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GLOBE International Legislators Summit. Climate Change - Scotland's Contribution

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On 5 and 6 November 2021 the Scottish Parliament will host a summit of international legislators to discuss the climate emergency, coinciding with COP26, the United Nations conference being held in Glasgow. This briefing provides delegates with background information on climate change in Scotland, and is published in English, French and Spanish.



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Summary

On 5 and 6 November 2021 the Scottish Parliament will host the GLOBE International Legislators Summit to discuss the climate emergency, coinciding with COP26, the UN climate conference. GLOBE International is a cross-party network of parliamentarians dedicated to improving governance for sustainable development.

Climate change is intensifying globally, with many of the observed changes occurring rapidly and unprecedented in thousands, if not hundreds of thousands of years. For example, since the industrial revolution, increases in carbon dioxide and methane in the atmosphere far exceed natural changes inferred from polar ice-core records over at least the past 800,000 years. The UN Secretary-General has called the climate emergency a "code red for humanity".

COP26 is the most important gathering on climate change since the Paris COP in 2015, with the talks widely considered to be the last opportunity to deliver on commitments to keep global temperature rise to within 1.5 – 2°C. To achieve this, greenhouse gas emissions must be reduced by all parties across all sectors of society and the economy.

Scotland was one of the cradles of the industrial revolution, and has benefited significantly from cheap and readily available fossil fuels, therefore it is important for Scotland to take a fair share of responsibility as well as a leading role in mitigating the effects of climate change. Scotland is also very well placed, due to favourable natural and human resources, to achieve net-zero emissions.

Climate impacts already being felt in Scotland include the 10 warmest years on record all occurring since 1997, reduced snow depth on the highest mountains, rising sea levels and more frequent heavy rainfall causing flooding.

A key priority for COP26 is for all parties to prepare, communicate and maintain emissions reduction targets, known as Nationally Determined Contributions. These should set out each party's efforts to reduce emissions, and are expected to show a progressive reduction. The UK Government has published a UK-wide Nationally Determined Contribution, and Scotland has published an indicative one, which recognises climate change as a human rights issue.

Scotland has a legally binding target of achieving net-zero emissions by 2045, with interim targets of 75% (2030) and 90% (2040); these are in line with independent scientific advice from the Climate Change Committee. The Climate Change Plan is a delivery plan which is updated every 5 years, and sets out anticipated emissions reductions across eight key sectors. The current Plan runs until 2032, with headline policies including:

- Decarbonising Scotland's buses, and reducing the number of km travelled by car in Scotland by 20%
- Creating 1 million zero-emission homes in Scotland by 2030
- Supporting nature-based solutions, including investing in peatland restoration and woodland creation.

The Climate Change Committee has made it clear that key priorities should now be reducing emissions from heat in buildings, transport and agriculture.

Introduction

On 5 and 6 November 2021 the Scottish Parliament will host a summit of international legislators to discuss the climate emergency, coinciding with COP26, the United Nations (UN) conference being held in Glasgow. The theme of the event is "accelerating climate action and delivering a green, fair and resilient recovery", and is being organised by [GLOBE International](#) in partnership with the Scottish Parliament; it forms part of the wider programme of events surrounding [COP26](#) ¹.

GLOBE International is a cross-party network of parliamentarians dedicated to improving governance for sustainable development. Founded in 1992 by politicians from the USA, EU, Russia and Japan, the organisation now includes legislators from every global region, and takes "a holistic view of the interconnected challenges of sustainability and seek[s] collaborative, cross-party solutions in the public interest" ².

This briefing provides delegates with background information on climate change in Scotland, including impacts, and mitigating and adapting to it.

It is published in the working languages of the UN; English, French and Spanish.

Recent Climate Science and COP26

The Intergovernmental Panel on Climate Change's (IPCC) [recently published Sixth Assessment Report \(AR6\)](#) report has made it clear that climate change is widespread, rapid and intensifying, and states ^{3 4}:

“ Many of the changes observed in the climate are unprecedented in thousands, if not hundreds of thousands of years, and some of the changes already set in motion—such as continued sea level rise—are irreversible over hundreds to thousands of years.”

Key details include:

- "High confidence" that in 2019, atmospheric carbon dioxide (CO₂) concentrations were higher than at any time in at least 2 million years, and "very high confidence" that concentrations of methane (CH₄) were higher than at any time in the last 800,000 years
- "Very high confidence" that since the industrial revolution, increases in CO₂ (47%) and CH₄ (156%) concentrations far exceed the natural multi-millennial changes between glacial and interglacial periods over at least the past 800,000 years
- "High confidence" that global surface temperature has increased faster since 1970 than in any other 50-year period over at least the last 2000 years.

The UN Secretary-General António Guterres has summarised the findings as a "**code red for humanity**" ⁵:

“ The alarm bells are deafening, and the evidence is irrefutable: greenhouse-gas emissions from fossil-fuel burning and deforestation are choking our planet and putting billions of people at immediate risk. Global heating is affecting every region on Earth, with many of the changes becoming irreversible.”

[The United Nations Framework Convention on Climate Change](#) (UNFCCC) is guided by the IPCC and seeks to “stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”. It has been ratified by 196 States (including the UK) which constitute the “Parties” to the Convention, and meet annually in a Conference of the Parties (COP).

COP26 is the most important gathering on climate change since the Paris COP in 2015, with the talks widely considered to be the last opportunity to deliver on commitments to keep global temperature rise to within 1.5 – 2°C. COP26 also offers a crucial opportunity to address how a just, resilient and green recovery from Covid-19 is delivered. To achieve this temperature goal, GHG emissions must be reduced by all parties across all sectors of society and the economy.

SPICe Briefings on [COP26 - An Introduction to the UN Conference of the Parties](#) and [Climate Change Subject Profile](#) provide further detail.

Climate Change and Scotland

In the late 1700s, the Scottish engineer James Watt refined steam technology and invented an engine that could efficiently power factory machinery from coal. This kick-started a process of industrialisation that has had a profound impact on Scotland and the planet. Engineers and merchants capitalised on Scotland's natural wealth, and the industrial revolution coincided with a period of intellectual and scientific accomplishments and economic growth, known as the Scottish Enlightenment (approximately 1750 - 1900). The Scottish economist and philosopher Adam Smith was a key figure in the Enlightenment and is known as the "father of modern capitalism"^{6 7 8 9}.

These inventions, discoveries and ideas found fertile ground globally, with Scotland's people at the heart of a wave of colonisation, trade and settling which has shaped much of the western world^{9 10}.

Scotland's role in industrialisation and natural resource exploitation has continued throughout the 20th and 21st centuries. The discovery of oil and gas in the North Sea (late 1960s) has meant that the City of Aberdeen is now regarded as the oil capital of Europe with BP's massive Forties field commencing production in the mid-1970s. Within a decade there were over 100 installations producing millions of barrels of oil a day. By the early 1980s Britain was a net exporter of oil and, by the mid-1990s, of gas. Production grew and peaked at the start of the 21st century, and the North Sea is now regarded as "mature" and on a slow decline¹¹.

Across the world, significant wealth has been generated and some living conditions improved through the exploitation of natural resources and burning fossil fuels. The negative consequences have also been considerable, and the release of GHG into the atmosphere since the industrial revolution is now causing irreversible climate change, the impacts of which are leading to rising temperatures, increased rainfall, sea-level rise and flooding³. These impacts are disproportionately felt by developing countries and the most vulnerable in society^{12 13 14}.

In response to a question on the "catastrophic effects" of climate change "on the lives and environments of those who did least to cause it", the need to recognise Scotland's "fair share of responsibility in a global and historical context", and the fact that we still "reap the benefits of it", the former Scottish Government Cabinet Secretary for Environment, Climate Change and Land Reform stated¹⁵:

“ Scotland was one of the cradles of the industrial revolution. [...] our sticky fingers are all over climate change, because right from the get-go we were beneficiaries of it, although arguably the vast majority of the population did not benefit massively from the industrial revolution—a small number of fairly wealthy people benefited fairly massively.”

The IPCC also notes that "strong and sustained reductions in emissions" of GHG "would limit climate change", and that whilst "benefits for air quality would come quickly, it could take 20-30 years to see global temperatures stabilize"³. With the right policies and political will, Scotland is well placed to help achieve these emissions reductions now and for many decades to come.

In 1887, James Blyth the Scottish electrical engineer built a cloth-sailed, horizontal wind turbine (as opposed to the now more common vertical turbine) in Aberdeenshire. It was 10m in diameter, stored the electricity in rudimentary batteries, and operated commercially for 30 years. He also had an interest in wave and tidal energy and argued that renewable power was a far superior energy source and cheaper than fossil fuels ^{16 17}. Since then, and driven by concerns about climate change, security of supply and affordability, the need for renewable sources of power and technological innovation has never been greater.

Due to technical expertise from centuries of fossil fuel exploitation, high winds, strong tides and high waves (to power turbines) as well as favourable geology in the form of depleted oil fields (which is key for carbon capture and storage), and the ability to store carbon in soils and trees, Scotland has the natural and human resources to achieve a "Just Transition" to net-zero emissions and to support other countries to do the same ¹⁸.

For example, due to the productivity of the wind, waves and tide, the area around Orkney, Shetland and the Western Isles is thought to be able to deliver 50% of the UK's total energy needs i.e. not only electricity, but replacing oil and gas and other forms of energy. Provisional figures for 2020 indicate that the equivalent of 96% of gross electricity consumption in Scotland was from renewable sources ^{18 19}.

SPICe Briefings on [Energy Policy](#), [Environment](#), and [Land Use and Rural Policy](#) provide further detail.

Climate Impacts in Scotland

The IPCC publishes regional assessments alongside its main report; the [Regional Factsheet for Europe](#) and [Adaptation Scotland](#) set out some of the expected climate change impacts ^{20 21}:

"High confidence" that, regardless of future levels of global warming, temperatures will rise in all European areas at a rate exceeding global mean temperature changes. This means that existing atmospheric CO₂ will have consequences, regardless of future emissions cuts. Scotland's 10 warmest years on record have all occurred since 1997.

"High confidence" that the frequency of cold spells and frost will decrease under all the scenarios and all time horizons. Warmer winters could lead to less frost damage to crops, longer growing seasons and crop yields, however warmer winters can also have [negative impacts such as increased pest activity, crop disease, and the expansion of invasive and non-native species](#). Scotland's snowsports industry, [worth an estimated £30 million and providing over 600 jobs in rural communities](#) is likely to be impacted. Since 1983 [there has been a 10cm reduction in the maximum snow depth on Cairngorm](#), one of Scotland's highest mountains. This trend is predicted to continue with the possibility of some years of very little snow by 2080 at the highest elevations.

"High confidence" that there will be an increase in winter rainfall in Northern Europe. A decrease is projected in summer in the Mediterranean extending to northward regions. Extreme rainfall and flooding are projected to increase at global warming levels exceeding 1.5°C in all regions except the Mediterranean. [Scotland is already experiencing increased rainfall](#), with an increasing proportion coming from heavy events. The annual average rainfall in the last decade (2010-2019) was 9% wetter than the 1961-1990 average, with winters 19% wetter. The consequences of extreme weather events, which are set to become more common as a result of climate change, were tragically

demonstrated last year when [a train derailed near Stonehaven after hitting landslip debris following a heavy rainfall event](#), killing three people and injuring six others. Future projections also make flash flooding events like [those seen in Edinburgh this summer](#) more likely and more frequent.

"High Confidence" that relative sea level will rise in all European areas except the Baltic Sea, at a rate close to or exceeding global mean sea level. Changes are projected to continue beyond 2100. Extreme sea level events will become more frequent and more intense, leading to more coastal flooding. Shorelines along sandy coasts will retreat throughout the 21st century. Sea levels are rising [due to the expansion of water from warmer ocean temperatures and the melting of glaciers, ice caps and ice sheets](#). Rising seas are predicted to increase the likelihood and frequency of coastal flooding and lead to increased coastal erosion. The Scottish Government [estimates that £400 million of coastal assets will be threatened by 2050](#).

Scotland's Nationally Determined Contribution

A key priority for COP26 is full implementation of the 2015 Paris Agreement, which requires all parties to prepare, communicate and maintain national GHG reduction targets. Known as Nationally Determined Contributions (NDCs) these should set out each party's efforts to reduce national emissions. NDCs are expected to show a progressive reduction in GHGs, known as the "ratchet mechanism". Previously, Scotland and the UK were part of a joint EU NDC, which set an EU-wide emissions target. The UK Government has [published a UK-wide NDC](#).

[Scotland's contribution to the Paris Agreement: indicative Nationally Determined Contribution](#) (iNDC) was published in July 2021. It "recognises climate change as a human rights issue", and states ²² :

“ The scale, scope and speed of the transformation that is required and to which Scotland is committed brings significant challenges, but anything less would be to fail our people and planet. Our aim is that setting out our framework and commitments on climate mitigation and adaptation in this way can support the learning, openness and working alongside each other we all require, as together we can tackle those challenges and move to a Net Zero, fairer and more sustainable future.”

This section summarises Scotland's iNDC; a more comprehensive account of Scotland's approach to mitigating and adapting to climate change can be found in SPICe's [Climate Change Subject Profile](#).

Emissions Reduction Framework

The [Climate Change \(Emissions Reduction Targets\) \(Scotland\) Act 2019](#) significantly increases Scotland's GHG emissions reduction target (against a 1990/1995 baseline) to net-zero emissions by 2045ⁱ, with interim targets for reductions of:

- 56% by 2020
- 75% by 2030
- 90% by 2040.

The net-zero target is in line with the CCC's, scientific advice as set out in their report, [Net Zero – The UK's contribution to stopping global warming](#). The iNDC focuses on the 2030 target, and highlights the following framework ²² :

Legally binding annual emissions reduction targets for every year to 2045. Alongside these targets there is a strong commitment to deliver a just transition to net-zero i.e. "reducing emissions in a way that is fair and creates a better future for everyone – regardless of where they live, what they do, or who they are". The [Just Transition](#)

ⁱ Net zero refers to achieving a balance between the amount of GHG emissions produced (e.g. transport and agriculture) and the amount removed from the atmosphere (e.g. trees and peat). To achieve this, existing emissions have to be reduced, as well as actively removing GHGs. Net zero is the state at which our contribution to global warming stops.

[Commission published their final report in March 2021](#); the Scottish Government has accepted all of their recommendations and [undertaken to develop Just Transition Plans for every sector and region](#).

“ All of Scotland's statutory targets are economy-wide; including all territorial greenhouse gas emissions and a fair share of those from international aviation and shipping, as well as territorial removals (including from the land use sectors). The statutory framework sets a default position that the targets are to be met through domestic action alone, without any use of international offset credits ²² .”

Scotland's statutory framework on climate change requires a strategic delivery plan for meeting emissions reduction targets to be published at least every 5 years. The current [Climate Change Plan](#) sets out anticipated emissions reductions to 2032 across eight key sectorsⁱⁱ and is supported by a [draft public engagement strategy](#). Headline policies include:

- Phasing out the need for new petrol and diesel cars and vans by 2030 and reducing the number of kilometres travelled by car in Scotland by 20% by 2030
- Creating 1 million zero-emission homes in Scotland by 2030
- Supporting nature-based solutions to climate change, by investing in nature, peatland restoration and woodland creation
- Supporting the development of Scottish hydrogen and Carbon Capture and Storage industries, and of Negative Emissions Technologies
- Decarbonising Scotland's buses and creating "Active Freeways" to provide sustainable transport links between towns and cities
- Supporting the transformation of vacant and derelict land to ensure that it is used for maximum environmental and community benefit.

Establishment of a Scottish National Investment Bank with a principal mission to support a just transition to net-zero, as well as developing new markets, partnership working to channel additional investment, and actively seeking to leverage investment in the Scottish economy. Key parallel initiatives include the Scottish Government's [Inward Investment Plan](#) and [Green Growth Accelerator](#).

Preparing for and adapting to climate changes which are "already locked in". The [Scottish Government's Climate Change Adaptation Programme](#) sets out the main climate risks for Scotland in a way that is closely aligned with the [UN Sustainable Development Goals](#), and how they are being responded to. The Scottish Government states that it "champions climate justice, and promotes a people-centred, human-rights approach to adaptation" ²² .

International development is framed by a "climate justice approach" through the [Climate Justice Fund](#) which seeks to collaborate with "international partners to deliver global change in a fair and sustainable way". Scotland is currently co-chair of the [Under2 Coalition](#) a global community of 220 state and regional governments "committed to

ii Electricity, Buildings; Transport; Industry; Waste and Circular Economy; Land Use, Land Use Change and Forestry; Agriculture; and Negative Emissions Technologies.

ambitious climate action in line with the Paris Agreement".

Key Priorities

As previously noted, the Scottish Government's [Climate Change Plan 2018 - 2032](#) sets out Scotland's path, across eight key sectors, to achieving a 75% reduction in GHGs by 2030, and ultimately net-zero emissions by 2045. The Plan is a crucial staging post in Scotland's trajectory to net-zero, as it encompasses the interim 2030 target, which independent advisers the [Climate Change Committee](#) consider to be "extremely challenging, and may not be feasible" ²³ .

Scotland's GHG emissions have nearly halved in the last 30 years, and they will need to more than half again in the next 11 to come close to achieving domestic targets, and contribute to achieving UK and international goals.. Emissions have reduced notably in the electricity, industry and waste sectors, but less so in buildings, transport and agriculture, and it is in these sectors where the "hard yards" of decarbonisation must be made; detailed, strategic and co-ordinated scrutiny across multiple portfolios will be required by parliamentarians.

In advance of agreeing a work programme for the new parliamentary session, the Scottish Parliament's Net Zero, Energy and Transport Committee (NZET) has recently [taken evidence from stakeholders and experts on the key issues and challenges in their portfolio](#). Lord Deben, Chair of the Committee on Climate Change stated that the Scottish Government should now ²⁴ :

" [...] prioritise reducing emissions from buildings. [With] a set of regulatory targets, frameworks and trigger points that allow us to understand better how Scotland will decarbonise buildings across the country. A crucial part of the transition that is notably absent at the moment is a route map for agriculture, which has so far been quite resistant to cutting emissions. [...] Another priority is the strategy for cutting transport emissions. At the moment, transport is the biggest sector for emissions in the Scottish economy. The climate change plan update that was produced earlier this year included big commitments from the Scottish Government to cut emissions from surface transport. That will rest on a host of policies that we have not yet seen [...]. An important aspect of the transition is that it cannot rest simply on a move to electric vehicles."

The Scottish Government has now published a [Heat in Buildings Strategy](#) which undertakes to "an ambitious programme of investment of at least £1.8billion over the course of this Parliament" (2021-2026), as well as "allocating £200 million for heat and energy efficiency projects in social housing" in the same period. The Strategy notes Scotland's 2030 emissions reduction target and states that ²⁵ :

" This means the vast majority of the 170,000 off-gas homes that currently use high emissions fossil fuels, as well as at least 1 million homes currently using mains gas, must convert to zero emissions heating. By 2030, we will also need to convert the equivalent of 50,000 of Scotland's non-domestic properties."

In relation to transport, the Cabinet Secretary for for Net Zero, Energy and Transport spoke of the Scottish Government's "world-leading commitment to reduce car kilometres by 20 per cent by 2030" in evidence to NZET, and confirmed that this is expected to be "achieved principally through behaviour change", with "people making greater use of both

public transport and active travel for short journeys in particular, and people working more from home and using their car less for their commute to work" ²⁶ .

As yet, there is no clear decarbonisation pathway for the agricultural sector. A number of stakeholder groups have made recommendations and a preliminary package of measures to reduce emissions from this sector is due to be developed by COP26. A new post-Brexit agricultural support framework is expected to be finalised in 2024 ²⁷ .

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