

Kirkan Wind Farm Limited

Kirkan Wind Farm

Non-Technical Summary

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INTRODUCTION

Background to the non-technical summary and proposed scheme

Introduction to the non-technical summary

This is the non-technical summary (NTS) of the environmental impact assessment report (EIAR) for the proposed Kirkan 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 developer proposes to use to avoid or reduce any potential negative 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

Kirkan Wind Farm Limited (the applicant) is submitting an application for consent for the Kirkan Wind Farm, located approximately 5.8 km north west of Garve, Highlands (see Figure 1). It is proposed that up to 17 turbines of up to 175 m in height will be constructed in the project area, and that each turbine will have an approximate generating capacity of up to 4.8 Megawatts (MW). The total installed capacity for the proposed development will 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. Proposals also include plans which seek to deliver improvements for sensitive habitats, peatland and forest planting. The proposed development is anticipated to save up to 101,933 tonnes CO₂e per annum-/ around 3,057,990 tonnes CO₂e over its operating life.

The applicant is a project company owned by Coriolis Energy Limited ('Coriolis Energy') and ESB Asset Development Limited ('ESB'). ESB is the electricity supply board for the Republic of Ireland. It owns and operates wind farms across the UK and Ireland. Coriolis Energy is a specialist independent wind farm development company operating throughout the UK. Its principals have been responsible for successfully developing onshore wind farms in the UK over a period of 17 years.

The project team

Kirkan Wind Farm Limited has appointed RSK Environment Ltd (RSK), an experienced environmental consultancy, as lead consultant to carry out the Environmental Impact Assessment and related assessments to accompany a planning application to The Highland Council. During the environmental impact assessment RSK were supported by;

- Hoare Lea provided specialist noise modelling, assessments and support;
- Ramboll Environ provided specialist landscape and visual modelling, assessments and support;
- Avian Ecology provided specialist ornithology and ecology surveys, modelling, assessments and support;
- Lechwe Renewables Ltd provided construction design and management (CDM) input and support.

PLANNING PROCESS

Consents and authorisations

Kirkan Wind Farm Limited 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 324.5 hectares, forming a small part of the much larger Strathvaich Estate.

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 the Section 36 of the Electricity Act 1989. In accordance with this, an EIA has been undertaken so as to identify the likely significant effects the proposed scheme potentially could 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 Environmental Impact Assessment Report (EIAR), with this non-technical summary and outline presented within this document.

Consultation

Consultation formed an important part of the EIA processes well as the evolving design of the proposed development of the proposal. Extensive consultation has been undertaken with key stakeholders.

This served to not only inform the consultees of the proposed scheme, but also to gain necessary information, environmental data and to agree upon the method of the environmental impact assessment.

In addition to meetings, consultation was also undertaken by way of correspondences by letters, emails and by phone, a locally distributed newsletter, two public exhibitions, as well as establishing a dedicated email address and project website.

Alternatives

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

Opportunities explored for the proposed scheme included a variety of layouts, different turbine heights, and a number of access routes to and between development infrastructure. Initial options for the proposed development comprised of up to 24 turbines over a 1058.3 ha area.

The proposed design evolved in response to environmental constraints identified throughout the EIA process, and consultation feedback. The main considerations that were taken into account during the design development included visual and landscape effects, noise levels for nearby receptors, and avoiding areas of deep peat.

The final design choice can be seen in Figure 2.

Climate Change, Energy and Planning Policy

National policy guidance and local development plans relevant to the form, location and nature 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.

Local policy acknowledges a need to promote onshore wind energy projects to help to meet renewable energy targets, recognising that the Highlands have a generous wind resource but also contains some high quality landscapes which require safeguarding from unsuitable development.

A Planning Statement has been prepared by JLL to be submitted as part of the application for consent documentation.

EXISTING ENVIRONMENT

The proposed development is located in Strathvaich Estate, within the Garve District of the Ross and Cromarty region of the Highlands (see Figure 1). The project area lies to the south of the A835 trunk road from Garve to Ullapool, to the east of the operational Corriemoillie and Lochluichart wind farms.

The wider landscape is characterised by rolling moorland, with numerous blocks of forestry

plantations also present. The existing windfarms of Lochluichart and Corriemoillie are located south of the A835 next to the proposed development. The Glascarnoch Dam, loch and river lie and the Aultguish Inn to the north of the road. Surrounding land use consists of open moorland deer stalking, areas of commercial forestry, and rough grazing. The settlement patterns around this area is made up of dispersed single dwellings and farmsteads

THE PROPOSED SCHEME

The proposed development will be made up of up to 17 wind turbines with a maximum tip height of up to 175 m. Each will have an approximate capacity of up to 4.8MW. The turbines will be of a typical modern design incorporating tubular towers and three blades, finished with a pale colour. Similar to the adjacent Corriemoillie scheme, red aviation lighting may be installed if required

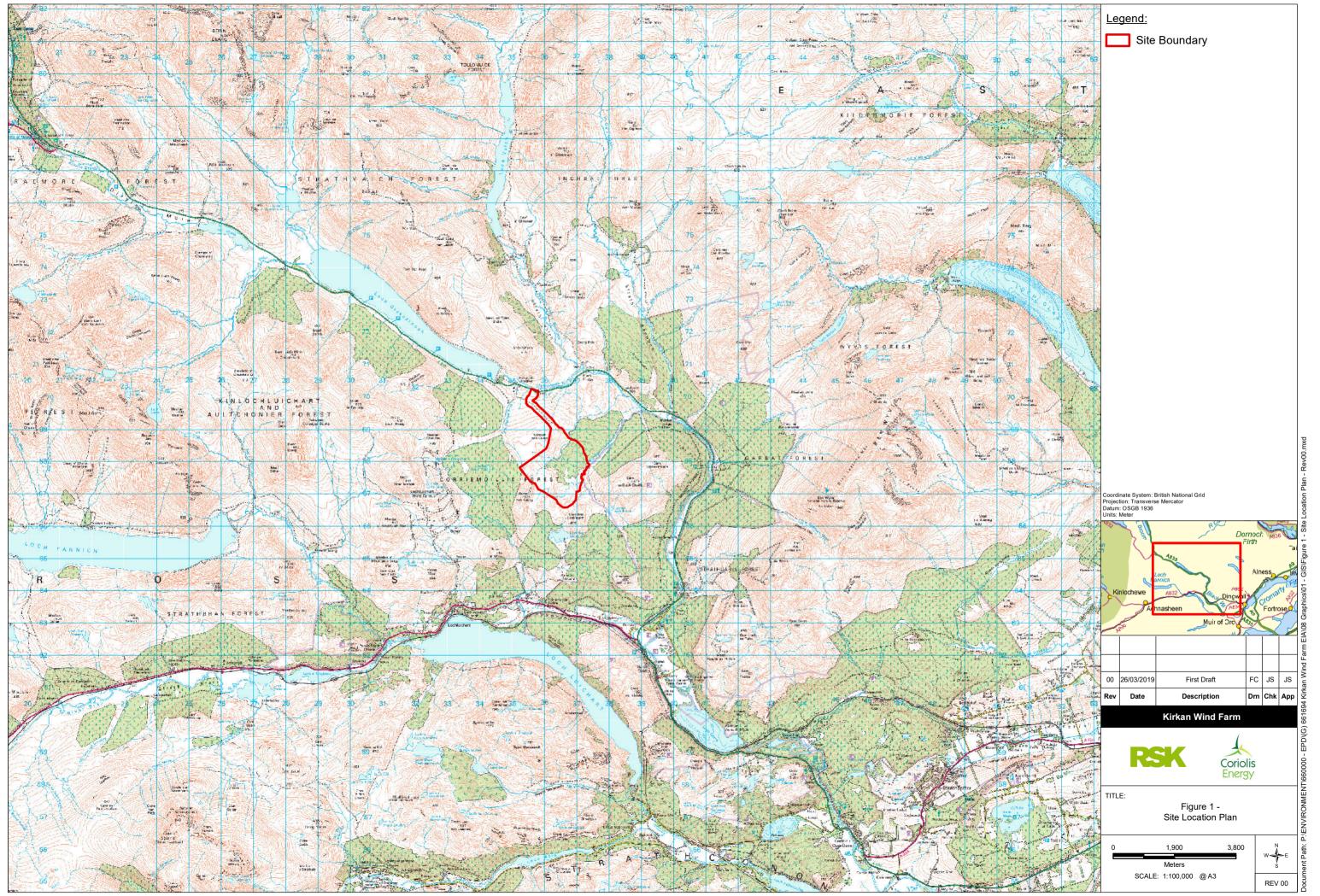
The proposed development seeks permission for a 30-year operational lifespan, after which the wind farm would be decommissioned and the turbines dismantled and moved.

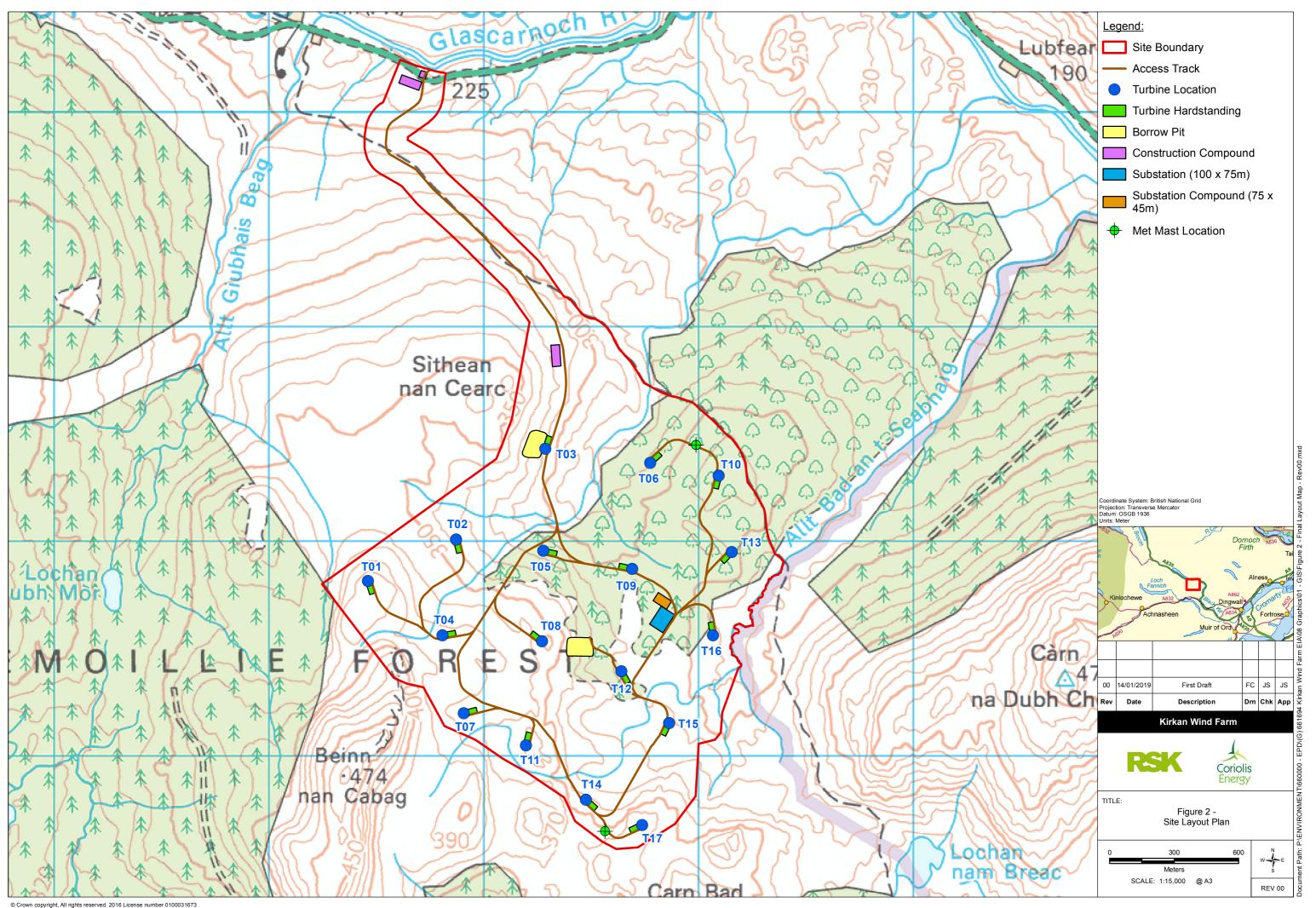
The construction of the proposed development is anticipated to take approximately 18 months from mobilisation to completion. During the construction period, several construction compounds will be required.

Movement of construction vehicles and heavy goods vehicles (HGVs) will be required to, from and around the proposed development area to deliver the turbine components, works machinery and materials. Following the construction phase, temporary construction compounds and laydown areas will be reinstated, replacing the excavated soil/peat in accordance with an agreed Peat Management Plan (PMP).

Access to the proposed development will be via an existing shared junction from the A835, with access routes to turbines being made up of 10.8 km of new and upgraded track. Of this, 0.6 km is an existing disturbed pathway through the project area, following the route of a former drovers' road.

The layout of the proposed development can be seen in Figure 2.





APPROACH TO THE EIA

An environmental impact assessment (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 which 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 Environmental Impact Assessment, due to their potential to cause environmental effects:

- · Landscape and Visual Impacts;
- Archaeology and cultural heritage
- Ecology;
- Ornithology;
- Hydrology;
- · Geology, hydrogeology and peat;
- · Noise and vibration;
- Traffic and transportation;
- Aviation, Radar and Telecommunications; and

Climate change mitigation

With the required assessments identified, the purpose of the EIA was to identify and review environmental receptors and resources within the site and surrounding area and determine their relative value, importance and/or sensitivity toward change.

Key aspects of the EIA were to:

- Provide a baseline against which the proposal's impacts will be assessed;
- Identify and assess the anticipated negative and positive environmental impacts of the proposal, as highlighted in box 1;
- Determine measures designed to avoid, minimise or remove negative environmental impacts and optimise potential positive impacts;
- Use the results of the assessments to inform option selection and subsequent design of the proposed development; and
- Consult with and obtain feedback from key stakeholders.

The main stages of the EIA that were followed are illustrated on the following page. This is only indicative since the actual process is highly iterative and includes additional steps such as stakeholder interaction, which are not shown.

Box 1: 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 discussions with the Highland Council and 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 Kirkan Wind Farm EIA

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	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.	
Compilation of 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

The landscape and visual impact assessment examines potential effects arising from the proposed development. The assessment has been informed by consultations with The Highland Council and Scottish Natural Heritage (SNH). It has been carried out in accordance with the most up-to-date Landscape Institute and SNH guidance.

The assessment considered effects arising from both the construction, operational and decommissioning phases, well considering the cumulative effects with other operational and proposed wind developments nearby. It considered a 45km study area around the proposed new turbines. It examined effects on landscape character, protected and sensitive landscapes. These included a National Scenic Area, three locally identified Special Landscape Areas (SLA), 20 gardens and designed landscapes, and seven areas of Wild Land within the study area. In addition, several transport and recreational routes, as well as static representative viewpoints, have been identified in the surrounding area.

During the design process, impacts on landscape were a key design consideration. Professional advice was given during the design process, and the opinions of SNH and the Highland Council were also sought. As a result of the advice provided, the number of turbines proposed for the site were lowered from an initial 24 to a finalised 17, and the turbines were grouped further to the south, further away from local residences and behind prominent ridgelines visible from the A835.

Significant effects from the proposed development are predicted on three landscape character types near the site; on users of the A835 between Loch Droma and Inchbae; and for hill-walkers and walkers using various recreational routes near the site, such as the

old drovers road (see Archaeology and Cultural Heritage below), routes up Little Wyvis, and Croick to Black Bridge at Loch Vaich dam and between the dam and the A835.

Archaeology and cultural heritage

The EIA assessed impacts on archaeology and cultural heritage in the project area, the potential for impacts to previously unknown archaeological sites, and effects arising from the wind farm project on the setting of archaeological sites within the wider landscape around the site.

The assessment was prepared by undertaking a desk-based assessment and visit to the project area and protected sites in the wider area around it. The method was agreed with Historic Environment Scotland and the Highland Council Historic Environment Team in advance.

The assessment identified two non-designated assets within the project area. The Ullapool to Contin road along the route of a drovers road known locally as the "fish road" runs through the project area. The modern A835 road runs along the route of Thomas Telford's Ullapool to Garve Road.

In terms of protected sites within the wider area around the site, Glascarnoch Dam is a listed building located 1 km away from the site, and Fairburn is a historic garden and designed landscape located 15 km away from the site.

No impacts are predicted on the Ullapool to Garve road as a result of the proposed development. Kirkan Wind Farm plans to upgrade an 860 m-long section of the drovers road. To mitigate any negative impacts, a programme of archaeological recording will be undertaken before construction. During construction, an archaeological watching brief will be undertaken to identify and record any previously unknown archaeological sites. After

construction, recreational public access through the project area broadly following the drovers' road will be re-established, with signposting and promotion of the wider heritage of the area also undertaken.

In terms of environmental effects after considering mitigation, the EIAR predicts **slight** negative effects on the settings of Glascarnoch Dam and Fairburn historic garden.

Ecology

The ecological impacts assessment follows the most recent Chartered Institute for Ecology and Environmental Management (CIEEM) guidance, and has consisted of desk-based and field studies. The studies undertaken were informed by consultations with SNH, Scottish Environment Protection Agency, the Cromarty Fisheries Board and Scottish Wildcat Action.

In terms of protected sites nearby, Ben Wyvis Special Area of Conservation (SAC) is located just over 6 km to the east, and Fannich Hills SAC is 8 km west of the project area

The majority of habitats within the project area comprise blanket bog, wet heath and mire. In terms of protected species, bat activity was found to be low, but the site is used by pine marten and water vole as well as mink, an invasive species. The watercourses in the project area contain young brown trout. The project area forms part of a deerstalking estate, and is extensively used by red deer, roe deer and sika deer.

No impacts from the proposed development are predicted on protected sites in the wider area. The greatest potential for impact is likely to come from permanent habitat loss and deterioration during construction, and of pollution of watercourses during the operational phase of the wind farm. To mitigate against these impacts, an Ecological Clerk of Works will be appointed before construction begins to ensure impacts to ecological receptors is kept to a minimum. Preconstruction surveys will be undertaken and

used to inform Species Protection Plans (and if necessary, protected species licensing) will also be undertaken.

During the operation of the wind farm, a habitat management plan will be implemented for the development. This will include proposals:

- Promoting improved structural diversity of the wet heath and blanket bog habitats on site;
- Management of vegetation cover around watercourses to increase fish populations; and
- Controlling numbers of predators, particularly of invasive species such as mink.

The deer population will continue to be managed under the West Ross Deer Management Group Deer Management Plan 2016-2021.

With the proposed mitigation methods to be put in place, no significant adverse residual effects upon ecological features will occur as a result of the proposed development.

Ornithology

The assessment of ornithology (bird) interests was informed by a series of consultations with SNH, Royal Society for the Protection of Birds (RSPB) and the Highland Raptor Study Group. Desk-based studies and extensive field surveys were undertaken to establish the species present and conservation value of the study area.

The ornithological impacts assessment follows the most recent CIIEEM guidance. Two years of bird surveys, including vantage point flight activity surveys, moorland breeding bird, breeding raptor and owl searches, breeding black grouse searches and winter walkover surveys were undertaken.

There are four designated sites for nature conservation within 10 km of the project area with bird-related qualifying interests.

Surveys identified the following important bird species: Golden eagle, Black grouse, Red-throated diver, Red kite, Goshawk, Whooper swan, Hen harrier, Greylag goose, Osprey, Pink-footed goose, Peregrine, Goosander, White-tailed eagle, ducks, gulls, waders and herons, as well as other common raptors and passerines. The ornithological features of regional importance with potential for significant effects (Golden Eagle and Black Grouse) underwent impact assessment.

Two golden eagle home ranges were identified near the project area. A total of fifteen black grouse lek sites (patches of ground used by black grouse males for communal display in the breeding season) of varying sizes were found within the study area.

In terms of mitigation, the developer has committed to timing the construction activities to avoid disturbing black grouse when they are using their main lekking sites in the area.

Following detailed assessment and collision risk modelling for key species, no significant negative effects arising from the proposed development itself is predicted on any bird species or interests. This is also the case when the proposed development is considered alongside (cumulatively with) other wind farm developments in the wider area.

Commitments made in the Habitat Management Plan (see Ecology section above) would lead to a beneficial effect for black grouse.

Hydrology

The hydrology assessment examined the likely significant effects on water resources as a result of the proposed development. It considered potential effects upon water quality, private water supplies, and flood risk.

The project area lies within the catchment of the Glascarnoch River/Black Water system, with water flowing downstream from the site to the north and north-east. There are three main watercourses in the project area: Allt Giubhais Beag; Allt Bad an t-Seabhaig; and Allt Glac an t-Sithein; as well as several minor unnamed burns within the project area.

Flood risk within the project area is minimal, but there are several of private water supplies are present within or near the site.

The greatest potential for impact during the construction comes from pollution such as silt from earth-moving activities, hydrocarbons (e.g. from fuel spills) and pollution from concrete production getting into watercourses and affecting areas downstream.

In order to minimise this risk, the proposed development has been carefully designed to minimise the number of watercourse crossings, and to locate places where potentially polluting activities (such as construction compounds where refuelling and concrete production take place) far away from watercourses.

The project will adopt best-practice techniques when building the wind farm. Water quality will be regularly monitored to ensure that private water supplies and watercourses are not polluted.

Once the proposed mitigation is considered, no significant negative effects on water are predicted.

Geology, hydrogeology and Peat

An assessment was undertaken of the project area's physical environment – including soils, geology, hydrogeology and peat, along with impacts that could arise from potential activities. The assessment took the form of a desk-based study, site inspection, and extensive peat probing mapping exercise to understand the project area. The work included an assessment of the suitability of the underlying rock for use in making access roads and hardstanding areas for the wind farm.

Peat of varying depth covers much of the project area. Much of the peat is shallow, with some areas of deeper peat present in small basins between hill crests and around the headwater areas of watercourses.

During the design process, the areas of greatest peat depth, areas with a risk of peat slide, and potential groundwater dependent terrestrial ecosystems were identified and avoided through careful design.

In order to minimise impacts on geology, hydrogeology and peat, best-practice measures will be put in place during construction to ensure that excavated peat and soils can be reused, rather than disposed of as waste. The site will be inspected and monitored for signs of increased peat slide risk. Surplus peat will be used on site and within the wider Strathvaich Estate to improve peatland habitats such as wet heath and blanket bog (see Ecology above).

Following adoption of these measures, no significant negative impacts on geology, hydrogeology and peat are predicted.

Noise and Vibration

The assessment focussed on the potential effects of noise and vibration during construction and operation of the proposed Kirkan Wind Farm. The assessment adopted the standard approach for wind farms known as ETSU-R-97, and was informed by consultation with the Environmental Health Department of The Highland Council, as well as on-site noise monitoring and detailed modelling.

The project area itself has no houses within it, but there are properties near the A835 up to 3 km away. Properties that were assessed included the Aultguish Inn, Black Bridge, Hydro House and Lubfearn.

The main potential impacts are increases in noise from traffic from lorry deliveries during construction, and from the turbines themselves during the operation of the wind farm. The adoption of a Traffic Management Plan (see section below) will ensure that increases in traffic noise during the construction are not significant. Operational noise from the wind farm has been modelled and is shown to be in line with relevant ETSU-R-97 derived noise

limits (in accordance with national guidance) and not significant. This is the case for both when Kirkan is considered by itself, and when it is considered cumulatively with other wind farm developments nearby.

Traffic and transportation

This section of the EIAR assesses the potential effects of the proposed development on the road network and its users.

The assessment approach follows industry good practice, and focuses upon the changes in traffic flows along specific sections of roads along which construction traffic will pass. These include routes from Inverness, Invergordon, Dingwall and Alness, namely the A9, A862, B817 and A835.

The assessment was undertaken taking account of consultation responses from the Highland Council 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 traffic numbers. 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 heavy goods vehicle (HGV) movements.

To minimise negative traffic and transport impacts during construction, a Traffic Management Plan will be prepared by the developer and agreed with the Highland Council in advance that will identify the measures to be put in place. With this mitigation, the environmental effects on traffic and transportation are predicted to be negligible.

Aviation, Radar and Telecommunications

The project assessed potential impacts arising from the development on existing aviation, radar and telecommunications facilities within the area.

In terms of aviation, facilities in the wider area included Inverness Airport, RAF Lossiemouth, and an RAF low-flying training area. The proposed development would not be visible from Inverness Airport's radar. The Ministry of Defence has confirmed it has no objections to the development if aviation lighting is included.

Two telecommunication links pass on the same route through the project area between two existing masts: one end on the north side of Loch Glascarnoch, the other at Meall Ruighe an Fhirich to the east of Garve. Both telecommunication links would be affected by the development of the wind farm, but arrangements will be made with the telecoms operators to ensure that the links are re-routed. As a result, there will be no significant effect on aviation or telecommunications assets.

Climate change

A key driver and benefit of wind farms is the reduction in emissions of carbon dioxide and other "greenhouse gases" from conventional thermal generation (mainly coal and gas) that cause global warming.

Constructing and operating wind farms involves the emission of some greenhouse gases, and when wind farms are proposed in areas of forestry or peatland impacts to these natural carbon stores during wind farm construction can partially negate such operating benefits.

The Scottish Government has prepared a carbon assessment tool for windfarms to help ensure such cases are avoided, and this assessment tool has been applied to the proposed scheme.

The proposed Kirkan Wind Farm has been carefully designed to avoid areas of deep peat,

with limited tree felling required to make way for turbines and infrastructure. As such, the carbon calculator confirms that the majority of carbon emissions associated with construction of the development will stem from the manufacture. construction and decommissioning of turbines (71,777 tonnes of CO2 equivalent). Once operating, proposed wind farm is predicted to save around 101,933 tonnes CO2e per annum. Construction phase carbon emissions will be offset within 1.4 years.

A total carbon saving of around 3,057,990 tonnes of CO2e are predicted over the lifetime of the wind farm (30 years), which is considered to be a significant positive effect after the initial carbon payback period of 1.4 years.

WHAT HAPPENS NEXT?

The Energy Consents Unit will consider the findings of the EIAR, of which this non-technical summary 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 approval for the proposed development, then it is envisaged that the scheme could be delivered within the first half of the 2020's.

CONTACT DETAILS

Expressions of support, representations or opinions should be sent to:

Energy Consents Unit

4th Floor, 5 Atlantic Quay

150 Broomielaw

Glasgow

G2 8LU

Email: representations@gov.scot

Via website:

www.energyconsents.scot/Register.aspx

Further information can be found on the project website at: http://www.kirkanwindfarm.co.uk/

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

Email: info@kirkanwindfarm.co.uk

A copy of the EIA report, together with a non-technical summary outlining the information provided in the EIA report, has been deposited at each of the locations indicated below and will be available for inspection until at least 12th May 2019 during normal opening hours.

The Highland Council Offices

County Buildings

Dingwall

IV15 9QN

Garve Village Hall

Station Road

Garve

IV23 2PP