



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

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

June 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 ecosystems initiative

The world must rewild and restore an area the size of China to meet commitments on nature and the climate, according to the UN. Existing conservation efforts are insufficient to prevent widespread biodiversity loss and ecosystem collapse, it warned as it launched a [decade of restoration](#) with an accompanying [report](#). Humans are using 1.6 times the resources that nature can sustainably renew every year and the degradation of ecosystems is affecting about 40% of the world's population already, [the Guardian reported](#).

Climate change and biodiversity

The dual challenges of climate change and biodiversity loss cannot be solved unless they are tackled together, warns a landmark [UN report](#) discussed in [The Conversation](#). Not enough is being done to recognise that the climate and nature crises are inextricably linked with the two often treated as separate issues in the political arena, it says. The report identifies actions to tackle the two issues simultaneously, [the Guardian reports](#).

Climate economic impact

The economies of rich countries will shrink by twice as much as they did in the Covid-19 crisis if they fail to tackle rising greenhouse gas emissions, according to [research](#) from Swiss Re and Oxfam. G7 countries will lose 8.5% of GDP a year within 30 years if temperatures rise by 2.6°C, as is likely on present government pledges and policies, the [Guardian reported](#). The UK's economy would lose 6.5% a year by 2050, compared with 2.4% if Paris Agreement goals are met. Other countries would be hit much worse: India's economy would shrink by a quarter while Australia's would lose 12.5%.

Nato considers net zero

Nato is considering a net-zero greenhouse gas emissions goal by 2050, the [BBC reported](#). In a communique, the military alliance said it recognised climate change was a “threat multiplier” and “one of the defining challenges of our times”. While the target would not apply to member countries’ militaries, it “could provide a blueprint for similar action”: it would develop “methodology to help allies measure greenhouse gas emissions from military activities and installations”.

CAP reform

The European Union agreed reforms to the Common Agricultural Policy (CAP), introducing measures aimed at protecting small farms and reducing environmental impact, [Reuters reported](#). The deal ends a near three-year struggle over CAP’s future and shifts spending from intensive farming to protecting nature. Carbon Brief published a [Q&A](#) on the reforms.

Hydropower potential

Hydropower is the ‘forgotten giant’ of clean energy and needs to rise up the agenda if countries are to meet their net-zero goals, says a new International Energy Agency [report](#). As well as producing substantial quantities of low-carbon electricity, many hydropower plants can ramp generation up and down very rapidly, allowing for the integration of more intermittent wind and solar power output, [Reuters reported](#). Around half of hydropower’s economically viable potential worldwide remains untapped, especially in emerging and developing economies, the IEA said. Separately, UK generator Drax said it would seek planning permission to build a new 600MW underground pumped hydro storage power station at its Cruachan facility in western Scotland, [Reuters reported](#). Drax already has a 440MW facility at the site.

Wind and solar efficiency

Almost two-thirds of wind and solar projects built globally last year will be able to generate cheaper electricity than the world’s most efficient new coal plants, according to a [report](#) from the International Renewable Energy Agency (Irena). The agency found that the falling cost of new windfarms and solar panels meant 62% of new renewable energy projects could undercut the cost of up to 800GW worth of coal plants. Solar power costs fell by 16% last year while the cost of onshore and offshore wind dropped 13% and 9% respectively.

Affordable green hydrogen

By 2030, wind power could make it possible to produce green hydrogen as cheaply as is currently feasible with fossil fuel energy, according to a [white paper](#) released by turbine maker Siemens Gamesa, [Reuters reported](#). Siemens Gamesa said it based its cost forecasts on what it described as fair pricing for permits to emit carbon dioxide.

Hydrogen costs

The US Department of Energy has set a goal to reduce the cost of hydrogen power by 80%, to \$1 a kilogramme, in a decade, [Reuters reported](#). The ambition is the first in a set of government initiatives, called [Energy Earthshots](#), to accelerate and innovate in clean energy.

North Sea Link progresses

Work to lay the North Sea Link, a 720-km subsea electricity cable between the UK and Norway, has been completed, enabling testing to commence, the [FT reported](#). Set to become operational in October, the link will be the world's longest subsea electricity cable, with capacity to transport enough clean energy to power up to 1.4m homes.

Carbon floor price

Companies with high greenhouse gas emissions should be subject to a carbon price of up to \$75 a tonne to help meet the Paris Agreement goals, according to an IMF proposal. A carbon floor price would involve companies paying for the carbon they produce. At present, many countries and regions have their own carbon pricing systems, but there is no globally agreed carbon price, [the Guardian noted](#). The IMF urged the G20 to adopt a carbon floor price as the quickest way of reaching net-zero emissions.

Ecocide definition

Legal experts from around the world have drawn up a “historic” definition of ecocide, which they hope will be adopted by the International Criminal Court and used to prosecute the most egregious offences against the environment, [The Conversation reported](#). The draft law defines ecocide as “unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and widespread or long-term damage to the environment being caused by those acts”. If adopted by the ICC's members, it would become just the fifth offence the court prosecutes – alongside war crimes, crimes against humanity, genocide and the crime of aggression, [the Guardian](#) reported.

Swiss reject climate measures

Swiss voters narrowly rejected government plans for a car fuel levy and a tax on air tickets, throwing the country's climate change policies into doubt, [the BBC reported](#). The measures, rejected by 51% to 49%, aimed to help Switzerland meet targets under the Paris Agreement. Many voters appear to have been worried about the economic impact on the recovery from Covid-19.

UK Climate and Energy Research and Policy

CCC progress reports

Progress in adapting to climate change is not keeping up with the increasing risks facing the UK, with only five of 34 sectors showing notable progress in the past two years, the Climate Change Committee [said](#) in its biannual assessment of progress on adaptation. The UK was www.climatexchange.org.uk

not prepared for even a 2°C rise in global temperatures under the current National Adaptation Programme for England, let alone higher levels of warming that are possible by the end of the century. In its emissions progress report, it called for the UK Government to publish a comprehensive Net Zero Strategy before COP26, warning that greenhouse gas emissions were set to rebound next year. [Carbon Brief published](#) a summary.

Glasgow climate threat

Nearly 2m people living in the greater Glasgow area face severe disruption from climate change unless billions of pounds are invested in protecting homes, businesses and transport links, according to a [report](#) from Climate Ready Clyde. The study estimates about 140,000 of the region's poorest residents will be the worst affected by increased heatwaves, flash floods and droughts, as they are the least equipped to cope. It estimates there is already a funding shortfall of at least £184m a year to begin retrofitting homes and offices, [the Guardian reported](#).

Brexit and UK decarbonisation

The climate and energy policy provisions in the UK's EU exit agreement are significantly less binding or specific than the rules that applied when still a member, according to a [policy briefing](#) from UKRI. The UK Government must ensure the rigor and scope of domestic agencies balance this. Among other things, it also said the Government needed to define more clearly the scope of the UK's Emissions Trading System if it is to support the whole economy net-zero objective.

Scotland's consumption footprint

A new calculation of Scotland's resources footprint, using 'material flow accounting' has found the nation is consuming more than twice the sustainable level, the [BBC reported](#). A [project](#) led by Zero Waste Scotland found the total weight of resources for the average Scot during 2017 was 18.4 tonnes, well above the 14.1 tonnes for the average European. The sustainable level for Europe is estimated at eight tonnes. The agency said Scotland's high resource consumption is, in part, due to the quantity of things bought; because of relatively high heating costs and because rural, dispersed communities require more infrastructure.

Scottish Climate Assembly

Scotland's Climate Assembly has called for "much more and much faster" action to tackle the climate emergency. The Assembly's final [report](#) sets out 81 recommendations covering a broad range of issues including heating, environmental impact in public procurement, land use and agriculture, taxation, transport and the economy. The Government has six months to respond.

Equinor hydrogen expansion

Equinor is to triple its UK hydrogen output, after setting out plans to build the world's biggest hydrogen production plant with carbon capture and storage (CCS) technology near

Hull, [Euractiv reports](#). The 'blue hydrogen' would supply SSE's Keadby plant, making it the world's first full-scale power station to burn pure hydrogen to generate electricity, the Norwegian company [said](#).

Nissan EV expansion

Nissan is to invest £1bn with a Chinese partner to build a giant battery plant in north-east England and produce a new all-electric vehicle, [Reuters reported](#). The companies said the investment would create 6,200 jobs in Sunderland and in British supply chains. Nissan's partner Envision could invest an additional £1.8bn in the battery plant to expand generating capacity to up to 25GWh by 2030 and supply other manufacturers.

ScottishPower £1.58bn investment plan

SP Energy Networks has [set out plans](#) to invest £1.58bn in central and southern Scotland's distribution network between 2023 and 2028 to help transform the power system in line with net-zero ambitions. Among other things, the investment will enable connection of an additional 3GW of renewable energy, 370,000 electric vehicles and 210,000 domestic heat pumps over the five-year period, the [Herald](#) reported. The proposals also include a £30m Net Zero Fund to support low-carbon community projects across the company's UK licence areas and will create more than 1,100 jobs.

DAC planned for Scotland

A Direct Air Capture (DAC) plant to extract significant amounts of CO₂ from the air is being planned for north-east Scotland, the [BBC reported](#). The project, a joint venture between the UK's Storegga and Canadian firm Carbon Engineering, would remove up to 1m tonnes of CO₂ a year.. The captured CO₂ could be stored permanently offshore. If the project proceeds, it would be the biggest DAC facility in Europe.

Eco food and drink choices

A new traffic light system is being launched to allow consumers to make more environmentally friendly food and drink choices, the [Guardian reported](#). The scheme has been put together by [Foundation Earth](#), a new non-profit organisation backed by the government, as well as food groups including Nestlé, Marks & Spencer and Co-op. A pilot in the autumn will see a range of items carrying front-of-packaging "eco scores" for the first time. The system is expected to shake up supply chains and encourage producers to be more innovative in reducing their environmental impact.

Impact on nature standard

The British Standards Institution (BSI) has issued its first standard aimed at helping businesses and public sector bodies measure their impact on nature, [edie reported](#). Businesses often cite impact-reporting challenges in terms of metrics and data collection. The new standard outlines how users can place a value on nature and translate this into their balance sheets and income statements. Natural resources covered include forests,

fisheries, rivers, oceans, soils, minerals, the atmosphere and the biodiversity supported by these habitats. It allows for the accounting of both positive and detrimental impacts and can be applied to operations in any geography.

Insurance climate alliance

Leading UK insurers have launched a sector-wide taskforce aimed at tackling the climate crisis, the [Guardian reported](#). The Sustainable Market Initiative Insurance Taskforce, which includes Legal & General, Allianz and Axa, is to support the net-zero transition by expanding insurance coverage for projects such as offshore windfarms and hydrogen. It will also partner with governments to provide better disaster protection cover in countries facing serious risks such as extreme weather caused by global warming.

Climate Science, Impacts and Adaptation

Historic tsunami in Scotland

Towns and cities across Scotland would be devastated if the country's coastline was hit by a tsunami of the kind that happened 8,200 years ago, according to [research](#) published in the journal *Boreas*. While about 370 miles of Scotland's northern and eastern coastline were affected when the Storegga tsunami struck, the study suggests a modern-day disaster of the same magnitude would have worse consequences, the [Guardian reported](#). Human populations are denser while higher sea levels could potentially destroy seafront and port areas of Arbroath, Stonehaven, Aberdeen, Inverness and Wick.