



ESB ASSET DEVELOPMENT UK LIMITED

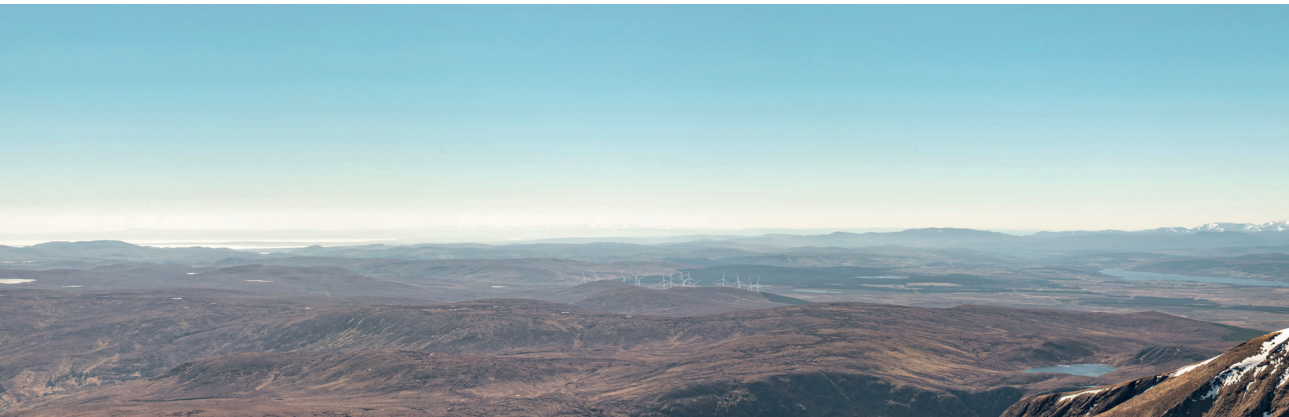
CHLEANSAID WIND FARM

ENVIRONMENTAL IMPACT ASSESSMENT
NON-TECHNICAL SUMMARY · 662367



Energy for
generations

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INTRODUCTION

BACKGROUND TO THE NON-TECHNICAL SUMMARY AND PROPOSED SCHEME

This is the non-technical summary (NTS) of the environmental impact assessment report (EIAR) for the proposed Chleainsaid Wind Farm.

The NTS describes in non-technical language the proposed scheme and the likely effects it may have on people and the receiving environment. It also describes the measures that the applicant proposes to use to avoid or reduce any potential adverse effects that have been identified, including how environmental issues will be managed during and after construction. The EIAR presents the complete findings of the environmental impact assessment (EIA) and is the main document accompanying the application for consent.

INTRODUCTION TO THE PROPOSAL

ESB Asset Development UK Limited, part of ESB, Ireland's premier energy company, established in 1927, is a leading independent power generator in the UK market. ESB has a track record of over 20 years as a successful investor in the UK. ESB owns and operates wind farms across the UK and Ireland with a current generating capacity of 600 MW.

ESB Asset Development UK Limited (hereafter 'the applicant') has submitted an application for consent for the Chleainsaid Wind Farm (hereafter 'the Proposed Development'), located on the Dalnessie Estate, 13 km to the north-east of Lairg in the Scottish Highlands, near the A836–A838 Junction, as shown on Figure 1.

It is proposed that up to 16 turbines of approximately 6 MW each are installed, 12 with a maximum tip height of 200 m and four with a maximum tip height of 180 m. The total installed capacity for the Proposed Development would be in excess of 50 MW. In addition, space to host a potential battery energy storage facility has been identified, with technological characteristics subject to market conditions at time of construction. Ancillary infrastructure will also be constructed, such as a meteorological mast, a substation and control building, construction compounds, borrow pits and buried cabling. The proposals also include plans which seek to deliver habitat improvements to areas of degraded bog, riparian planting and native woodland planting.

The Proposed Development is anticipated to save up to 132,451 tonnes CO₂ equivalent (CO_{2e}) per annum and approximately 4,461,952 tonnes CO_{2e} over its operating life. The Proposed Development is anticipated to provide enough electricity to power the equivalent of 54,396 households in Scotland for a year.¹

THE PROJECT TEAM

The applicant has appointed RSK Environment Ltd (RSK), an experienced environmental consultancy, as lead consultant to carry out the EIA and related assessments to accompany an application for planning consent to the Scottish Government's Energy Consents Unit (ECU). RSK was supported by:

- **STEPHENSON HALLIDAY** – provided specialist planning assessment
- **HOARE LEA** – provided specialist noise modelling and assessment
- **HEADLAND ARCHAEOLOGY** – provided specialist archaeology and cultural heritage assessment
- **LUC** – provided specialist landscape and visual modelling and assessment
- **AVIAN ECOLOGY** – provided specialist ecology and ornithology surveys, modelling and assessments
- **WIND BUSINESS SUPPORT LTD** – provided specialist aviation assessments.

¹ Calculation based on a 96MW onshore wind project using the Scottish Government renewable electricity output calculator [Online] Available at: <https://www.gov.scot/publications/renewable-and-conversion-calculators/> [accessed March 2022]

PLANNING PROCESS

CONSENTS AND AUTHORISATIONS

The applicant is seeking to secure approval for the Proposed Development by way of an application under Section 36 of the Electricity Act 1989 to Scottish Ministers.

The Proposed Development area covers approximately 512 hectares that falls within The Highland Council (THC) area.

ENVIRONMENTAL IMPACT ASSESSMENT

The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (hereafter 'the EIA regulations') transpose the requirements of the EIA Directive into law and apply where consent is being sought for developments under Section 36 of the Electricity Act 1989. In accordance with this, an EIA has been undertaken to identify the likely significant effects the Proposed Development could potentially have upon the receiving environment. The purpose of the EIA is to ensure that any environmental effects are fully understood and taken into account during the design, consenting and authorisation process. The method and findings of the EIA are presented in detail within the EIAR and outlined within this NTS.

CONSULTATION

Consultation has been integral to the design and development of the Proposed Development, identification of existing environmental constraints and sensitivities, and identification and assessment of the likely environmental effects of the Proposed Development. Extensive consultation has been undertaken with key stakeholders.

Consultation took place by way of the following:

- informal stakeholder liaison, including meetings and correspondence by letters, emails and by phone;
- Scoping, which involved the submission of a formal EIA Scoping request to the ECU, and statutory and non-statutory consultees;
- public information events, initially conducted by online public consultation events, and a dedicated project website. Following the easing of Scottish Government COVID-19 restrictions, two in-person public exhibitions were hosted within the local communities in Rogart and Lairg ; and
- THC formal pre-application advice service, which involved a discussion of the consenting issues and was attended by key consultees.

ALTERNATIVES

As part of the design development, consideration has been given to a number of alternatives regarding layout, design and operational aspects.

Alternatives explored for the Proposed Development included a variety of potential turbine locations, varying turbine heights, and a number of access route options to and between development infrastructure.

The proposed design and infrastructure layout evolved in response to environmental constraints identified throughout the EIA process and from consultation feedback. The main considerations that were taken into account during the design development included landscape and visual effects and avoidance of deep peat.

During the EIA process, the Proposed Development went through four principal design iterations. Final changes to the

layout included decreasing the total number of turbines from 20 to 16 and reducing the height of four turbines from 200m to 180 m. In addition, in line with the environmental assessments undertaken, changes to the proposed turbine locations and access track layout have been introduced to mitigate the potential effects on the surrounding environmental features and visual amenity.

The final design layout can be seen in Figure 3.

CLIMATE CHANGE, ENERGY AND PLANNING POLICY

National policy guidance and local development plans relevant to the location and design of the Proposed Development were identified and reviewed to establish overall compliance with policy objectives.

National policy identifies a requirement to encourage the use of renewable technologies to tackle the issue of climate change, strengthen the economy and diversify energy supplies.

THC declared a climate and ecological emergency on 9 May 2019 and is committed to a carbon neutral Inverness and a low carbon Highlands by 2025. THC supports renewable energy in principle, and local planning policy states the Council will consider the contribution a Proposed Development makes towards meeting renewable energy generation targets.

A Planning Statement has been prepared for submission as part of the application for consent documentation.

EXISTING ENVIRONMENT

The Proposed Development site lies approximately 13 km to the north-east of Lairg, near the A836–A838 Junction, and sits within the North, West and Central Sutherland ward of THC (see Figure 1).

The land use of the Proposed Development site is currently a sporting estate and rough grazing for sheep. Two residences owned by the Dalnessie Estate lie close to the Proposed Development site. The surrounding land uses include commercial forestry, agricultural and sporting and recreational uses.

The Proposed Development site is located on the lower slopes of a rounded hill. This hill forms part of the south-western edge of the Ben Armine Forest and is one of the lower-lying hills in the surrounding area. The topography across the turbine area ranges from approximately 200 m AOD at the south-eastern extent to a high point of 290 m AOD, to the west of the summit of Sròn Leathad Chleainsaid near the north-eastern boundary.

There are a number of minor watercourses across the Proposed Development site and the River Brora is situated adjacent to the eastern boundary.

No public roads are located within the Proposed Development site.

THE PROPOSED DEVELOPMENT

The Proposed Development will comprise up to 16 turbines. A maximum tip height of 200m is proposed for 12 turbines, and 180 m for four turbines. Each will have an capacity of approximately 6 MW. The turbines will be of a typical modern design incorporating tubular towers and three blades.

The Proposed Development seeks permission to operate for 35 years, after which the wind farm would be decommissioned, and the turbines dismantled and removed, unless permission is sought to extend the operational lifespan.

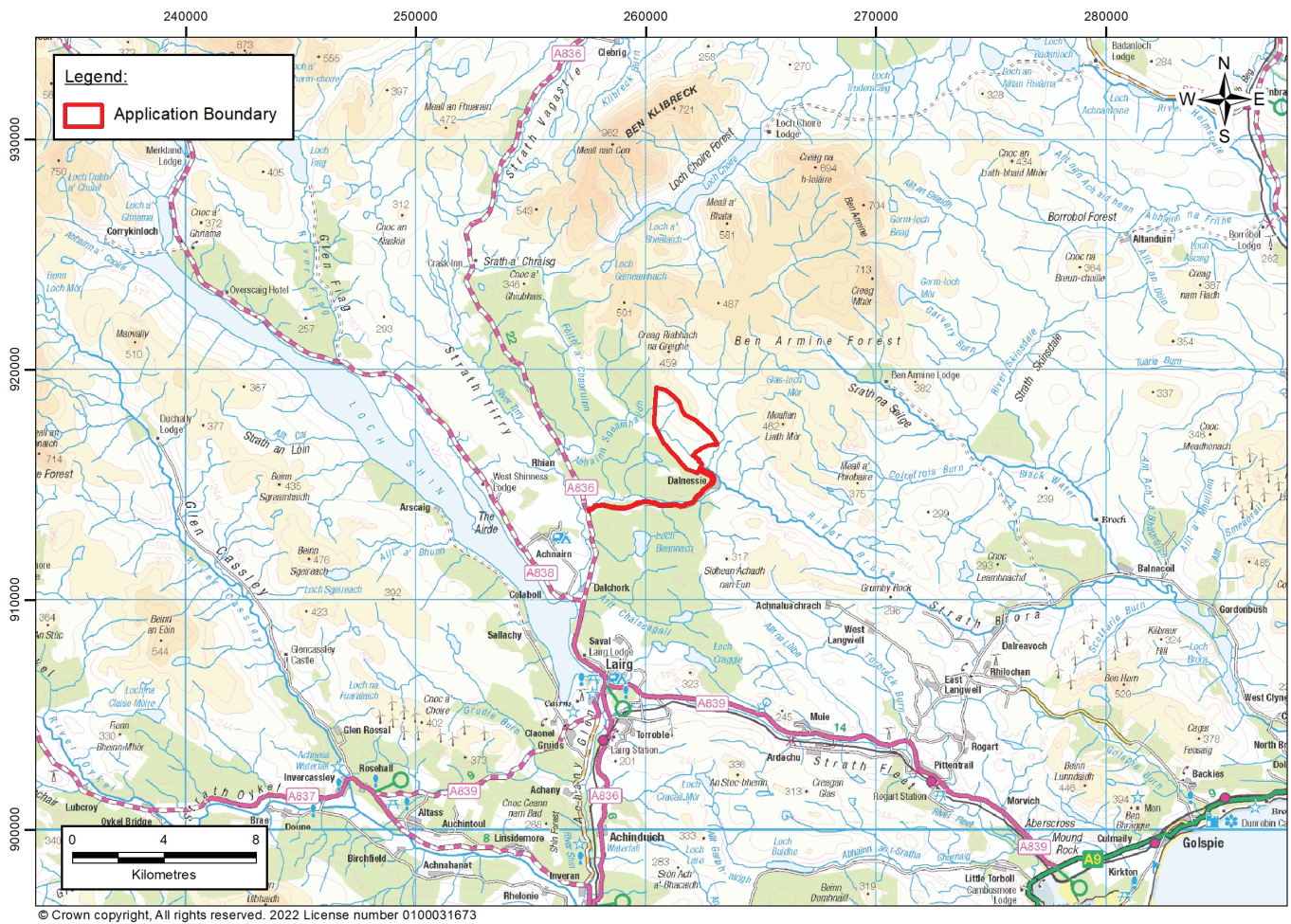


FIGURE 1. SITE LOCATION PLAN

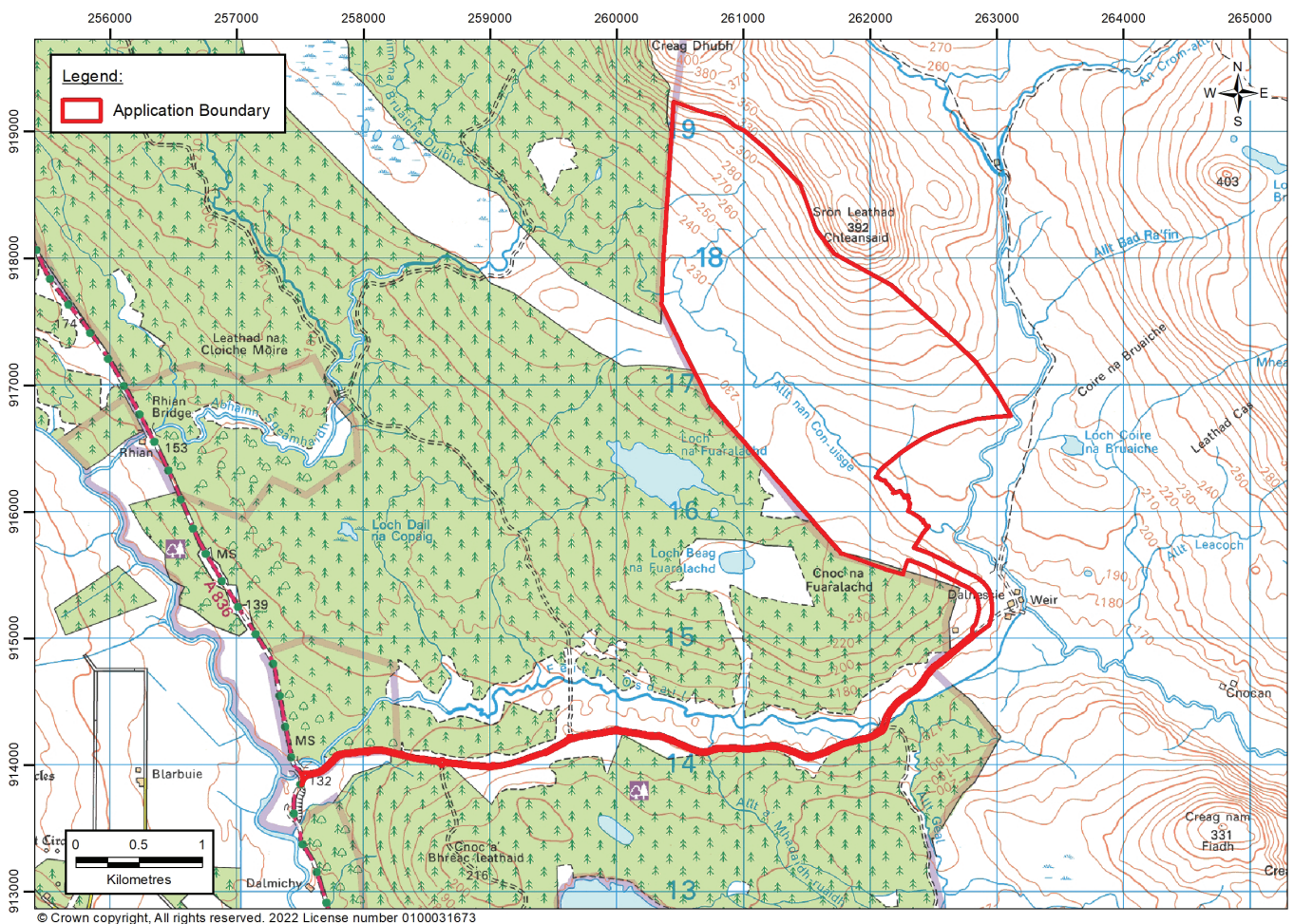


FIGURE 2. THE PROPOSED DEVELOPMENT

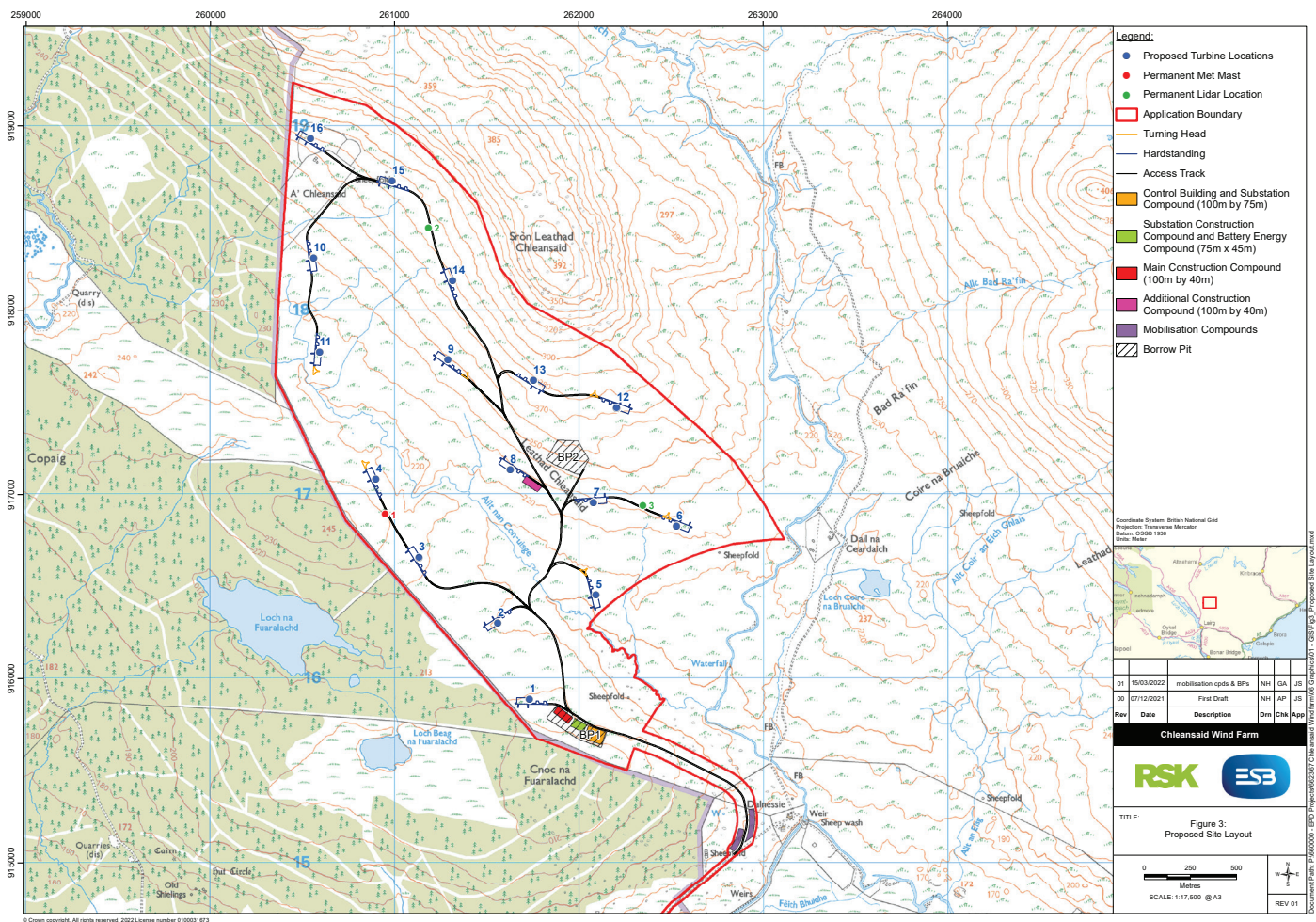


FIGURE 3. SITE LAYOUT PLAN

The construction of the Proposed Development is anticipated to take approximately 21 months from mobilisation to completion. During the construction period, four temporary construction compounds will be required.

Movement of construction vehicles and heavy goods vehicles (HGVs) will be required to, from and around the Proposed Development site to deliver the turbine components, works machinery and materials. Following the construction phase, temporary construction compounds will be reinstated.

Access to the Proposed Development will be taken from the west via the private track leading from the A836 into the Dalnessie Estate (see Figure 2). Some widening would be necessary along the access track to allow for passing places to be formed.

New and upgraded track would be required within the Proposed Development site to allow construction and operation of the Proposed Development. Turning heads of sufficient size to accommodate articulated vehicles would also be provided at several locations.

Tracks used by construction vehicles will be retained throughout the lifetime of the Proposed Development for use by maintenance vehicles. The track would generally be unpaved (stone surface) and of 5.5 m running width, with a 1 m shoulder verge to either side, although may be wider for short sections, such as passing places, laydown areas and sharp bends.

The infrastructure layout of the Proposed Development can be seen in Figure 3.

TYPES OF IMPACT CONSIDERED

Direct impacts may occur when some aspect of a development physically impinges upon a valued resource, for instance the proposed construction of a house may result in loss of ecological habitat or an archaeological site.

Indirect impacts could occur in either time, or location, from the source – for instance construction works on a slope could result in heavy rainfall washing exposed soil into a nearby watercourse, which could damage aquatic life.

Cumulative impacts are defined as:

- Impacts that result from changes caused by a proposed development together with other past, present or future developments;
- Impact interactions that may arise from a combination of separate impacts on one or a small number of receptors due to the same proposed development.

Information on possible future developments was gathered through research of relevant planning documentation. The possibility of cumulative impacts arising has been considered in each of the technical chapters of the EIA report.



THE MAIN STAGES OF THE CHLENSAID WIND FARM EIA

APPROACH TO THE EIA

An EIA is a systematic process to identify, predict and evaluate the environmental effects of proposed projects.

The requirements of the EIA were informed by a Scoping process that considered all the environmental effects which could occur as a result of the Proposed Development, given the nature of the receiving environment.

The Scoping exercise involved a review of available documentation, consultation with statutory and non-statutory organisations, and desk based and site-based surveys.

The Scoping process concluded that the following aspects would require further assessment, in form of an EIA, due to their potential to cause environmental effects:

- LANDSCAPE AND VISUAL IMPACTS
- ARCHAEOLOGY AND CULTURAL HERITAGE
- ECOLOGY
- ORNITHOLOGY
- GEOLOGY, HYDROLOGY, HYDROGEOLOGY AND PEAT
- NOISE AND VIBRATION
- TRAFFIC AND TRANSPORTATION
- AVIATION AND RADAR
- SOCIO-ECONOMICS, LAND-USE AND TOURISM
- TELECOMMUNICATIONS AND ELECTROMAGNETIC INTERFERENCE
- SHADOW FLICKER
- CLIMATE CHANGE.

The main stages of the EIA that were followed are illustrated opposite. It should be noted that for the Proposed Development different specialist subjects all adopt this same broad approach but vary in the detail of how they are applied, such as study areas, established guidance or assessment criteria.

Any significant residual effects that the EIA identifies as arising from the Proposed Development are key to understanding the outcome of the EIA process, because these are given the greatest weight by decision makers and stakeholders when considering an application for consent.



DATA GATHERING

Project data gathering

Data to describe the construction and operation of the development, including identification of the project activities, materials to be used, discharges and emissions that are likely to occur.

Environmental data gathering

Collection of available information on the existing environment within a suitable area of search



SCOPING AND SURVEY

Identification of environmental sensitivities

Identification of receptors and their environmental sensitivity, which could be affected by the proposed development. Consultation with regulatory authorities to discuss aspects associated with the proposed project activities.

Site survey work

Surveys of the existing environmental conditions to fill gaps in data, to ensure sufficient and adequate data are available and form a suitable baseline for the determination of impacts.



ASSESSMENT

Environmental impact assessment

Detailed assessment of the identified potential impacts associated with project activities.

Evaluation of significance

Evaluation of significance, including qualitative and where possible quantitative estimation of magnitude and severity of effects.



MANAGEMENT

Mitigation measures

Identification of measures to be applied to eliminate, minimise or manage the potential significant environmental effects.



COMPILE EIA REPORT

Presentation of the findings of the EIA in a systematic way, including determining the significance of the residual effect on the environment; schedule of environmental commitments and monitoring requirements.

ENVIRONMENTAL IMPACTS AND MITIGATION



LANDSCAPE AND VISUAL AMENITY

The Landscape and Visual Impact Assessment (LVIA) considers the potential effects of the Proposed Development during construction and operation on the landscape and visual resources of the site and the surrounding study area (45 km from the outermost turbines). The assessment focuses on locations where receptors are likely to be affected by the Proposed Development as predicted by a Zone of Theoretical Visibility (ZTV) map, which shows areas from where the Proposed Development will be theoretically visible.

Landscape character and resources are considered to be of importance in their own right. Effects on views and visual amenity as perceived by people are clearly distinguished from, although closely linked to, effects on landscape character and resources. Effects on views and visual amenity have been assessed through the use of 12 representative daytime viewpoints (often places used for recreation etc.) and three dusk viewpoints (to consider effects in relation to visible aviation lighting which is required for structures above 150 m in height). As such, the assessments of effects on landscape and on visual receptors are separate, although linked, processes.

Landscape and visual considerations, including the appearance of the Proposed Development from key viewpoints, played a key role in the progression of the design. Consideration was given to the location and scale of the turbines, as well as all supporting ancillary infrastructure. Best practice guidance was considered throughout the design process.

LANDSCAPE EFFECTS

Significant effects are predicted on the landscape resource of the site itself during construction (major) and operation (major).

Significant effects on landscape character are predicted for the Sweeping Moorland and Flows Landscape Character Type (LCT) and Rounded Hills LCT, in which the Proposed Development is located at the site level (major) with moderate effects locally within 5 km of the turbines.

For most commercial wind farms, having some residual significant landscape (and visual) effects is unavoidable, and the level and distribution of assessed significant landscape and visual effects for the Proposed Development are considered to be no more than would be expected for a commercial size wind farm. No significant effects on the wider Sweeping Moorland and Flows and Rounded Hills LCT or other LCTs are predicted.

EFFECTS ON DESIGNATED LANDSCAPES

The Proposed Development will not compromise the overall integrity of any landscape designations (National Scenic Areas or Special Landscape Areas) by negatively altering the special qualities for which they have been designated. The closest designated landscape is the Ben Klibreck and Loch Choire SLA, located within 5 km to the north.

VISUAL EFFECTS

Visibility is variable across the study area with the landform and commercial forestry providing screening from many locations. Significant effects on views are predicted at five of the

12 representative viewpoints, within 12 km of the site. These effects are predicted for a variety of receptors including some effects on local residents, road users passing the site on the A836 and recreational receptors at The Ord above the Ferrycroft Visitor Centre in Lairg and from the summit of Ben Klibreck.

No significant effects are predicted from any settlements, with rising landform to the north of Lairg largely screening views from properties in the settlement. Visibility from the settlement of Rogart is also very limited.

Significant sequential effects are predicted from a section of the A836 (and National Cycle Route 1) and Right of Way HS29, Hill Track and Heritage Path to the east of the site. Both of these routes pass within 5 km of the site.

CUMULATIVE LANDSCAPE EFFECTS

No significant cumulative landscape effects are predicted. The Proposed Development is not out of keeping with the existing pattern of wind energy development, which tends to be located in the Rounded Hills and Sweeping Moorland and Flows LCTs, outside of designated landscapes.

The Proposed Development generally reads as a distinct and well composed single cluster of turbines which reflects the pattern of distinct schemes to the north-west and west of the site.

CUMULATIVE VISUAL EFFECTS

Views of wind farms in this part of Scotland are not unusual, and they have become an accepted part of wider views seen in this area, given they have been present for some time.

No significant 'additional' cumulative visual effects are predicted from any of the assessment viewpoints.

Significant 'total' cumulative effects have been identified from Viewpoint 5: The Ord above Ferrycroft Visitor Centre and Viewpoint 10: Reay – Cassley WLA Ben Sgeireach. Total effects consider the effect if all operational, consented and proposed proposals are deemed present, including the Proposed Development. From these two viewpoints total effects are considered significant due to the number of wind farms seen in near to longer distance views in multiple viewing directions. However, this would likely be the case even without the Proposed Development in the cumulative picture.

WILD LAND ASSESSMENT

An assessment of the effects on Wild Land Areas (WLA) was undertaken. The proposed turbines are located outside and adjacent to the south-western boundary of the Ben Klibreck and Armine Forest WLA. Effects on the majority of wild land qualities identified within the assessment are judged not to be significant. Localised significant effects have been identified for one wild land quality from WLA 35: Ben Klibreck and Armine Forest ("An awe-inspiring simplicity of landform and landcover and a perception of 'emptiness', so that the extent of the peatland often seems greater than it is"). WLA 35: Ben Klibreck and Armine Forest is considered to be of sufficient scale that localised effects on the perceptual aspects of the wild land quality under question are not judged to result in a material change to the wild land qualities as they are expressed across the wider WLA, or other WLA considered in the assessment.

RESIDENTIAL VISUAL AMENITY

An examination of effects on views from residential properties within 2 km of the nearest wind turbine of the Proposed Development was undertaken. This is limited to the small property cluster at Dalnessie.

No effects are judged to breach the residential visual amenity threshold, as described in Landscape Institute guidance².



AVIATION LIGHTING ASSESSMENT

An assessment of the effects in relation to permanent aviation lighting is included in Appendix A6.2 of the EIAR. Five of the turbines are proposed to have permanent aviation lighting which consists of a medium intensity 2000 candela light mounted on the turbine hub (with the option to dim these lights to 200 candela in clear weather conditions).

No significant effects on landscape character, designated landscapes or WLA are anticipated. Whilst dark sky qualities are not specifically recognised for any LCT, landscape designations or WLA considered in this assessment, many of these landscapes have wild, remote and naturalistic characteristics which dark skies contribute to. In terms of visual effects, no significant visual effects are predicted for any of the four assessment viewpoints, under either the 2000 or optional 200 candela scenarios. When visible, the Proposed Development tends to be seen in large scale and longer distance views, where other occasional light sources in surrounding lower lying landscapes are apparent.



ARCHAEOLOGY AND CULTURAL HERITAGE

Construction impacts have been assessed through a desk-based assessment which has identified known heritage assets and the potential for currently unrecorded assets within the Proposed Development site. This has identified that one non-designated asset – the remains of the farmstead known as A'Chleansaid – will be disturbed by the construction of Turbine T16 and associated infrastructure. It is concluded that this will result in a minor effect. It has also found that construction of Turbine T15 would result in the loss of a sheepfold to the east of A'Chleansaid which would result in a moderate effect, and that widening of the access track could result in loss of another non-designated sheepfold. None of these direct construction effects will be significant. Archaeological monitoring and recording of groundworks will offset these impacts.

Scheduled Monument SM5300 is located directly south of the proposed access area. All works to the access route will take place to the north to avoid physical impacts to this monument. The scheduled monuments adjacent to the access route will be demarcated with fencing in advance of construction and noted in site induction materials for all staff and site visitors to avoid accidental impacts.

The visual change to heritage assets has been assessed through a desk-based study to identify assets within the ZTV and through site visits to confirm their existing setting and how this contributes to their significance. This has found that there would be no effect on any designated heritage assets through change in their setting, and no cumulative impacts are predicted.



ECOLOGY

Baseline ecological conditions to inform the design and assessment of the Proposed Development have been established through a desk study review of existing information and ecological field surveys, informed through consultation with NatureScot, species specialists and biological recording groups.

The Proposed Development site does not form part of any designated site with qualifying ecological interest, nor is it within 5 km of such a designated site. Baseline studies have established that habitats within the Proposed Development site are predominantly comprised of bog and wet heath habitats, which are locally widespread. Low levels of bat activity were recorded on-site during baseline surveys, with habitats considered to provide very limited roosting and foraging opportunities for bats. Baseline surveys also established the use of the site by water vole, with evidence of otter and pine marten in the wider area based on only desk study sources. Common reptiles are established to be present, but badger, red squirrel and wildcat are considered to be absent. The watercourses intersecting the site are considered to be of low value for fish.

Project design has inherently sought to minimise habitat losses of those habitats considered to be sensitive, like blanket bog and heath, although some minor losses are unavoidable. The design of the Proposed Development has also considered the location of key bat habitat features (such as watercourses and woodland edge) with appropriate stand-off buffers adopted between turbines and such features in accordance with NatureScot guidance, and the number of watercourse crossings has been minimised. Good practice measures, including pre-construction surveys and appointment of a suitably qualified Environmental Clerk of Works (ECoW), will also ensure the protection of protected species during the construction and operational phases of the Proposed Development. Furthermore, habitat restoration measures will be undertaken in accordance with a Construction Environmental Management Plan (CEMP).

The Proposed Development provides an opportunity to deliver notable habitat improvements within the Proposed Development site, including peatland restoration and riparian native woodland planting; such measures are set out in a Draft Outline Habitat Management Principles which is included as part of the EIAR. The ecological assessment found no significant residual effects upon any important ecological feature were predicted to occur (alone or cumulatively with any other wind farm development).

² Landscape Institute (2019). Technical Guidance Note 2/19: Residential Visual Amenity Assessment (RVAA). [Online] Available at: <https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/03/tgn-02-2019-rvaa.pdf> [accessed: 13/05/2021]



ORNITHOLOGY

Baseline ornithological conditions to inform the design and assessment of the Proposed Development have been established through a desk study review of existing information and ornithological field surveys, informed through consultation with NatureScot, species-specialists and ornithological recording groups.

The Proposed Development site is located within the known foraging distance of breeding black-throated diver, which is a qualifying species of the Lairg and Strath Brora Lochs Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI), and the Caithness and Sutherland Peatlands SPA and Ramsar. The Proposed Development site is also within the known foraging distance of wintering greylag goose, which is a qualifying species of the Dornoch Firth and Loch Fleet SPA and Ramsar. Risks to all other designated sites from the Proposed Development have been fully considered and are discounted by virtue of spatial segregation and lack of observations of relevant species during extensive field surveys.

Only one black-throated diver flight (of two birds) was recorded, with no evidence of breeding, and only two greylag goose flights during the winter/passage periods were recorded during the surveys. Information to inform a Habitat Regulations Appraisal (HRA) is provided within the EIA with no evidence found to suggest the integrity of the designated sites would be affected by the Proposed Development.

Baseline studies have established the Proposed Development site and/or adjacent habitats are used by foraging golden eagle, foraging hen harrier and breeding wood sandpiper. Collision risk mortality has been determined for golden eagle and hen harrier using the modelling process requested by NatureScot. This found annual mortality rates of 0.03 and 0.83 birds respectively in Years 1 and 2 for golden eagle, and 0.08 and 0.10 birds respectively in Years 1 and 2 for hen harrier. The mortality rate for golden eagle is however, considered to be a substantial over-estimation based on very recently published research on the displacement effects of wind farms on golden eagles, which renders collisions as extremely rare events. Potential displacement effects are detailed in Golden Eagle Topographical (GET) modelling which is included within the EIAR. The GET model was completed by an independent specialist consultant who is a recognised expert on the subject. Whilst some level of localised displacement may occur, this is thought to be too small as to represent a threat to territory viability and so significant displacement effects are not considered likely to occur.

Embedded mitigation and pre-construction checks (as directed by an appointed suitably qualified ECoW will ensure that features such as nesting birds are protected from works associated with the Proposed Development. The Proposed Development provides an opportunity to deliver notable habitat improvements within the Proposed Development site, including the peatland restoration and native woodland planting which is set out in a Draft Outline Habitat Management Principles, and will benefit many key bird species. No significant residual effects upon any important ornithological feature are predicted to occur (alone or cumulatively with any other wind farm development).



GEOLOGY, HYDROLOGY HYDROGEOLOGY AND PEAT

The Proposed Development has been assessed in relation to the potential impacts on hydrology, hydrogeology, geology and peat during the construction, operational and decommissioning phases.

Information on the study area was compiled using data gathered within a desk study and verified by an extensive programme of fieldwork.

A detailed programme of peat depth and condition surveying has been completed and the results used to inform the site design. A Peat Slide Risk Assessment and Peat Management Plan have been produced for the Proposed Development, which show that areas of deep peat can be avoided and peat resources can be safeguarded.

The Proposed Development site lies out with any floodplain areas. One private water supply has been identified near the site. Additional protection measures have been set out to ensure that the private water supply is unaffected by the proposed works. There are no nearby designated sites that may be affected by the Proposed Development.

Sustainable Drainage Systems (SuDS) have been proposed to ensure that the rate of runoff from the site post-development is no greater than that prior to development and would not therefore increase flood risk downstream. The proposed SuDS allow the quality of water to be managed at source, prior to any discharge, thereby helping to prevent any reduction in water quality downstream of the site.

Potential groundwater-dependent terrestrial ecosystems (GWDTE) have been identified within the Proposed Development site and assessed on a case-by-case basis to determine their level of groundwater dependency and potential impacts from development. Location-specific mitigation measures are provided to manage potential impacts arising from construction where it has not been possible to avoid these areas.

Mitigation measures have been identified for all potential impacts, either through the development design process or in accordance with good practice guidance.

It has been shown, as a consequence of the site design and embedded mitigation, that the Proposed Development would not result in any significant impacts on hydrology, hydrogeology, geology and peat.



STOCK IMAGE



NOISE AND VIBRATION

Noise will be emitted by equipment and vehicles used during construction and decommissioning of the Proposed Development and by the turbines during operation. The level of noise emitted by the sources and the distance from those sources to the receiver locations are the main factors determining levels of noise at receptor locations.

Construction noise has been assessed by a desk-based study of a potential construction programme and by assuming the Proposed Development is constructed using standard and common methods. Noise levels have been calculated for receiver locations closest to the areas of construction and compared with guideline and baseline values. Construction noise, by its very nature, tends to be temporary and highly variable and therefore much less likely to cause adverse effects. Various mitigation methods have been suggested to reduce the effects of construction noise, the most important of these being suggested restrictions of hours of working. It is concluded that noise generated through construction activities will have a minor effect.

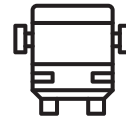
Decommissioning is likely to result in less noise than during construction of the Proposed Development. The construction phase has been considered to have minor noise effects, therefore decommissioning will, in the worst case, also have minor noise effects.

Operational turbines emit noise from the rotating blades as they pass through the air. This noise can sometimes be described as having a regular 'swish'. The amount of noise emitted tends to vary depending on the wind speed. When there is little wind the turbine rotors will turn slowly and produce lower noise levels than during high winds when the turbine reaches its maximum output and maximum rotational speed. Background noise levels at nearby properties will also change with wind speed, increasing in level as wind speeds rise due to factors such as wind passing through trees and around buildings, making the noise from the turbines less perceptible.

Noise levels from operation of the turbines have been predicted at the one noise-sensitive location neighbouring the site. A survey has been performed to establish existing baseline noise levels at this property.

Noise limits have been derived from these data following the method stipulated in national planning guidance. Predicted operational noise levels have been compared to these limit values to demonstrate that turbines of the type and size which would be installed can operate within the limits so derived. It is concluded therefore that operational noise levels from the Proposed Development will be within levels deemed, by national guidance, to be acceptable for wind energy schemes.

Cumulative noise effects with the proposed Strath Tirry Wind Farm were also considered but were determined to be negligible. Other, more distant wind farms were not considered as they do not make an acoustically relevant contribution to cumulative noise levels.



TRAFFIC AND TRANSPORTATION

The potential effects of the Proposed Development on the road network and its users was assessed in the EIAR.

The assessment approach follows industry good practice and focuses upon the changes in traffic flows along specific sections of roads along which general and HGV construction traffic will pass. This is the A9(T) between Tain and The Mound; A836 between Meikle Ferry Roundabout and the site; and A839 between The Mound and Lairg. Abnormal turbine loads will travel from Invergordon to the site using the A9(T), A839 and A836.

The assessment was undertaken taking account of consultation responses from THC and Transport Scotland. The method adopted included desk-based assessment, site visits, and traffic modelling.

Once the Proposed Development has been constructed, there will be very little change in baseline traffic volumes. Only occasional access for maintenance will be required, and so operational effects are not considered within the assessment.

The main impact upon traffic from the Proposed Development is predicted to be during the construction phase as a result of the increased number of HGV movements.

To minimise adverse traffic and transport effects during construction, a Construction Traffic Management Plan (CTMP) will be prepared by the applicant and agreed with THC in advance of measures being put in place. With this mitigation, the assessed environmental effects on traffic and transportation are predicted to be negligible.





SOCIO-ECONOMIC, LAND USE AND RECREATION

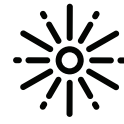
An assessment of the potential socio-economic effects of the Proposed Development and the likely significance of these on tourism, recreation, land use economic output, employment generation and other indirect effects was undertaken.

Based on the installed capacity, the assessment of the Proposed Development's impact found that:

- The development expenditure during the construction phase is estimated to be approximately £146.9 million, approximately £17.6 million of which would be spent in the local (The Highlands) economy and approximately £54.2 million in Scotland as a whole;
- During the 21 months construction phase, the Proposed Development is expected to support approximately 52 jobs locally and 158 jobs nationally;
- During the operational phase, the Proposed Development is expected to support 21 jobs locally and 28 nationally;
- The local economy would be expected to be boosted by a total of £7.2 million of net Gross Value Added (GVA) during the construction phase. The Scottish economy would benefit by £21.8 million net GVA; and
- During the operational phase (assessed over a 35-year life) the Proposed Development would contribute lifetime GVA of around £1 million for the local area and £1.5 million for Scotland as a whole.

Furthermore, the Proposed Development has committed to annual community funding of £5,000 per MW during the operational life of the Proposed Development. The total community funding would be around £500,000 per year, which would equate to £17.5 million for a 35-year lifetime.

Overall, the Proposed Development is expected to have an overall minor/negligible beneficial economic effect, and limited negligible adverse effects on tourism and land use. Benefits arising through spending by construction workers and operational staff, as well as through the community funding package, would support local businesses and communities as part of a wider cumulative benefit to the economy through the development of renewables and green jobs.



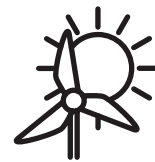
AVIATION AND RADAR

Wind turbines, in common with other tall obstacles such as pylons or television masts, have the potential to impact on flying interests. Radars are designed to detect movement; hence a turbine's rotating blades can be interpreted as aircraft, with the potential to then affect air traffic management. The potential for the Proposed Development to impact on aviation and radar assets was assessed. At an early stage, relevant stakeholders such as National Air Traffic Services (NATS), Highlands and Islands Airports Ltd (HIAL), the UK Civil Aviation Authority (CAA) and the Ministry of Defence (MoD) were consulted. As a result of the consultation and assessment work undertaken, no impacts on any aviation interests is predicted.



TELECOMMUNICATIONS AND ELECTROMAGNETIC INTERFERENCE

Radio waves and microwaves are used in a variety of communications. Structures such as wind turbines have potential to interfere with their reception. As part of the EIA process, consultation was undertaken with bodies that are responsible for managing and maintaining telecommunications networks. No impacts on any telecommunications assets were identified.



SHADOW FLICKER

Shadow flicker may occur under certain combinations of geographical position and time of day when the sun passes behind the rotors of a wind turbine and casts a shadow over neighbouring properties. Rotating wind turbine blades can cause brightness levels to vary periodically at locations where they obstruct the sun's rays. As the blades rotate, the shadow flicks on and off, an effect known as shadow flicker. When modelled using a worst case scenario, potential significant shadow flicker impacts were identified on two properties within the wider Dalnессie Estate, both located over 1.5km from the nearest turbine. Within the realistic scenario factoring in cloud cover, no significant shadow flicker effects were predicted. With mitigation, no significant shadow flicker effects will be experienced at any properties.



CLIMATE CHANGE MITIGATION

In addition to the value that wind farms provide in terms of the renewable electricity they generate; they also provide an important mechanism for the reduction of carbon dioxide (CO₂) and other greenhouse gases into the atmosphere.

Operational wind farms achieve emissions savings by reducing the consumption of fossil fuel generated mains electricity. However, during their manufacture, construction and decommissioning, wind farms can result in the emission of greenhouse gases, particularly in such instances as where natural carbon stores such as forestry and/or peat are present and potentially impacted by the development.

The Scottish Government has prepared a carbon assessment tool for wind farms to help ensure such cases are avoided, and this assessment tool has been applied to the Proposed Development.

The Proposed Development has been carefully designed to minimise areas of peat, and without tree felling required to make way for turbines and infrastructure delivery and construction. As such, the carbon calculator confirms that the largest source of carbon emissions associated with the Proposed Development will stem from the manufacture, construction and decommissioning of turbines (85,061 tonnes of CO_{2e}), with total emissions due to the Proposed Development estimated at 179,957 tonnes of CO_{2e}. Once operating, the Proposed Development is predicted to save around 132,451 tonnes CO_{2e} per annum. Construction phase carbon emissions will be offset within 1.3 years.

A total carbon saving of around 4,461,952 tonnes of CO_{2e} is predicted over the lifetime of the wind farm (35 years), which is considered to be a significant positive effect after the initial carbon payback period of 1.3 years.



POPULATION AND HUMAN HEALTH

The 2017 EIA Regulations state that an assessment of population and human health should be considered during the EIA process. At Scoping stage, it was proposed that this requirement be covered through the findings of other assessments undertaken as part of the EIA process and so no dedicated EIA chapter will be produced. Particular aspects of population and human health are therefore addressed in the Noise, Landscape, Traffic and Transportation, Aviation and Radar and Other Issues chapters of the EIA Report, as well as in Chapter 2 "Proposed Development". No significant effects are predicted.

WHAT HAPPENS NEXT?

The Scottish Government Energy Consents Unit will consider the findings of the EIAR, of which this NTS forms a part, together with other documents submitted as part of the Section 36 application for the Proposed Development. Once the application has been submitted comments can be made to the Energy Consents Unit – see details below.

If Scottish Ministers were to grant consent for the Proposed Development, then it is envisaged that construction of the Proposed Development could begin in 2024 and it become operational around 2026.



CONTACT DETAILS

Representations, expressions of support or opposition, and opinions on the Proposed Development should be sent to:

Energy Consents Unit
4th Floor, 5 Atlantic Quay
150 Broomielaw
Glasgow
G2 8LU

Email: representations@gov.scot

Website: www.energyconsents.scot/Register.aspx

FURTHER INFORMATION

Further information can be found on the Chleainsaid Wind Farm project website at:

<https://esbenergy.co.uk/chleainsaid-wind-farm>

Should you wish to request any further information, please contact:

Email: info@chleainsaidwindfarm.co.uk

