BRIEFING

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Is the UK 'going it alone'?

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Many countries, rich and poor, are taking measures to restrict greenhouse gas emissions and protect against climate change impacts. The headline deal to limit emissions is the Paris Agreement, signed in late 2015 before being ratified and entering into force less than a year later. It outlines a global effort to limit global warming 'well below 2°C', pursuing efforts to keep it below 1.5°C.

There are many other unilateral regulations aimed at limiting warming, although the sum total of current policies and plans is not sufficient to keep global warming below 2°C, the temperature after which catastrophic events become significantly more likely. But essentially, the UK is very far from 'going it alone'.

The Paris Agreement

To date, more than 100 countries have ratified the Paris agreement, taking it way past the 55 countries (representing at least 55% of global emissions) needed to come into force. The final push over the line came from the EU's fast-tracked ratification in October 2016.

Each signatory to the deal is responsible for producing a plan to reduce emissions (known as Intended Nationally Determined contributions, or INDCs), which are to be reviewed every five years to ensure progress continues. The Paris agreement largely replaces commitments made under the Kyoto Protocol.

The European dimension
By ratifying the Paris Agreement, the European Union pledged to meet emissions targets outlined in its INDC. The headline aim is a binding target of cutting emissions by 40% from 1990 levels by 2030. This represents continuity from previous EU targets.

Previously, progress was partly driven by the 1997 Kyoto Protocol, under which the EU first agreed to cut emissions by 8% from 1990 levels by 2008-2012, and then by 20% by 2020. Separately, the EU adopted the '20-20-20' package which as well as the 20% greenhouse gas reduction target, also included pledges to supply 20% of energy from renewable sources and improve energy efficiency by 20% over the same period.

The major tool is the Emission Trading Scheme (EU ETS), designed to reduce emissions from major sectors at the least possible cost by creating a carbon market under progressively tighter emission caps. The ETS now covers about 45% of the bloc's greenhouse gas emissions. Another component is a set of regulations to increase energy efficiency in buildings, industry, transport and appliances such as washing machines.
These measures now cover all 28 EU member states (and in the case of the ETS, Norway, Iceland and Liechtenstein as well).

In 2014, emissions from the 28 EU nations had fallen by 23% since 1990, comfortably exceeding the Kyoto target.

The 2030 Package
In October 2014, EU nations agreed a new set of climate and energy policies, the EU 2030 package, including a binding target to cut greenhouse gas emissions by at least 40% from 1990 levels by 2030.

The package also included an indicative goal to increase energy efficiency by at least 27% by 2030, and a target that 27% of Europe's energy should come from renewables by 2030.

However, although the renewable energy target will be binding at EU level it will not be translated into objectives for individual member states.

The energy efficiency goal will also only be voluntary, against the wishes of some member states who had wanted it to be compulsory, although it could be raised to 30% by a review in 2020.

In addition, EU leaders agreed to improve cross-border power interconnections, setting a target for 2030 at 15%, ensuring that Europe's electrical grids should be better connected.

Beyond Europe

A 2015 study of 99 nations accounting for 93% of global emissions found that together they have enacted more than 800 laws (or regulations with the same effect) that tackle combat climate change. It found that since 1997, the number of climate change laws and policies has doubled every five years.

Some laws limit greenhouse gas emissions, some deal with specific sectors such as forestry, while others focus on climate adaptation.

As an illustration of what various countries are doing, here are summaries for five, ranging from the very rich to the very poor.

The UN climate convention has as a central principle that richer countries should cut emissions earlier and faster, with poorer ones given more time in order to emerge from poverty. The priority for many poor nations is preparation for climate impacts.

For reference, in 2011 the UK had a per-capita GDP of £25,600, and per-capita greenhouse gas (GHG) emissions equivalent to 8.55 tonnes of carbon dioxide (tCO2) per year. (All GDP and emissions figures below are from 2011.)

Norway: per-capita GDP £64,413, per-capita GHG emissions 5.27 tCO2

Norway has effectively pledged to eliminate its greenhouse gas emissions entirely by 2050 – 'effectively', because it will achieve this partly by paying other nations to reduce their emissions rather than cutting its own. It recently voted to implement emissions targets for 2020, 2030 and 2050, through legislation which is expected by 2017.

Norway introduced a carbon tax in 1991, and doubled it in 2013 for the oil industry, to around £40 (410 krone) per tonne of CO2 released. Subsequent measures include increasing energy efficiency in transport and buildings (which have to be zero-emission by 2020), strengthening forest conservation, and funding renewable energy, energy efficiency and forest conservation projects in developing countries.

Norway's goals under the Paris Agreement are in-line with those of the EU.

USA: per-capita GDP £32,013, per-capita GHG emissions 19.69 tCO2

In November 2014, in a joint announcement with China, President Obama announced a new target to cut net greenhouse gas emissions 26-28% below 2005 levels by 2025. The USA reiterated this target in its INDC for the Paris Agreement. This aims to keep the US on the right trajectory to achieve deep economy-wide reductions of around 80% by 2050.

Following failed attempts to introduce national climate legislation, the Obama administration is increasingly regulating emissions under laws such as the Clean Air Act. In 2013 it introduced a Climate Action Plan covering many sectors, including a proposal to reduce power plant emissions by 30%, cut waste and thus bills. The plan also includes energy efficiency standards, and standards for heavy-duty vehicles.

The Climate Action Plan largely builds on actions, targets and legislation already put in place by individual states. California's target is to reduce emissions by 80% from 1990 levels by 2050 – the same as the UK. In the northeast, the nine states involved in the Regional Greenhouse Gas Initiative are reducing emissions from the electricity sector by 2.5% each year.

Renewable electricity generation doubled nationally from 2009 to 2013, and is projected to double again by 2020. Energy efficiency is being increased for homes, building and transport. Operating lifetimes for nuclear reactors are expected to be extended. The military is adopting renewable technologies where possible.

China: per-capita GDP £3,469, per-capita GHG emissions 7.63 tCO2

In a major announcement in November 2014, and repeated in its INDC, President Xi Jinping announced a target of peaking carbon dioxide emissions around 2030.

China also aims to increase the non-fossil fuel share of all energy to around 20% by 2030, which means doubling current levels of zero-emission energy. To meet this target, China will have to deploy an additional 800-1,000GW zero-emission generation by 2030 - equivalent to the entire US grid. This means China will be installing 1,300MW of clean energy - the equivalent of a coal-fired power station - each week.

In terms of energy efficiency, China has pledged to reduce CO2 emissions per unit of GDP by 40-45% between 2005 and 2020. Overall emissions in 2020 are set to be 18% lower than those in 2015.

Low-carbon technologies (renewables and nuclear) account for about a quarter of electricity generation. Solar capacity has increased almost 13-fold since 2011, reaching more than 43 gigawatts (GW) to surpass Germany as the country with the highest installed capacity.

Growth in wind capacity is equally impressive, installing around 13 GW in 2015 alone (for comparison, the UK has around 14GW), and plans to increase that to 200GW by 2020. A nuclear reactor building programme aims to increase capacity almost 10-fold by 2030.

Chinese coal consumption more than tripled from 2000 to 2013, although some economists believe that 2014 saw consumption peak. Coal use in 2015 was down 5.8% on 2014, and continued to fall in 2016. Overall, Chinese emissions have been nearly flat in recent years.

Emission trading is being piloted in seven provinces and municipalities, with a national scheme due for introduction in 2017. Low-carbon transportation schemes are being piloted in 26 cities, while 29 cities and provinces are trialling low-carbon green development models.

India: per-capita GDP £1,022, per-capita GHG emissions 1.93 tCO2

India's INDC oulines policies to reduce emissions intensity (the emissions per unit of energy used) by 33-35% by 2030, from a 2005 level. This builds on previous domestic policy which aimed for a 20-25% reduction by 2020. This is to be achieved by improving energy efficiency and switching to low-carbon energy sources.

A levy on coal raises revenue for investing in renewables through the National Clean Energy Plan. The government plans to build 10GW of wind power each year, and has ramped up its solar target, aiming to attain 100GW of solar capacity by 2022. It aims to supply 25% of its electricity from nuclear stations by 2050.

India has also doubled its tax on coal and is using the money to promote clean energy.

Sixty 'solar city' projects have been established, while some city 'master plans' aim to reduce consumption of fossil fuels by 10% in five years by improving energy efficiency and scaling up low-carbon alternatives. 20% of transport fuels are due to come from biofuels. Adaptation to the wide range of climate impacts projected for India concentrates on vulnerable regions such as the Himalayas.

Mozambique: per-capita GDP £332, per-capita GHG emissions 2.31 tCO2
The priority for the national plan is to reduce vulnerability to disasters that can be enhanced by climate change, such as flooding, while enhancing living conditions. Low-carbon development is also to be fostered, including development of a biofuels sector. Forests are to be protected and sustainably used, with local communities involved.
As a low-emitting country, Mozambique is given more leeway in its INDC, which outlines that policies to cover energy strategy, biofuel use, natural gas use and renewable feed-in-tarrifs (among others) will be in place by 2020.

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