Government skills action plan published	Low Carbon Energy and Marine Power Institute pilot delivery concludes	Total Energy Consumption by Sector
Focusing on energy projects of greatest potential benefit	Smart Living	Smart Living routemap developed	Social Benefit
Act Now for Wales' Long Term Energy Future	Marine energy plan developed		Onshore Wind Community Benefits
Unlocking the energy in our seas	Planning (Wales) bill consultation closes	Planning (Wales) bill introduced to the Assembly	Percentage of Homes in Fuel Poverty
Leading the way to smart living	Energy consents forum created	New building regulations in to force	
	Whole energy sector view of infrastructure in the Wales Infrastructure Investment Plan		
	Pilot national conversation commences	Energy Wales Strategic Delivery Group	
	Geological survey delivered	Economic analysis commissioned	
		Royal assent	

Delivery Themes

Low Carbon Energy

Since 'Energy Wales' Launch ...

Welsh Government has worked with the onshore wind industry to undertake an assessment of the opportunities to achieve economic and community benefit from commercial wind developments in Wales.

We have agreed a 'Declaration', where the wind industry commits to maximise the economic and community benefit to Wales, with over a dozen developers and Renewable UK Cymru signed up.

We have designed, with developers, an economic and community benefit register for Wales which will be launched in 2014.

We have worked with developers to maximise supply chain opportunities to Welsh businesses. This has contributed to the notable success in the Pen y Cymoedd development where Vattenfall have recently announced contracts to Welsh companies amounting to £100m, securing 350 jobs.

Welsh Government is now leading a Mid Wales Onshore Wind Group of government and business partners. Investment in Mid Wales is dependent upon decisions within the regulatory systems; should consents be granted, we will be ready to maximise the benefit for Welsh businesses and communities. A plan of how this will be achieved is currently being developed.

We are mapping out the skills required by the wind sector for the years ahead. An apprentice programme is already being jointly run by Llandrillo College and Neath Port Talbot College supporting trainees from windfarm developers RWE and Vattenfall.

We have worked tirelessly to demonstrate the experience and skills in the nuclear sector, in both operations and decommissioning, at Wylfa and Trawsfynydd.

Welsh Government continues to work closely with Horizon Nuclear Power and its parent company, Hitachi-GE Nuclear Energy Ltd, to understand the requirements of the construction programme at Wylfa and to develop the supply chain and skills base. As a result, Coleg Menai, with support from Welsh Government, Horizon Nuclear Power and the Isle of Anglesey and Gwynedd Councils set up the 'Prentis Menai' scheme to train nuclear-skilled apprentices for the future, with 59 young people already benefitting from the scheme.

Three energy focused enterprise zones, in Snowdonia, Anglesey and Haven Waterway in Pembrokeshire have also been created, which benefit from enhanced capital allowances and business rate relief.

In response to the needs of business the Welsh Government launched a pilot *Energy & Environment SME Growth Fund* in 2012 initially providing revenue only support, but extended to include capital costs in 2013. Since its launch 187 jobs have either been created or safeguarded, leveraging substantial business investment.

Welsh Government continues to engage with the Department for Energy and Climate Change and have represented the interests of Wales in the shaping of the Energy Market Reform; we continue to press UK Government for further devolution of powers.

The Welsh Government has committed up to £50 million to the *Sêr Cymru* programme, which builds on our Science Strategy to enhance and build upon the research capability in Wales. "Low Carbon, Energy and Environment" is identified as one of the three Grand Challenge research areas.

Professor James Durrant has been appointed the *Sêr Cymru* Research Chair. Professor Durrant's research areas are in polymer and organic photovoltaics, located in the College of Engineering at Swansea University. Professor Durrant will establish and lead a world class, dedicated research facility at a new Solar Futures Laboratory based within the EPSRC-funded SPECIFIC Innovation and Knowledge Centre at Baglan; this will be a unique partnership between universities in Wales (led by Swansea) and Imperial College London.

Priorities for Action

Our intent is to maximise economic growth in terms of jobs and wealth in Wales through policy support, supply chain and skills development and the provision of tailored flexible packages of support for the low carbon sector.

We will continue to focus on commercial scale mature technologies in particular, the nuclear new builds in Anglesey, Somerset and wind developments, which offer a once in a generation opportunity for Wales.

We will further develop European funding bids in 2014 to enable the commercialisation of research and development.

High Level Milestones

Key Milestone	Delivery Date
Onshore Wind Community Benefits Register developed and data collection commenced	March 2014
Nuclear supply chain capability mapping concluded	April 2014
Full evaluation of the pilot SME growth fund concluded	April 2014
Onshore Wind Community Benefit Register launched with 2013 benefit figures	April 2014
Wales Low Carbon Energy Investment Routemap developed	June 2014
Mid Wales Onshore Wind Benefits Action Plan agreed with stakeholders	July 2014
EU funding bids developed	December 2014
'Major development' supply chain strategy developed to include skills strategy	December 2014
Onshore Wind Community Benefits Register year 2 data collection commenced	February 2015
Onshore Wind Community Benefit Register published with 2014 benefit figures	April 2015

Anglesey Energy Island

Since 'Energy Wales' Launch ...

Welsh Government has committed to assisting in the development of Anglesey as a centre for energy generation, equipping local people to be competitive in terms of skills and training, enabling SMEs to be competitive through business support and competitive infrastructure to be in place to service the new developments.

We have engaged with schools to promote STEM subjects, so that our youngest people can be best equipped for the job opportunities that will arise.

We have worked with partners to agree a detailed Education and Skills Strategy Action Plan to include:

- Post-16 Skills Training
- Science, Technology, Engineering and Mathematics
- Employment and Skills Brokerage
- Careers Advice & Guidance and Curriculum Development.

The Anglesey Energy Island™ Programme is facilitating planning and licensing workshops to ensure that all parties are aware of key milestones and opportunities for joint working.

Welsh Government has invested in the state of the art Construction and Energy Centres at Coleg Menai in Llangefni, and Hitachi-GE Nuclear Energy Ltd have loaned a number of heavy earth moving machines for hands-on student training.

We have designated Anglesey as a priority area for the roll out of the *SuperFast Cymru Broadband*. The Minister for Economy, Science and Transport has also part funded a Masterplan Study for the Port of Holyhead, which will include potential facilities for operations and maintenance of offshore windfarms.

We are also investing now to enable people, businesses and infrastructure to be competitive in order to secure employment and sourcing opportunities from these projects; work includes the holding of the first of a series of supply chain events.

We have also entered into a joint venture with Bangor University to develop Menai Science Park.

Priorities for Action

In order for Wales to maximise the outcomes from the above developments, which would represent total private sector capital expenditure in excess of £20 billion, there is a need for investment in competitive infrastructure, competitive people and competitive businesses.

Priorities for action include:

- enabling infrastructure including serviced employment sites and premises;
- developing bespoke inward investment propositions for major suppliers/contractors;
- developing the local skills base at all levels;
- research and development within the Menai Science Park;
- promoting opportunities within and enabling the supply chain.

High Level Milestones

Key Milestone	Delivery Date
Feasibility studies for servicing etc of key employment sites	Q1 2014
Programme prepared for the rollout of investment in high speed broadband	Q1 2014
Supplementary planning guidance in place for Wylfa Nuclear new build	Q2 2014
Initial public consultation on Horizon development proposals	Q3 2014
Development Consent Order and Town & Country Planning Act applications submitted for Rhiannon onshore and offshore development	Q4 2014
Public sector funding towards Siemens phase 2 tidal energy scheme	Q4 2014
Supply Chain/Meet the Buyer Events	Ongoing

Energy Efficiency

Since 'Energy Wales' Launch ...

The Welsh Government's energy efficiency and fuel poverty programme has continued to help consumers throughout Wales build their resilience to price rises and reduce carbon emissions. Arbed ERDF 2 schemes are now in delivery, with 12 schemes approved for year 2. Year 1 spend was just over £10m as forecast. Over its lifetime, the second stage of Arbed will help over 4,800 homes across Wales. During the first six months of 2013/14 over 800 households were provided with energy efficiency improvements and this will rise to 2,900 by the end of March 2014.

In 2012/13, Nest, our domestic fuel poverty scheme, provided over 21,500 households with advice, with over 4,900 of these households, who were on a low income and living in the least energy efficient properties, benefitting from a package of free home energy improvements. These improvements will reduce fuel bills by an average of over £500 per year. In the first six months of 2013/14 Nest provided 10,852 householders with advice and support to reduce their fuel bills and energy efficiency improvements to 2,650 households.

These programmes are doing more than just improving the energy efficiency of Welsh homes, they are also helping to develop the energy efficiency market in Wales and create new opportunities and jobs. Since 2012 Arbed ERDF 2 has created 379 jobs and Nest has created 26 new jobs, apprenticeships and training opportunities and is supporting over 300 installer jobs in SMEs in Wales.

We have committed a further £70m to leverage investment from the Energy Company Obligation (ECO) alongside Nest and Arbed. The total additional investment by the Welsh Government will be £40m in 2014/15 and £35m in 2015/16. An additional £6.8m has been allocated in 2013/14 to leverage in ECO and this will improve the energy efficiency of around 1850 homes.

Fifty apprentices are being supported through the new Apprenticeship in Energy Assessment and Advice. This is due to be completed by September 2014.

Priorities for Further Action

We will continue to develop our current energy efficiency and fuel poverty programme that includes Nest and Arbed. We are developing a number of new research and pilot activities to support the ongoing development of the programme to build our knowledge and understanding of how best to tackle fuel poverty and encourage and support households across Wales to become more energy efficient. The new European funding programmes will provide access to funding and we will take a more holistic approach and integrate further activity around smart meters, behaviour change and wider energy support to better meet the needs of our communities. We will build on the successes we have realised through Arbed on job creation and supply chain development. We will continue to provide advice and support to those in fuel poverty through Nest, working closely with our partners. We will work with local authorities, energy companies and partners to maximise investment from the ECO alongside Arbed and Nest.

We will launch our new Resource Efficiency Advice and Support service, which will complement our existing advice services and provide domestic, business, community, third and public sector

audiences with a single point of contact for advice on resource efficiency and the options available to them.

The first point of contact for the service will help individuals and organisations to easily access provision that will include:

- a range of advice and services tailored to support their specific needs, either individually or in groups;
- supply chain development for SMEs and sole traders in the energy efficiency and renewables market: help to access training and accreditation and find market opportunities;
- a loan service, signposting to available funds and providing access to funds where existing market provision is not available;
- a communications programme that works with people to increase the level of understanding and debate on energy generation and energy efficiency.

High Level Milestones

Key Milestone	Delivery Date
Arbed year 3 scheme surveys commenced	March 2014
New pilot projects underway	April 2014
Arbed year 3 scheme delivery commenced	June 2014
Nest annual report for 2013/14 published	June 2014
New Resource Efficiency Service in operation	Summer 2014
Arbed year 3 scheme delivery completed	March 2015

Distributed Energy Generation

Since 'Energy Wales' Launch ...

We have continued to support the Ynni'r Fro programme, which was launched in January 2010 and is a jointly funded Welsh Government and ERDF programme that aims to promote community scale renewable energy generation. Ynni'r Fro promotes business growth and new business opportunities by enabling the creation and expansion of sustainable social enterprises. The programme is valued at £13m over its 5 year duration. The recent mid-term evaluation of the Ynni'r Fro programme highlighted the importance of our work in supporting community renewable energy projects through grants and loans and through the help of technical development officers.

Of the 196 expressions of interest submitted to Ynni'r Fro by community groups, a total of 141 different groups have so far received individual development officer support. A total of 12 wind and 12 hydro projects have received significant support from the Ynni'r Fro programme, having been identified as those most likely to be operational during 2015. The scheme is also supporting between 30 and 40 other schemes that will come to fruition beyond this date.

Priorities for Action

Users of the *Resource Efficiency Service* will be able to access the right technical and financial advice and support for energy generation. In 2015, this will include a new distributed generation programme to succeed Ynni'r Fro, which will be accessed via the one-stop-shop and from which people, community groups, businesses and other organisations can access trusted expertise in developing and operating appropriate energy solutions. Our new programme will seek to find ways of reducing costs and removing barriers to the development of distributed generation.

High Level Milestones

Key Milestone	Delivery Date
New Resource Efficiency Service in operation	Summer 2014
Work with stakeholders to develop additional evidence and design the future programme	April 2014
The new distributed generation programme becomes operational	January 2015
Ynni'r Fro scheme ends	March 2015

Cross-Cutting (Enabling) Themes

Regulatory Regimes

Since 'Energy Wales' Launch ...

Welsh Government has received the results of the Independent Advisory Group which was tasked, as part of the evidence base for the forthcoming Planning (Wales) Bill, with reviewing the delivery of the planning system in Wales.

We have also published the findings of research that we commissioned from Hyder, which evaluates the performance of the consenting bodies in the decision-making process for planning applications for renewable energy developments since 2005.

Welsh Government have taken this evidence to inform the draft *Planning (Wales) Bill* and the supporting paper *Positive Planning: Proposals to Reform the Planning System in Wales*, which were published in December 2013.

Welsh Government produces an annual wind farm development database, to provide evidence of developer interest concerning current onshore wind farm planning applications.

New Statutory Instruments came into force in 2012 to extend the existing permitted development rights for domestic and non-domestic properties.

Further advice was published in September 2012 on microgeneration of renewable energy, providing further information for households and organisations interested in installing renewable energy microgeneration equipment on, or within, their premises.

Welsh Government is committed to fulfilling its obligations under the recast European Directive on the Energy Performance of Buildings 2010 (EPBD); we are doing this through the Building Regulations to ensure that new buildings should be 'zero carbon' and 'nearly zero energy' by 2019 for public buildings and 2021 for all other buildings.

As an interim step, from 2014 we will be requiring a reduction of CO₂ emissions by 8% for domestic buildings and 20% for non-domestic buildings. We are also introducing changes to improve the energy efficiency of extant buildings.

Priorities for Action

The priorities for action are:

- Development and implementation of the Planning (Wales) Bill.
- Creation of a Welsh Energy Consents Forum to improve communication and co-ordination between organisations with responsibility for consenting and permitting of energy projects in Wales.

High Level Milestones

Key Milestone	Delivery Date
Consents Forum created	July 2014
Planning (Wales) Bill introduced	Summer 2014
New Building Regulations into force	August 2014
Planned entry into legislation of the Planning (Wales) Bill	Spring 2015
Development of secondary legislation	2015 onwards

Skills

Since 'Energy Wales' Launch ...

Welsh Government has developed cross cutting initiatives to support the wider sector, in addition to the bespoke offerings to initiatives such as Anglesey Energy Island™.

Welsh Government, working with the Energy and Utility Sector Skills Council commissioned Miller Research to undertake research into the training provision and skills needs in the energy sector in Wales.

This has led to the establishment of a Low Carbon Energy & Marine Power Institute in Wales, which was launched in November 2013. The institute is a 'virtual' establishment, operating across universities, colleges and training providers in Wales. Initially, the Low Carbon Energy and Marine Power Institute will support 100 participants on pilot programmes and will develop skills for the installation, commissioning and operation of energy generation sites; and the distribution of energy to customers.

The Deputy Minister for Skills and Technology also launched a Policy Statement on Skills on 30 January 2014.

The statement covers four priority areas for the Welsh Government:

- Skills and Jobs for Growth;
- Skills that Respond to Local Needs;
- Skills that Employers Value;
- Skills for Employment.

These priorities will shape how Welsh Government will work with the energy sector over the coming years with an implementation plan being developed in 2014.

Welsh Government are also providing support to 50 apprentices through the new Apprenticeship in Energy Assessment and Advice scheme.

Priorities for Action

Welsh Government will develop its action plan in support of the Deputy Minister for Skills and Technology's policy statement and will also continue to enable offerings on a national, regional and local level to respond to needs as they emerge.

High Level Milestones

Key Milestone	Delivery Date
Policy Statement Action Plan developed	Summer 2014

Strategic Infrastructure

Since 'Energy Wales' Launch ...

Welsh Government has worked with developers, regulators and infrastructure developers to better understand the infrastructure options and opportunities for Wales.

Welsh Government has continued to have a constructive relationship with National Grid and Distribution Network Operators and continues to press for solutions that enable the benefits from significant onshore wind, whilst recognising landscape issues and choices.

Priorities for Action

Welsh Government will continue to work with business to ensure that investments in Wales' grid are appropriate and timely. Welsh Government also recognises that the way in which grid enhancements are delivered will materially affect Wales' ability to deliver and release benefits.

The infrastructure investment plans of business will be married with those of the Welsh Government and local authorities in the *Wales Infrastructure Investment Plan* in 2014. This will support our continued commitment to develop a full infrastructure investment routemap for Wales and provide essential knowledge required by both Government and business to enable strategically informed investment decisions and to maximise potential collaborative opportunities.

High Level Milestones

Key Milestone	Delivery Date
A roadmap of business investment in energy infrastructure is included in the Wales Infrastructure Investment Plan	Summer 2014

Communications, Marketing and Engagement

Since 'Energy Wales' Launch ...

Welsh Government has collaborated with partners in areas such as Anglesey Energy Island, Onshore Wind, Energy Intensive Industry and Marine energy.

The First Minister has created the Energy Wales Strategic Delivery Group, which provides, a forum to engage with senior industry, public sector and regulatory partners and to drive forward the delivery of Energy Wales.

Welsh Government's independent Energy and Environment sector panel provides advice to Welsh Government and are engaged with Natural Resources Wales (NRW), helping that body to understand and respond appropriately to the needs of industry and business.

Welsh Government has also continued to promote Wales as a unique investment opportunity around the globe.

Priorities for Action

Welsh Government will continue to:

- communicate through our inward investment activity and promote Wales as a place to do business;
- describe Welsh Government's aims for energy in Wales;
- improve the level of public engagement, empowerment and debate about renewable technologies and the transition to low carbon – to be, in part, achieved by developing the energy elements of a *National Conversation* piloted as part of the development of the Future Generations Bill. Subject to the approach being successful it will be further developed.

High Level Milestones

Key Milestone	Delivery Date
Launch of the pilot <i>National Conversation – Future Generations</i>	February 2014
Evaluation of the pilot <i>National Conversation</i>	June 2014

Areas for Further Development

In adopting a programme approach to delivery of *Energy Wales: A Low Carbon Transition*, priority has been given to areas where significant Welsh Government intervention was likely to have the greatest benefit. In other areas, listed below, whilst progress has been made and is ongoing, the formulation of plans and stakeholder engagement has yet to be completed, but this will be achieved during 2014. Marine Energy for example has been dependent on a better understanding of the approach to test and demonstration zones and the creation of third party management arrangements, which is being progressed by The Crown Estate. Once the final arrangements are understood, Welsh Government will be better placed to agree the next steps with stakeholders.

Below is a brief summary of progress to date and current thinking.

Marine Energy

Since 'Energy Wales' Launch ...

Welsh Government has granted a Marine License for Marine Current Turbines' Skerries project and utilised European funding of £8m to further support Cardiff-based Tidal Energy Limited's Deltastream project. The DeltaStream device will use tidal flows to generate clean electricity for homes in St Davids when it is installed in 2014 for an initial 12-month test period.

We have completed and published our marine infrastructure study and have assessed the recommendations to move the industry forward in Wales.

We have provided information to the wave and tidal stream sector on the potential development constraints within our key resource areas. The online tool, which will aid site selection is available to developers upon request.

We have worked with The Crown Estate to bring forward test and demonstration zone leasing in Wales, for both wave and tidal stream technologies.

Welsh Government has also commissioned a study which has estimated the potential economic benefits for Wales from the future development of wave and tidal stream. The study forecast the possible economic benefits of the marine energy industry in Wales under three illustrative timeline scenarios.

We have commissioned research to understand the research, development and innovation opportunities in offshore renewables, including marine energy, where Wales has existing strength.

New training programmes have been developed to address immediate skills gaps across the low carbon energy and marine power industries. The *Low Carbon Energy and Marine Institute Project* has funding of £800k from the Department for Education and Skills' Sector Priorities Fund Programme. The project is live now and will run until the end of 2014.

Welsh Government also lobbied UK Government to ensure that Renewable Obligation Certificates for marine energy in Wales were aligned with the rest of the UK from the 1st of April 2013.

Priorities for Action

Our marine ambitions need further agreement with partners before being presented in a delivery plan. However, the following priorities have been identified:

- Support The Crown Estate in the process of developing the Welsh test and demonstration zones, leasing and the 3rd party management arrangements;
- Make available all environmental data and a clear route for filling identified gaps;
- Develop our policy to further maximise the opportunities for marine energy through the Enterprise Zones in the Haven Waterway, Pembrokeshire and Anglesey;
- Develop funding routes through the EU structural funds by prioritising support to those areas identified in studies that have been informed through stakeholder consultations, such as Marine Energy Infrastructure Studies;
- Achieve a streamlining of the consenting regimes in Wales by continuing to engage with partners, in particular NRW;
- Review the current skills needs and gaps in the marine industry in Wales;
- Work with developers to develop the supply chain;
- Maximise the opportunities for stimulating innovation in marine energy identified through the Marine Energy Technology Innovation Needs Assessment by developing a programme of work with key stakeholders.

Unconventional Gas

Since 'Energy Wales' Launch ...

Welsh Government has commissioned the British Geological Survey to undertake an assessment of the unconventional gas resource potential in Wales. Welsh Government will consider and respond to the UK Government's Strategic Environmental Assessment for the next onshore oil and gas licensing round, published on 17 December 2013.

We have engaged with Natural Resources Wales and other regulatory bodies to review and update the regulatory framework that applies to oil and gas development in Wales, and we continue to reiterate the importance of ensuring that national planning policy for minerals development in Wales is applied.

Priorities for Action

Energy Wales recognises the important role of gas as a flexible, reliable, responsive energy source with lower emissions than other fossil fuels. Gas will continue to play a role in the transition to a low carbon energy system and, given the challenges of energy security, there is a need to evaluate the potential of unconventional gas resources in Wales and the economic opportunities that might arise from any development. Welsh Government will engage with the onshore oil and gas industry to understand their proposals for exploratory development in Wales and ensure maximum benefit for Wales.

High Level Milestones

Key Milestone	Delivery Date
Study of Potential unconventional gas resource in Wales	March 2014
Welsh Government response to the UK Government's Strategic Environmental Assessment	March 2014
Commissioning of unconventional gas economic report	May 2014

Energy Intensive Industry

Since 'Energy Wales' Launch ...

In the transition to a low carbon economy it is important that the impacts of policy on the most energy intensive industries are fully considered.

Welsh Government has consistently ensured that these concerns are raised at the highest levels with the UK Government.

Alongside this, Welsh Government is working with major businesses in Wales to explore local energy efficiency and energy generation options that might reduce energy costs.

Priorities for Action

Whilst the cost of energy remains a major concern for the industry we will continue to press UK Government in terms of policy in addition to working directly with industry on energy efficiency measures. The UK Government has commenced compensatory payments to eligible industry sectors for the indirect costs of the EU Emissions Trading Scheme. We will work with the respective companies to assess whether the support package adequately and appropriately compensates those eligible industries in Wales most at risk of carbon leakage.

Mapping of businesses and their supply chains is being undertaken across economic sectors in Wales, and opportunities, emerging from the analysis of this evidence base, will be sought.

Welsh Government continues to monitor the potential impacts of European and UK policy on the international competitiveness of energy intensive businesses. Our Energy Wales Programme will ensure that our approach is reflected in work undertaken in this area across Welsh Government departments.

Smart Living

Since 'Energy Wales' Launch ...

Welsh Government has investigated with the major players ranging from technology developers such as SPECIFIC through to network operators, local authorities, the Energy Technologies Institute (ETI) and energy suppliers what a smart living and/or smart grid enabled Wales might look like. This has revealed a large number of issues, not so much as to the end goal, but more on how best to reach it. This work has also highlighted the opportunities for much greater local energy generation and the difficult marriage of local and central generation that we may be facing. This area is ripe for demonstration opportunities (building on Welsh Government's experience through Arbed, Ynni'r Fro etc) which will be pursued with engaged local authorities.

Pathfinding work will continue at local, national, UK and international levels-including with the major US National Renewable Energy Laboratories (NREL) in Denver recently visited by the Minister for Economy, Science and Transport.

Priorities for Action

The Smart Living theme constitutes a number of exploitation activities.

Key opportunities for exploitation are:

- development of a 'smart living' network of business, academia, funding bodies and potential hosts, using it to identify, disseminate and pursue opportunities, and create business relationships;
- further identification of priority UK and European funding opportunities with partners.

High Level Milestones

Key Milestone	Delivery Date
Development of a Smart Living Route Map	December 2014