

NET ZERO

Race around the world

Kirstin Gibbs and Jennifer Josefson, Partners at law firm Morgan, Lewis & Bockius LLP, provide an eagle's eye view of what steps countries around the globe are taking on the road to net zero.*

Since the 2015 Paris Agreement, countries around the globe have been analysing their energy and development strategies and planning to meet their commitments. While some countries have made progress by, among other things, examining different energy sources and implementing new technology in an effort to achieve their emissions targets, others have been slower to implement any change. However, the events of 2020 appear to have breathed fresh air into the climate change dialogue. Here, we lay out the broad strokes that the UK, the European Union, China, Japan, the US, the Middle East, Russia, Latin America and Africa are making on their energy transition journeys.

UK

In mid-2019, the UK became the first major economy to set a legally binding commitment to achieve net zero emissions by 2050 – a fitting target for the country subsequently chosen to host the United Nations' next round of climate talks, COP26, which will take place in Glasgow in November 2021. The COP26 summit will encourage nations that signed the Paris Agreement to work together for a green recovery from the COVID-19 pandemic and call for a renewed focus on climate action. In support of this, UK Prime Minister Boris Johnson launched a 10-point plan for a Green Industrial Revolution in November 2020, followed in 2021 by a new Industrial Decarbonisation Strategy that aims to deliver what is claimed will be the world's first low carbon industrial sector.

The UK government is also backing recommendations made by the UK Climate Change Committee in its Sixth Carbon Budget (covering the period 2033–2037) that include expanding low carbon energy supplies with an emphasis on offshore wind and low carbon hydrogen scale-up as well as energy efficiency, and calls for a 78% reduction in UK carbon emissions between 1990 and 2035

(see *Petroleum Review's* May 2021 issue).

European Union

The European Union announced its goal in December 2019 of becoming the first climate-neutral continent by 2050 under the European Green Deal. It aims to achieve this through deep decarbonisation of all sectors of the economy and greater reductions in greenhouse gas (GHG) emissions by 2030, while promoting job growth and green technology.

In July 2020, the European Commission (EC) adopted two key strategies to help support the goal of a fully decarbonised, more efficient, and interconnected energy system – the European Union's Energy System Integration Strategy and the Hydrogen Strategy for a Climate Neutral Europe Strategy. Each strategy is set out as an EC Communication, which is meant to serve as an EU-wide roadmap. The Energy System Integration Strategy provides a holistic approach to the framework for green energy transition, with coordinated planning and operation of Europe's energy system as a whole across multiple energy carriers, infrastructures and consumption sectors. Within this integrated system, the use of hydrogen could be one of the key ways to support the decarbonisation of many industries through investment, regulation, and new research and innovation. Although nonbinding, the EC uses its communications as instruments to identify key issues in policy areas and to set out the direction of future policies.

It is hoped that these strategies will help provide a unified framework of the various regulations, directives, domestic initiatives, and legal and regulatory regimes that currently make up much of Europe's renewable energy policies. There has been no single, unified approach to date, with each sector siloed in approaches between member states. So it will remain to be seen how the execution of the European Union's

very ambitious goals will play out. In the near future, we can expect that energy policies and regulations will continue to evolve very substantially, and developers, funders and investors in renewable energy, in particular, will need to keep pace with this shifting terrain.

China

China's President Xi Jinping surprised the international community in September 2020 by announcing that the country would pursue a net zero target by 2060. China is the world's largest energy producer and consumer and is the world's largest producer of greenhouse gases – accounting for some 28% of global emissions. The country relies heavily on coal and imports of gas and oil, burning more coal than all other countries combined since 2011. As a result, its transition to renewable energy relies on comprehensive reforms extending from energy supply to energy consumption.

On the supply side, China has been vigorously promoting the 'clean and efficient' utilisation of fossil energy and increasing the proportion of renewables in its energy mix. On the consumption side, Chinese authorities claim they are determined to prioritise energy preservation and tighten control of total energy consumption. The country is aiming to achieve carbon neutrality before 2060 by upgrading energy technologies through innovation, maintaining energy security and opening the energy sector further to the world.

To help its economy recover from the effects of COVID-19, China is approving a number



of economic stimulus plans that are attracting the attention of international investors. However, these plans may be off the green infrastructure track, with many promoting the continued use of coal-fired power plants. In a bid to combat this, the Chinese government is lifting some restrictions on foreign investment into certain sectors, including along the full hydrogen value chain, from production, storage, transport and liquefaction of hydrogen to manufacture of hydrogen production equipment, hydrogen batteries and operation of hydrogen filling stations.

Japan

Japan is currently dependent on imported fossil fuels, largely from the Middle East, with a single-digit energy self-sufficiency rate. So, the goal for the country's energy plan is as much to increase renewable energy sources as it is to increase energy production in the country in general.

Japan in 2013 formed a Hydrogen and Fuel Cells Strategy Council. Composed of

representatives from industry, academia and government, it helped create the country's basic hydrogen strategy, which includes 10 elements largely looking at innovation, expansion and education. As part of the strategy, Japan has supported international collaboration at both the governmental and private sector levels to promote hydrogen energy, hosting the first global hydrogen ministerial meeting in October 2018.

In his maiden policy speech, Prime Minister Suga in October 2020 declared a carbon neutral objective by 2050. The government is focused on developing an international hydrogen supply chain, which is still importing energy but is largely working with other countries outside the Middle East. Japan is also working on the domestic production of hydrogen, drawing on recent success at the Fukushima Hydrogen Energy Research Field, which is the largest hydrogen-producing facility in the world using renewable energy.

Many of Japan's major companies are invested in the growth of renewable energy, and specifically hydrogen, to meet their own environmental, social and governance (ESG) goals. But they are finding that lack of detail in the government's green growth initiatives and lack of access to renewable energy sources are making it difficult to meet those goals. Private sector ESG concerns and carbon neutral goals of other developed countries will likely result in pressure on the Japanese government to hasten change. A lack of current concrete plans for a transition to a hydrogen society may make international investment opportunities in Japan a moving target, but there are opportunities for nimble investors.

United States

US President Joe Biden made good on his campaign promises to focus on climate change, taking significant steps on his first day in office earlier this year to advance the energy and climate initiatives of his administration, including major clean energy plans. Some of his early key actions included the notice of the US' intention to rejoin the Paris Agreement, cancellation of the federal permit for the Keystone XL pipeline project and directives to certain federal agencies to take a whole-of-government approach to national policy on climate-related issues.

The administration also paused issuing new oil and natural gas leases on public lands or in offshore

waters until a comprehensive review and reconsideration of federal oil and gas permitting and leasing practices are completed. This review will include consideration of potential climate and other effects associated with oil and gas activities on public lands or in offshore waters, and whether royalties associated with coal, oil and gas resources extracted from public lands and offshore waters should be adjusted to account for corresponding climate costs. This action may not have an immediate impact on oil and gas companies, as drilling on public land can and will continue with the moratorium on new leasing. However, it may have the longer-term effect of shifting oil and gas production overseas.

The US administration has also demonstrated a commitment to innovation and scientific development by launching a climate innovation working group, with a new \$100mn funding opportunity from the US Department of Energy to spur the creation of new energy technologies. This is expected to examine whether the much-hyped possibility of a hydrogen solution will be viable for the long-term success of US net zero carbon energy goals.

More recently, in late March 2021, President Biden unveiled a \$2tn infrastructure plan that includes \$174bn in electric vehicle (EV) incentives, \$85bn for public transit and \$80bn for improvements to long-distance rail and freight services. An additional \$100bn will be spent modernising the US electricity grid, while \$200bn has been earmarked for fortifying the homes of low-income communities hit by climate-linked disasters. The following month, the President pledged to cut US GHG emissions almost in half by 2030, relative to 2005 levels, as part of a drive to assert a position of global climate leadership.

Middle East

While many countries of the Middle East, as well as other oil-producing countries, have had a hot-and-cold relationship with the global climate change discussions, the events of 2020 may have provided additional stimuli for them to begin, in earnest, the drive toward the road to net zero.

In 2020 we witnessed the historical drop in global oil demand as a result of the COVID-19 pandemic, on the back of what was already a weakened market. In addition to the drop in demand, there was a corresponding fall in revenue for the oil producers. This loss in revenue has been especially



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felt in the exporter countries, in particular the countries of the Middle East, which have a significant portion of their state budgets dependent on oil revenues for their fiscal break-even. The threat of a long-term, low-demand period or even a plateau of demand, seems to have got their attention with export countries recognising that, if not carefully managed, this low-demand trend could create destabilisation in their overall economies. These countries appear to be identifying the need to replace or supplement the reduced oil revenues, as well as the geopolitical currency that oil has historically given countries such as Saudi Arabia.

Many of the countries of the Middle East have announced initiatives designed to address their carbon footprints. The Kingdom of Saudi Arabia recently announced the Saudi Green Initiative, which provides a roadmap for the region to reduce carbon emissions by 60% through clean hydrocarbon technologies and the planting of 50bn trees. Similarly, the UAE Energy Strategy 2050 sets a target of 25% to 50% clean energy by 2050 and a 70% reduction of its carbon footprint of power generation.

The Middle East is well placed for success in increasing renewable energy sources due to its location and solar potential, as well as its growing commitment of resources toward the large-scale development of renewable projects, including the prospects of blue hydrogen in addition to green hydrogen. (See *Petroleum Review's* March 2021 issue.)

Russia

Although the Russian economy also relies heavily on oil and gas exports, its dependency and fiscal break-even are much lower than those of many of the Middle Eastern countries. It has not made much progress in progressing detailed plans for energy diversification and decarbonisation.

Historically, Russia has had a large geothermal and hydro component to its power supply (as well as a high percentage of natural gas and combined-cycle power production), but it has not made substantial investment in other renewable sector projects. Nevertheless, we are seeing interest in wind projects and a smattering of solar projects, with smaller localised, off-grid or 'within-the-fence' projects traditionally having more success in the short-term. Russia has also put in place a hydrogen roadmap, giving it the first steps along the path to exploring the

potential of hydrogen, especially as an export commodity (see pp 14–15).

A key question for Russia, and many gas producing countries, is whether the commercialisation of mass production and transportation of hydrogen will create a demand for cross-border market growth, particularly with respect to the prospects of yellow hydrogen (produced from water using electrolysis powered by atomic energy).

Latin America

Across Latin America, countries are in very different stages of their renewable energy efforts and overall energy needs, creating divergent paths to achieving net zero energy consumption. However, virtually all Latin American countries have signed the Paris Agreement, so there is an overall commitment to combating climate change.

In Brazil, the power matrix is already more than 80% renewable with a high reliance on hydropower, but recurring droughts have caused significant power outages, pushing forward considerable developments in wind and solar power plants. In December 2020, the country announced in an updated submission to the United Nations that it is aiming for carbon neutrality by 2060, maintaining existing targets of a reduction of emissions by 37% by 2025 and 43% by 2030, compared to 2005 levels.

Chile is generally ahead of most other Latin American jurisdictions on the path to net zero goals, with significant developments in the adoption of renewables (hydroelectric, solar PV [photovoltaic], wind, biomass and geothermal) currently accounting for around 50% of its energy matrix. Separately, in 2019, the Chilean government released a decarbonisation plan with a heavy reliance on solar power that set the goal of a complete phase-out of coal by 2040.

In Mexico, natural gas is already displacing oil and coal, with wind power gaining favour over hydropower. In its Energy Transition Law, Mexico is targeting that 35% of energy generation should originate from clean sources by 2024, with a goal of reaching zero emissions by 2050 in line with the Paris Agreement. In an effort to boost energy production in Mexico, an energy reform initiative led by Mexico's prior federal administration aimed to attract foreign investment in energy. Despite the success of the reform, changes in policy carried out by the

current Mexican administration have adversely affected private investment.

Meanwhile, in both Central America and the Caribbean – where many countries are heavily dependent on oil and diesel, in certain cases relying on those resources for more than 80% of their power – governments are fostering cleaner alternatives, including LNG imports and the development of renewable resources such as solar, wind and geothermal.

Africa

Africa is composed of 54 countries, so it is hard to paint its energy picture with broad strokes. But there are well-established opportunities for renewable energy sources in the northern and southern tips of the continent. Both Morocco and South Africa have proven track records of successful renewable energy development and a regulatory framework. For example, there is a Maghreb–Europe gas pipeline that links a field in Algeria through Morocco to Spain, and Morocco and Germany have signed an agreement to produce green hydrogen (produced from water through electrolysis powered by renewable energy) in Morocco.

Other regions are in earlier stages of energy development and face challenges unique to their locations. In Sub-Saharan Africa, geography is a large determinant in the success of energy programmes. Countries that are further away from key demand centres lack the infrastructure to transport energy. There is also need for large areas of improvement for a regulatory framework and incentives that work to stimulate development. The Africa-Europe Green Energy Initiative seeks to take joint action to increase energy efficiency and the adoption of renewable energy sources. The initiative has set aside €30bn for investment in Sub-Saharan Africa.

Since much of Africa has limited GHG emissions, there isn't as compelling an environmental argument for hydrocarbon substitution. And many countries are hydrocarbon producers, so there is pressure to aim for co-existence rather than replacement in the short- to medium-term. (See *Petroleum Review's* April 2021 issue.) ●

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