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

September 2018

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

Net zero GHG emissions across Europe "technically and economically possible" by 2050
A report from the European Climate Foundation, in collaboration with the Grantham Research Institute on Climate Change and the Environment, E3G, Iberdrola and a range of other organisations, has found that reducing greenhouse gas emissions to net zero by 2050 across Europe is both technically and economically possible. The report explores a variety of pathways to reaching net zero across the continent, including increasing energy efficiency, decarbonisation of the power sector and electrification of heat and transport. Read the report here.

Global Climate Action Summit sees new round of sub-state emissions reduction pledges
California Governor Jerry Brown used the recent Global Climate Action Summit to commit to passing legislation to cut the state's greenhouse gas emissions to net zero by 2045. At the same time, city leaders including Sadiq Khan, Mayor of London, pledged to make all new buildings carbon neutral by 2030 and retrofit existing homes to meet the same standard by 2050. However The Economist collates research which suggests that such sub-state pledges like these just scratch the surface of the emissions reductions needed to meet the goals of the Paris Agreement. Read the analysis here.

Petrol and diesel car sales must be phased out by 2030 across EU, research finds
New research by the German Aerospace Centre, commissioned by Greenpeace, finds that petrol and diesel car sales in Europe must be phased out before 2030 if the road transport sector is to play its part in meeting the goals of the Paris Agreement. Read the full report here and analysis from the Guardian here.

UK Climate and Energy Research and Policy

Scotland makes good progress on climate change, but more action needed says UK CCC
The UK Committee on Climate Change published its 2018 Progress Report to the Scottish Parliament this month. The report shows that emissions fell by 10% in 2016 compared with the previous year and demonstrates that Scotland continues to outperform the rest of the UK in reducing its greenhouse gas emissions. However the report also states that successful strategies for energy and waste mask a lack of progress in other parts of the Scottish economy including transport, agriculture, forestry and land use. The CCC also stated that they will consider the appropriate level of emissions reduction for the UK under the Paris Agreement, following a request expected from the UK Government in October. As part of this, it will consider how this updated advice affects Scotland's emissions targets and policy action. Read the progress report here.

UK Climate Change Risk Assessments could be improved through co-production, study finds
A new paper explores the use and perceived usefulness of the 2012 and 2017 United Kingdom Climate Change Risk Assessment (CCRA) reports to identify potential areas of improvement for UK adaptation policy. Analysing the 2012 and 2017 CCRAs, the researchers say that a new framework is needed in which future evidence assessments can adopt co-production approaches to their development. Read the full research paper in Environmental Science and Policy here.

Distributed energy systems need new policy, powers & funding
A new paper from Professor Jan Webb and Mags Tingey of the Heat and the City project explores the future of distributed energy in the UK and concludes that new supportive policy, statutory powers and resources are needed to ensure effective action for the social, economic and environmental prosperity potential of distributed energy to be realised. The paper is one of several essays in the IPPR's latest publication *A distributed energy future for the UK: An essay collection*. Read the full publication here.

Net zero briefings published by Energy and Climate Intelligence Unit
The Energy & Climate Intelligence Unit (ECIU) have published the first in their series of briefings on the implications of setting a net zero GHG emissions target for the UK. The briefings cover a range of policy areas from negative emissions to transport and from the power sector to heavy industry. Find the briefings here.

Energy pricing regime a barrier to heat pump and EV deployment
Reforming how energy tariffs are priced could encourage the switch to low carbon heat pumps according to a new study. The research by Energy Systems Catapult and Oxford University found that the balance of costs charged to consumers via the fixed cost and unit cost of energy provided meant that consumers were under-charged for the fixed costs of making energy supply available; over-charged for the units of energy they consume; and that the fixed costs avoided by those with generation on their own premises have to be recovered in the bills of other consumers, including those in fuel poverty. The study also found that consumers installing low-carbon demand technologies, such as heat pumps, over-paid their correct share of fixed costs recovered in the unit price because they used more electricity. As a result, the authors write that "…an artificial barrier has been created to the deployment of incremental demand including low carbon technologies such as heat pumps and electric vehicles". Read the full report here.

Greenhouse gas removal technology essential to meet Paris Agreements claims new report
A new report from scientists at the University of Oxford, Royal Academy of Engineering, Royal Society, and Imperial College London, argues that just reducing emissions is not enough to meet the goals of the Paris Agreement. It argues that removal of greenhouse gases from the atmosphere is also necessary. The authors estimate that the UK could cut new emissions of CO_2 from 468m tonnes in 2016 to 130m tonnes in 2050 through decarbonising the economy – but that this presents an enormous challenge. The report focuses on afforestation, bioenergy with CCS and agricultural innovations to improve soil carbon uptake. Find the report here.

Low carbon heat options analysis from the UK CCC
Mike Helmsley, Senior Power Analyst examines recent research on low carbon heat and what it might mean for the UK's heating systems in 2050 in a new blog. The blog looks at the costs and benefits of low regret options like heat pumps for off grid homes as well as examining different analyses of the potential costs of electrification or hydrogen routes. Read the blog here.

New report examines growth of community energy in the UK
A new working paper from the UK Energy Research Council (UKERC) seeks to understand the factors contributing to the emergence, growth and nature of community energy in the UK. Based on a review of existing data and literature, it focuses on the role of financing mechanisms and business models in the evolution of the community energy sector. The report argues that since its emergence in the UK in the late 1990s, community energy has grown through finding opportunities for smaller scale, decentralised energy activities in the UK's highly centralised energy system. Read the full report here.

Climate Science, Impacts and Adaptation

New land use modelling could help track progress against Paris goals
Researchers exploring the discrepancies between different ways of measuring land-based greenhouse gas emissions and uptakes have proposed a new method of disaggregation of global land model results. The research, published in Nature Climate Change, aims to allow greater comparability with individual countries' GHG inventories. Find the original research here and a shorter article explaining the research in Carbon Brief here.

New York Times profiles efforts to protect Scotland's heritage from changing climate
An interactive feature from the New York Times examines efforts to protect archaeological sites in Orkney from rising tides, increased rainfall and more extreme winter storms. Find out more here.

Climate skepticism more likely in countries with colder climates
A paper in Environmental Research & Science examines national polling data and Google search terms in English speaking nations to assess correlations between long term weather patterns and seasonal changes and skepticism about climate change. Controlling for factors including age, education, income, cultural values, and political attitudes, the research found that people living in colder climates were more likely to be sceptical about climate change than those in warmer climes. The author Brett W. Pelham states "All else being equal, climate change educators will likely face more pushback about global warming in places with cold climates and at times of the year when the weather is cold." Read more here.

Moderate warming could melt "sleeping giant" ice sheet in Antarctic
New research published in Nature predicts that sustained Antarctic warming of just 2°C could melt the largest ice sheet on earth, the East Antarctic Ice Sheet (EAIS), also known as Antarctica's 'sleeping giant'. The ice sheet is about 60 times the area of the UK. The researchers studied the Wilkes Subglacial Basin, one of three major areas where the EAIS sits on land that lies below sea level. If all the ice in this basin were to melt, resulting from sustained warming of 2°C over a couple of millennia, global sea level would rise by up to four metres. Read the research here.

Scientists call for ethical assessment of negative emissions technologies
A group of scientists writing in Nature have criticised what they call the lack of a "systematic evaluation of the ethics of carbon removal methods by the climate assessment community or professional philosophers". The scientists from the Mercator Research Institute on Global Commons and Climate Change in Berlin warn that climate policy advice is being undermined by value-laden choices over risky mitigation strategies. Read their comment piece here.