

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

December 2016 and January 2017

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

Energy and Climate Change in the Trump Administration to Date

Scott Pruitt, attorney general of Oklahoma, has been appointed to the post of Administrator of the US Environmental Protection Agency. [Pruitt has written](#) about the need for further debate on the role of human activity in causing climate and is currently part of a legal action against the EPA to halt the Obama administration's Clean Power Plan.

On the day President Trump took office, pages relating to climate change were removed from the White House website and replaced with the [America First Energy Policy](#) which plans to tap oil and gas reserves and revive the coal industry. The Policy also states that "President Trump is committed to eliminating harmful and unnecessary policies such as the Climate Action Plan".

Since taking office, President Trump has signed two executive orders intended to revive the Dakota Access and Keystone XL pipelines – two controversial oil projects that had been halted under President Obama.

Last Energy and Climate Change Actions of the Obama Administration

Just days before he left Office, Former US President Barack Obama transferred \$500m to the Green Climate Fund, which is a key aspect of the Paris Agreement and seen as being instrumental to bringing both rich and poor countries to the negotiating table. The money was drawn from the [state department](#) meaning the transfer could be made using executive powers and without congressional support. To date, including this latest transaction, the US has transferred \$1bn to the fund, leaving \$2bn owing.

In a [statement](#) on 20 December 2016, Former US President Obama designated the vast majority of US waters in the Chukchi and Beaufort Seas as indefinitely off limits to offshore oil and gas leasing. Canada's Prime Minister Trudeau, in the same statement, designated all Arctic Canadian waters as indefinitely off limits to future offshore Arctic oil and gas licensing, to be reviewed every five years through a climate and marine science-based life-cycle assessment. This is one of several actions announced to ensure a strong, sustainable and viable Arctic economy and ecosystem.

Pan-Canadian Framework on Clean Growth and Climate Change

Canada's Federal Government has announced the [Pan-Canadian Framework \(PCF\) on Clean Growth and Climate Change](#). The PCF has been endorsed by all three territorial governments and eight of the ten provinces ([Saskatchewan and Manitoba have not endorsed the PCF](#)). The plan which was developed with Canada's provinces and territories, in consultation with Indigenous peoples, will focus on meeting emissions reduction targets and economic growth. The plan also includes a pan-Canadian approach to carbon pricing.

Germany makes Climate Change key priority of its G20 Presidency

"Shaping an interconnected world" is the motto of [Germany's G20 Presidency](#) from 1 December 2016 to 30 November 2017. Ensuring the global economy is fit for the future is one of the three pillars underpinning the Presidency which will be used to make progress on the 2030 Agenda for Sustainable Development and the Paris Agreement.

Ireland votes to Divest from Fossil Fuels

Ireland has become the first country in the world to vote to divest from fossil fuels. The Irish Parliament [voted to pass the Fossil Fuel Divestment Bill](#), 90 to 53, in favour of dropping coal, oil and gas investments from the €8bn (£6.8bn) Ireland Strategic Investment Fund, part of the country's National Treasury Management Agency. The bill is likely to pass into law in the next few months after it is reviewed by the financial committee.

France issues Green Bonds to Boost Investment in Renewables

France has issued a record €7bn in so-called "green treasury bonds" to boost investment in renewable energy projects. Although France is not the first to issue these type of bonds, they have issued more bonds with a much longer maturity date (they will mature in June 2039) than others. The bonds were sold to banks, insurers and other investors according to [Renewable Energy Magazine](#).

Coal Demand Peaking for the First Time

[Analysis conducted by Carbon Brief](#) has shown that, for the first time, the BP Energy Outlook is forecasting a peak in global coal demand. The oil company's annual outlook is widely watched for its view of the energy world and in its [2017 edition](#) it has trimmed 6% from its 2035 outlook for coal and, for the sixth time in a row, raised forecasts for wind and solar energy.

Investors Launch \$1 billion Clean Energy Fund

Bill Gates and 19 other investors will put \$1 billion into a fund to increase emerging energy research and reduce global greenhouse gas emissions. The group, called [Breakthrough Energy Ventures](#), includes Richard Branson, Facebook's Mark Zuckerberg and Amazon's Jeff Bezos. The coalition's website says the group is "committed to investing in new technologies to find better, more efficient and cheaper energy sources".

UK Climate and Energy Research and Policy

Climate Change Risk Assessment 2017

The [2017 Climate Change Risk Assessment \(CCRA\) report](#) has pledged ongoing support for climate action post-Brexit and promises the referendum result won't affect UK ambition. The report, which draws on evidence gathered by the Committee on Climate Change's Adaptation Sub-Committee, sets the groundwork for the publication of the UK Government's second national adaptation programme in 2018. Priorities for UK-level action are: flooding and coastal change risks to communities, businesses and infrastructure; risks to health, well-being and productivity from high temperatures; risks of shortages in public water supply, and for agriculture, energy generation and industry, with impacts on freshwater ecology; risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity; and, risks to domestic and international food production and trade. The report also states that risks associated with new and emerging pests and diseases, as well as non-native species, affecting people, plants and animals should be a research priority.

UK Government Industrial Strategy

The UK Government has unveiled a [Green Paper](#) setting out how the government proposes to build its industrial strategy. The paper recognises the need to upgrade energy infrastructure and to deliver affordable energy and clean growth. It outlines three major energy policy challenges that the industrial strategy will address; to ensure the shift to a low carbon economy is done in a way that minimizes the cost to UK businesses, taxpayers and consumers; to manage the changes to energy networks required in the transition to a low carbon economy and; to make sure that the UK capitalises on its strengths in the energy industries to win a substantial share of global markets. The UK Government is consulting on the paper and inviting responses to the strategy via an [online survey](#).

Underground Coal Gasification will not go ahead in the UK

The Department for Business, Energy and Industrial Strategy (BEIS) has published an [independent review](#), conducted by Atkins, on the greenhouse gas implications associated with underground coal gasification (UCG). The review states that CO₂ emissions would be 40-100% higher if gas extracted by UCG was used by power stations vs. burning gas from the North Sea and imports. As a result of these findings, [BEIS has said](#) that the government was 'minded to not support' the technique.

UK Government Response to the Energy and Climate Change Committee's Third Report of Session 2016-17

The UK Energy and Climate Change Committee published its Third Report of Session 2016-17, [The energy revolution and future challenges for UK energy and climate change policy](#), on 15 October 2016. The UK [Government's response](#) was received by the Business, Energy and Industrial Strategy Committee on the 19 December 2016.

UK Fossil Fuel Dependency Hits Record Low

[New data](#) released by the UK Department of Business, Energy and Industrial Strategy (BEIS) shows

that the UK's energy system, although still dominated by fossil fuels, has never been less reliant on carbon intensive energy at any point in its modern history. In the third quarter of 2016 UK dependency on fossil fuels fell 2% year-on-year to 78.7%, down from also 88% at the beginning of 2013.

UK wind generated more electricity than coal in 2016

Carbon Brief released [analysis](#) showing that the UK generated more electricity from wind than from coal in the calendar year of 2016. The analysis reflects a collapse in coal generation which contributed 9.2% of UK electricity last year, with wind contributing 11.5%. This is the lowest coal output since 1935.

Wind Industry sets new record

Between 14:00 and 14:30 on 7 December 2016 wind farms delivered 23% of Britain's total electricity demand. This was the [first time](#) the UK's fleet of onshore and offshore wind farms passed the 10,000MW mark.

Green Investment Bank

The UK Government announced in June 2015 that the Green Investment Bank (GIB) would be privatised and an announcement on the buyer had been expected by the end of 2016. Although official confirmation is yet to be made, the Australian investment bank, Macquarie, is likely to be announced as the new owner. The Scottish Government's Cabinet Secretary for Economy Jobs and Fair Work, Keith Brown, has [written](#) to the UK Government to discuss concerns over the progress of the GIB privatisation. However, the takeover process has taken longer than expected and although officials have denied that the sale was about to be cancelled, an IPO may be possible. The Minister of State for Climate Change and Industry Nick Hurd MP when questioned on the sale of the bank last week said "We've run a competitive process, we've received a proposal from a preferred bidder which we are now evaluating against those criteria, and no decision has yet been taken."

Swansea Bay Project Backed by Review

In an [independent report](#), Former Energy Minister Charles Hendry has said the Swansea Bay tidal lagoon project would make a "strong contribution" to the UK's energy supply and would bring "significant economic opportunity". The UK government still needs to agree on a deal however and a marine license would also need to be approved.

The Renewable Heat Incentive

BEIS has [published](#) a response to the consultation on reforms to the Renewable Heat Incentive. These reforms will ensure that the scheme focuses on long-term decarbonisation; offers better value for money and protects consumers and; support supply chain growth and challenges the market to deliver. Further details on the policy and the government's process for reform are in the response to the consultation, the impact assessment and accompanying reports.

BEIS announces greater transparency for energy consumers

Business and Energy Secretary Greg Clark announced that an energy supplier [league table](#) is to be

published to increase transparency on the numbers of people on expensive standard variable tariffs. The UK Government has also launched a [call for evidence](#) on implementing better access to customers' energy use data to make switching energy supplier easier.

BEIS consultation on Heat in Buildings

BEIS has [announced a consultation](#) on options for raising domestic boiler standards and evidence on the costs and benefits of wider domestic and non-domestic central heating system performance improvements. Views are being sought from consumers, installers and the supply chain on a range of measures and policy options that can keep energy bills as low as possible; ensure the UK has a secure and resilient energy system and; reduce carbon emissions cost-effectively at home.

Call for Evidence: Scottish Climate Change Bill

The Committee on Climate Change has announced a [Call for Evidence](#) to help inform the new Scottish Climate Change Bill. The Call contains questions relevant to the new Bill including the level of ambition embodied in new targets, the emissions accounting framework and target-setting criteria. The Committee held their January meeting at the Edinburgh Centre for Carbon Innovation (ECCI) in order to hear the views of Scottish stakeholders as part of this call for evidence.

Scotland's Climate Change Plan

The Scottish Government has released its [draft Climate Change Plan](#), the third report on proposals and policies (RPP3) for meeting Scotland's annual greenhouse gas emissions targets. The draft plan is subject to a 60-day period of Parliamentary scrutiny. The [Environment, Climate Change and Land Reform Committee](#) will review the plan as part of a collaborative scrutiny approach with the [Economy, Jobs and Fair Work Committee](#), the [Local Government and Communities Committee and the Rural Economy and Connectivity Committee](#). [A call for written views](#) is open until the 10 February 2017.

Scotland's Energy Strategy

The draft Energy Strategy for Scotland has also been published and sets out the Scottish Government's vision for the future energy system in Scotland for the period to 2050. [Consultation on the strategy is open](#) until 30 May 2017. Alongside the draft Strategy, the government is also consulting on a [draft Onshore Wind Policy Statement](#); [Scotland's Energy Efficiency Programme](#); [Local Heat and Energy Efficiency Strategies, and Regulation of District Heating](#); and [Unconventional Oil and Gas](#).

Rise in Scottish communities producing own energy

The Energy Saving Trust has released a [report](#) showing an increase of 17% in community and locally owned renewable energy capacity operational in Scotland since September 2015. The report looked at all installations known to be operating, under construction, or in earlier stages of development as of June 2016. The 595 MW of total capacity is split between electrical, thermal, CHP and other 'unspecified' technologies.

Climate Science, Impacts and Adaptation

Absence of Carbon Capture and Storage is Biggest Challenge to 2°C Limit

[Research published in Nature Climate Change](#) shows that our energy systems are changing in ways that are broadly on track with emissions scenarios that keep temperatures below 2°C but that the continued lack of large-scale carbon capture and storage threatens 2030 targets and the longer-term Paris ambition of net-zero emissions.

Ladybird Book on Climate Change Released

Prince Charles has teamed up with Tony Juniper, former Executive Director of Friends of the Earth, and Emily Shuckburgh, polar scientist at the British Antarctic Survey, to create a peer-reviewed 'basic guide' on climate change for the Ladybird Expert series for adults. Carbon Brief has released a [video](#) interview with Dr Emily Shuckburgh on peer-reviewing the book.

2016 Hottest Year on Record

[Data released by the UK Met Office](#), and NASA and Noaa in the US have shown that 2016 was the hottest year on record and that 16 of the 17 hottest years on record have been in this century. Record temperature highs for both land and ocean surface temperatures were recorded in 2016 setting a combined global record for the third year in a row.

High Temperatures to hit UK Staple Crops

A [new study published in Nature Communications](#) says that yields of staple crops in the US are threatened by climate change. Wheat, maize and soybean are three of the world's most important crops. They are grown on 62% of all cropland in the US and 22% globally. The study shows that annual yields of maize, soybean and wheat could decline by 49%, 40% and 22% respectively, compared to yields under today's temperatures.

Exceptional Year for Arctic Sea Ice

Scientists from the National Snow and Ice Data Center (NSIDC) and the Polar Science Center have reported record lows in the Arctic Ocean for sea ice extent (the area covered by sea ice) and the volume of sea ice respectively. The [NSIDC report](#) that for November 2016, Arctic sea ice extent averaged 9.08 million km², the lowest November in the satellite record and 800,000 km² below November 2006. [The Polar Science Center report](#) that sea ice volume was also at a record low for November 2016, at just 7,800 km³, approximately 2,500 km³ below November 2015 and the lowest for any November on record. Together these findings show there is little sign of recovery and scientists say, don't bode well for the survival of the ice through 2017's melting season.

Satellites track variations in retreat of West Antarctic Glaciers

[Research](#) conducted by the Centre for Polar Observation and Modelling (CPOM), drawing on data from five separate satellite missions, shows how Antarctic glaciers have been thinning in patterns spreading upwards from the ice edge. The study focuses on Pine Island Glacier – which contributes more to sea level rise than any other ice stream on earth – as well as neighbouring glacier Thwaites and smaller Pope, Smith and Kohler Glaciers. It has shown glacier heights falling, most likely as they are thinning due to warmer sea temperatures recorded around Antarctica in recent decades.

Antarctic Iceberg Poised to Break Away

Researchers working on the UK's Midas Project have [reported](#) that a long-running rift in an Antarctic ice sheet grew suddenly in December and now just 20km of ice is keeping 5,000 sq km from floating away. The ice sheet, known as Larsen C, is the most northern major ice shelf in Antarctica. Although researchers say that this is a geographical and not a climate event, it is believed that climate warming has brought forward the likely separation of the iceberg.

Upgrade to Antarctic research facilities

The British Antarctic Survey has [announced](#) a £100M programme to upgrade polar infrastructure, ensuring the UK remains a world leader in science and polar-based innovation including the impact of climate change.

Double Threat to UK's Birds and Butterflies from Climate Change and Land Use

A [new study](#) by researchers at the University of Reading, the NERC Centre for Ecology and Hydrology, the British Trust for Ornithology, Butterfly Conservation and Natural England has shown that how we use land is exacerbating the vulnerability of some popular bird and butterfly species to climate change. In addition to rising temperatures, bird and butterfly species are losing their habitat to agriculture and urban development, limiting their access to food and nesting sites.

Toolkit to Improve Resilience of Health and Social Care Services for Older People

Expected increases in extreme weather events caused by climate change may lead to increased demand for health, social care and supporting services, especially for vulnerable groups, while at the same time causing serious disruption to the delivery of these services. Researchers have devised a framework to identify the formal and informal health care systems which act as resource networks and rely on built infrastructure. The [BIOPICCC Toolkit](#), developed at the University of Durham, is designed to support users to develop plans to make health and social care services for older people more resilient to the effects of extreme weather.

Climate Ready Edinburgh

The Edinburgh Sustainable Development Partnership in collaboration with Adaptation Scotland have produced [Edinburgh Adapts 2016 – 2020](#), an action plan that aims to help the city prepare for and adapt to climate change.