



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

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

December 2019 and January 2020

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

COP26

The [COP26 Climate Summit](#) has been officially launched. The UK will assume the COP26 Presidency, in partnership with Italy. The UK will host COP26 in Glasgow, with a number of events including a youth event, taking place in Italy at a pre-COP summit. Outgoing Bank of England Governor, Mark Carney, has been appointed as a key advisor on finance for the conference. Nigel Topping (former CEO of We Mean Business) has been given the role of High Level Climate Action Champion to help drive action from business, investors, organisations, cities and regions. The replacement for Clare O'Neill as COP President has yet to be confirmed.

Climate records set in 2019

Depending on the dataset used, 2019 was the second or third warmest year on record for surface temperature, and the warmest year without a major El Niño event. It was also the warmest year on record for ocean heat content. [Analysis](#) of official climate data by Carbon Brief shows that the past five years of temperature records really stand out as much warmer than anything that has come before. The analysis also shows that observations are closely tracking climate modelling projections.

World Economic Forum

A week before the WEF, CEO of Blackrock, Larry Fink, [wrote to CEOs](#) saying "Climate change has become a defining factor in companies' long-term prospects". In his letter, he went on to say that "we are on the edge of a fundamental reshaping of finance" and that "there will be a significant reallocation of capital".

At the [Davos summit](#), climate activist Greta Thunberg told business and governments to take urgent action to avoid climate disaster. One [climate initiative](#) (1t.org) launched at

Davos aims to grow, restore and sequester carbon from the air and protect biodiversity by supporting reforestation and forest retention.

European green deal

The European Commission has announced its intention for Europe to become the world's first climate-neutral continent by 2050. To achieve this, the European Commission has launched the [European Green Deal](#) which includes measures and policies ranging from emissions reductions, to investing in research and innovation. The European Green Deal aims to set out a path for a transition that is just and socially fair.

Ireland to ban sale of fossil fuel cars by 2030

Ireland's [Climate Action \(Amendment\) Bill 2019](#) aims to enshrine in law a ban on the sale of new fossil fuel cars by 2030. The Bill also aims to legislate for: establishing a 2050 emissions reduction target in law; making the adoption of carbon budgets a legal requirements; strengthening the role of the Climate Action Council in recommending the appropriate climate budget and policies; requiring the Government to set a decarbonisation target range for each sector; giving the Oireachtas (Parliament) a central role in the setting of the carbon budget and overseeing progress to delivery and; establishing that the Climate Action Plan shall be updated annual with actions in every sector.

UK Climate and Energy Research and Policy

Land use: policies for a net zero UK

The Committee on Climate Change has [published](#) in-depth advice on UK agricultural and land use policies. The report assesses the land use changes that are needed to deliver the UK Government's Net Zero greenhouse gas emissions target in 2050. The options for reducing emissions through land use highlighted in the report are: increase tree planting; encourage low-carbon farming practices; restore peatlands; encourage bioenergy crops and; reduce food waste and consumption of the most carbon-intensive foods. The Scottish Government has set out its response to the report [here](#).

New ambitious actions needed for a net zero Scotland

The [Committee on Climate Change's 2019 Progress Report to the Scottish Parliament](#) shows that GHG emissions reduced by 3% in 2017, compared to a 10% fall in 2016. The fall was again led by the power sector, due in large part to Scotland's first full year of coal-free electricity generation. The report finds that:

- Setting a net zero greenhouse gas emissions target for 2045 represents a step-change in ambition for Scotland

- Scotland's 2030 target to reduce emissions by 75% will be extremely challenging to meet and must be backed up by steps to drive meaningful emissions reductions, immediately
- Scotland's Programme for Government 2019/20, alongside other recent policies sent a clear signal that the Scottish Government is taking its more ambitious targets seriously, but there is much more to do
- Scotland's ability to deliver its net zero target is contingent on action taken in the UK, and vice versa
- Scotland missed its annual target for emissions reduction in 2017

UK ban on petrol and diesel cars brought forward to 2035

Responding to advice by the Committee on Climate Change, the UK Government has [announced](#) it will ban the sale of new petrol and diesel cars from 2035, and not 2040 as previously stated. Hybrid vehicles are also now being included in the ban.

Energising our electric vehicle transition

The Electric Vehicles Energy Taskforce has set out in its [report to Government](#) a range of proposals to enable the efficient integration of electric vehicles with the energy system during the electrification transition. Some of the proposals include:

- Providing financial incentives to EV drivers to ensure that the potential energy storage capacity of millions of electric vehicles is used to reduce peak demand
- Prioritising greater standardisation across the charging network to ensure it works resiliently, efficiently and securely with the electricity system
- Establishing an independent body to promote the benefits of smart charging through a major publicity campaign to ensure EV drivers are confident and well informed

UK climate assembly

The first session of the [UK citizens' assembly](#) on climate change has had its first session with 110 members of the public taking part, selected to represent the UK population. The assembly will result in a report to Parliament in April 2020 on the public's views on how the UK should reach net zero emissions by 2050.

Approaches used to develop national plans to implement climate mitigation commitments

A [study](#) by ClimateXChange compares and contrasts how jurisdictions develop and monitor their strategic plans for achieving greenhouse gas emissions reductions. The climate plans of 12 national, and four sub-national jurisdictions were reviewed. Some findings include:

- Only two of the eight jurisdictions have either legislated, or are legislating for, a net zero target.
- When setting a 2050 GHG emissions reduction target, most jurisdictions have set a 2030 target to act as a stepping stone along the way.
- All jurisdictions had common elements, for example quantitative assessment of emission reduction potential and the associated costs.

- Jurisdictions would typically enter into political decision-making process which involves engagement with their political parties, key industry players, civil society and academia.

Ultra-low emissions vehicles (ULEVs) market segmentation in Scotland

To achieve a full transition to ULEVs, it is critical to understand the specific challenges and needs that different car, van and HGV buyers face to develop targeted policies. [New research](#) from ClimateXChange explored the barriers that currently exist to ULEV uptake, segmented the Scottish car, van and HGV buyers by the barriers they face, and made recommendations to overcome these barriers and maximise economic opportunities for Scotland. Some of these recommendations included:

- Review ULEV purchase incentives in 2020 when Plug-in Car and Van grants are due to be revised. Purchase incentives should look to close the gap in upfront cost between ULEVs and conventional vehicles, but overall value to buyers should reflect the difference in overall ownership cost
- Support development of services for fleets and consumers which can show suitability for ULEV adoption and potential cost savings e.g. telematics systems.
- Continue to develop rapid charging network, including extending coverage to minor roads, increasing charge rates and improving reliability. Mobile charging solutions (e.g. BP FreeWire) could be used to test viability of rapid charge points in new locations.
- Launch a communication campaign to combat ULEV misconceptions and provide clear advice on options for ULEV purchase.

Identifying international leading practice in relation to enabling ULEV uptake

A suite of [case studies](#) by ClimateXChange has explored the policies and interventions some countries and regions have made to drive the uptake of ULEVs. The case study key findings were:

- Shenzhen, China is the first city in the world to have a fully electric bus fleet which has been supported by an annual subsidy to major bus operators in the city, and an extensive charging network.
- The Netherlands has the most comprehensive charging network in Europe which has been enabled by interoperability across operators in both the fast and rapid charging networks.
- Japan has a strong ULEV manufacturing industry which has been stimulated by long term R&D investment.
- Shanghai, China boasts a large-scale electric car share scheme supported by free parking and subsidies for infrastructure, and an EV consumer awareness campaign centred on an EV demonstration centre.
- California, USA has a high uptake of ULEVs as a result of their Zero Emission Vehicle policy which forced manufacturers to produce low emission vehicles.
- In Norway, BEVs made up 30% of new car sales in 2018. This has been enabled through a programme of incentives such as VAT exemptions and reduced tax rates.

These findings were then matched against research into ULEV market segmentation in Scotland to identify potential opportunities for Scotland.

Taking a managed adaptive approach to flood risk management planning in Scotland

A [study](#) by ClimateXChange assesses the use of managed adaptive flood risk planning in Scotland in the context of increasing and uncertain risks relating to climate change.

The report considers whether Scottish planning follows international best practice in this emerging field and, where there are shortcomings, seeks to identify how these stem from legislation, regulatory guidance or practitioner capacity. Drawing on Scottish case study evidence, it presents recommendations for how guidance can be changed to facilitate more adaptive approaches.

Climate Science, Impacts and Adaptation

Climate change driving decline of bumblebees

Analysis published in Science, and covered by [Carbon Brief](#), shows that changes in temperature and rainfall are pushing bumblebees to their ecological limits across Europe and North America. The result is a rapid and widespread decline in 66 bumblebee species. The impact of bumble population declines could have “unknown consequences for the provision of ecosystem services”, the authors say.

Tropical forests losing ability to absorb CO₂

New [analysis](#), using remote-sensing data and modelling, shows the world’s tropical forests are losing their ability to remove CO₂ from the atmosphere. The study which looks at carbon loss and gain across all of Earth’s biomes from 1992 to 2015, also shows that boreal forests in contract are absorbing emissions at a faster rate.