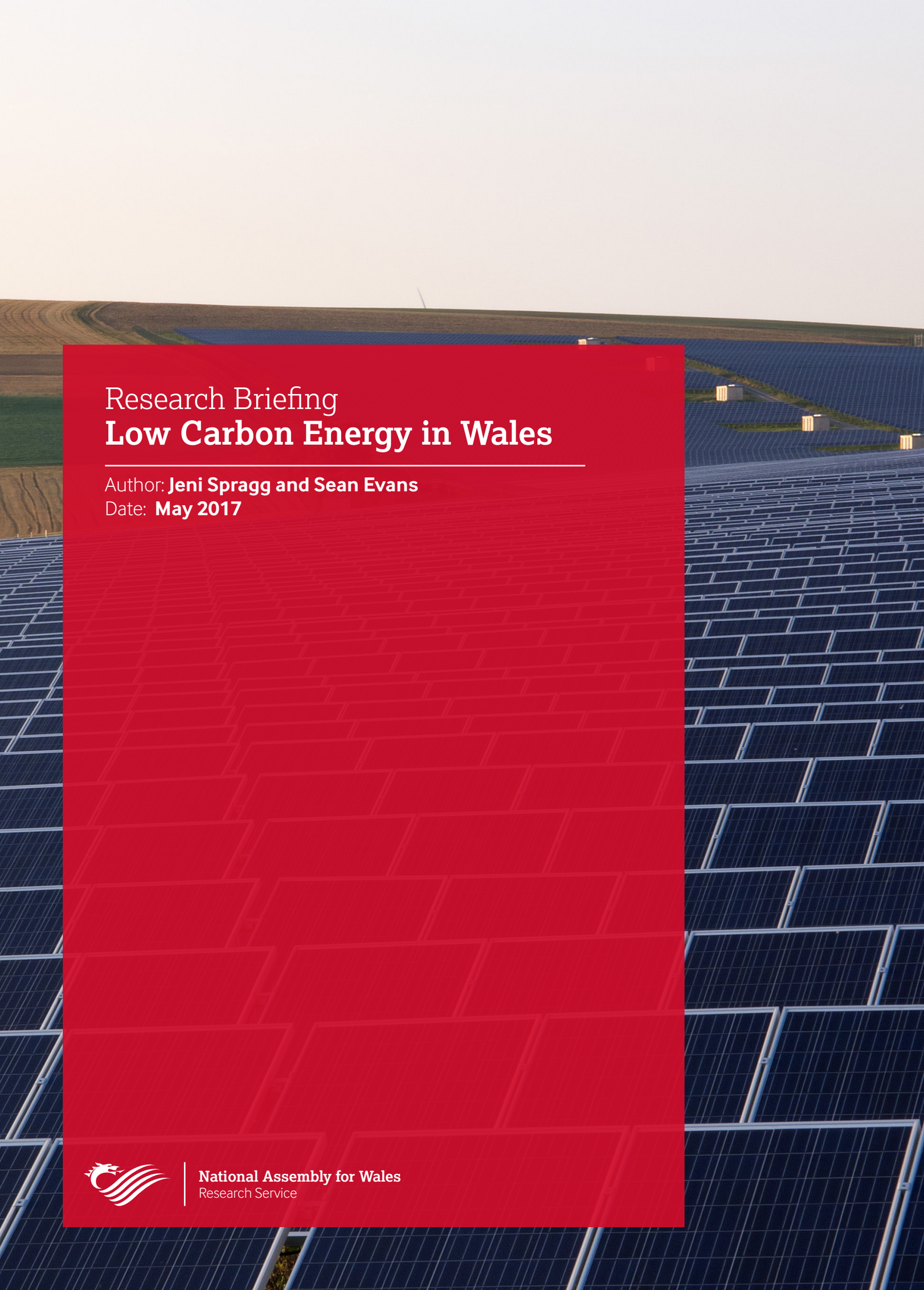

Research Briefing

Low Carbon Energy in Wales

Author: **Jeni Spragg and Sean Evans**

Date: **May 2017**

National Assembly for Wales
Research Service

The National Assembly for Wales is the democratically elected body that represents the interests of Wales and its people, makes laws for Wales, agrees Welsh taxes and holds the Welsh Government to account.

Author: **Jeni Spragg and Sean Evans**
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Contact Us

Research Service
National Assembly for Wales
Tŷ Hywel
Cardiff Bay
Cardiff
CF99 1NA

: 0300 200 7730
: Sean.Evans@Assembly.Wales
: Assembly.Wales/InBrief
: @SeneddResearch
: Assembly.Wales/Research

Research Briefing

Low Carbon Energy in Wales

This Research Briefing is the first in a series of policy briefings on low carbon energy in Wales. It introduces the national and global context for low carbon energy in relation to the energy trilemma, and outlines the policy landscape in Europe, the UK and Wales. Subsequent briefings will provide a summary of low carbon energy statistics in Wales and the role of low carbon energy in electricity, heat and transport.

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Contents

1. Introduction

This Research Briefing is the first in a series on low carbon energy in Wales. This section focuses on the role of low carbon energy and describes the current policy landscape and legislative framework in the EU, UK and Wales.

The other parts of the series provide an overview of the contribution of low carbon energy sources in Wales and sector-specific aspects of low carbon energy policy:

- **Low Carbon Energy in Wales: in figures** outlines the current energy landscape in Wales, including greenhouse gas trends and energy use;
- **Low Carbon Electricity** describes the main low carbon electricity sources;
- **Low Carbon Heat** describes the main low carbon heat sources; and
- **Low Carbon Transport** focuses on the main options for low carbon transport.

2. The role of low carbon energy

Global context

Recent years have seen increasing focus on the decarbonisation of the global energy supply, in efforts to reduce the impacts of human-caused (anthropogenic) climate change. This is in response to an increasing body of evidence, which suggests that continued rises in the global temperature at the current trajectory are likely to have profound effects on the Earth's climate system.

Significant political effort has focussed on greenhouse gas emissions, but environmental sustainability is just one aspect of the energy system. Decarbonisation is often considered alongside the other key priorities of energy security and energy equity (affordability and accessibility). Together, these three areas make up the 'energy trilemma' (Figure 1).

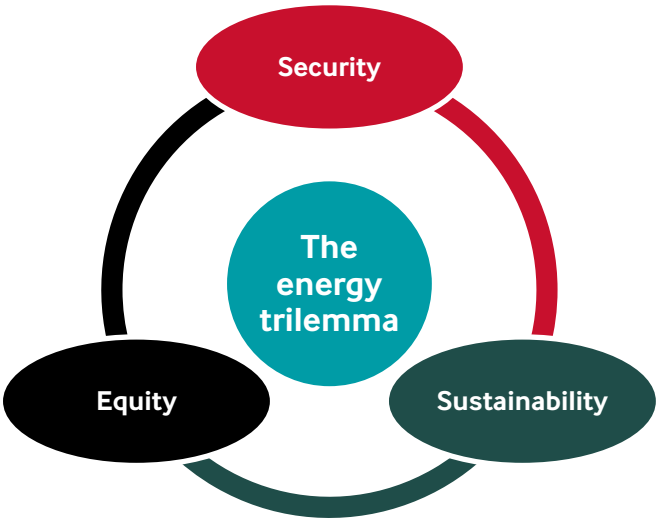

Figure 1 - The energy trilemma

In 2016, the UK was given a rating of AAA on the World Energy Council's (WECs) Energy Trilemma Index. The WEC noted that the UK "manages to balance the trade-offs between energy security, energy equity and environmental sustainability well" but that it has "challenges in securing energy"

with energy security as its weakest area (ranked 32nd out of 125 countries).The UK ranked strongest (8th) in energy accessibility and affordability.

Low carbon energy and the economy

Low carbon energy impacts on economic growth and energy equity in a range of ways. Energy and economy are closely interlinked, and policy-makers often refer to a future 'low carbon economy'.

The low carbon economy may be **a vehicle for economic growth in Wales**, bringing jobs and investment opportunities. In 2015, the low carbon and renewable energy sector in Wales provided **11,000 jobs, with an annual turnover of £1.78 billion**. RenewableUK Cymru estimates that the installed capacity of onshore wind in Wales will contribute **£799 million to the Welsh economy** over its lifetime, of which benefits to the value of £33 million go directly to local communities.

One consideration is the potential impacts that a transition to low carbon energy may have on the industries which produce and rely upon fossil fuels, including refining, steel making and electricity production. The **International Energy Agency** (IEA) has highlighted that some of these industries **inevitably produce CO_2** due to the nature of their production processes. In 2015, **172,500 jobs in Wales were within the production sector**, equalling over 12% of the total number of jobs.

In 2016, **around 23% of Welsh households were living in fuel poverty**, meaning they spend 10% or more of their income on energy costs. The **Committee on Climate Change estimates** that by 2020, UK consumers will be paying an average energy bill of £500, of which £105 will be supporting investment in low-carbon generation, including the market carbon price. Information on the Welsh Government's fuel poverty policy can be found on the **Welsh Government website**. Further information on fuel poverty in Wales can be found in the Research Service's blog on **Warm Homes for Wales**. There is also a Research Service **Guide for Constituents (PDF 1MB)** on energy efficiency and fuel poverty schemes, published in 2016.

Low carbon energy may also have positive impacts on energy equity. Renewable energy technologies offer opportunities for small-scale, community-based energy generation. These can provide access to low-cost energy and the opportunity for communities to invest, work together and gain ownership of their own energy. Some examples of community energy projects are available on the website of **Community Energy Wales**.

3. The policy landscape

The Paris Agreement

The **United Nations Framework Convention on Climate Change** (UNFCC) held its 21st annual conference of the parties (COP) in Paris at the end of 2015. The key outcome of the conference was an **Agreement** ('the Agreement') between the 197 states parties on limiting rising global temperatures. Using the temperature in pre-industrial times as a baseline, they agreed any change should be 'well below' 2C. The conference further agreed to 'endeavour to limit' the change even more to 1.5C. The Paris Agreement also set a long-term collective goal for near net-zero emissions in the second half of the century.

The EU and its Member States **signed the Agreement in April 2016**. In October of the same year, the European Union **formally ratified the Agreement**. The ratification of the Agreement in the Member States will follow, each in accordance with their own parliamentary processes. Wales, as part of the UK, **ratified the Agreement** on 18 November 2016. The Agreement **entered into force on 4 November 2016** after the number of parties where it had been ratified exceeded 55.

Each country that is party to the Agreement will submit its **Intended Nationally Defined Contribution** (INDC), which outlines the amount of emissions reductions that it intends to contribute. The EU, and its Member States, has entered **a single joint INDC**. While the UK remains a part of the EU, its contribution to the Paris Agreement is tied into the EU's overall pledge and how these are translated into EU legislation. The implications of the UK's withdrawal from the EU on the Paris Agreement are unclear. **E3G**, an independent organisation acting to accelerate the global transition to sustainable development, has suggested that the UKs withdrawal is likely to result in a technical disentanglement of the UK's NDC from the collective EU NDC only, with the architecture of the Agreement remaining unchanged.

While this is a historic global climate deal, **experts have warned** that the existing pledges for emissions cuts do not go far enough to achieve the 2°C target.

Key European policies

This section outlines several EU policies relating to low carbon energy. Withdrawal from the EU is likely to alter the how these policies apply to the UK, but at the time of writing these implications are unknown.

The Committee on Climate Change (CCC) published a **briefing note on the implications of Brexit on UK climate policy** in October 2016. The Committee's key messages include that:

- the UK's climate goals have not changed as a result of the vote to leave;
- existing UK commitments need strong new policies that set clearer direction across the economy;
- some policy previously set at EU level should be preserved and strengthened in future; and
- that the UK should take opportunities to improve on some EU policy approaches (for example to address greenhouse gas emissions from agriculture and focus heat policy on low-carbon heat rather than solely renewable heat).

The House of Commons Business, Energy and Industrial Strategy (BEIS) Committee completed an inquiry on **negotiation priorities for energy and climate change policy** on leaving the EU. The inquiry considered which energy and climate change policy areas should be prioritised for continued cooperation during the exit negotiation process. In its **report**, published in April 2017, the BEIS Committee recommends that the UK Government should seek to avoid disruption to the energy sector and the domestic climate change agenda during negotiations and that "arrangements mirroring the status quo should be sought and implemented as far as possible".

The Research Service **briefing on the vote to leave the EU** (PDF 1MB) also discusses some of the potential impacts of leaving the EU on energy and climate change.

Climate and energy strategies

Recent EU climate and energy policy has evolved through three major strategies: the **2020 package**, the **2030 climate and energy framework**, and the **2050 low-carbon economy roadmap**.

Table 1 summarises the headline targets for each policy.

Table 1 - Summary of EU energy targets

EU Target	2020 targets (1)	2030 targets (3)	2050 roadmap (5)
Reduction in greenhouse gas emissions (on 1990 levels)	20% (2)	40% (4)	80%
Proportion of energy consumption from renewables	20%	27%	-
Increase in energy efficiency	20%	27%	-

(1) binding limits under the 2020 package
(2) applies to those emissions which are not covered by the Emissions Trading Scheme. Those which come within the scheme have a target of a 21% reduction on 2005 levels
(3) limits under the 2030 climate and energy framework. At the time of writing (May 2017), the emissions and renewable targets are binding, while the energy efficiency target is indicative.
(4) 43% for sectors in the Emissions Trading Scheme, 30% for other sectors. Both are relative to 2005 levels.
(5) non-binding targets recommended in the 2050 low-carbon economy roadmap. Reductions to be made by domestic action alone (i.e. not to rely upon international carbon credits).

Within the **2020 package**, each Member State has its own **national target** (PDF 24KB) which contributes to the EU headline figure. For the UK, the 2020 targets are:

- 16% reductions in those emissions not covered by the **Emissions Trading Scheme** (ETS - see the subsection below for further information). For those emissions within the ETS, the target reduction is 21%. Both are relative to 2005 levels;
- 15% of energy from renewables; and
- Primary energy consumption equal to 175 million tonnes of oil equivalent (Mtoe).

The **Eurostat website** provides an interactive map that shows the progress of Member States relative to each of these indicators.

The **2030 climate and energy framework** sets binding targets for 2030. The UK Government's response to the consultation on the 2030 framework is available on the **UK Government website**.

The **2050 low-carbon economy roadmap** sets out a cost-efficient pathway to achieve at least 80% emissions reductions by 2050, although this strategy is not binding.

The Renewable Energy Directive

The **Renewable Energy Directive** is the overarching policy for renewable energy in the EU. It specifies that 20% of total energy, and 10% of transport fuels, should come from renewable sources by 2020. It also outlines **sustainability criteria for biofuels**, to ensure that biofuels are achieving real greenhouse gas savings, and that European demand for biofuels does not drive unsustainable practices in biofuel production.

Directive 2015/1513 amends the criteria for biofuels. The amendments were brought in to reduce the impacts of indirect land use change and to prepare for the transition towards advanced biofuels.

The Energy Efficiency Directive

The **Energy Efficiency Directive** sets out the binding measures to enable the EU to reach the goal of 20% improvement in energy efficiency by 2020. It requires Member States to make efficiency improvements throughout all stages of the energy chain, from production to end use.

In November 2016, the Commission **proposed an update to the Energy Efficiency Directive** which will make binding the target of 27% improvement by 2030.

The Clean Power for Transport Directive

The EU has identified that the lack of refuelling infrastructure for low carbon vehicles is a major barrier to widespread uptake. The **Clean Power for Transport Directive** aims to address this barrier, by requiring Member States to establish a minimum level of refuelling infrastructure for hydrogen, electric and natural gas vehicles by 2025. The levels are determined individually for each Member State, depending on their needs and capacity to act.

The Emissions Trading Scheme

The EU's **Emissions Trading Scheme** (ETS) is the world's first and largest carbon market. It was first set up in 2005 and is now in its third phase.

It works on a principle of 'cap and trade', whereby installations covered by the scheme have a maximum cap on the total emissions they can produce. Within the overall cap, each company receives its own emissions allowances. Over time, the cap reduces so that overall emissions fall. The emissions covered include nitrous oxide (N_2O) and perfluorocarbons (PFCs) as well as carbon dioxide (CO_2).

Companies are able to trade their credits, meaning a company whose emissions exceed its allowances may purchase allowances from a company that has spare. Companies may also purchase a limited amount of international credits from emission-saving projects outside the EU.

The intent is to create a market-based solution to emissions reduction, which encourages businesses to invest in low carbon solutions, while affording them the flexibility to find the most cost-effective route to do so.

The UK Government supplements the ETS with the **Carbon Price Floor**. This raises the price of emissions within the scheme, in an effort to ensure that the carbon price is sufficiently high to drive low carbon investment.

The Energy Union

The EU's **Energy Union** strategy aims to create a single energy market within the European Union. The aim is to provide secure, affordable and climate-friendly energy across Europe, at the same time as enabling job creation and growth. More information can be found in **EU Energy Union briefing** (PDF 650KB) produced by the Research Service in 2016.

Funding schemes

The EU has several funding programmes which support low carbon energy, details of which can be found on the **European Commission website**. These include financing for energy projects, such as the €3.98 billion **European Energy Programme for Recovery** (EEPR). There is also funding for innovation, such as the **Horizon 2020 research programme** funding and the **NER 300 programme** for demonstration projects.

Funds intended to reduce economic and social disparity, such as the **Cohesion Fund** and **European Regional Development Fund**, also support low carbon energy projects.

UK policies and context

The UK is the first country to have a set of legally binding carbon budgets, which set limits on the amount of greenhouse gases the UK can emit. The budgets are legislated by the **Climate Change Act 2008** and a series of subsequent **Climate Budgets Orders**.

Under this Act, the UK is required to reduce emissions by at least 80% of 1990 levels by 2050. It is also committed to contribute to global emission reductions, to limit global temperature rise to as little as possible above 2°C. The latter of these is in alignment with the Paris Agreement.

There have so far been five carbon budgets, each covering a four-year budgeting period. These are summarised in Table 2. The section on Welsh policy (below) gives further detail on carbon budgeting in the Welsh context.

Table 2 - UK Carbon Budgets

Budget	Carbon budget level (Mt CO_{2e})	Reduction below 1990 levels
1st carbon budget (2008 to 2012)	3018	23%
2nd carbon budget (2013 to 2017)	2782	29%
3rd carbon budget (2018 to 2022)	2544	35% by 2020
4th carbon budget (2023 to 2027)	1950	50% by 2025
5th carbon budget (2028 to 2032)	1765	57% by 2030

Source: UK Committee on Climate Change

As detailed in the section on European policy, the UK is committed to source 15% of its energy from renewable sources by 2020. The **National Renewable Energy Action Plan for the UK** sets out how the UK intends to meet this target. The 15% target can be reached if renewable energy makes the following contributions:

– Around 30% of electricity demand, including 2% from small-scale sources;

– 12% of heat demand; and

– 10% of transport demand.

In September 2016, the House of Commons Energy and Climate Change Committee warned the UK Government that the **UK is on course to miss the 15% target**. While the electricity target is likely to be exceeded, progress towards the heat and transport targets has fallen behind.

In November 2015, Amber Rudd, the then Secretary of State for Energy and Climate Change, announced that there would be **a new direction for UK energy policy**, which will seek to achieve:

> *an energy system that puts consumers first, delivers more competition, reduces the burden on bill-payers and ensures enough electricity generation to power the nation*

The proposed steps to achieve this were to replace coal power stations with gas, a commitment to offshore wind support, and a move towards a smarter energy system.

During changes to Government in July 2016, the former Department of Energy and Climate Change (DECC) was merged into the new **Department for Business, Energy and Industrial Strategy** (BEIS). The National Audit Office has produce a **short guide to BEIS**, which explains the Departments responsibilities, and its approach to key issues.

In November 2016, BEIS set out its **plans to upgrade energy infrastructure and increase clean energy investment**. This reaffirmed the commitment to provide £730m of annual support for renewable electricity, and to end the use of unabated coal.

In January 2017, the UK Government released a **green paper on UK industrial strategy**. Some key points relating to low carbon energy include the following:

– **Energy challenges**: these include the transition to a low carbon economy at minimum cost to UK businesses, taxpayers and consumers. The UK Government has a role to play in managing the required changes to energy networks;

– **The energy trilemma**: security of supply and sustainability are covered under existing UK policy. The two key priorities for new policy are therefore to ensure affordability and to harness the opportunities which arise from innovation; and

– **The low carbon economy**: While there is a role for the UK Government, the private sector will ultimately drive forward the low carbon economy.

The House of Commons **briefing paper on industrial strategy** provides further detail on these.

The UK Government website provides a **catalogue of UK Government policies** which are brought together into themes. This resource can be used to explore UK policy areas such as '**low carbon technologies**' and '**greenhouse gas emissions**'.

Support for low carbon electricity

The **Feed-in-Tariff** (FIT) scheme supports the uptake of small-scale renewable energy. Those who generate their own electricity can receive payments from their energy supplier for the electricity they produce.

Since its introduction in April 2010, the scheme has evolved over a number of years. Up-to-date information on the FIT scheme can be found on either the website of the **UK Government** or **Ofgem**.

At present (May 2017), the FIT scheme is available to anyone who has installed, or is looking to install, up to 5MW of capacity of solar photovoltaic (PV), wind, hydro or biogas energy. The scheme also applies to micro Combined Heat and Power (CHP) installations up to 2 kW.

For larger installations, a key support mechanism has been the **Renewables Obligation (RO) scheme**. This scheme closed to all new generating capacity on 31 March 2017.

Under the RO scheme, UK suppliers had an obligation to generate a certain proportion of their electricity from renewable sources. Renewables Obligation Certificates (ROCs) are issued to eligible generators for the renewable electricity they produce. Suppliers can trade the Certificates, allowing those who have extra to sell them to those who have not met their quota. The House of Commons Library has produced a more **detailed summary of the RO scheme and its closure**.

Going forward, the **Contracts for Difference** (CfD) scheme will be the main support mechanism for large-scale renewable electricity installations. This is a different approach to support for low carbon energy, which involves a private law contract between a low carbon electricity generator and the government-owned Low Carbon Contracts Company (LCCC).

Under the terms of the contract, the LCCC pays the generator the difference between the 'strike price' – a price for electricity reflecting the cost of investing in a particular low carbon technology – and the 'reference price'– a measure of the average market price for electricity in the GB market.

The intent is to reduce exposure to volatile wholesale prices, thereby giving greater certainty and stability to electricity generators. At the same time, the link to the reference price should protect consumers from paying for higher support costs when electricity prices are high.

The **first set of CfD allocations** was announced in February 2015. The **second allocation** round opened on 3 April 2017, and will offer up to £290m of annual funding for the delivery years 2021/22 and 2022/23.

Support for low carbon heat

The Renewable Heat Incentive (RHI) supports the uptake of renewable heat sources. There are two different schemes for **domestic** and **non-domestic** applications, which have separate tariffs, joining conditions, rules and application processes.

The **Domestic RHI** began in April 2014 and applies to England, Scotland and Wales. Eligible households can claim money towards renewable heating costs from biomass boilers, solar water heating and certain heat pumps.

The **Non-domestic RHI** scheme applies to businesses, the public sector and not-for-profit organisations in England, Scotland and Wales, and across a range of technologies including:

- biomass;
- heat pumps (ground source, water source and air source);
- deep geothermal;
- solar thermal collectors;
- biomethane and biogas; and
- combined heat and power (CHP) systems.

There are similar renewable heat incentive schemes in Northern Ireland for **domestic** and **non-domestic** customers.

To support the development of heat networks, the UK Government has established a **Heat Network Delivery Unit** (HNDU) in 2013. Local authorities are invited to apply for HNDU support through bidding rounds. The HNDU has supported 200 projects across 131 local authorities, including £14 million of grant funding.

In June 2016, the UK Government reaffirmed its commitment to support the development of heat networks, by committing to **£320 million of investment over five years**.

Support for low carbon transport

The **Office for Low Emission Vehicles** is responsible for policy on transport emissions. It is part of both the Department for Transport (DfT) and BEIS. The **single departmental plan** for the DfT sets out how it intends to support wider government objectives to protect the environment by ensuring that transport plays its part in delivering the UK Government's climate change obligations.

The uptake of liquid biofuels is encouraged through the **Renewable Transport Fuels Obligation** (RTFO), which implements the transport components of the EU's Renewable Energy Directive.

Low carbon transport fuels are also supported through a range of other fiscal incentives, such as:

- **reduced fuel duty** for natural gas and biogas;
- **vehicle excise duty** which is banded according to CO2 emissions; and
- **grants** for plug-in vehicles, including up to 30% towards the cost of a car, or up to 20% towards the costs of a motorcycle or van.

In the 2016 Autumn Statement, the UK Government committed **£390m to support future transport technology**, including funding for electric vehicle charging infrastructure; low emission buses and taxis; and the development of alternative fuels for HGVs and aviation.

Welsh policies and context

Schedule 7 of the **Government of Wales Act 2006** sets out the 21 broad subject areas for which the National Assembly has legislative competence. Whilst energy is not listed as a subject outright, certain elements of energy policy are devolved, including the encouragement of home energy efficiency and conservation under the housing subject and consenting for small-scale energy generating stations under the town and town and country planning subject.

The **Wales Act 2017** represents a shift, in devolution terms, towards a 'reserved powers' model where the Assembly has competence to legislate provided that it does not relate to a matter which is reserved to the UK Parliament. The Act devolves responsibility to the Assembly for larger scale energy generating station consenting (see the planning subsection below) and functions in relation to excepted energy buildings. However, it also contains broad reservations in relation to electricity generation, transmission, distribution and supply; oil and gas; coal; nuclear; heating and cooling; energy conservation; and technical specifications for fuel or other energy sources.

Various aspects of Welsh energy policy under the current and future devolution settlements are considered in further detail below.

The Welsh Government has identified 'energy and environment' as a **priority sector for Wales.** The Welsh Government set out its proposals for transitioning to a sustainable, low carbon economy in **Energy Wales: A Low Carbon Transition**, published in 2012. As part of the transition, the Welsh Government stated that its aims were to maximise the long-term economic benefits of the transition, ensure that communities benefit from energy infrastructure developments, and carefully plan and manage the relationship between energy development and the natural environment.

The Welsh Government committed to focus and prioritise its efforts in three key areas, to:

> *Provide leadership to ensure Wales has a clear and consistent framework for investors, regulators and decision-makers together with the infrastructure, coordination and stability to ensure Wales is a great place to do business.*
>
> *Maximise benefit for Wales in terms of jobs and wider economic benefit at every stage of development whilst also ensuring our communities derive long-term benefits.*
>
> *Act 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 Low Carbon Transition **Delivery Plan** (PDF 1.45 MB) set out how the Welsh Government intended to deliver its Energy Wales proposals during 2014-15, including priorities for action, high level milestones and a summary of deliverables for low carbon energy, energy efficiency, energy intensive industries, marine energy, regulatory regimes, infrastructure and other areas. The Welsh Government has said that from April 2017, public services in Wales will use **100% renewable electricity**, 50% of which will be generated in Wales.

Through its programme for government, **Taking Wales Forward 2016-2021**, the Welsh Government reconfirmed its commitment to emissions reductions and support for renewable energy.

In a statement in December 2016, the Cabinet Secretary for Climate Change, Environment and Rural Affairs, Lesley Griffiths, **outlined the Welsh Governments priorities in relation to energy** for the Fifth Assembly. These include:

– Reducing energy consumption;

– Reduced reliance on energy generated from fossil fuels; and

– An actively managed transition to a low-carbon economy.

Controlling emissions

Part 2 of the **Environment (Wales) Act 2016** (the Act) places a duty on the Welsh Ministers to ensure that the net Welsh emissions account in 2050 is at least 80% lower than the baseline (relative to either 1990 or 1995 levels depending the greenhouse gas). This is in line with the UK target outlined in the **Climate Change Act 2008**.

The Act also requires that, before the end of 2018, the Welsh Ministers set interim emissions targets for 2020, 2030 and 2040 and 5-year carbon budgets for the periods 2016-2020 and 2021-2025. This marks a step change in Wales's approach to tackling and measuring climate change. Progressing from the annual (non-statutory) target of a 3% year-on-year reduction, the Act places new duties on the Welsh Government to ensure greenhouse gas (GHG) emissions are reduced.

The Cabinet Secretary for Climate Change, Environment and Rural Affairs provided a **progress update** on the climate change provisions of the Act in December 2016. The update referred to advice from the CCC to ensure that the Welsh Government is robust in its target setting and delivery on climate change.

The CCC has set out to provide its advice over two stages:

- Stage 1: Advice on carbon accounting and design of Welsh carbon budgets/targets; and
- Stage 2: Advice on the level of ambition embodied within the targets and budgets.

The CCC launched a **call for evidence** in December 2016, to help inform its stage 1 advice to the Welsh Government, and subsequently published its **advice on the design of Welsh carbon targets** in April 2017. Key recommendations include that:

- The overall accounting framework for Wales be based on actual emissions (rather than adjusting for activity in the EU Emissions Trading System as under UK carbon budgets);
- Wales's share of international aviation and international shipping be included within emissions targets; and
- All targets under the Act are expressed relative to 1990 emission levels.

Its advice under stage 2 is expected in October 2017.

The Welsh Government has produced an **infographic** (PDF 334KB) summarising Wales' emissions reduction commitments.

The Research Service's **Environment: Climate Change and Energy reading list** provides further information on these topics.

Sustainable growth

The **Well-Being of Future Generations (Wales) Act 2015** is about improving the social, economic, environmental and cultural well-being of Wales in accordance with the sustainable development principle. Public bodies listed in the Act must work towards seven well-being goals, three of which are directly linked to climate change. Low carbon energy relates to several of the **national indicators** which are used to monitor progress including indicators 12 - *the capacity of renewable energy equipment installed* and 41 - *emissions of greenhouse gases within Wales.*

The **Green Growth Wales** programme aims to foster sustainable growth in line with Well-Being of Future Generations goals. Part of this strategy involves providing around **£310 million of funding for green energy projects**, over a two-and-a-half year period starting in October 2015.

Advice and support

Business Wales provides advice and support for energy and environment businesses. This includes the **Energise Wales Network**, a business network run by the Energy Saving Trust for Welsh companies working in or interested in the field of renewable energy and energy efficiency.

The Welsh Government's **Local Energy Service** provides financial and technical support to help social enterprises and SMEs across Wales to develop their own renewable energy schemes. The Welsh Government has developed the **Wales Community Energy Toolkit** to help communities to develop community renewable energy schemes.

Bioenergy

The Welsh Government is developing a **Bioenergy Action Plan for Wales**. Its stated aims for bioenergy are to:

– optimise the benefits of bioenergy use in Wales to reduce the greenhouse gas emissions;

– contribute to long-term fuel security;

– encourage the development of sustainable forestry and agriculture; and

– support business development and job creation in all parts of the biomass energy sector.

Efficiency

The **Energy Efficiency for Wales** strategy sets out the Welsh Government's strategic direction for 2016-2026. It identifies that energy efficiency has an important role to play in fulfilling the well-being of future generation goals, and gives five key action areas to achieve the stated vision:

> *We want to ensure that Wales is in the best possible position to realise its full energy efficiency potential and become a major exporter of energy efficiency technology and know-how.*

Resource Efficient Wales is a Welsh Government service providing a single point of contact for information on resource efficiency. The service's website includes a list of **Welsh Government programmes** relating to resource efficiency.

Planning

The devolution of powers for consenting electricity generating projects is complex and will change once the relevant provision of the *Wales Act 2017* come into force.

Under the current devolution settlement, the consenting of onshore projects with a generating capacity of up to 50 megawatts (MW) is devolved. Projects over 50 MW are decided by the UK Secretary of State via the Nationally Significant Infrastructure Projects (NSIP) regime under the ***Planning Act 2008***. Onshore wind projects are the exception to this arrangement – the consenting of all onshore wind projects, whether they are below or above 50 MW, is devolved.

The ***Planning (Wales) Act 2015*** introduced a new category of planning permission for Developments of National Significance (DNS). DNS include electricity-generating projects (other than wind) of between 10 and 50 MW and wind projects above 10 MW, and are decided by the Welsh Ministers. Projects under 10 MW are decided by local planning authorities.

The situation in the marine environment is different to that on land. Projects up to 1 MW in the inshore region (from the coast out to 12 nautical miles) are devolved, and are decided by the Welsh Ministers. Projects above this threshold in the inshore region and all projects in the offshore region (beyond 12 nautical miles), are not devolved and are therefore decided by the Secretary of State for Business, Energy and Industrial Strategy.

The *Wales Act 2017* devolves greater consenting powers to Wales. The relevant provisions of the Act, which will come into force on a day appointed by the Secretary of State by regulations, will increase the upper limit of devolved decision-making to 350 MW for both onshore projects (other than wind) and also for marine projects in the Welsh inshore region. As is currently the case, marine energy projects will still require consents such as a marine licence from the Welsh Ministers.

It is likely that the Welsh Government will extend the criteria for DNS to include these larger projects (≤ 350 MW), meaning that consenting decisions will be made by the Welsh Ministers. Projects above 350 MW will remain subject to the NSIP regime and will be decided by the Secretary of State, as will projects in the Welsh offshore region. These changes will not alter the situation for onshore wind.

Low carbon transport

Certain aspects of transport policy are devolved to Wales. Generally, reserved aspects are those where it is important to retain consistency across the UK, including commitment to international obligations, technical standards, and Vehicle Excise Duty.

The **Low Carbon Vehicle expert steering group** was established in 2013 to explore the economic opportunities that Low Carbon Vehicles (LCVs) might bring to Wales, as well as social and environmental benefits. The group's report contained a number of recommendations for the Welsh Government around the installation of LCV infrastructure and engaging with, and supporting, research into LCV technologies.

In July 2016, the Cabinet Secretary for Environment and Rural Affairs approved **£9,200 of funding** to support a hydrogen vehicle demonstrator project.

Committee work on low carbon energy

During the Fourth Assembly, the Environment and Sustainability Committee conducted an inquiry into **A Smarter Energy Future for Wales**. The inquiry examined how Wales can achieve a smarter energy future at a sufficient pace to achieve the necessary reductions in emissions. Topics included low carbon energy supply, energy demand management and energy storage. Key recommendations from the Committee's report include that:

- the Welsh Government must demonstrate leadership, and policy should direct Wales towards meeting its domestic energy needs from renewable sources;
- conserving energy, reducing demand and building regulations should be fundamental to change;
- Wales should exploit opportunities to design innovative smarter places that integrate transport, energy and communications infrastructure, improve well-being and reduce carbon emissions;
- retrofitting energy efficiency measures into existing housing stock has a crucial part to play, and Welsh Government schemes such as **Nest** and **Arbed** will be key to improvements;
- A not-for-profit Energy Supply Company for Wales should be established; and
- Planning policy and decision-making should be aligned with any vision for future energy policy. National and local planning policy need to encourage reductions in carbon emissions.

During the Fifth Assembly, the Climate Change, Environment and Rural Affairs Committee has examined aspects of low carbon energy. This includes sessions on **air quality**, and **energy policy**, specifically energy storage and heat from hydrogen. It has also established an **expert reference group** to advise its work on climate change.