Coille Beith Wind Farm

Technical Appendix 10.1: Legislation, Policy and Guidance

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Contents

1. Introduction

1.1.1 This Technical Appendix describes the relevant legislation, policy, and guidance documents used to inform the noise assessment of the Proposed Development, which forms **Chapter 10** of the EIA Report, Volume 2.

2. Legislation, Policy and Guidance

2.1 Legislation

Control of Pollution Act 1974

2.1.1 The Control of Pollution Act 1974[1] (CoPA) is relevant to a wind farm noise assessment primarily for construction noise. Section 60 allows local authorities to impose restrictions on construction site noise, while Section 61 enables developers to seek prior consent for noise levels and working methods. Construction traffic noise is generally outside CoPA's scope unless it occurs within the site boundary. Operational wind farm noise is primarily regulated through planning conditions.

Environmental Protection Act 1990

2.1.2 The Environmental Protection Act 1990[2] (EPA) is relevant to a wind farm noise assessment primarily through Part III, which addresses statutory nuisances, including excessive noise. Local authorities can take action under Section 79 if construction or operational noise is deemed a nuisance, considering factors such as duration, intensity, and impact on residents. If a nuisance is confirmed, an abatement notice under Section 80 can require mitigation measures. While construction traffic noise on public highways is generally excluded, noise from on-site activities may be subject to enforcement.

2.2 National Policy

National Planning Framework 4

2.2.1 The National Planning Framework[3] 4 (NPF4) adopted in 2023 sets out the Scottish Government's overarching ambitions with regards to various national planning policies. Policy 11: Energy states that development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported, but that noise effects on communities should be assessed. Policy 23: Health and Safety states that development proposals that are likely to raise unacceptable noise issues will not be supported.

Onshore Wind Policy Statement 2022

2.2.2 The Onshore Wind Policy Statement[4] (OWPS) 2022 references ETSU-R-97[5]and the Institute of Acoustics (IOA) Good Practice Guide[6] (GPG) as the framework by which noise from wind energy developments is measured and assessed.

2.2.3 It is considered that adherence to the noise limits set out in ETSU-R-97 (referred to in the OWPS) ensures that the proposed Development will not give rise to unacceptable noise impacts as described in terms of the policy 23 of NPF4.

Planning Advice Note PAN1/2011: Planning and Noise

2.2.4 PAN1/2011[7] identifies two sources of noise from wind turbines: mechanical noise and aerodynamic noise. It states that*; "…good acoustical design and siting of turbines is essential to minimise the potential to generate noise".* It refers to the Scottish Government's 'web-based planning advice' on renewables technologies for onshore wind turbines, which is described below.

[1] UK Government (1974). Control of Pollution Act 1974. Part III, Noise. Available at: https://www.legislation.gov.uk/ukpga/1974/40 [Accessed on 17/04/2025].
[2] UK Government (1990). Environmental Protection Act 1990. Available at: https://www.legislation.gov.uk/ukpga/1990/43 [Accessed on 17/04/2025].
[3] Scottish Government (2023). National Planning Framework 4. Available at: https://www.gov.scot/publications/national-planning-framework-4/ [Accessed on 17/04/2025].
[4] Scottish Government (2022). Onshore Wind Policy Statement 2022. Available at: https://www.gov.scot/publications/onshore-wind-policy-statement-2022/ [Accessed on 17/04/2025].
[5] Department of Trade and Industry (1996). ETSU-R-97, The Assessment and Rating of Noise from Wind Farms. DTI.
[6] Institute of Acoustics (IOA) (2013). A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise. IOA.ETSU-R-97, 1996. The Assessment and Rating of Noise from Wind Farms. IOA.
[7] Scottish Government (2011). Planning Advice Note PAN1/2011: Planning and noise. Available at: https://www.gov.scot/publications/planning-advice-note-1-2011-planning-noise/ [Accessed on 17/04/2025].

Assessment of Noise: Technical Advice Note

2.2.5 The Technical Advice Note[8] (TAN) to PAN1/2011 Assessment of Noise refers to the CoPA as the mechanism whereby local authorities can control noise from construction activities.

2.2.6 It lists several documents that contain advice on how to minimise such noise and includes BS 5228[9].

Onshore Wind Turbines: Planning Advice

2.2.7 The web-based planning advice for onshore wind turbines[10] states that the sources of noise are; *"…the mechanical noise produced by the gearbox, generator and other parts of the drive train; and the aerodynamic noise produced by the passage of the blades through the air…"* and that; *"there has been significant reduction in the mechanical noise generated by wind turbines through improved turbine design"*.

2.2.8 It states that: *"…the Report, 'The Assessment and Rating of Noise from Wind Farms' (Final Report, Sept 1996, DTI), (ETSU-R97), describes a framework for the measurement of wind farm noise, which should be followed by applicants and consultees, and used by planning authorities to assess and rate noise from wind energy developments, until such time as an update is available"*.

2.2.9 It notes further that: *"this gives indicative noise levels thought to offer a reasonable degree of protection to wind farm neighbours, without placing unreasonable burdens on wind farm developers, and suggests appropriate noise conditions"*.

2.2.10 The document goes on to reference the IOA GPG in terms of assessing noise associated with wind turbine developments. The IOA GPG is described below.

Planning Advice Note PAN50

2.2.11 Planning Advice Note (PAN) 50[11] provides advice on environmental effects arising from mineral working operations.

2.2.12 The advice is said to be relevant in considering planning applications, among other things, and is applicable to the construction of borrow pits which are frequently used during wind turbine construction and is relevant to blasting activities in particular.

2.2.13 PAN 50 Annex D The Control of Blasting at Surface Mineral Workings provides advice to planning authorities and the minerals industry on how to keep the effects of blasting from surface mineral workings within environmentally acceptable limits.

2.2.14 PAN 50 Annex D advocates primarily for the use of BS 5228 for the assessment of mineral workings noise, and for the minimisation of the need for blasting, as well as for engagement with the public, stating that: *"The response of an individual to any such event is dependent upon the same factors as that of groundborne vibration with the understanding of the phenomenon through public relations and the attitude of the operators being of utmost importance"*.

2.3 Local Policy

Highland-wide Local Development Plan

2.3.1 The Highland-wide Local Development Plan[12] (HwLDP) was adopted in 2012 and should be read alongside NPF4. It is noted that while they are intended to be complementary and to be read in parallel, there is the potential for different contradictory policy positions to arise. In the event of any incompatibility between a provision of the National Planning Framework and a provision of a local development plan, whichever of them is the later in date is to prevail. Within the HwLDP, noise from a wind turbine development is relevant primarily to the policies 67 and 72.

2.3.2 Policy 67 states that *"…the Council will support proposals where it is satisfied that they are located, sited and designed such that they will not be significantly detrimental overall, either individually or cumulatively with other developments…, having regard in particular to any significant effects on… the safety and amenity of any regularly occupied buildings and the grounds that they occupy- having regard to… the likely effect of noise generation"*.

[8] Scottish Government (2011). Assessment of noise: technical advice note. Available at: https://www.gov.scot/publications/technical-advice-note-assessment-noise/ [Accessed on 17/04/2025].
[9] British Standards Institute (2014). British Standard BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. BSI.
[10] Scottish Government (2014). Onshore wind turbines: planning advice. Available at: https://www.gov.scot/publications/onshore-wind-turbines-planning-advice/ [Accessed on 17/04/2025].
[11] Scottish Government (1996). Planning Advice Note 50: Controlling the environmental effects of surface mineral workings. Available at: https://www.gov.scot/publications/planning-advice-note-pan-50-controlling-environmental-effects-surface-mineral/ [Accessed on 17/04/2025].
[12] The Highland Council (2012), Highland-wide Local Development Plan. Available at https://www.highland.gov.uk/info/178/development_plans/199/highland-wide_local_development_plan [Accessed 17/04/2025].

2.3.3 Policy 72 states that "*Proposals that may result in significant pollution such as noise… will only be approved where a detailed assessment report on the levels, character and transmission and receiving environment of the potential pollution is provided by the applicant to show how the pollution can be appropriately avoided and if necessary mitigated. Where the Council applies conditions to any permission to deal with pollution matters these may include subsequent independent monitoring of pollution levels. Major Developments and developments that are subject of Environmental Impact Assessment will be expected to follow a robust project environmental management process, following the approach set out in the Council's Guidance Note "Construction Environmental Management Process for Large Scale Projects" or a similar approach".*

2.4 Guidance

Onshore Wind Energy Supplementary Guidance

2.4.1 The Highland Council's Onshore Wind Energy Supplementary Guidance[13] (OWESG) acknowledges that ETSU-R-97 and the associated IOA GPG represent best practice in terms of the assessment of noise from wind turbines, and that noise assessments submitted in support of wind turbine applications should be undertaken in accordance with the methods set out in those documents.

2.4.2 The OWESG further sets out four key principles:

a. Highland Council's expectation is that all proposals seek to achieve noise limits at sensitive locations that are at the lower end of the range indicated in national guidance, and that they may seek limits lower than that in certain circumstances. This is because, in effect, national guidance addresses an average and therefore does not account for Highland's generally lower level of background noise. For example, Highland has a generally low density of development and less noise-generating industry and transport infrastructure, with certain features like motorways not present. The specific limit will depend on area-specific factors and applicants are strongly encouraged to engage with the Council at the earliest opportunity to discuss noise limits of their proposal.

b. The selection of proxy background monitoring locations should also reflect this approach. Monitoring locations should be chosen which have similar characteristics to the properties they will represent. Where such locations do not exist or cannot be used, the expectation is that monitoring locations with the lowest background levels will be chosen to represent other properties. Applicants are advised to liaise with the Council to discuss monitoring locations prior to installation of equipment.

c. Where noise from more than one wind turbine development may have a cumulative impact at any noise sensitive location, applicants must ensure this is adequately assessed in accordance with best practice, which includes consideration of both predicted and consented levels.

d. Research into amplitude modulation is ongoing and currently there is no accepted best practice for measuring, monitoring or setting limits. Should any such guidance become available, Highland Council will expect developers to follow its recommendations.

BS 5228:2009+A1:2014

2.4.3 BS 5228: Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (BS 5228-1) provides example criteria for the assessment of the significance of construction noise effects, a method for the prediction of noise levels from construction activities, and practical information on construction noise and vibration reduction measures, promoting a 'Best Practicable Means' (BPM) approach to noise and vibration control.

ETSU-R-97

2.4.4 ETSU-R-97, *The Assessment and Rating of Noise from Wind Farms*, presents the recommendations of the Working Group on Noise from Wind Turbines, set up in 1993 by the Department of Trade and Industry (DTI) as a result of difficulties experienced in applying the noise guidelines at the time to wind farm noise assessments. The group comprised independent experts on wind turbine noise, wind farm developers, DTI personnel and local authority Environmental Health Officers. In September 1996 the Working Group published its findings by way of report ETSU-R-97. This document describes a framework for the measurement of wind farm noise and specifies noise limits, which were derived with reference to existing standards and guidance relating to noise emission from various sources.

2.4.5 ETSU-R-97 recommends that, although noise limits should be set relative to existing background and should reflect the variation of both turbine and background noise with wind speed; this can imply very low noise limits in particularly quiet areas, in which case, *"it is necessary to use a margin above background in such low-noise environments. This would be unduly restrictive on developments which*

[13] The Highland Council (2016), Onshore Wind Energy Supplementary Guidance. Available at: https://www.highland.gov.uk/downloads/file/16949/onshore_wind_energy_supplementary_guidance-_nov_2016 [Accessed 17/04/2025].

are recognised as having wider global benefits. Such low limits are, in any event, not necessary in order to offer a reasonable degree of protection to the wind farm neighbour".

2.4.6 For daytime periods, the noise limit is 35-40 dB L_{A90} or 5 dB(A) above the 'quiet daytime hours' prevailing background noise, whichever is the greater. The actual value within the 35-40 dB(A) range depends on the number of dwellings in the vicinity; the impact of the limit on the number of MWh generated; and the duration and level of exposure. The quiet daytime periods are defined as evenings from 18:00-23:00 hours, plus Saturday 13:00-18:00, and Sunday 07:00-18:00.

2.4.7 For night-time periods (23:00-07:00 hours) the noise limit is 43 dB L_{A90} or 5 dB(A) above the prevailing night-time hours background noise, whichever is the greater. The 43 dB(A) lower limit is based on an internal sleep disturbance criteria of 35 dB(A) with an allowance of 10 dB(A) for attenuation through an open window and 2 dB(A) subtracted to account for the use of the L_{A90} rather than the L_{Aeq} noise measurement index.

2.4.8 At properties that are occupied by residents with a direct financial benefit from the wind farm, the daytime and night-time lower limiting values are increased to 45 dB L_{A90}.

2.4.9 It is stated that the $L_{A90,10min}$ noise descriptor should be adopted for both background and wind farm noise levels and that, for the wind farm noise, this is likely to be between 1.5 and 2.5 dB less than the L_{Aeq} measured over the same period. The $L_{Aeq,t}$ is the equivalent continuous 'A' weighted sound pressure level occurring over the measurement period 't'. It is often used as a description of the average ambient noise level. Use of the L_{A90} descriptor for wind farm noise allows reliable measurements to be made without corruption from relatively loud, transitory noise events from other sources.

2.4.10 With regard to multiple wind farms in a given area, ETSU-R-97 specifies that the absolute noise limits and margins above background should relate to the cumulative impact of all wind turbines in the area contributing to the noise received at the properties in question. Existing wind farms should therefore be included in cumulative predictions of noise levels for proposed wind turbines and not considered as part of the prevailing background noise.

2.4.11 The prevailing background noise level is calculation via a best fit curve through values of background noise plotted against wind speed as measured during the appropriate time period with background noise measured in terms of $L_{A90,t}$. The $L_{A90,t}$ is the noise level which is exceeded for 90% of the measurement period 't'. It is recommended that at least 1 weeks' worth of measurements are required.

2.4.12 ETSU-R-97 also specifies that a penalty should be added to the predicted noise levels, where any tonal component is present. The level of this penalty is described and is related to the level by which any tonal components exceed audibility.

A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise

2.4.13 In May 2013, the IOA published *A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise*. This was subsequently endorsed by the Scottish Government. The publication of the GPG followed a review of current practice[14] carried out for the Department of Energy and Climate Change (DECC) and an IOA discussion document[15] which preceded the GPG.

2.4.14 The GPG includes sections on Context; Background Data Collection; Data Analysis and Noise Limit Derivation; Noise Predictions; Cumulative Issues; Reporting; and Other Matters including Planning Conditions; Amplitude Modulation; Post Completion Measurements; and Supplementary Guidance Notes.

2.4.15 The Context section states that the guide;

2.4.16 *"…presents current good practice in the application of the ETSU-R-97 assessment methodology for all wind turbine development above 50 kW, reflecting the original principles within ETSU-R-97, and the results of research carried out and experience gained since ETSU-R-97 was published"*.

2.4.17 As well as expanding on and, in some areas, clarifying issues which are already referred to in ETSU-R-97, additional guidance is provided on noise prediction and a preferred methodology for dealing with wind shear.

[14] Department of Energy and Climate Change (2011). Report on DECC Research Contract 01.08.09.01/492A (Analysis), Analysis of How Noise Impacts are Considered in the Determination of Wind Farm Planning Applications. DECC.
[15] Institute of Acoustics (2012). Discussion Document on A Good Practice Guide to the Application of ETSU-R-97 for Wind Turbine Noise Assessment. IOA.