

ENERGY POLICY

Promoting a sustainable future



Global energy policies are transforming, with the adoption of sustainable goals as climate change concerns grow, reports Keith Nuthall.

Slowly, but steadily, the world's energy policies are turning green, promoting a sustainable future and targeting an increasingly universal goal of achieving carbon neutrality by 2050. With evidence mounting not only that climate change is accelerating, but potentially wreaking serious damage on the world's economies and peoples, the Paris Agreement goal of holding the rise in global temperatures to well below 2°C, ideally 1.5°C, is being reflected in the plans of governments, regional and international organisations across the globe.

These decisions are already having a transformative impact on the world's energy sector, steering it towards lower carbon systems.

The International Energy Agency (IEA), in its *World Energy Outlook 2019* released

in November 2019, pointed a way forward in highlighting its latest Sustainable Development Scenario, which maps how to meet sustainable Paris-aligned energy goals, 'requiring rapid and widespread changes across all parts of the energy system'.

The IEA plan is three-pronged. First, it wants to see a quick installation of energy efficiency improvements, noting that these are slowing, with 2018's 1.2% rate being half the average since 2010 and well below the 3% rate needed to deliver IEA-targeted carbon emissions reductions. Second, the IEA wants additional renewable energy capacity, largely in solar and wind, to enable electricity as a share of final energy consumption to overtake oil (the current leader) by 2040. And, third, it wants emissions from coal-fired power stations cut fast, by retrofitting with carbon capture, utilisation and storage (CCUS) or biomass co-firing equipment; repurposing to provide system adequacy and flexibility as greener alternatives are installed; or retire them early altogether.

Government responses

So, how are governments responding to these pressures? Largely, a more aggressive anti-carbon approach is being taken, with even US President Donald Trump taking practical steps to reduce carbon, despite quitting the Paris Agreement. Indeed, the IEA reports that the US had the largest decline in energy-related CO₂ emissions in 2019 on a country basis, down 140mn tonnes (2.9%) year-on-year to 4.8 GT, a fall of almost 1 GT from the year 2000, the largest absolute one-country decline over that period. Despite Trump's praising of coal in his 2016 election campaign, coal use in power production fell 15% in 2019 compared to 2018, largely because of a switch to gas, which cost 45% less than 2018 levels. Also, a mild winter and summer depressed air-conditioning and heating, reducing energy-related emissions.

Meanwhile, energy-related CO₂ emissions in the European Union (EU), including the UK, fell faster in 2019, by 5% or 160mn tonnes to 2.9 GT, through dropping coal for gas and increasing renewables.

However, the US is far from backing increased carbon usage. President Trump's First Energy Secretary Rick Perry (who stepped down in December 2019) enthusiastically promoted the Department of Energy's (DoE) research work, securing a budget increase from \$34.6bn in 2018 to \$35.5bn in 2019, when under pressure to reduce costs, with Perry praising the DoE Advanced Research Projects Agency-Energy (ARPA-E), which has developed solar energy and battery technology. While he also pushed for coal power plants to get additional subsidies as a back-up energy source (he failed) and scrapped a planned phase-out of energy-intensive incandescent lightbulbs, his policies were far from the break in tradition seen elsewhere in the Trump administration, for instance in trade policy.

His replacement (and previous deputy) Dan Brouillette looks likely to follow a similar cautious approach. At a February 2020 appearance at the Atlantic Council think tank, he announced a \$64mn federally funded low emission coal research programme, designed to create coal-powered generating equipment that matches emissions released by gas-fired plants. He also announced an additional \$100mn in government funding

Hurricane Dorian from the International Space Station on 2 September 2019 – one goal of the transformation of global energy policies is to reduce the scale of such devastating storms

Photo: NASA



for new solar energy studies.

There has, however, been a more significant shift of policy at the Environmental Protection Agency (EPA), where the Trump administration ditched the Clean Power Plan of President Barack Obama. The plan targeted cutting power plant carbon emissions by roughly a third from 2005 levels by 2030 through operational standards and requirements that state governments draft and implement emissions reduction plans. This relatively tough approach prompted legal opposition from 27 US states, and in June 2019 the plan was replaced by a new Affordable Clean Energy rule that removed targets from states but still insisted on certain emissions standards for coal-fired power plants.

If President Trump loses the November 2020 presidential election to Democratic Party nominee Joe Biden, then a much tougher approach on emissions can be expected, including the US re-joining the Paris Accord. Biden has indicated he would commit his administration to creating a net zero emissions US by 2050, which would become a legislative commitment (if he can get this through Congress), with polluters having to pay for the 'full cost of the carbon pollution they are emitting', along with 'clear legally binding emissions reductions' – although there is no commitment to introduce a cap-and-trade carbon trading system.

Another jurisdiction where there is doubt about future energy policy, is the UK. Having finally quit the European Union (EU) on 31 January 2020 it is now crafting an energy policy that will not have to follow EU energy directives and regulations. A White Paper on decarbonisation and the future role of nuclear energy in the UK had been expected to be published

Rick Perry was US Energy Secretary until December 2019, steering a largely moderate policy course

Photo: European Commission/Jennifer Jacquemart

Alok Sharma, UK Business, Energy and Industrial Strategy Secretary – the UK scrapped its standalone Energy and Climate Change Ministry in 2016, but the current government under Prime Minister Boris Johnson has released practical policies to reduce emissions and boost energy sustainability

Photo: Policy Exchange



by the end of March, but with the government consumed by the COVID-19 crisis, this policy statement's release has been delayed.

That said, there are clear indications that the Conservative government of Prime Minister Boris Johnson could be more proactive on reducing carbon emissions than those of his Tory predecessors David Cameron and Theresa May – although May did legally commit the UK to net zero carbon emissions by 2050. In its first budget, released on 11 March 2020, the government said it would, by 2022, freeze the UK Climate Change Levy (CCL) on non-domestic energy consumers on electricity (supplied by increasing amounts of renewables) while increasing it on gas. The government said it would allocate £270mn for its Green Heat Network scheme, which incentivises heat networks to use low carbon heat sources, and build two CCS facilities by 2030, with the government pledging £800mn in financing.

The government is also consulting on proposed reforms to the UK Contracts for Difference (CfD) scheme, which protects renewable energy producers and consumers from the impact of potentially volatile wholesale prices through government-backed contracts, encouraging investment and power purchases. A reformed scheme would exclude coal-to-biomass conversions from future CfD auctions because the government considers it a transitional technology. And it would include floating offshore wind platforms as a separate technology from standard wind power, so that promoters can better compete for CfD contracts.

Meanwhile, another major industrial power, Japan, has also been shifting its energy strategy



New US Energy Secretary Dan Brouillette

Photo: US Department of Energy

towards green energy – although its planned erosion of fossil fuel prolongs a nuclear power sector that remains unpopular since the Fukushima nuclear disaster in 2011. This signals the more cautious approach being taken by the Japanese government, which released a strategic energy plan in July 2018 confirming projected energy mix targets for 2030 set in 2015. The Ministry of Economy, Trade and Industry plan targets 22% to 24% of energy supplies to be generated from renewable sources by 2030, up from 15% in 2015; but with nuclear power still delivering 20% to 22% of the country's electricity supply, barely down from the 25% accounted for in 2010, before the disaster shuttered much of Japan's nuclear sector, prompting a spike in fossil fuel use. Fossil fuels accounted for 65% of Japan's electricity mix in 2010, and the 2018 plan projects only a gradual fall to 56% by 2030, although this would wipe out most of the increase in gas and coal consumption following Fukushima.

Maybe one reason for Japan's caution is its precipitous population decline which will inevitably reduce energy consumption and emissions. With government estimates saying population levels could fall from 127mn in 2015 to 88mn in 2065, the potential impact on energy and emissions is significant. That said, the Japanese government does want to proactively reduce greenhouse gas (GHG) emissions by 80% by 2050, using all the usual tools – more renewables, carbon sequestration, abandoning coal and more – but also retaining a significant nuclear sector.

The contrast with Germany, for instance, is stark. Its lesson from Fukushima was to close down Germany's nuclear sector, with Chancellor Angela Merkel's



government announcing in May 2011 that it would shutter the country's 17 nuclear power plants by 2022 – a process that is well under way, with just six remaining in operation at the start of 2020. German policy wants GHG emissions cut 55% by 2030 and up to 95% by 2050, compared to 1990 levels. Also, the current Christian Democrat-Social Democrat grand coalition is targeting 65% of the country's power mix to be derived from renewable sources by 2030.

Given Germany's influence over EU policy, increased since Brexit and with new European Commission (EC) President Ursula von der Leyen being the first German in this job since 1967, it is maybe not a surprise that the key priority of

New EU Energy Commissioner Kadri Simson is helping develop the European Green Deal

Photo: European Commission/ Xavier Lejeune

the new EU Executive (in office since 1 December 2019) is reducing GHG emissions and improving the environment. Assuming the Commission can get EU member states on board, its new European Green Deal policy explicitly targets EU carbon neutrality by 2050. Renewables will be a cornerstone of this policy, whose introductory text said: 'Energy efficiency must be prioritised. A power sector must be developed that is based largely on renewable sources, complemented by the rapid phasing out of coal and decarbonising gas.' The EC says it will wait until it reviews the emissions reduction and energy action plans that member states had to submit by December 2019 under the EU's energy union and

climate action regulation before proposing further legislation. But it is a fair bet that this will involve higher targets for growing green power sources than in the EU's 2018 Renewable Energy Directive.

Of course, the EU is no stranger to green energy activism through its policy and legislation – and is a global soft power leader in this regard. But as the impact of climate change becomes clearer, and even the Trump administration is helping reduce carbon emissions, it seems likely that energy policies worldwide will integrate sustainability and environmental performance goals into policies previously focused on security of supply and immediate financial costs. ●



German Chancellor Angela Merkel drove Germany's abandonment of nuclear power and proactive switch towards renewables

Photo: Raul Mee

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