Ballach Wind Farm

Environmental Impact Assessment Report
Non-Technical Summary

July 2025

CONTENTS

1 INTRODUCTION

Overview

1.1 This is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIA Report), prepared by Energiekontor UK Ltd ('the Applicant'), to accompany an application for consent to construct and operate Ballach Wind Farm ('the proposed development'). The site is located approximately 4km northwest of Kilmorack and lies within the boundary of The Highland Council (THC) as shown in NTS Figure 1.

1.2 The aim of the Non-Technical Summary (NTS) is to summarise the content and main findings of the EIA Report in a clear and concise manner to assist the public in understanding what the potential environmental effects of the proposed development are likely to be. The full EIAR provides a more detailed description of the proposed development and the findings of the EIA process.

1.3 The Applicant is proposing to construct a 20-turbine wind farm with a total indicative capacity of 134MW with 5MW of battery storage. As the proposed development has a generating capacity in excess of 50MW, consent is required from Scottish Ministers under Section 36 of the Electricity Act 1989 (hereafter referred to as 'the Act'), in consultation with relevant statutory consultees including THC. In addition, a request is being made by the Applicant that planning permission is deemed to be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997, as amended.

1.4 The application for consent is accompanied by an EIA Report which presents the findings of the EIA undertaken in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 ('the Regulations') (as amended). The EIA Report includes a description of the proposed development, the location of the proposed development, and its design evolution; presents information on the identification and assessment of the likely significant environmental effects; and, where adverse effects are identified, measures to avoid, reduce, or remedy such effects are described.

The Applicant – Energiekontor UK Ltd

1.5 Energiekontor UK Ltd is a renewable energy development company, active in the UK since 1999.

1.6 It develops and operates small to medium-sized onshore wind and solar farms throughout the United Kingdom and Europe. At present, including the proposed development, it has 29 wind farm sites either consented or at application stage within Scotland. The company operates seven existing wind farms in the UK. Energiekontor also has several other wind energy projects at various stages of the development process throughout the UK.

1.7 Energiekontor UK Ltd is part of the Energiekontor Group. The parent company, Energiekontor AG, was established in 1990 in Bremerhaven in Northern Germany. It has since grown to become one of the leading wind energy companies in Europe and is active in Germany, France, Portugal, the USA, and the UK. The company has obtained consent

for and built over 120 onshore wind farms in Europe and commenced construction of the first 'no-subsidy' wind farm in the UK, Withernwick II in East Riding, Yorkshire.

Contacts for Further Information and Consultation

1.8 A hard copy of the full EIA report will be available for viewing during opening hours at Beauly Post Office. The address is:

Beauly Post Office
Station Rd,
Beauly
IV4 7EH

	Opening Hours
Monday	07:00 - 21:00
Tuesday	07:00 - 21:00
Wednesday	07:00 - 21:00
Thursday	07:00 - 21:00
Friday	07:00 - 21:00
Saturday	08:00 - 21:00
Sunday	09:00 - 21:00

1.9 Electronic Versions of the full EIA Report and its associated standalone documents can be found on the Energy Consents Unit website by searching for 'Ballach Wind Farm.' In addition, updates including a link to the case file are provided at the following web address: https://energiekontor.co.uk/our-projects/ballach-wind-farm

1.10 Alternatively, the Project Manager can be contacted for copies, as appropriate. There is no charge for provision of electronic documents or hard copies of the Non-Technical Summary on request.

1.11 Full printed copies of the EIAR can also be requested. Due to the size and cost of printed documents, charges for these are as follows:

- Volume 1 – Main Text: £50
- Volume 2 - Figures: £300
- Volume 3 – NatureScot Visualisations: £500
- Volume 4 – Technical Appendices: £150
- Volume 5 – THC Visualisations: £500

1.12 Requests should be made to Calum Morris, Project Manager, Energiekontor UK Ltd, calum.morris@energiekontor.com

1.13 Any representations to the application may be submitted:

- via the Energy Consents Unit website at: www.energyconsents.scot/Register.aspx;
- by email to the Scottish Government Energy Consents Unit mailbox at representations@gov.scot; or
- by post to the Scottish Government, Energy Consents Unit, 4th Floor, 5 Atlantic Quay, 150 Broomielaw, Glasgow, G2 8LU.

2 EIA METHODOLOGY

2.1 EIA is a process that identifies the potential environmental impacts (both beneficial and adverse) of a proposed development and proposes mitigation to avoid, reduce and offset any potential significant adverse environmental impacts.

2.2 The main activities in the EIA process can be summarised as follows:

- Definition of the project to be assessed;
- Description of the 'baseline' environment (i.e. the conditions that are likely to prevail at the commencement of the project);
- Definition of the scope of the assessment;
- Scoping and consultation with interested parties;
- Optimisation of the Proposed Development based on the consultation process;
- Prediction of the likely impacts of the Proposed Development;
- Evaluation of these impacts in terms of their potential significance;
- Description of the nature and effectiveness of measures / design evolution which could be adopted in order to mitigate significant adverse impacts;
- Identification of residual impacts; and
- Submission of the EIA Report and publicity.

Approach to Technical Studies Undertaken

2.3 The EIA studies commenced at an early stage in the evolution of the application proposal.

2.4 At the outset, with the objective of avoiding or minimising potential environmental impacts, the findings of these baseline environmental studies played an important role in the design evolution of the proposed development. These studies defined the environmental sensitivities and constraints associated with the proposed development, the Site, and its surroundings.

2.5 The technical EIA studies have been undertaken in accordance with relevant guidelines and procedures.

2.6 The majority of assessments involved consultations with statutory and non-statutory bodies, desk-based research, site inspections and surveys, impact prediction and input of mitigation to the design, where appropriate.

2.7 The content and conclusions of the EIA Report, which includes a clear, reasoned description of any potential adverse or beneficial impacts of the proposed development, are based on a comprehensive assessment undertaken with all information available at the time of writing.

3 PROJECT DESCRIPTION

3.1 The proposed development (within NTS Figure 2) will consist of the following primary components:

- Up to 20 turbines;
- Associated turbine compound areas including foundations and hardstanding areas for erecting cranes at each turbine location;
- On-site tracks connecting each turbine;
- An energy storage compound to store batteries with a 5MW capacity which would be within the construction compound footprint;
- Underground cables linking the turbines to the substation;
- 14 New watercourse crossings and five upgraded watercourse crossings;
- Use of up to three borrow pit search areas to extract stone on site
- A temporary construction compound including provision for onsite concrete batching;
- On-site substation; and
- Habitat Management provisions.

3.2 The proposed development would be time-limited to 35 years from the first date of commercial operation. The construction phase would last approximately eighteen months and decommissioning would last approximately six months. Planning permission is sought to permit a period of ten years between the date of the decision notice and expiry of consent.

3.3 The proposed development would provide approximately 134 Megawatts (MW)of installed capacity (depending on the turbine model chosen) in addition to 5MW of battery storage capacity. It is estimated by the Applicant that this installed capacity could generate approximately 557,344 Megawatt hours (MWh) of renewable electricity each year which would be expected to power the equivalent of approximately 160,989 homes on average each year[1], or provide 3.1 million full battery charges for electric vehicles per year.[2]

3.4 Turbines would be of tubular steel construction, finished in a typical off-white matt colour and comprise three blades with the final turbine choice made post-consent during the procurement phase.

3.5 Turbines would be delivered transferred by abnormal load vehicles to the Site from the Port of Nigg, Invergordon or Inverness. The route to site is fully discussed in Chapter 12: Transport and Access.

3.6 The turbines would be interconnected using underground cables placed in trenches forming a power circuit within the site. The underground cables would be taken into the

[1] Based on an average annual UK domestic electricity consumption figure of 3,462KWh as set out in the BEIS publication "Energy Consumption in the UK" July 2023

[2] Based on a large electric vehicle requiring 180kWh for a full charge.

on-site substation where the electrical control equipment would interface with the local distribution network.

3.7 The proposed development will likely require a 90m x 90m, 132kV substation compound. The substation would house the switchgear and control equipment needed for grid connection.

3.8 Habitat Management Proposals are included within the application. This includes provisions for the restoration and enhancement of peat, an outline Deer Management Plan as well as the mitigation and enhancement of habitats for a range of bird species.

4 DESIGN EVOLUTION

4.1 Design evolution is an important component of wind farm design. The overall design layout principle of the proposed development has been to achieve a coherent and compact design, which minimises direct and indirect adverse effects on the local and wider landscape, while balancing commercial considerations and maximising energy production.

4.2 The site was subject to an initial GIS sifting exercise which set out broad constraints and provided a clear picture of those matters which should be considered in the design of the proposed development. Constraints noted as potentially relevant to the site included:

- Radio and microwave signals – using known constraints to identify areas which could be affected by existing radio and microwave signals.
- Aviation interests – including local licensed aerodromes and visibility to radars, both military and civilian;
- Hydrological, geological, and hydrogeological constraints – including the application of a 50m buffer applied to all watercourses located within the Site boundary and identification of Private Water Supplies (PWS);
- Landscape designations – including National Parks, special landscape areas, and local landscape designations;
- Ecological designations – including Ramsar sites, Special Protection Areas, Special Areas of Conservation and Sites of Special Scientific Interest;
- Cultural heritage designations – including Gardens and Designed Landscapes, Registered Battlefields, World Heritage Sites, Listed Buildings, Properties in Care, Conservation Areas, and Scheduled Monuments;
- Potential Grid Connection points - the capacity of the local grid network to accept the likely output from a proposed wind farm is critical to the technical feasibility of a development. The connection voltage and the distance from the wind farm can have a significant effect on the commercial feasibility of a development proposal; and
- The pattern of settlement – with buffers provided around residential properties and settlements.

4.3 The design process took place over a number of months and the proposed development has been progressively revised and refined during this time. The final design of the proposed development has been produced as a result of environmental surveys, design and pre-application meetings with statutory stakeholders and the findings of the EIA Report.

5 RENEWABLE ENERGY AND PLANNING POLICY

Planning Policy, Guidance and Material Considerations

5.1 National and local planning policies, guidance and other material considerations are considered to be relevant in underpinning the EIAR for the proposed development.

5.2 To maintain impartiality, the EIA Report does not assess whether the proposed development would comply with the identified policies. A Planning Statement, separate from the EIA Report, assesses the compliance of the proposed development with the Development Plan and other material considerations is provided.

The Development Plan

- National Planning Framework 4 (NPF4, 2023)
- The Highland-wide Local Development Plan (2012);
- The Inner Moray Firth Local Development Plan 2(IMFLDP (2024)); and
- Onshore Wind Energy: Supplementary Guidance (2016) with addendum, Dec 2017).

Material Planning Considerations

- Scottish and UK Renewable energy and climate change legislation and policy.

5.3 Whilst the Development Plan is the starting point for the decision-making process, it must be considered in the context of both the policy hierarchy (governed by Scottish Government policy) which in turn is informed by the wider suite of Scottish, UK and international policy and law relating to renewable energy development. This includes NPF4.

5.4 There are also several recent policy reports, papers and strategy positions which are relevant, which can be explored within Chapter 5 of the EIA Report, or the separate Planning Statement. All policy and legislation relevant to individual environmental topics (e.g. policy and legislation regarding cultural heritage) can be found within individual subject chapters.

6 LANDSCAPE AND VISUAL

Introduction

6.1 The Landscape and Visual Impact Assessment (LVIA) has been undertaken in accordance with best practice guidance by chartered landscape architects at WSP. The assessment process has encompassed periods for the construction, operation, and decommissioning of the proposed development, the latter of which entails the reversal of most of the landscape and visual effects. Although the operation period of the proposed development is for the duration of 35 years (described in the assessment as 'long-term' and reversible) it has been assessed in the same manner as permanent development.

6.2 The proposed development is located approximately 4km northwest of Kilmorack and 7.5km east of Beauly in the Highlands within an undesignated area of the Rugged Massif - Inverness landscape character as defined by the NatureScot Landscape Character Assessment (LCA) (2019).

6.3 The LVIA has taken account of national and local planning requirements in relation to wind farm development, as described in Chapter 5: Renewable Energy and Planning Policy, and the Planning Statement which accompanies this Section 36 Application. This includes NPF4, the Highland-wide Local Development Plan (2012) and the Inner Moray Firth Local Development Plan 2 (2024) including the Onshore Wind Energy Supplementary Guidance (OWESG).

Mitigation

6.4 The design of the proposed development has evolved from an iterative design and assessment process that has been guided by NatureScot's (NS) Siting and Designing Windfarms in the Landscape, NatureScot's Landscape Character Assessment and The Highland Council's (THC) Onshore Wind Energy Supplementary Guidance (OWESG). The advice in the OWESG, NS' Landscape Character Assessment and the Scoping Opinion has led to design refinements that have responded to the local landscape character, scale and form, to provide an improved 'landscape fit'. The proposed development has evolved from the scoping stage, through the design process which has involved a number of iterations. This has led to a reduction in the horizontal and vertical scale of the proposed development and a reduction in turbine numbers from 36 to 20 and reducing the horizontal and vertical extent of the proposed development.

6.5 All of the mitigation related to landscape, visual and cumulative effects is 'built-in' or embedded into the design of the proposed development and no additional mitigation or enhancement is proposed. This includes the Lighting Strategy for the aviation warning lights and works related to the site infrastructure and the proposed access road to integrate these features into their landscape setting, post construction.

6.6 A key consideration for the proposed development was the landscape character and expansive scale and simplicity of the host Rugged Massif - Inverness Landscape Character Type (LCT) which has a reduced susceptibility to large turbines in comparison to other

smaller scale and complex landscape character types. The visual composition and layout design was guided by the following general design principles:

- The avoidance of overlapping or 'stacked' turbines through careful placement, where possible in order to form a well-spaced group or array when viewed from the receiving landscape including key design viewpoints;
- The avoidance of outlying turbines which appear separate or stand apart within the landscape in order to reduce the lateral spread of the proposed development;
- The selection of an appropriate turbine height which respect the scale of the receiving landscape and achieves a balanced composition when viewed from the surrounding landscape whilst recognising that current wind turbine technology has progressed with larger turbines required for greater energy efficiency; and
- The development of a layout which relates well to other existing and proposed wind farms within the local area, as well as being coherent in isolation.

6.7 Whilst it may not be possible for the general design principles to be fully achieved (for example it is not possible to avoid all turbine overlap), the establishment of these general principles as part of the design process is important in order to demonstrate appropriate mitigation. Notably, the design process evolved through a number of stages or interim layouts and collectively the following landscape mitigation was achieved:

- The initial 36 turbine layout was established by taking account of the maximum developable area within the Site boundary;
- 12 turbines were removed from the original layout where they would be more visible from dispersed settlement to the southeast and east, those closest to the boundary of the Central Highlands WLA and greater visibility from Glen Strathfarrar National Scenic Area (NSA);
- The turbine height was selected in response to the landscape scale and character, with the turbine height of 11 turbines set at 230m and the remaining nine turbines at 200m to blade tip;
- Special attention was paid to the visual composition of the turbines and the cumulative appearance of the proposed development with the existing Fairburn and Auchmore wind farms, as far as practicable. However, all three wind farms are rarely visible in the same view. This has ensured the turbine composition would appear as a simple, cohesive, and ordered layout when viewed from the surrounding area; and
- Four further turbines were removed to minimise visibility from nearby settlements including Beauly, Muir of Ord and Contin and other dispersed communities to the southeast. This, along with the surrounding low hills around the Site, has resulted in the limited extent of visibility of the proposed development in shorter range views.

Residual Landscape Effects

6.8 The proposed development is not located within any designated landscapes or Wild Land Areas (WLAs), however, it is located 171m east of the Central Highlands WLA. None of the landscape planning designations including the Special Landscape Qualities (SLQs) of the Glen Strathfarrar NSA, Strathconon, Monar and Mullardoch Special Landscape Area (SLA) and Ben Wyvis SLA would be significantly affected by the proposed development. There would however be significant effects of the proposed development on part of Wind Land Quality (WLQ)1: An extensive and awe-inspiring range of large scale, high and rugged mountains in the eastern flank of the Central Highlands WLA. However, it is recognised that this part of the WLA has a weak or largely absent WLQ in the east. The proposed development would not significantly affect the remaining three WLQs of the Central Highlands WLA.

6.9 Significant effects resulting from large-scale wind farm development are unavoidable and the proposed development would have a significant (and cumulative) effect on part of the 'host' Rugged Massif - Inverness landscape (North Rugged Massif LCA), affecting a local area up to approximately 0.5km north (the limits of this landscape in that direction) and up to approximately 2-2.5km east, west and southeast and 3-4km south / southwest. This level of effect, and geographical extent, is not unusual for wind farm development. Significant effects would also affect a localised area (up to approximately 200 – 300m) of the Farmed Strath – Inverness LCT (Strathglass LCA) as a result of the proposed access track and Site entrance during the construction phase only.

6.10 In relation to the surrounding LCTs, an area of the Rounded Rocky Hills – Ross & Cromarty LCT: South of Strathconon LCA to the south and southeast of the LCA as the landform falls towards the River Orrin and Orrin Reservoir would be significantly affected by the proposed development up to 2.5-3km from the proposed turbines. A small area of the Rugged Mountain Massif – Ross & Cromarty LCT: Orrin LCA on its eastern fringes would also be significantly affected. There would also be significant cumulative landscape effects on both LCTs above and a further significant combined cumulative effect on the Forest Edge Farming LCT: Auchmore LCA as a result of the existing Fairburn and Auchmore turbines with the proposed development.

Residual Visual Effects

6.11 The viewpoint analysis indicates that significant visual effects are likely to affect limited locations within approximately 15km distance from the proposed development (subject to a clear view of the proposed turbines, landform and vegetation screening), as indicated by Viewpoints 1, 3, 4, 5, 8, 11, 12, 13, 15 and 17. Significant visual effects would be limited to views from the southwest, southeast, east and northeast of the proposed development. The greatest magnitude of change is visible at Viewpoint 4 (High-Medium magnitude) (all other viewpoints are assessed as Medium magnitude or less). There is no High magnitude of change assessed at any viewpoint which is as a result of the surrounding low hills around the Site of the proposed development. The effects on all ten viewpoints (and an additional viewpoint 10) would also be cumulative. There would be no significant visual effects from the remaining 17 viewpoints as a result of the proposed development.

6.12 There would be significant visual effects on two settlements within 15km including parts of Kiltarlity and Conon Bridge. There would also be significant visual effects from the western fringes of the dispersed communities between 2-4km to the southeast, mainly around Breakachy and Farley.

6.13 There are no residential properties within 2km of the proposed turbines.

6.14 Significant effects would be limited to sections of the following transport routes:

- Up to approximately 3.8km of the 45km route of the A831 between Crelevan and Struy Bridge for northbound users;
- Up to approximately 1.5km of the 203km route of the A832 (eastbound users) and 0.5km (westbound users)) in intermittent open sections between Clash Wood and Arcanside – this section of the route is overlapped by the NC500 Tourist Route;
- Up to approximately 1.6km of the 15km route of the A833 (northbound views) between Culmill and the Balgate junction to Kiltarlity;
- Up to approximately 3.3km of the 107km route of the A835 (westbound users) intermittently between Brahan and Wester Moy;
- Up to approximately 2km of the 16.7km route of the B9169 (westbound users) between Knocknafanaig and Highfield Park; and
- Up to approximately 1km of the Far North (Inverness to Wick) Railway Line / Inverness to Kyle of Lochalsh Railway Line in glimpsed views and open views north of Riverford.
- The A862 would also be significantly affected for approximately 0.6km of the route, however, this route overlaps with the NC500 Tourist Route.

6.15 There would significant visual effects from parts of the following recreational routes:

- Core Path RC30.01 Orrin Dam track (overlapped with Scottish Hill Track 283) - intermittently for 4.7km (Core Path RC30.01), and for an additional 5.5km above Loch Orrin (Scottish Hill Track 283);
- Core Paths south of Balblair – 0.5km on IN03.04: Lovat Bridge to Black Bridge and 0.5km on IN20.05 – East Lodge to West Lodge, Beaufort Castle;
- Core Paths around Kiltarlity – 1.1km on IN20.02: Belladrum Kennels to Belladrum Farm and 0.4km on IN20.09: Farm Walk to School;
- Core Paths around Conon Bridge and Maryburgh – the majority of RC09.02: Burnside Lane to Station Road and 0.3km on RC31.04 – Brahan North Lodge to Balnain;
- Core Paths around Contin – part of RC10.01: View Rock through open scrub and young forestry between Cul Mor and Tor Atchitty, reducing to non-significant levels as forestry matures over time. There would be no significant effects from the promoted viewpoint of View Rock;

- Core Paths around Strathpeffer – gaps in vegetation and Knock Ardaging from RC45.01: Loch Kinellan circuit, and eastern end of route from RC45.02: Knockfarrel;
- Scottish Hill Track 279: Muir of Ord to Struy (Strathglass);
- Heritage Path A: Old Road to Milton of Redcastle – 1.7km from Balvaird towards Spittal Woods;
- Moray Firth Tourist Route / NC 500 Tourist Route (also A862 / A832) – 0.6km along the A862 section between Achnagairn Bridge and West Croft and between north of Muir of Ord and approach to Marybank along the A832 section for 1.5km (eastbound views), and 0.5km (westbound views)) in intermittent open sections of the route between Clash Wood and Arcanside;
- Sustrans Cycle Route 1 (also A835) – 3.3km between west of Tore and approach to Conon Bridge; and
- Great Glen Way / Loch Ness 360 – 1km around Ladycairn.

6.16 There would be a significant effect on the following recreational and tourist destinations:

- The summit of Ord Hill (Cnoc Croit na Maoile);
- Heights of Brae Monument;
- Parts of three GDLs – Beaufort Castle, Belladrum Estate and Brahan; and
- Corbett summit of Beinn a'Bhathaich Ard.

6.17 None of the remaining visual receptors would be significantly affected by the proposed development.

6.18 The Lighting Strategy for the aviation warning lights would result in limited significant night-time landscape effects, and no significant effects on the views from any visual receptors, owing to the ability to dim the lights to 200 candela brightness when visibility is greater than 5km. The EIA sets out within Technical Appendix 6.3, Figure 6.3D how lighting intensity also changes based upon the difference between the light and the relationship of where the person viewing it is located.

7 CULTURAL HERITAGE

Introduction

7.1 An assessment of the potential effects of Ballach Wind Farm on Cultural Heritage has been carried out. The assessment has been informed by desk-based research, the local and national Historic Environment Records, a zone of theoretical visibility model (ZTV), and where appropriate, visualisations in the form of photomontages and wirelines.

Assessment

7.2 There are twelve non-designated heritage assets within the proposed development. None of the non-designated heritage assets within the proposed development sit within the construction footprint, and as such there would be no physical impacts on these heritage assets. The assessment of archaeological potential has determined that there is a low or negligible potential to encounter previously unrecorded buried archaeological remains across all periods.

7.3 There are 59 designated heritage assets located within the study area and beyond. No significance of effect above Slight Adverse (Not significant) was reported for any designated heritage assets. As a result, no mitigation measures have been proposed against the setting effects. Residual effects have been assessed as being the same as those identified within the main assessment, with no residual effect above Slight Adverse (Not significant) reported.

Mitigation

7.4 Mitigation in the form of targeted archaeological monitoring has been recommended based on the potential for unknown archaeological remains to survive within the main access track from the A831. A pre-construction walkover survey of the turbine locations, monitoring of the main access route, and demarcation of known heritage assets are all recommended as mitigation.

8 ECOLOGY

Introduction

8.1 Surveys to ascertain the ecological baseline at Ballach Wind Farm comprised a desk-study and targeted ecological surveys (Phase 1 Habitat survey, National Vegetation Classification (NVC) survey, Groundwater Dependent Terrestrial Ecosystem (GWDTE) survey, protected terrestrial mammal survey, bat survey and fish habitat survey).

Baseline

8.2 The desk study and baseline surveys identified the presence of areas of deep peat, blanket bog and wet heath and GWDTE habitats. Evidence of the presence of otter, pine marten, badger, red squirrel and common reptile species was also confirmed within the baseline ecology survey area. Full spectrum bat recording across the site confirmed the site was of low sensitivity for bats.

Construction Effects

8.3 Potential effects on the ecological resource arising from construction included the loss of bracken, dwarf shrub heath and areas of blanket bog as well as indirect effects such as fragmentation and potential disruption (due to changes in hydrological connectivity and resulting impacts such as secondary compression) to peatland habitats. However, the bog habitats within the site are already in very poor condition.

8.4 Construction effects on protected species included the potential for disturbance and mortality to protected mammal species resulting from construction activities and site clearance.

Operation Effects

8.5 Operational effects on the ecological resource comprised collision risk to bats, although this risk is negligible.

Decommissioning Effects

8.6 Decommissioning effects are considered to be similar to those occurring during construction, albeit likely of a lesser scale.

Mitigation and Enhancement

8.7 Design mitigation has evolved in tandem with the results of the surveys to minimise the loss of peatland habitats and maximise distances from GWDTEs and features of ecological interest.

8.8 A Ecological Clerk of Works (ECoW) will be appointed prior to construction to ensure compliance with best practice.

8.9 A Habitat Management Plan (HMP) will be developed from the Outline HMP and adopted to commit to agreed peatland restoration areas, to restore and enhance 552 ha of blanket bog, deer management and mitigation and enhancement measures for bird species. Ecological enhancements proposed include the creation of new areas of native and riparian woodland, which will increase biodiversity and opportunities for protected species.

Overall Effects

8.10 There are no significant residual effects predicted from either the construction or decommissioning phases of the proposed development, either in isolation or at the cumulative level. The loss of bats through any collisions with operational turbines cannot be mitigated, but given the low value of the site for bats, this is only significant at the site level and is not considered to have any discernible effect on regional bat populations. The restoration of bog habitatsare considered to leave the bog onsite in an overall better functioning habitat than it is at present whilst the proposed 46ha of new planting offers additional enhancement.

9 ORNITHOLOGY

Introduction

9.1 The ornithology chapter considers the potential impacts of the proposed wind farm on birds. The approach to this assessment is based on the wind farm guidance provided by NatureScot and the Chartered Institute for Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland.

Baseline

9.2 Baseline ornithological conditions have been established through desk-studies, consultation and field surveys. Designated sites, habitats and species were considered. Key species recorded within baseline survey area included Schedule 1 listed raptors (golden eagle, white-tailed eagle, merlin and red kite); breeding waders (greenshank, golden plover and snipe) and black grouse. There was a focus on the Glen Affric to Strathconon Special Protection Area (SPA) and the assessment included a Habitats Regulations Appraisal for the SPA.

Assessment of Effects

9.3 Assessment of impacts and their mitigation has been undertaken iteratively throughout the design stages of the development. As a result, the primary aim of avoidance has been maintained so that limited mitigation is required. A Breeding Bird Protection Plan and Habitat Management Plan will be adopted following consent, which will include measures to safeguard and, where possible, enhance habitat for birds.

9.4 As a result of the avoidance of features, and adoption of simple mitigation measures where this has not been possible, there are no residual, negative significant impacts on birds.

10 GEOLOGY, HYDROLOGY AND PEAT

Introduction

10.1 The Geology, Hydrology and Peat Chapter describes the baseline conditions at the Proposed Development and the assessment methodology that has been followed to identify any likely significant effects to these receptors, whilst considering any mitigation measures that may be required to reduce and minimise any adverse effects.

10.2 A combination of desk study and field survey work has been undertaken to identify and characterise geological, hydrological and hydrogeological receptors which may be subject to impacts from construction and operation of the Proposed Development.

Baseline

10.3 The majority of the development area is shown to be underlain by metamorphic bedrock of the Tarvie Psammite Formation which comprises psammite, thin-bedded, siliceous to micaceous. Northeastern areas of the site are shown to be underlain by the Achnaconeran Striped Formation which comprises interbedded psammite and semipelite. Small igneous intrusions (Unnamed Igneous Intrusion, Pre-Caledonian and Caledonian Supersuite) are also shown to be present in the east and southern eastern part of the site.

10.4 Bedrock across the site is overlain by various superficial deposits including Till, Hummocky Glacial Deposits, River Terrace Deposits, Alluvium and Peat. Reference to the SNH Carbon and Peatlands Map 2016, indicates that most of the site comprises Class 1 peat. Pockets of Class 2 and Class 5 peat are present in the northern extent of the site and within the central boundary. The southern part of the site, including the access road is mapped as comprising Class 0 - mineral soils.

10.5 Detailed peat surveys undertaken in 2024 (Phase 1), February 2025 (Phase 2a) and March 2025 (Phase2b) identified variable thicknesses of peat across the site, with areas of deep peat (>1.0m) limited to isolated pockets in western, eastern and central parts of the site.

10.6 The development area is drained by a number of named watercourses. The largest of these is Gleann Giobhre, which runs along the northern site boundary, draining to the east. Allt Chogach, Allt Beinn Name Fitheach, Allt an Torra Dhuinn, Allt a' Chrochadair and Allt Dearg all spring within the northern part of the study area and flow towards the Gleann Giobhre, along with nine unnamed tributaries. Allt an Torra Dhuinn itself also has several unnamed tributaries within the central part of the site.

10.7 Several areas of potential Groundwater Dependent Terrestrial Ecosystems (GWDTE) have been identified in the north-western part of the site (within the developable area) and situated to the south of turbines T20 and T19.

10.8 Loch nan Eun is present immediately to the north east of the study area with the very western area of the loch within the study boundary and Loch Ballach is located in the central part of the study area. Loch Ballach is connected to Allt an Locha Bhallaich, which

flows towards the Breakachy Burn immediately to the southeast of the study area. Allt Liach flows along the southern extent of the study area towards the Breakachy Burn.

10.9 A total of fourteen new water crossings will require to be constructed and five existing watercourse crossing will require to be upgraded for the proposed access route.

10.10 Extensive design iteration works have been undertaken to avoid siting turbines or other infrastructure on deep peat wherever possible. This has resulted in areas of deep peat being avoided in the siting of the majority of the proposed turbine locations and the majority of access track sections. One of the twenty turbines (T18) is sited on peat recorded at depths greater than 1.0m constituting deep peat, but is considered to be a very localised given the predominance of peat <1.0m thick in surrounding probe locations. T18 is also restricted by the watercourses to the west and east of the crane pad and the pipeline to the south. Localised areas of deeper peat are also noted to have been recorded within turbine hardstanding areas associated with T20 and T15 (on its northern periphery) and within the substation area (localised probe locations). Care has been taken to avoid the deepest areas of peat in these areas.

10.11 A peat slide risk assessment has identified low risks at all turbine and other infrastructure locations.

Construction Effects

10.12 Potential construction effects arising from the Proposed Development (in the absence of mitigation) include the following:

- Risk of pollution of watercourses from increased sediment runoff arising from excavations, exposed ground and / or the formation of temporary stockpiles. Additionally, pollutants such as oils, fuel and cement may be spilt and carried into watercourses via surface drainage.
- Changes to the groundwater flow regime as a result of excavation works required to be undertaken as part of the proposed development.
- The removal of peat to facilitate construction of the proposed development.
- Construction works may destabilise peat deposits and lead to slope failure, which could result in pollution / sedimentation of downslope watercourses.
- Construction works undertaken in proximity to watercourses may impact upon their banking either directly via damage to bankside material or indirectly via loosening of soil structure, which may result in impacts to water quality via erosion and or collapse.
- Excavation works undertaken in the north-western part of the site may potentially impact upon areas of GWDTE that have been recorded in this part of the development area.

- Unless appropriately sited and managed, there is potential for direct discharge of untreated foul sewage from welfare facilities from site compounds during construction.

Operational Effects

10.13 Potential operational effects arising from the Proposed Development (in the absence of mitigation) include the following:

- Access tracks, crane hardstandings and unrestored areas may result in an increased rate of surface water run-off. This may increase downstream flood risk and potentially result in soil erosion and silt-laden run-off, which may pollute watercourses.

- If the design of the new and upgraded watercourse crossings do not ensure continuous water flow, there may potentially be an adverse effect on their geomorphology.

Decommissioning Effects

10.14 Potential effects of decommissioning the proposed development are similar to those encountered in the construction phase, however, generally with less magnitude as the level of site activity is lower.

Mitigation

10.15 Proposed mitigation measures to avoid or reduce potential impacts, include developing and implementing a Construction Environmental Management Plan (CEMP), construction of floating roads if required to be constructed in areas of deep peat, undertaking pre-construction site investigations to assist with detailed water crossing design, inform micro-siting and assist with avoiding sensitive receptors where possible, surface water quality monitoring, implementing a robust silt mitigation plan, employment of an Ecological Clerk of Works (ECoW) and implementing a Peat Management Plan and a Habitat Management Plan to restore peatland habitat.

Residual Effects

10.16 Following implementation of committed mitigation measures, the significance of residual effects on geology, hydrology and peat is considered to be not significant. No cumulative effects are predicted.

11 NOISE

Introduction

11.1 Noise can influence the environment and on the quality of life enjoyed by individuals and communities. The impact of noise can, therefore, be a material consideration in the determination of planning applications.

11.2 Noise impacts have the potential to arise from three distinct areas of wind farm development:

- The construction of the wind turbines.
- During the operation of the wind turbines.
- Cumulative noise from surrounding wind farms.

11.3 The Noise Impact Assessment (NIA) considered potential noise impacts associated with the construction and operation of Ballach Wind Farm, a proposal consisting of 20 wind turbines and ancillary infrastructure. An assessment of cumulative noise with two nearby operational wind farms was also included.

11.4 The operational noise assessment took the form of a desktop assessment that also considered the potential for cumulative turbine noise impacts following Institute of Acoustics Good Practice Guide (IOAGPG) recommendations.

Construction Effects

11.5 It was agreed at the scoping stage that construction noise can be controlled through an appropriate planning condition. Sound levels arising from construction activities are expected to have a low noise impact due to the significant setback distance of the nearest sensitive receptors.

Operational Effects

11.6 Operational noise from the proposed development was assessed using propagation modelling in accordance with the IOAGPG.

11.7 Maximum operational sound immissions from the proposed development of 31.1dB(A) were predicted to occur at the nearest noise assessment location. This is considered a low level of impact, even in a quiet rural environment.

11.8 For two locations, noise impacts due to the proposed development had the potential to result in cumulative immissions when considered with the surrounding operational developments.

11.9 A cumulative assessment that considered predictions plus a margin of headroom was conducted which demonstrated that all locations would comply with the simplified ETSU-R-97 35dB(A) limit.

11.10 It is therefore concluded that the proposed development could be accommodated in the area without a significant impact on amenity at the surrounding receptor locations.

Mitigation

11.11 The assessment of operational immissions from the proposed development assumed that the turbines would operate in their standard mode of operation using rotor blades fitted with trailing edge serration. The results demonstrated that immission from the proposed turbines operating cumulatively with third-party developments would be able to meet the cumulative noise limits at all affected receptors. Therefore, no operational mitigation would be required.

Overall Effects

11.2 Construction noise is not expected to have a significant impact on receptors given the large set back distance.

11.3 Operational noise from the proposed development would meet the simplified ETSU-R-97 35dB(A) limit. Cumulative immission levels are expected to have a negligible impact on all receptors within the study area. As such, the proposed development can be accommodated in noise terms.

12 TRAFFIC AND TRANSPORT

Introduction

12.1 This chapter considers the potential effects of the proposed development on Traffic and Transport during the construction phase, including both general construction traffic and abnormal indivisible loads (AILs) associated with the transportation of turbine components to the Site.

12.2 The methodology adopted in this assessment involved the following key stages:

- Review the relevant policy and legislative framework;
- Describe the transport baseline conditions;
- Describe the assessment methodology and significance criteria used in completing the impact assessment;
- Describe the potential effects, including direct, indirect and cumulative effects;
- Describe the mitigation measures proposed to address likely significant effects (if required); and
- Assess the residual effects remaining following the implementation of mitigation (if required).

12.3 The Site will be accessed via an upgraded access junction on the A831 which will facilitate construction traffic, AIL deliveries and ongoing operational access to the proposed development. All works in relation to the junction can be accommodated within land under control of the Applicant.

Baseline

12.4 Strategic access to the A831 corridor is available from the A82 trunk road network to the south-east and from the A9 trunk road network to the north-east via the B9169 and A862. Routing for construction materials would primarily be from the A831 to the east, with materials routing via the A862 from the north or north-east and from the A833 to the south. Where feasible, materials will be sourced from local suppliers which will avoid traffic impacting on local communities as far as practicable.

12.5 A number of Port of Entry (PoE) options are currently under consideration for the proposed development in relation to delivering the AILs associated with turbine components, including the Port of Nigg, the Port of Cromarty Firth (Invergordon) and the Port of Inverness.

12.6 The study area for this assessment is as follows:

- The A831 between its junction with the A862 and the proposed Site access junction;
- The A862 between Muir of Ord and Inverness; and
- The A833 between its junction with the A862 and its junction with the A831.

12.7 Baseline traffic data was obtained from a combination of Automatic Traffic Count Surveys (ATCs) and existing information from the UK Department for Transport (DfT) database.

12.8 There are limited pedestrian facilities in the immediate vicinity of the Site, or along the A831 which will be used by construction traffic to access the Site, reflecting the rural nature of the area.

12.9 Further away from the proposed development Site in the wider study area, there are pedestrian facilities within settlements, including Wester Balblair, Beauly, Muir of Ord and Kirkhill, where there are footways on one side or both sides of the carriageways. In the larger settlements, there are also dedicated pedestrian crossing facilities, by way of signal-controlled crossings.

12.10 There are no Core Paths or formal cycle routes recorded within the Site boundary or within the immediate vicinity of the proposed Site access junction.

12.11 A review of the last five-year Personal Injury Accident (PIA) data was undertaken, which did not show any existing accident trends in the vicinity of the proposed development or proposed access routes that currently require addressing or would be exacerbated by the construction of the proposed development.

12.12 A review of relevant consented developments was undertaken as part of the baseline assessment and found that there were nine consented developments which could potentially impact the roads within the study area. The review however highlighted that the respective construction programmes would not overlap with that of the proposed development, and as such these were not required to be considered within a combined sensitivity review.

Construction Effects

12.13 The proposed development would lead to a temporary increase in traffic volumes on the study road network during the construction phase. Traffic volumes would decrease considerably outside the peak period of construction.

12.14 The peak of construction occurs in Month 7 when there will be a total of 4,994 vehicle movements, which equates to 228 vehicle movements per day (78 Car / Light Goods Vehicle (LGV) and 150 Heavy Goods Vehicle (HGV) movements).

12.15 This would equate to approximately 19 two-way total vehicles movements or 12 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile i.e. vehicles distributed evenly across the day.

12.16 This has been based on the assumption that 50% of aggregate materials are brought to the Site from nearby quarries, when in fact this would not be the case, with the onsite borrow pits being sufficient to provide the necessary aggregate materials.

12.17 In the actual scenario whereby the onsite borrow pits are used to provide the onsite aggregate materials, with the exception of sand and aggregates to be used within the concrete batching, the peak of construction activity would still occur in Month 7, when

there will be a total of 2,366 vehicle movements, which equates to 108 vehicle movements per day, comprising 30 two-way HGV movements and 78 two-way car / LGV movements.

12.18 No road capacity issues are expected on any of the roads within the study area due to the additional construction traffic movements associated with the proposed development as background traffic movements are considered low.

12.19 The assessment of significance suggests that the following would experience overall Significant effects in accordance with the EIA Regulations, prior to the application of mitigation measures (which are outlined below):

- A831 Road Users;
- A862 Road Users;
- Residents of Wester Balblair;
- Residents of Inchmore;
- Residents of Rhinduie;
- Residents of Bunchrew;
- Teanassie Primary School on the A831; and
- Tourist attractions / tourist accommodation on the A831.

Operation Effects

12.20 The operational phase is restricted to maintenance operations which generate significantly lower volumes of traffic that are not considered to be in excess of daily traffic variation levels on the road network.

Mitigation

12.21 A number of mitigation measures have been proposed, that can be secured by appropriately worded planning conditions. These include a Construction Traffic Management Plan (CTMP), AIL Transport Management Plan (TMP) and an Onsite Access Management Plan (OAMP).

12.22 The movement of AIL traffic would require small scale and temporary remedial works at a number of locations along identified delivery route, including along narrower sections of the A831, which are presented in Technical Appendix 12.1.

12.23 AIL mitigation works can be designed to be temporary in nature to enable restoration to their original condition (if required by The Highland Council and Transport Scotland).

Residual Effects

12.24 The construction period is transitory in nature and all impacts would be short lived and temporary. No significant residual effects are predicted during construction.

The assessment confirms the effects would be Minor in nature and they would be Not Significant following the implementation of mitigation measures. The traffic effects are

transitory in nature. No long-lasting detrimental transport or access issues are associated with the construction phase of the proposed development.

13 SOCIO-ECONOMICS AND TOURISM

Introduction

13.1 The Socio-economic chapter considers the potential effects of the proposed The Socio-economic chapter considers the potential effects of Ballach Wind Farm on Socio-economics, Recreation and Tourism.

13.2 It includes Legislation, Policy and Guidance that have informed the assessment, as there is no formal guidance for socio-economic assessments. The Consultation included responses from the Highland Council.

13.3 The Chapter discusses the methods used to assess Socio-economic, Recreational, and Tourism receptors, and limitations.

Baseline

13.4 The baseline is divided into receptors, with key insights across economy, employment, tourism, and infrastructure. Scotland is targeting a significant expansion of onshore wind energy, aiming for 20GW by 2030, which could generate tens of thousands of jobs and inject billions into the economy. In the Highlands, over 80% of working-age individuals are employed or actively seeking work—surpassing both the Scottish and UK averages. The region's dominant industries include healthcare, retail, and hospitality, with hospitality roles particularly prevalent. While average weekly pay in the Highlands is slightly below the Scottish average, it remains higher than the UK average.

13.5 Tourism plays a vital role in the Highland economy, employing nearly 15% of the workforce. In 2023, the region welcomed over 2.2 million visitors who spent more than 7.6 million nights, significantly boosting local income. The Highlands attract tourists with outdoor pursuits such as walking, cycling, wildlife watching, and visits to historic sites, alongside unique experiences like deer stalking and wild camping. Despite the pandemic's impact, tourism has rebounded strongly, with 2023 marking record visitor numbers and spending—over half of which came from international tourists.

13.6 On the energy and infrastructure front, Scotland's renewable sector continues to grow, with onshore wind seen as crucial to achieving net-zero targets and reducing household energy costs. However, the country lacks facilities to manufacture major wind turbine components, relying instead on imports from northern Europe, while the extent of local production in the Highlands remains uncertain.

Construction Effects

13.7 The proposed wind farm, consisting of 20 turbines with a total capacity of 134MW, is expected to cost between £134 million and £252 million, depending on the cost model used. Of this, approximately £88.2 million is anticipated to be spent on on-site construction, with around £16.8 million likely to be invested locally in Argyll and Bute. Although

decommissioning will be less costly and complex than construction, it is still expected to generate local economic activity, particularly benefiting smaller contractors.

13.8 During the construction phase, the project could directly support around 122 full-time equivalent (FTE) jobs in the local area. When indirect and induced effects—such as supply chain involvement and local spending—are considered, the total employment impact could reach approximately 303 FTE jobs. While the overall economic impact is considered minor and not significant at the council level, it is expected to be more noticeable within the local energy sector.

13.9 Construction activities may temporarily restrict access to recreational routes and destinations, which could affect both local users and tourists. The presence of construction works might reduce the enjoyment of outdoor spaces, and some tourist attractions may become less accessible or appealing during this period, potentially impacting the overall visitor experience.

Operation Effects

13.10 The wind farm is expected to cost between £3.3 million and £13 million per year to operate, depending on the cost model used. Over its 35-year lifespan, this equates to a total operational cost of between £115 million and £455.7 million. Approximately 42% of the operations and maintenance costs are anticipated to be spent locally, amounting to around £1.4 million per year or £48.5 million over the lifetime of the project.

13.11 During the operational phase, the development could support around 11 full-time equivalent (FTE) jobs annually in the local area. It is not expected to displace existing jobs or negatively affect tourism or recreation. While the overall impact on the local economy and employment is considered minor and not significant, it is still regarded as beneficial.

13.12 Once operational, the site will remain accessible to the public under Scotland's 'right to roam' legislation, with only occasional restrictions during major maintenance activities. However, some reduction in visual and environmental quality may persist, potentially affecting how tourists and recreational users experience the area. Although access will largely be maintained, the presence of turbines may still influence the appeal of nearby attractions.

Mitigation

13.13 There are no mitigation measures specific to socio-economics. Chapter 6: Landscape and Visual, Chapter 11: Noise, and Chapter 12: Transport and Access has measures that will contribute to mitigating the impacts on socio-economic receptors.

Residual Effects

13.14 The proposed wind farm development is expected to bring minor but positive economic and employment benefits, though these are not significant under Environmental Impact Assessment (EIA) criteria. While there will be some adverse visual and landscape impacts, and minor to moderate effects on tourism and recreation, these too are not considered

significant in EIA terms. When combined with nearby wind farms, the cumulative economic impact remains minor and beneficial, but still not significant.

14 OTHER ISSUES

Introduction

14.1 This chapter considers potential effects and features which have been scoped out of the full assessment but raise pertinent points for the proposed development.

14.2 Topics considered to be potentially significant and addressed in full within this chapter include summaries of:

- Aviation Lighting, including the evaluation of potential impacts upon civilian and military airspace, as well as the approach taken to Aviation Lighting;
- The potential impacts of the proposed development on telecommunication links, and;
- The results of the carbon calculator exercise to understand and report on the carbon payback of the proposed development.

Aviation

14.3 In order to fulfil the requirements from the MoD and CAA, it has been agreed that all 20 turbines will be fitted with Infra-Red Lights (at hub hight), and 6 dominant, by position, turbines fitted with medium intensity Visible Red Lights to the nacelles

14.4 Infra-red lighting is invisible to the naked eye and will not have any impact on the surrounding environment, whilst visible lighting is only operated at maximum brightness when visibility is less than 5km in all directions – such as during thick mist or heavy rain. Met Office records from Inverness suggest that maximum brightness is only required approximately 4% of the time. In all other conditions, visible aviation lights are operated at 200 candelas, or 10% of their maximum brightness.

14.5 Following consultation, no impacts upon radar as a result of this development is predicted.

Telecommunications

14.6 Telecommunications links across the site were investigated as part of the initial constraint investigations

14.7 A telecommunications link is located within the site boundary and a 200m buffer was applied. Given the distance between the links and the turbine envelope, it is considered that the turbines are located suitably out with the telecoms links and therefore will not result in any effects upon these assets.

Carbon Calculator

14.8 This assessment used the Scottish Government's Carbon Calculator for wind farms on peat to estimate the benefit of displacing conventionally generated electricity in the grid compared to the predicted emissions of carbon resulting from the construction and operation of the proposed development over its lifetime.

14.9 The results of the Carbon Calculator for the proposed development show that it is estimated to produce annual carbon savings in the region of 99,845 tonnes of CO2e per year, and lifetime savings of 3,494,575 tonnes of CO2e.

14.10 The estimated payback time of the proposed development is estimated at 2.6 years, with a minimum/maximum range of 1.1 to 2.7years.

14.11 Overall, the proposed development is evaluated to have a beneficial effect on climate change mitigation.

Matters Scoped Out

14.12 Due to the rural location of the proposed development, the distance from sources of air pollution and the short-term, temporary nature of construction – air quality has not been considered further within the assessment.

14.13 Ice throw was also proposed to be scoped out of any assessment. This is due to the low risk of ice throw as a result of the remote location of the proposed development. However, as an added precaution, warning signage may be placed around the site to make the public aware of any risks.

14.14 Furthermore, major accidents and disasters were scoped out of the assessment. Modern turbines are fitted with sensors which will shut down operations if wind speeds are too high, and a full emergency procedure plan would also be put in place to deal with emergency situations such as fires. Overall, the development is not considered vulnerable to any major accidents or disasters that could result in significant environmental effects.

14.15 Issues relating to shadow flicker were also scoped out of the assessment. Shadow flicker is a phenomenon where the sun passes behind the rotors of a wind turbine and casts a shadow over nearby properties. When the blades rotate, this can create a flickering effect. Due to the closest inhabited property being 2.8km from the nearest turbine, it is unlikely that significant effects would occur.

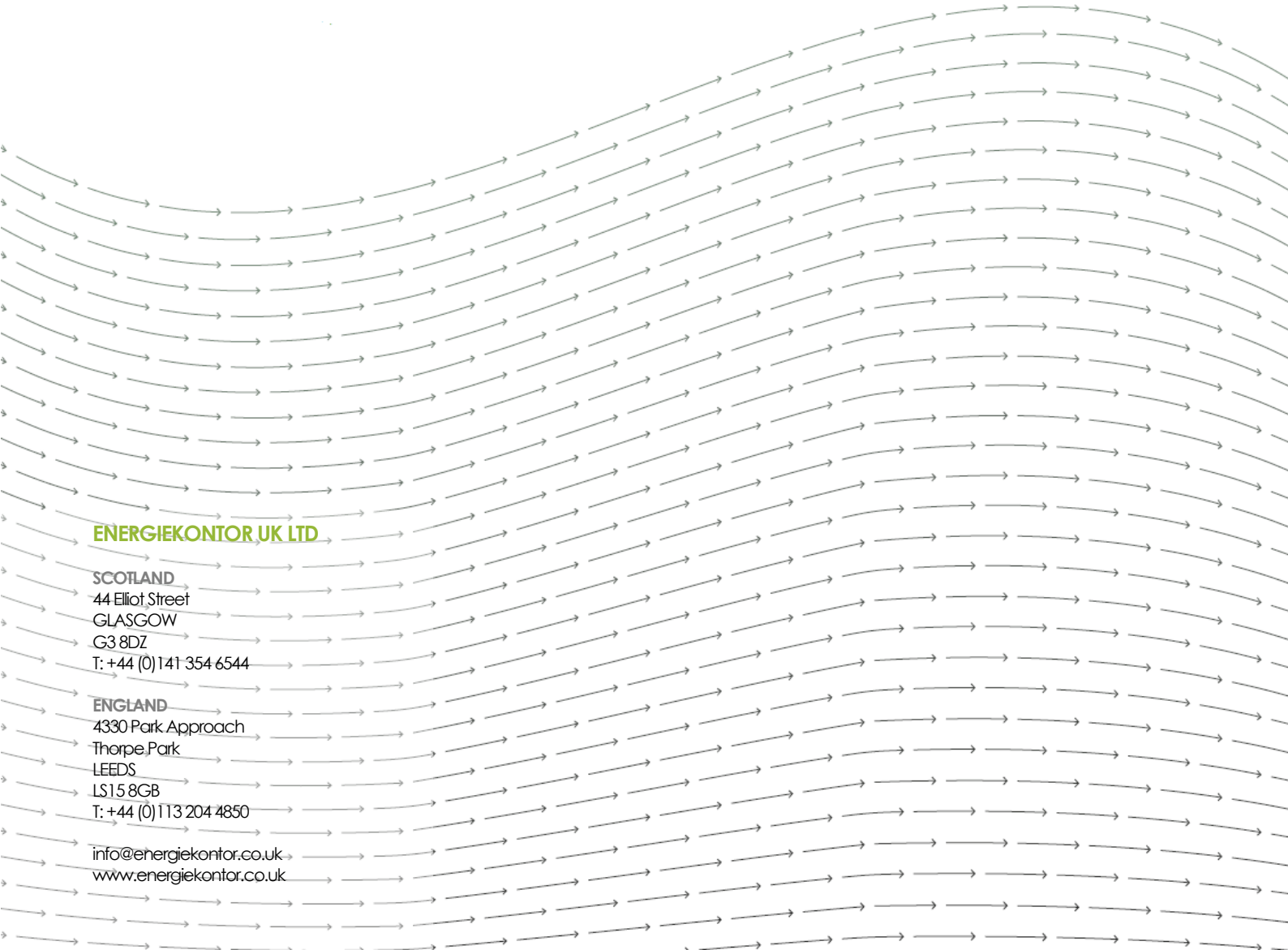
15 SUMMARY

15.1 This NTS has summarised the impacts and resultant effects from the proposed development.

15.2 The proposed development has been designed following full baseline surveys and a range of technical and stakeholder inputs, including from the public. Design has aimed to minimise effects where possible.

15.3 There are some significant visual effects predicted as a result of the development, which would be consistent with a scheme of this size.

15.4 The number of significant effects is not unusual for a wind farm development of the scale and height proposed. The overall design layout principle of the proposed development has been to achieve a coherent and compact design, which minimises direct and indirect adverse effects on the local and wider landscape, while balancing commercial considerations and maximising energy production.



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