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GLANLLYNFI GARTH WIND FARM

Draft Environmental Statement

Appendix 13B - Relevant Legislation, Planning
Policy and Technical Guidance



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1. Relevant Legislation, Planning Policy and Technical Guidance

1.1 Introduction

- 1.1.1 For wind farm developments there is no all-encompassing legislation relating to the standards associated with noise (including vibration) emission and effect. Legislation, where it does exist, tends to be either European Commission (EC) derived and focussed on specific items of noise-emitting plant or on more general nuisance, such as that addressed by the provisions of the Environmental Protection Act 1990.
- 1.1.2 This assessment draws from a variety of sources, including legislation, national planning policy, national planning guidance, local planning guidance, British Standards, technical guidance.

1.2 Legislation

Control of Pollution Act (1974)¹

- 1.2.1 Section 60 of the Control of Pollution Act 1974 provides the Local Authority powers for controlling noise arising from construction and demolition works, regardless of whether a statutory nuisance has been caused or is likely to be caused. These powers may be exercised either before works start or after they have started.
- 1.2.2 Section 61 of the Act provides a mechanism for contractors to apply for prior consent from the local authority before starting construction work. By obtaining this consent, contractors can agree on noise control measures in advance, ensuring compliance with local regulations and avoiding potential disputes.
- 1.2.3 Section 72 of the Act defines Best Practicable Means (BPM) to be adopted during construction activities. “Practicable” means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications. The means to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and acoustic structures.

Environmental Protection Act (1990)²

- 1.2.4 Section 79 of the Environmental Protection Act 1990 (as amended) declares a number of matters to be statutory nuisances, one of which is noise, the term being defined to include vibration. Under the provisions of the Act, the local authority is required to inspect its area periodically to detect any nuisance and, where a complaint of a statutory nuisance is made by a person living within its area, to take such steps as are reasonably practicable to investigate the complaint. Should it be satisfied of the existence of a statutory nuisance, the local authority is obliged to serve an abatement notice.

¹ UK Government (1974). Control of Pollution Act 1974. [online]. Available at: <https://www.legislation.gov.uk/ukpga/1974/40> [Accessed 22 June 2026].

² UK Government (1990). Environmental Protection Act 1990. [online]. Available at: <https://www.legislation.gov.uk/ukpga/1990/43/contents> [Accessed 22 June 2026].

1.3 National planning policy

Future Wales – The National Plan 2040 (2021)³

- 1.3.1 Future Wales - The National Plan 2040 (Future Wales) is the national development framework for Wales and outlines the development direction for Wales until 2040. It states that *“Planning Policy Wales contains the planning policy framework for addressing air quality, soundscape and noise”*.
- 1.3.2 Policies 17 and 18 are applicable to renewable and low carbon energy development, including Developments of National Significance (DNS) and re-powering.
- 1.3.3 Policy 17 confirms that The Welsh Government strongly supports the principle of developing renewable energy, but also that large-scale wind energy developments *“should demonstrate that they will not have an unacceptable adverse impact on the environment.”*
- 1.3.4 Policy 18 states that renewable and low carbon energy development of national significance will be permitted subject to Policy 17 and stated criteria including that *“there are no unacceptable adverse impacts by way of shadow flicker, noise, reflected light, air quality or electromagnetic disturbance...”*
- 1.3.5 Policy 18 also states that *“The cumulative impacts of existing and consented renewable energy schemes should also be considered.”*

Planning Policy Wales: Edition 12 (2024)⁴

- 1.3.6 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government and is supplemented by Technical Advice Notes (TANs). PPW sets out the importance of considering potential noise impacts from new energy infrastructure when making planning decisions.
- 1.3.7 In the section, *Location of commercial, industrial and other potentially polluting development*, it states that such development should be in areas where there is low potential for public exposure, or where its impact can be minimised.
- 1.3.8 It states, *“Further guidance on wind turbine noise assessment can be found in ETSU-R-97... and further good practice guidance published by the Institute of Acoustics.”*
- 1.3.9 These documents are the Energy Technology Support Units R-97 document *The assessment and rating of noise from windfarms* (ETSU-R-97)⁵, and the Institute of Acoustics *A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise* (IOA GPG)⁶. The IOA GPG includes six Supplementary Guidance Notes (SPGs) that add additional technical detail, worked examples, clarifications and case studies.

³ Welsh Government (2021). Future Wales: the national plan 2040. [online]. Available at: <https://www.gov.wales/future-wales-national-plan-2040> [Accessed 22 June 2026].

⁴ Welsh Government (2024). Planning Policy Wales. Edition 12. [online]. Available at: <https://www.gov.wales/planning-policy-wales> [Accessed 22 June 2026].

⁵ Department of Trade and Industry (1996). ETSU-R-97. The Assessment & Rating of Noise from Wind Farms. [online]. Available at: https://assets.publishing.service.gov.uk/media/5a798b42ed915d07d35b655a/ETSU_Full_copy_Searchable_.pdf [Accessed 22 June 2026].

⁶ Institute of Acoustics (2013). A Good Practice Guide to the Application Of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise. [online]. Including Supplementary Guidance Notes 1 to 6. Available at: <https://www.ioa.org.uk/publications/wind-turbine-noise> [Accessed 22 June 2026].

- 1.3.10 ETSU-R-97 was replaced by the policy paper *Assessment and rating of noise from wind turbines: guidance* (AWTN)⁷, published on 19 June 2026.

1.4 Local planning policy guidance

Bridgend County Borough Local Development Plan 2018-2033 (Adopted 2024)⁸

- 1.4.1 The Local Development Plan 2018-2033 is the statutory Development Plan for the County Borough. It includes the following policies which are relevant for noise and the Proposed Development:

- **SP3: Good Design and Sustainable Placemaking:**

“Planning applications must be supported through the submission of appropriate design and technical information to demonstrate compliance with criteria a) to o). All development must: ...

g) Avoid or minimise noise, air and soil and water pollution.”

- **SP8: Health and Well-being:**

“Health inequalities will be reduced and healthy lifestyles and choices encouraged by ensuring that development proposals: ...

6) Protect (and where possible enhance) safety, security and resilience and do not result in significant risk to life, human health or well-being, particularly in respect of air, noise, light, water or land pollution.”

- **SP13: Renewable and Low Carbon Energy Development:**

“1) Renewable and low carbon development proposals which contribute to meeting national and local renewable and low carbon energy and energy efficiency targets will be permitted where:

a) It can be demonstrated that there will be no unacceptable impacts on the natural and historic environment or local communities (such as noise and air pollution) and that no other unacceptable cumulative impacts will arise.”

- **DNP9: Natural Resource Protection and Public Health:**

“Development proposals will only be permitted where it can be demonstrated that they would not cause a new, or exacerbate an existing, unacceptable risk of harm to health, biodiversity and/or local amenity due to: ...

2) Noise pollution.”

⁷ Department for Energy Security and Net Zero (DESNZ) (2026). *Assessment and Rating of Wind Turbine Noise*. [online]. Available at: <https://assets.publishing.service.gov.uk/media/6a32b670e590e5e061c9a16b/wind-turbine-noise-guidance.pdf> [Accessed 01 July 2026].

⁸ Bridgend County Borough Council (2024), *Local Development Plan 2018-2033*. [online]. Available at: <https://www.bridgend.gov.uk/media/izcfqp1f/written-statement.pdf> [Accessed 22 June 2024].

1.5 National planning policy guidance

Technical Advice Note 11: Noise (1997)⁹

- 1.5.1 The Welsh planning guidance document Technical Advice Note 11: Noise (TAN 11) states that it should be read alongside national planning policy. It highlights that these documents may be material to individual planning decisions and will be taken into account by the Secretary of State and its inspectors when determining called-in planning applications and appeals.
- 1.5.2 Paragraph 3 confirms that:
- “This note provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business.”*
- 1.5.3 Paragraph 3 goes on to state:
- “It outlines some of the main considerations which local planning authorities should take into account in drawing-up development plan policies and when determining planning applications for development which will either generate noise or be exposed to existing noise sources.”*
- 1.5.4 In the section specific to noise from wind turbines and wind farms, the following is stated *“Detailed guidance on noise from wind turbines is contained in Planning Guidance (Wales), Technical Advice Note (Wales) 8, 'Renewable Energy', Welsh Office, 1996, Annex A, paragraphs A28-A38”.*
- 1.5.5 The 1996 Version of TAN 8 was updated in 2005. In the section titled ‘Noise’, the 2005 version states:
- “The report “The Assessment and Rating of Noise from Wind Farms” (ETSU-R-97), describes a framework for the measurement of wind farm noise and gives indicative noise levels calculated to offer a reasonable degree of protection to wind farm neighbours, without placing unreasonable restrictions on wind farm development or adding unduly to the costs and administrative burdens on wind farm developers or planning authorities. The report presents the findings of a cross-interest Noise Working Group and makes a series of recommendations that can be regarded as relevant guidance on good practice”.*
- 1.5.6 TAN 8 has been superseded by national development framework embedded within Future Wales, but as summarised above, Future Wales recognises PPW as containing the national planning policy framework.
- 1.5.7 The PPW in turn continues to reference ETSU-R-97, recognising it as providing guidance on the assessment of wind turbine noise. ETSU-R-97 was replaced by the policy paper AWTN, published on 19 June 2026.
- 1.5.8 With respect to noise from construction sites, TAN 11 refers to BS 5228 Parts 1-4 stating at paragraph B20:
- “Detailed guidance on assessing noise from construction sites can be found in BS 5228, parts 1-4. In particular, Part 1: 1984, “Code of practice for basic information and procedures for noise control” describes a method for predicting noise from construction sites as well as giving general advice.”*

⁹ Welsh Government (1997). Planning Guidance (Wales), Technical Advice Note (Wales) 11, Noise. [online]. Available at: <https://www.gov.wales/sites/default/files/publications/2018-09/tan11-noise.pdf> [Accessed 22 June 2026].

1.5.9 The current version of BS 5228 comprises BS 5228:2009+A1:2014: *Code of practice for noise and vibration control on construction and open sites - Part 1: Noise and Part 2: Vibration*.

1.5.10 An updated draft TAN 11 has been published for consultation but is not policy. Wind turbine noise is outside the scope of the draft TAN 11 document. BS 5228-1 and BS 5228-2 continue to be referenced with respect to construction noise and vibration.

Updates to TAN 11: Noise (2015)¹⁰

1.5.11 This update to TAN 11 was produced in response to revisions to supporting legislation and British Standards.

1.5.12 The document highlights that PPW and TAN 11 are the appropriate documents when noise is a consideration in the planning of a new development.

1.5.13 The document endorses “*the Institute of Acoustics Good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise*.” And goes on to state “*The Department of Energy and Climate Change have commenced further work on amplitude modulation and any Welsh Government position on this work would be considered at the appropriate time.*”

1.5.14 ETSU-R-97 was replaced by the policy paper AWTN, published on 19 June 2026 and which provides latest recommendation for the control of potential amplitude modulation.

Noise and Soundscape Plan for Wales 2023-2028¹¹

1.5.15 Presents the Welsh national strategy on soundscapes. It highlights that wind turbine developments “*must respond well to their context and contribute to meeting our ambitions for low carbon energy generation.*” Wind turbine development proposals must seek to minimise their impact to homes and tourism receptors; and that communities should be protected from significant cumulative impacts.

1.5.16 The document confirms current UK noise assessment guidance is ETSU-R-97 and IOA GPG. The document advises that since ETSU-R-97 was published, the context has changed, including:

- There is increased understanding of the range of physical and operational factors that influence wind turbine sound.
- Further research has been undertaken to investigate the effects of wind turbine sound exposure on individuals and communities.
- A feature of wind turbine sound known as “amplitude modulation” has been reported as impacting people beyond the extent that was considered at the time of ETSU-R-97.
- New approaches to addressing the impacts of wind turbine noise, including amplitude modulation, have been developed.

1.5.17 ETSU-R-97 was replaced by the policy paper AWTN, published on 19 June 2026, which provides latest recommendation for the control of potential amplitude modulation.

¹⁰ Welsh Government (2015). CL-01-15 Updates to TAN 11: Noise – Noise Action Plan (2013-18) Commitments. [online]. Available at: <https://www.gov.wales/updates-technical-advice-note-tan-11-noise-cl-01-15> [Accessed 22 June 2026].

¹¹ Welsh Government (2023). Noise and Soundscape Plan for Wales 2023 to 2028. [online]. Available at: <https://www.gov.wales/noise-and-soundscape-plan-for-wales-2023-2028> [Accessed 22 June 2026].

- 1.5.18 The UK Government has introduced legislation mandating the target to reduce all greenhouse gas emissions to net zero by 2050, the achievement of which will require increased deployment of onshore wind energy generation capacity.
- 1.5.19 The document references the report for BEIS: *A review of noise guidance for onshore wind turbines* and states that “current UK guidance would benefit from being updated to address a number of unresolved issues, including how to assess the impacts of amplitude modulation. As a minimum, the WSP review of ETSU-R-97 raises questions that need to be answered by professional organisations with expertise in this field.”. The UK Government has since published the policy paper AWTN, as noted above.

1.6 Technical guidance

Assessment and Rating of Wind Turbine Noise (2026)¹²

- 1.6.1 In June 2026, the Department for Energy Security and Net Zero (DESNZ) published *Assessment and Rating of Wind Turbine Noise* (ANWT), which replaces ETSU-R-97 (1996) as the primary UK technical guidance for the assessment and control of operational noise from onshore wind turbines.
- 1.6.2 The guidance represents the current UK Government position on the assessment and rating of operational wind turbine noise and is intended for use by developers and planning authorities across the United Kingdom.
- 1.6.3 The document was developed following an independent review of existing guidance and a subsequent public consultation process. It is intended to provide a contemporary and consistent framework for the assessment of operational wind turbine noise while maintaining an appropriate balance between environmental protection and facilitating renewable energy development.
- 1.6.4 The guidance retains the fundamental principles of the ETSU-R-97 approach; however, the methodology has been updated to reflect current understanding of wind turbine acoustics, noise propagation, cumulative assessment and community response to turbine noise.
- 1.6.5 Key areas addressed within the document include:
- the derivation of site-specific daytime and night-time operational noise limits (SSNLs);
 - background noise survey requirements and data analysis procedures;
 - prediction of wind turbine noise levels;
 - assessment of cumulative noise effects from multiple wind energy developments;
 - consideration of acoustic character, including tonal noise and amplitude modulation;
 - reporting requirements and the development of planning conditions; and
 - post-consent compliance and operational noise management.
- 1.6.6 Operational noise limits are set with reference to prevailing background sound levels and fixed minimum noise criteria (‘Lower Limiting Value or ‘LLV’), recognising that acceptable noise levels vary according to local acoustic conditions. Like ETSU-R-97 before it, it also

¹² Department for Energy Security and Net Zero (DESNZ) (2026). *Assessment and Rating of Wind Turbine Noise*. [online]. Available at: <https://assets.publishing.service.gov.uk/media/6a32b670e590e5e061c9a16b/wind-turbine-noise-guidance.pdf> [Accessed 01 July 2026].

requires compliance to be assessed on a cumulative basis, accounting for the contribution of all acoustically relevant wind turbine developments at noise-sensitive receptors.

- 1.6.7 Operational wind turbine noise limits are determined as the greater of either 5 dB above the typical background sound level or the relevant LLV. For non-financially involved properties, the LLV is set in the range of 35-40 dB during the daytime period (07:00-23:00) and 43 dB during the night-time period (23:00-07:00). The LLV is selected taking account of the generating capacity of the wind farm, the number of dwellings in the neighbourhood of the wind farm and the magnitude of the level to which these are exposed, and the duration and level of exposure of dwellings to wind turbine noise. This approach is unchanged from ETSU-R-97. Representative background sound levels are derived from measurements undertaken during night-time and during 'quiet daytime' periods.
 - 1.6.8 A new provision of the guidance is that, where daytime and night-time background sound levels are found to be similar, the quiet daytime and night-time data may be analysed together to derive a single noise limit that applies to both periods, subject to agreement with the Local Authority. This is an optional approach, and its use is not mandatory.
 - 1.6.9 Operational compliance monitoring is based on rated noise levels, including character corrections where applicable. The guidance recommends applying corrections for tonal noise and elevated amplitude modulation (AM), where these characteristics are identified through compliance monitoring. The analysis mechanisms to determine the presence of these features are presented. The occurrence of these characteristics cannot generally be predicted reliably at the planning stage. Tonal noise is typically associated with specific turbine designs or component faults, and elevated AM cannot currently be predicted reliably. The guidance advises that neither tonal nor AM character corrections should normally be included within planning-stage assessments. Instead, these characteristics are best controlled through planning conditions and post-construction compliance procedures, with corrections applied only where confirmed by measurement.
 - 1.6.10 The guidance also identifies several aspects of wind turbine noise that do not normally require separate assessment at the planning stage. These include infrasound, ground-borne vibration and low-frequency sound, on the basis that their effects are either negligible or adequately controlled through compliance with the operational noise criteria that are set out in the guidance.
 - 1.6.11 The guidance does not provide detailed procedures for every technical aspect of wind turbine noise assessment and where topics are not covered comprehensively, it is recommended that practitioners should follow established good practice, such as guidance published by the Institute of Acoustics (IOA).
- Energy Technology Support Units R-97 document: The Assessment and Rating of Noise from Windfarms (1996)¹³
- 1.6.12 This document was replaced by the policy paper AWTN, published on 19 June 2026. Given the recent publication of the replacement guidance, ETSU-R-97 continues to be referenced within a number of planning policy documents, technical guidance notes and existing wind farm consents. In addition, the daytime and night-time noise level limits, and the approach to the determination of the prevailing background sound levels as detailed within the AWTN remain unchanged from the approach documented in ETSU-R-97.

¹³ Department of Trade and Industry (1996). ETSU-R-97. The Assessment & Rating of Noise from Wind Farms. [online]. Available at: https://assets.publishing.service.gov.uk/media/5a798b42ed915d07d35b655a/ETSU_Full_copy_Searchable_.pdf [Accessed 22 June 2026].

Accordingly, a summary of ETSU-R-97 is provided below for context and to assist with understanding the basis of earlier guidance and consented noise limits.

- 1.6.13 This document was written by a 'Noise Working Group' (NWG) including developers, noise consultants and environmental health officers, set up in 1995 by the Department of Trade and Industry through ETSU (the Energy Technology Support Unit).
- 1.6.14 This document presents a consensus view of the working group and was prepared to present a common approach to the assessment of noise from wind turbines. This document states that noise from wind turbines or wind farms should be assessed against site specific noise limits.
- 1.6.15 These limits are derived based on a set of acceptable lower limits, and an allowable exceedance above the prevailing background noise levels, including consideration to a range of prevailing wind speed conditions, relevant to the Proposed Development. The noise limits should be derived for external areas used for relaxation, or areas where a quiet noise environment is highly desirable. Separate limits are required for night-time and daytime periods. Night-time limits are derived drawing upon measured night-time background noise levels, whilst daytime limits are derived drawing upon the background noise levels measured during 'quiet daytime' periods.
- 1.6.16 Night-time is defined as the period 23:00 to 07:00, whilst 'quiet daytime' periods are defined as 18:00 to 23:00 on all days, as well as 13:00 to 18:00 on Saturdays and Sundays, and 07:00 to 13:00 on Sundays.
- 1.6.17 For the daytime, the suggested limits are 5 dB above the prevailing background noise level determined during quiet daytime periods, or 35 to 40 dB(A), whichever is the higher. The absolute criterion within the 35 to 40 dB(A) range is selected taking account of the Development Site environs (e.g. number of local receptors), the energy generation capacity of the wind farm (e.g. number of kilowatt Hours (kWh) that can be generated), and the associated duration and level of exposure.
- 1.6.18 During the night-time, the suggested limits are 5 dB above the prevailing night-time background noise level or 43 dB(A), whichever is the higher. The absolute criterion for the night-time is higher than that for the daytime, as the derivation of this limit is based on preventing sleep disturbance within a building whereas for the daytime, limits are based on occupation of external spaces used for relaxation.
- 1.6.19 It is required that the prevailing background noise levels are determined in terms of the $L_{A90,10 \text{ min}}$ noise index for both quiet daytime and night-time periods, for wind conditions ranging from 2 to 12 m/s.
- 1.6.20 The noise limits are calculated by undertaking a regression analysis of the $L_{A90,10 \text{ min}}$ background noise levels and the prevailing average wind speed for the same 10-minute periods, when measured or determined at 10 m above ground at the location of the proposed wind turbines. The allowable limit is then defined at +5 dB above the average noise level at each wind speed (as defined by the regression analysis), or the absolute noise level lower limit (or 'fixed element'), whichever is the higher (assuming no financial involvement with the scheme).
- 1.6.21 Where a property has a financial involvement in the scheme, the document allows a relaxation of the derived noise limits, stating that *"It is widely accepted that the level of disturbance or annoyance caused by a noise source is not only dependent upon the level and character of noise but also the receiver's attitude towards the noise source in general. If the residents at the noise-sensitive properties were financially involved in the project, then higher noise limits will be appropriate."*
- 1.6.22 The document goes on to state *"It is recommended that both the day and night-time lower fixed limits can be increased to 45 dB(A) and that consideration should be given to*

increasing the permissible margin above background where the occupier of the property has some financial involvement in the windfarm.”

- 1.6.23 The ETSU guidance states that the derived limits should be applied to noise from the proposed wind farm or wind turbines in terms of the $L_{A90,T}$ index, and that the $L_{A90,T}$ of the wind farm noise is typically 1.5 to 2.5 dB less than the $L_{Aeq,T}$ measured over the same period.
- 1.6.24 The derived noise limits are applicable to both the aerodynamic (e.g. ‘blade swish’) and mechanical (e.g. generator related) components of wind farm noise.
- 1.6.25 Where noise from the wind farm is tonal, a correction of between 2 and 5 dB is to be applied to the wind farm noise. Guidance is provided on how to determine the level of correction required, but typically, the need for any applicable correction is confirmed by the wind turbine manufacturers.
- 1.6.26 It is stated that *“The NWG is of the opinion that absolute noise limits and margins above background should relate to the cumulative effect of all wind turbines in the area which contribute to the noise received at the properties in question. It is clearly unreasonable to suggest that, because a windfarm was constructed in the vicinity in the past which resulted in increased noise levels at some properties, that residents of those properties are now able to tolerate still higher noise levels. The existing windfarm should not be considered as part of the prevailing background noise.”*
- 1.6.27 Accordingly, where an existing wind farm contributes to the prevailing background noise levels:
- it is necessary that significantly affected measurements are discarded in the determination of the underlying baseline conditions; and
 - it is necessary to either include for the contribution of that wind farm when assessing wind farm noise levels against the allowable noise limits, or correct for that contribution when deriving a limit applicable to the proposed wind farm operating in isolation.
- 1.6.28 ETSU-R-97 also details a simplified assessment methodology, which is based on the principle that if the lowest fixed element for the daytime noise limits (35 dB $L_{A90,T}$) can be met at high wind speeds, then the need to consider the limit element which is relative to the background noise levels can be discounted, because this would only be higher at such speeds.

The Institute of Acoustics: A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise (2013)¹⁴

- 1.6.29 The IOA GPG presents the report of a ‘Noise Working Group (NWG)’ assembled in response to a request from the former Department of Energy and Climate Change. The guide represents current good practice in assessing the noise impact of wind turbine developments with a power rating of over 50 kilowatts (kW).
- 1.6.30 ETSU-R-97 was replaced by the policy paper AWTN, published on 19 June 2026. The AWTN advises that where topics are not covered comprehensively, practitioners should follow established good practice, such as guidance published by the IOA.
- 1.6.31 The document provides clarification and updated guidance on a range of matters relating to wind farm noise assessments, including consultation with relevant stakeholders,

¹⁴ Institute of Acoustics (2013). A Good Practice Guide to the Application Of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise. [online]. Including Supplementary Guidance Notes 1 to 6. Available at: <https://www.ioa.org.uk/publications/wind-turbine-noise> [Accessed 22 June 2026].

background noise survey methodology, noise survey data analysis, derivation of noise limits, noise prediction model input data, algorithms and parameters, cumulative impact assessment procedures, assessment reporting, planning conditions and amplitude modulation. A set of supplementary guidance notes also form part of the publication and include further specific detail for different technical areas.

1.6.32 Key considerations relevant to the preparation of this assessment include:

- calculations of predicted wind turbine noise may be carried out using ISO 9613-2: Acoustics – Attenuation of sound during propagation outdoors (International Organization for Standardization) (ISO 9613-2); preferred receptor heights, meteorological and ground absorption input parameters for this calculation procedure are given;
- wind turbine sound power level source data should include appropriate uncertainty corrections. Guidance is given for determining when such uncertainty corrections have been inherently included in wind turbine source emission data;
- ‘excess amplitude modulation’ (i.e. where the wind turbine noise has higher variability with momentary time than the 2 to 3 dB(A) considered within ETSU-R-97) is still the subject of research; current practice (at the time of publishing of the IOA GPG) in relation to determining applications for wind turbine developments is to not impose a planning condition specific to this phenomenon; and
- a method is detailed within the IOA GPG to allow the effect of wind direction to be taken into account during noise level predictions. This method details a number of corrections based on the angle of the wind in relation to the position of the source and receiver, and the nature of the local ground (flat or complex).

1.6.33 The IOA GPG also confirms that the ETSU-R-97 noise level limits should be applied cumulatively and provides guidance on determining when a cumulative assessment is required as well as appropriate cumulative assessment methods for a variety of different scenarios. These scenarios include ‘concurrent application’, ‘existing wind farm consented with less than total ETSU-R-97 limits’, ‘existing wind farms consented to the total ETSU-R-97 limits currently operating’, ‘permitted wind farm consented to total ETSU-R-97 limits but not yet constructed’, and ‘significant headroom present’.

1.6.34 In the section titled ‘Cumulative Impact Assessment necessary’, it is stated that:

“During scoping of a new windfarm development consideration should be given to cumulative noise impacts from any other windfarms in the locality. If the proposed wind farm produces noise levels within 10 dB of any existing windfarms at the same receptor location, then a cumulative noise impact assessment is necessary.”

“Equally, in such cases where noise from the proposed wind farm is predicted to be 10 dB greater than that from the existing wind farm (but compliant with ETSU-R-97 in its own right), then a cumulative noise impact assessment would not be necessary.”

1.6.35 This confirms that where noise levels from the new development are 10 dB(A) or more below the limits imposed on surrounding developments, or are 10 dB(A) or more below the levels predicted from other proposed developments, further consideration to cumulative impacts is not required. This approach is supported in the AWTN.

1.6.36 Advice on appropriate assessment methods is then provided for a situation where the 10 dB difference check is not demonstrable.

1.6.37 The guidance provides examples for concurrent applications, existing wind farms with reduced consented limits, developments with significant noise headroom, and unbuilt consented schemes. In each case, the cumulative noise limit is maintained by deriving

limits for individual developments that account for the contribution of neighbouring wind farms. This approach is consistent with the AWTN, which states that individual site-specific noise limits should be defined for each wind farm and secured through planning conditions such that cumulative noise levels comply with the applicable assessment criteria.

- 1.6.38 The IOA GPG also describes the concept of a ‘controlling property’, whereby compliance with a noise limit at one receptor may result in residual headroom at other receptors due to differences in separation distance and propagation conditions. This principle can equally be applied where the site-specific limits in question are less than the total noise assessment criteria.

Designing for Renewable Energy in Wales (2023)¹⁵

- 1.6.39 This document was prepared to set out the key design objectives and considerations for the sensitive development of large-scale onshore wind and solar installations as well as ancillary development in Wales.
- 1.6.40 The document confirms that TAN 11 forms part of the planning framework and that it provides advice on how to use the planning system to reduce the adverse impact of noise.
- 1.6.41 The Section entitled ‘Noise’ is reproduced:

“Irrespective of location or scale, the design and micro-siting of wind turbines must seek to minimise their noise impact, particularly where turbines would be near homes and tourism receptors.

The current UK wind turbine noise assessment guidance for residential receptors is set out in ETSU-R-97, a Good Practice Guide on the application of ETSU-R-97, and Supplementary Guidance Notes. The Welsh Government has endorsed the use of this guidance in Wales.

A review of noise guidance for on-shore wind turbines has been undertaken and any changes to UK guidance arising from this review will be considered by the Welsh Government^{6”}

- 1.6.42 The referenced footnote 6 is a report commissioned by the UK Government and prepared by WSP (the ‘BEIS Report’ - see below).

Report for UK Government: A review of noise guidance for onshore wind turbines (2023) (BEIS Report)¹⁶

- 1.6.43 Prepared by WSP for the UK Government and published in February 2023, this study sets out the findings of a detailed literature review and extensive stakeholder engagement exercise. The review was aimed at answering the question as to whether existing noise assessment guidance for wind turbine noise (at that time, i.e. ETSU-R-97) should be updated in view of government policies on noise and commitments to net zero.
- 1.6.44 The review represented only an initial step in any process of updating existing guidance as may subsequently be progressed. The review identified guidance areas that warrant consideration for updating and provides recommendations for further evidence needed to support any future updates, should they be progressed.

¹⁵ Welsh Government (2023). Designing for Renewable Energy in Wales. [online]. Available at: <https://www.gov.wales/designing-renewable-energy-wales> [Accessed 22 June 2026].

¹⁶ Department for Business, Energy & Industrial Strategy (2023). A Review of Noise Guidance for Onshore Wind Turbines. [online]. Available at: <https://www.wsp.com/en-gb/insights/wind-turbine-noise-report> [Accessed 22 June 2026].

- 1.6.45 The BEIS Report did not introduce new guidance, nor was it intended to replace ETSU-R-97. It did not supersede any element of the policy or guidance frameworks applicable in Wales or elsewhere in the UK. As summarised above, the *Designing for Renewable Energy in Wales* guidance confirms that the Welsh Government would consider any future changes to UK wind turbine noise guidance arising from the BEIS Report.
- 1.6.46 Since the publication of the BEIS Report, the policy paper AWTN, published on 19 June 2026, has replaced ETSU-R-97 as the primary UK guidance for the assessment and rating of wind turbine noise.

Practice Guidance: Planning Implications of Renewable and Low Carbon Energy (2011)¹⁷

- 1.6.47 This practice guidance is a tool to support Local Planning Authorities (LPAs) in dealing with applications for renewable and low carbon energy development.
- 1.6.48 It highlights that careful design of wind turbine development is required to ensure acceptable noise levels are achieved at noise-sensitive properties; increases in noise levels can be minimised by ensuring sufficient separation distances between turbines and receptors.
- 1.6.49 It advises that operational noise levels meet ETSU-R-97 limits (ETSU-R-97 was replaced by the policy paper AWTN, published on 19 June 2026). For construction and decommissioning activity, it recommends restricting working hours and adopting good practice measures for reducing noise in line with BS 5228-1 and BS 8233.

Design Manual for Roads and Bridges, LA 111, Noise and Vibration (2020)¹⁸

- 1.6.50 The Design Manual for Roads and Bridges, LA 111, *Noise and vibration* (DMRB LA 111) provides comprehensive guidelines for assessing and reporting the likely significant effects of noise and vibration associated with highway projects during construction, operation and maintenance. It sets out methodologies for predicting construction and operational impacts..
- 1.6.51 The assessment is based on the prediction of noise and vibration impacts at sensitive receptors, consideration of both the magnitude of change and absolute noise levels, and comparison against Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL) thresholds. Professional judgement is applied to determine significance, taking account of magnitude of change, absolute noise level, acoustic context and residents' perception. Operational road traffic noise is assessed using the CRTN methodology, while construction noise and vibration are assessed primarily in accordance with BS 5228.

Calculation of Road Traffic Noise (1988)¹⁹

- 1.6.52 The Calculation of Road Traffic Noise (CRTN) methodology provides the established UK procedure for predicting road traffic noise levels and is widely used in environmental assessments of transport schemes. The method calculates noise levels from road traffic using input parameters including traffic flow, vehicle speed, proportion of heavy vehicles, road gradient, road surface type and the distance between the road and receptor. Corrections are applied to account for sound propagation effects such as screening,

¹⁷ Welsh Government (2011). Planning implications of renewable and low carbon energy development: practice guidance [online]. Available at: <https://www.gov.wales/planning-implications-renewable-and-low-carbon-energy-development-practice-guidance> [Accessed 22 June 2026].

¹⁸ Highways England (2020) Design Manual for Roads and Bridges (DMRB), LA 111, Noise and vibration. Revision 2. Available at: <https://www.standardsforhighways.co.uk/search/cc8cfcf7-c235-4052-8d32-d5398796b364> [Accessed 22 June 2026]

¹⁹ Department of Transport and Welsh Office (1988) Calculation of Road Traffic Noise. London: Her Majesty's Stationery Office (HMSO)

ground cover, barriers, reflections from buildings and local topography. Predicted noise levels are typically expressed as daytime $L_{A10,18h}$ values and form the basis of operational road traffic noise assessments. CRTN is the calculation methodology adopted within DMRB LA 111 for the prediction and assessment of road traffic noise effects associated with highway projects.