

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

April 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

#### Sweden leads climate change fight

The '[EU Climate Leader Board](#)', released by Carbon Market Watch and Transport & Environment, has ranked Sweden as leading the fight against climate change, amongst EU member states. The leader board looks at the position of each European government towards the EU's Effort Sharing Regulation. The UK is positioned at number 5 on this list. According to the ranking, Sweden also tops the 141 nations that have ratified the Paris Agreement. Analysis, published alongside the leader board, makes recommendations for how each country's position can be improved.

#### Countries joining coalition to drive ambitious climate change

On 3 April 2017, First Minister of Scotland, Nicola Sturgeon, [signed an agreement](#) with the Governor of California to work together on the fight against climate change and meeting ever more ambitious targets and showing leadership in galvanizing the Paris Agreement. The agreement follows on from the [Under2MoU](#) group that now bring together 167 jurisdictions seeking to reach more ambitious targets than their overarching nations. More recently, Sweden, Mexico and Canada have [joined the international group](#) which now spans six continents and 33 countries.

#### Mission 2020 launch

The former Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), Christiana Figueres has launched the [Mission 2020](#) campaign which aims to turn words into actions on climate change. The campaign refers to six global revolutions that must take place before 2020. The campaign was launched by the release of [The Climate Turning Point Report](#) in which researchers from the Potsdam Institute for Climate Impact Research discuss why global emissions must peak by 2020. Dr Alex Howe, Stakeholder Engagement Manager at the Grantham Institute, has [written](#) on the launch of the campaign.

#### How additional is the clean development mechanism?

A [report from the European Commission](#), written last year but published in April 2017, explores the application of current tools and proposed alternatives to carbon credit schemes allowed by the Paris Agreement. While the study provides important insights to improve the Clean Development Mechanism (CDM) up to 2020, the approach taken in the report could also be applied more

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generally to assess the environmental integrity of other compliance offset mechanisms, as well as to avoid flaws in the design of new mechanisms being used or established for compliance. Results from the study suggest that only 2% of projects examined, and 7% of potential 2013-2020 Certified Emissions Reduction (CER) supply, have a high likelihood of ensuring that emission reductions are additional and not over-estimated.

### **Pressure Mounts on G20 to Eliminate Fossil Fuel Subsidies**

The [Vulnerable Twenty \(V20\)](#) is a group of Ministers of Finance in a dedicated cooperative initiative of economies, systemically vulnerable to climate change. The V20 had their first dialogue with high level representatives of the G20 on the 23 April 2017. The [Chair's summary](#) shows that the discussions highlighted 'the importance of removing inefficient fossil fuel subsidies' that are inconsistent with sustainable development.

## **UK Climate and Energy Research and Policy**

### **UK Industrial Strategy Green Paper**

Energy Futures Lab and the Grantham Institute have submitted a [joint response](#) to the UK industrial strategy [green paper](#) strategy consultation focusing on energy system innovation and a least cost route to meeting the UK's low carbon energy goals.

A separate [response from UKERC](#) states that the UK's transition towards a cleaner, low carbon economy will only be achieved if it is fully compatible with the Climate Change Act, and is integrated with the forthcoming Emissions Reduction Plan. UKERC welcomes the addition of employment and industrial benefits of the transition to clean energy as a fourth policy goal, to sit alongside the familiar 'trilemma' of emissions reduction, energy security and affordability.

### **Leaving the EU: implications for energy and climate change policy**

The Business, Energy and Industrial Strategy Committee has [warned](#) that the Government has left the UK energy industry at risk and must act urgently to ensure its continued operation post-Brexit. The report recommends maintaining access to the Internal Energy Market and retaining membership of the Emissions Trading System until 2020 at least. Longer term, there is concern that the UK will have to comply without being able to influence European rules and standards. The report states that Brexit must not distract Government from delivering essential climate change policies. The Committee has also warned that any gap between the UK leaving Euratom and entering into alternative arrangements would severely effect nuclear trade and research and threaten power supplies.

E3G has conducted [scenario analysis](#) to explore how progress in the overall negotiations may impact specific energy and climate change policy areas. The scenarios are built on four key drivers: how

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national interests are prioritised by each side; orderly versus disorderly negotiation process; the timing and extent of any economic impacts; and momentum after the Article 50 negotiations.

In March 2017, the All-Party Sustainable Resource Group (APSRG), the All-Party Parliamentary Group on Climate Change (APPCCG), Carbon Connect and the Westminster Sustainable Business Forum (WSBF) ran a seminar as part of the 'Brexit Series' in Parliament entitled 'Energy and Climate Change Policy Post-Brexit'. This event examined the impacts Brexit might have on energy and climate change policy and a summary of the event has been [published](#).

### **World's first research programme into negative emissions**

The UK has launched a £8.6M national research programme on how to remove greenhouse gases from the atmosphere, funding projects to explore the real-world potential of negative emissions technologies (NETs), including soil carbon management, afforestation, bioenergy with carbon capture and storage (BECCS), enhanced weathering and direct capture of methane from the air. The programme is jointly funded by NERC, the Economic & Social Research Council (ESRC), the Engineering & Physical Sciences Research Council (EPSRC) and the Department for Business, Energy & Industrial Strategy (BEIS). The Met Office and the Science & Technology Facilities Council (STFC) are providing in-kind support. Four interdisciplinary, multi-institute consortium and seven topic-specific projects have been awarded funding. Summaries of the project can be found on the [NERC website](#) and full abstracts can be read on [Grants on the Web](#).

### **UKERC to establish networking fund for energy research community**

EPSRC has awarded £1.5M to [UKERC](#) to develop a Whole Systems Networking Fund, aimed at improving communications and collaboration between whole systems energy researchers and those engaged in more disciplinary focused areas of research. The fund has four objectives: to improve the connections and collaborations between the research communities engaged in whole systems energy research and those engaged in more specific research; to provide mechanisms for collaboration that encourage diversity, with a particular emphasis on providing opportunities for early career researchers; to identify and learn lessons from best practice within the UK and internationally; and to work with policy, business and civil society to identify opportunities for wider engagement and impact.

### **Acorn CCS project receives EU funding**

The Acorn Carbon Capture and Storage Project has been [awarded funding](#) from the EU funding round 'Accelerating CCS Technologies' (ACT), part of the ERA-NET (European Research Area Network) programme. Acorn is a small scale full chain project in North East Scotland. CO<sub>2</sub> is captured from existing emissions at the St Fergus gas terminal, transported offshore and injected deep underground for permanent sequestration in a saline formation. The Acorn CCS project will re-use existing oil and gas infrastructure which is now redundant, prior to it being decommissioned. On its

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current timetable the project could be operational before 2022. The project is planning to capture about 200,000T/y of CO<sub>2</sub>.

### **Onshore wind projects could proceed without subsidy**

A [report](#) produced by industry experts Baringa Partners on behalf of Scottish Renewables, has found that the UK Government could deliver 1GW of new onshore wind capacity at no additional cost to consumers, above the long-term wholesale price of power. The findings are based on the latest evidence on the costs of onshore wind and other established renewable technologies such as large-scale solar power. But delivery is dependent on mature renewables being able to bid in auctions for long-term contracts for clean electricity, such as those offered to offshore wind and Hinkley Point.

### **Britain's first coal free day since the industrial revolution**

Britain went coal-free for the whole of Friday 21 April 2017; the first continuous 24-hour coal-free period for Britain since the use of fossil fuels began. The National Grid control room [tweeted](#), "National Grid can confirm that for the past 24 hours, it has supplied GB's electricity demand without the need for coal generation."

Carbon Brief has [reported](#) on how UK coal use is collapsing, using new government data. The collapse has been particularly dramatic in the power sector, where monthly coal use fell 70-80% in 2016, compared to a year earlier.

### **House of Lords criticise government delay on small modular reactors**

The House of Lords science and technology committee has [warned](#) that the government's failure to deliver a competition to develop small modular reactors (SMRs) has hurt the nuclear sector. In 2015 the then chancellor George Osborne promised £250M over five years for a nuclear research and development programme, which was to include funding for a competition to pave the way for SMRs.

### **Design of Welsh carbon targets**

The Committee on Climate Change (CCC) has [published its advice](#) on the design of Welsh carbon targets.

### **Green Investment Bank to be sold**

The UK government has agreed a £2.3bn sale of the Green Investment Bank (GIB) to the Australian bank Macquarie. The privatisation of the bank was expected in January but signoff was delayed due to political opposition. In his statement on the sale, Nick Hurd MP stated the GIB will invest more than ever into the green economy with £3bn of new investment targeted over the next three years. The government will continue to hold a £130M portfolio of a small number of GIB's existing investment.

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### **UK CCS Research Centre funding receives new funding**

EPSRC has awarded the [UK Carbon Capture and Storage Research Centre](#) £6.1M to continue its work for the next five years. The Centre's goal for its next phase is to ensure that CCS will play an effective role in reducing net CO<sub>2</sub> emissions while securing affordable and controllable electricity supplies, low carbon heat and competitive industries for the UK.

## **Climate Science, Impacts and Adaptation**

### **Public engagement with energy system change in Scotland**

Evidence about Scottish public values and attitudes towards energy system transformation is essential to inform the development of engagement processes that the Scottish Government has committed to in its draft Energy Strategy, published in January 2017. ClimateXChange has [published research](#) that draws on current thinking on public engagement with science and technology issues, and a survey from UKERC on public values for whole energy system change.

### **Simulating bioenergy potential**

IRENA has developed a new online simulator, in partnership with the Masdar Institute of Science and Technology, and Valbiom, which aims to give users the ability to estimate the potential yields of bioenergy produced anywhere in the world. Developers of the simulator are now looking to the public to help it validate its data and improve it. The simulator relies on publicly available data from the UN FAO and the World Bank on land productivity and consumption of households and cars around the world. IRENA recently held a webinar to launch the simulator; a recording of which can be [watched here](#).

### **Communicating the consequences of global warming for human heat stress**

Research [demonstrates](#) that deadly heatwaves will be experienced much more regularly, even if targets within the Paris Agreement are met. The researchers found that, even if Paris Agreement aspirations are realised, large increases in the frequency of deadly heat should be expected, with more than 350 million more megacity inhabitants afflicted by midcentury. The researchers say that such conclusions underline the critical role for ambitious adaptation alongside these climate change mitigation targets.