

Climate change and clean energy: Is the UK ahead of the pack?

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EXECUTIVE SUMMARY

There is an oft-quoted belief in the UK that the nation is “doing more than its fair share” compared with the rest of the European Union in terms of combatting climate change and building a clean energy system. In this report, we ask whether this is really true.

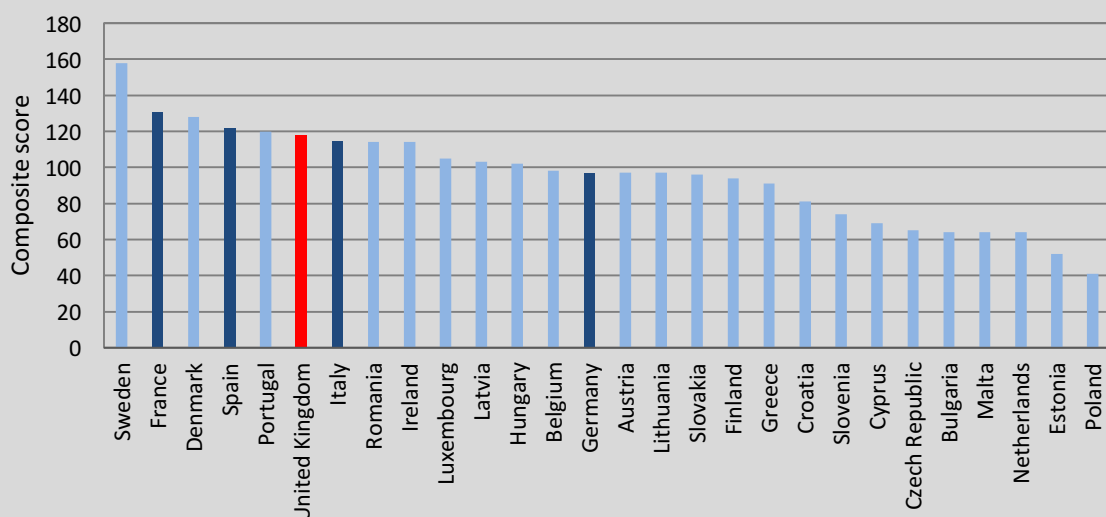
Usually, claims of UK leadership are based on single measures. But this can be a misleading approach, as either historical progress or the current rate of change can be skewed by factors that have little to do with energy and climate policy. Ultimately, a sustained, systematic policy shift over decades is needed if European nations are to achieve their long-term targets.

To give a more rounded picture, we assess progress on a basket of seven measures incorporating per-capita carbon emissions and emissions per unit of economic output, historical and current rates of emission reduction, and several measures of progress towards building a clean energy system. On this combined measure, **the UK is not ahead of the rest of Europe**. Within the entire EU, the UK ranks sixth, significantly behind the clear leader Sweden, and in a pack that contains countries from France in second place to Greece in 19th. Of the “**Big Five**” economies with comparable levels of population size, GDP, etc., **Britain ranks third**, behind France and Spain but ahead of Italy and Germany.

For example, the UK scores well on two measures – the rate of per-capita emissions reduction since 1990, and recent increases in renewable capacity – but comes bottom of the Big Five on the amount of renewable energy installed per-capita. Figure 1 shows the net positions of the Big Five across the basket of seven metrics among all 28 EU nations (where a higher score indicates more progress).

Figure 1: EU28 countries' composite rankings across basket of seven metrics

Note: the red bar represents the UK, dark blue bars represent the other Big Five economies.



Emissions per unit of economic output, which is one of our measures, gives some indication of energy efficiency. We have not included more detailed efficiency measures, but the UK appears distinctly average here too.



Our basket of measures does not include one that is commonly referenced – the ambition for cutting emissions to 2050. This is because the EU and UK share almost exactly the same ambition: the UK’s target is an 80% cut between 1990 and 2050, the EU’s is 80-95%. So if anything, the UK is behind the EU on this measure; but to all intents and purposes, the ambition is identical, so there is no point in including it in the assessment. The enshrining of the UK’s target in national law and the carbon budgets that flow from the Climate Change Act should be seen as a mechanism to help ensure that progress towards the 2050 target will be made in the economically optimum manner, not as an indicator of greater ambition.

In the run-up to the government’s decision on the Fifth Carbon Budget – due by the end of June – the issue of comparative progress with other countries in our most important trading bloc may become a factor. According to this report, it provides no rationale for either accelerating or decelerating UK decarbonisation.



BACKGROUND

Political statements and news reports regularly claim that the UK is “doing more than the rest of Europe” in tackling climate change, or “going twice as fast” – or, occasionally, that the UK is taking action on its own. Given that some other European countries are making spectacular progress in certain areas – for example, Denmark’s rapid build-out of wind power – and that others have historically used higher proportions of low-carbon energy than the UK, we wanted to look at the realities behind claims of UK leadership.

The overall destination for all EU nations is a “competitive low-carbon economy in 2050”,¹ with emissions 80-95% below 1990 levels. Building such an economy entails making progress in a number of areas. According to the Intergovernmental Panel on Climate Change and other authoritative bodies, the three key moves are to:

- Make energy use as efficient as possible
- Decarbonise the power sector
- Extend use of electricity into sectors where currently fossil fuels are burned directly, notably home heating and transport.

Therefore the logical way to assess progress is to use indicators across these areas, as well as headline emission reduction numbers. On the third area, however, progress is small in most countries; indicators such as the proportion of electric and hydrogen vehicles in use are not yet ready for “prime-time”, so we have not included them in our main analysis.

Basing conclusions on a single measure ignores the importance of others. In addition, history has given some countries an advantage on certain measures. For example, the UK and Germany both cut emissions rapidly in the early 1990s – the UK through the “dash for gas”, Germany by cleaning up polluting Soviet-style industry after reunification. So, the extent to which both have cut emissions since 1990 is not a good proxy for their overall progress in tackling climate change, as the cuts in that period stemmed from policies that had nothing to do with climate change. Similarly, France has a historical advantage in terms of per-capita emissions because it generates its electricity almost entirely from nuclear reactors and renewables. Equally, assessing only short-term progress can be misleading if extraneous factors such as a financial crisis affect industrial output, for example, or affect investment in clean energy capacity.

The report is in two halves. Firstly, we quantify, using readily available statistics, how the UK performs on the seven chosen indicators by comparison with a) those EU countries most similar to the UK in terms of size, population, GDP, etc., namely France, Germany, Italy and Spain (termed, with the UK, the “Big Five”); and b) the 28 countries of the EU. The specific metrics we use are:

- Per-capita carbon emissions
- The annual rate at which per-capita emissions have fallen in recent years (2009-14)

¹ https://ec.europa.eu/energy/sites/ener/files/documents/2012_energy_roadmap_2050_en_0.pdf



- The annual rate at which per-capita emissions have fallen since 1990
- Carbon intensity (carbon emissions per unit of economic output)
- Per-capita renewable energy capacity (power sector)
- Recent rate of increase in per-capita renewable capacity
- The percentage of energy coming from low-carbon sources.

In the second section, we look at areas where quantitative comparison is not so easy, but which are also relevant to the overall question of whether the UK is “going further and faster”. These include more detailed indicators of energy efficiency, contributions to climate finance, consumption-based emissions and the policy framework.

We use data from a variety of sources including the United Nations, the EU’s Emissions Database for Global Atmospheric Research (EDGAR), World Resources Institute, World Bank, Eurostat, UN climate convention (UNFCCC), the International Renewable Energy Agency (IRENA) and Carbon Brief. For each metric, the most recent complete set of annual data was used.

Table 1 shows the UK’s ranking within the EU as a whole, and also compared with the other countries of the Big Five; namely France, Germany, Italy and Spain.

Table 1: UK rankings within ‘Big Five’ and EU on seven climate and energy measures

	Big Five Position	EU28 Position
Per capita carbon emissions (2014)	4	15
Recent annual percentage per capita emissions decrease (2009-2014)	3	8
Annual percentage per capita emissions decrease (1990-2014)	1	8
Carbon intensity (2014)	4	9
Renewable energy capacity per capita (2015)	5	21
Recent annual per capita change in renewable capacity (2013-2015)	2	4
Percentage of low carbon energy (renewables, nuclear, hydro geothermal, etc.) in total energy use (2013)	3	14

In all cases, the country in first position is further advanced (lower per-capita emissions, faster rate of emissions reduction, higher percentage of low-carbon energy, etc.)

As can be seen, the UK is, overall, broadly average. It performs well in two categories but poorly in three others on this basket that reflects both current and long-term performance.

Thus, in this more comprehensive approach, there is no rationale for the argument that the UK is “going it alone” or is “leading Europe”.



PART 1 – THE BASKET OF SEVEN

Carbon emissions

The United Kingdom is the second highest emitter of carbon dioxide in the EU, after Germany (415.2 megatonnes (MT) v 767.1 MT in 2014). However, overall emissions are largely determined by population size, so a more realistic measure is per-capita emissions.

On this measure, the UK ranks second worst out of the Big Five, at 6.5 tonnes per capita in 2014 (Table 2), although this is only slightly above the average. Amongst the EU28 it lies 15th, so again, distinctly average. Romania and Latvia are the clear leaders in having low per capita emissions, with just 3.6 and 3.7 tonnes per capita, respectively. Luxembourg and Estonia are in last spots, with 19.3 and 15.1 tonnes per person.

If absolute per-capita emissions are relevant, so is the rate of reduction – so, our second chosen measure is the average annual percentage decrease in per-capita emissions achieved in recent years. Here, we take the period 2009-14, the most recent five years for which data is available. Within the Big Five, the UK is again near average, with a 3.12% decrease over the time period – behind Italy and Spain, but ahead of France and Germany. If we compare the UK with the EU28, then we are slightly better than average, coming eighth out of 28. (The emissions trend in almost all EU nations is downward.)²

As a caveat, this may not reflect the absolutely current state of play, with recent reports suggesting the UK has just managed to reduce its CO₂ emissions in 2015 by 4.3% against 2014 figures.³

EU countries use 1990 as the “base year” against which their overall emissions reductions are assessed. So, as a third measure in our basket, we look at the rate at which countries’ per-capita emissions have fallen since then – the average annual rate of reduction in the period 1990-2014. Here the UK performs well, averaging a decline of 1.49% per year, nearly 50% above the Big Five average and ahead of the EU average. However, this is more of a result of the ‘dash for gas’ seen in the 1990s – when gas capacity jumped from 5% of total UK electricity generation in 1990 to nearly 30% in 2002 – than of environmental policies or a move to renewables. The largest average annual reductions since 1990 were in Lithuania and Romania, down 2.35% and 2.27% per year, whereas per-capita CO₂ output from Cyprus and Portugal increased by an average 0.26% per year and 0.16% per year, respectively.

² <http://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-5/assessment-1>

³ <http://www.carbonbrief.org/analysis-uk-emissions-fall-again-after-record-drop-in-coal-use-in-2015>



Table 2: Big Five data on carbon emission metrics

	2014 CO ₂ emissions tonnes/person	Average annual % change per capita (2009-2014)	Average annual % change per capita (1990-2014)
UK	6.5	-3.12	-1.49
France	5.0	-3.05	-1.06
Germany	9.3	0.22	-1.07
Italy	5.5	-3.82	-1.11
Spain	5.1	-4.31	-0.50
Big Five Average	6.3	-2.82	-1.04
EU Average	7.3	-1.51	-0.98

Source: EDGAR⁴

Countries emit different amounts of carbon emissions per unit of GDP. This can be for a variety of reasons – the type of economy (agrarian/manufacturing/services, etc.), the climate (which means varying needs for heating and cooling), and the dominant forms of energy in use (low vs high carbon). However, it also reflects the underlying efficiency with which the country uses energy.

So, our fourth chosen measure is carbon intensity – the amount of carbon dioxide released per unit of GDP. On this measure, France leads the way of the Big Five, producing 131kg of CO₂ per \$1000 GDP generated (Table 3). The UK sits in fourth at 171kg, just above the Big Five average of 169kg. Germany creates the most emissions per unit of GDP; all five are below the EU average of 232kg. In context of the EU28, the UK lies in ninth place. Bulgaria and Estonia are the worst performers, both producing more than 400kgCO₂/\$1000, more than four times that of the leader, Sweden.

⁴ http://edgar.jrc.ec.europa.eu/overview.php?v=CO2ts_pc1990-2014



Table 3: Big Five data on carbon intensity

	Carbon intensity figure (kgCO ₂ /\$1000, 2014)
UK	171
France	131
Germany	218
Italy	166
Spain	161
Big Five Average	169
EU Average	232

Source: EDGAR, Eurostat

Renewable Capacity (Power Sector)

This is a measure of the total electricity generation capacity of a “variety of sources including wind, solar, hydro, tidal, geothermal and biomass”. Figures for 2015 show that, within the Big Five, the UK lies fifth in absolute terms, behind Germany, Italy, Spain and France (in that order – Table 4). Germany is the clear winner here, with 105 GW installed compared with the UK’s 33.1 GW.

Again, though, the per capita figure is a fairer measure for comparison; and here the UK also scores poorly. It comes a distant last out of the Big Five, and 21st out of 28 across the whole EU. Sweden leads with 2.78 kW per person, followed by Luxembourg with 2.73 kW and Austria with 2.15 kW. The UK has just 0.51 kW per person. Hungary is the clear loser in this category, with just 107 W per person.

This again is a snapshot of a fixed point in time. If we consider the per-capita increase in renewable capacity from 2013-15, the UK sits second of the Big Five, behind Germany, having installed 160 W per person over the two year period. Luxembourg leads the EU on this measure, installing 400 W per person, while Slovakia’s renewable capacity actually fell by 5 W per person.



Table 4: Big Five data on renewable energy metrics

	Installed renewable energy capacity per capita 2015 (kW)	Increase in installed renewable capacity per capita over the last two years (W)
UK	0.51	160
France	0.67	65
Germany	1.29	177
Italy	0.90	22
Spain	1.11	28
Big Five Average	0.90	90
EU Average	0.88	85

Source, IRENA,⁵ Eurostat

Low carbon energy in total use

Following on from renewable capacity in the power sector, an obvious question is what percentage of overall energy comes from low-carbon sources (renewables, nuclear, geothermal, hydropower, etc.). The latest complete figures are unfortunately from 2013; so do not incorporate the rapidly expanding renewable capacity mentioned above in several countries including the UK. However, it is still a useful comparison; and the UK is below average, both in terms of the Big Five and the EU28 (coming third and 16th respectively – Table 5). Sweden scores highest with 47.6% of its energy coming from low carbon sources, while eight other countries (France, Slovakia, Slovenia, Bulgaria, Belgium, Spain, the Czech Republic and Finland) sourced more than 20% of their energy from low-carbon sources. The UK sourced 11.3% from low-carbon sources in 2013. Luxembourg was the worst performing country, with just 0.7%, closely followed by Poland and Estonia (both at 0.8%).

⁵ http://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Capacity_Statistics_2016.pdf



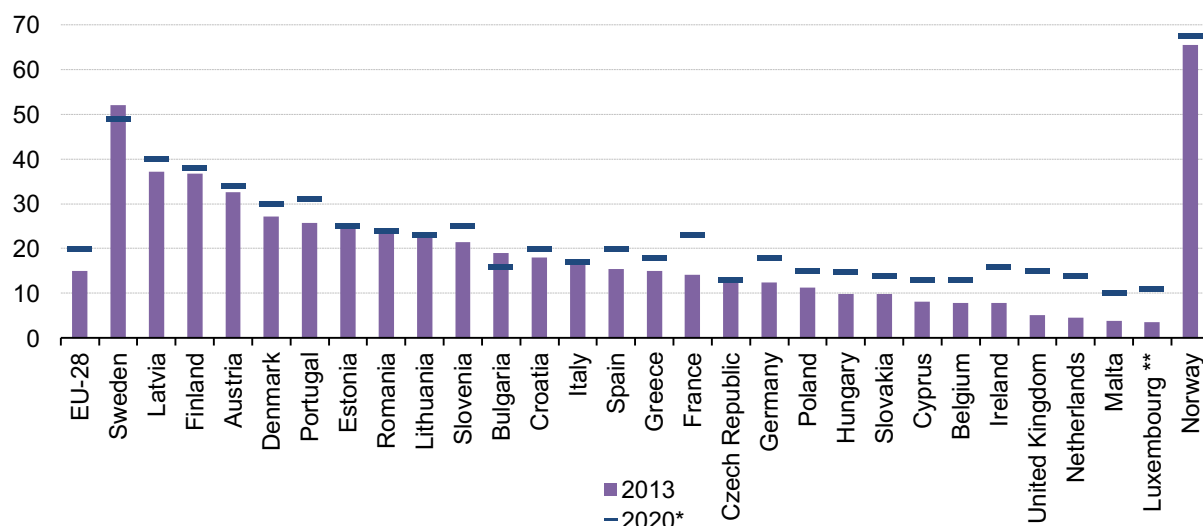
Table 5: Big Five data on low-carbon energy use

Percentage of low carbon energy in total energy use (2013)	
UK	11.3
France	46.8
Germany	11.1
Italy	8.3
Spain	21.7
Big Five Average	19.8
EU Average	18.3

Source: World Bank⁶

As an aside, if we look only at renewable energy (including biomass), the UK languishes among the worst performers within the EU. In 2013, the UK derived 5.1% of its total energy use from renewable sources, the fourth lowest of the 28 member nations and well below the 18% EU-wide average (Figure 2). For comparison, Sweden accrued more than half of its gross energy use renewably (as did its non-EU neighbour Norway), while the other four members of the Big Five all topped 15%.

Figure 2: Share of renewables in gross energy consumption, 2013, and 2020 target (%)



Source: Eurostat

⁶ <http://data.worldbank.org/indicator/EG.USE.COMM.CL.ZS>

* Legally binding targets for 2020

** 2013: estimate



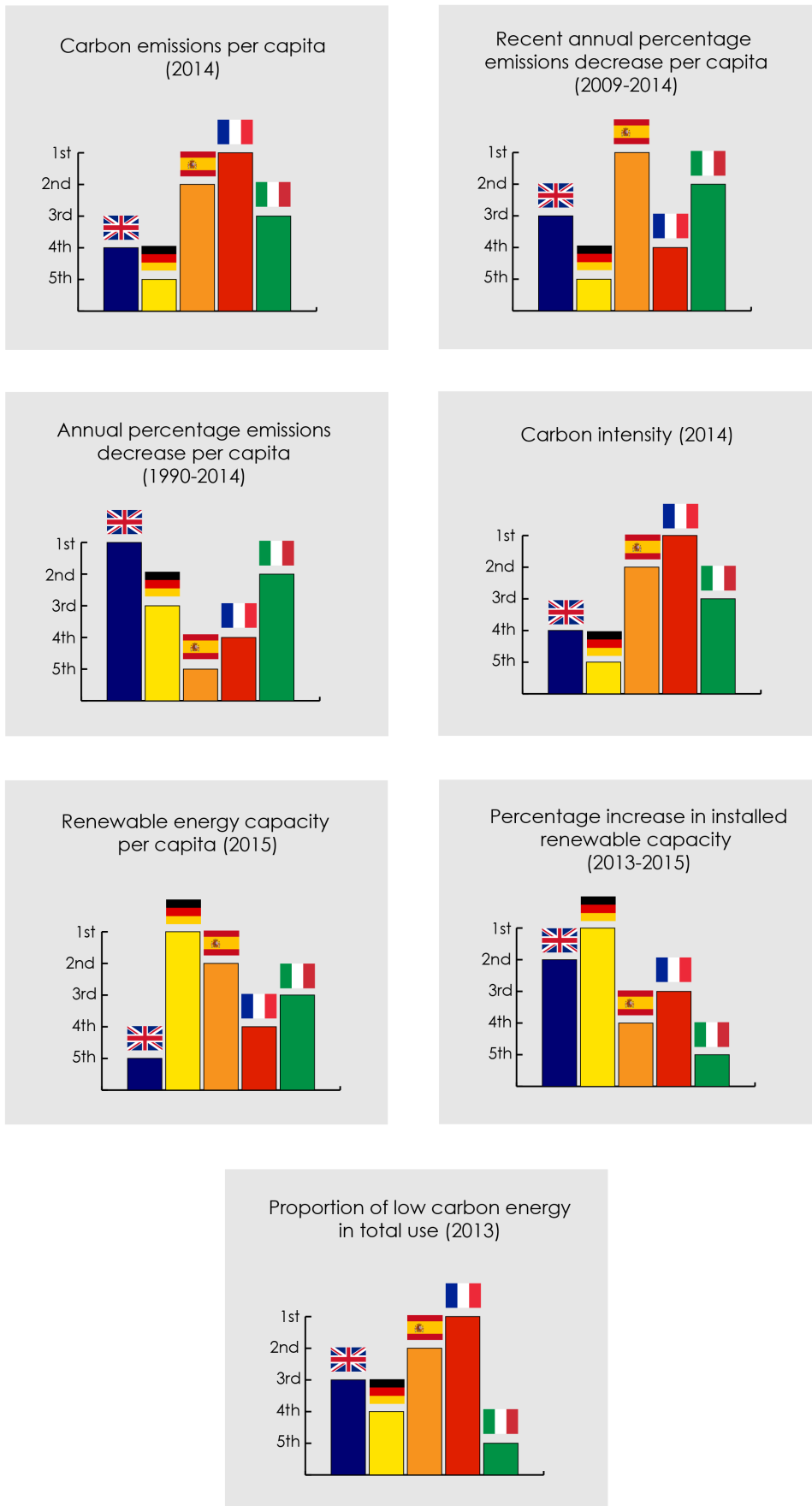
(Note that the values in Figure 2 may seem higher than those in Table 5. This is due to the inclusion of biomass in the data, propelling Latvia and Estonia, among others, up the rankings.)

In addition to performing poorly now, the UK's 2020 target of 15% is also below the EU average of 23%. It is well below the targets of France (23%), Spain (20%), Italy (17%) and Germany (18%). The EU's clear leader in renewable generation, Sweden, surpassed its 2020 target of 49% renewables seven years early. Bulgaria has also surpassed its 2020 target, although this is a more modest 16%.



Figure 3: Big Five country rankings on basket of seven energy and climate measures

UK - Germany - Spain - France - Italy





PART 2 – OTHER MEASURES

Energy Efficiency

Energy efficiency is, in a nutshell, a measure of how much output we get for a given amount of energy input. Energy efficiency measures are important, as improvements shrink the total amount of energy needed per unit of economic output, essentially allowing us to do “more for less”, and shrinking bills in the process.

In the first section of this report we included carbon intensity in our “basket” of seven, largely because of its relevance to energy efficiency. Looking in more detail at this important issue, the way to conceptualise energy efficiency depends on the sector, but this report focuses on the main three: In transport, it effectively equals miles per gallon for road vehicles, and a similar measure for trains; in households, it can translate to (for example) how much gas is needed to maintain a comfortable temperature; and in business/industry, it means how many goods and services can be produced for a set amount of energy input.

Across the EU, energy efficiency has improved by 15% from 2000 to 2013.⁷ Pace, however, has slowed since the economic crisis, down from 1.3%/year from 2000-07 to 1%/year from 2007 to 2013. Hungary is the leader in this category – it has increased energy efficiency by just over 3% per year since 2000. It is closely followed by Slovakia which also tops 3% per year. The UK is seventh, with just under a 2% increase per year. Spain, Luxembourg, Denmark, Italy and Croatia perform worst, with less than a 1% increase per year. It is important to stress however that each country has a unique energy-use ‘signature’ based on its individual circumstances (such as climate and geography, business and industry specialisations, etc.). There are therefore very good reasons as to why energy efficiency measures can have more effect in one country but not another, and why different countries might have innately different levels of energy consumption per capita. This makes direct like-for-like comparisons more difficult.

Transport

In the UK, the transport sector is the largest final energy user, accounting for 38% of the 2012 total (latest figures available). Households account for 30% of final energy use, industry 18%, the service sector 14% and agriculture approximately 1%.⁸

Total energy use in the UK increased in the transport sector by 10% between 1990 and 2012, but has been decreasing since 2007. This trend is true of all the Big Five countries, with Italy nearly back down to 1990 levels.⁹ Over this period, in both the UK and the EU as a

⁷ <http://www.odyssee-mure.eu/publications/br/synthesis-energy-efficiency-trends-policies.pdf> (page 11)

⁸ <http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-united-kingdom.pdf> (pg. 8)

⁹ <http://www.odyssee-mure.eu/publications/br/energy-efficiency-trends-policies-transport.pdf> (pg. 35)



whole, the number of individual journeys has gone up, but the amount of CO₂ emitted by these journeys has gone down due to personal transport becoming a lot more efficient.

Within the EU, the car dominates transport, accounting for 83.3% of inland passenger transport in the EU28 in 2012. Coaches and buses made up 9.2%, and trains 7.4% (as measured by the number of inland passenger-kilometres). In the UK, the figures are 86%, 5.8% and 8.2% respectively.¹⁰ Car ownership is also decreasing in the UK.¹¹

In terms of CO₂ emissions per km from new passenger cars, the UK, with 124.6 grams per km, is almost exactly at the EU average (124.7g) in 2014. This is better than Germany (132.5g), but worse than France (114.2g), Italy (118.2g) and Spain (118.6g). The Netherlands is the best performing EU nation, with 107.3g/km.¹² However, this only reflects new cars, not the national fleet overall.

One obviously comparable measure of how advanced a nation is along the path to low-carbon transport is the proliferation of electric cars and vans; and here, the UK is about average. In 2014 (latest figures available) UK sales of hybrid cars represented 1.5% of all new sales, plug-in hybrids represented 0.3% and pure electric cars 0.3%. The EU averages were 1.4%, 0.2% and 0.3% respectively.¹³ All of the Big Five countries performed broadly the same. Norway (not part of the EU, but measured in most EU analyses) is the continent's outstanding performer, with hybrid sales representing 6.9% of new car sales and pure electric cars representing 12.6%.

Households

At an EU level, household energy efficiency has improved by 1.8% per year since 2000, mainly thanks to improvements for space heating (e.g. increased use of condensing boilers) and more efficient electrical appliances (e.g. rated A+ and above).¹⁴ These changes have been driven by EU legislation, and have applied to the UK.

Total energy use (predominantly from gas and electricity) in the UK in the household sector increased by 6.5% between 1990 and 2012.¹⁵ It is difficult to compare countries' performances, as both the climate and housing vary between nations. However, one recent study (by the Association for the Conservation of Energy)¹⁶ described the UK as the "Cold man of Europe"¹⁷ due to the poor state of its housing stock. It found that among EU nations

¹⁰ <http://ec.europa.eu/eurostat/documents/3217494/7052812/KS-DK-15-001-EN-N.pdf/eb9dc93d-8abe-4049-a901-1c7958005f5b> (chap. 3)

¹¹ <http://www.odyssee-mure.eu/publications/br/energy-efficiency-trends-policies-transport.pdf> (pg.41)

¹² <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tsdtr450&plugin=1>

¹³ http://www.theicct.org/sites/default/files/publications/ICCT_EU-pocketbook_2015.pdf (pg.80)

¹⁴ <http://www.odyssee-mure.eu/publications/br/energy-efficiency-in-buildings.html>

¹⁵ <http://www.odyssee-mure.eu/publications/national-reports/energy-efficiency-united-kingdom.pdf> (pg. 8)

¹⁶ <http://www.ukace.org/>

¹⁷ <http://www.ukace.org/wp-content/uploads/2013/03/ACE-and-EBR-fact-file-2013-03-Cold-man-of-Europe.pdf>



with “comparable levels of prosperity and heating need”, the UK ranked 13th of 13 in the percentage of households in energy poverty, and 11th of 13 in terms of the share of household expenditure spent on energy. These figures arose despite the UK having some of the lowest unit gas prices in Europe and the average wage being relatively high, so much energy do UK homes waste compared with other nations. Another 2011 study found that the UK has the oldest housing stock in the EU, with more than half of homes built before 1960;¹⁸ older houses are generally less efficient at retaining heat than newer houses.

There are other household energy efficiency measures that could be taken into account. For example, smart meters are being rolled out across the UK now, and in most EU countries.¹⁹ The UK aims to complete this rollout by 2020, the same timescale as France. Spain is aiming to finish by 2018; but leading the Big Five pack is Italy, which completed its rollout in 2011. It is clear that the UK is not a leader in household energy efficiency.

More discursive measures

There are of course other measures where comparisons could be made between the EU overall and the UK. For instance, the amount of financial assistance provided to help developing countries invest in clean technologies would be one, and carbon consumption patterns another.

Climate finance

Finance to help poor countries adapt to climate impacts and “green” their economies can flow through numerous channels. But one obvious way to assess countries’ relative contributions would be to compare amounts pledged to the Green Climate Fund, the flagship fund under the UN climate convention (UNFCCC). The UK does very well by this measure, both in absolute terms (highest of all EU nations) and per-capita (4th highest).²⁰

Consumption

Committee on Climate Change analysis shows that if we measure emissions using the consumption basis – i.e. the greenhouse gases emitted for goods and services consumed in a country rather than those produced in a country – the UK’s carbon footprint has “increased since 1993, as growth in imported emissions has more than offset the reduction in emissions produced within the UK”.²¹ This is also the case throughout the EU, though, with consumption-based emissions estimated to be about a billion tonnes higher than territorial emissions in 2011.²²

¹⁸ http://www.europeanclimate.org/documents/LR_%20CbC_study.pdf

¹⁹ <http://www.odyssee-mure.eu/publications/br/energy-efficiency-trends-policies-buildings.pdf> (pg.70)

²⁰ <http://www.greenclimate.fund/contributions/pledge-tracker> (correct as of 01/03/16)

²¹ <https://www.theccc.org.uk/faqs/>

²² <http://www.carbonbrief.org/5-facts-about-europes-carbon-emissions>



Policy Comparisons

As an active member of the EU, the UK's policies have obviously been heavily influenced by EU policies, and EU climate policy has been described as “a powerful, positive force in helping the UK to meet its energy investment and climate change goals”.²³

Much of the UK's policy framework, though, stems from national legislation and national decisions. The 2008 Climate Change Act provides the central framework within which UK policies operate.²⁴ It requires future governments to achieve emission reductions of at least 80% by 2050 compared with 1990 levels, and has been described as “a trailblazing piece of legislation”.²⁵ However, the UK is not unique. France has the “Grenelle Laws”,²⁶ and a long-term target of reducing CO2 emissions by 75% by 2050.²⁷ Germany has the “integrated climate and energy programme”²⁸, and targets of (e.g.) getting 50% of its electricity from renewables by 2030 and cutting emissions by 80-95% by 2050. Sweden – one of the EU's clear climate change leaders – aims to be “carbon neutral” by 2045, with a plan to cut emissions by 85% (compared with 1990 levels) and offset the remaining 15% by investing in overseas carbon-cutting projects.²⁹ Whilst not all EU countries have a framework act and therefore specific carbon reduction targets, what is clear is that all have a substantial body of climate change legislation³⁰, and largely the same ambition. Policies to achieve specific individual aims vary dramatically between countries.

To meet its own carbon reduction targets, it is clear that whatever happens with technologies such as nuclear power, the UK must invest in and build a significant amount of extra renewable capacity. However, we are not just obligated by our own targets. The EU renewable energy directive³¹ states that the UK must source 15% of our energy for heat, transport and power from renewable sources by 2020 (and furthermore, the EU-wide 2030 target is to obtain 27% of total energy from renewables).³² As of 2013, the UK was further behind its EU targets than any other EU member state³³, even though its target was

²³ <http://www.green-alliance.org.uk/resources/What%20has%20EU%20climate%20and%20energy%20policy%20done%20for%20the%20UK.pdf> (pg.1)

²⁴ <http://www.legislation.gov.uk/ukpga/2008/27/contents>

²⁵ <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/03/Walking-alone-How-the-UK%E2%80%99s-carbon-targets-compare-with-its-competitors%E2%80%99.pdf> (pg.6)

²⁶ <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/03/Globe2014.pdf> (pg. 13)

²⁷ <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/06/NG-87.pdf> (pg.105)

²⁸ <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/03/Globe2014.pdf> (pg.13)

²⁹ <http://www.businessgreen.com/bg/feature/2448771/can-sweden-really-deliver-on-its-carbon-neutral-goal>

³⁰ <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2014/03/Globe2014.pdf>

³¹ <https://ec.europa.eu/energy/en/topics/renewable-energy/renewable-energy-directive>

³² <https://ec.europa.eu/energy/en/topics/renewable-energy>

³³ <http://www.carbonbrief.org/five-charts-showing-the-eus-surprising-progress-on-renewable-energy>



relatively modest – 15%, compared with the EU average of 20%. Sweden, which accepted the toughest target of 49%, has already surpassed it.

It is up to each EU state to decide how to meet its obligations, and therefore each set of policies is unique, but there are similarities in some areas. In particular, feed-in-tariffs, or agreements that guarantee a renewable electricity producer a set price for each unit it produces for a long period of time, have been popular across the EU, but are now being scaled back in the UK, Germany and Italy. In Spain, renewable electricity incentives for new projects were completely suspended in January 2012.³⁴ Germany has declared that it will stop incentives for new solar projects once the country has 52 GW of solar capacity. In the UK the amount of support provided to renewable projects is capped by the Levy Control Framework.³⁵

Climate change policy is not just limited to trying to incentivise renewable energy projects. Effective strategies need many different strands, and the EU's influence has different effects in different areas of policy. For instance, the UK's primary instrument for carbon pricing is the EU Emissions Trading Scheme.³⁶ In the UK, carbon pricing includes other instruments such as the carbon floor price. At the start of 2015, around 25% of the UK's GHG emissions were covered by carbon taxes. In France, the figure was 35%, in Ireland, 40%, Sweden 25%, and Finland 15%. France is likely to introduce a national carbon floor price higher than the UK's.³⁷ Denmark is the clear winner in this category, with 45% of its GHG emissions being taxed in some way.³⁸ UK environmental taxes account for 2.6% of GDP compared with an EU average of 2.4%.³⁹

In contrast to the EU-led efforts on carbon pricing, transport policies are predominantly country-led. The transport measures related to EU legislation represent just 20% of total ongoing measures.⁴⁰ However, there is a key 2009 EU regulation⁴¹ that sets maximum CO₂ limits for new passenger cars. It requires that the fleet average (for each manufacturer) for new passenger cars must be less than or equal to 130 gCO₂/km, with a target of 95 gCO₂/km in 2020. This regulation is an integral part of UK policy.

³⁴ <https://www.fas.org/sgp/crs/row/R43176.pdf>

³⁵ <https://www.nao.org.uk/report/levy-control-framework-2/>

³⁶ http://ec.europa.eu/clima/policies/ets/index_en.htm

³⁷ <http://news.trust.org/item/20160517090906-0vkv5>

³⁸ http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/05/27/000456286_20140527095323/Rendered/PDF/882840AR0Carbo040Box385232B00OUO090.pdf (pg.78)

³⁹ http://ecologic.eu/sites/files/publication/2014/countryreport_uk_ecologicelareon_jan2014_0.pdf (pg.1)

⁴⁰ <http://www.odyssee-mure.eu/publications/br/energy-efficiency-in-transport.html>

⁴¹ Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO₂ emissions from light-duty vehicles



When it comes to energy efficiency, the EU has the 2012 Energy Efficiency Directive⁴², which has set an EU wide target of reducing energy use by 20% by 2020 and requires all member countries to use energy more efficiently. All countries must submit plans⁴³ as to how they will achieve their targets, but each country can choose its own mechanisms and policies vary widely. There are some common policies though; Energy Saving Obligations have become an important instrument which 16 EU countries, including the UK, have used. In the UK, they take the form of the Energy Company Obligation.⁴⁴

⁴² <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive>

⁴³ <https://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive/national-energy-efficiency-action-plans>

⁴⁴ <https://www.ofgem.gov.uk/environmental-programmes/energy-company-obligation-eco>



CONCLUSION

In conclusion, then, it is clear that the UK is doing its “fair share” within the European Union, but is certainly not exceeding its “fair share”. Overall, the UK is in the main pack of EU countries – not ahead of it. While all share essentially the same long-term goal of reducing emissions by 80-95% by 2050, the UK’s path is likely to be less bumpy than most given that the iterative process of setting and meeting carbon budgets should enable government to meet the 2050 target in the most economically beneficial manner.

The policy landscape in the UK is changing, and the government has yet to declare a raft of policy measures to replace the 16 cut during its first months in office.⁴⁵ Whilst this does not necessarily mean that we have gone “backwards”, it has left the UK with what has been dubbed a “policy vacuum”⁴⁶ that ministers are committed to addressing. For instance, in EY’s annual renewable energy country attractiveness index 2015, the UK dropped out of the top 10 (to 11th place) for the first time,⁴⁷ and then further dropped to 13th in the May 2016 update.⁴⁸ (Germany and France are in the top 10, with Italy 25th and Spain 28th).

Although this policy hiatus has caused uncertainty, the government remains committed to decarbonising at rates laid down in previous carbon budgets. Before the end of June it is due to give its formal response to the proposed Fifth Carbon Budget, and must then develop policies to meet the budget. It will require new and extended policies.⁴⁹

Our analysis shows that the argument that the UK is “ahead of Europe” does not form a basis for arguing for a reduction or indeed an acceleration in the UK’s rate of decarbonisation. Ministers may of course choose to deploy other arguments. But arguing that the UK is “running ahead”, “acting alone” or any other variant of the oft-heard argument does not stand up, once the rationale of taking an aggregate assessment across a range of indicators is admitted.

⁴⁵ <http://www.bbc.co.uk/news/science-environment-34767194>

⁴⁶ <http://www.businessgreen.com/bg/news/2434160/green-leaders-call-for-end-to-policy-vacuum>

⁴⁷ <http://www.ey.com/GL/en/Industries/Power---Utilities/EY-renewable-energy-country-attractiveness-index-our-index>

⁴⁸ [http://www.ey.com/Publication/vwLUAssets/EY-RECAI-47-May-2016/\\$FILE/EY-RECAI-47-May-2016.pdf](http://www.ey.com/Publication/vwLUAssets/EY-RECAI-47-May-2016/$FILE/EY-RECAI-47-May-2016.pdf)

⁴⁹ <https://documents.theccc.org.uk/wp-content/uploads/2015/11/Committee-on-Climate-Change-Fifth-Carbon-Budget-Report.pdf> (pg.19)