



Scotland's centre of expertise connecting
climate change research and policy

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

February 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

UN 'red alert' on inadequate NDCs

The UN [said](#) its first assessment of countries' pledges to cut their greenhouse gas emissions in the next decade represented a 'red alert', with the plans well short of the effort needed to avoid a climate breakdown. Emissions would fall by only 1% by 2030, based on the nationally determined contributions (NDCs) submitted to date, a fraction of the 45% needed, the [Guardian reported](#). The [assessment](#) covers countries responsible for about a third of global emissions. Only 75 of the nearly 200 signatories to the Paris accord submitted their plans in time to be assessed, with three of the world's biggest emitters, China, the US and India, still to formulate NDCs.

Emissions rebounding strongly

After falling sharply at the beginning of the Covid-19 pandemic, global CO₂ emissions have rebounded strongly, the International Energy Agency warns in its 2020 [review](#). The coronavirus crisis triggered the largest annual drop in global energy-related CO₂ emissions since WWII, with an overall decline of 5.8%, it says. However, emissions rebounded strongly, with the latest data showing that global emissions were 2% higher in December 2020 than in the same month in 2019. The agency said that despite talk of a green recovery, the numbers suggested a return to 'carbon-intensive business-as-usual', with significant policies measures to boost clean energy lacking. Emissions for China, the first major economy to emerge from the pandemic, alone increased by 0.8% over the year.

EU adaptation strategy

The EU pledged to "push the frontiers" of knowledge on adaptation and gather more and better data as it adopted a new [strategy](#) on adaptation to climate change. Among other things, it said it would step up adaptation planning and climate risk assessments, including

expanding [Climate-ADAPT](#), its adaptation knowledge platform. Three cross-cutting priorities will support further development of adaptation strategies: integrating adaptation into macro-fiscal policy, nature-based solutions, and local action.

French state climate change ruling

A Paris court has held the French state responsible for an alleged failure to take sufficient measures to halt climate change, in a landmark case backed by more than two million citizens, [AFP reported](#). The judges ruled that the government's failure to convert its commitments on reducing greenhouse gas emissions into policy made it responsible for some of the ecological damage seen. The court said it would give the government two months to take action before issuing any enforcement orders. The case was brought by climate campaigners including Oxfam France and Greenpeace France.

Climate migrants

New US president Joe Biden has asked his National Security Adviser to look into how to resettle migrants displaced by climate change. He has asked for a report within six months with “options for protection and resettlement of individuals displaced directly or indirectly from climate change”, [Climate Home News reported](#). The report will also discuss the international security implications of climate-related migration and mechanisms for identifying climate migrants including through referrals. Climate migrants are not currently defined as refugees under international law and so are unable to access the support which refugee status brings.

Denmark's energy island

A project to build a giant island providing enough energy for 3m households has been given the go-ahead in Denmark, the [BBC reported](#). The country's biggest ever construction project, the island will serve as a hub for 200 giant offshore wind turbines and for green hydrogen. It will cost an estimated 210bn kroner (£24bn), be at least 50% state owned and aims to supply electricity to neighbouring countries as well as Denmark.

Heat decarbonisation policy

New [research](#), published by ClimateXChange reviews the heating technologies and heat decarbonisation policies of nine European countries: the UK (with a focus on Scotland), the Netherlands, Norway, Sweden, Finland, Denmark, France, Germany and Ireland. It assesses how government policy has been used to change the way heat is delivered, setting out in detail the policy instruments – financial incentives, regulations and tax structures – driving countries toward zero-carbon heating.

Aligning finance with Paris Agreement

A [paper](#) from the Grantham Institute sets out a high-level and accessible overview of the most prominent methods and metrics emerging in the public and private sector to assess Paris alignment of finance flows and guide investment decisions. It says that, while there is a

proliferation of initiatives on Paris alignment of finance flows, to date there has been little overview, and almost no evaluation, of emerging approaches.

Bill Gates on climate

Climate-related research and development should be quintupled immediately, with investment stepped up in nuclear science, thermal energy, carbon mineralisation, sea-based carbon removal and direct air carbon capture, Bill Gates argues in a new book on addressing climate change. In a [review](#) for the Guardian, former prime minister Gordon Brown commends Gates' appraisal of the scientific solutions but notes that greater political will is required to solve the climate crisis, while the New Scientist [said](#) the book was a 'fine primer' for action which was clear and concise on a colossal subject.

Sustainable aviation fuel

British Airways said it would operate transatlantic flights partially powered by sustainable fuels as early as next year, the [Guardian](#) reported. It is investing in a new US plant producing sustainable aviation fuel (SAF), made from ethanol derived from agricultural and other waste. The airline said the fuel would create 70% less carbon emissions than conventional jet fuel and can be used to substitute for up to 50% of conventional jet fuel. It is also investigating building a SAF plant based on the same technology in the UK.

Paris air terminal cancelled; Leeds Bradford proceeds

The French government has abandoned plans to build a huge new terminal at Paris's Charles de Gaulle airport, citing environmental concerns and the fallout from the Covid-19 pandemic. A fourth terminal would have allowed the airport, Europe's second busiest after Heathrow, to handle up to 40m extra passengers a year. The move is part of a radical change in France's transport policies, the [BBC said](#), with airport developments now required to plan for electric or hydrogen-fuelled aircraft. In the UK, however, Leeds City Council approved an expansion of Leeds Bradford Airport. Last year, a group of climate scientists warned the expanded airport's greenhouse gas emissions would be higher than those allowed for the whole of Leeds in 10 years' time, the [BBC reported](#).

UK Climate and Energy Research and Policy

UK GHG emissions 2019

Greenhouse gas emissions fell 3% in 2019 from the previous year, representing a fall of 44% on 1990 levels, the [final figures](#) published by the UK government for the year show. Emissions from transport remained the biggest single source at 27%, falling by 2% over the year, followed by energy supply at 21% (down 8%), business at 17% (down 3%), residential at 15% (down 1%) and agriculture at 10% (up 1%). CO₂ emissions accounted for 80% of GHG emissions, followed by methane at 12%.

Wind farm auctions

Crown Estate Scotland (CES) has [paused](#) its auction of seabed leases for wind farms after auctions for England and Wales reached record highs. It said it would review its leasing process to ensure Scotland gained full benefit from the auction, the first round of offshore wind leasing in Scottish waters for a decade. Oil companies bid 'staggering' prices to build offshore wind farms around England and Wales in an auction that could deliver up to £8.8bn over 10 years to the Queen and the Treasury, the [FT reported](#) (paywall). Consortia involving BP and Total secured half of the six projects on offer, which together will provide just under 8GW, enough to power more than 7m homes. Separately, CES published its first [Climate Change Action Plan](#), pledging to reach zero direct emissions by 2040.

Green finance research centre

The UK is investing £10m in a new national green finance research centre that will advise lenders, investors and insurers. [UKRI said](#) that access to robust data and analytics was currently patchy and unreliable, and that the new centre, to be led by the University of Oxford, would help financial institutions shift investment away from environmentally harmful activities and towards sustainable ones. Hubs in Leeds and London will support companies and start-ups commercialise products that can help green global finance.

Coal mine backlash

Cumbria County Council agreed to review plans allowing a controversial new coal mine to proceed after a backlash against the project, the [BBC reported](#). The Climate Change Committee was among those critical of the plans, sending a [letter](#) to the government which warned the mine would increase global emissions and compromise the UK's legally binding carbon budgets. Foreign ambassadors also warned Boris Johnson, the prime minister, that the project would damage his reputation just months before he chairs COP26, the [BBC said](#).

Dasgupta biodiversity review

The world is being put at 'extreme risk' by the failure of economics to take account of the rapid depletion of the natural world and needs to find new measures of success to avoid a catastrophic breakdown, according to the landmark Dasgupta biodiversity [review](#). The review, commissioned by the UK Treasury, marks the first time a national finance ministry has authorised a full assessment of the economic importance of nature, the Guardian [said](#). Among other things, the review - described by Sir David Attenborough as "immensely important" - called for new supranational institutions to protect global public goods such as the rainforests and oceans, with poorer countries paid to protect ecosystems.

CCC's influence

The influence of the UK Committee on Climate Change (CCC) (recently renamed the Climate Change Committee) on political proceedings has grown over time, and most politicians have been supportive of it, according to a [study](#) published in *Climate Policy*. It says the CCC

functions primarily as a knowledge broker, which offers trusted information to policymakers, and finds little evidence that CCC analysis is politicised.

Climate Science, Impacts and Adaptation

Local mitigation in agriculture

The land sector can strongly contribute to climate change mitigation if sustainable land-use options are applied, according to a [study](#) published in the *Journal of Clean Production*. Results from a case study in Italy show that land-based mitigation options applied at small-scale rural landscape level can reduce and completely offset greenhouse gas livestock emissions in the same area, leading to carbon neutral livestock systems. The authors [said](#) that by employing local mitigation, they contributed to global emissions reductions while also achieving wide-ranging improvement to an entire local agro-ecosystem, providing co-benefits to rural communities. The team has also developed a carbon footprint measurement [web tool](#) to enable farmers to measure their farms' carbon footprint and assess potential sustainable solutions.

Global food system

The global food system is the primary driver of the marked acceleration of biodiversity loss around the world and a major contributor to greenhouse gas emissions and climate change which further degrades habitats and displaces species, according to a [Chatham House report](#). Current food production depends heavily on the use of inputs such as fertilizer, pesticides, energy, land and water, and on unsustainable practices such as monocropping and heavy tilling, it notes. It says reform should focus on three principal levers: a shift to plant-based diets; more land protection and restoration; and more nature-friendly farming.

Forest carbon mapping

New globally consistent methods for mapping forest carbon sources and sinks around the world show that forests absorb a net 7.6bn tonnes of CO₂ a year, according to [research](#) published in *Nature Climate Change*. The data, obtained by combining ground measurements with satellite observations, confirms that forests are an overall carbon sink, although there is variation within them. The new forest carbon flux map, publicly available on [Global Forest Watch](#), offer a highly detailed picture of forests' role in regulating carbon emissions, enabling emissions to be quantified across any geographic scale.

Nature-based solutions and forestry

While well-designed nature-based solutions (NbS) can deliver multiple benefits for people and nature, there are 'serious concerns' the focus on tree planting for carbon sequestration is distracting from the need to rapidly phase out use of fossil fuels and protect existing intact ecosystems, warns a [review](#) published in *Global Change Biology*. It sets out four guiding principles for NbS: they are not a substitute for the rapid phase out of fossil fuels; NbS involve a wide range of ecosystems on land and in the sea, not just forests; NbS should

be implemented with the full engagement and consent of indigenous peoples and local communities; and they should be designed to provide measurable benefits for biodiversity.