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Monthly Report on Research and Policy Developments - Energy and Climate Change

May 2021

Purpose: This document provides a summary of recent key developments in policy and research relating to energy and climate change. It has been prepared by the [ClimateXChange](#) Secretariat and is intended to keep policymakers informed of issues relevant to the Scottish Government's Energy and Climate Change policy portfolio.

International Climate and Energy Research and Policy

IEA net-zero roadmap

The pathway to the “formidable goal” of reaching net zero by 2050 is narrow but brings huge benefits, the International Energy Agency (IEA) said in a long-awaited special [report](#). The widely reported study is the IEA's first detailed pathway to net-zero CO₂ emissions from energy and industry by 2050 and is described as 1.5°C compatible, Carbon Brief [reported](#). Among other things, the roadmap says no new fossil fuel boilers should be sold from 2025, the BBC [noted](#). Nor is there a place for new coal, oil or gas exploration or supplies from now onwards. Meanwhile, the global sale of new petrol and diesel cars would end by 2035. The IEA also [published](#) a commentary on the modelling used in the roadmap.

Setbacks for oil and gas majors

The oil and gas sector received significant setbacks, notably a ruling by a Dutch court ordering Shell to cut its emissions 45% by 2030 relative to 2019 levels. [Reuters said](#) the widely reported ruling could trigger legal action against energy companies around the world, adding that the 45% reduction related to absolute emissions from both Shell and its suppliers and customers. Shell said it would appeal. The lawsuit was brought by seven groups including Greenpeace. Exxon, meanwhile, was defeated by climate activist shareholders on the election of two new members to its 12-strong board. Separately, a large majority of Chevron shareholders voted for a “substantial” reduction in the firm's ‘scope 3’ emissions from the use of its products. The Guardian [said](#) the shareholder rebellions reflected the two companies' failure to set a strategy for a low-carbon future. The FT published a [Q&A](#) (paywall) on the Shell ruling.

G7 breakthrough on coal

G7 countries agreed to cease all new financing of overseas coal projects by the end of the year in what the Guardian and other commentators [described](#) as a significant breakthrough. They also pledged to accelerate efforts to limit global warming to 1.5°C, a shift from previous statements promising the easier target of 2°C. The FT [said](#) the strongly worded statement set the stage for more climate pledges when G7 country leaders meet in Cornwall later this month.

Renewables in 2020

Renewable energy grew at its fastest rate in two decades in 2020 and is set to expand in coming years at a much faster pace than prior to the pandemic, according to a new [report](#) by the International Energy Agency (IEA). It said the amount of renewable electricity capacity added in the year rose by 45% to 280 GW. The increase is set to become the 'new normal', with about 270 GW of renewable capacity set to be added in 2021 and almost 280 GW in 2022. The forecasts have been revised upwards by more than 25% since November.

Policies to support hydrogen deployment

Hydrogen's full contribution to the energy transition is being impeded by several barriers, according to a [report](#) from the International Renewable Energy Agency (IRENA). Barriers include the high cost of green hydrogen compared to non-renewable alternatives and the lack of dedicated infrastructure. The report, the second in a series, presents policy measures to support electrolyser capacity deployment; ensure electricity is renewable and cost-competitive; increase green hydrogen demand; and develop a hydrogen transport infrastructure.

Climate crisis duty of care

The federal court of Australia ruled the environment minister had a duty of care to protect young people from the climate crisis in a judgment some hailed as a world first, the [Guardian reported](#). However, the judge declined to grant an injunction against the coalmine expansion which triggered the case, brought by eight teenagers and a nun. The judge will take further submissions on what the minister's duty of care may mean for the mine.

US action on HFCs

The US Environmental Protection Agency (EPA) has proposed an 85% cut in the production and import of hydrofluorocarbons (HFCs) in the US over the next 15 years, the Guardian [reported](#). HFCs are highly warming gases widely used in air conditioning, heat pumps and fridges. The move, which has bipartisan support, would avoid an estimated 0.5°C in heating by the end of the century, a significant amount, the EPA said

UN on investment in nature

The world needs to quadruple its annual investment in nature if the climate, biodiversity and land degradation crises are to be tackled by 2050, according to a new [UN report](#). The www.climatexchange.org.uk

State of Finance for Nature report finds that investing 0.1% of global GDP every year in restorative agriculture, forests, pollution management and protected areas could avoid the breakdown of natural ecosystem “services” such as clean water, food and flood protection, the [Guardian reported](#).

Mineral supplies

Supplies of minerals essential for key clean energy technologies such as electric vehicles and wind turbines need to accelerate sharply if global climate goals are to be met, according to [new research](#) from the IEA. The report, the most comprehensive of its kind to date, finds that at least 30 times as much lithium, nickel and other key minerals may be required by the automotive industry alone by 2040, Carbon Brief [reported](#). Separately, London-listed Green Lithium [said](#) it had received grant funding from the UK’s Automotive Transformation Fund to help further plans to build Europe’s first large-scale lithium refinery. Earlier this year the Li4UK mining consortium, which is working at sites in Cornwall and Scotland, [said](#) it had produced the UK’s first battery grade lithium.

UK Climate and Energy Research and Policy

Industrial decarbonisation funding

The UK Government [announced](#) a £166.5m funding package to develop decarbonisation technologies, such as carbon capture and hydrogen, which it said would create 60,000 jobs. The package, which follows on from last November’s [ten-point green industrial plan](#), includes £20m to establish a [Industrial Decarbonisation Research and Innovation Centre](#) at Heriot-Watt University’s Edinburgh campus. It also includes £60m to support the development of low-carbon hydrogen, including scaling-up more efficient solutions for producing clean hydrogen from water using electricity.

Electric vehicles

The number of “ultra-rapid” electric vehicle (EV) charging points at motorway service stations and on key trunk roads in Britain will triple to more than 2,700 under a £300m two-year programme. Ofgem [said](#) it had approved the funding to enable electricity grids to support more EV chargers, a key obstacle in encouraging faster EV uptake. The energy regulator also [published](#) research showing that one in four (24%) UK consumers plan to buy an electric vehicle or plug-in hybrid in the next five years while over a third (38%) said they were unlikely to. Separately, the House of Commons Public Accounts Committee [said](#) the UK had a “mountain to climb” to meet stretching targets to phase out new fossil fuel and hybrid cars and that much more needed to be done by government, including on access to chargers for drivers without off-street parking.

Met Office climate forecast update

There is more than a 40% chance that the annual average global temperature in at least one of the next five years will temporarily reach 1.5°C above pre-industrial levels, according to an annual global climate [update](#) led by the Met Office. The odds are increasing with time according to the update which spans 2021-2025. The Paris Agreement seeks to keep global temperature rise this century well below 2.0°C above pre-industrial levels and preferably below 1.5°C. The Met Office update finds that, over the next five years, the annual mean global temperature is likely to be at least 1°C warmer, within the range 0.9°C-1.8°C.

UK finance sector emissions

UK financial institutions are responsible for 1.8 times the UK's annual net emissions of CO₂, according to a [report](#) commissioned by WWF and Greenpeace. It shows that a subsection of the UK finance sector was responsible for financing 805 Mt of CO₂ emissions in 2019 through lending and investment activities. If it were a country, this subsection would be the world's ninth biggest emitter of CO₂, ahead of Germany. Yet there is currently no requirement for the finance sector to reduce its emissions in line with government targets, unlike other industries, the report notes. The analysis used carbon accounting methodology PCAF to calculate the financed emissions, the first time such an exercise has been completed using this method based on publicly disclosed data.

Assessment of nature-based solutions

A lack of investment in and protection of the UK's peatlands have allowed them to become significant sources of carbon emissions and must be addressed urgently, according to a [report](#) by the British Ecological Society (BES). BES said the report – authored by 100 experts - offers, for the first time, a complete assessment of the potential of nature-based solutions (NbS) to mitigate climate change and benefit biodiversity in the UK. Peatland restoration should be a priority NbS, it said. The UK's 2.6m hectares of peatland contain around 3bn tonnes of carbon but degradation means they could be emitting 23m tonnes of CO₂e annually, equivalent to about half the amount released by agriculture.

SSE and Equinor at Peterhead

SSE Thermal and Equinor are considering developing a new low-carbon gas-fired 900MW power station at Peterhead, which could become one of the UK's first power stations equipped with carbon capture technology, Carbon Capture Journal [reported](#). It would capture up to 1.5 Mt of CO₂ a year and would have access to the CO₂ transport and storage infrastructure being developed by the Acorn Project, the companies [said](#).

UK airport expansion

The climate impact of expansion plans at UK regional airports has been significantly underestimated and would threaten the UK's emissions reduction goals, according to a [report](#) from the New Economics Foundation. It estimates that proposals to expand four airports in England would lead to an increase in emissions up to eight times higher than

previously claimed, the Guardian [reported](#). It also finds that plans to expand the airports overestimate the economic benefit, ignoring up to £13.4bn worth of climate damage they could cause, and suggests they may not have been adequately scrutinised.

Ember on Drax

Plans by Drax, the energy group, to fit its wood-burning power plant with carbon-capture technology could cost British energy bill payers £31.7bn over 25 years, or £500 a household, according to research from Ember, the climate think tank, the Guardian [reported](#). [Ember said](#) Drax was on track to earn £10bn in subsidies through energy bills by burning wood chips. Drax dismissed the findings: it said the government study on which Ember's research was based used cost estimates for developing a new power plant, rather than the cheaper option of retrofitting an existing plant.

Peat ban in England

Sales of peat compost to gardeners will be banned in England from 2024, as part of an action plan to restore peatlands, the [UK Government said](#). It said it would give £50m to support the restoration of 35,000 hectares of peatland in England by 2025. It also announced it would spend £500m on tripling tree planting in England to reach 7,000 hectares a year by 2024 and would set a new 2030 target for wildlife populations to reverse species decline.

Leith offshore energy hub

Forth Ports [unveiled](#) plans to create Scotland's biggest renewable energy hub on a 175 acre site at the Port of Leith. The £40m private investment would create a riverside marine berth capable of accommodating the world's largest offshore wind installation vessels. It said the proposals would support up to 1,000 long-term jobs and about 2,000 indirect jobs.

Offshore energy employment

Around 200,000 skilled people are projected to be required in the UK offshore energy industry to ensure delivery in 2030, with renewables set to be by far the biggest employer, according to a [review](#) of the sector's workforce transferability by Robert Gordon University. Jobs in the offshore renewables sector are expected to increase from 20% of the sector's roles in 2021 to about 65% by 2030, it finds. Over 90% of the UK's oil and gas workforce have medium to high skills transferability and are well positioned to work in adjacent energy sectors.

UK carbon market commences

The UK's Emissions Trading System (ETS) commenced operations, with initial carbon prices of just over £50 a tonne higher than those in the EU scheme, Reuters [reported](#). The ETS is a method of charging power plants and other industrial entities for each tonne of carbon dioxide they emit. Britain launched its own market following Brexit. Companies which need

to participate in both the EU and UK carbon markets hope cross trading of permits will be allowed but there are no signs yet of formal negotiations on linking the two systems.

Decarbonising heating and cooling

UKRI is to [invest](#) £14.6m in 11 projects aimed at decarbonising heating and cooling. The projects include research into a flexible air source heat pump for domestic heating, led by the University of Glasgow, which aims to overcome challenges to the widespread use of air source heat pumps in UK homes. It also includes a study into decarbonisation pathways for cooling and heating in short timeframes led by the University of Edinburgh.

Four-day week climate benefits

Introduction of a four-day working week without loss of pay could cut the UK's carbon footprint by more than a fifth (21.3%), according to an [evidence review](#) by environmental organisation Platform London, the Guardian [reported](#). Spain and Scotland are among the countries with national four-day week pilot schemes.

Climate Science, Impacts and Adaptation

Climate change and mental health

The climate crisis is damaging the mental health and wellbeing of hundreds of millions of people around the world but the huge costs are likely to be greatly underestimated, according to a [new study](#) from the Grantham Institute. It says there is a clear relationship between increased temperatures and suicide numbers; clear evidence for severe distress following extreme weather events; and that climate change exacerbates mental distress, particularly among young people, even for individuals who are not directly affected. The research, [described](#) in the Guardian as a landmark study, says the impacts will get worse without meaningful interventions and sets out detailed recommendations.

BGS data on subsidence

The number of properties in Great Britain facing subsidence issues and damage from shrink-swell is likely to triple to more than 10% by 2070 due to climate change, according to [new data](#) released by the British Geological Survey (BGS). Shrinking and swelling of the ground, often reported as subsidence, is already one of Britain's most damaging geohazards, costing an estimated £3bn over the past decade. BGS combined geotechnical information about potential ground movement, with data on long-term rainfall and temperature scenarios, to identify the most susceptible areas, many of which are in south-east England.