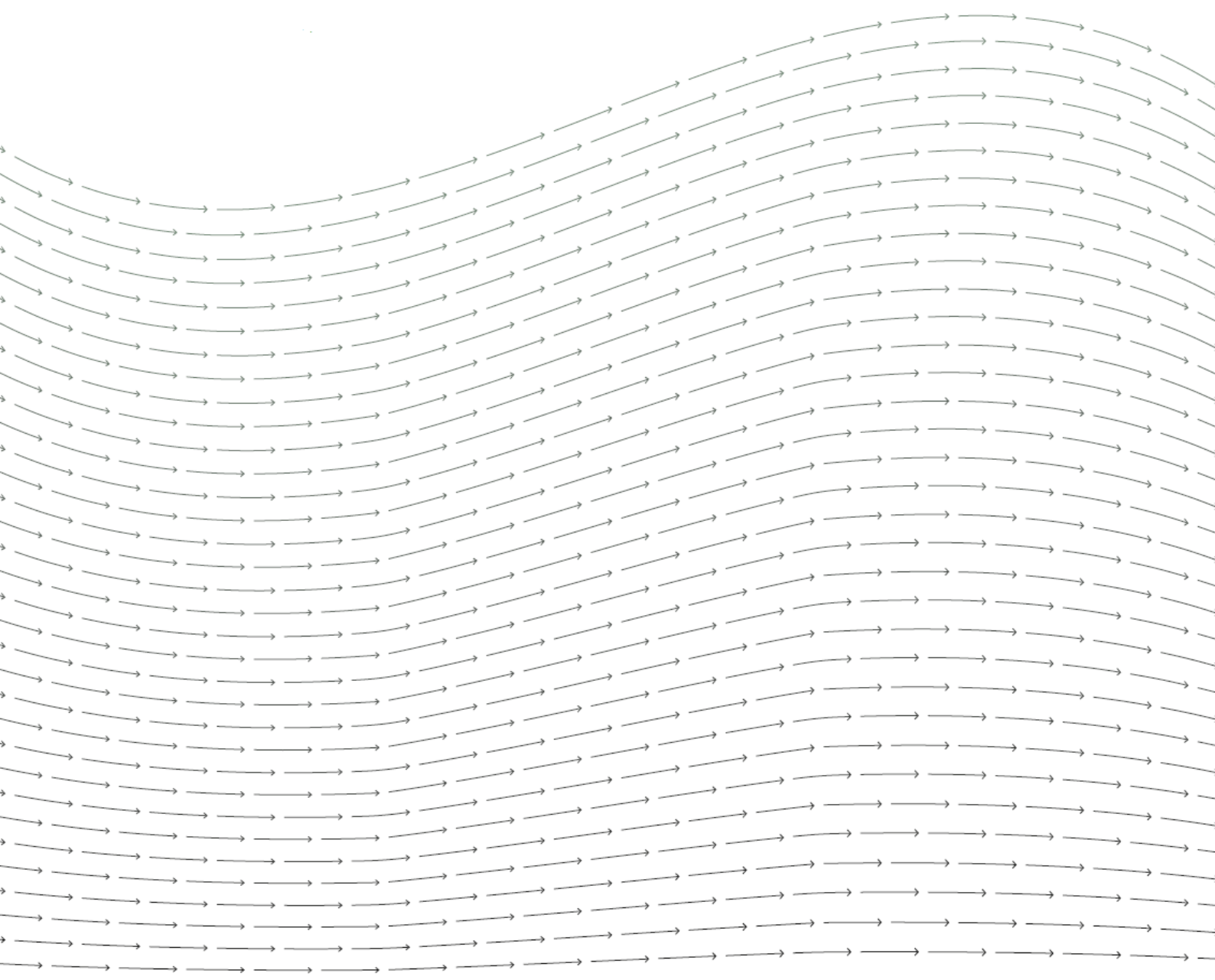




HARE CRAIG WIND FARM
Environmental Impact Assessment Report –
Volume IV: Non-Technical Summary

Energiekontor UK Ltd

December 2019



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1 INTRODUCTION

Overview

- 1.1 An Environmental Impact Assessment Report (EIA Report) has been prepared to accompany a planning application by Energiekontor UK Limited (the “Applicant”) to East Ayrshire Council (“the Council”) for eight wind turbines and associated infrastructure (the “Proposed Development”) at Hare Craig, Muirkirk (the “Site”). This document provides a Non-Technical Summary (NTS) of that EIA Report.

Purpose of the NTS

- 1.2 The aim of the 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 EIA Report (Volumes I-III) provides a more detailed description of the Proposed Development and the findings of the EIA process.

Viewing the EIA Report

- 1.3 The full EIA Report, together with the application for planning consent and associated documents, will be available for viewing during normal office hours at the East Ayrshire Council, London Road, Kilmarnock, KA3 7BU.
- 1.4 For additional copies, a charge of £15 will be made for a full electronic copy of the EIA Report on CD. Costs for paper copies are as follows:
- Volume I – Written Text £100
 - Volume II – Figures and Visualisations £600
 - Volume III – Technical Appendices £600
 - Volume IV – Non-Technical Summary £20
- 1.5 Comments on the application can be made directly to the Applicant. Planning representations can be made via the Council’s planning portal, or in writing to the address given above.

The Applicant – Energiekontor UK Ltd

- 1.6 Energiekontor UK Ltd (EK) is a renewable energy development company with offices in Glasgow, Edinburgh and Leeds. The company was formed in 1999 and develops small to medium-sized onshore wind and solar farms throughout the United Kingdom. The company operates seven existing wind farms in the UK with consents for a further five projects. EK also has a number of other wind and solar 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, The Netherlands, Portugal, the USA and the UK. The company has built more than 100 onshore wind farms in Europe.

2 EIA APPROACH

Introduction

- 2.1 EIA is a process that identifies the potential environmental effects (both beneficial and adverse) of a proposed development and proposes mitigation to avoid, reduce and offset any potential significant adverse environmental effects.
- 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 effects of the Proposed Development;
 - evaluation of these effects 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 effects;
 - identification of residual impacts;
 - submission of ES and publicity;

Approach to Technical Studies Undertaken

- 2.3 The EIA studies commenced at an early stage in the evolution of the application proposal. 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.
- 2.4 The technical EIA studies have been undertaken in accordance with relevant guidelines and procedures.
- 2.5 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.
- 2.6 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 AND CONSTRUCTION METHODS

Introduction

- 3.1 This chapter provides an outline description of the Proposed Development, the Site, and its surroundings. It also describes the issues and constraints that have influenced the layout of the Proposed Development and the evolution of the design.
- 3.2 The Proposed Development will consist of the construction, 35 year operation and subsequent decommissioning of up to eight wind turbines including associated development.

The Site and its Surroundings

- 3.3 The Site is located approximately 4.6km to the north east of Muirkirk and 9km west of Douglas. It lies across the summits of Hare Craig and Sclanor Hill and is situated on an extensive undulating plateau lying between 320m and 490m AOD.
- 3.4 The topography encountered within the Site is consistent with the undulating plateau of subtly rounded hills, shallow basins and gently graded lower slopes of the Plateau Moorlands. Land cover is simple and dominated by grass moorland. The Site is bounded by forestry to the north and south and there are opencast workings to the south and south east.
- 3.5 The Site is located adjacent to the Muirkirk and North Lowther Uplands Special Protection Area. However, the ornithological sensitivity of the Site is considered to be low due to the poor habitats present. This is discussed later.
- 3.6 The Site includes an access route through the former Ponesk and Grasshill opencast coal mines from the wind farm development area to the A70. This access largely utilises existing tracks that have been installed as part of the restoration of these former opencast mines, although a short section of new track would be required to link the wind farm development area with this existing network of tracks.
- 3.7 There are a number of existing, consented and proposed wind farms in the local and wider area. These include Cumberhead immediately to the east of the Site, with Galawhistle, Nutberry, Dalquhandy, Hagshaw Hill and Douglas West located further to the east.

Description of Proposed Development

- 3.8 The Proposed Development is illustrated on EIAR Figure 3.1 and would consist of the following principal components:
- Eight turbines between 150-230m to blade tip;
 - Associated turbine transformers;
 - Associated turbine foundations;

- Hardstanding areas for erecting cranes at each turbine location;
- On-site tracks connecting each turbine;
- Underground cables linking the turbines to the substation;
- New watercourse crossings;
- Up to two borrow pit for the extraction of stone on-site;
- A temporary construction compound;
- An energy storage facility;
- On-site substation; and
- Off-site access works.

- 3.9 The Proposed Development would be time-limited to 35 years from the first date of final commission. The construction phase would last approximately twelve to eighteen months and decommissioning would last approximately six months.
- 3.10 The Proposed Development would provide approximately 36MW of installed capacity, depending on the turbine model chosen. It is estimated by Energiekontor UK Ltd that this installed capacity could generate approximately 187 GWh of renewable electricity each year. This represents a site capacity factor of approximately 49%, which compares favourably to the UK average onshore capacity factor of 26.6% over the period 20012-2016¹.
- 3.11 The renewable electricity generated by the Proposed Development could power over 48,000 homes on average each year². This could save up to 80,410 tonnes of CO₂ each year³ for the operational life of the wind farm.
- 3.12 The planning application includes an allowance for micro-siting of the wind farm infrastructure. If planning permission is granted, the Applicant would commission detailed ground investigations and geotechnical surveys to determine the ground conditions. A 100m micro-siting allowance is sought for the wind turbines (with restrictions in place to safeguard constraint buffers as applicable), and all other new elements of the Proposed Development.

Construction Methodology and Programme

- 3.13 It is estimated that the construction of the Proposed Development would take 12 months and would consist of the operations set out below in Table 3.3 and described later in this chapter.

¹ Based on Digest of UK Energy Statistics (DUKES): renewable sources of energy (updated July 2017)

² Based on an average annual UK domestic electricity consumption figure of 3,889KWh as set out in the BEIS publication "Energy Consumption in the UK" (2017)

³ Based on BEIS's standard carbon dioxide savings figure of 430g/kWh

Table 3.3: Proposed Construction Programme

Activity	1	2	3	4	5	6	7	8	9	10	11	12
Site Mobilisation / demobilisation												
Construction of construction compound and access point												
Excavation of borrow pits												
Track and hardstanding construction												
Construction of turbine foundations												
Substation construction												
Excavating trenches and laying electrical and communication cabling												
Turbine delivery and installation												
Site restoration												
Turbine fit out and grid connection												
Turbine commissioning												

- 3.14 The Proposed Development would be constructed by a team of experienced construction contractors with a proven track record of working on similar projects in line with UK and International standards in respect of quality, health, safety and Environmental Management.
- 3.15 Construction of the Proposed Development would follow a Construction Environmental Management Plan, the aim of which would be to provide working methods that would aid in avoiding, minimising and controlling potential significant adverse effects on the environment.

Construction Works

- 3.16 Construction works include:

- Highway modifications to enable vehicles to access the Site from the strategic and local highway network;
- Upgrading of site access point as necessary onto the A70;
- Installation of construction compound / storage area for Site office facilities and storage of materials and components;
- The excavation of the borrow pit and extraction of aggregate for new tracks and hardstandings;
- Construction of new permanent Site tracks and the upgrading of existing sections;
- Installation of hardstandings and outrigger pads for the support of the cranes that would be used for the erection of the turbines;

- Construction of foundations for the support of the turbine structures;
- Wind turbine delivery and erection;
- Installation of transformers in separate housings alongside each wind turbine (if required);
- Installation of on-site High Voltage (HV) cabling, communication cabling and earthing underground adjacent to access tracks;
- Installation of Supervisory Control and Data Acquisition (SCADA) system;
- Construction of substation;
- Commissioning of Site mechanical and electrical equipment; and
- Reinstatement, landscaping, removal of temporary site offices, reseeding verges, borrows pit and areas around turbine bases.

- 3.17 The works would mainly follow the order detailed above, but many would be carried out concurrently to reduce the overall length of the construction programme. There would be construction phasing, with civil engineering works progressing in some areas whilst turbines are being erected elsewhere. In order to minimise disruption to land use, site restoration would be undertaken as early as possible in development areas.
- 3.18 Should planning permission be granted then it is likely that construction hours would be restricted via means of a planning condition imposed by the Council as part of the consent.

4 DESIGN EVOLUTION

Introduction

4.1 The Applicant has completed a wide search of potential wind farm sites throughout Scotland and is in the process of taking a number of those forward. The proposed Hare Craig Wind Farm site was selected for a number of reasons, including:

- Underlying landscape capacity – the host landscape has been identified by EAC as suitable for new wind farm development;
- Energy capture – software modelling indicates that the Site offers a strong wind resource with few obstacles or areas of pronounced topography close enough to interrupt wind flow;
- Settlement – the Site is well removed from any significant settlements, the closest being Muirkirk at approximately 5km;
- Landscape – the Site is sufficiently removed from any nationally designated landscapes;
- Transport infrastructure – the Site benefits from suitable access for turbine component delivery; and
- Aviation – discussions with aviation stakeholders have confirmed that mitigation solutions would be available to avoid any adverse effects.

Design Evolution

4.2 The design of the Proposed Development was developed by taking into account the various technical and environmental constraints identified during the process of the EIA.

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 to take account of the information arising from pre-application consultation with stakeholders, and the findings of the EIA. As a result, the design and EIA process has been highly iterative and all aspects of the final design, including the location of the wind turbines, crane hardstandings, the site access, layout of the access tracks, the locations of the substation and construction compound have been influenced by various technical, environmental and planning considerations.

4.4 The design of the Proposed Development has been optimised to produce a project which balances the use of land available with the overall impact of the development. This is based mainly on the following technical, economic and environmental considerations:

- Ground conditions and existing land use – the layout design minimises the impact to areas of deep peat. Watercourses and critical slope gradients have also been avoided where possible;
- Distance between turbines. To minimise the turbulent interaction between turbines they should be spaced in a suitable manner to minimise wind wake effects;

- Environmental constraints – The individual assessment chapters of this EIA Report discuss these considerations and issues in detail; and
- Landscape and Visual Amenity – Chapter 6 of this EIA Report covers this in depth. The design of the Proposed Development seeks to match the turbines and the overall development with the scale of the landscape and the existing strategic pattern of wind farm development.

4.5 The positioning of the turbines, through the design, has been continually altered to account for the proximity of constraints as these have been assessed, and as EIA studies have progressed. Stakeholder consultation has been based on the principal iterations detailed in Chapter 4 of the EIA Report, and a number of other designs between principle iteration stages. The principle iterations are shown in EIAR Vol II Figures 4.1 – 4.3.

Summary of Design Evolution

- 4.6 The wind farm layout in its proposed form takes account of stakeholder feedback received during pre-application discussions, and environmental and technical constraints.
- 4.7 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. Figures 3.1 and 4.3 show the final design layout submitted as part of this application.

5 PLANNING POLICY

Introduction

- 5.1 This chapter in the EIA Report provides an outline of the national and local planning policies, guidance and other material considerations that are potentially relevant to the Proposed Development.
- 5.2 To maintain the impartiality of the EIA Report, the chapter does not assess whether the Proposed Development would comply with the identified policies. A separate Planning Statement which assesses the conformity of the Proposed Development with the Development Plan and other material considerations is also submitted as part of the planning application. The Planning Statement is separate from the EIA Report.

Planning Policy Context

- 5.3 The statutory instrument for the determination of planning applications in Scotland is the Town and Country Planning (Scotland) Act 1997 (as amended). Section 25 of this Act states:

'Where, in making any determination under the Planning Acts, regard is to be had to the development plan, the determination shall be made in accordance with the plan unless material considerations indicate otherwise'

- 5.4 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.
- 5.5 The review of the relevant policy and material considerations set out in Chapter 5 of the EIA Report therefore adopts the following structure:
- The Development Plan
 - East Ayrshire Local Development Plan (February 2017)
 - Supplementary Guidance: Planning for Wind Energy (November 2017)
 - Material Planning Considerations
 - Renewable energy framework
 - National Planning Framework 3
 - Scottish Planning Policy
 - Planning Advice Notes
 - Scottish Government Web Based Renewable Guidance
 - East Ayrshire Landscape wind Capacity Study
 - South Lanarkshire Council policy documents
- 5.6 A full review of the Proposed Development against relevant planning policy is included in the Planning Statement which accompanies the planning application. This is also summarised within the EIA Report. These reviews conclude that the Proposed Development is in general accordance with local and national planning policy.

6 LVIA

Introduction

- 6.1 A Landscape and Visual Impact Assessment (LVIA) has been prepared by Chartered landscape architects which assesses the likely significant landscape and visual effects of the Proposed Development during construction, operation and decommissioning, with reference to mitigation and enhancement measures which were developed during the planning and design process.

Potential LVIA Effects

- 6.2 The LVIA has considered potentially significant landscape and visual effects attributable to the Proposed Development on: landscape character types; landscape designations; settlements; close residential properties; visitor attractions; sequential routes; and a range of viewpoints representing views from popular public viewpoints, transport and recreational routes, visitor locations and historic sites. The landscape and visual receptors assessed were as agreed with East Ayrshire Council, South Lanarkshire Council and Scottish Natural Heritage.
- 6.3 The Proposed Development has been carefully sited and designed to ensure a compact array which is proportionate in scale with the nearby existing wind developments at Nutberry and Galawhistle, whilst complying with guidance contained within the East Ayrshire Landscape Wind Capacity Study (Carol Anderson Landscape Associates/East Ayrshire Council, 2018).
- 6.4 Whilst the Proposed Development would result in a number of significant localised effects on the landscape and views; the surrounding context, vast scale and undulating nature of the receiving landscape is such that it can be concluded that the landscape could accommodate the Proposed Development without leading to unacceptable levels of detrimental effects on the overall landscape setting or visual amenity experienced across the study area.
- 6.5 The significant effects are reversible; when the wind farm is decommissioned at the end of the operational life, the turbines would be removed and the site restored.
- 6.6 The changes arising from a proposed development may engender positive or negative responses depending on individual perceptions regarding the merits of wind energy development. The same project may be seen by some as attractive, acceptable and contributing to the well-being of the natural environment, while others may take a negative stance regarding the wind farm. The assessment has taken a precautionary approach in considering that all effects on the landscape and on views which would result from the construction and operation of the Proposed Development would be adverse, however not all people would consider the effects to be adverse and this may not be the case in every landscape situation.

7 CULTURAL HERITAGE

Introduction

- 7.1 The Cultural Heritage chapter considers the likely effects on cultural heritage interests of the construction and operation of the Proposed Development.
- 7.2 xx This assessment has considered the likely significant effects upon heritage assets which could result from the Proposed Development. The conclusions of the assessment have been informed by desk-study, walkover survey and site visits to designated assets and NSR sites which could have their setting effected. Setting assessments have been further informed by Zone of Theoretical Visibility mapping and by visualisations including wirelines and photomontages.

Direct Effects

- 7.3 This assessment as concluded that there would be a likely significant Moderate direct effect upon the remains of a post-medieval agricultural building at Nether Priesthill (Site 31), which would result from its removal to allow for the construction of the crane pad for Turbine 1. Non-significant effects would also be experienced by two boundary walls (Sites 66 & 67) and upon the site of a trackway (Site 62) as small portions of these would be removed during construction of the construction compound and the access tracks. The Proposed Development also as the potential to impact upon hitherto unknown buried archaeological remains.
- 7.4 In order to mitigate the above effects, and to identify any hitherto unknown buried archaeological remains, it is proposed to undertake a watching brief on the removal of Nether Priesthill (Site 31) to allow for recording of any archaeological features associated with the building thus ensuring its preservation by record. This will supplement the basic photographic survey of the building undertaken as part of this assessment. A watching brief will also be undertaken on ground breaking works to the south of the former trackway (Site 62) to allow for recording of any remains associated with the boundary walls (Sites 66 & 67) and the trackway (Site 62) and to allow for the identification and recording of any buried archaeological remains associated with Nether Priesthill that may be present. This mitigation work would offset these impacts by ensuring that the loss of the assets is offset through preservation by recorded.

Indirect Effects

- 7.5 Likely significant effects upon the setting of designed heritage assets and NSR sites within the established Study Areas have been considered. A likely significant Moderate effect upon the setting of the Category C Listed Martyr's Grave has been identified. Effects upon this asset have been minimised insofar as possible through the design process. A programme of interpretation works, undertaken as part of a HIP would constitute compensatory mitigation to partially offset potential impacts of the Proposed Development on the setting of the Martyr's Grave. Non-significant setting effects are expected upon eight designated heritage assets and upon nine NSR Sites.

Cumulative Effects

- 7.6 No likely significant cumulative effects are anticipated.
- 7.7 Following implementation of mitigation measures likely significant direct effects will be offset. All operational effects upon the settings of designated assets will be as per the conclusions presented under Operational Effects for the life of the Proposed Development, however any such impacts would be reversed with the removal of the turbines following decommissioning.

8 ORNITHOLOGY

Introduction

- 8.1 The ornithological chapter describes the ornithological interests at the Site and assesses the likely environmental effects of the Proposed Development on these interests.

Data Sources

- 8.2 A programme of bird surveys was undertaken in 2016 and 2017 to characterise the ornithological value of the Site. Surveys undertaken included
- i. Vantage point surveys to characterise flight activity during both the breeding and non-breeding seasons;
 - ii. Breeding bird surveys within 500m of the Site boundary to characterise the overall breeding bird community;
 - iii. Scarce breeding bird surveys over a wider area (2km from the Site boundary) to ascertain whether rarer species such as birds of prey are breeding;
 - iv. Dedicated black grouse surveys; and
 - v. Winter walkover surveys to characterise the overall wintering bird community.
- 8.3 The bird species found to be using the Site were assessed in terms of their conservation value. Species of high conservation value using the site included hen harrier, merlin, peregrine, golden plover and short-eared owl, all of which are protected within the adjacent Muirkirk and North Lowther Uplands Special Protection Area (SPA). However, with the exception of peregrine, all of these species were recorded very infrequently on the Site (less than 5 records across all surveys) and did not breed within 2km of the Site.
- 8.4 Peregrine was proven to breed within 2km of the Proposed Development.
- 8.5 Other species of high conservation value, and proven to breed within the Site, were the waders curlew and snipe.

Ornithological Effects

- 8.6 The potential impacts for all species of international, national, regional, district and local importance are assessed within the ornithology chapter.
- 8.7 This assessment has predicted no significant impacts on any bird populations, or on the conservation objectives of the adjacent SPA.

9 ECOLOGY

Introduction

- 9.1 An ecological assessment has been undertaken by RPS Consultants. Chapter 9 of the EIA Report provides an overview of the baseline ecological conditions relating to the habitats and (non-avian) fauna present within the Site and immediate surrounding environment, and identifies the potential for ecological effects associated with the Proposed Development.
- 9.2 Using CIEEM's 2018 guidance, impacts resulting from the construction, operation and decommissioning of the Proposed Development have been assessed to determine effects on ecological features within the Site and the surrounding areas. Other neighbouring wind farms have been also been considered to determine the impacts to ecological receptors in the wider landscape that the Proposed Development may contribute to.
- 9.3 Designated and non-designated sites within 5km of the Site that are in place to protect ecological features were identified. Habitat, bat and other protected species surveys were conducted within the Site and to appropriate buffers to determine the condition of the habitats, and the protected species that are, or may be present.

Ecological Effects

- 9.4 From the evidence collected the following were identified as ecological features that may be affected by the different stages of development: bats, habitats, otter, reptiles and fish.
- 9.5 For each feature identified the ways that the Proposed Development may affect it were considered and assessed using CIEEMs guidance.
- 9.6 After taking into account imbedded mitigation within the design of the Proposed Development and mitigation measures that should be in place during the construction, operation and decommissioning stages of the Proposed Development, effects on bats, habitats, otter, reptiles and fish were found to be minor or less and therefore not significant.

10 NOISE

Introduction

- 10.1 Wind farms have the potential to create noise during the construction, operation and decommissioning phases. Chapter 10 of the EIA Report summarises the findings of a construction/decommissioning and operational noise assessments undertaken by Hayes McKenzie.

Construction Noise

- 10.2 An assessment of the noise levels resulting from the operation of the Proposed Development has been undertaken in accordance with relevant planning policy and relevant guidance relating to the assessment of noise from wind farms. The assessment followed the guidance given within ETSU-R-97, *The Assessment and Rating of Noise from Wind Farms*, as referred to within relevant planning guidance, and the Institute of Acoustics document, *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise*.
- 10.3 The noise conditions for six neighbouring wind farms were used to inform the assessment in terms of precedent in respect of appropriate noise limits to be applied at residential dwellings neighbouring the site. Predictions of the operational noise levels of the site in isolation and cumulative wind farm noise compared with the relevant limits. The resulting assessment shows that predicted turbine noise levels meet typical planning requirements at all dwellings in terms of noise from wind farm developments and, as such, are considered to be not significant.

Operational Noise

- 10.4 Noise associated with the construction of the Proposed Development is considered not significant in terms of typical guidance in this regard (i.e. BS 5228) due to the relative distance to the majority of construction activities to neighbouring dwellings and the temporary nature of the works. However, construction noise can be controlled through a suitably worded planning condition and/or through negotiations with the local council.

11 TRAFFIC AND TRANSPORT

Introduction

- 11.1 An assessment has considered the effects on the local road network of HGV traffic associated with the construction phase of the Proposed Development.

Construction Effects

- 11.2 The construction programme associated with the Proposed Development is anticipated to cover a 12 month period. During this time 7,108 HGVs would access the Site, assuming a 'worst-case scenario' approach whereby 100% of the stone requirement is imported to the Site while it is anticipated that a proportion of stone would be won from on-site borrow pits.
- 11.3 This equates to 54 daily two-way HGV trips during the busiest construction month (Month 1). The movement of abnormal loads is not anticipated to exceed 6 one-way trips per week over the course of three months (with no overlap during the busiest construction month).
- 11.4 A robust assessment has been undertaken using the worst-case scenario for two-way construction traffic movements. The impact of construction traffic could increase traffic flows along the road links within the study area by the following:
- 5.2% along the A70;
 - 2.5% along the B744; and
 - 1.5% along the A76.
- 11.5 The percentage increase in HGVs associated with the worst-case month of the construction programme for the Proposed Development could increase HGV levels by the following:
- 14.8% along the A70;
 - 10.2% along the B744; and
 - 5.9% along the A76.
- 11.6 It is important to note that these increased traffic levels are temporary in nature and represent the expected traffic generation during the busiest month of construction. Traffic levels during the other months of the construction phase would be considerably lower than those assessed in this chapter.
- 11.7 The assessment concludes that effects of increased traffic as a result of the Proposed Development are deemed to be not Significant prior to any mitigation measures. The assessment concludes that the traffic levels anticipated during the busiest month of construction can be accommodated by the existing road network within the study area and further managed / minimised by the implementation of a Construction Traffic Management Plan.

12 HYDROLOGY

Introduction

- 12.1 An assessment has been carried out of the likely impacts of The Proposed Development on the hydrological, hydrogeological and geological environment. The assessment has considered site preparation, construction and operation of the Proposed Development.

Potential Hydrological Effects

- 12.2 The potential effects on the hydrological, geological and hydrogeological environment have considered:
- Pollution Incidents;
 - Erosion and sedimentation;
 - Changes to water resources i.e. private water supplies;
 - Modification of surface water and groundwater flows;
 - Modification of natural drainage patterns;
 - Impediments to flow and flood risk;
 - Peat instability; and
 - Compaction of soils.
- 12.3 Following the identification and assessment of the key receptors, taking into account the potential effects listed above, a comprehensive suite of mitigation and good practice measures has been incorporated into the design, including extensive buffer areas. In addition a site specific CEMP as well as detailed design of infrastructure and associated mitigation will be implemented to protect the groundwater and surface water resources from pollution and minimise changes to the hydrological environment.
- 12.4 The impact assessment has taken into account the hydrological regime, highlighting that the principal effects will occur during the construction. Assuming the successful design and implementation of mitigation measures the significance of construction effects on all identified receptors is considered to be of minor or no significance. The assessment of predicted ongoing and operational effects has also determined that the significance of effects on all receptors to be of minor/moderate minor or no significance. The assessment of predicted ongoing and operational effects has also determined that the significance of effects on all receptors to be of minor or no significance.

13 INFRASTRUCTURE, AVIATION, SAFETY AND SHADOW FLICKER

Introduction

13.1 An assessment has been carried out of the potential effects of the Proposed Development on the following interests and is reported in Chapter 13 of the EIA Report:

- Safety
- Telecommunications
- Aviation
- Television reception
- Buried and above ground infrastructure
- Shadow flicker

Potential Effects

13.2 Following implementation of any necessary mitigation it is considered that there would be no potentially significant effects on infrastructure or safety arising as a result of the Proposed Development or in combination with any other existing, consented or proposed wind turbine developments in the local area.

14 SOCIO-ECONOMIC STATEMENT

Introduction

- 14.1 An assessment of the socio-economic effects associated with the Proposed Development is set out in Chapter 14 of the EIA Report.

Socio-Economic Effects

- 14.2 In Scotland renewable energy generated 68.1% of gross electricity consumption in 2017. Scotland's target is 100% by 2020. The Proposed Development, should it receive consent, will help Scotland meet these targets and any future targets.
- 14.3 The Proposed Development is one of the first generation wind farms in Scotland to progress to application since the withdrawal of the Renewable Obligation Certificates (ROC). The application is an important project in a time where the renewable sector is under significant change.
- 14.4 It is likely that the Proposed Development would be developed without any form of government support mechanisms, making it an important project to help minimise consumers' electricity bills.
- 14.5 The Proposed Development would provide an annual economic contribution to the local area for the life of the wind farm through a community benefit fund. Ongoing community engagement would ensure this fund is distributed effectively, where it can most benefit local communities.
- 14.6 Energiekontor could invest more than £44 million in the project during the construction phase, plus an ongoing expenditure on operation and maintenance. This is a significant investment with a strong policy fit both regionally and nationally.
- 14.7 The total value of contracts that could be secured in East Ayrshire has been estimated as £8.9 million and in Scotland as a whole businesses could secure contracts worth £18.4 million.
- 14.8 The Proposed Development could support an additional 124 man years in Scotland including 60 man years in East Ayrshire during the construction phase. In Gross Value Added (GVA) terms the construction phase has the potential to inject £3.5 million into the East Ayrshire economy and £7.2 million to the Scottish economy as a whole.
- 14.9 In addition to the expenditure during the construction period and first operational year, it is anticipated that the Proposed Development would further contribute in business rates to the East Ayrshire economy.
- 14.10 The operations and maintenance of the Proposed Development Wind Farm could support an additional six jobs in Scotland, of which three could be in East Ayrshire. In GVA terms the operational phase has the potential to inject £277,000 per annum into the East Ayrshire economy and £630,000 to the Scottish economy as a whole.

- 14.11 Local businesses would have the opportunity to benefit from the contracting requirements to be awarded by Energiekontor. These range from civil engineering and ground work contractors, haulage businesses through to suppliers of water, as well as local service based companies including hotels, restaurants and local shops. Energiekontor is keen to maximise these local economic benefits and would put a local contracting procurement policy in place for the Proposed Development which would give price advantage to local firms in bidding for contracts.
- 14.12 There is a proposal to develop a Shared Ownership Scheme to allow the community to benefit further through the ability to invest in the development and receive an annual return to reinvest into community projects.

15 SUMMARY

- 15.1 The Proposed Development, if consented, would be one of the first generation of onshore wind developments to operate without any public support mechanisms. It has been sited and designed in order to harness the wind resource of the Site while minimising and avoiding adverse impacts where possible.
- 15.2 While some localised significant effects have been identified, for example localised landscape and visual effects, the Site is located in a large-scale landscape identified as having the most potential capacity for commercial wind energy generation. The Proposed Development is deemed acceptable and in line with national and local planning policy, and is one which would make a significant contribution to renewable energy targets.

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