



Biodiversity Report 2014

Taking responsibility for protecting
and restoring biodiversity



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This report aims to address the information requirements of the Nature Conservation (Scotland) Act 2004 under which we have a duty to further the conservation of biodiversity, have a regard to the Scottish Biodiversity Strategy and report on our actions.

This report shows how we take account of our biodiversity responsibilities and reports progress over the past few years. The report focuses on Scotland and is structured around the aims of the Scottish Biodiversity Strategy.

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Introduction

SSE is involved in a business that really matters – providing the energy people need. We have a responsibility to ensure that this need is met in a sustainable way, both now and in the future. Acting in a sustainable way is therefore embedded throughout all our different business operations. This means we work hard to make sure the lights stay on, energy costs remain affordable, the best service is provided to our customers and the negative environmental impacts of producing and distributing energy are kept as low as possible while maximising positive impacts where we can.

Our business interacts with the environment in many ways – we are investing around £4 million everyday in new energy infrastructure in the UK, we are responsible for 130,000 km of the GB electricity network in the north of Scotland and south of England which delivers electricity to around 3.7 million customers; and we supply energy to around nine million customers in the UK and Ireland. These activities have substantial positive economic and social impacts but they also present many environmental challenges that need to be managed.

We believe we have a responsibility to manage our environmental impacts in the right way and constantly seek to improve our environmental performance. We do this by minimising our carbon emissions, helping reduce energy consumption; using resources efficiently, avoiding pollution, and protecting and enhancing biodiversity. Alongside managing our environmental impact in a responsible way it is also important that our actions are transparent, sustainable and accountable to the wider community.

This biodiversity report is a key step in that process. It sets out the principles that underpin our biodiversity approach, showing what we are doing, how we're doing it and, what we will be doing next. It is structured around the three aims of the Scottish Biodiversity Strategy, and reflects its key principles of adopting an ecosystem approach, evidence-based decisions and adaptive management.

Our approach to biodiversity

There is a growing realisation of the importance of biodiversity in sustaining society, and that society must manage its impact on biodiversity in an efficient, responsible and sustainable way. To do this at SSE, we build genuine partnerships with communities, our employees, statutory organisations and others who are interested in protecting and enhancing biodiversity; assess our impact on key biodiversity issues; and make decisions which take account of these impacts.

Underpinning our decisions are statutory obligations governing designated sites and protected species but where desirable and practical we seek to go beyond minimum requirements. This involves maintaining a high degree of interaction with environmental, academic and conservation agencies and organisations, and seeking authoritative views on environmental matters.

Leadership on biodiversity impact assessment

To ensure we manage our biodiversity activities effectively we want to understand and quantify the impact of our actions and we are therefore actively involved in groups and initiatives that are undertaking ground-breaking work in this area:

- [Accounting for Sustainability](#) - our Chief Financial Officer is leading this work at SSE which aims to integrate environmental and social issues including biodiversity and ecosystems into decision making.
- [Scottish Forum on Natural Capital](#) - along with the Scottish Government, SNH and RSPB, we are involved in this new initiative to bring together public, private and voluntary sector organisations to protect and rebuild Scotland's natural capital.

The Scottish Biodiversity Strategy

The Scottish Biodiversity Strategy [was launched by the Scottish Government in 2004](#) and updated in 2013 through the [2020 Challenge for Scotland's Biodiversity](#). The strategy sets out to meet the requirements of the European Union's Biodiversity Strategy and the Aichi Targets set by the International Convention on Biological Diversity.

The Scottish Biodiversity Strategy has three key aims, these are to:

- Protect and restore biodiversity on land and in our seas, and to support healthier ecosystems;
- Connect people with the natural world, for their health and well-being and to involve them more in decision making about their environment; and
- Maximise the benefits for Scotland of a diverse natural environment and the services it provides, contributing to sustainable economic growth.

Scottish Biodiversity Strategy aims	How SSE contributes towards the Scottish Biodiversity Strategy aims	Areas of SSE's business where these impacts are most relevant			
		Generation	Electricity Networks	Energy Supply	Telecoms
Protect and restore biodiversity	We aim to reduce carbon emissions from energy production and consumption to help mitigate climate change.	✓	✓	✓	
	We aim to minimise the impact of construction and operational activities on biodiversity.	✓	✓		✓
	We have large-scale Habitat Management Plans in place to protect and restore biodiversity.	✓			
	We conduct research to inform how best to protect and restore biodiversity.	✓			
Connect people with the natural world	We provide biodiversity amenities to society.	✓			
	We participate in integrated regional planning.	✓			
	We encourage employee volunteering on biodiversity projects.	✓	✓	✓	✓
	We consult on biodiversity issues during project design and developments.	✓	✓		✓
	We provide communities with funding for biodiversity projects.	✓			
Maximise the benefits for Scotland of a diverse natural environment	We use or enable the use of renewable resources to provide energy and do this in a reliable and sustainable way.	✓	✓		
	We take account of wider ecosystem services.	✓	✓		

Our role in protecting, restoring and enhancing biodiversity

Reducing carbon emissions and mitigating the impacts of climate change

Climate change presents a significant risk to biodiversity and the UK and Scottish Governments are encouraging businesses to reduce carbon emissions in response to this. The energy sector is a significant source of greenhouse gases which contribute to climate change. We are committed to helping mitigate this impact by investing in new and existing renewable energy sources; reducing our carbon emissions by decreasing the carbon intensity of our own generation portfolio; investing in our electricity networks to allow additional renewable energy capacity to connect to the UK electricity grid; and helping our customers to reduce their energy consumption.

Largest generator of renewable energy

We are already the largest generator of renewable energy in the UK and Ireland (9,188 GWh in 2013/14), with over 3,300 MW of installed capacity, having invested over £3.7 billion in the last seven years. We plan to retain this position by continuing to invest in renewable energy for many years to come. This level of investment is making a positive difference. Last year the output from these renewable generation assets displaced over four million tonnes of carbon dioxide equivalent based on the average carbon intensity of electricity supplied to the UK grid.

Connecting renewables

We have a responsibility to keep the lights on for the 3.7 million people who rely on our network. As part of this we have a major programme of investment under way (over £1bn in the last four years) to upgrade and improve the electricity transmission infrastructure to support the transition to lower carbon electricity generation. We are also exploring new, lower carbon, ways to more efficiently operate these assets.

Promoting energy efficiency and reducing carbon emissions

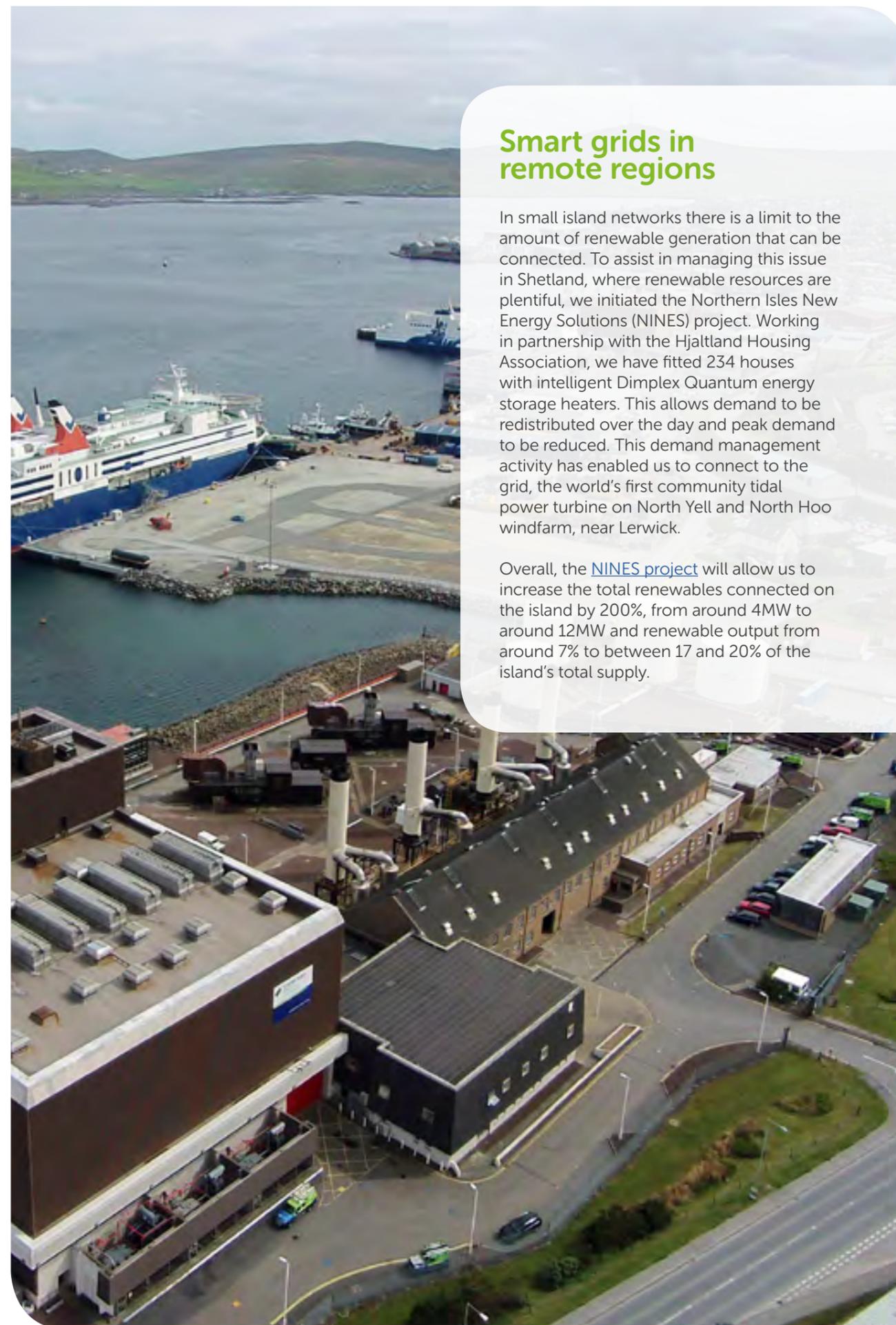
SSE is fully committed to helping its customers become more efficient in their use of energy. Helping consumers reduce their energy consumption tackles two important challenges. In a world of rising energy costs it helps keep the actual bill a customer has to pay lower and affordable. It also reduces the overall demand for energy and so reduces the negative impact on the environment from producing energy in the first place.

To support this approach we are providing customers with energy efficiency advice and measures to help reduce energy demand, energy bills and carbon emissions. Many of these measures are targeted at households that are classified as fuel poor and include: draught proofing, loft insulation, cavity wall insulation, external wall insulation, replacement boilers, and Quantum storage heaters. At the other end of the scale we work with businesses, housing associations, councils and other organisations to implement low carbon energy solutions.

Smart grids in remote regions

In small island networks there is a limit to the amount of renewable generation that can be connected. To assist in managing this issue in Shetland, where renewable resources are plentiful, we initiated the Northern Isles New Energy Solutions (NINES) project. Working in partnership with the Hjaltland Housing Association, we have fitted 234 houses with intelligent Dimplex Quantum energy storage heaters. This allows demand to be redistributed over the day and peak demand to be reduced. This demand management activity has enabled us to connect to the grid, the world's first community tidal power turbine on North Yell and North Hoo windfarm, near Lerwick.

Overall, the [NINES project](#) will allow us to increase the total renewables connected on the island by 200%, from around 4MW to around 12MW and renewable output from around 7% to between 17 and 20% of the island's total supply.



Minimising the impact of construction and operational activities on biodiversity

Construction and operation of our generation, networks and telecoms assets can have an impact on biodiversity locally and at an ecosystem scale. We endeavour to mitigate our impacts by adopting methods that take account of the environment at the point of project initiation, during project design and during construction and operation of the asset.

This approach starts when we select new infrastructure sites and routes. To mitigate the impacts of projects at this stage can involve us adopting a number of approaches including reusing or extending existing sites and infrastructure, integrating other functions into the project brief and factoring in future growth requirements. All of these methods help to reduce the future impact of construction impacts on the environment.

We have a wide range of stakeholders in our projects. We engage with our stakeholders, and endeavour to accommodate their views, comments and suggestions in our project plans and in informing our Environmental Impact Assessments (EIAs).

During construction of major projects we adopt detailed mitigation measures, often under the guidance of a professional ecologist. These include implementation of relevant Species Protection Plans, agreed with SNH, that allow us to progress construction while protecting sensitive species.

Beauly - Mossford

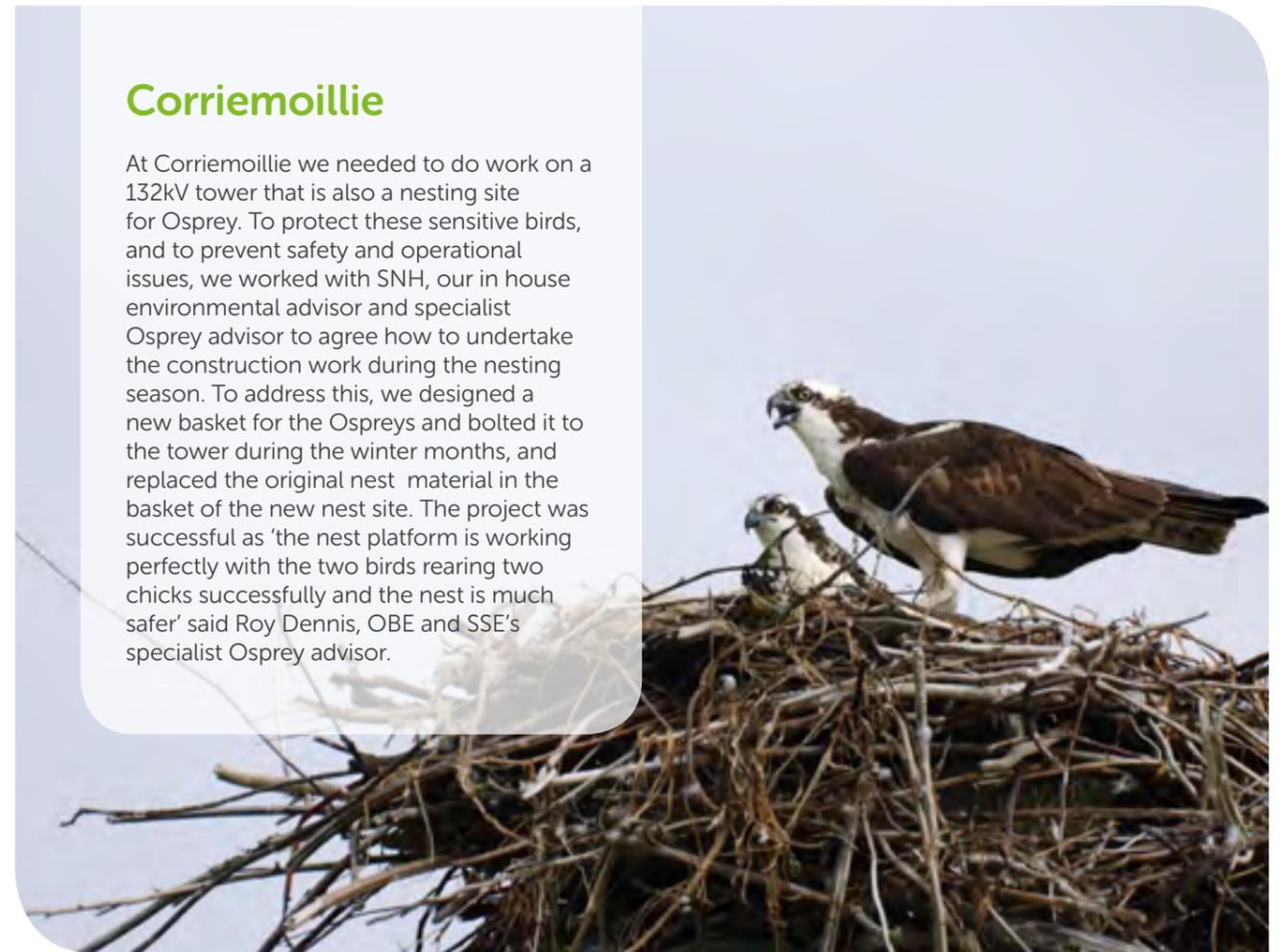
Throughout the construction of the Beauly-Mossford overhead transmission line replacement project we used micro-siting techniques to reduce the impact of our activities on sensitive species. This has included redesigning a site access to avoid bat roosts and installing bat boxes, with the support of SNH, to mitigate against the disturbance of a roost in a transformer.

We also have planting management plans at many of the sites along the route and this means that we replace non native plantations with a native species mix (such as birch, alder, willow, juniper), reseed sites with grassland mixes, and place brush piles and logs as woody debris to support biodiversity.



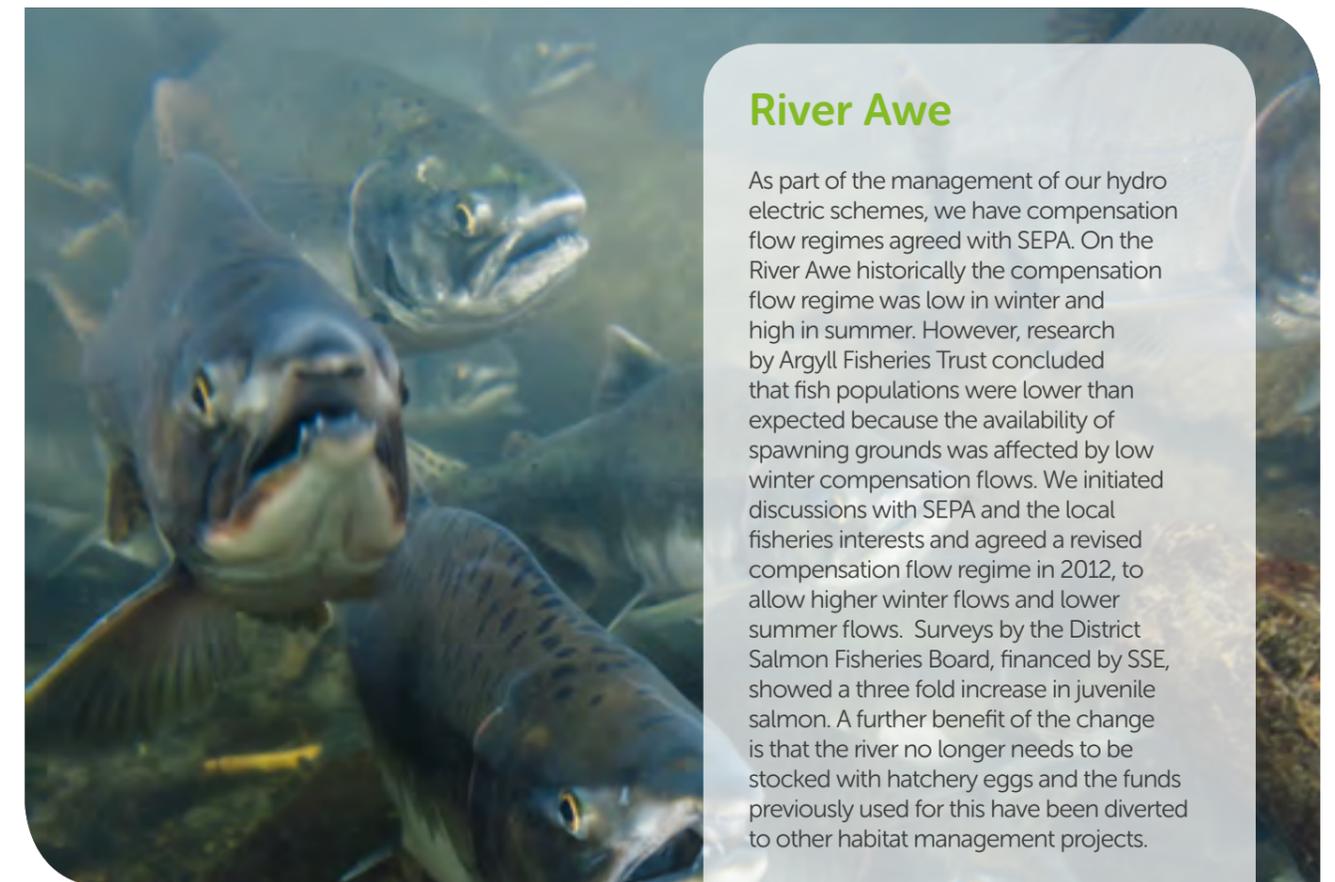
Corriemoillie

At Corriemoillie we needed to do work on a 132kV tower that is also a nesting site for Osprey. To protect these sensitive birds, and to prevent safety and operational issues, we worked with SNH, our in house environmental advisor and specialist Osprey advisor to agree how to undertake the construction work during the nesting season. To address this, we designed a new basket for the Ospreys and bolted it to the tower during the winter months, and replaced the original nest material in the basket of the new nest site. The project was successful as 'the nest platform is working perfectly with the two birds rearing two chicks successfully and the nest is much safer' said Roy Dennis, OBE and SSE's specialist Osprey advisor.



River Awe

As part of the management of our hydro electric schemes, we have compensation flow regimes agreed with SEPA. On the River Awe historically the compensation flow regime was low in winter and high in summer. However, research by Argyll Fisheries Trust concluded that fish populations were lower than expected because the availability of spawning grounds was affected by low winter compensation flows. We initiated discussions with SEPA and the local fisheries interests and agreed a revised compensation flow regime in 2012, to allow higher winter flows and lower summer flows. Surveys by the District Salmon Fisheries Board, financed by SSE, showed a three fold increase in juvenile salmon. A further benefit of the change is that the river no longer needs to be stocked with hatchery eggs and the funds previously used for this have been diverted to other habitat management projects.



Implementing habitat and ecosystem management plans to protect and restore biodiversity

For some planned renewable energy projects, as initially proposed, there can be a risk of adverse effects on biodiversity. In these cases we strive to offset the potential impacts by developing Habitat Management Plans, or fund conservation activity conducted by other groups.

As far as is practical, our plans will adopt an ecosystem approach, and will be adapted as we learn from monitoring their effects. These projects may also deliver net biodiversity enhancement and through projects such as restoring degraded peatland, restore significant carbon stores.

Gordonbush wind farm

Gordonbush is adjacent to the Caithness and Sutherland Peatlands, designated as a Special Area of Conservation for its peatland habitats and species, and a Special Protection Area for a range of moorland birds. At Gordonbush we have 5,500 thousand hectares under management. To protect and manage this site we have introduced a number of measures which include:

- Removing monoculture forestry plantation to allow restoration of former peatland.
- Planting native riparian and native woodland, including Caledonian pine, birch and alder.
- Blocking drains to encourage rewetting of artificially drained peatland areas and as a result recreating blanket bog habitat and reversing erosion.
- Controlled management of heather and deer.

These measures help us to restore moorland and native woodland habitats, and support the associated assemblage of bird species including golden plover and merlin. Two people are employed to manage the delivery of the plan.

Griffin wind farm

Griffin is located on the site of a former monoculture forestry plantation that was cleared to construct the wind farm. The Habitat Management Plan aims to enhance the site as a habitat for raptors and black grouse. This is achieved through opening up new foraging terrain and breeding habitat by removing commercial tree species, planting riparian woodland and regenerating heathland by heather management and ditch blocking.

Monitoring of the habitat and ornithological use of the site is extensive and will help to inform and guide future management at Griffin and other sites, by enabling us to better understand the impact of different land management techniques at a species and habitat scale.

We regularly record black grouse, hen harrier, red kite, kestrel and merlin on site ([see appendix 1](#)). We have also installed Pine Marten boxes throughout the site.



Griffin wind farm, Perthshire, Scotland

Contributing to biodiversity research

We recognise that biodiversity comprises a web of interdependent natural systems.

Plans to manage biodiversity must be evidence-based to be effective, and to ensure best deployment of resources. We therefore recognise the value of research and evaluation and its role in informing our decision making.

SSE is committed to evidence-based approaches to identifying environmental problems and we will collect ecological data ourselves, or support and fund others in collecting the necessary data, to inform risk assessments and/or impact assessments of our operations (see appendix 2). We also promote adaptive management as the best way to improve our environmental performance especially in situations where there is often less than certain data and scientific understanding.

Fisheries research

We have researched how to optimise our turbine operation to help smolts to pass downstream through low head turbines. We found that running turbines at higher load had benefits for the smolts, so we now manage our reservoir storage ahead of the smolt run to ensure we can maintain these higher loads.

We are now helping to fund new research by Glasgow University's IBIS project team to understand what factors influence the ability of a smolt to find the exit from lochs and reservoirs by using new acoustic tracking technology that detects movement of fish over large distances. By correlating the movement of fish with environmental factors, such as flow and weather, we hope to get a better understanding of what factors enable smolts to find the exit. If we can understand this, then in the future we may be able to adapt our operating regime to assist with the downstream migration of smolts.



Research at our wind farms

We have been involved in a number of projects that aim to understand the impact of wind farms on sensitive species. For example at Gordonbush wind farm we have been conducting a 5 year research programme on the golden plover; with the University of Exeter we are involved with research on the ongoing impact of wind farms on bats; and with the RSPB at the Griffin wind farm a two year study on the hen harrier.

We are a funding member and participant of the Scottish Wind Farm Bird Steering Group which conducts research into many aspects of ornithology and their interaction with wind farms.

Gordonbush wind farm, Sutherland, Scotland

Our role connecting people with the natural world

Investing in projects that provide biodiversity amenity to society

Some of our renewable energy sites can provide an educational or recreational amenity for the public. We facilitate public access in accordance with the Scottish Outdoor Access Code and, at selected sites, we provide facilities for visitors, and welcome educational groups by arrangement.

Green Energy Trail

SSE owns and operates hydro power stations and wind farms, often located in areas of great biodiversity. To connect people with these sites and their environments, we have developed a [Green Energy Trail](#). This provides information about the biodiversity in the area and provides details of the measures that we take to protect, restore and manage our impacts on biodiversity.



Big Green Challenge

We are a supporter of the Big Green Challenge, a competition for secondary schools that provide students with skills and knowledge to help them join the debate about how our environmental resources should be managed.

Pitlochry visitor centre

At Pitlochry we are developing a proposal to invest in a new £4 million visitor centre. The centre aims at telling the story of our heritage, in particular the hydro generation legacy, and will present information about how we protect, restore and manage our impacts on biodiversity.

Participating in integrated regional planning

We will actively participate in the development of Local Biodiversity Action Plans (LBAP) and River Basin Management Plans (RBMP) for those catchments and rivers where we operate our hydro generation schemes.

River Basin Management Plans

SSE are represented on the National Advisory Group (NAG) (which comprises land and water users, including industry and agriculture, local government, and environmental agencies) set up by Scottish Ministers to provide stakeholder input into the RBMP process and we regularly contribute to consultations from the Scottish Government and SEPA on these issues.

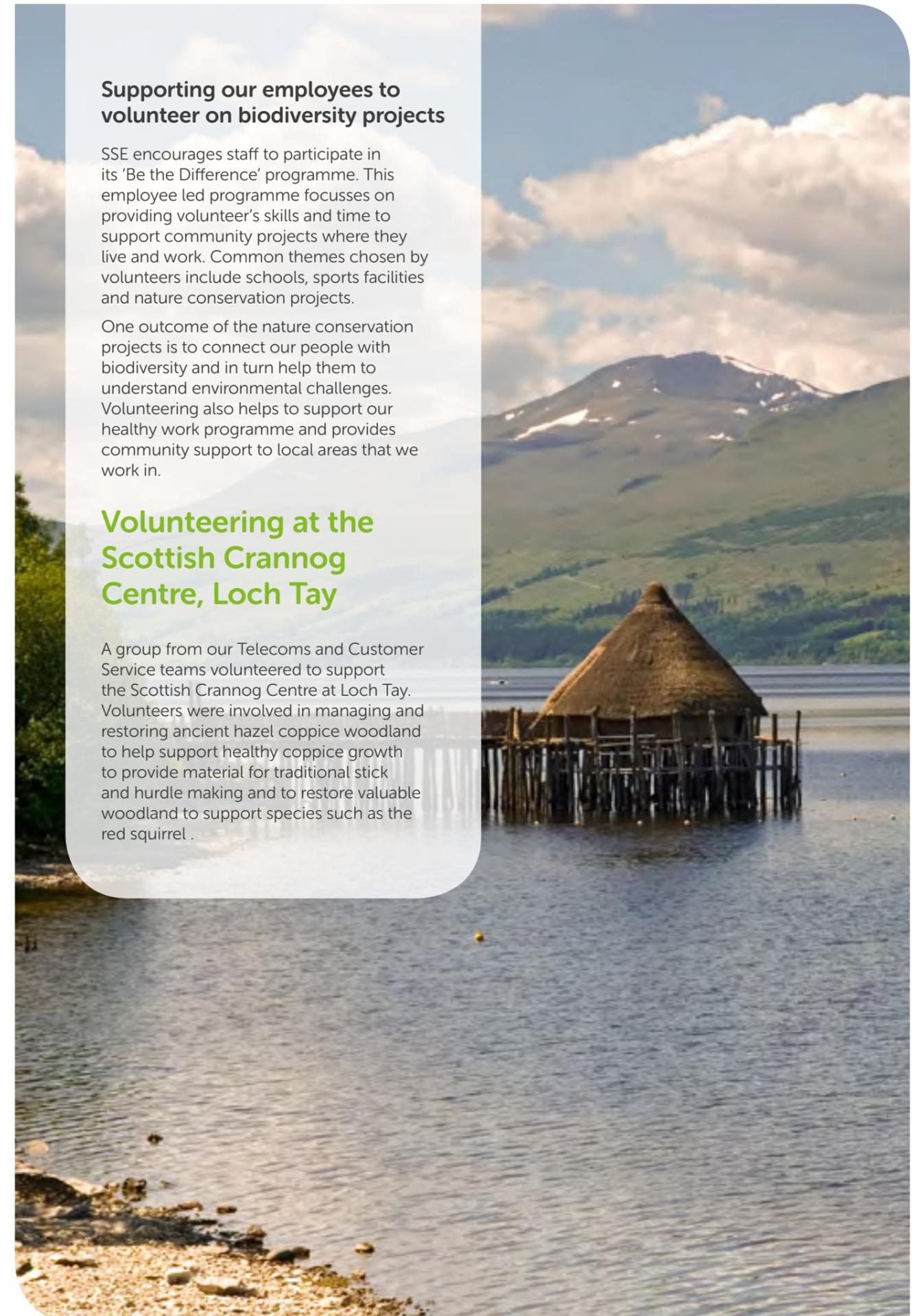
Supporting our employees to volunteer on biodiversity projects

SSE encourages staff to participate in its 'Be the Difference' programme. This employee led programme focusses on providing volunteer's skills and time to support community projects where they live and work. Common themes chosen by volunteers include schools, sports facilities and nature conservation projects.

One outcome of the nature conservation projects is to connect our people with biodiversity and in turn help them to understand environmental challenges. Volunteering also helps to support our healthy work programme and provides community support to local areas that we work in.

Volunteering at the Scottish Crannog Centre, Loch Tay

A group from our Telecoms and Customer Service teams volunteered to support the Scottish Crannog Centre at Loch Tay. Volunteers were involved in managing and restoring ancient hazel coppice woodland to help support healthy coppice growth to provide material for traditional stick and hurdle making and to restore valuable woodland to support species such as the red squirrel.



Providing communities with funding for biodiversity projects

We provide community investment funds to communities close to SSE's new renewable developments which distribute over £4.5 million a year to support initiatives that matter to local people.

In 2013/ 14 over £490,000 was invested in environment and conservation initiatives through these community funds. These initiatives support communities to create a rich local environment which in turn builds a strong foundation for successful rural development.

Supporting the Froglife Trust

SSE's Drumderg community fund awarded £1,510 to the Froglife Trust to create a pond habitat for amphibians in community woodland.

The new pond was created in a marshy area in the Alyth Community Woodland, Perthshire, and has improved the botanical diversity of the site. It also acts as a permanent water body providing a breeding site and a link between other pond habitats in the area for amphibians. Through the installation of a pond dipping platform, the site is also used for educational purposes.



Covington and Thankerton Beekeepers Association

The Covington and Thankerton Beekeepers Association was awarded £4,991 from the Clyde community fund in June 2013 to purchase equipment and provide training for its members. The Covington and Thankerton Beekeepers Association was established to address the declining bee populations in the Clyde area.

The group plans to improve local bee numbers and increase pollination activity. The first bees were welcomed to the new hives in May 2013 and by mid-summer 2014 nearly a million honey bees were under the Association's management. "With the application of a little sunshine many more bees will be out pollinating our flowers and crops and collecting nectar to make delicious honey" said Angus Milner-Brown, Covington and Thankerton Beekeepers Association.



Our role maximising the benefits of a diverse natural environment

As the largest generator of renewable energy in the UK, we understand the benefits of using renewable resources (such as wind and water) for positive economic purposes, and we aim to operate our generation stations as efficiently as practical.

We also understand that our activities can have impacts on resources and services that provide value directly or indirectly to others; and recognise our wider responsibility to locate, construct and operate our assets sustainably. Making evidence-based decisions, adopting an ecosystems approach, and responding through adaptive management all contribute to more sustainable activities.

However, only by recognising the value of biodiversity, and the ecosystem services that it provides, can a fully informed evaluation be made of the options available to us.

Ecosystem VALUES project

SSE and SEPA are partners of the Technology Steering Board VALUES (Valuing Land Use change and Ecosystem Services) Project. This project aims to deliver a tool that can be used to value potentially affected ecosystem services (such as erosion and landslide control, flood risk, drinking water, whisky production, pollination and seed dispersal, preservation of archaeology, hydroelectricity and peat extraction) as a result of development planning.

The Geographic Information System will be used to present the ecosystem services information as well as other project and design information. SSE is currently building the prototype GIS application and once this has been completed it will be examined how this innovative biodiversity tool can be used to inform our own decision making on new transmission line routing.



Clyde wind farm, Lannarkshire, Scotland

