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Glentarken Wind Farm

Ornithology Assessment Methodology

Appendix 6.3

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1 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

The assessment of potentially significant effects upon ornithological features presented in **Chapter 6: Ornithology** of the Environmental Impact Assessment (EIA) Report (**EIAR Volume 1**) has been undertaken following the principles of CIEEM guidance (2022[i]) and has included the following stages:

- Identification of potential impacts associated with the Proposed Development and the likelihood of occurrence of effects on an ornithological feature.
- Establishing the sensitivity of an ornithological feature to potential impacts based on the features Nature Conservation Importance (NCI) and conservation status.
- Characterisation of effect magnitude (both spatially and temporally).
- Determination of effect significance, and whether or not the consequent effect is significant with respect to the EIA Regulations.
- Outline of mitigation measures to avoid and reduce any potentially significant effects.
- Determination the significance of any residual effects after such measures.
- Identification of appropriate compensation measures to offset any significant residual effects.

1.1 Feature Sensitivity

The sensitivity of ornithological features on or near to the Proposed Development is assessed in line with best practice guidance, legislation, statutory designations and/or professional judgement.

Determination of the overall level of sensitivity of an ornithological feature, adopted for the purposes of assessment, is based on a combination of the feature's NCI and conservation status.

There are three levels of NCI as detailed in **Table 6-3-1.** Important Ornithological Features ('IOFs', as per CIEEM, 2022[i]) for the purposes of assessment, are taken to be those species of 'high' or 'medium' NCI.

Table 6-3-1 Ornithological feature sensitivity criteria

Sensitivity	Description
High	Populations receiving protection by an SPA, proposed SPA, Ramsar Site, SSSI or which would otherwise qualify under selection guidelines. Species present in nationally important numbers (>1 % national breeding or wintering population).
Medium	The presence of breeding species listed on Schedule 1 of the Wildlife and Countryside Act 1981. The presence of species listed in Annex I of the Birds Directive (but population does not meet the designation criteria under selection guidelines). The presence of rare, Red-listed breeding species noted on the latest Birds of Conservation Concern ('BoCC') Red list (Stanbury *et al.*, 2021[ii]). Regularly occurring migratory species, which are either rare or vulnerable, or warrant special consideration on account of the proximity of migration routes, or breeding, moulting, wintering or staging areas in relation to the proposed development. Species present in regionally important numbers (>1 % regional breeding population).
Low	All other species' populations not covered by the above categories.

As defined by NatureScot (SNH 2018a[iii]), the conservation status of a species is "*the sum of the influences acting on it which may affect its long-term distribution and abundance, within the geographical area of interest*". Conservation status is considered by NatureScot (SNH 2018a[iii]) to be 'favourable' under the following circumstances:

- "*population dynamics indicate that the species is maintaining itself on a long-term basis as a viable component of its habitats;*
- *the natural range of the species is not being reduced, nor is likely to be reduced for the foreseeable future; and*
- *there is (and probably will continue to be) a sufficiently large habitat to maintain its population on a long-term basis.*"

NatureScot (SNH 2018a[iii]) recommends that "*the concept of favourable conservation status of a species should be applied at the level of its Scottish population, to determine whether an impact is sufficiently significant to be of concern. An adverse impact on a species at a regional scale (within Scotland) may adversely affect its national conservation status*". Thus, "*An impact should therefore be judged as of concern where it would adversely affect the existing favourable conservation status of a species or prevent a species from recovering to favourable conservation status, in Scotland.*"

In the case of non-designated sites in Scotland, the relevant regional context for many breeding species is considered to be the appropriate Natural Heritage Zone (NHZ) (SNH 2018a[iii]) within which a development is located. In the case of the Proposed Development, this is NHZ 15 'Loch Lomond, The Trossachs and Breadalbane'".

For wintering or migratory species, the national UK population or flyway population is considered to be the relevant scale for determining effects on the conservation status.

1.2 Magnitude

An effect is defined as a change of a particular magnitude to the abundance and/or distribution of a population as a result of the Proposed Development. effects can be adverse, neutral, or beneficial.

In determining the magnitude of effects, the resilience of a population to recover from temporary adverse conditions is considered in respect of each potentially affected population.

The sensitivity of individual species to anthropogenic activities is considered when determining spatial and temporal magnitude of an effect and is assessed using guidance described by Goodship & Furness (2022[iv]).

Effects are judged in terms of magnitude in space and time. There are five levels of spatial and temporal effect magnitude as detailed in **Table 6-3-2** and **Table 6-3-3** respectively.

Table 6-3-2 Extent of impact

Spatial Magnitude	Description
Very high	Total/near total loss of a bird population due to mortality or displacement. Total/near total loss of productivity in a bird population due to disturbance.

Spatial Magnitude	Description
	Guide: >80 % of population lost or increase in additive mortality.
High	Major reduction in the status or productivity of a bird population due to mortality or displacement or disturbance. Guide: 21-80 % of population lost or increase in additive mortality.
Medium	Partial reduction in the status or productivity of a bird population due to mortality or displacement or disturbance. Guide: 6-20 % of population lost or increase in additive mortality.
Low	Small but discernible reduction in the status or productivity of a bird population due to mortality or displacement or disturbance. Guide: 1-5 % of population lost or increase in additive mortality.
Negligible	Very slight (or no discernible) reduction in the status or productivity of a bird population due to mortality or displacement or disturbance. Reduction barely discernible, approximating to the "no change" situation. Guide: <1 % of population lost or increase in additive mortality.

Table 6-3-3 Duration of impact

Temporal Magnitude	Description
Permanent	Effects continuing indefinitely beyond the span of one human generation (taken as approximately 25-30 years), except where there is likely to be substantial improvement after this period. Where this is the case, long-term may be more appropriate.
Long-term	Approximately 15-25 years or longer (see above).
Medium-term	Approximately 5-15 years.
Short-term	Up to approximately 5 years.
Negligible	<12 months.

1.3 Significance

The potential significance of effect was determined through a standard method of assessment based on professional judgement, considering both feature sensitivity and magnitude of effect as detailed in **Table 6-3-4**.

Major and **moderate** effects are considered 'significant' in the context of the EIA Regulations.

Table 6-3-4 Significance Criteria.

Significance of Effect	Description
Major	The impact is likely to result in a long-term significant effect on the integrity of a feature.
Moderate	The impact is likely to result in a medium term, potentially significant effect on the integrity of a feature.
Minor	The impact is likely to affect a feature at an insignificant level by virtue of its limitations in terms of duration or extent, but there will probably be no effect on its integrity.
Negligible	No material effect.

[i] Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (version 1.2). Chartered Institute of Ecology and Environmental Management, Winchester: Chartered Institute of Ecology and Environmental Management (CIEEM): September 2018, updated April 2022.

[ii] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, 114, pp. 723-747

[iii] Scottish Natural Heritage (2018a). Assessing significance of impacts from onshore windfarms on birds out with designated areas. Version 2.

[iv] Goodship, N.M. and Furness, R.W. (MacArthur Green) Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.