CONVENTION OF THE HIGHLANDS AND ISLANDS – MONDAY 28 OCTOBER 2019 (PAPER 5)

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
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Title: Responding to the global climate emergency – an initial assessment
Date: October 2019
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Purpose

1. In response to the global climate emergency, there is an urgent need to review how the Highlands & Islands can make a step-change in activity to reduce greenhouse gas emissions and prepare for the impacts of climate change. This needs to be done in a way that is positive for the people and the economy of the Highlands and Islands and builds on the strengths and assets of the region. This paper provides an initial overview of some of the challenges and opportunities for the Highlands and Islands in supporting the national endeavour to end Scotland's contribution to climate change by 2045.

2. While considerable work is taking place across Scotland and the region to address climate change, business as usual will not put us on the trajectory to reduce emissions and transform our economy. COHI members are invited to discuss what they can do to support the transformation to a net-zero economy in a way that maximises the competitiveness of the region.

Recommendations

3. COHI members are asked to endorse the following four recommendations:

a) To identify the global climate emergency as an overarching priority as part of COHI's work programme

b) To recognise the challenges and opportunities of ending our contribution to climate change and the transformative approach that will be required across all aspects of society

c) To adopt the Just Transition principles across COHI's work so that the global climate emergency is addressed in a way that is fair, equitable and positive for communities and the economy

d) To monitor progress on a regular basis to ensure collective action across COHI and an ongoing focus to address the global climate emergency

The national context

4. Last year, the Intergovernmental Panel on Climate Change (IPCC) issued a stark warning that the world must halve CO2 emissions by 2030 if we are to avoid global temperature rises of more than 1.5 degrees. The Net Zero report[1] by the UK Committee on Climate Change advised that Scotland could achieve net-zero emissions (whereby any remaining emissions are balanced by solutions such as forestry or bioenergy with carbon capture and storage) by 2045. It noted that this would require a substantial increase in effort across all sectors of the economy. A summary of Scotland's emissions is provided in Annex A.

5. At the same time, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) issued a report[2] warning about the damage human beings are causing to the planet. The IPBES report shows that the pressures on nature are increasing, and that the loss of species and ecosystems is a global and generational threat to human well-being.

6. These reports highlight that transformative change is required if we are to address the twin challenges of climate change and global biodiversity loss. They do however both suggest that it is not too late to act, but that all countries must act quickly and decisively to address these fundamental challenges.

7. Recognising the impact that the global climate emergency will have on every community and every business, and in response to calls from young people, scientists and businesses across the country, the Scottish Government has set ambitious targets as part of its Climate Change Bill. Stage 3 of the Bill was passed in September setting a target of net-zero emissions by 2045 and a 75% emissions reduction by 2030.

8. Scotland's Climate Change Plan[3] sets out a comprehensive view of how all aspects of society across industry, transport, energy, buildings, heating and land use will need to change if we are to reach our vision for growing the economy, improving the wellbeing of the people of Scotland and protecting and enhancing our natural environment. The Scottish Government has committed to updating the Plan in light of the new targets within six months of the Climate Change Bill receiving Royal Assent.

9. The Climate Change Bill also puts into law the requirements for the transition to a net-zero economy to be "just". Last year the Scottish Government established a Just Transition Commission[4] to advise on a how to achieve a net-zero economy in a way that is fair for all by following the internationally recognised principles that requires all actors to:

[1] Net Zero – The UK's contribution to stopping global warming
[2] Global Assessment Report on Biodiversity and Ecosystem Services
[3] Climate Change Plan
[4] Just Transition Commission

- plan, invest and implement a transition to environmentally and socially sustainable jobs, sectors and economies, building on Scotland's economic and workforce strengths and potential

- create opportunities to develop resource efficient and sustainable economic approaches, which help address inequality and poverty

- design and deliver low carbon investment and infrastructure, and make all possible efforts to create decent, fair and high value work, in a way which does not negatively affect the current workforce and overall economy.

10. Much of the climate emergency response focusses on reducing emissions (mitigation). Due to the complexity of how our atmosphere works, many of these interventions will take decades for the climate benefits to be realised. In the meantime, it is essential that we also concentrate on resilience and adaptation actions to address the ongoing impacts of climate change such as 'hotter dryer summers, warmer wetter winters and increased flooding' that we are all starting to experience. The Second Scottish Climate Adaptation Programme 2019-2024 was published in September and sets out how Scotland will prepare for the challenges of a changing climate.

11. Achieving net zero by 2045 is an immense challenge that will require structural changes at all levels of society. There are many profound changes that need to happen including how we use our land to reduce carbon while producing food and biodiversity amongst other benefits; how we decarbonise heat, transport and electricity while maintaining secure, reliable supplies at a fair and affordable cost; and how the transition to a low carbon economy can be positive for society, the economy and the environment.

12. This paper attempts to help COHI members think about what they can do to address these challenges and support the transition to a net-zero economy, whilst maintaining resilient communities, businesses and nature.

Highlands & Islands context

13. The Highlands and Islands have some distinct challenges and opportunities in ceasing its contribution to, and living with the effects of, climate change.

14. On the one hand decarbonising transport between islands and in remote areas, decarbonising off-grid heating systems without exacerbating fuel poverty, decarbonising activity in the industrial installations across the Highlands and Islands without negatively impacting on employment and productivity, and restoring peatlands to the point where they stop being a major source of emissions are all major challenges not to be underestimated.

15. On the other hand, Highlands and Islands are ideally placed to capitalise on the country's requirement for bio-energy and carbon sequestration with nature-based solutions such as peatland restoration and woodland creation alongside carbon capture and storage all acting as negative emissions solutions. There is much

good work already underway with for example the Highland Council's commitment to create a Carbon Neutral Inverness in a Low Carbon Highlands by 2025 but this will need to be scaled up across the region in order to meet the newly recognised emergency.

16. We are already experiencing the impacts of climate change with hotter dryer summers, warmer wetter winters, more intense rainfall and more flooding. More frequent extreme weather events such as heatwaves and floods are likely to cause disruption across the region, with substantial increases in the likelihood of coastal flooding in low-lying areas and, for example, places like Inverness are likely to see a sea level rise of up to nearly 1 metre between now and 2100.

17. The table below summarises some of the main opportunities and challenges across key sectors of the economy that would enhance resilience and put the region on a transformative trajectory to a net-zero economy. Further discussion follows about some of the main challenges around land use.

Sector	**Overview of challenges and opportunities**
Power	*Challenges:* Grid connection for new renewable generation. *Opportunities:* Support development of the whole **renewables** industry: onshore and off shore wind, wave and tidal energy, solar, hydro, biomass including potential for circular economy such as fish farm waste to create biofuel The Highlands & Islands could be a major contributor of **carbon capture and storage**
Transport	*Challenges:* More frequent extreme weather events (such as heatwaves and floods etc) are likely to cause disruption across the transport network. Nature based solutions will complement traditional engineering measures to maintain connectivity. Vehicles, ferries, shipping and aviation - phasing out of internal combustion engine vehicles and increasing **electric vehicles** (EV). Rapid development and placement of infrastructure such as EV charging points. Funding applications for active travel through Sustrans need rural proofing, with requirement for 50% match funding on active travel projects difficult to secure outside urban areas. *Opportunities:* Trialling of low and zero emission flights in the Highlands and Islands by 2021. Significant potential around **e-bikes for commuting** (will need the right infrastructure). We are still a long way behind continental Europe (Denmark, Holland on infrastructure and ambition.) Encourage investment in **active travel infrastructure** such as paths and off-road routes near to where people live and work

	Promotion of sustainable '**slow' tourism** - in respect of transport, it is also about encouraging visitors to make longer stays, use public transport to and within destinations, promoting hire or electric cars and ebikes and stimulating more visitor experiences based around walking and cycling.
Heating, housing and development	*Challenges:* Decarbonising Scottish heating will be particularly challenging and will need transformation of current heating supply. Specific challenges for H&I relate to off-gas grid. In addition, fuel poverty will need to be considered The increasing effects of climate change, including the consequences of more intense rainfall events will put existing and planned built development and infrastructure at risk. Similar risks are compounded within our coastal fringe with increased coastal flooding and erosion enhanced flooding due to sea level rise. Inverness will likely see a sea level rise of up to nearly 1 metre between now and 2100, with substantial increases in the likelihood of coastal flooding in low-lying areas. Rental housing for short-term lets does not require implementation of new environmental standards. *Opportunities:* Reduction in fuel poverty levels and therefore potentially child poverty levels. For the region to become a 'demonstrator' of new and innovative technologies and systems (for example the Hydrogen 100 project) Natural defences such as beaches, dunes and saltmarshes can be cost effective way of protecting buildings and infrastructure[5]. New and existing developments can use nature based solutions to improve resilience.
Industry	*Challenges:* Electrification of industry will be a significant component of reducing emissions, however wider challenges remain in supporting Scotland's oil and gas sector in the energy transition. *Opportunities:* Use of skills and expertise from oil and gas sector to support highly productive transition. 'Greening' of offshore oil and gas installations by incorporating renewable technology, e.g. floating offshore wind
Land Use	*Challenges:* Land use is already being affected by climate change and increasingly with 'hotter dryer summers, warmer wetter winters and more flooding'. Uncertainty over shape and size of future rural funding support. Funding has traditionally come through government, and there is a need to look at bringing in carbon funding from private business on top of government funding.

[5] Dynamic Coast - £13bn worth of infrastructure protected through natural defences

	Opportunities: How land is used has an essential role to play in the transition to a net zero carbon economy as well as building resilience to a changing climate. Promoting **nature-based solutions** for example through peatland restoration, woodland expansion and managing flood risk. Increasing resilience of coastal and river habitats to manage erosion and coastal flood risk will be important for many vulnerable Highland & Island coastal zones.
Marine	The region has strong potential to develop the **blue carbon sector** with marine and coastal habitats that are natural stores for carbon. Many habitats and species important for blue carbon are protected under the National Marine Plan and many are also safeguarded within Scotland's Marine Protected Area Network. There is some tension however between some marine developments and activities and the protection of environmental assets to meet other objectives, including for biodiversity.

Land use

18. One of the core challenges of a net-zero future is how we use land to reduce carbon while producing food, timber, drinking water, flood management, biodiversity, recreation and other benefits. The agriculture and land use sector are currently responsible for 23%[6] of greenhouse gas emissions in Scotland. Decarbonising this sector has specific challenges and will involve often difficult choices over land use. The Committee on Climate Change identify an increasing need for land to be used for energy crops. How this will be achieved alongside land used for other purposes will involve challenges for the whole of society and in particular for the land management sector.

a. **Maximising sustainable forestry** – Forestry is uniquely placed to help address the climate emergency and was the only aggregate sector where there has been a net emissions sink. There is considerable woodland cover in the region (over 500,000ha) made up of a mix of forest plantation and some native woodland, although there is strong regional variation with 30% woodland cover in Argyll & Bute, 16% in Highlands and very little in the islands[7]. The Highlands & Islands can play a strong role in contributing to national planting targets[8] through both woodland expansion and native woodland restoration. Examples as well, such as the Croft Woodlands Project demonstrate the potential for integrating woodlands onto croft land across the region.

b. **Peatland restoration –** The Highlands & Islands contain 85% of Scotland's peat reserves (covering 1.5m ha, about 38% of the region). Peatlands store GHG within themselves, with good quality "active" peatlands soaking up GHG from the atmosphere, while degraded peatlands release GHG into the atmosphere.

[6] Scottish greenhouse gas emissions 2017

[7] Post Brexit Agriculture report

[8] Scotland's Climate Change Plan - eg. expand woodland creation to 15,000 ha/pa; extend woodland cover nationally from 18% to 21% of Scottish land area.

Currently, Scotland's peatlands as a whole are a major source of emissions and restoration at pace and at scale is needed to reduce the rate at which peatlands are emitting GHGs. Current targets (Climate Change Action Plan) are to restore 50,000 hectares of degraded peatland by 2020, with another 200,000 hectares restored over the following ten years. By 2050, Scotland's expanded peatlands will sustain a diverse ecosystem, but it is unclear at present whether they will be sequestering GHGs, or still emitting.

c. **Supporting low carbon and high nature agriculture –** Over 20,000 people are engaged with agriculture in the Highlands & Islands, with the region[9] dominated by land use for grazing livestock. At the same time, over two-thirds of Scotland's High Nature Value farmland is located in the Highlands and Islands and the region has a high share of sites designated for their national and international environmental importance. Agriculture and crofting are also integral to the Region's food and drink and tourism sectors with the landscapes and environmental quality being a key motivation for visitors.

d. A report from the IPCC (Intergovernmental Panel on Climate Change) on Climate Change and Land[10] reiterated the critical importance of the land use sector to reduce carbon emissions for example through sustainable land management, improving soil management, improving resource efficiencies, use of genetic breeding and the integration of agroforestry within livestock enterprises. This will be particularly important for the region's livestock sector.

e. Production of bioenergy crops. Crops sequester carbon as they grow. If those crops are then burned for the production of bio-energy, and if carbon capture and storage facilities are attached to those production facilities, bioenergy with carbon capture and storage can be a way of actively reducing GHGs in the atmosphere while providing energy. Bioenergy with Carbon Capture and Storage will be essential for achieving net-zero by 2045 and the Highlands and Islands are well placed to capitalise on this.

f. **Coastal and River habitats -** Increasing resilience of coastal habitats to manage erosion and coastal flood risk will be important for many vulnerable Highland & Island coastal zones. Nature based solutions can offer benefits in re-wilding our river systems and upper catchments, enhancing the storage of flood waters away from lower urban reaches.

Conclusion

19. While the global climate emergency presents profound challenges, the evidence shows that Scotland can achieve net zero emissions by 2045, and that technological, behavioural and nature-based solutions will all be essential in ending Scotland's contribution to climate change, whilst maintaining resilient communities, businesses and nature.

20. The Highlands & Islands has significant natural assets, and an opportunity to set out an ambitious vision and programme of action to lead the way to a low carbon future, that ensures a nature-rich future that benefits resilient local communities and that contributes to a thriving and forward-looking, prosperous region.

[9] Post-Brexit implications for agriculture & associated land use in the Highlands & Islands

[10] IPCC Climate Change and Land report

21. The region has many opportunities to play a leading role in the move to a net-zero economy, and could benefit from the economic opportunities associated with doing so. While the challenges of meeting Scotland's climate change targets are significant, the region can capitalise on its current investments in renewable energy, and look to strengthen its role in the circular economies, active travel and green transport, local food production, green tourism, woodland management and expansion, and peatland restoration.

22. At the same time, the region will need to implement necessary resilience measures and support climate change adaptation measures in the light of the impacts that the region is already experiencing as a result of climate change.

Annex A

[Scottish Greenhouse Gas Emissions 2017 – Scottish Government Official Statistics]

Chart B1. Sources of Scottish Greenhouse Gas Emissions, 2017. Values in $MtCO_2e$