National Grid – Biodiversity and Resilience of Ecosystems Duty Report 2019

Environment (Wales) Act 2016 Part 1 - Section 6

December 2019

nationalgrid

1. Overview

National Grid are one of the world's largest investor-owned energy companies, committed to delivering electricity and gas safely, reliably and efficiently to the customers and communities we serve.

We play a vital role in connecting millions of people to the energy they use, through our regulated utility businesses in the UK and US; with principal operations in electricity and gas transmission and distribution, as well as National Grid Ventures.

We also understand our responsibilities for future generations, so we're shaping the energy systems that we'll need in years to come. We're working closely with customers, partners and communities to develop solutions to the very real challenges we all face as we make the transition to decarbonised, decentralised, smart energy systems.

National Grid Electricity Transmission in the UK

We own the electricity transmission network in England and Wales, helping to connect large or small energy projects. We own the national electricity transmission system in England and Wales (NETS). The NETS consists of approximately 7,200 kilometres (4,474 miles) of overhead line, 1,500 kilometres (932 miles) of underground cable and 342 substations.

National Grid Gas Transmission in the UK

We own, manage, and operate the national transmission network in Great Britain, making gas available when and where it's needed. The National Transmission System (NTS) is made up of around 7,000 kilometres of high-pressure pipe, more than 200 above ground installations and 23 compressor stations.

National Grid in Wales

As a statutory undertaker in Wales we operate as a gas transporter (within the meaning of Part 1 of the Gas Act 1986 (c. 44)); and an electric transmission operator and holder of a licence under section 6(1) of the Electricity Act 1989 (c. 29).

Within Wales we own and manage both gas and electricity assets and are responsible for managing the energy infrastructure and the non-operational land holdings under our direct control and ownership.

Where our energy networks cross 3rd party owned land, we will work in cooperation with our grantors to ensure the safety and reliability of our networks. We will ensure that our essential works are done in ways that minimise negative impacts to the environment and seek opportunities to deliver enhancements.

We are investing in our network, upgrading our infrastructure and facilitating connections to new sources of clean and renewable energy across England and Wales. We are committed to deliver these essential works on both our existing sites and in new locations in ways that avoid and minimise environmental impact, preserve the natural environment and biodiversity and foster collaboration and partnership with others.

NRAP3 Objective 1: Engage and support participation and understanding to embed biodiversity throughout decision making at all levels and

NRAP Objective 6: Put in place a framework of governance and support for delivery

2. Delivering our section 6 requirements

2.1. Our commitments to biodiversity

The consideration and management of the natural environment form key aspects of our corporate commitments, sustainability targets, strategies and network development processes. Impacts and opportunities associated with the land that we own and manage are embedded within our processes.

Specifically, there are several aspects that govern how we manage natural capital in National Grid. These include: our sustainability policy and strategy; our stakeholder, community and amenity policy, including our Schedule 9 commitments, an environmental management system and future business plans.

To support delivery of these, we use several tools and methods to understand, measure and be able to make decisions on how we manage biodiversity across our land. These are integrated into our governance processes, and the way we make decisions throughout the business.

Our Environmental Sustainability strategy is underpinned by our Environmental Management System and Environmental Sustainability Policy, as outlined below.

2.2. ISO14001 Environmental Management System

Aligned to the delivery of our corporate commitments and environmental sustainability Policy our Environmental Management System (EMS), certified to ISO14001:2015, provides a robust framework for managing our environmental impacts and opportunities including biodiversity and ecosystems.

As part of our EMS, all UK employees are required to undertake environmental awareness e-learning training. The training module include awareness and training related to managing impacts and opportunities associated with habitats and biodiversity.

Our auditing and assurance processes include assessment of how we manage the impacts and opportunities associated with the natural environment and biodiversity.

Our Environment Management System was recertified to the ISO14001: 2015 standard in July 2019

2.3. Environmental Sustainability Policy

Our environmental sustainability policy applies to all who are employed by or carry out work on behalf of any National Grid business. Our policy makes commitments to:

Identifying our environmental risks, including climate change, and developing plans to mitigate them.

- Protecting the environment by ensuring prevention of pollution is a key consideration in the design of all our assets.
- Using resources more efficiently by using sustainable materials and reducing waste.
- Identifying opportunities to use alternatives to hazardous materials.
- Seeking ways to enhance the natural value of the areas we work for the benefit of local communities and the environment.
- Ensuring all our employees have the training, skills, knowledge and resources necessary to achieve the requirements of our internal standards.
- Setting expectations of those who work on our behalf to demonstrate the same commitment to the environment as we do and working with our supply chain to contribute to the delivery of 'Our Contribution' targets.
- Continually improving the Environmental Management System by reviewing and challenging our performance using feedback from stakeholders and benchmarking against our contemporaries.

2.4. Our Corporate Environmental Sustainability Strategy, Our Contribution[1]

This provides a blueprint for embedding sustainable decision-making into our day-to-day business operations and how we plan.

This strategy lays out our targets for 2020 and our climate commitment to 2050. Company-wide ambitions are supported by regional targets and specific areas of focus in the UK and US.

Summary of targets

Carbon	Reduce our own direct greenhouse gas emissions to net zero by 2050, with interim targets of a 45% reduction by 2020 and 70% by 2030 (from a 1990 baseline).
Resources	Reuse or recycle 100% of recovered assets by 2020 Send zero office waste to landfill by 2020.
Natural Environment	Recognise and enhance the value of our natural assets on at least 50 sites by 2020 Drive net gain in environmental value (including biodiversity) on major construction projects by 2020.

[1] https://www.nationalgrid.com/sites/default/files/documents/OurContribution_PDF_Brochure.pdf

2.5. Our stakeholder, community and amenity policy, including our Schedule 9 commitments

This policy document describes the ten commitments[2] we have made to the way we carry out electricity and gas works in the UK. This includes setting out how we will meet our amenity responsibilities and how we will involve our stakeholders and communities in our work.

Commitment four: minimising the effects of new infrastructure, commits to seek to minimise the impact of developing new infrastructure in areas that are nationally or internationally designated for their landscape, wildlife or cultural significance as well as other sites valued for their amenity.

Where mitigation is not practical on site, we look to work with external stakeholders to develop and agree appropriate ways to offset our impacts and seek opportunities for enhancement as per commitment seven: enhancing the environment around our works.

Impacts to the natural environment, ecosystems and biodiversity are included within the wider definition of amenity as per schedule 9 in the Electricity Act[3]

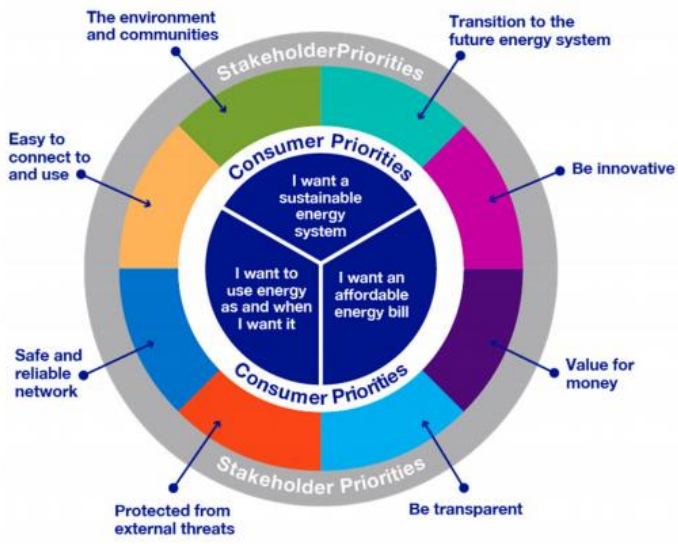
2.6. Future Business Plans 2021-2026, RIIO-2

In December 2019 National Grid published our business plans for the next regulatory period. This has been informed through engagement with our key stakeholders our business plans for our UK electricity and gas transmission businesses who have told us the following areas are important to them.

Both business plans include commitments and targets aligned to the delivery of a sustainable network caring for our environment and communities and chapter 11 shows how we care for the environment and communities our commitment. It includes targets to:

- Improve the natural environment at our sites by increasing the environmental value of our non-operational land by 10% by 2025-2026.

Deliver 10% net gain in environmental value (including 10% biodiversity net gain) on all construction projects.



[2] https://www.nationalgridet.com/sites/et/files/documents/8589938109-National%20Grid_s%20commitments%20when%20undertaking%20works%20in%20the%20UK%2C%20December%202016.pdf

[3] Paragraph 1(1) in formulating any relevant proposals, a licence holder or a person authorised by exemption to generate or supply electricity (a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and (b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

2.7. Working with others

We will continue to work with strategic partners and environment organisations and stakeholders to seek opportunities to collaborate, drive shared value from our land protect and enhancing the natural environment and the benefits and services it provides.

We will continue to work with expert organisations within our environmental framework of contractors to ensure that the impact associated with our energy networks, current and future, are minimised, and enhancements delivered hand in hand with a low carbon energy future.

3. Our tools and processes

3.1. Our approach to options appraisal

As part of National Grid's development of new gas and electricity infrastructure, we carry out Options Appraisal on our projects.

There are often several different ways that we could satisfy the need for a new connection, perhaps involving different locations, technologies or designs. Each time a new connection is needed, we must make judgements about the best way to achieve it, options appraisal provides information to help inform these judgements.

There are four main topics we consider during our assessments of potential options.

- Technical
- Environmental
- Socio-Economic
- Cost

Under the environmental topic we assess the wider impact to the environment associated with our options including: landscape & visual, ecology, historic environment, water, local air quality, noise vibration and soils and geology.

Landscape and Visual

The effect of our infrastructure on the character of the landscape or on people's views are important issues that we need to consider. Even infrastructure which is largely underground can affect the landscape and can require some above-ground structures. For each option, we assess the likely effects on important areas such as National Parks or Areas of Outstanding Natural Beauty (AONB), and the effect on views from settlements or other features. We recognise however, that not all sites that are valued by and important for the wellbeing of local communities are included in designated areas. In general, options will be of benefit if they avoid or minimise effects on the landscape or on views.

Ecology

Wherever possible we seek to avoid negative effects on nature conservation. We assess the likely effects of each option on important areas including Special Areas for Conservation (SACs), Special Protection Areas (SPAs), Sites of Special Scientific Interest (SSSIs) and other features of nature conservation value. When comparing between options, those which avoid or mitigate impacts on sites of importance for ecology or biodiversity will be considered advantageous.

3.1 The Holcroft and Horlock Rules

For new electricity transmission lines and substations within the UK National Grid use the Holcroft[4] and Horlock rules as part of our options appraisal to support our approach to routing and siting of new infrastructure.

3.3 Environmental Value Assessment

To inform and support delivery of our corporate targets National Grid have developed an environmental value assessment approach that combines Biodiversity Net Gain (BNG) and Natural Capital assessment methodologies.

Biodiversity Net Gain (BNG)

Teams in our network development process (design of projects), capital delivery functions (construction of projects) and specialist environmental contractors use the DEFRA Biodiversity Net Gain calculator V2.0. to quantify the potential impacts of our capital works to habitats and biodiversity, the outputs from the methodology and tool are used to inform our mitigation and enhancement strategies.

Natural Capital Assessment

The natural assets (woodlands, grassland, wetlands) that we own provide a wide range of benefits and services to both public and private beneficiaries e.g. carbon sequestration and storage, local air quality benefits, pollination, recreation and flood management.

National Grid have developed a bespoke Natural Capital Tool that utilises 3rd party data to provide indicative financial values associated the provision of the ecosystem services.

This approach helps us to prioritise our site management activities, inform better and more sustainable decisions as well as identifying new opportunities to increase the provision of these services through proactive management, collaboration and community engagement.

See case study 1: Margam *where we have worked in collaboration with The Wildlife Trust of South and West Wales (WTSWW) to deliver on site habitat enhances that can benefit a range of protected species*

As a result of our proactive approach we have built new relationships with a wide variety of stakeholders across Wales including the Wildlife Trusts of South and West, and North Wales, local schools, community and environmental organisations and a prison.

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[4] The Holford rules are guidelines for the routing of new high voltage over head transmission lines: Rule 1 States: Avoid altogether, if possible, the major areas of highest amenity value, by so planning the general route of the first line in the first place, even if the

total mileage is somewhat increased in consequence.

The Horlock Rules relate to the siting of electricity substations and assets. These rules also encourage avoidance of areas of highest amenity and commit to consideration of a range of environmental impacts including habitat and biodiversity.

NRAP Objective 2: Safeguard species and habitats of principal importance and improve their management (National Grid ownership only).

Across the UK National Grid own around 4,500 hectares of non-operational land which includes a rich variety of habitats from ancient woodland to peatbogs.

A core element of our sustainability strategy focusses on gathering a better understanding of the natural assets we own, and the benefits and services the these provide to our business and wider beneficiaries.

To ensure that we manage these valuable assets effectively we will work with specialist and expert organisations including ecologists, conservation and community organisations to develop and delivery new management approaches that preserve and enhance these nature features including those of principle importance.

4. The Visual Impact Provision (VIP) reducing our impact on amenity

The Visual Impact Provision (VIP) is a £500m provision by Ofgem to carry out work that reduces the impact of existing transmission lines in English and Welsh Areas of Outstanding Natural Beauty (AONBs) and National Parks.

The Visual Impact Provision (VIP) project represents a major opportunity to conserve and enhance the natural beauty, wildlife, and environmental heritage within our most protected landscapes.

At National Grid we are passionate about playing our part in conserving and enhancing the natural beauty, wildlife and cultural heritage of the landscape.

The most important task for us is to use this provision to achieve the maximum enhancement to our nation's precious landscapes while avoiding unacceptable environmental impacts.

See case study 2: VIP Snowdonia where we are working to reduce the impact of our transmission lines within the Snowdonia National Park

NRAP Objective 3: Increase the resilience of our natural environment by restoring degraded habitats and habitat creation: (National Grid ownership only)

The geographical context of our sites, habitats and biodiversity is a key consideration within our sustainability approach.

We work with others to understand the interdependencies and opportunities associated with the land that we own, listen to our stakeholders, and collaborate to develop new approaches that can create ecological stepping stones and enhance biodiversity as we as improved provision of ecosystem services such as local air quality and pollination.

We use our Natural Capital Tool and Biodiversity Net Gain methodologies to develop site specific baselines from which to measure our potential improvement and enhancements.

This approach applies to the proactive management approach to our own estate, and any new sites and land holdings acquired to facilitate development of our energy networks.

See case study 3: Rhigos where we are working with specialist organisations to restore an ancient peat bog and enhance the habitat for the marsh fritillary butterfly

NRAP Objective 4: Tackle key pressures on species and habitats

5. Management of key pressures

5.1 Invasive species and injurious weeds

As part of our approach to land and estate management, each of our sites are inspected annually by our real estate service provider. This inspection process includes the identification of invasive species or injurious weeds, in addition to other issues such as pollution, fly tipping and antisocial behaviour which may have the potential to impact habitats and biodiversity.

Once identified we keep a register of all sites where invasive species present and initiate a monitoring and treatment program using our specialist contractors to control and manage the area.

5.2 Nature Based solutions

Working to ensure that our network is protected from the impacts of climate change and wider environmental pressures nature based solutions are considered and assessed by our natural hazards team alongside engineering solutions, to deliver flood protection and reduced flood risk at key locations. We also consider opportunities to use natural solutions to manage impacts associated with our construction activities including visual screening, noise and pollution controls.

5.3 Working with our supply chain

We also work with our supply chain to ensure that the wider impacts of the products and services we buy are understood and managed effectively, including potential impacts to deforestation and habitat loss.

NRAP Objective 5: Improve our evidence, understanding and monitoring

6 Gathering and sharing our environmental data

To inform the development of our major infrastructure schemes we gather a multitude of environmental and ecological data. The example below illustrates the variety of information and data that we gather and how this is made available and shared.

The North Wales Connection Project was a proposed second connection for the Wylfa Newydd nuclear power station on Anglesey. The proposed connection ran from Wylfa back to the existing national transmission network at Pentir, Gwynedd. Additional reinforcement work was required at Bryncir, Gwynedd.

At commencement of the project contact was made with key stakeholders including the Local Planning Authorities and Natural Resources Wales. All data held by these stakeholders relating to the proposed project area was requested and used to inform the approach to routeing and siting of the project. Input was sought from environmental stakeholders and this proved invaluable to progressing the project and reducing effects.

As part of the development of an application for a Development Consent Order, ecological surveys were carried out to support development of design and environmental assessment including:

- Three years of ecological survey data in Anglesey and North Gwynedd in the area of our proposed new development. Species surveyed included bats, badgers, great crested newts, invertebrates, birds and raptors. Detailed survey results were shared with stakeholders at various project stages and final survey data was made available as part of the Environmental Statement prepared to support the DCO application. In addition, raw survey data was shared with stakeholders.
- Data collected helped to shape the project identifying areas to be avoided and our approach to mitigation and enhancement to reduce or compensate for any any effects identified.
- Ongoing engagement with stakeholders as the project developed was essential to understand local conditions and concerns
- Bore hole data taken from around and in the Menai Strait – has been shared with Local Planning Authorities, The British Geological Society and the Marine Sciences Department at Bangor University at no cost. This was the first time some section as of the Menai Straight had been subject to intrusive survey and the results are important for
- Details of the data shared is set out in the Enhancement Strategy for the North Wales connection project which is on the PINS website (probably only for a few more months)
- Planning Performance Agreements were entered into with Local Planning Authorities to enable the engagement with specialist officers and a Discretionary Advice Agreement was signed with NRW to enable them to support engagement.

Throughout the development of the project National Grid continued to engage with relevant stakeholders to share data and seek their knowledge and expertise in a series of meetings and workshops.

6. Review of S6 duty

Progress against our corporate targets relating to all elements of our responsible business strategy including carbon, resources and the natural environment (including biodiversity and section 6 duty) will be measured and reported externally as part of our corporate reporting processes.

Every three years the Safety Health & Sustainability team will support the UK business to gather information and case studies which will be included within an updated version of this report.

CASE STUDY 1: – Margam Substation

Habitat Management at National Grid Electricity Transmission's Margam Substation

In 2019, National Grid approached The Wildlife Trust of South and West Wales (WTSWW) to work with them on a sustainability project at Margam Substation near Port Talbot, South Wales.

The land consists of approximately 14 hectares of reedbed, marshy grassland, scrub and brownfield habitats. The dense reedbed provides home for several amphibians and breeding birds, including Cetti's warblers, harvest mice and potentially water voles. There is also the potential for scarce species such as bitterns to hunt amongst the reeds. Predators such as otters and grass snakes will hunt amphibians which breed in areas of standing water.

The reedbed was a dense monoculture with little open water, so it was suggested that several scallops were cut into the reeds by WTSWW (assisted by the National Grid project team). The open water will benefit invertebrates such as damselflies and dragonflies, whose larvae will hopefully appreciate the raised temperatures in the areas now exposed to direct sunlight.

Scrub that was also cut back and stacked into dense habitat piles providing ideal egg-laying habitat for grass snakes and will also hopefully be used by small mammals and invertebrates.

The land contains areas of brownfield-type habitat where flowering plants and the exposed gravelly soil supports solitary bees and wasps.

There are also records of two rare bumble bees there: shrill carder bees and brown-banded carder bees. The management of these important habitats is incorporated into the future management plans

During the initial visit to the site, kestrels were seen hunting over this area, therefore several specialist kestrel boxes were placed at suitable locations around the site in preparation for the breeding season.

Natural Capital Assessment

Using the National Grid Natural Capital tool, a site baseline showed that the site was important and valuable in terms of carbon, air quality, biodiversity and flood management. Our evaluation tool was used to model different management scenarios to increase ecosystem service provision whilst also protect the valuable habitats on site.

Case Study 2: Snowdonia VIP

Reducing our impact on amenity

The VIP project in the Snowdonia National Park is proposed to replace a 3km section of overhead line crossing the Dwyryd Estuary near Porthmadog with an underground connection, permanently removing 10 pylons from the landscape across the Dwyryd Estuary near Porthmadog.

Stakeholders have agreed that the best way to achieve this is to remove a section of this overhead line and replace it with electricity cables buried in a tunnel underground. It represents a major opportunity to conserve and enhance the natural beauty, wildlife and environmental heritage of this precious landscape of Snowdonia.

On 6 December 2019 we launched our pre-application consultation on proposals to remove pylons across the Dwyryd Estuary and place the connection in a tunnel underground.

http://snowdonia.nationalgrid.co.uk/pre-application-consultation-2019/

An environmental summary, a standalone document that presents a summary of the principal findings of the Environmental Appraisal can be accessed via the following link:

http://snowdonia.nationalgrid.co.uk/wp-content/uploads/2019/12/Environmental-Summary-English.pdf

The Environmental Appraisal uses best practice tools and methodologies to measure and quantify our biodiversity impacts and inform our mitigation and enhancement actions.

Chapter 7 Terrestrial Ecology and Section 8 Marine Ecology provide detailed information and assessment relating to a wide variety of habitats, biodiversity and environmental considerations assessed as part of the project.

Further details can be accessed via the following link:

http://snowdonia.nationalgrid.co.uk/

Case Study 3: Habitat Management Restoration at Rhigos

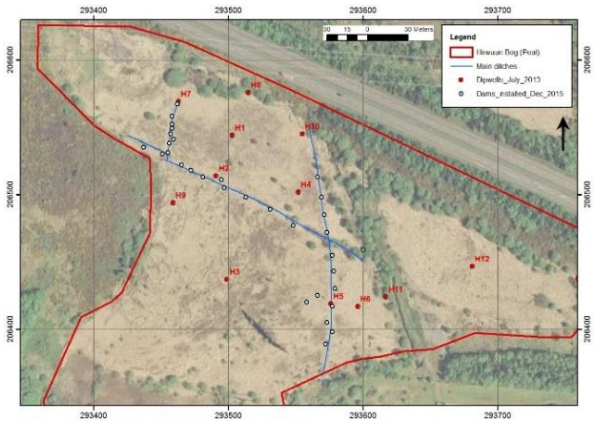
Working together to restore ancient peat bog and protect and increase the habitat for the Marsh Fritillary

National Grid needed to build a new 400KV Substation to connect to the Pen y Cymoedd onshore windfarm in South Wales. As part of the development process National Grid's land ownership boundary was increased to include an area of ancient peat bog.

We worked with Rhonda Taff Council, Butterfly Conservation and other specialist stakeholders to develop a 25-year habitat management plan that would start to reverse the decline and restore the ancient peatbog and preserve, enhance and expand the habitat for the Marsh Fritillary.

Water levels of the Peatbog are measured via remote dipwells and the data is gathered and assessed by **Rigare Limited,** a specialist hydrology contractor.

In 2015 32 plastic sheet piling dams were installed within the main ditches of the peatbog to increase the capacity of the bog to retain higher water levels. These dams, along with controlled periods of grazing across the habitat management areas, have significantly improved the quality of the bog, reducing the dominance of other species (purple moor grass and grass tussocks).



Protecting habitat for the Marsh Fritillary

The Marsh Fritillary was once widespread in Britain and Ireland but has declined significantly over the twentieth century. Populations are volatile and the species requires extensive habitats or habitat networks for its long-term survival.

Making strategic connections

The Habitat management area (HMA) located to the north of the substation provides a stepping stone and ecological connection to the Blaen Cynon special area of conservation (SAC) and designated as a stronghold for the Marsh fritillary.

The Habitat Management Area (HMA) is surveyed by Sturgess Ecology twice every year to assess the presence of devils bit scabious which is a plant essential to support healthy population of Marsh Fritillaries and was once sparse across the site. Further surveys are carried out in late August to record the number of larva webs created by the marsh fritillaries.

The latest report 12th Sep 2019 showed that only 1 larval web was found confirming that Marsh fritillaries are still present, although apparently in lower numbers than last year. Whereas the numbers larval webs have fluctuated over the years of monitoring, the quality and quantity of available and suitable habitat has improved significantly across the site.

A small number of devils bit scabious seedlings were translocated into new areas of the site to increase the suitable habitat. This area will be managed and surveyed as part of our ongoing management plan.

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom
Registered in England and Wales
No. 4031152

nationalgrid.com

nationalgrid