

WRITTEN SUBMISSION FROM SCOTTISH NATURAL HERITAGE

SNH views climate change as the most serious threat over coming decades to Scotland's natural heritage. In addition to its environmental consequences, climate change is likely to have major social and economic implications for people in Scotland and elsewhere. SNH aims to understand the effects of climate change on the natural heritage, and to help deliver the contribution that the natural heritage can make in limiting it and adapting to it.

The impact of climate change on Scotland's natural heritage is likely to be profound, causing very significant changes to our ecosystems and landscapes within a timescale measured in decades. Current indications are that by the 2080s Scotland will be warmer, especially in summer, with snowless winters in some parts; winters may become wetter and summers generally drier. The range of many species and habitats may shift northwards, or up hillsides. However many species and habitats may simply be unable to keep pace with the rates of climatic change, and some species may become extinct.

The most obvious changes in Scotland may be to coastal, marine and freshwater ecosystems. As sea levels rise, saltmarsh and machair habitats will be lost where man-made defences or natural topography prevent them moving inland. In the seas around Scotland there have already been shifts in ranges in algal, plankton and fish abundance. Rivers may become more affected by low flows in summer and by flash floods in winter washing out spawning beds for salmon. Wetlands may dry out in summer allowing woody species to colonise or causing peat to erode with consequences for greenhouse gas emissions.

Flexibility is likely to be key to making sure that infrastructure and land use are resilient to future climate, weather patterns and weather events. The natural heritage has an important role to play by making sure that ecosystems retain sufficient integrity so that they continue to provide essential services, such as flood mitigation, productive land capacity and water supply.

SNH is currently developing a policy statement and action plan on Climate Change and the Natural Heritage. A summary of the draft policy statement is annexed, which describes the main expected impacts of climate change on the natural heritage.

SNH's key contributions in responding to climate change will be:

- helping to understand and publicise the effects and consequences of climate change for the natural heritage;
 - advising on infrastructure and land management practices which help to mitigate climate change;
 - guiding adaptation so that nature can, as far as possible, adapt to a changing climate and so that people can make best use of natural processes in preparing for climate change;
 - promoting action by organisations and individuals by setting an example in the management of SNH's own operations, and through our wider environmental education work
- Climate change should not only be considered 'a problem of the future'. Its effects are already beginning to be evident in Scotland. Documented effects¹ include;
- increasing average annual temperatures;
 - increasing peak day temperatures (the 24-hour maximum);
 - increasing length of the growing season;
 - increasing sea surface temperatures;
 - rising sea levels from thermal expansion of the oceans as well as melting glaciers and ice sheets;
 - acidification of seas from increased carbon dioxide absorption.

We therefore strongly support the proposals for the Climate Change (Scotland) Bill.

¹ Barnett, CJ, Hossell J, Perry C, Proctor C and Hughes G (2006) A handbook of Climate Trends across Scotland. Scotland & Northern Ireland Forum for Environmental Research, SNIFFER project CCO3, 62pp. Available at <http://www.sniffer.org.uk/climatehandbook/> (accessed 5 June 2008) . See also Marine climate impacts Annual Report Card 2007-2008. MCCIP 2008.

Q1 The Bill creates a statutory framework for greenhouse gas emissions reductions in Scotland by setting a 50% reduction target for 2030 and an 80% reduction target for 2050.

What are your views on the 2050 target and a 2030 interim target proposed in the Bill?

We welcome the 2050 target. As discussed in the policy memorandum associated with the Bill, this is based on the desire to avoid dangerous climate change. However, 'avoiding dangerous climate change' is not mentioned in the Bill itself. In contrast, the UK Act (Section 6, 3a) requires that the advice that ministers receive on targets is to be based on developments since June 2000, the date of the Royal Commission on Environmental Pollution report Energy – The Changing Climate, which is referenced in the UK Act. We recommend a similar clause be included in the Scottish Bill, to provide a firm foundation if there should be any need to vary targets in future. The reference to 'avoiding dangerous climate change' need not be quantified, as understanding of the thresholds is likely to develop with scientific knowledge.

The target to reduce emissions by 50% in 2030 should be tightened. The overall effect of interim targets should be to achieve marked early reductions in emissions to follow an overall emission reduction pathway like the lower curve in Figure 1 (as discussed in the consultation paper on the proposed Bill during 2008). This approach is consistent with scientific advice that what is most important is the total change cumulative emissions over the period – represented by the area under the curve.

Faster early reduction will help avoid the need for major annual reductions in later years. The Bill proposals for an interim target of 50% in 2030 only amount broadly to achieving a linear pathway between now and 2050. We recommend that a further interim target for 2020 be introduced, set in the light of the recommendations of the UK Climate Change Committee. In our response to the consultation on the Bill we recommended reductions of at least 40% by 2020. If such a target were set, it would put Scotland on track to achieve a 2030 target of 55-60%.

It should be borne in mind that some of Scotland's emissions may be difficult or impossible to avoid, for example those arising from historical disturbance of peaty soils, including drainage, dehydration and erosion, for example by tree felling and draining certain peaty soils to plant forest. This legacy – arising from earlier land management decisions - could remain as a significant 'hard core' of emissions by 2050. Further work is required to establish in detail the nature and amount of such emissions. However, their existence means that emissions from other sectors will have to be reduced by much more than 80% in order to meet an 80% target overall.

An intended overall percentage reduction of only 3% in each of the final years of the period up to 2050 will require a much higher proportionate reduction in 'controllable' emissions.

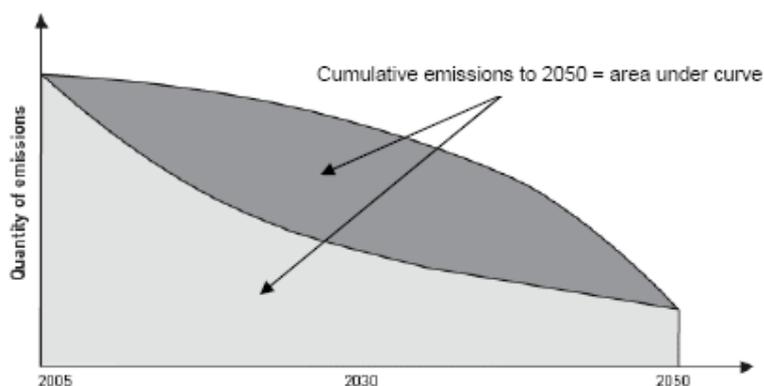


Figure 1. Illustration of the effect on total emissions over time of different emissions reduction trajectories²

² Source: Consultation proposals for a Scottish Climate Change Bill, Jan 2008, Fig 6

The targets should avoid relying on uncertain technological advances to secure rapid reductions later on. Where reliance is placed on technological advances (e.g. on carbon capture and storage, nuclear fusion, wave power, hydrogen economy), firm policy frameworks should be put in place, including regulatory controls and expected timescales, to make sure that such technologies are operational by specific dates.

Otherwise there is a risk of lock-in to existing forms of high-carbon infrastructure. In particular we have recently commented that there should be a moratorium on new coal power plant until such time as a firm timescale can be set to implement carbon capture and storage requirements. We think that imposing a requirement for carbon capture readiness – meaning only that there is space on site and that general feasibility studies have been undertaken – is insufficient.

In contrast, there are many practical measures that can be taken now using existing technologies (such as energy management, combined heat and power, electric vehicles, and renewable energy development), and more effective use of measures to help change behaviour and lifestyles. Interim targets should reflect the availability in the short term of these many practical measures.

Finally, we note that Scotland could be a role model for the international community in delivering these challenging targets.

Q2 The Bill requires that the Scottish Government sets annual targets, in secondary legislation, for Scottish emissions from 2010 to 2050. It is proposed that these annual targets will be set in batches, the first being for the years 2010 to 2022 inclusive

What are views on the setting of targets in batches from 2010 to 2022?

We support this approach provided the targets are compatible with the first three 5- yearly budgets recommended by the UK Climate Change Committee (2008-2012, 2013-2017 and 2018-2022). For the reasons set out above, we believe that the annual emissions reductions sought in this period should be higher than the annual emissions reductions sought in the last decade leading up to 2050.

Part 5 of the Bill is limited in scope, covering only selected aspects of forestry, energy efficiency and waste. To give effect to the targets or budgets we suggest that the Scottish Government produce a new Scottish Climate Change Programme, initially covering 2009-2022. The programme should cover all major sectors over which the Scottish Government has direct control, especially:

- Heat;
- Transport;
- Renewable electricity;
- Land use and land use change (including forestry and agriculture).

It should also cover areas that are important to achieving emission reductions in Scotland but are administered by the UK Government or the EU (e.g. emissions trading, product standards).

It would be helpful to develop 'energy hierarchies' for energy use in buildings and transport, similar to the well-established 'waste hierarchy'. These, for example, would give priority to demand management and avoiding energy use, followed by energy efficiency, renewable generation, low-carbon generation, through to higher emission generation as the least desirable. Emissions should be quantified on a life cycle basis. The less that is achieved at the top of the hierarchy, the more infrastructure may be needed to deliver solutions further down the hierarchy, with a likely consequence that there will be more conflicts with the natural heritage and other environmental factors.

Q3 The Bill provides that from the year 2020, the annual emissions targets must be set so that each is at least 3% lower than the target for the previous year. Prior to 2020, the Scottish Government has indicated that it intends to set annual targets which build towards delivering emissions reductions of at least 3% each year.

What are your views on this approach or any possible alternative approaches?

As discussed above, we favour emission reductions that lead to steeper reductions in the early years. We note that the provisions of the Scottish Bill are considerably less demanding over the period to 2020 than those of the UK Act which requires a minimum of 26% emissions reduction by 2020. We hope that the recommendations of the UK Climate Change Committee for 2020, for an 'interim target'³ of 34% and an 'intended target' of 42%, can be reflected in the final Bill.

Q4 The Bill introduces the concept of a “net Scottish emissions account” as a point of reference against which the target for reducing greenhouse gases can be measured. It is defined as the net Scottish emissions plus or minus any carbon units credited to or debited from the account. Any units purchased may be used to offset Scottish emissions. Any carbon units generated in Scotland and sold to customers outside Scotland, count as emissions made in Scotland

What are your views on the proposals in the Bill relating to the net Scottish emissions account, and should there be a limit on the number of carbon units which Scotland can purchase?

We agree with the principle that the Bill should ensure that action to reduce emissions is strongly weighted to domestic effort. We note that the UK Act contains a clause that limits the amount of carbon credits that can be purchased, and that the UK Climate Change Committee recommends limiting this to 10% for the 'interim target', so that 90% of the reductions are achieved through domestic effort or elsewhere in the EU.

Q5 The Bill defines “Scottish emissions”, in relation to a greenhouse gas, as being emissions of that gas which are attributable to Scotland. The policy memorandum states that “Scottish emissions” are defined as being those greenhouse gases which are emitted in Scotland or which represent the Scottish share of emissions of gases from international aviation and international shipping.

What are your views on this definition of Scottish emissions?

We agree with this definition, which is consistent with international reporting obligations. However, we recommend that the Bill also provides for reporting of emissions based on consumption of goods and services in Scotland. This issue was discussed in the consultation paper on the Bill. There is a risk that emissions associated with Scottish manufacturing might fall but only as a result of our importing similar goods from other countries, with the result that global emissions due to Scottish people might increase while Scotland satisfactorily meets its internal emissions targets. Scottish Government should keep itself well informed on such patterns of consumption so that mechanisms and policy measures can be designed to avoid this risk. Tracking emissions based on consumption is consistent with the adoption of ecological footprint as an indicator in the National Performance Framework, so most of the relevant data and information should be readily available.

Q6 The Scottish Government has indicated that initially it intends to seek independent, expert advice on climate change from the UK Committee on Climate Change. The Scottish Government states in the policy memorandum that if it determines that the UK Committee on Climate Change does not meet all the advice needed for Scotland, the Bill contains provisions which will allow the Scottish Government to establish a Scottish Committee on Climate Change or to designate an existing body to exercise these advisory functions.

What are your views on the Scottish Government’s approach to obtaining independent, expert advice on climate change?

³ The 'interim target' of a 34% reduction by 2020 assumes that the EU target to reduce emissions from the EU by 20% in 2020 remains in force. The UK CCC set a more ambitious 'intended target' of a 42% reduction by 2020 to apply if the EU adopts a 30% target for 2020, as they have stated depending on post-Kyoto international agreements.

We agree with the approach to rely on the UK Climate Change Committee until such time as there is a demonstrable need for a dedicated Scottish Committee or equivalent body. It may be important to make sure that the UK Committee is resourced so that it is able to present its advice so that it is directly relevant to Scotland (e.g. relevant legal, regulatory, policy and governance context). If there is a need to establish a Scottish Climate Change Committee, it should either be founded as an extension of the UK Committee, or required to work closely with the UK Committee, adding supplementary advice as needed. The composition of any such body should reflect understanding of the impacts of climate change on the natural heritage, and also social aspects of climate change, including both the social impacts of climate change and issues such as facilitating behaviour change.

Q7 The Bill places duties on the Scottish Government requiring that it reports regularly to the Scottish Parliament on Scotland's emissions and on the progress being made towards the emissions reduction targets set in the Bill. The Bill sets out details of these reporting requirements.

What are your views on these proposed reporting arrangements?

We agree with the proposals. Improvements are required in both the timing and content of the Scottish inventory of greenhouse gas emissions. There is currently a lag of approximately 2 years between production of the UK emissions accounts and disaggregated accounts for the devolved administrations. On the content, we have found major presentational differences in various inventories and reports, for example the treatment of emissions associated with land management and energy sectors, which makes it difficult to compare like with like. It is important that the inventories and reporting of emissions of greenhouse gases inform policy decisions in Scotland. We welcome the development of the Carbon Impact Assessment methodology by the Scottish Government, which should help to remove these discrepancies and achieve better alignment and reporting across economic sectors, relating financial spending and greenhouse gas emissions.

Q8 The Bill contains powers to allow the Scottish Government, by regulations, to impose duties on public bodies in relation to climate change, to issue guidance to those bodies relating to their climate change duties and to require that they report upon the discharge of those duties.

What are your views on this proposal?

We welcome these proposals and would be content with any reasonable duties imposed, that is, consistent with the degree of action required to reduce emissions, adapt to the impacts of climate change and making sure that ecosystems retain sufficient integrity so that they continue to provide essential services. As indicated in our opening remarks, we aim to lead by example.

Q9 The Bill places a duty on the Scottish Government to produce a report for Scotland, setting out its objectives in relation to adaptation to climate change, proposals and policies for meeting them and the timescales within which they will be introduced.

What are views on this proposal?

We strongly support this. As indicated in our introductory remarks and answer to Q1 climate change is already happening and we need to adapt to a changing climate in the future. This means making sure that infrastructure and long term decisions about land management and land use are resilient to future climate, weather patterns and weather events. The natural heritage has an important role to play by making sure that ecosystems retain sufficient integrity so that they continue to provide essential services, such as flood mitigation, productive land capacity and water supply. This requires that approaches to adaptation allow the natural heritage to adapt to changing climate so that it can continue to support the ecosystem functions that help society to adapt. Further details on our approach and recommendations on adapting to climate change may be found in our policy statement and Action Plan on Climate Change and Natural Heritage.

We welcome the Scottish Government's progress on developing a Climate Change Adaptation Framework and have assisted its development. We understand that after 2012

this will become the reporting and action framework required by the Bill following the first UK Climate Change Risk Assessment, expected in 2011 under the UK Act. We recommend that the Scottish Adaptation Framework should form part of the Scottish Climate Change Programme as suggested in our response to Question 2, so that the Climate Change Programme contains both mitigation and adaptation strategies.

We recommend that the timing of the requirement to report is tightened from “as soon as reasonably practicable” after the UK Risk Assessment to specify a number of months. We welcome the proposals for 5-yearly reporting: a good comprehensive report every 5 years is likely to be of more value than a less detailed but more frequent analysis. It is important that this process stimulates the action required and this aspect of the Bill may need to be subject to similar independent monitoring and scrutiny arrangements that prevail for emission reductions.

Q10 Muirburn is the act of controlled burning of vegetation on open semi-natural habitats such as muir (Scottish word for moor) or moorland, and includes the burning of plants such as gorse, heather and grass. The Bill contains an enabling power to allow the Scottish Government to vary the permitted times during which muirburn may be made where they consider it necessary or expedient to do so in relation to climate change.

What are views on this proposal?

We support this. Fire has been part of upland environments for many thousands of years. It occurs naturally as a result of lightning strikes and it is probably also one of the most useful, and oldest, land management tools. Each year, less than 5% of moorland is burnt for agricultural, nature conservation and sport interests to enable the provision of fresh food sources on rough grassland or managed moorland for livestock, game and wildlife, and the management of older vegetation, which can act as a source of fuel for wildfires. However, it is a powerful tool, which needs to be used with skill and understanding if it is not to do more harm than good. If not undertaken at an appropriate time, or according to good practice, muirburn can exacerbate erosion on some slopes and soils, damage peat-forming vegetation such as sphagnum mosses reducing the ability of the bog to sequester carbon, result in fire spreading to the underlying peat leading to severe erosion, cause displacement or death to wildlife, especially birds and reptiles and recolonisation rates. The Muirburn Code sets out the constraints to limit the potential damage to risk of damage to agricultural, forestry, game, biodiversity, landscape, and archaeological assets. Consequently, we recommend that there is a requirement for Ministers to consult with relevant authorities, including SNH, before varying the permitted times during which muirburn may be made. Consideration of changes to the dates of the muirburn season should not be in isolation, on the basis of one possible driver of change. In some cases it may be difficult to disentangle changes attributed to climate change from other factors including land management. Decisions would also need to take into account the extent to which restricting muirburn season would reduce the amount of muirburn undertaken. This may have detrimental impacts on some habitats, including Natura and Biodiversity Action Plan habitats that are maintained by rotational muirburn.

Q11 The Bill will allow modification by order of the functions of the Forestry Commissioners to enable the Forestry Commission in Scotland to play a greater role in tackling climate change. The immediate intent of the Scottish Government is to take forward proposals relating to renewable energy development on the National Forest Estate and the release of capital from the National Forest Estate for woodland creation.

What are your views on this proposal?

We support the work that FCS does, and in particular we welcome the way that forest management has developed into a multi-use, public-benefit process over the last 20 years. We strongly support multi-benefit forestry and would regard moves to single benefit forestry, even for carbon sequestration, as a potentially retrograde step. The development of joint ventures for renewable energy projects would be covered by existing safeguards in the planning process, and could be compatible with the delivery of multiple benefits. Some of the income from renewable partnerships could be earmarked to secure continued management of the national forest estate for multiple benefits. We would support this.

The outcomes associated with the proposals to lease-off some forest areas are less predictable. It is possible that management for the natural heritage could be perceived as

being less important in areas leased off. The lease-off could lead to less income for the remaining areas of the national forest estate and therefore fewer resources to support management for natural heritage benefits in those areas. This could lead to a weakened and 'de-commercialised' FCS, less able to lead by example and influence the private sector to undertake positive management for the natural heritage.

Establishing some firm principles to guide any leasing arrangements could reduce the likelihood of such undesirable outcomes:

- In the details of the lease and the use of any income, specify that the income should be spent in producing a balanced range of public benefits, not just carbon sequestration. The range of benefits should reflect the priorities, needs and outcomes sought in the areas that are being leased out.
- Require that the lease should be subject to formal review, for example through forest plans, every 10 years or so. It is extremely difficult to set the details of a lease for a period of 75 years which will cover all future options. For example, 75 years ago the most important use of timber from forestry was for pit-props, and decisions at that time could not have foreseen the management required for recent conservation issues or some of the difficulties associated with that, such as capercaillie leks and deer fences. Therefore, the terms of lease should provide for flexibility to require changed management for changing circumstances.

Q12 TO 16 (energy efficiency, waste, adequacy of consultation)

No comment.

Q17 Do you have any views on the Strategic Environmental Assessment which was carried out by the Scottish Government on the consultation proposals?

We are satisfied with the SEA process conducted by the Scottish Government, and its responses to the comments made by the consultation authorities. Consideration of the Screening Report commenced during pre-consultation stages of the proposals, with a report published in August 2007 and a determination in September 2007. A Scoping Report was published in September 2007, and the Environmental Report accompanied the consultation paper on proposals to introduce a climate change bill in January 2008, with comments invited in April 2008. A revised Environmental Report was published on the Scottish Government website on 4 December 2008, with clear responses to all of the comments made by the consultation authorities and relevant changes to the Bill (as introduced). We consider that the SEA has been a constructive process, adding value to the policy development.

Q18 Does the Bill raise any equalities issues you would wish to highlight?

No comment.

Q19 Do you have any comments on the impact of the Bill on sustainable development?

Despite our strong concerns about climate change and its impacts on Scotland's natural heritage, we would be concerned if efforts to address it have the effect of narrowing down perspectives on sustainable development away from the broad suite of goals set out in the Scottish Sustainable Development Strategy and in Scottish Government's 2007 Spending Review, to become overly focused on the single issue of carbon reduction.

Sustainable development has many angles, which are captured very broadly within the five strategic objectives of Government. Measures to address climate change will have to be designed sensitively, and with supporting policies and programmes, if they are to avoid making achieving these five broad objectives more difficult. Higher energy prices without improvements in energy efficiency could lead to greater levels of fuel poverty. Some approaches to restricting car use could make remote communities more fragile. Higher energy costs could affect costs for business. The Stern Review and the UK Climate Change Committee both emphasise the need for integrated policy interventions to reduce the likelihood of adverse outcomes, and both emphasise the long-term costs of failing to make early reductions in emissions: these are issues to be considered and designed around, rather than barriers to taking action on climate change.

We believe the need is to think in terms of what a sustainable low-carbon society that is well adapted to our changing climate will be like in 2020 and 2050, and actively steer Scotland's development towards that vision. Decisions on major infrastructure will be crucial, as they may set a pattern for decades ahead. That is what is needed if the aspiration of Scottish Ministers is to be fulfilled that Scotland should be a leading nation in dealing with the issue of climate change.

Q20 Do you have any other comments on the Bill?

No comment.

DRAFT POLICY STATEMENT SUMMARY

There is now a scientific consensus that the planet is warming and that the degree of recent changes can be explained only by the effect of human activities. The impact on Scotland's natural heritage is likely to be profound, causing very significant changes to our ecosystems and landscapes within a timescale measured in decades. This statement sets out SNH's perspective on climate change and our role in responding to it.

SNH views climate change as the most serious threat over coming decades to Scotland's natural heritage. In addition to its environmental consequences, climate change is likely to have major social and economic implications for people in Scotland and elsewhere. SNH aims to understand the effects of climate change on the natural heritage, and to help deliver the contribution that the natural heritage can make in limiting it and adapting to it.

Increasing amounts of greenhouse gases in the atmosphere are leading to increasing global average air and surface temperatures, widespread melting of snow and ice, and rising sea levels. The climate is becoming more chaotic with more frequent and more extreme weather events, such as heat waves, heavy rainfall, drought, and high winds. The severity of these problems in particular places will depend on a variety of local factors. Current indications are that by the 2080s Scotland will be warmer, especially in summer, with snowless winters in some parts; winters may become wetter and summers generally drier. The range of many species and habitats may shift northwards, or up hillsides. However many species and habitats may simply be unable to keep pace with the rates of climatic change, and some species may become extinct.

There will always be a substantial amount of natural variability, giving rise to a wide range of weather events and weather patterns over months to years. Flexibility is likely to be key to making sure that infrastructure and land use are resilient to future climate and weather conditions. The natural heritage has an important role to play by making sure that ecosystems retain sufficient integrity so that they continue to provide essential services, such as flood mitigation, productive land capacity and water supply.

Our key contributions will be:

1) Helping to understand and publicise the effects and consequences of climate change for the natural heritage.

There are huge uncertainties over the likely effects of climate change on Scotland's natural heritage, or of how these changes can be influenced or managed. We aim to invest in research to improve that understanding, so as to enable our effort on adaptation to be well targeted.

2) Advising on infrastructure and land management practices which help to mitigate climate change.

We strongly support the need for major global reductions in greenhouse gas emissions in order to avoid a dangerous level of climate change – taken as a 2°C warming - beyond which there is potential for severe disruption of global ecosystems.

A wide range of measures is required, including energy efficiency, the use of renewable sources of energy, more sustainable modes of transport, and encouraging walking and cycling. In advising on such infrastructure, SNH will take into account its benefits in mitigating climate change and enabling adaptation to the impacts of climate change alongside the need to protect the natural heritage. We will advise on how Scotland's rich renewable energy resource can be harnessed with least impact on the natural heritage.

We will encourage land management which protects the carbon stored in peatlands and other organic soils. These soils represent a very significant carbon reservoir, which if released into the atmosphere would be equivalent to around 170 years of greenhouse gas emissions from Scotland at current rates. We will also support the creation of new woodland with a view to carbon storage where it does not conflict with natural heritage interests.

3) Guiding adaptation so that nature can, as far as possible, adapt to a changing climate and so that people can make best use of natural processes in preparing for climate change.

We will support action to help both society and nature adapt to the effects of climate change. Climate change places new importance on considering the interdependence between species, habitats, and associated natural processes, and the benefits or services that people receive from these. SNH seeks to maintain the resilience of ecosystems so that they continue to provide the services that support human life as well as biodiversity. Restoring natural processes in freshwater systems can help in abating flood risks, and managed coastal realignment can allow natural habitats to provide protection against sea-level rise. Reducing other pressures on ecosystems, e.g. from pollution or habitat attrition, and maintaining diversity, will help nature to be more resilient to climate change.

As the climate changes, many species will need to be able to disperse into new areas where the climate remains suitable – usually northwards or upwards. Improving the connectivity between habitats through ecological networks can help species disperse into new areas. Protected sites will remain important for biodiversity conservation because characteristics such as greater habitat diversity and natural processes will continue to favour high biodiversity. They will also provide source populations and colonising habitat for dispersing species. For species that are unable to disperse, but still have suitable habitat within Scotland, their survival may be assisted by translocations but these can be high risk and costly and are a last resort. We will take a risk-based approach to eradication of invasive non-native species, taking account of both potential benefits and costs of action. For a few species, the effects of climate change may simply result in no suitable climate space in the UK and consequently their extinction.

4) Promoting action by organisations and individuals by setting an example in the management of SNH's own operations, and through our wider environmental education work.

We will set an example in the management of our own operations. We aim to reduce our greenhouse gas emissions by at least 4% per year. We will work closely with Government and other public bodies to develop good practice and high standards in carbon reduction which can be applied elsewhere within the public sector. We will also review our operations to ensure that our offices, properties and visitor facilities on nature reserves are well prepared to withstand the effects and added risks associated with climate change. We apply sustainability criteria within our procurement processes, relating to energy and resource use, waste minimisation, recycling, and biodiversity impacts. We will encourage others to reduce their emissions too, and to take action to adapt to climate change, through our general environmental education work and by attaching conditions to the grants we give to other organisations.

These four roles will guide SNH's work in responding to climate change. Our Climate Change Action Plan sets out in some detail the actions we intend to take over the next five years.