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BIODIVERSITY NET GAIN IN SCOTLAND

CIEEM SCOTLAND POLICY GROUP

THE CHARTERED INSTITUTE OF ECOLOGY AND ENVIRONMENTAL MANAGEMENT (CIEEM) IS THE PROFESSIONAL BODY FOR ECOLOGISTS AND ENVIRONMENTAL MANAGERS WORKING TO MANAGE AND ENHANCE THE NATURAL ENVIRONMENT IN THE UK AND IRELAND. THIS BRIEFING NOTE HAS BEEN COMPILED BY MEMBERS OF THE CIEEM SCOTLAND POLICY GROUP.

1. BIODIVERSITY NET GAIN

Biodiversity Net Gain (BNG) is development that leaves biodiversity in a better state than before. It is an approach whereby developers work with local governments, landowners, wildlife organisations, and other stakeholders to minimise impacts and maximise outputs for biodiversity. At present around 100 countries currently have a legislative or strong policy requirement on developers to achieve either no net loss (NNL) or a net gain in biodiversity for their development projects, with England being the most recent country to commit to it.

BNG is a quantitative, stepwise assessment process which is applied to development to fully quantify biodiversity impacts. The guiding principle is to minimise overall biodiversity impacts through application of the mitigation hierarchy; to avoid, mitigate, restore, and as a last resort, to offset (known as biodiversity offsetting). The biodiversity value of potential new or restored habitat is then assessed on the same criteria, but with additional measures related to the risk to successful habitat creation or restoration and the time lag between the loss of habitat and the successful creation of new habitat.

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In most cases it would be expected to replace the same habitat types as would be lost but sometimes this is not possible or desirable.

Through its application, BNG provides clear, quantified biodiversity impact assessments, the results of which can be factored into engineering and landscape design considerations to deliver more environmentally sustainable designs. BNG is a move away from opinion-based assessments of biodiversity change and allows for transparent biodiversity reporting backed up by a robust evidence base. Competent ecological expertise is however still needed to analyse and interpret the inputs and outputs of this process.

CIEEM has been key to guiding and supporting the application of BNG within the UK development industry. In 2016, CIEEM, together with the Construction Industry Research and Information Association (CIRIA) and the Institute of Environmental Management and Assessment (IEMA), published the first UK principles on delivering BNG[1]. Further guidance[2] has now been published to help professionals and UK industry address this challenge and to achieve 'Net Gain' targets for biodiversity. These guidance documents were written by the UK's BNG experts who actively work with developers across the UK, including those in Scotland, to apply BNG. This publication included a series of industry case studies[3]. In future, this guidance could also be tailored for community-led projects.

2. BIODIVERSITY NET GAIN IN SCOTLAND

'Biodiversity Net Gain' is currently not a term that is widely used or implemented in Scotland, and its application in development projects is at an earlier stage than in other countries. Generally, there is limited awareness among stakeholders about what it entails, how it can be achieved, and the benefits that can follow. However, there are areas of policy which have related goals, for example: one of the Key Steps in the 2020 Challenge for Scotland's Biodiversity[4] is to explore the potential for greater use of 'offsetting' to secure benefits for biodiversity, whilst minimising costs to business.

While a commitment to BNG has many benefits, there are some notes of caution, as noted in our Biodiversity Net Gain: Good Practice Principles for Development[5]. These include:

[1] CIRIA, CIEEM, IEMA (2016) Biodiversity Net Gain: Good practice principles for development. Available at: https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development/ (accessed: 10/06/2019)

[2] CIRIA, CIEEM, IEMA (2019) Biodiversity Net Gain: Good practice principles for development, A Practical Guide. Available at: https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf (accessed: 10/06/2019)

[3] CIRIA, CIEEM, IEMA (2019) Biodiversity Net Gain: Good practice principles for development, Case Studies. Available at: https://cieem.net/wp-content/uploads/2019/02/C776b-Case-studies.pdf (accessed: 10/06/2019)

[4] Scottish Government (2013) 2020 Challenge for Scotland's Biodiversity, Edinburgh: The Scottish Government. Available at: https://www.gov.scot/publications/2020-challenge-scotlands-biodiversity-strategy-conservation-enhancement-biodiversity-scotland/ (accessed 10/06/2019)

[5] CIRIA, CIEEM, IEMA (2016) Biodiversity Net Gain: Good practice principles for development.

[6] https://www.ssen-transmission.co.uk/sustainability-and-environment/sustainability-strategy

[7] CIRIA, CIEEM, IEMA (2019) Biodiversity Net Gain: Good practice principles for development, Case Studies.

[8] Appendix 3, from https://www.bigchallenge.info/2018-winners

- BNG should not be a reason to allow development on ecologically important sites. The mitigation hierarchy should always be applied first, giving priority to avoidance.
- Impacts on irreplaceable biodiversity should be avoided. BNG is often thought to be the more species in a habitat the better, however, the opposite is the case in many Scottish habitats, for example, bog and heathland are characterised by low species numbers.
- BNG should deliver habitats that are important in that particular area, and contribute towards local, regional and national plans.
- Longer-term monitoring is needed to ensure BNG is delivered for the future and is contributing to the Scottish Biodiversity Strategy and other targets.

3. IMPLEMENTATION IN SCOTLAND

A) Businesses

There are progressive and forward-thinking developers who are voluntarily taking up the BNG mantle in Scotland, including Scottish Hydro Electric Transmission plc (SHE Transmission, part of Scottish and Southern Energy Networks[6]), Scottish Power Energy Networks, CalMac Ferries Ltd, Barratt Homes, and EDF Energy Renewables (Appendix 1)[7]. A case study of implementation of biodiversity enhancements by SHE Transmission is outlined in Appendix 3. [8]

However, to halt the declines in our biodiversity, a formal system of attaching BNG as a condition to all permissions is needed. SHE Transmission and global consultancy, WSP, have developed a BNG toolkit based upon the industry-accepted UK metrics. They have, and continue to engage with, interested parties, including Scottish Natural Heritage, with the aim of ensuring the toolkit and BNG process is fit for purpose for Scotland.

These developers recognise that BNG can be good for business and meets their Corporate Environmental Responsibility. Their uptake of BNG is also driven by the requirement for public and regulated bodies in Scotland to conserve biodiversity whilst undertaking operations (as detailed within the Nature Conservation (Scotland) Act 2004) and partly to fulfil the reporting requirements of the Wildlife and Natural Environment (Scotland) Act 2011 (WANE Act).

Benefits of the BNG approach to developers

Biodiversity loss due to development is unsustainable. The BNG approach seeks to redress the balance and protect the environment for future generations. Promotion of BNG in Scotland and a wider acceptance of BNG is urgently needed to help meet our biodiversity commitments under our Biodiversity Strategy. Despite the challenges inherent in achieving BNG, it can be a useful tool for business and has delivered the following for UK developers:

- Efficiencies in planning applications as biodiversity impacts are addressed objectively, easing planning application issues
- Resolving local objections to development proposals
- Fewer development delays by addressing biodiversity impacts early in the process
- Good corporate reputation
- Good public relations by potentially winning Industry awards for innovation in biodiversity improvements

Scottish Government Support

It is clearly important that a consistent approach, which is accepted by stakeholders throughout Scotland, is adopted, and this approach should have a level of consistency with the English approach to maintain level playing fields for developers working across the UK.

B. Local Authorities

Many local Authorities have included commitments to improve biodiversity through development, for example: the Aberdeen City Council Local Development Plan (2017) states: “developments will have a strong landscape framework which improves and enhances the setting and visual impact of the development, unifies urban form, provides shelter, creates local identity and promotes biodiversity” and “all new development should seek to protect geodiversity and enhance biodiversity, which may include restoring degraded habitats, and must avoid further habitat fragmentation”.[9]

Some councils, such as Scottish Borders Council, have collaborated with Non-Governmental Organisations (NGOs) and the renewables industry to develop a biodiversity offsets programme, including enhancements where feasible (Appendix 2)[9]. The programme also aims to balances the needs of farmers and landowners with those of biodiversity and flood protection gains; and includes habitat management works that help meet the Council’s biodiversity duty under the Nature Conservation (Scotland) Act 2004.

[9] CIRIA, CIEEM, IEMA (2019) Biodiversity Net Gain: Good practice principles for development, Case Studies.

[10] http://www.portlethen-moss.org.uk

[11] CIRIA, CIEEM, IEMA (2019) Biodiversity Net Gain: Good practice principles for development, Case Studies.

C. Community Projects

We believe there is also great potential for community-owned projects to incorporate the principles of BNG.
One example of where a community-led project has been involved in restoring and enhancing biodiversity is Portlethen Moss, Aberdeenshire. Portlethen Moss is an area of natural raised acidic bog which supports a variety of plant and animal species; however development pressures have resulted in significant loss of bog area. A community conservation group has worked with Aberdeenshire Council, Scottish Natural Heritage (SNH) and the Forestry Commission to sensitively restore the habitat and gain Local Nature Reserve Status.[10]

Another example of extensive partnership working and local empowerment is a biodiversity offset programme led by Scottish Borders Council where a series of schemes have led to biodiversity and ecosystem services benefits (Appendix 2).[11]

Implementation of BNG should not make projects overly burdensome. It can be incorporated into community owned projects through existing funding streams (similar to SNH's Green Infrastructure Fund), by making it a mandatory requirement.

4. LAND USE POLICY AND MANAGEMENT

BNG is not only applicable to development. It can potentially be implemented in a wide range of land uses, from farming to forestry. Scotland's Land Use Strategy 2016-2021 sets out the Scottish Government's vision, objectives and principles for sustainable land use. The current vision for land use to 2050 is "a Scotland where we fully recognise, understand and value the importance of our land resources, and where our plans and decisions about land use will deliver improved and enduring benefits, enhancing the wellbeing of our nation." The objectives outlined in the Land Use Strategy are:

- "Land-based businesses working with nature to contribute more to Scotland's prosperity.
- Responsible stewardship of Scotland's natural resources delivering more benefits to Scotland's people.
- Urban and rural communities better connected to the land, with more people enjoying the land and positively influencing land use."

By incorporating BNG into land use policy, it can help deliver these objectives, along with the application of the Scottish land rights and responsibilities principles that “holders of land rights should exercise these rights in ways that take account of their responsibilities to meet high standards of land ownership, management and use” and “protect and enhance the environment”.[12]

BNG can also help Scotland achieve its biodiversity targets and encourage a shift in attitudes and behaviour towards the environment.

The principle of BNG can be incorporated into the implementation of the land use strategy in Scotland by working with land managers and, in particular, their advisors.

5. ACTION REQUIRED

To facilitate the incorporation of BNG into Scottish land-use and nature conservation policy, we would like Scottish Government to:

- Engage with a wide range of key stakeholders (Scottish Natural Heritage, Scottish Environment Protection Agency, Forestry Commission Scotland, contractors, developers, and academic groups) to encourage uptake of BNG, further develop metrics already in use, and continue to adapt and develop existing metrics for Scottish habitats. All stakeholders need to be encouraged to share lessons learned from collective BNG experiences and to promote the adoption of BNG.
- Support the uptake of BNG by promoting it across the development industry and by strengthening Scotland’s planning policies in the Planning (Scotland) Bill, which is currently in its final consideration stage, to enable commitment to, and delivery of, BNG.
- Instigate primary research aimed at developing monitoring of BNG at the appropriate spatial and temporal scales for Scotland, and to ensure that is adopted consistently by all Competent Authorities in issuing their consents in order to achieve BNG.

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[12] Scottish Government (2017) Scottish land rights and responsibilities statement, Edinburgh: The Scottish Government. Available at: https://www.gov.scot/publications/scottish-land-rights-responsibilities-statement/ (accessed: 10/06/2019)

Appendix 1
Case Study 23 Zero environmental impact goal
Appendix 2
Case Study 26 Renewables and biodiversity offsets, Scottish Borders Council
Appendix 3
Thurso South Substation

23 Zero environmental impact goal, Corriemoillie

Details

Organisation	EDF Energy Renewables
Contact	jonathan.foot@edfenergy.com / hannah.greening@edfenergy.com

23.1 PROJECT SUMMARY

The project aim was to help EDF Energy deliver its net zero environmental impact goal by providing affordable low carbon to customers while having a net positive environmental impact. The goals were to manage habitat and species including:

- blanket bog, dry heath, alpine and boreal heaths
- breeding population of red-throated divers
- otters, bats, water vole, wild cat and pine marten.

The development team at EDF Energy Renewables (EDF ER) quickly established that the key long-term objective was to create the conditions that will enable the expansion and/or restoration of blanket mire.

The Corriemoillie Wind Farm site (and the wider Corriemoillie Estate) is located seven kilometres north-west of Garve in the Scottish Highlands and is being developed by EDF ER, which is a 50:50 joint venture between EDF Energy and EDF Énergies Nouvelles. The wind farm construction started in 2015 and the site became operational in December 2016. It consists of 19 turbines with a generating capacity of up to 60.8MW. The project is wholly owned and operated by EDF ER.

Figure 23.1 Restoration works (before)

The development was given approval providing an approved habitat management plan (HMP) was in place to protect and manage habitats and species within the site. The scheme was specifically required to consider:

- managing/restoring blanket bog, dry heath, alpine and boreal heaths

- opportunities to enhance the breeding population of throated divers on the Corriemoillie Estate
- the interests of otters, bats, water vole, wild cat and pine marten.

A targeted blanket mire restoration area was established over an area of 50 hectares around blanket mire core area, with the removal of 31 hectares of failed and later felled woodland and 0.8 hectares of open water. The felled areas were commercially afforested with Sitka spruce and lodgepole pine, planted in a system of ploughed ridges and furrows. Trees were mostly felled in 2013, and brash removed between 2015 and 2017. An area of about 0.5 hectares of woodland remains standing, within the restoration area.

In February 2017, field survey visits were completed and a plan for the restoration of the blanket bog was developed by specialist contractors Nevis Environmental and Highland Conservation Ltd. The plan also highlighted other constraints that needed to be avoided during the restoration works on site such as breeding birds, water voles, and dwarf birch (*Betula nana*). Highland Conservation carried out the restoration work (ie ditch blocking with dams, turf covered peat cuts, hag re-profiling) in each area.

Re-vegetating and re-profiling of eroded hags and gullies were identified as one of the main methods suitable to improve the condition of the blanket mire areas within the restoration area. This technique had not been previously mentioned in the HMP or specified in the bog restoration assessment report. This work mainly involved the stabilisation of the eroded banks using a combination of re-profiling the degree of slope to under 40 degrees and using on-site vegetation gained during this process. The methods used for peat bunds also apply as there was a need for a comprehensive approach with many of the restoration sites being suitable for both blocking the flow of water by creation of peat bunds and re-profiling of steep and eroding sides. Re-profiling works ensured that sufficient vegetation next to hags and gullies was available for re-turfing, without compromising the habitat that turves were taken from.

Restoration works started at the end of July with three specialist excavators operating on site. Works were completed by the end of August. During the works, the southern boundary of the mire restoration area was modified to increase the overall restoration area to over 55 hectares. A minimum of 778 peat bunds were created in the restoration area. Hag re-profiling was completed along at least 8400 m of gullies in both the mire habitats and afforested areas.

The bog restoration was completed in 2017, but ongoing surveys will be required to monitor how the vegetation and habitat communities change over time because of increasing water tables. This is a slow process and levels of change will only become apparent in the long term, however early signs are positive.

For the rare red-throated divers two key mitigation measures were proposed at the planning stage of the wind farm to enable divers to breed successfully. A 500 m corridor was designed into the wind farm layout to enable movement access the identified breeding loch via their preferred flyway route and minimise collision risk. In addition, a stand of conifers was retained around the breeding loch and to minimise the visual disturbance of the birds by activities on site. To encourage further breeding pairs to the site diver rafts have been scheduled for construction and will be placed on site in a suitable location before breeding pairs returning to the site to prospect for nests.

23.2 ISSUES

During the construction phase of the wind farm, the main contractors store peat as they would with many soils. This causes significant problems when trying to undertake restoration works because of mineral contamination or the drying of the peat.

In the first year of operation an exposed slope above the site experienced a land-slip during heavy rain and flash flooding. The damage required the slope to be stabilised and damage to cable trenches to be repaired. However, this incident demonstrated the value of restoring peat bog in the area.

Restoration works usually take place after the main construction of the project and supporting infrastructure has been done. An optimal solution may be to carry out restoration work when roads, crane

Figure 23.2 The use of peat dams to aid water retention to re-wet the blanket bog (after)

pads and turbine bases are being constructed. This means that peat storage and transport of peat on site is minimised and can be used to deliver restoration of the blanket bog before vegetation and peat degrade.

During construction a protection zone was set up to ensure no site workers approached the nest during activities. In the operational phase all workers were advised of the presence of a sensitive and rare bird species breeding on site. They were also informed to stop and leave their vehicles at turbines and the substation to reduce accidental disturbance.

23.3 OUTCOMES

- 55 hectares of peat bog have been restored.
- Reversing the actively drained peat should save 49 tonnes CO_2eq per year.
- Slowing or preventing the active erosion of peat should save a further 31.5 tonnes of CO_2eq per year.
- The peat bog will provide enhanced flood attenuation for communities' down-stream of the project.
- The peat bog is an internationally-threatened habitat and this work should ensure its continued protection, and for the species that depend upon it.
- The wind farm provides an income for the local community that may otherwise consider a blanket bog uneconomical to manage.
- The blanket mire restoration project supported the employment of specialist local contractors, which helped the local economy and a more reliable and committed workforce.
- The approaches used have avoided the need to transport peat around or offsite.
- The northern section of the reinstated habitats at the base of one turbine was chosen as an area to demonstrate high-level reinstatement.
- The red-throated divers have bred successfully during both construction in 2016 and the first year of operation in 2017, fledging three chicks over these two years. This is an excellent success rate and exceeds the national average of less than one chick per year.
- EDF ER have developed a project that has resulted in a BNG for the local community, while using the lessons learnt to improve the outcomes on further projects.

Appendix 2

26 Renewables and biodiversity offsets, Scottish Borders Council

Details	
Organisation	Scottish Borders Council
Project partners	Scottish Agricultural College, Scottish Borders Council, Borders Forest Trust, Southern Uplands Partnership, Tweed Forum, the Game and Wildlife Conservation Trust, the RSPB, East Lothian Council, RES, Scottish & Southern Energy, Scottish Power Renewables, Fred Olsen Renewables/Natural Power, Cemex, Infinis EDF and NTR
Contact	atharme@scotborders.gov.uk

26.1 PROJECT SUMMARY

The Scottish Borders contain a wide variety of biodiversity assets of international, national and local value. There area has seen a significant amount of renewable energy development, particularly wind energy. National and local planning policy is supportive of renewable energy development, while also seeking to minimise adverse effects on wildlife.

Scottish Borders Council's local development plan requires that wind farm developers demonstrate that they have considered options for minimising impacts, including options for locating the wind farm in relation to the biodiversity interest of the site and surrounding area. However, for locally-important biodiversity, local development plan policy allows that the reasons in favour of development may sometimes outweigh the desirability of retaining particular habitat features on a development site. Where this is demonstrated, the Council's policy seeks local compensation measures aimed at ensuring no net loss of Local Biodiversity Action Plan (LBAP) habitats, including the creation of new habitats or the enhancement of existing habitats to deliver multiple benefits adopting an ecosystem approach.

Figure 26.1 Crookston, Upper Gala water catchment © Keith Robeson

26.2 OUTCOMES

The Council and stakeholders have developed a biodiversity offset scheme that accounts for the residual environmental impacts of renewable energy on black grouse, blanket bog and other upland habitats, and to compensate for loss of woodland in accordance with the Scottish Government's policy (Forestry

Commission, 2009). The implementation of 11 schemes has 'mainstreamed" biodiversity into the planning process by seeking biodiversity benefits at the landscape scale, while simultaneously benefiting ecosystem services. These include flood protection (riparian woodland, wetlands and bog habitats), water quality (siltation, diffuse pollution), carbon storage (woodland, grassland and bog habitats) and recreation (game management, fisheries management).

Careful negotiation by the partner NGOs with farmers and landowners has balanced their needs with those of biodiversity and flood protection gains. The programme of works for an offset project is agreed with a third party (a local environmental NGO) and secured with the Council by a legal agreement through the statutory planning process. The projects are steered by a small group chaired by the Council, with developer and NGO representatives. Projects use bespoke geographic information systems (GIS) decision support tools including mapping, developed under a national land-use strategy pilot project (Scottish Government, 2016) to guide the work. Costings are based on agri-environment rates plus a management fee for administration of the project.

Working in partnership with the local authority planners, developers, local and national NGOs, and local land managers has worked well. This combined approach has helped to identify sites where habitat enhancement could deliver for biodiversity and enhance the habitat network within the wider landscape. The mechanism developed under the planning process has been robust and there has been an increasingly positive response to this from renewable energy developers.

Initial projects under the Scottish Borders biodiversity offsets programme included two black grouse projects (Central Southern Uplands and Lammermuirs), targeted in core areas for the species in the region and building upon an existing vehicles run by the Southern Uplands Partnership and Lammermuir Black Grouse group. These projects have together put more than 30 000 hectares under positive management for this bird. Through the Scottish Rural Development Programme, offsetting has attracted more than £3M in extra resources for habitat improvement and management. The habitat works also help meet the objectives of the Scottish biodiversity strategy (Scottish Executive, 2004), the Scottish Borders LBAP (2018), the Forestry Commission (2009) and the Council's biodiversity duty under the Nature Conservation (Scotland) Act 2004.

Current projects are:

- Penmanshiel compensatory replanting scheme – creating 110 hectares of new woodland including native woodland, amenity woodland and commercial conifer and broadleaves to deliver multiple benefits.
- Langhope Rig Ale water wetlands – providing and improving wetlands in a catchment important for basin mires.
- Langhope Rig Upper Teviot riparian woodland scheme – delivering natural flood management benefits in catchments upstream of Hawick.

A further scheme (Quixwood windfarm) will develop breeding wader habitat in core areas within the region, known as the Borders Wader Initiative, and will be launched in spring 2018.

26.3 KEY BENEFITS AND SUCCESS FACTORS

The offset scheme illustrates a policy approach to conserving and improving biodiversity, based on a hierarchy of policy options. Developers must first try to avoid adverse impacts on habitats and species, for example by considering development sites that have no sensitive features. They must then seek to mitigate biodiversity impacts through, for example, the timing and method of construction. Where residual impacts on local biodiversity cannot be avoided then, as a last resort, these must be compensated for.

By working with local partners to develop an offset mechanism, the Council has ensured that, where compensation is the only option, appropriate habitat compensatory measures can be secured. When well planned and executed, compensation in the form of offsite biodiversity enhancement may be more

beneficial for the affected wildlife than seeking to maintain existing, isolated habitats and species on proposed development sites. The offset mechanism has also informed the Forestry Commission Scotland (2009) guidance.

Several lessons have been learned since the project approach started in 2009. Developing a mechanism that brings together a partnership of planners, developers and NGOs has been invaluable as has the specific formation of effective delivery partnerships that are able to work closely with the farming community. In addition, developing a set of documents and agreements to secure delivery has been important, such as the biodiversity guidance by the Scottish Border Council (2006). This has helped to mainstream biodiversity provision and offsets into the planning system.

The approach has exceeded initial habitat targets, however the ability to secure long-term habitat protection and management has been a challenge. More recent projects are focusing on this issue, for example the Penmanshiel project will secure woodland under 20 year contracts, and the local authority, and the Langhope Rig Ale water wetlands and Upper Teviot riparian woodlands will secure habitats under a 10-year agreement.

The next step for the authority will be to improve financial costings for compensation, potentially by using biodiversity metrics.

Appendix 3

THURSO SOUTH SUBSTATION
THURSO, CAITHNESS, HIGHLANDS, SCOTLAND
SCOTTISH AND SOUTHERN ELECTRICITY NETWORKS

Project overview

Thurso 275/132/33 kV substation is part of a larger development to reinforce the electricity transmission network allowing connection of renewable generation projects in the north of Scotland. It is located close to the A9 7 miles south of Thurso. Consent was granted in 2013 and construction completed in late 2017.

What were the biodiversity conditions on site, prior to the enhancement?

The site was previously used for grazing and the ecological report stated that the area was low in plant diversity and of low ecological value. Phase I surveys did not identify any particular species of note and the surrounding area has few areas of wildflowers. The trees in the area are non-native conifers primarily planted as a shelter belts, which were maintained as part of the development. The planning permission required tree planting to screen the substations and a generic wild flower mix was specified. The objective of the initial planting scheme was principally to provide landscape mitigation.

What were the reasons behind this project ?

As a responsible developer, our developments have a minimal impact on the local communities and environments. During project construction it was recognised that changes to the consented landscape plan species mixes would present an opportunity to enhance local biodiversity. After consulting local wildlife experts changes to the landscape plan were made to benefit the Great Yellow Bumblebee, a rare endemic species found only in the Northern Scotland. The substation site would also complement other efforts to create pollinator habitats in the wider area. The project aligns with the SSE sustainability strategy and our goal of working towards biodiversity net gain.

Great Yellow Bumblebee: David Wood

What were the biodiversity measures taken?

In providing ecological enhancements the Bumblebee Conservation Trust (BCT) BCT provided tailored advice and guidance to benefit the rare Great yellow bumblebee by supporting SSEN and the contractor in restoring and creating high quality habitat. This included;

- Hydro seeding of10ha of flower-rich grassy meadows with different flowering plants in Caithness, such as bird's-foot trefoil, red clover and knapweed.
- Enhanced tree planting with native broadleaves including species which provide important early season nectar such as willow.
- A SUDS pond planted with wetland vegetation which already supports amphibians.
- Small bare areas of ground and rock piles using reused material on south facing slopes to allow nesting and hibernation habitat.
- Toolbox talks and identification materials available on site to engage the whole project team at an early stage.
- Plans for long term monitoring of the wildflowers and the pollinators on site by volunteers.
- Ongoing contact with the BCT to allow for adaptive management if required.
- Agreement with local landowner for grazing to ensure maintenance of the sward.
- Helps support the aims of the 'Thurso: Gateway to the Great Yellow' BCT project.
- Work compliments the Highland and Caithness Biodiversity Action Plans (Great yellow bumblebee and other pollinators).
- Supports the aims of The Pollinator Strategy for Scotland.

The creation of the meadows, a SUDS pond and the areas of broadleaf planting have created a wider diversity of habitats on the site and with contribute to a biodiversity enhancement.

Site in 2015 during early earth works.

Site in 2018 in the first growing season after reinstatement.

Further information

After construction of the platform screening bunds, formed with suitable won material they were dressed with top soil, also from site. Turves were retained where possible to retain local seed. In Summer 2017 hydro seeding took place using a local experienced contractor. Tree planting followed in the winter. Enhancements were monitored during installation by environmental staff. The meadows are in the first growing season and monthly inspections are carried out to check on growth. Inspections suggest that wild flowers are growing better on less exposed south facing slopes. As the land is owned by SHE Transmission we have the opportunity to take a long term view. The BIG Challenge acted as a good way to get all the project staff interested in biodiversity and raise the issue of the plight of pollinators. Advice from local experts, in this case the BCT, was essential to ensure the enhancement complemented other enhancements in the wider area and benefited the local community.

The project is used as a good example of helping pollinators both externally via local and national media and internally to highlight opportunities. It was mentioned in SSEs annual Biodiversity Report and industry Environmental Discretionary Reward. Also, the project has helped drive forward our objective of working towards biodiversity net gain assessments for all our projects.

Thurso planting plan

Project Team

- Scottish Hydro Electric Transmission plc / Balfour Beatty
- Northern Ecological Services
- Bumblebee Conservation Trust

What was the motivation for carrying out the enhancement?

The motivation of SSEN and the contractor's project team was to help a threatened local endemic species. It also fits in well with the company's Sustainability goals. For a relatively small and inexpensive amendment to existing plans there is a potential for a large benefit to the Great Yellow bumblebee and other pollinators, as well as the local community. Feedback from the BCT suggested that the project "will add to the excellent work being done by the communities of Caithness and beyond to sustain our vitally important pollinators."

Growing flower meadow in early 2018