ystadegau ar gyfer cymru statistics for wales

Statistical Bulletin
Bwletin Ystadegol

SB 19/2013 **27 February 2013**

Energy Generation and Consumption for Wales, 2011

This is an inaugural annual statistical report on energy generation and consumption in Wales. The bulletin presents an overview of current and historic energy production/generation and consumption. It also looks at the different sources used in energy generation, with particular focus on renewable energy sources used in Wales and the rest of the UK. The information presented within the bulletin is based on the statistics collated and published by the Department of Energy and Climate Change (DECC), which publishes a range of energy statistics on a regular basis (monthly, quarterly and annually).

These statistics allow the Welsh Government, energy producers and consumers to monitor trends, as well as providing an overall picture of energy production and consumption in recent years. The information is also used to monitor the effectiveness of current policy, particularly progress against the Programme for Government 2011 -2016 objectives and for future policy development

For the most part this bulletin looks at changes in energy generation and consumption between 2004 and 2011, however some information on consumption is only available for 2005 to 2010. For more information on the quality of the statistics and the definitions used please refer to the 'Key Quality Information' and 'Glossary' sections towards the end of the bulletin.

Key Results

- The total amount of electricity generated in Wales has continued to fall since 2008, decreasing by 15 per cent between 2010 and 2011. This downward trend in mainly due to the decline in electricity generated from gas.
- The total amount of electricity generated from renewable resources in Wales has been steadily increasing, rising by 33 per cent between 2010 and 2011, which is mainly due to the increase in wind generation.
- The percentage of electricity generated in Wales from renewable sources has also continued to increase since 2004, reaching a peak of 7.9 per cent in 2011. This is higher than the percentage generated from renewable sources in England but slightly lower than that of the UK average (9.4 per cent).
- Total energy consumption has been falling since 2005, though more so since 2007 which coincides with the economic downturn. It would appear that the industry and commercial sector accounts for a large proportion of this decline.

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Llywodraeth Cymru
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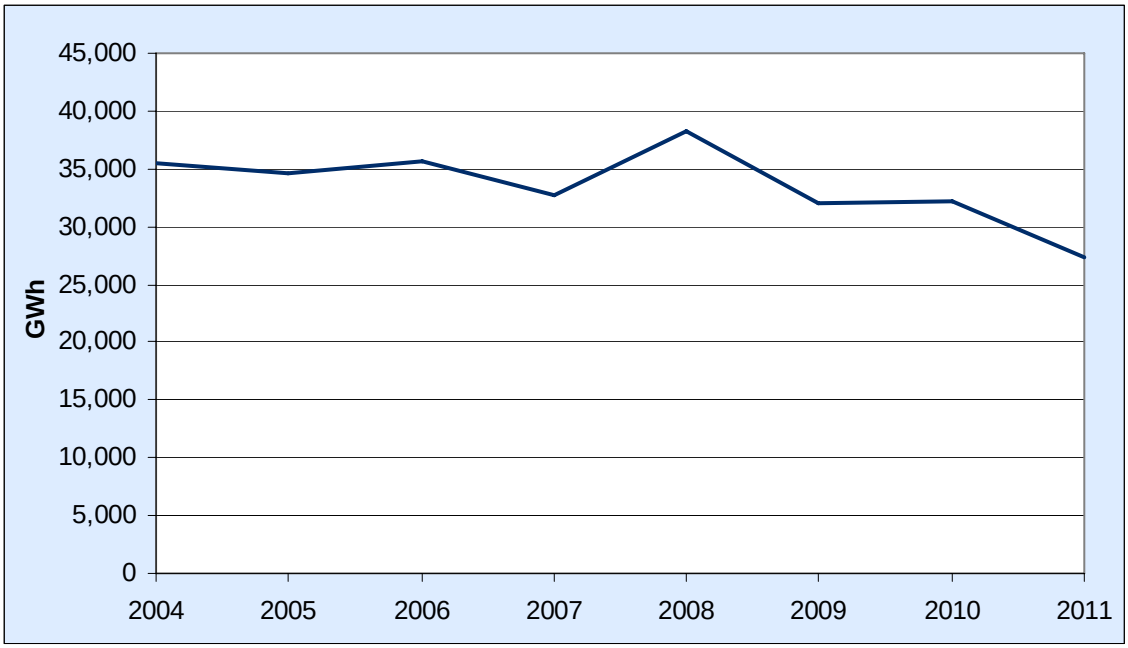
1. Electricity generation

Energy can be generated from various sources of natural fuel, such as gas, coal and oil. However energy generation usually refers specifically to electricity generation, which is the process of generating electric power from sources of energy. This section looks at the amount of electricity generated in Wales on an annual basis and how this has changed over time. It also looks at the different types of fuels that have been used to generate the electricity and the amount that is exported from Wales. The standard approach to measuring electricity generation on a national scale is in gigawatt hours (GWh), which is how the statistics in the section of this report are presented.

Prior to 2008 the amount of electricity generated in Wales remained relatively stable with around 35,000 GWh generated each year. However in recent years the amount of electricity generated in Wales has been falling, with 27,300 GWh generated in 2011. It is noticeable that this change in trend occurred during a time when the country was in an economic downturn.

Across the UK as a whole and amongst the devolved administrations electricity generation has also been generally falling in recent years, with the exception of Scotland. This may be due to reduced demand, possibly as a result of the economic climate, introduction of energy efficiency measures or milder winters. A more detailed look at energy consumption, later in this report, shows there has been a considerable decrease in consumption (11 per cent in Wales between 2005 and 2010). During 2011 the electricity generated in Wales accounted for just over 7 per cent of all the electricity generated in the UK.

Chart 1 – Total electricity generated in Wales



Source: Department of Energy & Climate Change (DECC)

It would appear that the fall in electricity generation is primarily due to the decline in generation from gas. Gas is the main fuel used to generate electricity in Wales, and in recent years the amount of electricity generated from gas has been falling. This is most noticeable between 2010 and 2011 when the amount of electricity generated from gas fell by 33 per cent (5,400 GWh) as shown in Table 1. This may be as a result of increased gas prices, making it less economical to generate electricity from gas and leading to a slight increase (4 per cent) in coal used for generation.

Table 1– Generation of electricity by fuel in Wales

Gigaw att hours

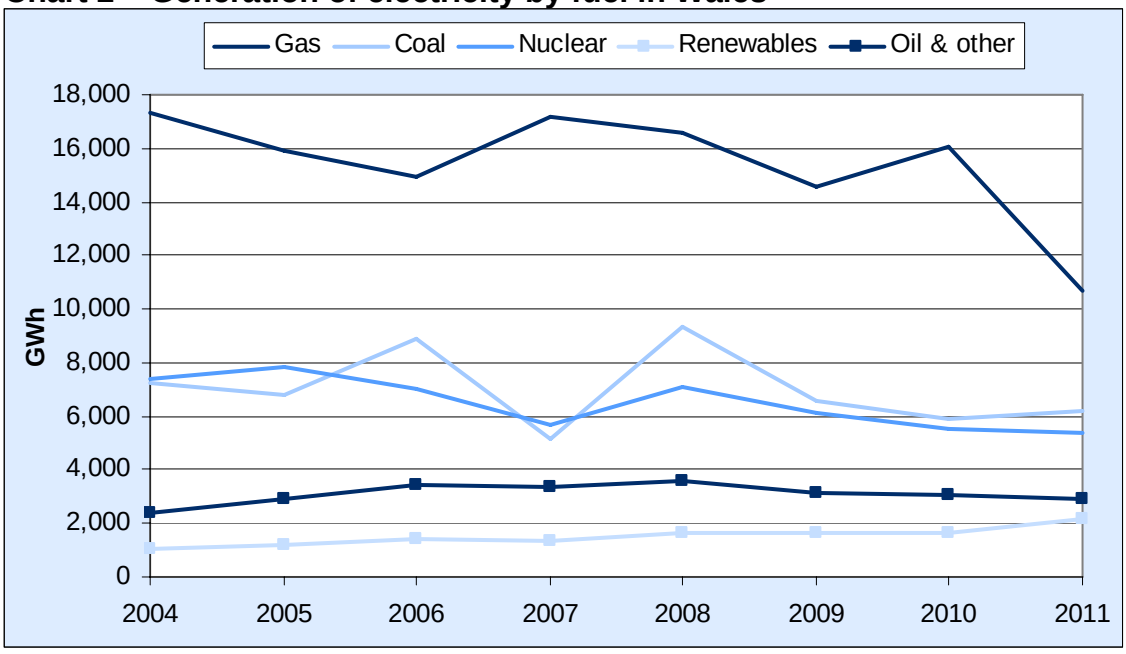
	2004	2005	2006	2007	2008	2009	2010	2011
Gas	17,363	15,926	14,940	17,182	16,546	14,580	16,033	10,670
Coal	7,234	6,772	8,859	5,121	9,364	6,547	5,929	6,170
Nuclear	7,388	7,842	7,010	5,684	7,080	6,122	5,532	5,364
Renewables	1,029	1,196	1,404	1,371	1,627	1,609	1,621	2,159
Oil & other	2,408	2,917	3,424	3,330	3,589	3,130	3,056	2,921
Total	**35,422**	**34,653**	**35,636**	**32,688**	**38,205**	**31,988**	**32,170**	**27,284**

Source: Department of Energy & Climate Change (DECC)

Chart 2 below shows that electricity generated from coal fluctuated considerably between 2005 and 2008. This will largely be due to the shutdown and re-opening of the coal-fired Aberthaw Power Station during this period. Since 2008 it is noticeable there has been a general fall in the amount of electricity generated from both coal and nuclear, when the country was experiencing an economic downturn. However the downward trends for both these fuel types have leveled off more recently.

Conversely, the amount of electricity generated by renewable sources has steadily been increasing and 2,200 GWh was generated in 2011, which is more than double that in 2004 (1,000 GWh).

Chart 2 – Generation of electricity by fuel in Wales



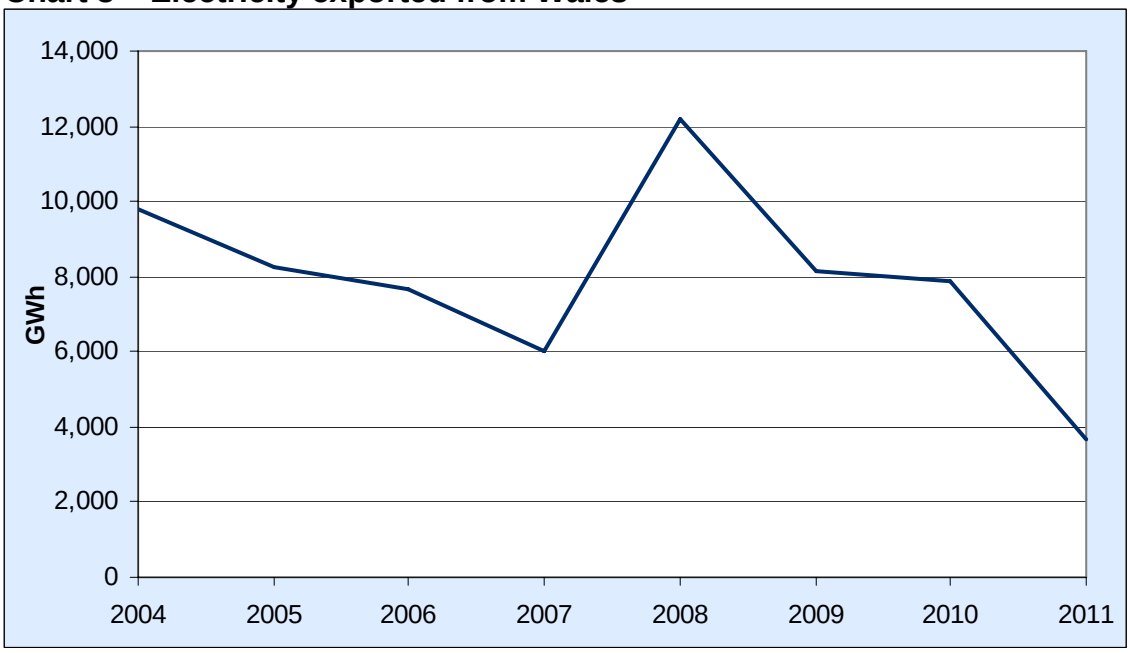
Source: Department of Energy & Climate Change (DECC)

Wales is a net exporter of the electricity it generates, which differs to England which imports electricity from Wales, Scotland and from continental Europe. This means that Wales exports electricity generated here to consumers elsewhere in Great Britain (GB). This is because Wales generally has more generation capacity than it requires whilst England generally has less.

Generally the amount of electricity exported from Wales (Chart 3) follows the same trend as the amount of electricity generated in Wales (Chart 1), with both the amount of electricity exported and generated falling since peaking in 2008. Between 2010 and 2011 exported electricity fell by 54 per cent to a record low of 3,700 GWh. During 2011, the amount of electricity exported from Wales was equivalent to 13 per cent of total electricity generated in Wales. Previously exports have accounted for between 18 and 30 per cent of all electricity generated in a given year.

Obviously the reduction in the amount of electricity generated in Wales will affect the amount of electricity exported from Wales. Furthermore the amount of electricity consumed within Wales will also have an impact, and whilst electricity consumption has also fallen over the last year, it has fallen at a slower rate than generation.

Chart 3 – Electricity exported from Wales



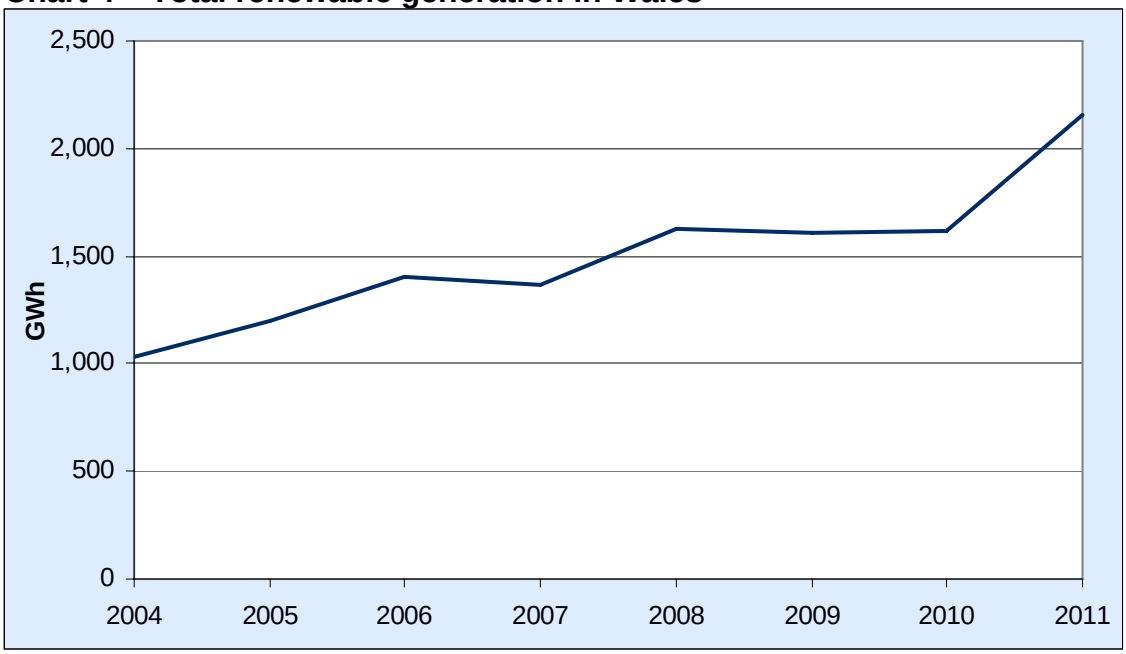
Source: Department of Energy & Climate Change (DECC)

2. Electricity generated from renewable sources

With the need to ensure sustainability and to reduce emissions there is a growing need to generate electricity from renewable sources. This is emphasised by the UK's target of achieving 15 per cent of its energy from renewable sources by 2020.

As across the rest of the UK, the amount of electricity generated from renewable sources in Wales has been steadily increasing. Since 2004 generation from renewable sources has more than doubled. The largest increase was seen over the last year (33 per cent) when renewable generation reached a peak of 2,200 GWh in 2011.

Chart 4 – Total renewable generation in Wales



Source: Department of Energy & Climate Change (DECC)

As can be seen in Chart 5 below it would appear that wind, wave and solar generation are the main sources of renewable electricity generation in Wales. However as shown in Table 2, this is primarily due to the increase in wind generation as currently Wales does not generate any electricity from waves, and solar generation contributes to less than 1 per cent of the total figures.

Therefore, the vast majority of additional renewable electricity generated over the last year is due to the increase in wind generation. One reason for this increase may be the number of sites generating electricity from wind rising from 157 in 2010 to 209 in 2011 in Wales. Furthermore information from the Meteorological Office shows that the average windspeed for the UK as a whole also increased in 2011 which may also affect wind generation.

Table 2– Renewable generation by source

Gigaw att hours

	2004	2005	2006	2007	2008	2009	2010	2011
Hydro	287	246	275	284	334	266	213	268
Wind & wave (a)(b)	551	715	867	864	989	905	999	1,439
Solar	..	..	..	..	..	..	1	9
Other (c)	192	235	262	223	303	438	408	443
Total	**1,029**	**1,196**	**1,404**	**1,371**	**1,627**	**1,609**	**1,621**	**2,159**

Source: Department of Energy & Climate Change (DECC)

(a) Wind Offshore is allocated to regions/countries according to where the cabling comes ashore.

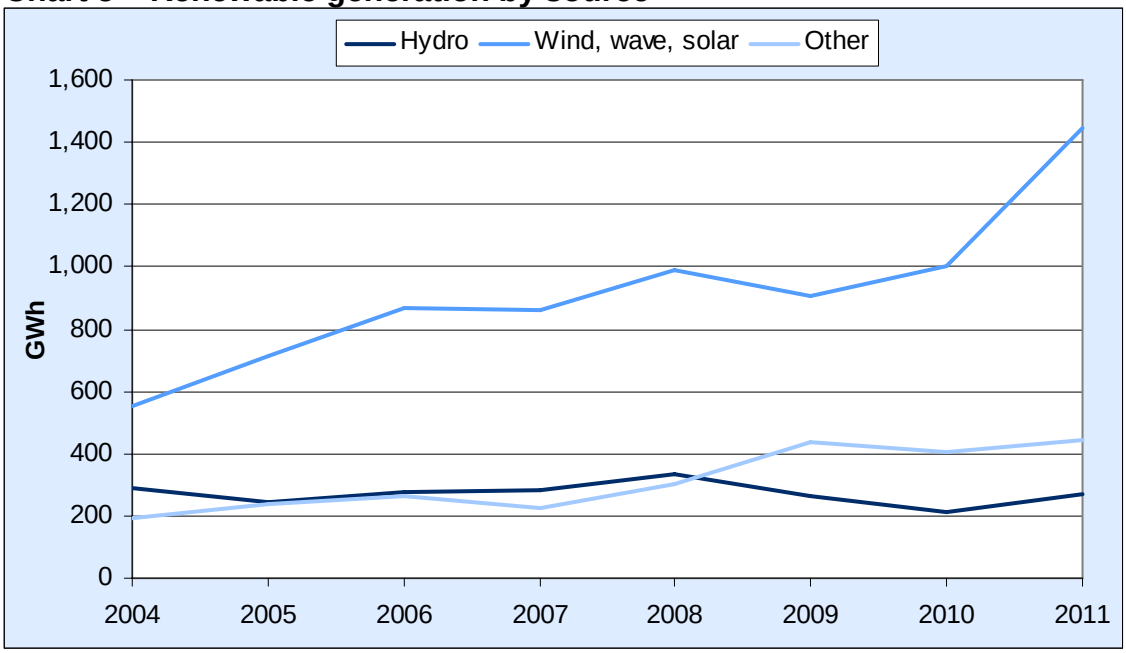
(b) Wales generates no electricity from waves at present.

(c) Other consists of landfill gas, sewage gas and other bio-energy renewable sources.

Whilst solar generation still accounts for less than 1 per cent of renewable electricity generation it has increased between 2010 and 2011. It would appear the rise in generation from solar energy is largely due to increased capacity, which may be influenced by government-led schemes such as subsidised feed-in tariff rates and reducing technology costs. Additionally, the increase in generation may also be affected by improvements in technology in this sector.

There has been a subtle fluctuation in the generation of electricity from hydro in Wales since 2004, with a noticeable peak in 2008 and a low in 2010. This fluctuation in hydro is very much dependent on precipitation as the volume of rainfall determines to a large degree how close to capacity the hydro systems can work. Therefore it is unsurprising that the increase in hydro generation between 2010 and 2011 coincides with an increase in the average rainfall for the UK as a whole.

Chart 5 – Renewable generation by source

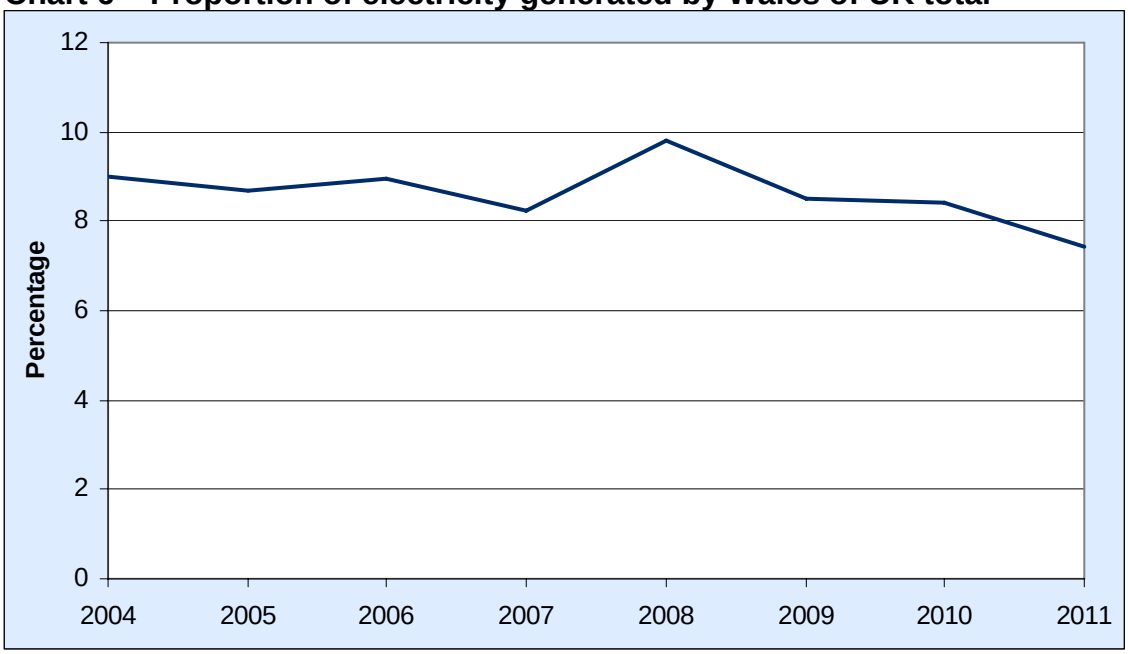


Source: Department of Energy & Climate Change (DECC)

3. Electricity generation within the UK

Due to the fall in electricity generation in Wales, the proportion of the UK's electricity generated in Wales has also declined since 2008. Over the last year, Wales' contribution fell from 8.4 per cent of the total electricity generated in the UK in 2010 to 7.4 per cent in 2011. In comparison the rest of the UK's contributions have remained relatively unchanged since 2004 with the exception of Scotland which has seen a slight increase.

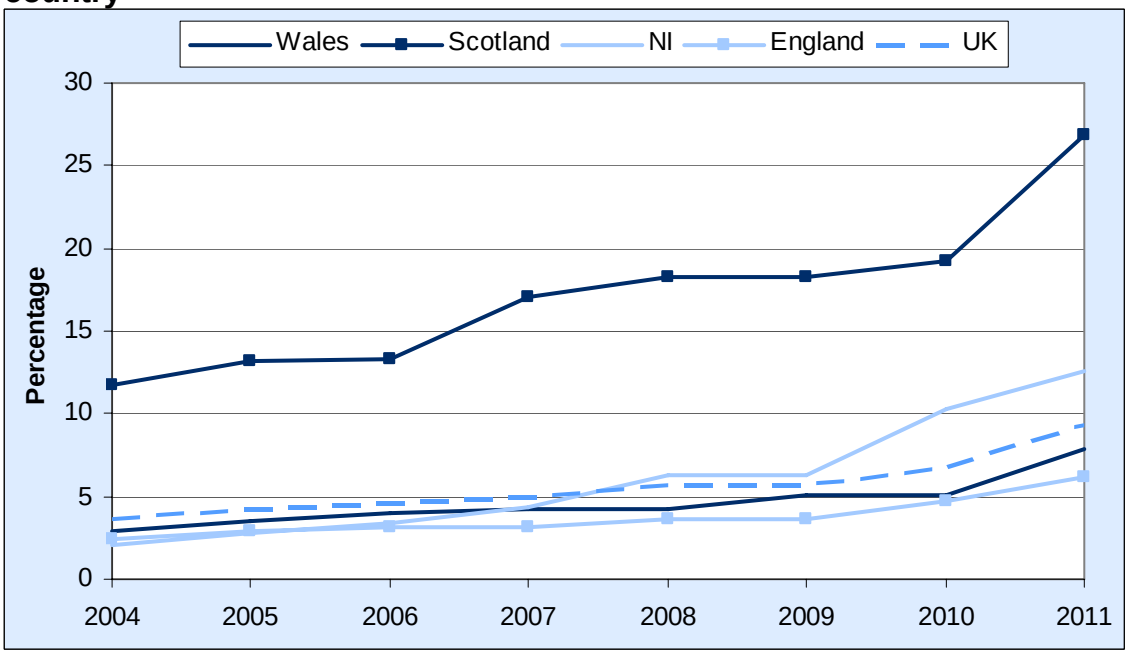
Chart 6 – Proportion of electricity generated by Wales of UK total



Source: Department of Energy & Climate Change (DECC)

Across the UK the amount and the proportion of electricity generated from renewable sources has been steadily increasing with this trend most notable in Scotland.

Chart 7 – Percentage of electricity generated from renewable sources by country



Source: Department of Energy & Climate Change (DECC)

As with the rest of the UK, the percentage of electricity generated from renewable sources in Wales has continued to increase since 2004. Between 2010 and 2011 the percentage rose from 5.0 per cent to 7.9 per cent, which is the largest percentage point change for Wales since 2004. As Table 3 shows, this is higher than that of England but remains lower than the percentages for Scotland and Northern Ireland.

Table 3 – Renewable generation as a proportion of country specific total generation

Percentage

	2004	2005	2006	2007	2008	2009	2010	2011
Wales	2.9	3.5	3.9	4.2	4.3	5.0	5.0	7.9
Scotland	11.7	13.2	13.3	17.1	18.2	18.2	19.2	26.8
Northern Ireland	2.1	2.8	3.4	4.4	6.3	6.3	10.2	12.6
England	2.4	2.9	3.1	3.2	3.6	3.6	4.7	6.2
UK	**3.6**	**4.3**	**4.6**	**5.0**	**5.6**	**5.6**	**6.8**	**9.4**

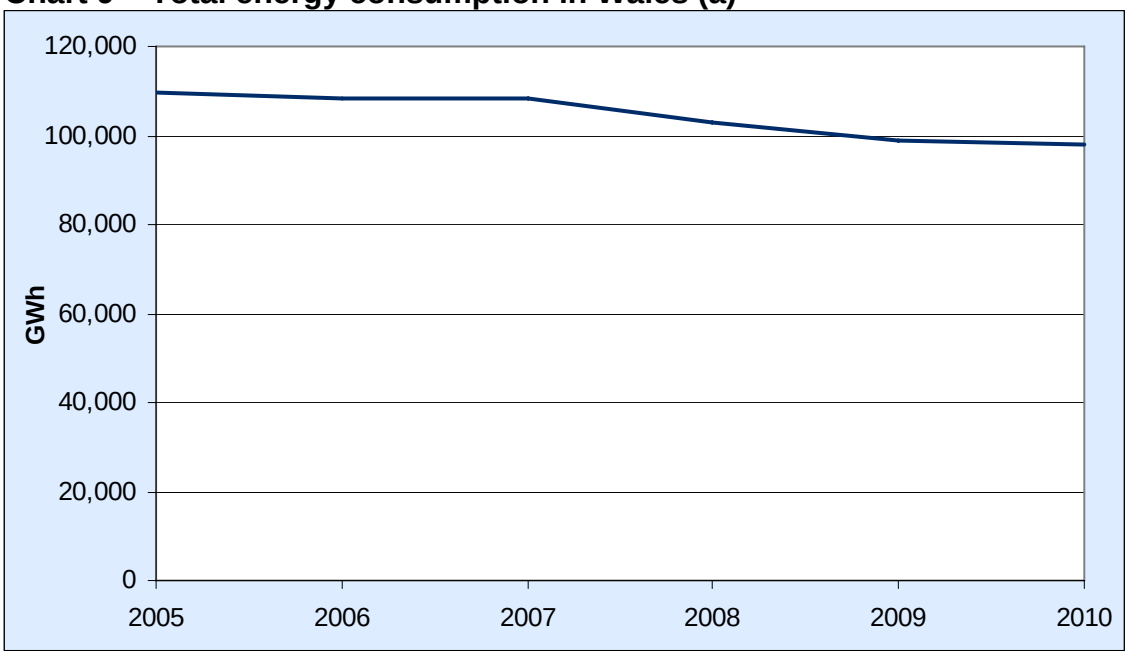
Source: Department of Energy & Climate Change (DECC)

4. Energy Consumption

This section provides an overview of total energy consumption in Wales, broken down by fuel types and the domestic, industry and commercial and transport sectors. Consumption data for gas and electricity are obtained from meter readings, and data collected for these and other fuel types, such as petroleum, are converted into gigawatt hours (GWh) to allow for comparison.

It should be noted that consumption levels are affected by weather conditions, as for example a colder year will generally result in higher consumption levels for heating. The statistics for gas consumption are temperature adjusted to account for this and allow for fairer year-on-year comparison, however temperature adjusted statistics for other fuels are not currently available.

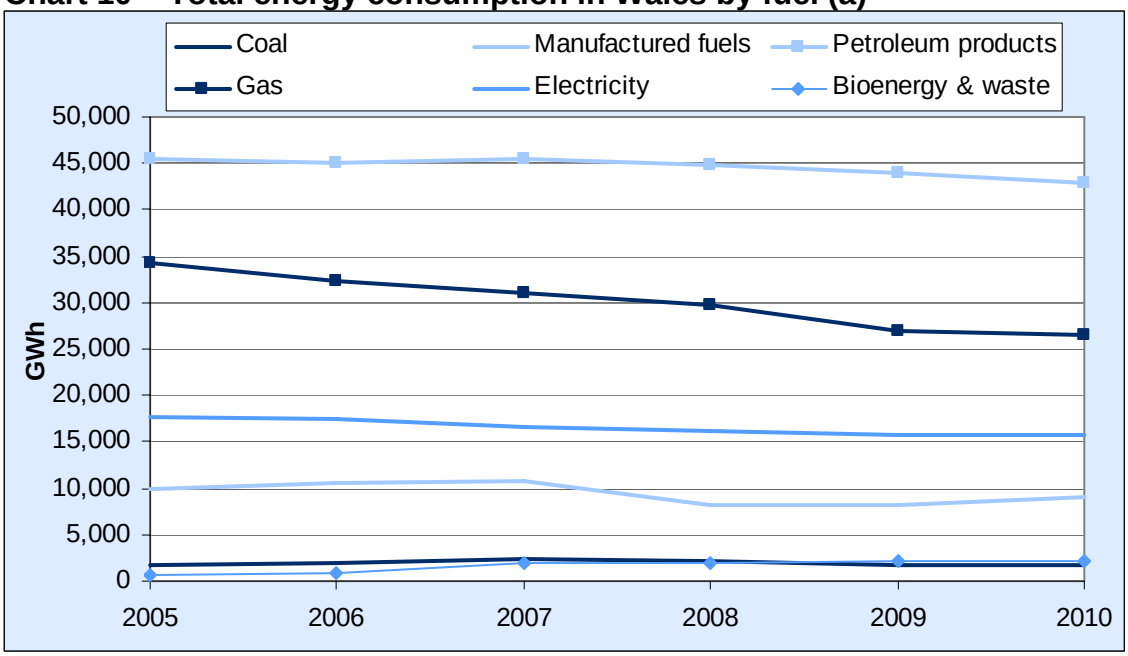
Chart 9 – Total energy consumption in Wales (a)



Source: Department of Energy & Climate Change (DECC)
(a) Total energy consumption figures currently only available up to 2010.

Total energy consumption has been falling since 2005, however it can be seen from Chart 9 that the decline has been sharper from 2007 onwards. As a result overall energy consumption fell to a low of 97,900 GWh in 2010. This downward trend may be affected by the economic downturn. It is also possible that improved energy efficiency measures may have had some impact in more recent years, although it is not possible to separately identify the impact of these factors.

Chart 10 – Total energy consumption in Wales by fuel (a)



Source: Department of Energy & Climate Change (DECC)
(a) All fuels apart from gas and electricity are for the calendar year. Figures for gas are from 1st October of the year previous to the labelled year to 30th September of the labelled year, and for electricity the end of January of the labelled year to the end of January of the next year (the beginning/end year date varies slightly annually) For example, the year labelled as 2010 is gas data from 1st October 2009 to 30th September 2010 and electricity data is from the end of January 2010 to the end of January 2011.

Petroleum is the most consumed fuel type in Wales followed by gas and electricity. Over half of petroleum (54 per cent) is consumed in the transport sector and a large proportion (38 per cent) is also consumed in the industry and commercial sector. An example of petroleum consumption in the industry and commercial sector is the use of off road machinery in agriculture.

With the exception of bioenergy and waste, the consumption of all fuel types has generally decreased since 2005 as shown in Table 4. As mentioned, this overall drop may in part be due to the economic downturn. Of the different fuel types, the largest fall has been seen in the consumption of gas, which has fallen by nearly a quarter over the period to 26,500 GWh in 2010. The rising market price of gas relative to other fuels is likely to be a key driver behind this drop. During this time period there has also been a move to encouraging the use of renewable fuels. This may also have contributed to the substantial increase in the consumption of bioenergy and waste, although consumption of these fuel types still only makes up a small proportion of total energy consumption.

Table 4 – Total energy consumption in Wales by fuel

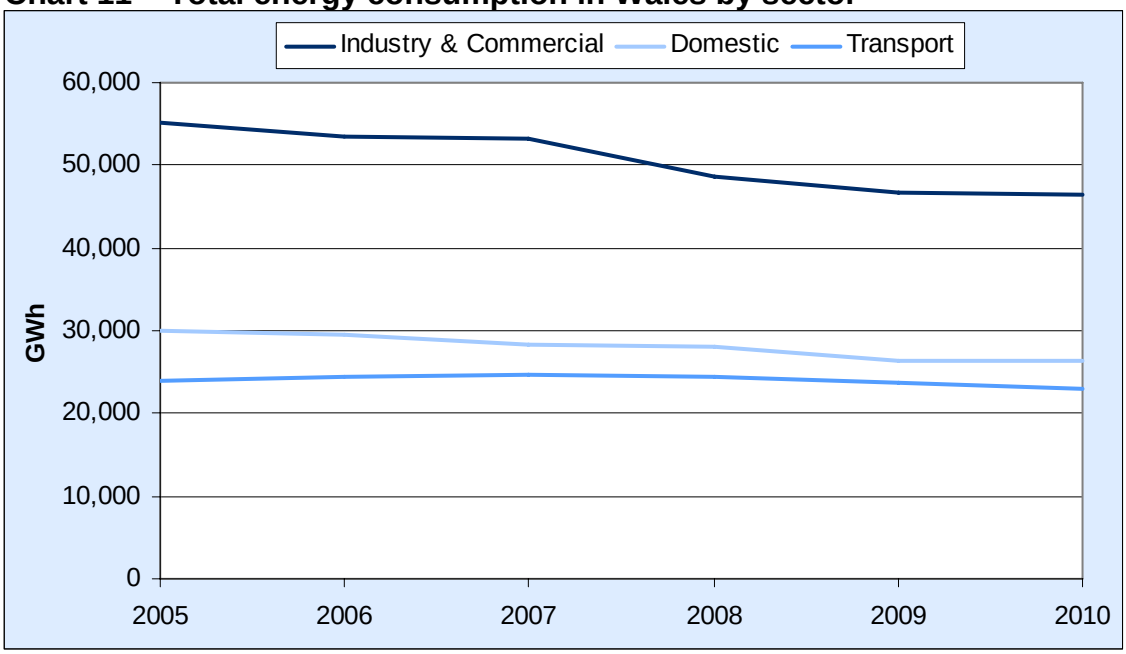
Gigaw att hours

	2005	2006	2007	2008	2009	2010
Coal	1,793	1,946	2,331	2,195	1,724	1,711
Manufactured fuels	9,914	10,666	10,802	8,205	8,261	8,963
Petroleum products	45,435	45,044	45,449	44,731	43,920	42,827
Gas	34,311	32,401	30,938	29,684	26,989	26,469
Electricity	17,567	17,394	16,633	16,267	15,720	15,818
Bioenergy & waste	604	863	1,948	1,951	2,055	2,066
Total	**109,625**	**108,315**	**108,101**	**103,034**	**98,670**	**97,854**

Source: Department of Energy & Climate Change (DECC)

Chart 11 below shows that the industry and commercial sector accounts for nearly half of all energy consumption (47 per cent in 2010) and that energy consumption has been declining across all sectors (i.e. industry & commercial, domestic and transport sectors) since 2005. It can be seen that the largest part of the decline in the industry and commercial sector has been since 2007, which coincides with the economic downturn. Consumption in the domestic and transport sectors are also likely to be affected by the economic downturn though to a lesser degree. Weather related events may also be responsible for the fall in consumption in the transport sector.

Chart 11 – Total energy consumption in Wales by sector



Source: Department of Energy & Climate Change (DECC)

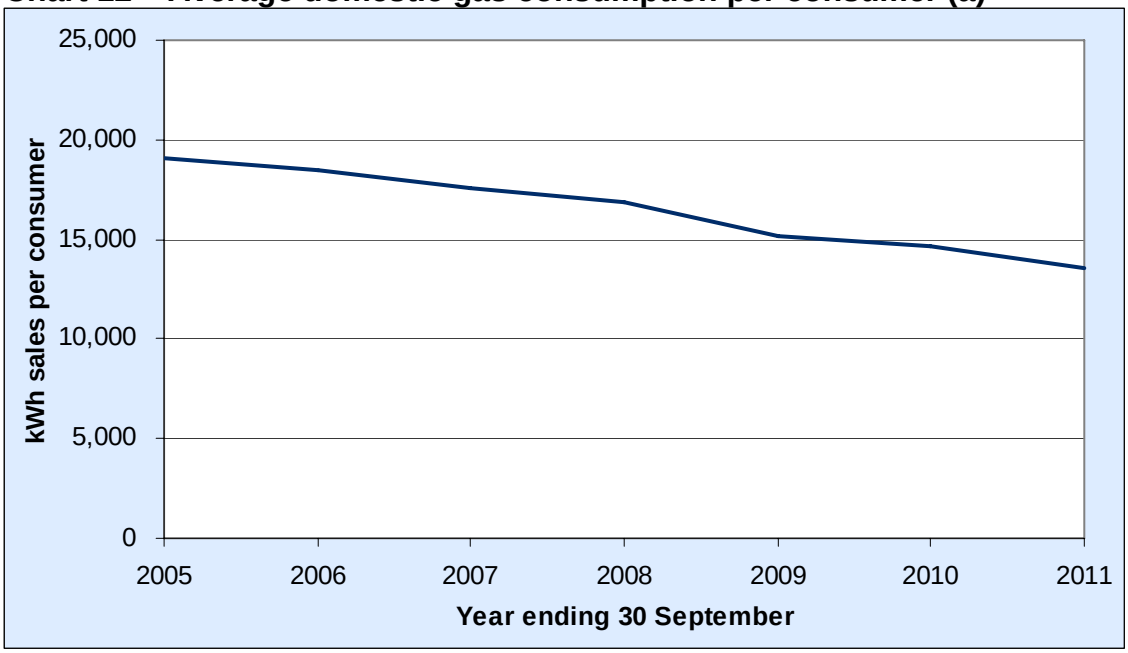
Domestic energy consumption

This section provides an overview of the domestic consumption of gas and electricity in Wales. The consumption of gas and electricity can serve both similar and different domestic uses. For example gas can be used for heating and cooking appliances, whilst electricity can be used for this as well as lighting and electrical appliances such as television sets. The domestic consumption of gas is significantly higher than that of electricity.

Although total energy consumption statistics in the previous section are currently only available up to 2010, the gas and electricity domestic consumption statistics in this section are available and presented up to 2011. In addition data in this section are shown in kilowatt hours (kWh) to reflect that consumption will be lower on a per consumer scale.

As shown in Chart 12, the amount of gas used per consumer has been continually falling, reaching a low of 13,600 kWh sales per consumer in 2011. As previously mentioned this fall may be affected by both the economic downturn and improved energy efficiency measures either taken by individuals or various Government energy efficiency programmes and higher quality standards for housing.

Chart 12 – Average domestic gas consumption per consumer (a)

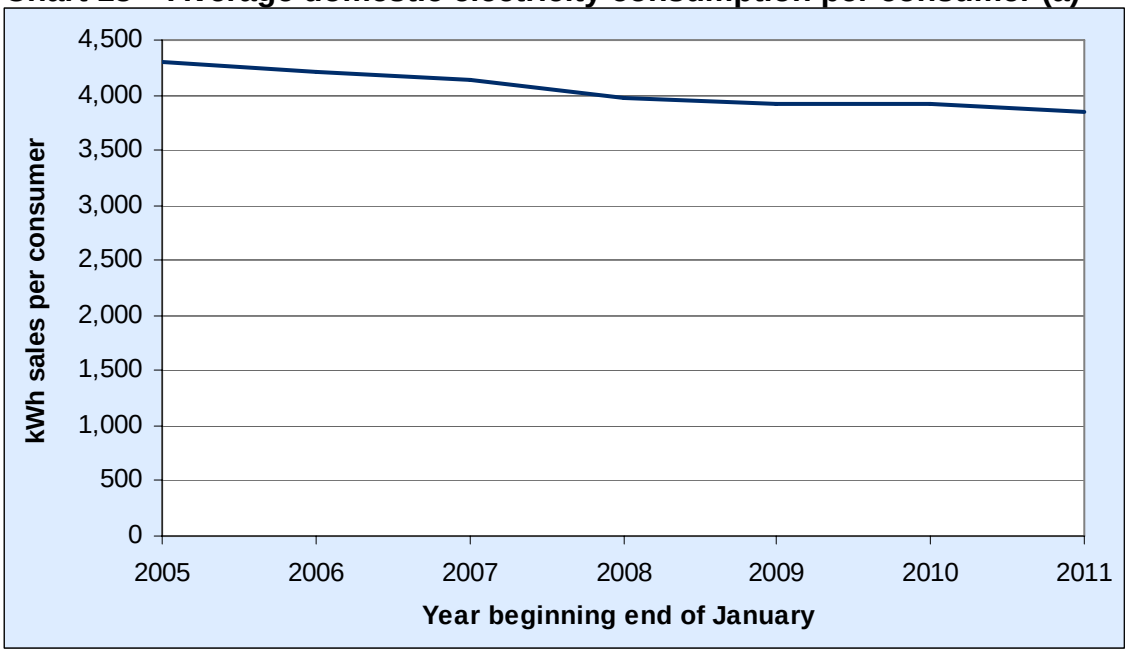


Source: Department of Energy & Climate Change (DECC)
(a) Figures for gas are from 1st October of the year previous to the labelled year to 30th September of the labelled year, For example, the year labelled as 2010 is gas data from 1st October 2009 to 30th September 2010.

It should be noted that a limitation of the gas consumption data is that it is not possible to accurately determine which consumers are domestic. It is assumed that all consumers using less than 73,200 kWh are domestic consumers. However, some small businesses may be classified as domestic if their consumption is low whilst some dwellings may be classified as non-domestic, such as flats, where there is a communal gas supply.

As can be seen in Chart 13 below, the amount of electricity used per consumer in Wales has also been steadily decreasing, though at a slower rate than gas consumption. Again the reasons for this downward trend may be similar to those for the fall in gas consumption.

Chart 13 – Average domestic electricity consumption per consumer (a)



Source: Department of Energy & Climate Change (DECC)
(a) Figures are from the end of January of the labelled year to the end of January of the next year (the beginning/end year date varies slightly annually). For example, the year labelled as 2010 is data from the end of January 2010 to the end of January 2011.

The 2008 Living in Wales property survey estimated that around a fifth of households in Wales used a main heating fuel other than mains gas. This is particularly prevalent in rural local authorities which have a much higher percentage of households with no gas connection. To take account of this issue the domestic consumption information is presented per consumer so that comparisons can be made between different local authorities.

Table 5 shows average domestic gas and electricity consumption per consumer for each local authority. In 2011, the valleys authority of Blaenau Gwent had the highest domestic gas consumption per consumer (15,200 kWh) but the lowest domestic electricity consumption per consumer (3,300 kWh). Conversely, Gwynedd experienced the lowest domestic gas consumption per consumer (12,100 kWh) but had one of the highest electricity consumption per consumer (4,600 kWh) figures.

Over the last year, domestic gas consumption per consumer fell across all local authorities. The largest percentage decrease was seen in Newport (9.2 per cent) followed by Denbighshire and Ceredigion (both 8.9 per cent).

All local authorities also saw a fall in domestic electricity consumption per consumer, with the exception of Bridgend which increased slightly (0.2 per cent). The largest fall was in Ceredigion (4.4 per cent) although it continued to have the highest average domestic electricity consumption per consumer (5,000 kWh) amongst all local authorities.

Table 5 – Local Authority average domestic gas and electricity consumption per consumer

Sales per consumer (kWh)

	Gas			Electricity		
	2010	2011	Percentage change (2010 to 2011)	2010	2011	Percentage change (2010 to 2011)
Isle of Anglesey	13,077	12,395	-5.2	4,864	4,769	-1.9
Gwynedd	13,023	12,092	-7.2	4,733	4,566	-3.5
Conwy	14,186	13,108	-7.6	4,039	3,950	-2.2
Denbighshire	14,345	13,068	-8.9	4,341	4,201	-3.2
Flintshire	14,590	13,361	-8.4	4,251	4,171	-1.9
Wrexham	14,156	12,966	-8.4	4,101	4,034	-1.6
Powys	14,381	13,147	-8.6	4,700	4,498	-4.3
Ceredigion	14,234	12,969	-8.9	5,233	5,004	-4.4
Pembrokeshire	13,764	12,646	-8.1	4,283	4,145	-3.2
Carmarthenshire	14,833	13,688	-7.7	3,963	3,883	-2.0
Swansea	14,785	13,776	-6.8	3,527	3,488	-1.1
Neath Port Talbot	14,958	13,883	-7.2	3,531	3,439	-2.6
Bridgend	14,846	13,928	-6.2	3,599	3,606	0.2
Vale of Glamorgan	14,823	13,747	-7.3	3,926	3,903	-0.6
Cardiff	14,211	13,222	-7.0	3,669	3,627	-1.2
Rhondda Cynon Taf	15,304	14,292	-6.6	3,422	3,410	-0.4
Merthyr Tydfil	16,055	15,047	-6.3	3,396	3,382	-0.4
Caerphilly	15,429	14,373	-6.8	3,509	3,501	-0.2
Blaenau Gwent	16,287	15,236	-6.5	3,322	3,320	-0.1
Torfaen	14,459	13,211	-8.6	3,507	3,474	-0.9
Monmouthshire	15,110	13,822	-8.5	4,292	4,177	-2.7
Newport	14,245	12,939	-9.2	3,657	3,607	-1.4
Wales	**14,674**	**13,590**	**-7.4**	**3,916**	**3,845**	**-1.8**

Source: Department of Energy & Climate Change (DECC)

Key Quality Information

1. Official Statistics are produced to high professional standards set out in the Code of Practice for Official Statistics. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political reference.

Users and Uses

2. Energy statistics are important for policy development and planning the delivery of public services. Some of the uses include:

   - Monitoring of progress towards renewable targets
   - Policy development
   - Advice to Ministers
   - Informing debate in the National Assembly for Wales and beyond
   - Geographic profiling, comparisons and benchmarking

   There is a variety of users of energy statistics including national and local government, energy suppliers, researchers, students and individual citizens

3. The Programme for Government 2011 -2016, which is the current government programme, outlines the Welsh Government's commitment to creating a sustainable, low-carbon economy as well as living within environmental limits and acting on climate change. As such there are both outcome and tracking indicators within the Programme for Government looking at the amount and percentage of electricity generated from renewable sources.

Electricity data

4. The electricity industry itself is a key user, including the National Grid and the electricity generators, distributors and suppliers.

5. Central and regional government, academics, consultants, policy groups, the media, overseas energy institutions, and the general public are all extensive users of the electricity data.

Renewables

6. The growing importance of renewables makes gathering such statistics an even more important activity than in the past. They provide a means of monitoring progress against the UK target of achieving 15% of energy from renewable sources by 2020, and give an indication of how Wales is helping the UK achieve this target.

Data Quality

7. The 2005 consumption data, which are classed as National Statistics should ideally be used as the baseline when making historical comparisons of the electricity and/or gas data. The 2005 data are significantly more robust than earlier year's data, reflecting the significant improvement in the quality of the postcode address file from Gemserv for the electricity data for that year. Data for 2006 to 2011 have been collected and adjusted on a similar basis to the 2005 data and this will continue to apply for future data.

8. In tables where figures have been rounded, the sum of the individual figures may not equal the total shown.

9. Figures referred to in the text have been rounded to the nearest hundred so may differ to those presented in the tables.

Data Source and Coverage

10. All data in this report was obtained from and is publicly available on the DECC website: https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics. However further detail on how DECC collect this information can be found below.

Electricity:

11. Each year, three main electricity surveys are carried out – one detailed survey of the major power producers (MPPs), one survey of the major suppliers, and one less detailed survey of electricity distributors. These are supplemented with additional data from the electricity autogenerators survey, the National Grid, Iron and Steel Statistics Bureau, AEA Technology, as well as internal analysis. The annual statistics are published one year in arrears (t-1), but revisions are typically carried out to the previous two years, t-2 and t-3, where revised data has been received. Further detail can be found on the DECC website: https://www.gov.uk/government/publications/electricity-statistics-data-sources-and-methodologies

Renewables:

12. RESTATS, the UK's Renewable Energy STATisticS database, is a project that has been running for more than 20 years and over this period has become the primary source of accurate, up-to-date statistics of UK renewable energy sources. These cover active solar heating, solar photovoltaics, onshore and offshore wind power, wave power, large- and small-scale hydro, biofuels (biomass and biowastes, including co-firing) and geothermal aquifers. Data are gathered on project details (where known), technology type, installed capacity, generation (electricity and/or heat), fuel-type and biofuels for transport.

13. Data on the performance of renewable energy schemes in the UK are collected from a number of sources and are used to update a database of renewables schemes (known as the "RESTATS Database"), maintained by AEA technology plc on behalf of DECC. The main sources and details on how the data is collected and collated can be found in the following document: https://www.gov.uk/government/publications/renewable-energy-statistics-data-sources-and-methodologies

Consumption:

14. In 2005 xoserve agreed with DECC to take on the responsibility for producing annualised gas consumption estimates for all MPRNs (meter point reference numbers or gas meters), subject to permissions being provided by the four major gas transporters in Great Britain- National Grid, Scotia, Wales and West Utilities and Northern Gas Networks. xoserve provide annualised estimates of consumption for all the MPRNs based on an Annual Quantity (AQ). An AQ is an estimate of an annualised consumption using consumption recorded between two meter readings at least six months apart. The estimate is then adjusted to reflect a 17 year weather correction factor. The AQ for each MPRN represents consumption relating to the gas year, the period covering 1 October through to the following 30 September, rather than the calendar year. The purpose of temperature correction is to help users better understand underlying trends in energy consumption, which can be affected by fluctuations in temperature. Then changes in the series from one year to the next are not due to changes in temperature.

15. The electricity consumption data are collected by obtaining the full co-operation of the electricity industry. Annualised consumption data are generated by the data aggregators, agents of the electricity suppliers, who collate/aggregate electricity consumption levels for each customer meter or MPAN (meter point administration number).

16. The DECC statistics do not cover all the gas and electricity consumption within the UK.

17. More details relating to collection, coverage and quality of regional consumption statistics can be found in the following document 'Guidance Note for Regional Energy Data': https://www.gov.uk/government/publications/regional-energy-data-guidance-note

18. Electricity generation statistics are available from 2004 as National Statistics, whereas energy consumption statistics are available from 2005 as National Statistics.

Calculations

19. Average domestic consumption per consumer is calculated by dividing total domestic consumption by the total number of meters, which does not equate exactly to the total number of dwellings in Wales as not all dwellings are on the grid. For example, the number of dwellings in 2011-12 was 1.38 million; and there were 1.37 million electricity meters and 1.10 million gas meters

Symbols

20. The following symbols may have been used in this release:
    . = not applicable
    .. = not available
    ~ = not yet available
    * = disclosive or not sufficiently robust for publication
    p = provisional
    r = revised

Comparability

21. The aggregate and average electricity consumption data are more reliable for the domestic sector than for the industrial/commercial sector as the postal address information held on the Gemserv postcode address file is more complete for the former i.e. domestic meters are more likely to have full and valid postcodes rather than incomplete, invalid or partial postcodes. However, more recently the quality of the industrial/commercial Gemserv data has improved at a faster rate than the domestic data, inevitably leading to more variability in the annual consumption estimates for the industrial/commercial sector.

Revisions

22. Where there are revisions, revised data will be marked with an (r).

23. We follow the Welsh Government's statistical revisions policy, details of which are available at: http://wales.gov.uk/topics/statistics/publications/revisions/?lang=en

Coherence with Other Statistics

24. The Programme for Government 2011 - 2016, which is the current government programme, outlines the Welsh Government commitment to 'Living within environmental limits and acting on climate change'. A number of indicators have been established to assist in measuring the progress made in achieving this commitment, including 'Percentage of electricity generated from renewable sources' and 'Amount of electricity produced that is generated from renewable sources'. The latest published data for this indicator covers 2010 and is published in the '2012 Progress Report: Welsh Home's available at the following link: http://wales.gov.uk/about/programmeforgov/homes/?view=Standard&lang=en

Related Statistics for Other UK Countries

25. More information on energy statistics for England, Scotland, Northern Ireland and the UK as a whole is available on the DECC website: https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics

26. More information on energy statistics for Scotland is available on the Scottish Government website: http://www.scotland.gov.uk/Topics/Statistics/Browse/Business/Energy

27. More information on energy statistics for Northern Ireland is available on the Department of Enterprise, Trade and Investment website: http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-energy-stats.htm

Glossary

Bioenergy
Is renewable energy made from material of recent biological origin derived from plant or animal matter, known as biomass.

Biomass
Are renewable organic materials, such as wood, agricultural crops or wastes, and municipal wastes. Biomass can be burned directly or processed into biofuels such as ethanol and methane

Consumption
This is the amount of energy consumed in Wales, and the rest of the UK

Generation
This is the process of generating energy from various sources of natural fuel, such as gas, coal and oil. It usually refers specifically to electricity generation, which is the process of generating electric power from sources of energy.

Gigawatt-hour (GWh)
Quantity of energy consumed or produced in one hour. 1 GWh = 1,000,000 kWh

Hydro
Electricity generated by hydropower; the production of electrical power through the use of the gravitational force of falling or flowing water.

Kilowatt-hour (kWh)
Quantity of energy consumed or produced in one hour. 1 kWh = 1000 watt hours (Wh)

Major Power Producers (MPPs)
Major Power Producers (MPPs) are those companies whose prime purpose is the generation of electricity.

Natural gas
Methane rich gas burned to drive turbines for electricity generation.

Nuclear
Electricity generated from the heat produced from the nuclear fission of uranium.

Other generators
The term 'other generators' refers to companies who produce electricity as part of their industrial or commercial activities but whose main business is not electricity generation. The majority of electricity produced by these schemes is consumed on the site but some producers also transfer electricity to the public supply system. A number of renewable electricity generators (for example small wind farms) are also included under the term 'other generators' due to their comparatively small size. Just under 10 per cent of the UK's electricity is generated by 'other generators'.

Renewable energy sources
Renewable energy includes solar power, wind, wave and tide, and hydroelectricity. Solid renewable energy sources consist of wood, straw, short rotation coppice, other biomass and the biodegradable fraction of wastes. Gaseous renewables consist of landfill gas and sewage gas.

Thermal renewables
This includes energy produced from landfill gas and other bioenergy, including bioenergy sources co-fired with fossil fuels.

Wind
Electricity produced from natural wind flows over turbines

Further information

Further information is available from the Energy Statistics theme pages of the web site:
http://wales.gov.uk/topics/statistics/theme/environment/energy/?lang=en

Department of Energy and Climate Change – Energy Statistics:
https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics

Energy Wales: A low Carbon Transition
http://wales.gov.uk/topics/environmentcountryside/energy/energywales/?lang=en

'Programme for Government 2011 -2016' - current government strategy:
http://wales.gov.uk/about/programmeforgov/?lang=en

Welsh Government - Energy efficiency
http://wales.gov.uk/topics/environmentcountryside/energy/efficiency/?lang=en

Meteorological Office
http://www.metoffice.gov.uk/weather/uk/

We actively encourage feedback from our users. If you have comments on any issues relating to this statistical bulletin please complete our feedback form
https://secure.wales.gov.uk/topics/statistics/contacts/?lang=en

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