

Monthly Report on Policy Developments - Energy and Climate Change

October 2015

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 ClimateXChange¹ Secretariat and is intended to keep Scottish Policymakers informed of issues relevant to the Scottish Government's Energy and Climate Change policy portfolio.

Climate Policy

Parties agree final text for negotiation at Paris climate conference

The last round of negotiations before December's landmark Conference of Parties (COP 21) in Paris concluded in Bonn, Germany, this month. The meeting produced a final draft text, which will set the agenda for negotiations at the Conference. Earlier in the month, co-chairs of the negotiations released a refined draft text of 20 pages in an attempt to set a manageable agenda for December's talks. However, this version of the text attracted criticism, particularly from the G77 group (comprising 134 developing nations) and China, who argued that it [unfairly favoured the interests of developed nations](#). Countries finally agreed to a 34 page text, including further submissions on a number of key issues. Negotiations over the final text exposed a [number of ongoing points of contention](#) in climate negotiations, including the differentiation of responsibilities between developed and developing nations, the provision of [climate finance](#), and compensation for loss and damage.

India submits emissions plan

India was the final major carbon emitter to submit its pledge ahead of COP 21. It has committed to a [33-35% reduction in emissions intensity by 2030](#), compared to 2005 levels, but has not set a cap on emissions as other major emitters have done. The pledge outlines a plan to secure 40% of total electricity use from renewables by 2020, as well as various mitigation and adaptation initiatives, which are estimated to require \$2.5 trillion of investment. Analysis by Carbon Brief found that India's emissions under the plan would continue to rise by around 90% by 2033 compared to current levels.

Emissions pledges not enough to meet 2°C warming target

More than 140 nations have now submitted greenhouse gas emissions targets ahead of December's climate negotiations. Analysis by [Climate Action Tracker](#) (CAT) suggests that the combined effect of

¹ [ClimateXChange](#) is Scotland's Centre of Expertise on Climate Change, supporting the Scottish Government's policy development on climate change mitigation, adaptation and the transition to a low carbon economy. The centre delivers objective, independent, integrated and authoritative evidence in response to clearly specified policy questions.

these plans, if implemented in full, would limit global average temperature rise to 2.7°C above pre-industrial times by 2100. Whilst this is down from the 3.1°C estimated by CAT last December, it remains well below the internationally agreed target of a maximum 2°C temperature rise. Analysis by Washington-based [Climate Interactive](#) estimated that submitted plans would reduce global temperature rises to 3.5°C, while a new carbon calculator developed by [Imperial College London](#) and the Climate-KIC predicted rises beyond 4°C. An interactive version of this [tool](#) has been made available online, allowing users to see the consequences of various emissions scenarios.

Richer nations must implement stronger climate policies: OECD

A [report by the OECD](#) found that richer nations are likely to [miss their emissions targets](#) unless stronger climate policies are implemented.

Europe will surpass emissions targets: European Environment Agency

A report by the European Environment Agency [report](#) shows the EU decreased its GHG emissions by 24% between 1990 and 2014, while its economy grew by 46%. The EU has now reached its lowest GHG emissions levels on record. The report projects the EU will reach a 24% reduction in GHG emissions by the year 2020. Ahead of the Paris climate negotiations, the EU has further committed to reducing its emissions by 40% by 2030.

New IPCC Chief elected

The Intergovernmental Panel on Climate Change (IPCC) elected [Hoesung Lee of the Republic of Korea as its new Chair](#). In [an interview](#), Hoesung Lee indicated that under his leadership the Panel would strive to include more women scientists in its work, make its science better known and narrow down uncertainties about the future pace of global warming. The election of the Panel's new Chair and Bureau opens the way for work to start on the IPCC's Sixth Assessment Report, which is expected to be completed in 5-7 years.

Energy Policy

Urgent decisions required to secure a reliable, affordable and decarbonised UK energy system

A [report by the Royal Academy of Engineering](#) stresses that urgent planning decisions are required to secure investment that will keep the UK on track to deliver a reliable, affordable and decarbonised energy system. Prepared for the Prime Minister's Council for Science and Technology, the study modelled the future evolution of the UK's energy system in the short to medium term under a number of scenarios. The Academy has called for a combination of known technologies to be scaled up to unprecedented levels and integrated in smarter ways. It identifies as urgent actions: the establishment of large scale, whole system pilot projects; policies to drive forward nuclear, carbon capture and storage (CCS) and offshore wind capacity; developing policies to accelerate demand reduction; and clarifying and stabilising market mechanisms and incentives.

Meanwhile, the Global Sustainability Electricity Partnership (GSEP) published a [report](#) on the electricity industry's perspective on feasible technological innovations for achieving a transition to sustainable energy sources. The partnership includes companies such as EDF, RWE and American Electric Power. The report recommends a systematic approach to decarbonising the global energy network. It discusses the potential development of traditional and advanced technologies such as deep-sea carbon capture and storage, floating off-shore wind and smart-grids. The authors call on Parties to develop clear, long-term frameworks for increasing investment, develop systematic electricity systems, promote public-private sphere partnerships, and develop advanced technologies that are proven to be economically viable.

The cost of wind and solar is decreasing, but estimates of UK growth decline

[Analysis](#) conducted by Bloomberg New Energy Finance, this month found that wind power is the cheapest electricity to produce in both the UK and Germany. A report by UK's [Committee on Climate Change](#) finds that solar farms will be cheaper than gas and effectively subsidy-free by 2020. However, despite declining costs, the International Energy Agency (IEA) this month predicted that renewable capacity added in the UK will [fall by half between 2015 and 2016](#). The Agency attributes this decline to policy uncertainties, predicting particular downturn in the onshore wind and solar sectors.

Removing global fossil fuel subsidies would reduce emissions by 11%

Consumer subsidies to fossil fuels amount to US\$550 billion annually, four times more than subsidies to renewables. A [study of 20 countries](#), commissioned by the [Nordic Co-operation](#), found that removing fossil fuel subsidies would achieve an average of 11% greenhouse gas emissions reductions between now and 2020. This could increase to as high as 18% if a small share of savings (30%) is reinvested into energy efficiency and renewables. The cumulative savings across the 20 countries studied by 2020 amounts to 2.8Gt of CO₂e. Unlike other policy tools for reducing emissions, which cost governments, the study found that fossil fuel subsidy removal leads to an average annual saving of close to US\$93 per tonne of greenhouse gas emissions removed.

Climate Change Adaptation

Climate change risk to energy infrastructure

A [report](#) by the [World Energy Council](#) warned that the world's energy infrastructure is at risk from the effects of climate change. Flooding, severe storms and sea level rise pose risks to power stations, distributions grids and energy networks. The report stresses the risks of knock-on effects from such system failures on other infrastructure, including water and sewerage, transport and health. The authors call for collaboration between developers, regulators and investors to promote greater resilience within energy systems.

Green infrastructure for climate change adaptation

A [report](#) by the European Environment Agency explores nature-based solutions, or green infrastructure, to mitigate climate change impacts. Green infrastructure is defined as, 'a strategically planned network of high-quality green spaces' by the European Commission. The study maps: areas where climate and weather related natural hazards are likely to occur; current locations of well-functioning ecosystems thought to avert disasters risks and climate impacts; and where ecosystems could be improved to minimise potential climate and weather impacts. It also provides a methodology for 'screening' areas where green infrastructure may be useful for mitigating climate impacts. The report explores landslides, avalanches, floods, soil erosion, storm surges and carbon stabilisation.

Climate Science and Impacts

Accelerated dryland expansion under climate change

Nature Climate Change published a study finding that 56% of the world's land surface would be covered by drylands by 2100 if high levels of greenhouse gas emissions continue. Drylands, which are defined as regions where precipitation is counterbalanced by evaporation from surfaces and transpiration by plants, are currently home to 28% of the world's population. The expansion of such areas, which are substantially more fragile than other ecosystems, would lead to reduced carbon sequestration and enhanced regional warming. The study finds that increasing aridity, enhanced warming and rapidly growing human population will exacerbate the risk of land degradation and desertification in the near future under a high emissions scenario.

Accelerating permafrost warming in Alaska

[Researchers](#) have identified permafrost warming in parts of Alaska, observing temperature increases from -8°C to -2.5°C along the Arctic coast. Permafrost is soil, ranging from one metre to 1,500 metres under the ground that remains perennially frozen for at least two years. The global warming potential of methane stored in permafrost globally is estimated to be more than double the current equivalent amount of carbon dioxide in the atmosphere. These stores are at risk of being released into the atmosphere through thawing of the permafrost.