



EnergieKontor UK Ltd

Collieston Wind Farm

**Environmental Impact Assessment Scoping
Report**

June 2022

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1 INTRODUCTION

Introduction

- 1.1 Energiekontor UK Ltd is evaluating the potential of land at Collieston, Dunscore ("the Site"), see Figure 1.1, for the development of a wind farm of up to 8 wind turbines (see Figure 1.2), including associated development such as crane pads, access tracks, a substation, a temporary construction compound and a battery storage facility ("the Proposed Development").

Purpose and Structure of the Scoping Report

- 1.2 The purpose of this Scoping Report is to formally request the Scoping Opinion of Dumfries and Galloway Council ("the Council") in accordance with Regulation 17 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the "EIA Regulations"). Scoping is used to help identify where there is potential for interactions between a project and the environment. It allows an applicant to be clear which of these a local planning authority considers to be the main effects and on which an Environmental Impact Assessment (EIA) should focus.
- 1.3 This Scoping Report provides an outline of relevant environmental receptors that may be significantly affected by the Proposed Development and describes the information that it is envisaged will be submitted as part of a future EIA. This approach enables consultees with a particular interest to identify whether any potentially significant impacts have been omitted, suggest additional mitigation measures or to comment on the suitability of the intended method of assessment if necessary.
- 1.4 Comments on the scope of the proposed EIA are invited. Should consultees be in a position to identify or provide additional relevant information concerning the existing environment or any specific local issues, this would be welcomed.

Energiekontor UK Ltd

- 1.5 Energiekontor UK Ltd is a wind energy development company with offices in Leeds, Glasgow and Edinburgh. The company was formed in 1999 and develops onshore wind and solar farms throughout the United Kingdom. The company has built nine wind farms in the UK with many more in the development process.
- 1.6 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, having built more than 100 wind farms across the continent.

2 EIA REGULATORY FRAMEWORK

What is EIA

- 2.1 EIA is a statutory process that is governed by UK and European law. It aims to improve the environmental design of a development proposal and provides decision-makers with sufficient information about the environmental impacts of a proposal.
- 2.2 An Environmental Impact Assessment Report (EIAR), prepared during the EIA process, provides environmental information about a scheme, including a description of the proposal, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

The EIA Process

- 2.3 The EIA is prepared through an iterative process that usually follows the following stages:
- Screening is the first stage of the EIA process where the relevant authorities decide whether EIA is required.
 - Once it has been agreed that EIA is required, scoping is undertaken to define what should be assessed as part of the EIA and reported in the EIAR. This is usually done in partnership between the applicant and the local authority.
 - With the scope set, relevant information on the environmental baseline conditions is collected. This information is then used initially to understand the dynamics of the likely environmental effects and to inform the design of the project to minimise the potential for significant adverse effects.
 - The formal assessment process is then undertaken on the design parameters to define the significant effects of the project.
 - Any significant adverse effects that are identified during the formal assessment process are then reviewed against the design to consider whether alterations could be made to minimise the effect. Should this occur the formal assessment process is reiterated.
 - Where significant adverse effects cannot be minimised through alterations to the design itself, mitigation measures are considered. Monitoring may also be considered to measure the actual significance of the effect during and post-construction to allow management of mitigation where appropriate.
- 2.4 Once the EIA is completed, the EIAR is submitted to the local planning authority for consideration with the planning application.

Screening – Is EIA Required

- 2.5 The first stage of the EIA process is to screen with the local planning authority whether a development would constitute EIA development.
- 2.6 Development projects that are described within Schedule 1 of the EIA Regulations will always require EIA and are referred to as 'Schedule 1 Developments'. Development projects listed in Schedule 2 that are located in a 'sensitive area', or exceed one of the relevant criteria or thresholds given in Schedule 2 are referred to as 'Schedule 2 Developments'. Not all Schedule 2 Developments will require EIA as only a development project that is likely to have significant environmental effects by virtue of size, location or nature will require such assessment. A development project that requires EIA is referred to as 'EIA development'.
- 2.7 In this case, the Proposed Development (as described in Section 4) is of a type described within Schedule 2 as an installation for the harnessing of wind power for energy productions. It is not located within a 'sensitive area' as defined by the EIA Regulations, however, the project would exceed both of the applicable thresholds as it involves more than two wind turbines with hub heights of more than fifteen metres. The requirement for EIA is therefore determined on the basis of whether the project would be likely to give rise to significant effects on the environment by virtue of its size, nature or location.
- 2.8 The scale, nature and location of the Proposed Development are such that, in order to allow the environmental impacts of the project to be appropriately considered, Energiekontor UK Ltd has taken the decision to voluntarily undertake EIA in this case. Therefore, no Screening Opinion will be sought from the Council.

Scoping – What to Consider

- 2.9 Once it has been determined that an EIA is required, the next stage of the process is scoping. Scoping is an exercise conducted at an early stage in the EIA process and is designed to ensure that the environmental studies provide all the relevant information on:
- The impacts of the project, in particular focusing on the significant effects;
 - The alternatives; and
 - Other matters considered to be relevant.
- 2.10 The findings of this exercise define the 'scope' of the environmental information to be provided and the terms of reference for the environmental studies to be undertaken. The scope of the work however remains flexible and can be amended should new issues or information arise while undertaking the project.

3 THE SITE AND ITS CONTEXT

The Site

- 3.1 The Site is located approximately 17 km north west of Dumfries and 3 km west of Dunscore. It is situated on mixed use land comprising mixed use agriculture with commercial plantation to the west.
- 3.2 The Site is located within an open moorland landscape context. The Site is characteristic of a simple upland landscape and comprises coarse unimproved grassland used for grazing and coniferous plantation forestry. Topography within the Site ranges from 90 m to 335 m AOD. Residential development within the locality of the Site is limited to a small number of scattered dwellings / farmsteads linked by minor roads.

Context

- 3.3 There are a number of wind farms, either operational or within the planning system, within the surrounding area. These include the operational Blackcraig development (7 km south west). consented Fell Wind Farm (5 km west), Garcrogo Wind Farm (5 km south west) currently in planning and Mochrum Fell Wind Farm (7 km south west) currently at appeal. In addition, Whiteneuk wind farm (2km west) is currently at scoping.

4 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Introduction

- 4.1 This section describes the various elements proposed as part of the project and provides details of what processes will take place at the various stages of the project's lifecycle (e.g. construction, operation, decommissioning).

The Proposed Development

- 4.2 Energiekontor UK Ltd is investigating the potential for a wind farm development on the Site, consisting of the erection, 35 year operation and subsequent decommissioning of up to 8 wind turbines, each up to 230m in height to blade tip. It is likely that the wind farm would provide up to but not exceeding 50MW of generating capacity. The principal elements of the Proposed Development are described in further detail below.

Wind Turbines

- 4.3 It is proposed to erect up to 8 wind turbines on the Site. The turbines would be of a typical modern design comprising a three bladed rotor hub mounted on a rotatable nacelle (containing a gearbox and a generator), tower and foundation.
- 4.4 Final turbine selection would be made following the grant of planning permission following a tendering and procurement exercise. The EIA will therefore be undertaken on the basis of a candidate turbine design consisting of:
- Maximum height to vertical blade tip of 230m;
 - Turbines would generate power for all wind speeds between 4m/s and 25m/s; and
 - At wind speeds greater than 25m/s (gale force) the turbines would shut down for self-protection.

Associated Development

- 4.5 The principal items of associated development include:
- **Site access** – access to the Site would likely be taken from a minor road connected to the A712.
 - **Site tracks** – to provide access for construction and maintenance vehicles from the site access to the substation and wind turbines. These would be installed at the commencement of the construction phase and would remain until the end of the decommissioning phase. They would have a 5.0m running width with local widening on corners and would be surfaced with coarse aggregate. Depending

on localised ground conditions they would either be cut into, or floated above, the ground.

- **Temporary construction compound / storage area** – to provide a secure area for site office facilities and storage of materials and components. To be constructed adjacent to the site track, with a 50m x 30m hardcore base, surrounded by a security fence and locked gates. The fence and gates would be removed at the end of the construction phase and the hardcore base retained but allowed to re-vegetate.
- **Energy storage facility** – a battery storage facility would be installed on part of the temporary construction compound area. The MW capacity of this would be determined post-consent following wind turbine selection.
- **Crane hardstandings and outrigger pads** – to provide a level and firm base for the cranes at the location of each turbine. Each would be a maximum of 45m x 25m and surfaced with coarse aggregate.
- **Transformer housings** – the transformers to step up the voltage exported from each turbine (from 690V to 33kV) would either be placed within the wind turbines themselves, or in a small secure external transformer housing placed next to each wind turbine tower, depending on the final turbine choice.
- **High voltage and control cables** – to form power and control circuits linking each turbine to the on-site substation, cables would be placed in trenches (dimensions to be determined by ground conditions but typically 0.5m wide x 1m deep) routed alongside the tracks.
- **Substation building** – a 15m long by 10m wide single storey building, housing the switchgear and control equipment plus secure storage space.
- **Off-site highway works** – to facilitate wind turbine component delivery, various off-site highway works would be required along the proposed abnormal delivery route.

Grid Connection

- 4.2 A grid connection would be required to feed the electricity generated by the wind farm into the distribution network for the operational period of the project. The final details of the grid connection, including the precise route and an assessment of any impacts on the environment would be determined by the local Distribution Network Operator at a later date. The new grid connection may be subject to a separate design and consent process under Section 37 of the Electricity Act 1989.

Forestry Management

- 4.3 The Site includes an area of commercial forestry plantation. The Proposed Development would be developed in conjunction with the existing forestry management plans in place on the Site and allow for restocking and mitigation planting as necessary. The

design would consider the impacts of the associated forestry operations required as part of the Proposed Development and mitigation opportunities would be considered as appropriate.

- 4.4 The EIAR will include details of the existing forestry at the Site and consider the proposed turbine layout, manufacturer's requirements in relation to turbines relatively close to tree crops and the impacts on turbulence and turbine efficiency. It will also set out details of likely tree removal, early felling and short rotation practices.

Construction Phase

- 4.6 It is estimated that it would take approximately 12 months to construct the Proposed Development. Construction works would include:

- Temporary and permanent highway modifications to enable vehicles to access the Site from the local and strategic highway network;
- Construction of permanent new site tracks required to access the wind turbine positions. These would be used by civil engineering plant and construction equipment;
- Construction of a secure site compound / storage area for site office facilities and storage of materials and components;
- 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 cabling, communication cabling and earthing;
- Installation of Supervisory Control and Data Acquisition system;
- Construction of site substation;
- Commissioning of site mechanical and electrical equipment; and
- Reinstatement and landscaping, removal of temporary site offices, reseeding verges and areas around turbine bases.

- 4.7 The construction works would mainly follow the order detailed above but many activities may 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 of the Site while turbines were being erected elsewhere. In

order to minimise disruption to land use, site restoration would be undertaken as early as possible in development areas.

- 4.8 A detailed programme of works would be produced by the construction contractors prior to the commencement of works on Site.
- 4.9 Should planning permission be granted it is likely that construction hours would be restricted by means of a planning condition imposed by the Council.
- 4.10 Construction material would typically be transported by road from source or seaport. Large loads such as wind turbine components (rotor blades, tower sections and nacelles) would be transported to the Site by low loader using a designated route.

Decommissioning Phase

- 4.11 At the end of the operational period the wind farm would be decommissioned. This would involve the complete removal of the wind turbines, transformers, substation, switchgear and other equipment over a period of up to 12 months. The removal of the wind farm components would essentially be the reverse of the construction process.
- 4.12 Energiekontor UK Ltd would provide a decommissioning bank guarantee or insurance bond to ensure that sufficient funds are available at any time during the lifetime of the wind farm to enable all decommissioning works to take place.
- 4.13 The removal of the wind turbines at the end of the operational life of the wind farm would be the reverse of the erection process, involving similar cranes and procedures. The components would be removed off-site to be re-used elsewhere, dismantled and recycled or disposed of as appropriate.
- 4.14 The decommissioning of the turbine foundations would involve removing the upper part of the reinforced concrete foundation. This could be achieved by conventional construction equipment (e.g. excavator mounted pneumatic hammers etc.).
- 4.15 In order to achieve the removal of the upper section, which is approximately 1m deep, a 600mm wide trench would need to be excavated around the approximately 4m diameter upstand to facilitate access for removal of the concrete. All other parts of the foundation would remain in place and no other disturbance of the ground around the turbine would be required.
- 4.16 Once the upstand has been removed, the disturbed area would be reinstated by backfilling with site-derived materials to an agreed method statement, leaving the remaining portion of the foundation approximately 1m below ground level.

5 PLANNING POLICY CONTEXT

Introduction

- 5.1 This section of the Scoping Report sets out the planning policy context that is relevant to the Site and the Proposed Development. It includes:
- Dumfries and Galloway Council Local Development Plan;
 - The National Planning Framework 3;
 - Scottish Planning Policy; and
 - Other material considerations.
- 5.2 Relevant policies are considered in turn below.

Dumfries and Galloway Local Development Plan

- 5.1 The Dumfries and Galloway Local Development Plan 2 (DGCLDP2) (DGC, 2019), which was adopted October 2019, provides the development strategy, policies and proposals to encourage regeneration in the region over a 20 year period.
- 5.2 The DGCLDP2 includes Policy IN1: Renewable Energy, which is the primary policy on wind turbine development. This policy states:

“The Council will support development proposals for all renewable energy generation and/or storage which are located, sited and designed appropriately. The acceptability of any proposed development will be assessed against the following considerations:*

- *landscape and visual impact;*
- *cumulative impact;*
- *impact on local communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker;*
- *the impact on natural and historic environment (including cultural heritage and biodiversity);*
- *the impact on forestry and woodlands;*
- *the impact on tourism, recreational interests and public access.*

To enable this assessment sufficient detail should be submitted, to include the following as relevant to the scale and nature of the proposal:

- any associated infrastructure requirements including road and grid connections (where subject to planning consent);
- environmental and other impacts associated with the construction and operational phases of the development including details of any visual impact, noise and odour issues;
- relevant provisions for the restoration of the site;
- the scale of contribution to renewable energy generation targets;
- effect on greenhouse gas emissions; and
- net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.

** Acceptability will be determined through an assessment of the details of the proposal including its benefits and the extent to which its environmental and cumulative impacts can be satisfactorily addressed."*

5.3 The DGCLDP2 also includes a spatial framework to identify those areas that are likely to be most appropriate for onshore wind farms, following the requirements of the SPP paragraph 161. The spatial framework covers all wind turbines in excess of 20m to blade tip and Table 5 of DGCLDP2, reproduced below, sets out that elements included:

DGCLDP2 Table 5: Spatial Framework

Group 1: Areas where wind farms will not be acceptable

- NSAs

Group 2: Areas of Significant Protection

- Ramsar & Natura 2000
- World Heritage Sites (not directly)
- SPAs/SACs
- SSSIs
- NNRs
- Inventory of Gardens and Designed Landscapes
- Inventory of Historic Battlefields
- Wild land areas

- Carbon rich soils, deep peat and priority peatland (subject to recent SNH consultation)
- 2km area around settlements in the Plan with identified settlement envelope or edge

Group 3: Areas with potential for wind farm development

Areas beyond Groups 1 and 2, where wind farms are likely to be acceptable, subject to detailed consideration against all relevant plan policies.

5.4 Policy IN2 relates specifically to wind energy proposals. This policy states:

“Assessment of all Wind Farm Proposals

The Council will support wind energy proposals that are located, sited and designed appropriately. The acceptability of any proposed wind energy development will be assessed against the following considerations:*

Renewable energy benefits

The scale of contribution to renewable energy generation targets, effect on greenhouse gas emissions and opportunities for energy storage.

Socio-economic benefits

Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.

Landscape and visual impacts

- *The extent to which the landscape is capable of accommodating the development without significant detrimental landscape or visual impacts, including effects on wild land; and*
- *That the design and scale of the proposal is appropriate to the scale and character of its setting, respecting the main features of the site and the wider environment and that it addresses fully the potential for mitigation.*

Cumulative impact

The extent of any cumulative detrimental landscape or visual impact or impacts on existing patterns of development from two or more wind energy developments and the potential for mitigation.

Impact on local communities and residential interests

The extent of any detrimental impact on communities, including dwellings, residents and local amenity, including assessment of the impacts of noise, shadow flicker, visual dominance and the potential for associated mitigation.

Impact on infrastructure

The extent of which the proposal addresses any detrimental impact on road traffic, adjacent trunk roads and telecommunications, particularly ensuring transmission links are not compromised.

Impact on aviation and defence interests

The extent to which the proposal addresses any impacts arising from location within an area subject to potential aviation and defence constraints, including the Eskdalemuir Safeguard Area.

Other impacts and considerations

- a) *The extent to which the proposal avoids or adequately resolves any other significant adverse impact on the natural environment, including biodiversity, forests and woodland, carbon-rich soils, hydrology, the water environment and flood risk, the historic environment, cultural heritage, tourism and recreational interests and public access.*
- b) *The extent to which the proposal addresses any physical site constraints and appropriate provision for decommissioning and site restoration.*

Further details on this assessment process, including its application to smaller wind farms and more detailed development management considerations, are provided through supplementary guidance on Wind Energy Development. This will also include separate mapping of the constraints relevant to the considerations above.

*The Spatial Framework Map** (Map 8) provides strategic guidance. However, it must be read in conjunction with the supplementary guidance and its Appendix, the Dumfries and Galloway Wind Farm Landscape Capacity Study. The landscape capacity study is a supportive study, the consideration of which does not replace the need to assess the landscape or visual impacts of individual proposals.*

** Acceptability will be determined through an assessment of the details of the proposal including its benefits and the extent to which environmental and cumulative impacts can be addressed satisfactorily.*

*** The Spatial Framework Map relates to one turbine or more over 20 metres,"*

The National Planning Framework 3

- 5.5 National Planning Framework 3 (NPF3) was published on 23 June 2014. NPF3 is a long term strategy for Scotland and is the spatial expression of the Government's Economic Strategy and plans for development and investment in infrastructure. Together, NPF3 and Scottish Planning Policy applied at the strategic and local levels are intended to help the planning system deliver the Government's vision and outcomes for Scotland and to contribute to the Government's central purpose.

5.6 The general and high level support for renewables is provided through the 'vision' which is referred to as inter alia:

- A successful, sustainable place – “we have a growing low carbon economy which provides opportunities...”
- A low carbon place – “we have seized the opportunities arising from our ambition to be a world leader in low carbon generation, both onshore and offshore...”
- A natural resilient place – “natural and cultural assets are respected, they are improving in condition and represent a sustainable economic, environmental and social resource for the nation...”

5.7 Further support is provided in Chapter 3 'A Low Carbon Place' which sets out the role that planning will play in delivering the commitments set out in 'Low Carbon Scotland: The Scottish Government's Proposals and Policies'. It states:

“the priorities identified in this spatial strategy set a clear direction of travel which is consistent with our world leading climate legislation.”

5.8 The introduction to Chapter 3 states that the Government's ambition “is to achieve at least an 80% reduction of greenhouse gas emissions by 2020”.

5.9 The introductory section acknowledges that, at present, the energy sector accounts for a significant share of the country's greenhouse gas emissions and a planned approach to development has ensured that onshore wind development has widely avoided internally and nationally protected areas.

5.10 Paragraph 37 states that whilst there is strong public support for wind energy as part of the renewable energy mix, opinions about onshore wind in particular locations can vary. It adds that the technology is “...recognised as an opportunity to improve the long term resilience of rural communities.”

5.11 Paragraph 3.8 makes reference to targets and states that by 2020, the aim is to reduce total energy demand by 12%. In order to achieve this, and to maintain energy supplies, further diversification of supplies will be required.

5.12 It adds that the Government's aim is to meet at least 30% of overall energy demand from renewables by 2020 – this includes generating the equivalent of at least 100% of gross consumption from renewables with an interim target of 50 by 2015.

5.13 Paragraph 3.9 states:

“Our Electricity Policy Statement sets out how our energy targets will be met. We are making good progress in diversifying Scotland's energy generation capacity, and lowering the carbon emissions associated with it, but more action is needed. Maintaining security of supplies and addressing fuel poverty remain key objectives. We want to continue to capitalise on our wind resource and for Scotland to be a world leader of offshore renewable energy. In time we expect the pace of onshore wind energy development to be overtaken by a growing focus on our significant marine energy opportunities including wind, wave and tidal energy.”

- 5.14 Overall it is clear that onshore wind development is recognised as a key technology in the energy mix which will contribute to Scotland becoming 'a low carbon place' which in turn will be a key part of the 'Vision' for Scotland (as set out at paragraph 1.2 of the NPF3). Furthermore, the Government has made it unequivocally clear that it wants to continue to "capitalise on our wind resource". The Proposed Development would contribute to the unmet 2020 target set out in NPF3.

The National Planning Framework 4 – Position Statement

- 5.15 National Planning Framework 4 (NPF4) is being prepared by the Scottish Government to replace NPF3 and SPP and will represent a new National Plan and will become part of the statutory Development Plan. The NPF4 'Position Statement' was published by the Scottish Government on 26th November 2020.
- 5.16 A call for ideas for NPF4 was undertaken by the Scottish Government in early 2020 and the Position Statement *"sets out our current thinking to inform further discussions on the content of a draft revised framework for consultation. It aims to support those discussions and is not, in itself, a document setting out policy"*.
- 5.17 The Statement makes it clear that the current NPF3 and SPP *"remain in place until NPF4 is adopted by Ministers"*. Page 40 of the Statement states however that *"the Position Statement provides an idea of the direction of travel"* to inform a full draft of NPF4.
- 5.18 The plan looks ahead to 2050 and it is clear that a central element is a planning approach to deliver 'net-zero' emissions. The introductory section entitled 'Our Future Places' states that:
- *"a significant shift is required to achieve net-zero emissions by 2045"; and that*
 - *"we will have to rebalance the planning system so that climate change is a guiding principle for all plans and decisions"*.
- 5.19 It is also clear that a central part of the new policy approach will be to help stimulate the green economy.

Scottish Planning Policy

- 5.20 On 23 June 2014 the Scottish Ministers published 'Scottish Planning Policy' (SPP). The purpose of the SPP is to set out national planning policies which reflect Scottish Government Minister's priorities for the operation of the planning system and for the development and use of land. The SPP is a statement of Scottish Government policy on how nationally important land use planning matters should be addressed.
- 5.21 Paragraph (iii) states that as a statement of Ministers' priorities, the content of the SPP is a material consideration that carries significant weight, although it is for the decision maker to determine the appropriate weight to be afforded to it in each case.
- 5.22 Paragraph 13 of SPP introduces four planning outcomes which explain "how planning should support the vision" for the planning system in Scotland. Three of these outcomes are particularly relevant, namely:

- Outcome 1: a successful sustainable place – supporting sustainable economic growth and ... the creation of well designed, sustainable places;
- Outcome 2: a low carbon place – reducing our carbon emissions and adapting to climate change; and
- Outcome 3: a natural, resilient place – helping to protect and enhance our natural and cultural assets, and facilitating their sustainable use.

5.23 Outcome 2 'A Low Carbon Place' explains that NPF3 will facilitate the transition to a low carbon economy, particularly by supporting diversification of the energy sector. Paragraph 18 makes reference to the Climate Change (Scotland) Act 2009 which has set a target of reducing greenhouse gas emissions by at least 80% by 2050, with an interim target of reducing emissions by at least 42% by 2020. SPP explains that Section 44 of the 2009 Act places a duty on public bodies to act in the best way to contribute to the delivery of emissions targets as set out in the Act, and to help deliver the Scottish Government's climate change adaptation programme.

5.24 SPP contains two Principal Policies, namely 'sustainability' and 'placemaking'. Sustainability is addressed at page 9. The SPP states at paragraph 24 that:

"the Scottish Government's central purpose is to focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth."

5.25 Paragraph 25 adds that the Scottish Government's commitment to the concept of sustainable development is reflected in its Purpose.

5.26 Paragraph 27 cross refers to the Government's Economic Strategy which it states "indicates that sustainable economic growth is the key to unlocking Scotland's potential ... and to achieving a low carbon economy..." It also makes reference to the need to maintain a high quality environment and to pass on "a sustainable legacy for future generations".

5.27 A key 'Policy Principle' in SPP is the following statement set out at paragraph 27:

"This SPP introduces a presumption in favour of development that contributes to sustainable development".

5.28 Paragraph 28 continues:

"the planning system should support economically, environmentally and socially sustainable places by enabling development that balances the costs and benefits of a proposal over the longer term. The aim is to achieve the right development in the right place; it is not to allow development at any cost."

5.29 Paragraph 29 of SPP sets out that policies and decisions should be guided by a number of principles. Those of relevance include:

- Giving due weight to net economic benefit;

- Supporting good design;
- Supporting delivery of infrastructure, for example ... energy;
- Supporting climate change mitigation and adaptation including taking account of flood risk;
- Having regard to the principles for sustainable land use as set out in the Land Use Strategy;
- Protecting, enhancing and promoting access to cultural heritage, including the historic environment;
- Protecting, enhancing and promoting access to natural heritage including ... landscape and the wider environment; and
- Protecting the amenity of new and existing development and considering the implications of development for water, air and soil quality.

5.30 The introduction of the presumption in favour of development that contributes to sustainable development has important consequences for development management practice. Paragraphs 32 and 33 of SPP explain how this Policy Principle is given effect in development management.

5.31 Paragraph 32 states that the “presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision-making”. SPP directs decision makers as follows:

“proposals that accord with up-to-date plans should be considered acceptable in principle and consideration should focus on the detailed matters arising...”

5.32 Paragraph 33 adds:

“Where relevant policies in a development plan are out-of-date or the plan does not contain policies relevant to the proposal, then the presumption in favour of development that contributes to sustainable development will be a significant material consideration. Decision-makers should also take into account any adverse impacts which would significantly and demonstrably outweigh the benefits when assessed against the wider policies in this SPP. The same principle should be applied where a development plan is more than five years old.”

5.33 SPP addresses ‘A Low Carbon Place’ as a ‘subject policy’ on page 36 and refers to ‘delivering electricity’. Paragraph 152 refers to the NPF context and states that NPF3 is clear that planning must facilitate the transition to a low carbon economy and help to deliver the aims of the Scottish Government. It is stated that Scotland has significant renewable energy resources, both onshore and offshore.

5.34 Paragraph 153 states that terrestrial planning ‘facilitates’ development of renewable energy technologies and guides new infrastructure to appropriate locations. It adds that “efficient supply of low carbon and ... generation of ... electricity from renewable energy sources are vital to reducing greenhouse gas emissions...” It explains that renewable energy also presents a significant opportunity for associated development, investment and growth of the related supply chain.

5.35 In terms of 'Policy Principles', paragraph 154 sets out that the planning system should:

- Support the transformational change to a low carbon economy, consistent with national objectives and targets, including deriving:
 - 30% of overall energy demand from renewable sources by 2020;
 - The equivalent of 100% of electricity demand from renewable sources by 2020.
- Support the development of a diverse range of electricity generation from renewable energy technologies – including the expansion of renewable energy generation capacity;
- Guide developments to appropriate locations and advise on the issues that will be taken into account when specific proposals are being assessed.

5.36 Onshore wind is specifically addressed at Paragraph 16,1 *et seq.* of SPP. Detailed guidance is provided for planning authorities with regard to the preparation of spatial frameworks for onshore wind development, and it makes it clear that proposals for onshore wind turbine development should continue to be determined whilst spatial frameworks and local policies are being prepared and updated.

5.37 In terms of spatial framework guidance, a 'community separation for consideration of visual impact' is set out as 'an area not exceeding 2km around cities, towns and villages identified on the local development plan with an identified settlement envelope or edge'.

5.38 As with the previous SPP, this separation distance has the purpose of guiding the preparation of Spatial Frameworks and does not impose any requirement for a 'set back' to settlements or in relation to individual properties for wind farms in terms of development management.

5.39 Table 1: *Spatial Frameworks* of the SPP (as replicated below in Table 5.1) identifies three separate 'Groups' to help local planning authorities develop spatial frameworks for encouraging wind farm development. These are 'areas where wind farms will not be acceptable' (Group 1), 'areas of significant protection' (Group 2) and 'areas with potential for wind farm development' (Group 3).

5.40 The majority of the Site is located within Group 3.

Group 1: Areas where wind farms will not be acceptable: National Parks and National Scenic Areas.		
Group 2: Areas of significant protection: Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.		
National and international designations: • World Heritage Sites; • Natura 2000 and Ramsar sites; • Sites of Special Scientific Interest; • National Nature Reserves; • Sites identified in the Inventory of Gardens and Designed Landscapes; • Sites identified in the Inventory of Historic Battlefields.	Other nationally important mapped environmental interests: • areas of wild land as shown on the 2014 SNH map of wild land areas; • carbon rich soils, deep peat and priority peatland habitat.	Community separation for consideration of visual impact: • an area not exceeding 2km around cities, towns and villages identified on the local development plan with an identified settlement envelope or edge. The extent of the area will be determined by the planning authority based on landform and other features which restrict views out from the settlement.
Group 3: Areas with potential for wind farm development: Beyond groups 1 and 2, wind farms are likely to be acceptable, subject to detailed consideration against identified policy criteria.		

Table 5.1: Spatial Frameworks

5.41 In terms of development management, paragraph 169 of the SPP sets out that “proposals for energy infrastructure developments should always take account of spatial frameworks for wind farms” and that considerations will vary relative to the scale of the proposal and characteristics of the area but are likely to include a number of matters, including:

- Net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities;
- The scale of contribution to renewable energy generation targets;
- Effect on greenhouse gas emissions;
- Cumulative impacts – planning authorities should be clear about the likely cumulative impacts arising from all of the considerations below;
- Impacts on communities and individual dwellings, including visual impact, residential amenity, noise and shadow flicker;
- Landscape and visual impacts, including effects on wild land;
- Effects on the natural heritage, including birds;
- Impacts on carbon rich soils, using the carbon calculator;
- Public access, including impact on long distance walking and cycling routes and scenic routes identified in the NPF;
- Impacts on the historic environment, including scheduled monuments, listed buildings and their settings;
- Impacts on tourism and recreation;

- Impacts on aviation and defence interests and seismological recording;
- Impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;
- Impacts on road traffic;
- Impacts on adjacent trunk roads;
- Effects on hydrology, the water environment and flood risk;
- The need for conditions relating to the decommissioning of developments, including ancillary infrastructure, and site restoration;
- Opportunities for energy storage; and
- The need for a robust planning obligation to ensure that operators achieve site restoration.

5.42 Paragraph 170 of SPP sets out that areas identified with wind farms should be suitable for use in perpetuity. It further adds that consent may be time limited, but nevertheless wind farms should be sited and designed to ensure impacts are minimised and to protect an acceptable level of amenity for adjacent communities.

Other Material Considerations

Supplementary Guidance, Part 1 Wind Energy Development: Development Management Considerations

- 5.43 DGC has published Supplementary Guidance (SG) on the development and management considerations of wind turbine developments (DGC, 2017). DGC is in the process of revising this SG.
- 5.44 The SG states that DGC will, when considering wind energy proposals, pay particular attention to development proposals within or affecting areas designated for their landscape qualities and to how the proposals would impact on the special qualities and/ or reasons for such designations. The guidance also reiterates and expands upon DGC's criteria for considering potential cumulative impacts and effects on local communities.
- 5.45 Appendix C of the SG includes a Dumfries and Galloway Wind Farm Landscape Capacity Study (DGWLCS) prepared initially in 2011 and revised several times with the latest edition adopted in 2017. The latest DGWLCS assesses 'inherent' landscape sensitivity, the capacity of individual landscape units to accommodate change and provides advice on how the scale, siting and design of development should be informed by local landscape character. The DGWLCS incorporates amended development size typologies, and relates to turbines of 80-150m to tip now being considered 'Large' and those >150m as 'Very Large'.
- 5.46 It also includes an appraisal of the cumulative landscape and visual effects of existing and consented wind turbine developments within Dumfries and Galloway (at the time of its publication), and recommendations as to where such development is considered to have reached an extent that it is now a constraint to further wind turbine development.

- 5.47 The Site is located within LCT 18: Foothills – Dalmacallan. The DGWLCS describes the 'Dalmacallan foothills as forming a gently undulating basin with occasional more pronounced and isolated small hills. This landscape has a medium to large scale and a simple land cover of rough grassland, coniferous woodland and some enclosed pasture. Loch Urr forms a focus and is fringed by some more diverse wetland. It is a sparsely settled landscape with a few widely dispersed hill farms. These foothills lie adjacent to settled lowland landscapes where they are important in providing a backdrop of often rugged open hills to these more patterned, managed and smaller scale landscapes.
- 5.48 The DGWLCS indicates that this LCT has a high sensitivity to 'large' turbines and states 'There is no scope for the 'large' typology to be sited without incurring significant impacts on a number of key sensitivity criteria'. However it is worth noting that various appeal decisions have noted that the weight to be applied to capacity studies should be limited, as they are not site specific. For example in the case of the Kirk Hill Appeal Decision Notice (PPA-370-2052) Mr C Warren, Reporter stated that *"it would be unjustifiably simplistic to draw any conclusions on acceptability of wind turbine developments (which the capacity study attempts for each character type), in the absence of a full assessment of proposals on a case by case basis"*

Onshore Wind Policy Statement Refresh 2021: Consultative Draft

- 5.49 In October 2021, Scottish Government began consulting on a refresh to the Onshore Wind Policy Statement, originally published in 2017. The consultation seeks views on Scottish Government's ambition to secure an additional 8-12 GW of installed onshore wind capacity by 2030, how to tackle the barriers to deployment, and how to secure maximum economic benefit from these developments.
- 5.50 The document states that *"The transition to net zero means that our demand for green electricity will increase substantially over the course of the next decade. This means that a consistently higher rate of onshore wind, and other renewables capacity, will be required year on year."* Further stating that *"This will be enabled in part by a strong, supportive policy environment from the Scottish Government, particularly one which mitigates preventable barriers"*.
- 5.51 Similar to the NPF4 position statement, the wording in this document reinforces a direction of travel and reiterates the importance of advancing the green economy in Scotland towards net zero.
- 5.52 The following other relevant material considerations, would also be considered as part of any future application:
- International Renewable Energy Policy Framework;
 - UK Carbon and Renewable Energy Policy and Targets; and
 - Scottish Government Web Based Renewable Guidance

Summary

- 5.53 In summary:

- It is clear from NPF3 that onshore wind development is recognised as a key technology in the energy mix which will contribute to Scotland becoming 'a low carbon place' which in turn is a key part of the 'vision' for Scotland.
- The Government has made it unequivocally clear that it wants to continue to "capitalise on our wind resource".
- The Onshore Wind Policy Statement Refresh 2021: Consultative Draft and NPF4 position statement both reinforce a direction of travel that reiterates the importance of advancing the green economy in Scotland towards net zero.
- SPP sets out continued support for onshore wind in a similar manner to the previous SPP.
- SPP also now sets out a presumption in favour of development that contributes to sustainable development.
- The presumption in favour is an important new aspect of national planning policy and material to the consideration of planning applications.
- Planning policy at the local level sets out a range of planning considerations which are of particular relevance to wind farm development near Collieston.

6 EIA ASSESSMENT METHODOLOGY

Introduction

- 6.1 Significant effects are predicted where important resources, or numerous sensitive receptors, could be subject to impacts of considerable magnitude. Effects are unlikely to be significant where low value of non-sensitive resources, or a small number of receptors, are subject to minor impacts.
- 6.2 The methods for predicting the nature and magnitude of any potential impacts vary according to the subject area. Quantitative methods of assessment can predict values that can be compared against published thresholds and indicative criteria in Government guidance and standards. However, it is not always possible to ascribe values to environmental assessments and thus qualitative assessments are used. Such assessments rely on previous experience and professional judgement. The methodologies used for assessing each topic area will be described within the individual chapters of the EIAR.
- 6.3 The following criteria will be used to evaluate the significance of potential impacts of the Proposed Development.
- Sensitivity, importance or value of the resource or receptor;
 - Extent and magnitude of the impact;
 - Duration of the impact;
 - Nature of the impact;
 - Performance against environmental quality standards; and
 - Compatibility with environmental policies.
- 6.4 Table 6.1 below illustrates how the criteria will be used to assign a level of significance to potential impacts.

		Magnitude of change				
		Very High	High	Medium	Low	Very Low
Sensitivity	Very High	Substantial	Substantial	Substantial / Moderate	Moderate	Moderate / Slight
	High	Substantial	Substantial	Moderate	Moderate / Slight	Slight
	Medium	Substantial / Moderate	Moderate	Moderate	Moderate / Slight	Slight
	Low	Moderate	Moderate / Slight	Moderate / Slight	Slight	Slight / No Effect
	Very Low	Moderate / Slight	Slight	Slight	Slight / No Effect	No Effect
			Significant			
			May be Significant			
			Not Significant			

Table 6.1: Significance matrix

- 6.5 In addition, where no topic-specific guidance/regulations exist, the descriptors of significance set out in Table 6.2 below will generally be used.

Significance Category	Typical Descriptors of Effect
Substantial	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a serious change in a site or feature of district importance may also enter this category.
Moderate / Substantial	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	These beneficial or adverse effects may be important, but are not likely to be key decision-making factors. The cumulative effects of such issues may become a decision-making issue if leading to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local issues. They are unlikely to be critical in the decision-making process, but are important in enhancing the subsequent design of the project.
No Effect / Slight	No effects or those that are beneath levels of perception, within normal bounds of variation or

	within the margin of forecasting error.
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Table 6.2: Descriptors of significance

EIAR Structure

6.6 The EIAR structure is likely to be as set out below, subject to any changes to the scope identified through the consultation process:

- A description of the project;
- An outline of the main alternatives studies and an indication of the main reasons for choosing the preferred option;
- An outline of the planning and renewable energy policy context that is relevant to the Proposed Development;
- Individual environmental assessment topic chapters, including:
 - Landscape and visual effects
 - Archaeology and cultural heritage
 - Ornithology
 - Ecology
 - Noise
 - Traffic and transport
 - Hydrology, hydrogeology and geology
 - Forestry
 - Infrastructure
 - Socio-economics
- A description of the mitigation measures required to prevent, reduce and, where possible, offset any significant adverse effects on the environment. Enhancement measures where possible will also be included.
- An indication of any difficulties or uncertainties encountered in compiling the EIAR.

6.7 Each chapter of the EIAR, where practicable, will adopt a consistent format. This will ensure compliance with the EIA Regulations regarding completeness and accuracy. Where applicable each chapter will comprise an opening introduction to the topic followed by:

- Methodology, Consultation and Legislation / Policy / Guidance;
- Environmental Baseline (derived from desk studies and surveys undertaken);
- Impact Assessment (identification of the impacts and their significance);
- Mitigation (and monitoring as appropriate);

- Residual Effects (assessment of impact significance once mitigation has been incorporated); and
- Summary.

6.8 The EIAR will also include a Non-Technical Summary and supporting technical appendices including tables, figures and reports.

Mitigation

- 6.9 Part 2 of Schedule 4 of the EIA Regulations provides that an EIAR must contain a description of the measures envisaged in order to avoid, reduce and if possible remedy significant adverse effects.
- 6.10 As outlined in the Institute of Environmental Management and Assessment (IEMA) EIA guidelines, there is a widely accepted strategy for mitigation which will be followed when considering the environmental effects of the Proposed Development. This comprises (in order of preference) avoidance, reduction, compensation and remediation. In addition, consideration will be given to providing the opportunity for enhancement.
- 6.11 Any mitigation proposed will be described clearly within the EIAR. The mitigation will be achievable and will be delivered through appropriate mechanisms.

7 SCOPE OF THE EIA

Introduction

- 7.1 Schedule 3 of the EIA Regulations outlines the selection criteria for determining whether 'Schedule 2 Development' is 'EIA Development'. These criteria are expanded upon in Schedule 4, which sets out in Part II certain information that must be included in an EIAR and in Part I information that may reasonably be required to assess the effect of the proposed development. Furthermore, the 1997 Directive on EIA identified in Article 3 that:

"The environmental impact assessment shall identify, describe and assess in an appropriate manner...the direct and indirect effects of a project on the following factors:

- *Human beings, fauna and flora;*
- *Soil, water, air, climate and the landscape;*
- *Material assets and the cultural heritage;*
- *The interaction between the factors mentioned in the first, second and third indents."*

- 7.2 Based on this guidance, experience of similar projects elsewhere and consultation with specialist advisors and consultees, we consider below the Schedule 3 selection criteria in the context of Schedule 4 to define the broad scope of the EIA.

Human Beings

i) Society and Economy

- 7.3 Socio-economic impacts associated with wind farm developments primarily relate to job creation, use of local services and income spent in the locality of a project. This section of the EIAR will consider the likely impacts of the proposal on the economic profile of the area, including short term job opportunities.

Proposed Scope of Assessment

- 7.4 The EIA will consider the effects of the Proposed Development on employment and the economy. This will include the employment opportunities for local suppliers with relevant construction and maintenance experience during the construction and operational phases of the development. The EIAR will focus on short and long term employment opportunities and input from the Proposed Development into the local economy (expenditure in shops / local services etc).
- 7.5 It is unlikely that the Proposed Development would give rise to any significant effects on land management practices.

- 7.6 It is considered that the potential effects upon tourism would be minor and therefore will be scoped out of the EIA.

Methodology

- 7.7 A baseline study will be undertaken to identify the socio-economic characteristics of the local area along with any recreational receptors.
- 7.8 Effects on use of recreational assets (e.g. the Southern Upland Way) and other leisure and tourism attractions in the surrounding area due to visual impact, traffic, noise and shadow flicker will be dealt with in the technical assessments discussed in the relevant sections below.

ii) Transportation

- 7.9 This section of the EIAR will identify the preferred route(s) for access to the Site and will consider the potential effects of traffic generated during the construction, operation and decommissioning of the wind farm, including identification of possible measures to minimise any disruption to the highway network.

Baseline

- 7.10 The study area for the traffic and transport assessment will effectively be the public highway network in the vicinity of the Site which would be used during the construction and operation of the wind farm. If available, traffic count data will be sourced from the local highways authority.

Potential Effects

- 7.11 The potential effects associated with traffic and transport during construction are anticipated to be:
- The effects of construction traffic on existing traffic flows on public highways;
 - The effects of construction traffic on the public highways and adjacent infrastructure ('wear and tear').

Proposed Scope of Assessment

- 7.12 The scope of the assessment would be agreed in advance with the local highways authority. It is currently proposed that the assessment would include the following key elements:
- Route Access Description – to confirm the preferred route(s) to site for the transportation of wind turbine components (abnormal loads) and other construction vehicles (heavy goods vehicles and light vehicles), together with a description of any physical works that would be required to facilitate access; and

- Impact assessment – using traffic count data for the strategic and local road networks to assess the predicted increase in vehicle numbers resulting from the Proposed Development and determine whether this increase would be significant.

7.13 It is considered that the following can be scoped out of the EIA:

- The effects of operational traffic on existing traffic flows;
- The environmental effects of any physical works required to facilitate turbine component delivery; and
- The environmental effects of traffic generated by the Proposed Development during decommissioning. The volume of decommissioning-related traffic is anticipated to be less than the level experienced during the construction phase and could more accurately be estimated at a later date.

Methodology

7.14 The traffic and transport section of the EIAR will consider baseline conditions, the transport and traffic impacts and proposed mitigation measures as appropriate. The work will be undertaken in accordance with relevant transportation guidelines and standards, including:

- Institute of Environmental Assessment (now IEMA) (1993) Guidelines for the Environmental Assessment of Road Traffic.
- Institute of Highways and Transportation (1994) Guidelines for Traffic Impact Assessment.

7.15 The IEMA guidelines are intended for the assessment of the environmental impact of road traffic associated with major new developments. These guidelines are considered suitable to assess the short term construction phase of the development.

7.16 It is not anticipated that a formal Transport Assessment (TA) will be required as TAs are not generally considered necessary for temporary construction works. The likely traffic movements associated with the operation of the wind farm are also not considered high enough to warrant a TA.

Design and Mitigation

7.17 Where significant effects are identified, measures to prevent, reduce and, where possible, offset those adverse effects will be proposed. Measures likely to be utilised include:

- Instructing abnormal loads and HGVs, including site personnel as appropriate, to use only the approved access route(s) to the Site.

- No parking of construction plant, equipment and vehicles off-site on public highways.
- Establishing a construction traffic management plan for the development which could be secured via a suitably worded planning condition.

iii) Noise and Vibration

Baseline

- 7.18 The Site is near to a number of other consented, operational and planned wind farms which may contribute to the existing noise environment to a greater or lesser extent at nearby residential properties depending on location, wind speed and wind direction. Other noise in the area is likely to be from traffic, animals and birds and from wind around trees and foliage, depending on wind speed.

Potential Effects

- 7.19 Noise will occur during the construction, operation and decommissioning of the Proposed Development in conjunction with that from other existing and consented wind farms in the area. The extent to which this is significant depends on the noise sources, the distance of each of the noise sources to potential receptors and the relative contribution of noise from existing sources.
- 7.20 Potential receptors in this case are considered to be residential properties. During the construction and decommissioning phases, the effects can be divided into noise from on-site activities and from construction traffic accessing the Site. During operation, noise is generated by the turbines as they rotate, with noise output depending on wind speed.
- 7.21 For on-site construction noise and operational noise at different wind speeds, the levels received at residential properties will depend on wind direction.
- 7.22 Vibration effects from construction activities and during operation will not be perceptible at residential properties and will be scoped out of the EIA.

Proposed Scope of Assessment

- 7.23 Noise emitted during the construction and decommissioning phases would be temporary and short term in nature and can be minimised through careful construction practices. Whilst it is possible that some noise may be audible at the nearest properties during the construction and decommissioning phases, the effective control of these impacts can be achieved by way of a suitable planning condition.
- 7.24 No assessment of operational traffic noise is anticipated given the low number of journeys to and on the Site for routine maintenance.
- 7.25 For operational noise, the EIAR will assess the maximum sound power level specified for a particular turbine type in order to assess a worst case scenario. If the modelling exercise shows that sound power levels will need to be reduced to achieve acceptable noise

levels at sensitive locations, then the EIAR will examine possible mitigation measures which may include the use of quieter turbines, increasing standoff distances, installing measures to monitor and, if necessary, using noise reduced modes in certain wind conditions.

- 7.26 Like all wind-related noise, operational noise from turbines increases with wind speed. The EIAR will therefore compare the existing background noise levels with the calculated predicted noise levels over the range of wind speeds expected at the Site using the methodology set down in ETSU-R-97. The wind farm will be designed to fully comply with the requirements of ETSU-R-97 and, whilst noise associated with the operation of the proposed wind turbines may be audible at some locations under certain conditions, the noise generated would be within the ETSU-R-97 limits and would be deemed acceptable.

Methodology

- 7.27 ETSU-R-97 details a methodology for establishing noise limits for proposed wind farm developments and these limits should not be exceeded. It requires that noise limits should be set relative to existing background noise levels at the nearest receptors and that these limits should reflect variation in both turbine source noise and background noise with wind speed. Separate noise limits apply for quiet daytime and for night time. Quiet daytime limits are chosen to protect a property's external amenity, and night time limits are chosen to prevent sleep disturbance indoors, with windows open.
- 7.28 The assessment will include predictions of likely wind turbine noise levels, based on a candidate turbine, across a range of speeds to demonstrate compliance with the noise limits.
- 7.29 Once the potential noise effects of the Proposed Development operating on its own have been determined it will be necessary to evaluate the cumulative effect when considered alongside the existing operational, consented and proposed sites. Critical to this cumulative assessment is the amount of noise which the Proposed Development would add to that from such sites. It is proposed that only locations where the Proposed Development makes a significant contribution (>1dB) need to be assessed in terms of cumulative noise impact. Once this proposed screening factor is taken into account, cumulative impact will be evaluated by comparing the overall cumulative wind farm noise level with limits agreed with the Council.
- 7.30 Assessment methodology for noise from construction work is described in BS5228. Principal noise sources during construction include track laying, excavation works and turbine foundation works.

Design and Mitigation

- 7.31 For operational noise, the proposed turbine layout will be designed to comply with the noise limits established in accordance with ETSU-R-97.
- 7.32 There are a range of turbine makes and models that may be appropriate for the Proposed Development. The final selection of turbine is likely to follow a competitive

tendering exercise once consent for the Proposed Development has been granted. The final turbine model may therefore differ from that on which the assessment is based. However, the final choice of turbine will be required to comply with the noise limits established in the ETSU-R-97 assessment.

- 7.33 For construction noise, it is unlikely that any form of mitigation will be required unless any major site access track works are required in the very close vicinity of residential properties which would normally be avoided. Normal, generic mitigation measured would be incorporated into site design by avoiding track proximity to residential properties, following good practice in construction techniques including avoiding work out of normal day-time construction hours wherever possible.

iv) Radio-communication and Television

- 7.34 This section of the EIAR will assess the potential effects of the Proposed Development upon established telecommunications transmissions. This will include the identification of potential interference with television and radio reception and fixed microwave communication links for mobile phones and other data transfer.

Baseline

- 7.35 The Office of Communications (Ofcom) is responsible for the licensing of two-way radio transmitters. It holds a register of most microwave links and will therefore be consulted in order to establish baseline conditions. However, because not all microwave links are published, system operators will also be individually consulted on the Proposed Development's potential to cause electromagnetic interference. The outcome of this consultation process, including any mitigation actions taken, will be detailed in the EIAR.

Potential Effects

- 7.36 Wind turbines can cause electromagnetic interference in two ways:
- Physical interference – where the blades of the turbine cut across an electromagnetic signal causing a 'ghosting' effect. This may affect television signals or radar; and
 - Electrical interference – caused by the operation of the generator within the nacelle of the turbine. This may effect communication equipment in close proximity to the turbine.

Proposed Scope of Assessment

- 7.37 The assessment of potential impacts on telecommunications links will comprise a thorough consultation exercise to establish any potential impacts of the Proposed Development. Consultation will be ongoing throughout the EIA process.
- 7.38 With regards to the potential for interference with local television reception, it is possible for mitigation to be provided via a commitment from the developer to undertake remedial action (usually the installation of new television equipment or the repositioning

of aerals) where effects have occurred. This commitment is usually secured via a planning condition.

Design and Mitigation

- 7.39 Microwave links are less susceptible to electromagnetic interference due to their directional nature and siting wind turbines away from any line of sight transmission paths will minimise potential interference. Where possible, any potential effects on radio-communication links will be mitigated through the turbine layout design stage by the use of exclusion zones around any link paths.

v) Aviation

- 7.40 This section of the EIAR will consider the effects of the Proposed Development upon civilian and military radar.

Baseline

- 7.41 There are a number of aviation interests in the area which could potentially be affected by the Proposed Development, including Air Traffic Control (ATC) radars.

Potential Effects

- 7.42 ATC radar can be susceptible to interference from wind turbines. The height and blade movement can cause intermittent detection by radars within their operating radius. This is particularly relevant where there is a line of sight between the radar and the wind turbine development. Due to their height, wind turbines can also impact upon airports and airfields if they protrude into the safeguarding distance above and around them.

Proposed Scope of Assessment

- 7.43 The EIAR will include a description of military and civilian aeronautical and radar issues relating to the Proposed Development. Consultation will be undertaken during the development process once the locations of the turbines have been finalised with appropriate interested parties.
- 7.44 The EIAR will present the findings of these consultations and all responses received, as well as any predicted impacts on aviation and mitigation required.

vi) Shadow Flicker

Potential Effects

- 7.45 Shadow flicker is a phenomenon where, under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off. It only occurs inside buildings where the flicker appears through a narrow window opening.

Proposed Scope of Assessment

- 7.46 A shadow flicker assessment will be undertaken to determine the extent to which any residential or other sensitive property would be affected by shadow flicker. Any potential shadow flicker effects will be quantified using a computer model. Flicker effects are generally only expected to occur within a distance of ten rotor diameters of the wind turbines, therefore, the assessment will only consider residential properties within this distance. If there are no properties within ten rotor diameters of the final wind turbine positions then no shadow flicker assessment will be undertaken.

Design and Mitigation

- 7.47 If necessary, potential mitigation measures could include screening or the use of shadow flicker modules in the wind turbines which automatically cause them to stop operating under the conditions that would give rise to shadow flicker at a sensitive receptor. This could be secured via a suitably worded planning condition.

Flora and Fauna

- 7.48 This section of the EIAR will consider the likely ecological and ornithological impacts associated with the Proposed Development. Effects on a range of ecological receptors, including key habitats and species, will be included. Avoidance, mitigation, enhancement and habitat creation will be proposed.

Baseline

- 7.49 The Site principally consists of open moorland and commercial plantation woodland, which is generally of low ecological value, and supports an ornithological and ecological assemblage typical to this area.
- 7.50 No statutory sites of international or national importance for ecological interests are present within the Site, or within 5km. Statutorily protected sites for ornithological interests within 25km of the Site are detailed in Table 7.1 below.

Site Name and Designation	Designation Interest	Distance to Site (approximately)
SSSI		
Castle Loch	Goosander (<i>Mergus merganser</i>), non-breeding; Greylag goose (<i>Anser anser</i>), non-breeding; Pink-footed goose (<i>Anser brachyrhynchus</i>), non-breeding; and Breeding bird assemblage.	25km E
Upper Solway Flats and Marshes	Bar-tailed godwit (<i>Limosa lapponica</i>), non-breeding; Curlew (<i>Numenius arquata</i>), non-breeding;	19km SE

	Dunlin (<i>Calidris alpina alpina</i>), non-breeding; Golden plover (<i>Pluvialis apricaria</i>), non-breeding; Goldeneye (<i>Bucephala clangula</i>), non-breeding; Grey plover (<i>Pluvialis squatarola</i>), non-breeding; Knot (<i>Calidris canutus</i>), non-breeding; Oystercatcher (<i>Haematopus ostralegus</i>), non-breeding; Pintail (<i>Anas acuta</i>), non-breeding; Redshank (<i>Tringa totanus</i>), non-breeding; Ringed plover (<i>Charadrius hiaticula</i>), non-breeding; Sanderling (<i>Calidris alba</i>), non-breeding; Scaup (<i>Aythya marila</i>), non-breeding; Shelduck (<i>Tadorna tadorna</i>), non-breeding; Svalbard barnacle goose (<i>Branta leucopsis</i>), non-breeding Breeding bird assemblage.	
Threave and Carlingwark Loch	Breeding bird assemblage.	19.5km S
River Dee (Parton to Crossmichael)	Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>), non-breeding; Greylag goose (<i>Anser anser</i>), non-breeding; and Whooper swan (<i>Cygnus cygnus</i>), non-breeding.	15.5km SW
Laughenghie and Airie Hills	Hen harrier (<i>Circus cyaneus</i>), non-breeding; and Breeding bird assemblage.	18.5km SW
SPA		
Solway Firth	Bar-tailed godwit (<i>Limosa lapponica</i>), non-breeding; Black-headed gull (<i>Chroicocephalus ridibundus</i>), non-breeding; Common gull (<i>Larus canus</i>), non-breeding; Common scoter (<i>Melanitta nigra</i>), non-breeding; Cormorant (<i>Phalacrocorax carbo</i>), non-breeding; Curlew (<i>Numenius arquata</i>), non-breeding; Dunlin (<i>Calidris alpina alpina</i>), non-breeding;	19km SE

	Golden plover (<i>Pluvialis apricaria</i>), non-breeding; Goldeneye (<i>Bucephala clangula</i>), non-breeding; Goosander (<i>Mergus merganser</i>), non-breeding; Grey plover (<i>Pluvialis squatarola</i>), non-breeding; Herring gull (<i>Larus argentatus</i>), non-breeding; Knot (<i>Calidris canutus</i>), non-breeding; Lapwing (<i>Vanellus vanellus</i>), non-breeding; Oystercatcher (<i>Haematopus ostralegus</i>), non-breeding; Pink-footed goose (<i>Anser brachyrhynchus</i>), non-breeding; Pintail (<i>Anas acuta</i>), non-breeding; Red-throated diver (<i>Gavia stellata</i>), non-breeding; Redshank (<i>Tringa totanus</i>), non-breeding; Ringed plover (<i>Charadrius hiaticula</i>), passage; Sanderling (<i>Calidris alba</i>), non-breeding; Scaup (<i>Aythya marila</i>), non-breeding; Shelduck (<i>Tadorna tadorna</i>), non-breeding; Shoveler (<i>Anas clypeata</i>), non-breeding; Svalbard barnacle goose (<i>Branta leucopsis</i>), non-breeding; Teal (<i>Anas crecca</i>), non-breeding; Turnstone (<i>Arenaria interpres</i>), non-breeding; Waterfowl assemblage, non-breeding; and Whooper swan (<i>Cygnus cygnus</i>), non-breeding.	
Loch Ken and River Dee Marshes	Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>), non-breeding; and Greylag goose (<i>Anser anser</i>), non-breeding.	15km SW, 15.5km SW, 19km S
Castle Loch, Lochmaben	Pink-footed goose (<i>Anser brachyrhynchus</i>), non-breeding.	25km E
RAMSAR		
Upper Solway Flats and Marshes	Bar-tailed godwit (<i>Limosa lapponica</i>), non-breeding; Black-headed gull (<i>Chroicocephalus ridibundus</i>), non-breeding; Common gull (<i>Larus canus</i>), non-breeding;	19km SE

	Cormorant (<i>Phalacrocorax carbo</i>), non-breeding; Curlew (<i>Numenius arquata</i>), non-breeding; Dunlin (<i>Calidris alpina alpina</i>), non-breeding; Golden plover (<i>Pluvialis apricaria</i>), non-breeding; Goldeneye (<i>Bucephala clangula</i>), non-breeding; Grey plover (<i>Pluvialis squatarola</i>), non-breeding; Herring gull (<i>Larus argentatus</i>), non-breeding; Knot (<i>Calidris canutus</i>), non-breeding; Lapwing (<i>Vanellus vanellus</i>), non-breeding; Oystercatcher (<i>Haematopus ostralegus</i>), non-breeding; Pink-footed goose (<i>Anser brachyrhynchus</i>), non-breeding; Pintail (<i>Anas acuta</i>), non-breeding; Redshank (<i>Tringa totanus</i>), non-breeding; Ringed plover (<i>Charadrius hiaticula</i>), passage; Sanderling (<i>Calidris alba</i>), non-breeding; Scaup (<i>Aythya marila</i>), non-breeding; Shelduck (<i>Tadorna tadorna</i>), non-breeding; Shoveler (<i>Anas clypeata</i>), non-breeding; Svalbard barnacle goose (<i>Branta leucopsis</i>), non-breeding; Teal (<i>Anas crecca</i>), non-breeding; Turnstone (<i>Arenaria interpres</i>), non-breeding; Whooper swan (<i>Cygnus cygnus</i>), non-breeding; and Waterfowl assemblage, non-breeding.	
Loch Ken and River Dee Marshes	Greenland white-fronted goose (<i>Anser albifrons flavirostris</i>), non-breeding; and Greylag goose (<i>Anser anser</i>), non-breeding.	15km SW, 15.5km SW, 19km S
Castle Loch, Lochmaben	Pink-footed goose (<i>Anser brachyrhynchus</i>), non-breeding.	25km E

Table 7.1 Summary of statutorily protected sites designated for ornithological features within 25km of the Site

Potential Effects

7.51 The Proposed Development has the potential to affect the ecology of the area at the construction, operational and decommissioning stages. Potential effects during construction may arise from:

- Presence of people;
- Noise;
- Vegetation, top soil and sub-soil removal, resulting in habitat loss and habitat fragmentation;
- Ground and excavation works;
- Construction of turbine foundations and access routes;
- Vehicular traffic;
- Creation of temporary construction compounds and storage areas;
- Routing of services and utilities (e.g. underground electrical lines and drainage); and
- Development of watercourse crossings.

7.52 During the operational phase, effects may arise from:

- Vehicular traffic;
- Presence of people;
- Noise;
- Drainage; and
- Wind turbine activity.

7.53 During decommissioning, effects are expected to be similar to those experienced during construction.

Proposed Scope of Assessment

7.54 The ecological assessment will consider the potential effects of the Proposed Development on designated and non-designated ecological sites in the wider area, as well as flora and fauna interest on the Site and within the surrounding area.

7.55 The ornithological assessment will determine the potential for sensitive, notable or rare species to be affected by the Proposed Development. Where potential adverse, negative effects are identified suitable mitigation or compensation will be identified to reduce effects to an acceptable (non-significant) level.

Methodology

7.56 The EIA will be based on the following surveys:

- Vantage Point surveys;
- Breeding bird surveys;
- Species-specific breeding surveys;
- Bats survey;
- Protected species surveys;
- River habitat walkover survey;
- Extended Phase 1 habitat survey; and
- NVC and GWDTE.

Design and Mitigation

- 7.57 With appropriate site design, habitat loss can be restricted to areas of low ecological value such as ecologically sterile areas of commercial forestry, and by limiting the loss of trees and wetland removal.
- 7.58 Wherever possible, turbines will be located away from major wildfowl flight lines and areas of high raptor activity.
- 7.59 Consideration will be given to habitat enhancement/creation works. Such works should be away from the turbines to avoid increasing the risk of bird strike.

Soil, Geology and Water

- 7.60 This section of the EIAR will assess the ground conditions and hydrogeology of the Site and its surrounds.

Baseline

- 7.61 The majority of the Site is located within the River Nith catchment. There are a number of minor watercourses present which drain the Site, including the Collieston Burn, Castramon Burn and Glenesslin Burn which flow north-east into Cairn Water.
- 7.62 The British Geological Survey (BGS) Geoindex shows the bedrock underlying the Site to be primarily comprised of Gala Unit 5 – Wacke, with the west section of the site comprising Gala Unit 6 - Wacke, along with pockets of Moffat Shale Group - Mudstone, Chert And Smectite-Claystone.

Potential Effects

- 7.63 Wind farm construction, operation and decommissioning involve activities that may affect soil, geological or water environments. The EIA will identify these activities, assess the significance of their potential impacts, and outline appropriate mitigation measures. Impacts will be assessed relative to a detailed baseline description and conceptual understanding of the existing hydrological and hydrogeological environment.

Proposed Scope of Assessment

- 7.64 The principal areas of consideration in the EIA will be:
- Water quality and pollution prevention;
 - Site drainage (tracks, turbine foundations and hardstanding areas);
 - Ground water (in particular in relation to turbine foundation construction);
 - Peat risk and peat waste management;
 - Watercourse crossings and the impact of other engineering activities near water;
 - Potential for land contamination;;
 - Private water supplies; and
 - Mineral stability.

Methodology

- 7.65 In order to establish the existing hydrology, hydrogeology and geology conditions at the Site an initial desktop information gathering exercise will be carried out followed by site surveys.
- 7.66 A flood risk assessment is not considered likely to be required for this Proposed Development and so will not be included in the EIA.

Design and Mitigation

- 7.67 The EIAR will consider, where appropriate, sustainable drainage principles with a view to minimising the potential risk of flooding at the Site and preventing the Proposed Development from causing flooding, groundwater or watercourse pollution. Any areas of deep peat will be avoided where possible.

Air and Climate

Potential Effects

- 7.68 The principal effect on air and climate is the displacement of fossil fuels. This is quantifiable as the gains over the life of the Proposed Development against the release of carbon dioxide during construction, including any associated loss of peat and construction of road/tracks turbine bases and other infrastructure.

- 7.69 No adverse air quality impacts are anticipated from the operation of the Proposed Development.

Proposed Scope of Assessment

- 7.70 The EIA will consider the current electricity generation mix and assess the level of savings that could be made.
- 7.71 The latest guidance from the Scottish Government on calculating carbon savings from wind farms on peat will be used to determine the “pay back” time of the Proposed Development taking into account the loss of carbon from the disturbance of any peat on Site.
- 7.72 Potential impacts on air quality from dust etc. during the construction and decommissioning phases will be addressed through standard mitigation techniques to be agreed as part of a construction environmental management plan. No further specific assessment is proposed.

Landscape and Visual Amenity

- 7.73 The objective of the Landscape and Visual Impact Assessment (LVIA) will be to assess the Proposed Development in relation to the following:
- Landscape Effects: Assessment of the effects on areas of landscape character including key characteristics, elements, landscape qualities and landscape designations;
 - Visual Effects: Assessment of the effects on the views and visual amenity experienced by residents, tourists/visitors, recreational users and road users; and
 - Night-time visual effects as a consequence of the Civil Aviation Authority (CAA) requirement for visible lighting to be fitted to obstacles at or above 150m in height.
- 7.74 The LVIA process will incorporate the following stages:
- Baseline data collection and analysis;
 - Description of the baseline landscape and visual resource (including landscape features and characteristics, as well as key visual receptors and baseline darkness conditions;
 - Design development and consideration of mitigation measures;
 - Identification of potential residual impacts on the landscape and views (taking into consideration proposed mitigation measures);
 - Evaluation of the significance of impacts on landscape (elements, key characteristics and overall character) and visual amenity, including night-time and dark skies amenity. This will include identification of the varying sensitivity of the individual landscape and visual receptors to the proposed development; and
 - Presentation of the findings in the ES (including supporting plans and visualisations).

Study Area

- 7.75 With reference to the Visual Representation of Wind Farms, Version 2.2 (Scottish Natural Heritage, 2017), based on the preliminary turbine height of up to 230m to blade tip, an initial study area of up to 45 km should be considered for the purposes of establishing a preliminary evaluation of the likely receptors. However, the preliminary ZTV studies (Figures 7.1 and 7.2) which accompany this Scoping Report illustrate that visibility would be very limited at distances greater than 20 km and we therefore propose limiting the detailed study area to a 20km radius from the proposed turbines.
- 7.76 The cumulative effect of the Proposed Development in association with other wind energy developments will also be considered. The search area for cumulative development will extend up to a 30 km radius from the proposed turbines, although a detailed study area of 20 km is proposed for the assessment. The Cumulative LVIA (CLVIA) will focus upon the cumulative developments which, in association with the Proposed Development, are more likely to result in significant cumulative effects.

Baseline

- 7.77 Initial studies have been undertaken to identify the potential landscape and visual receptors to be considered within the LVIA and the viewpoint locations to inform the assessment (12 proposed viewpoints are set out below). This is based on the initial ZTV studies and knowledge of the area surrounding the Site.
- 7.78 The key receptors are listed in the following text. For the final LVIA detailed baseline information on the landscape and visual resource will be gathered through a combination of desk-studies, consultation and field surveys.

Landscape Designations

- 7.79 The site is not covered by any statutorily or nationally protected landscape-based planning designations that would protect the quality or scenic value of the landscape. There are no National Parks within the proposed 20km study area with the closest National Scenic Area (NSA) being the Nith Estuary NSA approximately 16km south-east of the site. The ZTV indicates limited theoretical visibility from Nith Estuary NSA and NatureScot's description of special qualities indicates these relate primarily to the merse, estuary, hill backdrop of Criffel and views to the Cumbrian Fells. It is proposed that a detailed assessment is not required and no viewpoints are proposed within this area

Wild Land Areas

- 7.80 The nearest Wild Land Area (WLA) is 01. Merrick, located approximately 32km to the west. Given the distance and the very limited theoretical visibility indicated by the ZTV effects on this area would be negligible. It is proposed that a Wild Land Assessment is not required and no viewpoints (including night viewpoints) are proposed within this area.

Regional Scenic Areas

- 7.81 Five Regional Scenic Area (RSA) are within 20km of the site:

- Terregles Ridge RSA, 2.1km to the south-east;
- Thornhill Uplands RSA, 4.5km to the north-east;
- Galloway Hills RSA, 13km to the west;
- Solway Coast RSA, 15.4km to the south-east; and
- Torthorwald Ridge RSA, 18km to the east.

7.82 Effects on these designated areas will be considered within the LVIA.

7.83 Other Regional Scenic Areas within Dumfries and Galloway lie more than 20km from the site.

Dark Sky Park

7.84 The closest part of the Dark Sky Park is 17.2km to the south-west with the majority of it beyond the proposed study area. The closest parts of the Dark Sky Park are forested and there would be very limited visibility of the turbines until distances of 20km or more. Given the distance and intervening development, effects on this area would be negligible. It is proposed that assessment of effects on the Dark Sky Park is not required and no viewpoints (including night viewpoints) are proposed within this area.

Landscape Character

7.85 The most up to date and relevant landscape character assessments covering the study area are the SNH 2019 landscape character assessment and the 2020 capacity study which forms Appendix C to the Wind Energy Supplementary Guidance (SG).

7.86 The SG identifies the site as being within landscape character type 18 Foothills. The SNH assessment identifies the site as being within landscape character type 175 Foothills - Dumfries & Galloway. The two assessments have identical boundaries for the character type although their descriptions differ, with the capacity study providing a greater level of detail.

7.87 The Wind Energy SG identifies the character type as being High sensitivity to large turbine development based on the findings of the capacity study.

Visual Receptors

7.88 There are a number of principal visual receptors which represent people who may be living in settlements, travelling along roads, railways or paths or visiting attractions in the study area.

7.89 The majority of visual receptors are located to the south and east of the site. These would largely constitute road users and a number of settlements, there are also a number of recreational routes in the wider area including the Southern Upland Way which is located approximately 16.5 km to the west at its closest point and National Cycle Network route 1 approximately 11km to the south.

7.90 The ZTV study (Figures 7.1 and 7.2) indicates that visibility is fairly widespread within about 8-10km, beyond which it becomes notably intermittent. The exception to this is to the

north and east of Dumfries where the ZTV indicates theoretical visibility from ridges and broad valleys. There is intermittent theoretical visibility between 15km and 30km to the south-west of the site on elevated farmland on either side of the A75. There is widespread visibility at the head of the Solway Firth with land-based visibility from the north Cumbria coast at distances of greater than 40km from the site.

Potential Effects

- 7.91 The landscape assessment will consider effects upon landscape character, landscape designations and landscape fabric. The visual assessment will consider the effects on residents in individual dwellings and settlements, road and railway users, and recreational receptors incorporating a focus on the surrounding landscape. The visual effects arising from visible aviation lighting will also be assessed, where required.

Proposed Scope of Assessment

- 7.92 As mentioned above an initial ZTV study area of 45km has been used and a detailed study area of 20km will be used for the LVIA with a search area of 30km and detailed study area of 20km for the CLVIA.
- 7.93 Those landscape designations listed above and falling within 20km will be assessed as will landscape character types. Landscape receptors beyond 20km will be considered proportionately depending on their sensitivity to change and the potential for visibility of the proposed development.
- 7.94 Views and visual amenity, primarily of receptors within 20km, will be assessed. Visual amenity beyond 20km will be considered based on receptor sensitivity to change and the potential degree to which the proposed development would change the composition and character of views.
- 7.95 The CLVIA will consider effects arising from the addition of the Proposed Development to wind farm development under construction, consented but not yet constructed development and proposed wind farm development focusing on the 20km detailed study area.

Proposed Viewpoints

- 7.96 Taking into account the landscape baseline and visual receptors described in the preceding sections of this report and taking account of the visibility pattern indicated by the ZTV study above, the following viewpoints (shown on the ZTV studies – Figures 7.1 and 7.2) are proposed to support the landscape and visual impact assessment.

Viewpoint	Distance from turbines	Receptors
1. Glenesslin	2.4km, N	Settlement <i>Also proposed as a night-time viewpoint</i>
2. Glenkiln Reservoir	3.5km, SE	Recreation, Terregles Ridge RSA
3. Dunscore	5km, NE	Settlement <i>Also proposed as a night-time viewpoint</i>
4. Corsock	7.2km, SW	Settlement <i>Also proposed as a night-time viewpoint</i>
5. A702 north of site	8.3km, N	Key route, Thornhill Uplands RSA
6. A75 near Lochfoot	10km, SE	Key route
7. A712 nr Bartaggart Hill	10.5km, SW	Key route
8. Dalswinton	12.2km, E	Settlement, Dalswinton GDL
9. A75 north of Dumfries	16.3km, ESE	Key route, settlement
10. NCN Route 1 near Castle Douglas	16.8km, S	Recreational route
11. Auchenleck Hill	19.5km, NE	Recreation, Thornhill Uplands RSA
12. Torthorwald	21.6km, E	Settlement, Torthorwald Ridge RSA

Methodology

Landscape and Visual Methodology

- 7.97 Predicted changes in both the physical landscape and landscape character will be identified. Effects will be considered in terms of the magnitude and type of change to the landscape, including its key characteristics as set out in published landscape character assessments. The sensitivity of the landscape will also be taken into account, acknowledging value placed on the landscape through designation, and the presence of other consented and operational wind farms. The magnitude of the effect will be assessed in terms of the size and scale, geographical extent, duration and reversibility of the effect. These aspects will all be considered, to form a judgement regarding the overall significance of effect.
- 7.98 Visual effects are experienced by people at different locations around the study area, at static locations (for example settlements or viewpoints) and from sequential locations when travelling along routes. Visual receptors are the people who will be affected by changes in views at these places. Assessment of the visual effects of the Proposed Development will be based on considerations of the sensitivity of visual receptors to changes to the view and analysis of the ZTVs, field studies and assessment of representative viewpoints.
- 7.99 A bespoke methodology will be applied to the assessment of visual effects that may arise from visible aviation lighting, to meet CAA requirements. This will identify the extent of the theoretical visibility from the lights and of the intensity of light that may be perceived from different geographical areas.

- 7.100 The level of impact and the resultant 'significance' of the Proposed Development on the baseline resource will be based upon the correlation between the magnitude of change and the sensitivity of the receptor. This is summarised in the Table below.

Receptor Sensitivity	Magnitude of Change				
		Substantial	Moderate	Slight	Negligible
	High	Major	Major/ Moderate	Moderate	Minor
	Medium	Major/ Moderate	Moderate	Moderate/ Minor	Minor/ Negligible
	Low	Moderate	Moderate/ Minor	Minor	Negligible

- 7.101 Where the landscape or visual effect is classified as 'Major' or 'Major/Moderate' will be considered to be 'significant'. In addition, where 'Moderate' effects are predicted, professional judgement will be applied to ensure that the potential for significant effects arising has been thoroughly considered.
- 7.102 The LVIA will be supported by illustrative material, including maps, wireframes and photomontages from key viewpoints. Night-time photomontages will be generated for a limited number of viewpoints to appraise night-time effects from visible lighting attached to the turbines. The assessment will be logically set out to maximise its transparency and ensure that conclusions are readily traceable.

Visualisations

- 7.103 The viewpoint visualisations will incorporate wireframes and photomontages and will be used to consider and illustrate changes to existing views. They will be prepared in accordance with the 2017 SNH Guidance 'Visual Representation of Wind Farms, Version 2.2'. Photographs will be taken using a 50mm lens recommended as best practice by the Landscape Institute and SNH. Night-time photomontages will be based on photography taken approximately 30 minutes after sunset, which is the point at which any aviation lighting is required to switch on.

Cumulative Assessment Methodology

Baseline

- 7.104 There is an extensive band of existing, consented and proposed wind farm development located approximately 5-15km to the west of the site between Corsock and Carroch to the north. Beyond 20km from the site to the north-west there is a large group of existing, consented and proposed wind farm development between Sanquhar in the east and Dalmellington in the west. Whiteneuk wind farm is at scoping stage with the site boundary approximately 2km to the west.

Study area (cumulative)

- 7.105 The LVIA will consider operational wind farms and wind farms under construction as part of the existing baseline. A cumulative landscape and visual assessment (CLVIA) will be

undertaken with consideration of other wind farms which are consented or have undetermined applications or appeals, in addition to the wind farms that form part of the existing baseline. Cumulative wind farm information will be gathered for all wind farms within a 30km radius of the Proposed Development, but the CLVIA will focus on wind farms with which there will be cumulative relationships which may give rise to significant effects (likely to be those within approximately 20km or visible from key sequential routes). Schemes at scoping stage will be included only at the reasonable request of Dumfries and Galloway or NatureScot, and if sufficient information is available to make an informed assessment. Turbines below 50m to blade tip height will not be included in the assessment.

- 7.106 The list of wind farms for inclusion in the cumulative assessment will be drawn up during the assessment process, so as to be as up-to-date as possible at the time of submission. Sources for the list will include the local authority planning portal website and direct consultation with Dumfries and Galloway Council and NatureScot.

Methodology

- 7.107 The cumulative landscape and visual assessment will be carried out in accordance with the principles contained in SNH guidance on cumulative assessment (2012). Cumulative relationships will be assessed with a series of scenarios. Existing wind farms will be included within the main LVIA. Consented wind farms will also be included within the main LVIA unless there is reason to believe they may not be constructed as consented, in which case they will be considered as part of the cumulative scenarios.
- 7.108 Cumulative visual effects will be assessed through analysis of combined ZTVs, views from individual viewpoints and sequential views from routes. In each scenario considered, the magnitude of cumulative change to landscape character and views is the additional influence the Proposed Development has on the characteristics and character of the landscape type assuming the other wind farm schemes are already present.

Residential Visual Amenity Assessment

- 7.109 Residential Visual Amenity Assessment (RVAA) will be undertaken for properties within approximately 2km of the Proposed Development. The Landscape Institute Guidelines for RVAA will be used to inform the assessment.
- 7.110 The RVAA will include properties (or property groups) considered in the LVIA to experience a high or moderate magnitude of visual change and will evaluate the potential effects on the visual component of residential amenity or 'living conditions'. The visibility of existing wind farms and those under construction will be taken into account as part of the existing baseline.
- 7.111 Night-time impacts arising from aviation lighting will also be considered within the RVAA.

Night-time Lighting Assessment

- 7.112 It is likely that the Proposed Development would include taller turbines (over 150m to blade tip), which would require visible aviation lighting. The technology relating to

aviation lighting design is moving rapidly with new lights able to greatly reduce light emissions below the -1° angle from the horizontal that does not require to be lit to meet ICAO/CAA standards. A night-time Lighting Assessment therefore, would be undertaken and the methodology and approach (including production of ZTV mapping) will present the latest technology available at the time of the submission.

- 7.113 The assessment is proposed to include 3 night-time photomontages illustrating the proposed lighting effects, selected from the list of LVIA viewpoints as set out above. The viewpoints proposed to be included are locations where people are more likely to be after dark. Viewpoint selection and photography will be influenced by Health and Safety requirements to minimise risks. Viewpoints may also be reselected if, through design, the visibility of aviation lighting from the proposed locations is avoided.
- 7.114 The extent of the study area would match that for the day-time.

Consultation

- 7.115 The consultees below will be approached for information to inform the LVIA and Cumulative assessment:
- Dumfries and Galloway Council;
 - NatureScot (formerly SNH).

Design and Mitigation

- 7.116 The primary form of mitigation for landscape and visual effects, including cumulative effects, is through iterative design of the layout of the turbines and associated infrastructure, as seen from key viewpoints. The primary form of mitigation for visible aviation lighting is currently developing through lighting design/technology. The process and justification for design development will be set out in detail in the design strategy that will form part of the EIA Report.

Cultural Heritage

- 7.117 This section of the EIAR will assess the likely direct and indirect impacts on both designated and non-designated heritage assets within the Site boundary and within the surrounding area. The chapter will assess the significance and setting of these assets and assess the significance of any known or unknown archaeological deposits within the Site boundary.

Baseline

- 7.118 There are a number of designated heritage assets within 5km of the Site. The most notable of these are the Scheduled Monuments: Brockloch, farmstead and field system 1000m WNW of Fraserford (SM5694) located 350m north of the Site and Sundaywell fort (SM5556) located 600m north of the Site.

Potential Effects

- 7.119 Direct impacts would involve physical alteration or destruction of heritage assets as a result of the construction, operation or decommissioning of the wind farm. Such direct impacts could result from the construction of turbine and crane bases, new or upgraded access tracks, substations, transformers, cables etc.
- 7.120 Indirect effects on the setting of heritage assets are likely due to the size of the proposed turbines and their potential to detract from key views towards an asset or an experience at the asset when standing within its setting.

Proposed Scope of Assessment

- 7.121 The proposed scope of the assessment is twofold, to understand:
- Direct effects – The physical effect on all heritage assets, including buried archaeological remains and other historic structures, within the footprint of the Proposed Development including associated services, construction compound, electrical cable connections and on/off site access routes; and
 - Indirect effects – The effect on the setting of the designated heritage assets within the ZTV to a distance of 10km from the proposed turbines.
- 7.122 The EIA will assess the potential direct impacts on identified archaeological sites, as well as the potential indirect impacts on the settings of designated and non-designated heritage assets in association with the Landscape and Visual Impact Assessment.

Methodology

- 7.123 An extended desk based assessment of available information will be conducted to establish the baseline conditions to enable assessment of both direct and indirect effects within the Site and a study area around it. The principal sources of information will be the Sites and Monuments Records, supplemented by relevant published documentary and cartographic material as appropriate. The proposed study area will be as follows:
- For buried archaeological sites that are recorded on the Sites and Monuments Record but are not otherwise designated, the study area is a 1km buffer zone around the proposed wind turbine locations.
 - For designated historic environment resources that fall within the ZTV, the study area is a 10km buffer zone around the proposed wind turbine locations.

Design and Mitigation

- 7.124 The design of the wind farm will take into account the potential effects of the wind farm on the settings and significance of designated heritage assets. Where effects on non-designated heritage assets cannot be avoided, mitigation measures such as archaeological excavation and recording/watching brief will be proposed.

8 SUMMARY

Context

- 8.1 Energiekontor UK Ltd is evaluating the potential of land at Collieston, Dunscore ("the Site") for the development of a wind farm of up to 8 wind turbines, including associated development such as crane pads, access tracks, a substation and temporary construction compound ("the Proposed Development").
- 8.2 This Scoping Report provides an outline of relevant environmental receptors that may be significantly affected by the Proposed Development and describes the information that it is envisaged will be submitted as part of a future EIA. This approach enables consultees with a particular interest to identify whether any potentially significant impacts have been omitted, suggest additional mitigation measures or to comment on the suitability of the intended method of assessment if necessary.
- 8.3 Comments on the scope of the proposed EIA are invited. Should consultees be in a position to identify or provide additional relevant information concerning the existing environment or any specific local issues, this would be welcomed.

Comments

- 8.4 Consultees are invited to comment on the proposed scope of the EIA set out in this report. The key questions to consider when reviewing the environmental issues are as follows:
- Are there any potential significant impacts that have not been included?
 - Is the intended method of assessment appropriate?
 - Are there additional mitigation measures that should be considered?
 - Can it be confirmed that a 20km study area for the LVIA is considered to be appropriate based on the 45km ZTV studies provided as part of this scoping report? Are there any other landscape or visual receptors and viewpoint assessment locations (including night-time viewpoints) that should be considered in the assessment?
 - Can it be confirmed that Wild Land Assessment is not required?
 - Can it be confirmed that exclusion of assessment of effects on the Dark Sky Park is appropriate?
 - Is the proposed 2km study area for Residential Visual Amenity Assessment considered to be appropriate?

- Can it be confirmed that a 30km area of search is appropriate for cumulative assessment?
- Are there any other wind energy developments which should be included or excluded from the cumulative assessment?
- Is the suitability in principle of the Site for wind farm development reflected in the DGWLCS?