4 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

4.1 Scoping

4.1.1 An underlying principle of the EIA process is that it should concentrate on environmental issues where effects associated with a development proposal are likely to be significant.

4.1.2 Although it is not mandated by the EIA Regulations, the Proposed Development was subject to a detailed Scoping exercise on 5 March 2020, in order to determine issues that should be addressed in the EIA and the form topic-based assessments should take.

4.1.3 The Scoping exercise involved a review of available environmental information related to the form and status of the existing environment; consultation with statutory and non-statutory agencies and other environmental bodies with knowledge of the Proposed Development site and surrounding areas; preliminary desk-based and site-based appraisals and surveys; and knowledge of the potential environmental implications of comparable schemes (based on direct past project experience and other published experience and guidance).

4.1.4 The following considerations were factored into the Scoping process:

- The nature of the receiving environment and the type of operations associated with the Proposed Development are such that environmental effects could arise during construction, operation and decommissioning stages.
- A review of the Proposed Development site revealed ecological habitats and species of potential interest.
- There is a requirement for early liaison with stakeholder and regulatory authorities (e.g., SEPA and Health and Safety Executive) to provide input for the EIA and design development processes.
- There is a need for early consultation and commencement of ecological and ornithological surveys, peat depth probing and noise monitoring to accommodate data collection within seasonal and programme constraints.
- Significant cumulative effects could potentially arise through the interaction of the project with other existing and approved development projects in the vicinity, and the combined effects of two or more environmental aspects associated with the Proposed Development on environmental interests (e.g., combined visual and noise effects on local residents).

4.1.5 Scoping concluded that the following aspects were relevant for investigation in the EIA owing to the potential for significant environmental effects to arise:

- Landscape and visual assessment,
- Archaeology and cultural heritage;
- Ecology and ornithology;
- Geology, hydrogeology, hydrology and peat;
- Noise and vibration;
- Traffic and transportation;
- Aviation and radar;

- Socio-economics, land use and tourism;
- Telecommunications, electromagnetic interference and shadow flicker; and
- Climate change mitigation.

4.1.6 The following environmental aspects were reviewed and subsequently scoped out of the EIA based on the limited potential for environmental effects to arise:

- Air quality: The main source of impact on air quality would be increased traffic flows on local roads during construction and emissions from construction activities. It is considered that air emissions associated with these activities will be transient and localised, and highly unlikely to have a significant effect on local air quality. Best practice measures will be applied to construction, forming an integral part of the Environmental Management Plan. There will be no emissions to air during operation.
- Vulnerability of the Proposed Development to risks of major accidents and/or disasters (including climate change): None of the following climate trends identified in UKCP09 would affect the Proposed Development: increased temperature, changes in the frequency, intensity and distribution of rainfall events, increased windstorms and sea level rise. Braking mechanisms on turbines allow them only to be operated under specific wind speeds, and given the elevated location of the site flooding will not pose a significant risk. Furthermore, the Proposed Development will not contribute to flooding elsewhere.
- Forestry: There are no forestry plantations or woodland areas within the Proposed Development area.

Population and human health

4.1.7 The 2017 EIA Regulations state that an assessment of population and human health should be considered during the EIA process. At scoping stage, it was proposed that this requirement be covered through the findings of other assessments undertaken as part of the EIA process and so no dedicated EIA chapter will be produced.

4.1.8 Limited interactions with human health are possible, and consideration was given to the findings of the following assessments in the EIAR:

- Noise (**Chapter 11**);
- Residential Amenity (**Chapter 6**);
- Traffic and Transportation (**Chapter 12**);
- Telecommunications and Shadow Flicker(**Chapter 15**);
- Aviation and Radar (**Chapter 13**);
- Health and Safety at Work including best practice (**Chapter 2**);
- Ice build-up on turbine blades and risk of ice throw (**Chapter 2**);
- Lightning strike (**Chapter 2**); and
- Risk of turbine failure and consideration of inbuilt emergency procedures and best practice (**Chapter 2**).

4.1.9 Properly designed and maintained wind turbines are a safe technology. The site design and inbuilt buffers from sensitive receptors will minimise any risk to human health resulting from the operation of the turbines. As risks associated with ice build-up and lightning strike are removed or reduced through inbuilt turbine mechanisms in modern machines it was proposed that these be scoped out of the further assessment.

4.1.10 Effects on Traffic and Transportation; Noise; Residential Amenity are assessed in full elsewhere within the EIAR.

4.1.11 In terms of a response to the approach proposed, THC's response requested that "lightning strikes and ice throw given the proximity of recreational routes through the site"[1]. These are addressed in **Chapter 2** above.

Shadow flicker

4.1.12 It must be noted that at Scoping stage, shadow flicker was scoped out. However, due to an increase in size of the turbine rotor diameters (from 150 m to 163 m rotor), shadow flicker has subsequently been assessed as part of the EIA, as THC requires the assessment in the instance where properties fall within 11 rotor diameters (1,793m) of a proposed turbine.

Scoping process

4.1.13 The Scoping process also concluded that the relationship and compliance of the Proposed Development to local, regional and national planning policy would be best established in a separate planning statement. Accordingly, the applicant has prepared a standalone planning statement that accompanies the S36 application for the Proposed Development.

4.1.14 The outcomes of the Scoping process were collated in a Scoping report; this accompanied a formal request for a Scoping opinion that was issued by the applicant to the ECU on 5 March 2020. The EIA Scoping report is available on the ECU website[2].

4.1.15 The ECU authority engaged the following parties as part of the scoping process:

- The Highland Council;
- Scottish Environment Protection Agency (SEPA);
- NatureScot (formerly Scottish Natural Heritage (SNH));
- Historic Environment Scotland (HES);
- Transport Scotland;
- Marine Scotland;
- Scottish Forestry;
- BT;
- Defence Infrastructure Organisation (MOD);
- Highlands and Islands Airports;
- Kyle of Sutherland District Salmon Fishery Board;
- Mountaineering Scotland;
- NATS Safeguarding;
- RSPB Scotland;
- Scottish Rights of Way and Access Society (ScotWays); and
- Scottish Water.

[1] Paragraph 3.100 of THC's scoping response. https://www.energyconsents.scot/ApplicationSearch.aspx. Search for "Chleansaid", ECU reference ECU00002031

[2] https://www.energyconsents.scot/ApplicationSearch.aspx. Search for "Chleansaid", ECU reference ECU00002031

4.1.16 The following consultees were contacted, but no response was received:

- British Horse Society;
- Brora District Salmon Fishery Board;
- Civil Aviation Authority – Airspace;
- Crown Estate Scotland;
- Fisheries Management Scotland;
- Joint radio Company;
- John Muir Trust;
- Nuclear Safety Directorate (HSE);
- Scottish Wildlife Trust;
- Scottish Wild Land Group (SWLG);
- Visit Scotland;
- Rogart Community Council;
- Bettyhill, Srathnaver and Altnaharra Community Council;
- Helmsdale Community Council;
- Brora Community Council;
- Dornoch Community Council;
- Creich Community Council; and
- Lairg Community Council.

4.1.17 The ECU issued its Scoping Opinion, available on the ECU website[3], to the applicant on 14 May 2020.

4.1.18 The consultee/consultation responses provided in the Scoping Opinion noted the following, which resulted in the applicant modifying the scope of the EIA accordingly:

- Private water supplies (PWS) – consideration of the potential for the Proposed Development to impact on water supplies was made in **Chapter 10** of the EIA Report;
- Peat – a peat landslide hazard and risk assessment was required to be undertaken as part of the EIA process;
- Viewpoints - THC requested that further viewpoints to be added. Further discussion was had with NatureScot, HES and THC to agree a finalised set of viewpoints;
- Night Time Viewpoint Assessment - where maximum blade tip height exceeds 150 m, with agreed viewpoints was required.

4.1.19 The scope of the individual assessments has been reviewed regularly throughout the EIA process to take account of new published guidance and/or assessment methodologies, stakeholder feedback, new environmental information and ongoing scheme design changes.

4.1.20 Explanations of the methods of assessment adopted and the issues identified are provided in **Chapters 6 to 16** of this EIA Report, which detail the findings in relation to the various environmental aspects considered in the EIA.

[3] https://www.energyconsents.scot/ApplicationSearch.aspx. Search for “Chleansaid”, ECU reference ECU00002031

4.2 Additional Consultation

THC Pre-Application Meetings

4.2.1 In parallel to EIA Scoping, the applicant undertook THC's formal pre-application consultation process for major projects. The online pre-application meeting was held on 24th June 2020, and THC's pre-application advice response was issued on 22nd July 2020. The pre-application consultation process involved THC's planning, landscape, contaminated land, flood risk management, environmental health, transport planning and historic environment teams. Other consultees involved included Transport Scotland, SEPA, NatureScot and HES.

Gatecheck Report Process

4.2.2 As part of the Section 36 process, RSK prepared and submitted a Gatecheck Report for the Proposed Development to the ECU on 1st September 2021.

4.2.3 The Gatecheck Report described the design evolution of the Proposed Development since the scoping stage including, where relevant, changes that have been made in response to consultation and community engagement. The document also set out the scope of the EIA in advance of the application for consent being made.

4.2.4 Responses to the Gatecheck Report were received from the following stakeholders:

- NatureScot;
- HES;
- SEPA; and
- THC.

4.2.5 The feedback received has been addressed and incorporated in the EIA Report where relevant.

4.3 EIA

4.3.1 Insofar as practical, a common approach has been adopted in the undertaking and reporting of individual environmental assessments.

EIA Guidance

4.3.2 The EIA has been undertaken with regard to the following published best-practice guidance:

- *Planning Circular 1: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017*[4], published by the Scottish Government (2017)
- *Planning Advice Note 1/2013: Environmental Impact Assessment*, published by the Scottish Government (2013)
- *Guidelines for Environmental Impact Assessment*, published by IEMA (2004)

[4] Note: there is no planning circular or PAN for the Electricity EIA Regulations, and the planning circular contains information which is generally applicable to all EIA developments.

- *A handbook on environmental impact assessment: Guidance for competent authorities, consultees and others involved in the Environmental Impact Assessment process in Scotland*, published by NatureScot (V5, 2018)

Establishment of Baseline Environment

4.3.3 The EIA of scoped-in environmental aspects commenced with the identification and review of information relating to known, or the likely presence of, environmental receptors and resources within a defined study area in order to determine their relative value, importance and/or sensitivity towards change.

4.3.4 Environmental resources were defined as those environmental aspects that support and are essential to natural or human systems. These include areas or elements of population, ecosystems, watercourses, air and climatic factors, landscape, and material assets.

4.3.5 Environmental receptors were defined as people (i.e., occupiers of dwellings and users of recreational areas, places of employment and community facilities) and elements within the environment (e.g., flora and fauna) that rely on environmental resources.

4.3.6 Desk-based data sources comprised consultation responses; published literature; databases, records and schedules relating to environmental designations; national, regional and local policy documentation; historic and current mapping; aerial photography; and data gathered from previous environmental studies.

4.3.7 Site surveys were undertaken to verify and consolidate information gathered during the desk-based review, and to evaluate the relationships between specific environmental interests and their wider environmental value.

4.3.8 Study area extents vary in accordance with the environmental aspect being considered. For some topics, a study area has been defined as being relatively localised to the Proposed Development, while for others it has extended outward to capture the surrounding road network, distant communities, and environmentally sensitive areas. The definition of each study area has been informed by a review of the relationship between the proposed scheme and the receiving environment, the outcomes of Scoping, and reference to thresholds stipulated in topic-specific EIA guidance.

Impact Prediction and Assessment

4.3.9 Impacts comprise identifiable changes to the baseline environment. These can be either beneficial (e.g., introduction of planting to screen visually detracting elements) or adverse (e.g., loss of an attractive environmental component), and can take the following forms:

- direct [primary] (e.g., loss of habitat to accommodate the Proposed Development)
- indirect [secondary] (e.g., pollution downstream arising from silt deposition during earthworks)
- transboundary
- short-term/temporary (e.g., dust generated during construction)
- medium-term (e.g., cutting back of planting which is subsequently allowed to regenerate)
- long-term/permanent (e.g., improvement in air quality)

- cumulative (e.g., incremental changes caused by other past, present or reasonably foreseeable actions together with those associated with the proposed scheme, or where a receptor or resource is subject to a combination of individual impacts such as air pollution, noise and visual impact associated with the proposed scheme in isolation).

4.3.10 Impact assessments have been both quantitative and qualitative in nature and based on comparisons between the environmental conditions immediately prior to the assumed construction of the Proposed Development and the predicted environment conditions resulting from its operation. Each technical chapter of the EIA Report describes the forecasting methods used in the EIA.

4.3.11 Impacts have been defined in accordance with accepted terminology and standardised methodologies to predict the magnitude of impact (or change) resulting from the Proposed Development.

4.3.12 Assessments have been undertaken for the year of construction and in the year when the Proposed Development would become operational. Some environmental aspects have required further assessment beyond the operational year to take account of factors such as predicted traffic growth or activities associated with decommissioning of the Proposed Development.

4.3.13 Where relevant, the assessments describe the expected significant effects of the Proposed Development on the environment deriving from the vulnerability of the Proposed Development to risks of major accidents and/or disasters relevant to the proposed scheme. This includes consideration of effects resulting from future climate change and the vulnerability of the Proposed Development to climate change.

Environmental Effects

4.3.14 Effects are defined as the consequence of impacts. They are formulated as a function of the receptor/resource value and sensitivity, and the predicted magnitude of impact.

4.3.15 Professional judgement, defined thresholds, established criteria and standards have been used to report the environmental effects of impacts, which can be referred to as either being prior to, or following establishment of, environmental mitigation.

Environmental Mitigation

4.3.16 Environmental mitigation measures have been developed to address potentially significant adverse environmental effects.

4.3.17 Mitigation can take the form of agreed measures incorporated into the evolving design of the Proposed Development (e.g., environmental treatments), standard measures (e.g., best practice construction management to control dust emissions) that are enforceable through planning conditions, and measures proposed in outline (e.g., off-site planting to provide visual screening to nearby residential dwellings) that may require further development and formal agreement to ensure their implementation.

4.3.18 The principles adopted in the identification and development of environmental mitigation for the Proposed Development are avoidance (wherever possible), reduction (where avoidance cannot be achieved) and compensation (where reduction is unachievable or would not achieve the required level of mitigation).

Significance of Environmental Effects

4.3.19 The significance of an environmental effect has been established by way of reference to the importance/value of affected resources; the number and sensitivity of affected receptors; impact magnitude, duration, frequency and extent of effect; and the reversibility of effect (or the extent to which the adverse effects can be effectively reduced).

4.3.20 Generic significance criteria (see **Table 4.1**) have been applied across the environmental aspects to ensure identified environmental effects are assessed in a comparable manner, except where such criteria are not applicable due to other prevailing topic-specific guidance (e.g., ecological impact assessment) and/or established standards and thresholds (e.g., EU limit values for air emissions):

Table 4.1 Generic Significance Criteria

Level of effect	Description
Major	Very large or large change in environmental or socio-economic conditions. These effects, both adverse and beneficial, are likely to be important considerations at a national to regional level because they contribute to achieving national / regional objectives or are likely to result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Intermediate change in environmental or socio-economic conditions. These effects are likely to be important considerations at a regional and local level.
Minor	Small change in environmental or socio-economic conditions. These effects may be raised as local issues but are unlikely to be of importance in the decision-making process.
Negligible	No discernible change in environmental or socio-economic conditions (i.e., variation within normal bounds or below measurable levels). An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

4.3.21 Only major and moderate effects, which are likely to be factors in deciding whether a development is acceptable, are significant effects. Significance assumes only embedded and standard construction mitigation measures are in place, these being the environmental mitigation measures for which delivery and implementation can be secured.

4.3.22 The residual effects (i.e., the post-mitigation effects) of the Proposed Development are considered by the Scottish Ministers in the decision-making process when determining the S36 application.

4.4 Assessment Reporting

4.4.1 Each individual assessment follows a comparable format to ensure consistency in reporting the existing environmental conditions and the potential effects on them arising from implementation of the Proposed Development.

- **Introduction** introduces the assessment topic under consideration.

- **Scope and Methodology** identifies and describes the scope of the assessment, the methods and criteria adopted, relevant guidance followed, and any assessment limitations, assumptions or difficulties encountered.
- **Consultation Undertaken** summarises the stakeholder engagement including dialogue with statutory consultees and with other stakeholders and where relevant the influence on the EIA.
- **Statutory and Planning Context** outlines statutes, guidance, policies and plans relevant to the environmental interests forming the focus of the assessment.
- **Existing Environment** describes the features and characteristics associated with the baseline environment.
- **Predicted Impacts** reports the predicted impacts on the baseline environment during the construction, operational and decommissioning phases.
- **Mitigation** details all measures that have been incorporated into the design of the project and/or agreed as deliverable, including proposed monitoring where applicable.
- **Summary of Residual Effects** summarises the nature and significance of residual environmental effects that are predicted to remain, post-implementation of mitigation measures.

4.5 Assumptions, Uncertainties and Limitations

4.5.1 The EIA was undertaken, and the resulting EIA Report has been compiled, using the environmental information made available to the EIA team by the applicant and members of their project team, together with other readily available and publicly accessible material including existing literature and studies, as well as personal communication with local experts. To the best of the EIA team's knowledge, the information used as a basis for the assessment is accurate and up to date. The team is not aware of any limitations of the underlying information or of any constraints that would materially affect the assessments.

4.5.2 This EIA Report has been based on the best available information at the time of publication. However, further information may become available during the detailed design phase that will be used to inform the Proposed Development if relevant.

4.5.3 Assumptions adopted in the evaluation of impacts are reported in each of the relevant sections. However, these assumptions are often implicit and rely on expert judgement. Any assumptions and known technical deficiencies have been documented.

4.5.4 The EIA has been undertaken during the initial design phase of the Proposed Development and therefore some of the technical aspects of the construction and operation have yet to be determined. Where an alternative option could cause additional impacts, these are discussed within the relevant sections. In addition, the EIA has taken a precautionary approach to adopt conservatism in the assumptions made and any scenarios assumed, so that a reasonable 'worst-case' scenario was assessed. Therefore, inherent uncertainties are accounted for and subsequent modifications to the project during the detailed design phase are less likely to fall outside of the assumed envelope of the assessment parameters.

4.6 References

Biggar Economics (2017). Wind Farms and Tourism Trends in Scotland: A Research Report. Report published October 2017.

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