



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

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

March 2019

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 Scottish policymakers informed of issues relevant to the Scottish Government's Energy and Climate Change policy portfolio.

International Climate and Energy Research and Policy

How climate change affects extreme weather around the world

Analysis undertaken by [Carbon Brief](#) suggests 68% of all extreme weather events studied to date were made more likely or more severe by human-caused climate change. 43% of such events are heatwaves, 17% droughts, and 16% heavy rainfall or floods. A map which plots every extreme event attribution study from peer-reviewed articles has been produced and will be developed to serve as a tracker for the evolving field of 'extreme event attribution'.

Why results from the next generation of climate models matter

[New climate models](#), which make best use of technological advances, and include better representation of weather systems, are being finalised to be included in the next international comparison of climate models, known as the sixth 'Couple Model Intercomparison Project' (CMIP6). This will provide the foundation of climate model information for IPCC's sixth assessment report due in 2021.

Preliminary results from some of the new CMIP6 models show equilibrium climate sensitivity (ECS)¹ values are higher than previous estimates, with some numbers being reported between 2.8 and 5.8°C. CMIP5 reported values between 2.1 and 4.7°C.

The next step for climate scientists is to understand why some of the new models are showing this change, and how this fits with other lines of evidence.

¹ ECS is defined as the temperature increase when CO₂ has doubled and the climate system has come into equilibrium. The higher the ECS is, the smaller the remaining carbon budget has to be to meet a particular climate target.

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Norway calls for \$1 trillion fund to sell some oil and gas stocks

The Norwegian government is [proposing](#) to exclude companies classified as exploration and production companies within the energy sector from the Government Pension Fund Global to reduce the aggregate oil price risk in the Norwegian economy. The move is being [welcomed](#) by climate campaigners with Greenpeace campaigner Martin Norman calling it a 'baby step in the right direction.'

State of climate in 2018 shows accelerating climate change impacts

The physical sign and socio-economic impacts of climate change are accelerating as record greenhouse gas concentrations drive global temperatures towards increasingly dangerous levels, according to a [report](#) from the World Meteorological Organization. The WMO Statement on the State of the Global Climate in 2018 highlights record sea level rise, as well as exceptionally high land and ocean temperatures over the past four years. The Statement also highlights that in 2018, most of the natural hazards which affected nearly 62 million people were associated with extreme weather and climate events.

UK Climate and Energy Research and Policy

Spring statement 2019: key takeaways

The Chancellor [announced](#) a 'future homes standard' to mandate the end of fossil-fuel heating systems in all new houses from 2025. While some in the business community have [welcomed](#) the Chancellor's green policy announcements; [green groups want more action](#), including on emissions from traffic, planes and energy efficiency of the existing housing stock.

The Chancellor also announced a consultation on carbon offsetting for plane passengers, and a comprehensive review of the link between biodiversity and the economy by Prof Partha Dasgupta from Cambridge University.

UK's CO₂ emissions fell three per cent in 2018

BEIS [official estimates](#) state that CO₂ emissions in the UK fell 3% last year. The energy supply sector experienced the largest reduction in CO₂ emissions from 2017 to 2018, and has been driven by a shift away from using coal for electricity generation towards gas and renewables. The figures also show that emissions from transport are starting to decrease.

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Accelerating innovation towards net zero

A [report](#) commissioned by the Aldersgate Group explores how the government can achieve net-zero effectively, in a way that enables the UK to capture competitive advantages. The report draws on lessons from successful and more rapid historical innovations, e.g. the deployment of the ATM network and cash cards across the UK. The report suggests some key actions for government policy to accelerate low carbon innovation in the UK including a call to increase ambition in demonstrating complex and high capital cost technologies and; harnessing trusted voices to build consumer acceptance.

Climate Science, Impacts and Adaptation

Greenhouse gas removal technologies: a focus on the commercial opportunity

Researchers at the Grantham Institute have published a [discussion paper](#) looking at greenhouse gas removal from a commercial perspective. It considers the potential market size and its limits, as well as what needs to happen to develop the sector.

The paper states that a first estimate of market size indicates that, in the appropriate policy environment, GGR markets, and the associated commercial opportunity, might be substantial. Also discussed is the importance of ensuring that the development of GGR does not unintentionally damage the environment through land-use change, impacts on water use and biodiversity.

Arctic sea ice winter peak in 2019 is seventh lowest on record

Preliminary [estimates](#) from the National Snow and Ice Data Center (NSIDC) in Colorado show that Arctic sea ice appears to have reached its annual maximum extent on the 13 March, tying with 2007 for the seventh lowest in the 40-year satellite record.