



## Partner region profile – Wales

Energy Transition Platform | May 2016

### Socio-economic facts



Wales, United Kingdom

**Population:** 3,082,412 (2013) | **Area:** 20,779 km<sup>2</sup>

**Landscape:** mountainous, three national parks and 2,700 km of coastline

**GVA (gross value added):** US\$79 billion (2014) | **GVA/capita:** US\$25,550

**Economic sectors:** 66% services | 32% industry: metal and oil refining, metal manufacturing, automobile components | 1.5% agriculture

**Jurisdictional power:** decentralized

**Key department:** Department of Natural Resources

At the beginning of the 20<sup>th</sup> century, the economy of Wales was dominated by heavy and energy-intensive industries with coal mining and steel manufacturing in the south, slate mining in the north and a strong shipping industry (122 shipping companies once existed in Cardiff alone)<sup>1</sup>. The first coal mines started to close in the 1980s, with the last black coal mine being shut down in 2008<sup>2</sup>.

This industry trend created large areas of economic deprivation leading to migration to cities, such as Cardiff or Swansea, now concentrating most of the working population<sup>3</sup>. The coal industry employed 271,000 people in the 1920s.

Today, 80% of the working population is employed by the service sector, mainly in public administration, healthcare and education<sup>4</sup>.

<sup>1</sup> <http://www.bbc.co.uk/wales/livinginwales/sites/aboutwales/pages/economy.shtml>

<sup>2</sup> <http://www.walesonline.co.uk/business/business-news/timeline-welsh-economy-industrial-revolution-9482596>

<sup>3</sup> Ibid bbc

<sup>4</sup> <http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/rel/census/2011-census-analysis/170-years-of-industry/170-years-of-industrial-changeponent.html>



Industry in the region is now dominated by light manufacturing, such as electronics and aerospace – with an Airbus production site located in North Wales.

### Energy system and energy policy

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Wales has already adopted policies to develop a low carbon energy system and society. Thanks to significant wind and solar resources, and potential wave and tidal energy, the total installed capacity of low carbon energy in Wales has grown by over 70% since 2012. Taking into account hydropower as well as nuclear power, electricity generation potential from low carbon sources is equivalent to 57% of Wales' electricity consumption<sup>5</sup>.

However, Wales does not retain full power over energy policies, and the UK Government remains responsible for major infrastructure projects, such as offshore renewables.

<b>Energy resources (in ground &amp; production)</b>	Gas 50%; brown coal 20% (opencast operation); nuclear 19%; oil 6%; renewables 4%
<b>Energy mix: consumption by sources and sectors</b>	Sources: petroleum (42%); gas (27%); electricity (17%) Sectors: industry and commercial (48%); residential (28%); transport (24%)
<b>Renewable energy consumption</b>	15% of electricity supply Wind power (64%); bioenergy (14%); hydro power (9%)
<b>Imports/exports</b>	Net exporter of electricity (10% of electricity generated) Exports worth US\$5.8 billion
<b>Energy market structure (privatized/monopolized)</b>	Liberalization of electricity market since 1989; market open to private ownership and competition

### Environment Act 2016

The Act was approved by the Welsh National Assembly in February 2016, positioning Wales as a low carbon economy and transposing international, EU and UK climate commitments into law.

In addition to focusing on the sustainable management of natural resources, the Act commits the region to reduce its greenhouse gas (GHG) emissions by at least 80% by 2050 (from 1990 levels). The Act also includes carbon budgeting to support this target.

While the Act sets out biodiversity targets as well as waste management processes, the ambitious GHG emissions target implies that progress needs to happen quickly, and that a sound and robust energy transition will be crucial in order to reach that goal.

### Energy Wales: A Low Carbon Transition 2012

The current energy strategy for Wales reflects the need for a transitional approach to achieving its ambitions and the fact that the majority of the policy levers for delivering a new low carbon energy landscape lie with policy makers outside of Wales.

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<sup>5</sup> <http://gov.wales/docs/desh/publications/151120-updated-study-of-low-carbon-energy-en.pdf>



Energy Wales therefore seeks to remove barriers to the transition and focus effort in areas where Wales is most likely to derive significant benefit. The strategy sets out the priorities of:

- leadership: improving and streamlining regulatory regimes and coordinating government delivery
- maximizing the benefit for Wales: ensuring economic benefits for all communities
- innovation: unlocking energy from the and developing ‘Smart Living’

## Energy transition experience

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With the newly adopted bold emissions reduction targets, Wales is accelerating the energy transition and is on the way to reducing its dependency on fossil fuels.

Coal is currently the largest source for electricity generation (44% of electricity generated in 2011), although the amount of electricity from renewables increased to 15% last year.

Wind energy represents two thirds of the installed capacity of renewable sources, with large offshore and onshore wind farms. Hydropower comes second, although the increase in the generation of renewable energy between 2003 and 2011 can largely be attributed to the development of wind energy<sup>6</sup>.

The region recognizes that, alongside the reduction in GHG emissions, the energy transition offers significant opportunities. Reduced energy demand and decentralized small-scale renewable power generation can lower consumers’ electricity bills and increase energy security for the whole region<sup>7</sup>. The surge of innovative technologies as well as new energy infrastructures also creates highly qualified jobs and green growth.

But the Welsh Government is also facing opposition from civil society to the large scale installations of wind turbines and solar panels and aims to address this through increased consultation and communication around the energy transition. Carbon intensive industries are also encouraged to take part in the transition, through low carbon strategic planning and investments.

With a strong network of research institutions, universities and energy industries, coupled with abundant and untapped resources of wind and marine power as well as ports that facilitate their distribution<sup>8</sup>, there is significant potential for Wales to further accelerate its energy transition.

## Climate policy and instruments

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With a Climate Change Strategy adopted in 2010 and a new environment bill this year, Wales is raising its ambition to cut GHG emissions. Having already achieved a 12% reduction in GHGs, a further 28%<sup>9</sup> will be required to keep on track with the 2020 target (40% reduction below 1990 levels).

### Climate targets:

Reduce GHG emissions by 40% by 2020; 80% by 2050 (1990 levels)

Generate twice as much electricity from renewable sources by 2025 (compared to 2010)

### Climate plan:

[Environment Act 2016](#)

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<sup>6</sup> National Assembly for Wales, Research Paper: Renewable Energy in Wales: in figures (2013) <http://www.assembly.wales/>

<sup>7</sup> <http://www.assembly.wales/laid%20documents/cr-ld10610/cr-ld10610-e.pdf>

<sup>8</sup> <http://www.mng.org.uk/gh/resources/100315energystatementen.pdf>

<sup>9</sup> <https://assemblyinbrief.wordpress.com/2015/06/16/greenhouse-gas-emissions-in-wales-up-by-10/>



### Well-being of Future Generations Act 2015

This holistic legislation seeks to improve the overall well-being of Welsh citizens through a clear economic, social, environmental and cultural framework. It places a responsibility on all public bodies to implement sustainable development across the seven goals outlined in the Act.

One of them relates to the creation of an “innovative, productive and low carbon society which recognizes the limits of the global environment and therefore uses resources efficiently and proportionately”.

More importantly, this act puts the principle of sustainable development into law and is cross-departmental. All future legislation will have to be proofed on its sustainability.

### Climate Change Strategy for Wales 2010

The strategy is setting out actions to reduce GHG emissions but also to adapt to climate change such as reducing energy and resource consumption or encouraging behavior change towards low carbon lifestyles.

In addition to the 40% GHG reduction target by 2020, the strategy also aims at reducing emissions by 3% every year (against a baseline of average emissions between 2006 and 2010).

### Contact

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#### Sources:

Energy Wales: A Low Carbon Transition

<http://gov.wales/docs/desh/publications/120314energywalesen.pdf>

Renewable energy in Wales

<http://gov.wales/topics/environmentcountryside/energy/renewable/?lang=en>

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