

Monthly report on research and policy developments  
Energy and climate change

February 2024

**Purpose:** This document provides a summary of recent key developments in policy and research related to energy and climate change. It has been prepared by [ClimateXChange](#) and is intended to keep policymakers informed of issues relevant to the Scottish Government's energy and climate change policy portfolio.

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## International climate and energy research and policy

### Record decrease in EU fossil fuel-generated electricity in 2023

7 February

Electricity generation from fossil fuels in the EU dropped by a record 19% in 2023 to its lowest ever level, according to a report by Ember. The share of electricity generated from renewable sources, such as wind and solar, increased to a record 44%. Electricity from wind power surpassed gas-powered generation for the first time.

Sources: [Ember](#); [Reuters](#)

### EU roadmap urges 90% cut in greenhouse gas emissions by 2040

7 February

Greenhouse gas emissions in the EU should be 90% below 1990 levels by 2040, according to a new roadmap released by the European Commission. The 2040 climate target aims to help decision-making in this decade to keep the EU on track to meet net zero emissions by 2050. The roadmap is the start of a lengthy process before the proposal can become law, according to Carbon Brief.

Sources: [European Commission](#); [Carbon Brief](#)

### EU nature restoration law to restore damaged ecosystems

27 February

A new EU law aims to repair at least 20% of European land and sea ecosystems by 2030. The parliament vote took place amid protests by farmers and in the face of strong opposition from right-wing parties. The measures were watered down because of the opposition, according to the Guardian. Further targets include the restoration of 30% of habitats already degraded by 2030, increasing to 60% by 2040 and at least 90% by 2050. In the EU, 26% of the land and 12% of marine areas are protected, according to Carbon Brief.

Sources: [The Guardian](#); [Carbon Brief](#)

**CXC monthly report on research and policy developments**  
**Energy and climate change – February 2024**

**Climate change affecting European farmers**

14 February

Climate change is already affecting European crops such as maize, rice, soybean and wheat, according to Reuters. The heatwave in Europe in the summer of 2023, which caused massive crop and livestock damage, was more extreme because of human-caused climate change.

Source: [Reuters](#)

**Germany announces changes to carbon dioxide storage law**

26 February

Germany is to allow carbon capture and off-shore sub-seabed storage to help reach its aim of being carbon neutral by 2045.

Source: [Reuters](#)

**Germany allocates €3.5bn for green hydrogen imports**

20 February

The German economy minister announced an allocation of €3.5bn of public money to procure green hydrogen and its derivatives between 2027 and 2036. Germany is planning for hydrogen to play a large role in decarbonising industry, but some experts question if the global quantities it hopes for can be generated within the timescales, according to Reuters.

Source: [Reuters](#)

**China is off course for climate targets due to coal power**

22 February

China has increased coal use and investment in coal power has risen by 10% from 2022 to 2023. This is putting China at risk of missing its climate targets for 2025, according to a report by Global Energy Monitor (GEM) and the Centre for Research on Energy and Clean Air (CREA). China decided to increase reliance on coal power due to electricity shortages in 2021, according to Reuters.

Sources: [GEM](#); [Reuters](#)

**Record US investment in renewables not enough to meet climate goals**

21 February

The US invested record levels in wind and solar power plants in 2023 but the expansion is not enough to hit its climate change targets, according to a report. The 32% growth in zero-emissions electricity generation and storage to 32 gigawatts in 2023 fell short of the recommended growth rate of between 46 and 79 gigawatts. To stay on track, the US needs to add 60 to 127 GW of capacity in 2024, the researchers found. Based on current projections, this is unlikely to happen, according to Reuters.

Sources: [Clean Energy Monitor](#); [Reuters](#)

## UK climate and energy research and policy

### **Heat pumps on subscription**

21 February

Innovative business models could support the rollout of heat pumps by helping with the upfront investment, according to this study from ClimateXChange. The report suggests three business models that could be implemented in Scotland via pilot schemes.

Source: [ClimateXChange](#)

### **Climate change route maps and score cards**

23 February

A climate change score card and/or route map is unlikely to be a suitable communication method for public engagement around climate action in Scotland, this ClimateXChange report concludes. The researchers provide recommendations on key principles for designing future climate change communication methods.

Source: [ClimateXChange](#)

### **Climate Change Committee advises against emissions carry over**

28 February

The UK Government asked the Climate Change Committee (CCC) to advise if it should carry over the 15% surplus emissions it did not use between 2018 and 2022, as planned in the Third Carbon Budget. The CCC stressed that the country needs to accelerate emissions reductions and that carrying forward any surplus would put emissions targets at risk.

Sources: [CCC](#); [Carbon Brief](#)

### **Labour party cuts green pledge by half**

8 February

Sir Keir Starmer, the leader of the UK Labour Party, announced that the party has reduced the budget for its 2021 Green Prosperity Plan from the originally planned £28bn to under £15bn. The largest cut is to the home insulation scheme, according to the Guardian.

Source: [The Guardian](#)

### **UK winters are warmer and wetter**

16 February

Warmer and wetter winters are becoming more common in the UK, according to analysis by Carbon Brief. Over the last century, the average winter has become 1C warmer and 15% wetter. Projections suggest that by the end of this century, winters will be 2C warmer and 11% wetter compared to the start of this century.

Source: [Carbon Brief](#)

## Climate science, impacts and adaptation

### **Global warming exceeds 1.5C limit for first entire year**

8 February

February 2023 to January 2024 was the first time the planet has experienced a full year where global warming has exceeded 1.5C, according to the EU's Copernicus Climate Change Service. The warming is attributed to human activities, particularly the burning of fossil fuels, according to the BBC. The recurring weather phenomenon El Niño, which is currently happening, normally contributes around 0.2C warming.

Source: [BBC](#)

### **Warmest February on record likely**

29 February

The highest ever recorded global average temperature for the month of February is likely to be recorded this year, due to climate change and the El Niño weather phenomenon.

Source: [Reuters](#)

### **Vital ocean current system approaching tipping point**

9 February

A breakdown of the ocean current system that regulates the Earth's climate may be approaching a tipping point that would disrupt global weather patterns. Large parts of the UK and Western Europe could enter a new ice age, rainfall required for agriculture would be disrupted and sea levels would rise in many parts of the world. Freshwater from melting ice due to global warming is disrupting the ocean circulation patterns, known as the Atlantic meridional overturning circulation. Scientists are unsure what the timescales are for the changes to the circulation, according to the Guardian.

Sources: [The Independent](#); [The Guardian](#)

### **Half the Amazon could reach a tipping point by 2050**

14 February

The Amazon rainforest ecosystem is approaching a shift due to warming caused by climate change, drought, deforestation and fires, according to a study in Nature. The researchers estimated that 10% to 47% of the Amazon's forest cover will experience these combined stressors by 2050.

Sources: [Nature](#); [Reuters](#)

### **Green spaces can cool urban areas by up to 5C during heatwaves**

23 February

Green spaces such as botanical gardens, wetlands and parks have significant heat mitigation effects in cities, according to research led by the University of Surrey. Botanical gardens reduced air temperatures during heatwaves in the city streets around them by an average 5C during heatwaves, the researchers found.

Sources: [University of Surrey](#); [The Guardian](#)

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**Migrating species at risk due to human activity**

12 February

One in five of over 1,000 vulnerable migratory species are threatened with extinction, according to a UN report detailed by the BBC. The decline is driven by human activity, including climate change, habitat destruction and hunting.

Sources: [Convention on the Conservation of Migratory Species of Wild Animals](#); [BBC](#)

**Effectiveness of climate messaging varies by country and intervention**

27 February

Communicating on climate change can have different responses using the same methods in different countries, according to a study in Science Advances. A team of over 250 researchers tested the effectiveness of strategies designed to increase climate change awareness and climate action in 63 countries. The researchers have developed a climate intervention app, which can be used by policymakers and climate change communicators to aid messaging.

Sources: [Science Advances](#); [The Conversation](#);

**Support for climate action systematically underestimated**

9 February

Although global public support for climate action is high, people always underestimate it, according to a study in Nature. Action on climate change was supported by 86% of nearly 130,000 people in 125 countries, with nearly 70% saying they would contribute 1% of their income to tackle climate change.

Sources: [Nature](#); [Carbon Brief](#)

**Carbon dioxide removal risks not assessed**

2 February

Significant ecological and societal risks associated with carbon dioxide removal (CDR), including biodiversity loss, food security and human rights have not been comprehensively assessed, according to a study in Science. Delaying deep cuts in emissions and relying on CDR to stay below the 1.5C warming limit would exceed the sustainability limits defined by the researchers, including limited reforestation, forest restoration, reduced forest harvest and agroforestry.

Sources: [Science](#); [Carbon Brief](#)

**Deadly wildfires in Chile more likely due of climate change**

22 February

Over 100 people were killed by wildfires in Chile in February. This type of event will become more common in Chile, with climate change making the world hotter and drier, according to a report from World Weather Attribution.

Sources: [World Weather Attribution](#); [Reuters](#)

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