The Institute of Acoustics

Response to the Consultation on changes to permitted development rights for onshore wind turbines in England - New PDR proposal: installations in non-domestic settings.

Introduction

The Institute of Acoustics (IOA) is the UK's professional body for those working in acoustics, sound, noise and vibration. The IOA has some 3000 members from diverse backgrounds, with engineers, scientists, educators, lawyers, occupational hygienists, architects and environmental health practitioners among their number. This multidisciplinary culture provides a productive environment for cross-fertilisation of ideas and initiatives. The range of interests of members within the world of acoustics is equally wide, embracing such aspects as aerodynamics, architectural acoustics, building acoustics, electroacoustics, engineering dynamics, noise and vibration, hearing, speech, underwater acoustics, together with a variety of environmental aspects.

Whilst members of the IOA are not routinely involved in the assessment process for a wind turbine installation under the MCS scheme, much of the assessment process and potential cumulative noise issues are common with and could affect the much larger turbine schemes which are made through the planning process. Therefore, any proposed changes to permitted development rights (PDR) to include non-domestic premises could directly affect the work of our membership both as consultants assisting developers with their planning applications and as regulators evaluating proposals.

Background

Members of the IOA regularly carry out noise impact assessments for wind turbine / farm developments, either for developers, objector groups, or decision-makers as stakeholders to the planning process. They also contribute significantly to international standards pertaining to wind turbine/farm noise. The IOA also has a long history of providing support to members for the application of the ETSU-R-97 methodology, having worked with Government to produce good practice guidance in 2013, and more recently in 2016 to produce the IOA rating method for the quantification and assessment of amplitude modulation (AM) in wind turbine noise. Members also assisted with the development of the MCS 020 certification scheme used for permitted development.

Often in collaboration with other professional and trade bodies, such as the Chartered Institute of Environmental Health and the Association of Noise Consultants, the IOA has published a number of relevant guidance documents on noise from wind turbines:

- **A Good Practice Guide to the Application of ETSU-R-97 for the assessment and rating of wind turbine noise, 2013 (IOAGPG) -** Endorsed by Government as good practice guidance
- **A series of six Supplementary Guidance Notes to the IOAGPG, 2014**
- **Amplitude modulation Work Group, Final Report, 2016 –** Sets out the IOA AM Metric

These documents can be found on the IOA website at: https://www.ioa.org.uk/publications/wind-turbine-noise. This consultation response was prepared by the following members of the IOA who have relevant expertise in the assessment of noise and vibration from wind turbine projects, as well as the creation and implementation of local and national government noise policy:

- **Richard Perkins, Mott MacDonald**
- **Matthew Cand, Hoare Lea**
- **Andrew Birchby, TNEI Group**
- **Michael Reid, SSE Renewables**

The IOA is delighted to provide comments on the proposed changes where it is covered by the expertise and experience of our membership.

Response to Specific Proposed Reforms

1a. Do you agree that a new PDR should be introduced for a wind turbine in non-domestic settings?

Yes.

1b. Please explain your answer.

The inclusion of a single wind turbine for non-domestic premises under the PDR appears to be a pragmatic extension of the rules to those that exist currently for domestic dwellings. The rules must be carefully constructed to ensure that the MCS scheme can be applied to control the potential for noise impacts, particularly to neighbouring noise sensitive dwellings, and manage the potential for cumulative impacts to occur. It should also be weighed up in the decision to extend PDR to non-domestic premises on the potential for these to compromise much larger wind farm schemes in the vicinity. These points are discussed in more detail in response to later questions.

2a. Do you agree that this PDR should be limited to a single turbine within the boundary of the curtilage?

Yes.

2b. Please explain your answer.

Cumulative impacts from multiple on-site, or multiple turbines from a combination of neighbouring installations has the potential to create unacceptable noise impacts unless these situations are avoided under PDR. These situations should be considered in the full planning system using ETSU-R-97 and the Institute of Acoustics Good Practice Guide.

3a. Do you agree with a maximum 30 metre tip height for the non-domestic wind turbine?

No comment

3b. Please explain your answer.

N/a

3c. Do you agree with a maximum rotor swept area of 200m2?

Yes, but some concerns remain.

3d. Please explain your answer.

The proposed turbine scale is larger than those allowed under the rules for permitted development for residential premises (which are based on a swept area limit no more than 3.8 m²). Although the consultation document suggests this would be limited to a capacity of 50 kW, it is not clear if this would be explicitly restricted (for example through reference to microgeneration or the “small turbine” definition of MCS 006). Turbines of such dimensions with a capacity in excess of 50 kW could emit larger amounts of noise such that the limit of 10 rotor diameters to "protected buildings" may not be sufficient. In any case, the noise requirements of the MCS 020b certification should also be enforced (see other responses).

4a. Do you think that a PDR should facilitate the installation of larger turbines on a site?

No

4b. Please explain your answer, including any evidence, examples or case studies that inform your view.

Larger turbines may have increased noise emissions in addition to other impacts, and these would require more detailed assessment.

4c. What types of impacts (positive or negative) might arise from allowing larger turbines to be installed under a PDR?

Noise emissions tend to scale with the turbine dimensions (in particular the swept area) although they also depend on the rotor speed and other characteristics of the turbine. Therefore, allowing larger turbine dimensions increases the risks of noise impacts. Potential cumulative impacts with other turbines may also require consideration in some cases. Therefore, a more detailed assessment is recommended.

4d. Do you think that a PDR should facilitate the installation of multiple turbines on a site?

No.

4e. Please explain your answer, including any evidence, examples or case studies that inform your view.

Increased noise levels can arise from multiple turbines adding up at a sensitive receptor, depending on their relative position and arrangement. The permitted development process and MCS certification method is unlikely to be sufficiently robust or detailed enough to handle the potential impacts of multiple turbines.

4f. What types of impacts (positive or negative) might arise from allowing multiple turbines to be installed under a PDR?

Cumulative impacts of noise are complex and depend on a wide range of factors, but simply speaking, the noise levels from multiple turbines would increase with the number of turbines (assuming they are located at comparable distances from a sensitive receptor), therefore increasing the impact associated with the operational noise of the turbines.

4g. If you answered 'yes' to Q4a or Q4d, are there specific criteria the policy could introduce to help determine when more than one turbine or larger turbines may be appropriate?

We answered no, as the permitted development process and MCS certification method is unlikely to be sufficiently robust or detailed enough to handle the potential impacts of multiple turbines. However, see answer to question 8b: if the Government is minded allowing several turbines to be permitted under this framework, a minimum separation distance of 100 rotor diameter between turbines would limit the risk of perceptible cumulative noise increases between turbines. This may be relevant to commercial premises with large available areas which would allow such a distanced installation.

4h. If you answered 'yes' to Q4a or Q4d, what criteria, safeguards, additional requirements or approaches should apply to ensure that the impacts of allowing more than one turbine or larger turbines could be effectively managed?

See answer to 4g.

7a. Do you agree with requiring a buffer distance of the tip height + 10% from the boundary of the curtilage?

Yes as long as the noise requirements of MCS 020b are also met at dwellings.

7b. Please explain your answer.

Whilst there is no objection to the inclusion of the suggested buffer distance in relation to noise, this may not be sufficient on its own to protect neighbouring dwellings from high levels of noise. It is recommended that noise limits in line with those specified in MCS 020b are also met by any proposed

turbine i.e. the turbine should satisfy both the tip height + 10% buffer from the boundary of the curtilage and meet the MCS 020b requirements at all neighbouring dwellings.

Note that 'dwellings' are defined in MCS 020b as any building used for any of the purposes of Class C of the Town and Country Planning (Use Classes) Order 1987 (as amended) (includes dwellings, houses, hotels, residential institutions and houses in multiple occupation) for which the limits specified in MCS 020b apply.

7c. Do you agree with requiring a buffer distance of ten times the rotor diameter from the curtilage of protected buildings?

Yes, if the noise requirements of MCS 020b are also met at all dwellings.

7d. Please explain your answer.

As per 7b, there is no objection to the suggested buffer distance on noise grounds, the IOA would recommend that the noise requirements specified by MCS 020b are also met at all neighbouring dwellings.

It would also be recommended that the MCS 020b noise requirements are complied with for all dwellings that are located within the non-domestic unit which is applying to install the wind turbine. Whilst not including such dwellings within the definition of 'protected buildings' may be appropriate if the occupants benefit from the proposed scheme, and thereby have a higher tolerance for noise, this may not always be the case e.g. if the dwelling is occupied by tenants.

The use of higher noise limits for financially involved residents is allowed under ETSU-R-97, the guidance used to assess wind farm noise within the UK. However, ETSU-R-97 specifically states that the occupants of a dwelling must be financially involved in the scheme for the higher noise limit to apply i.e. it is not sufficient for the owner of the dwelling to be financially involved. It is not clear how such a distinction could be secured through the proposed permitted development.

It is recommended that some buffer distance is also retained to afford a degree of protection to other buildings which do not fall under the scope of MCS 020b i.e. non-dwellings. Some non-residential buildings e.g. schools or music facilities may also be noise-sensitive to some degree.

It is recommended that the definition of 'protected building' should refer to the use classes within the Town and Country Planning Order for clarity.

8a. Do you think this PDR should include a separation distance between turbines?

Yes

8b. Please explain your answer. If you have said yes, please also provide views on what you consider to be an appropriate separation distance in metres.

There is a potential concern with the proposed PDR as described: it seems possible that several turbines could be installed in adjacent land parcels, or multiple small non-residential premises located in relative proximity, such that noise-sensitive receptors (such as dwellings) are exposed to cumulative noise from several turbines which would result in increased impacts. Requiring a minimum separation distance between any other turbine (including other permitted development projects) would help limit such a scenario in practice. For example, a separation distance between turbines of 10 times the minimum separation distance from the turbine to a protected building, i.e. 100 times the turbine rotor diameter, would provide a substantial separation distance which would mean that noise levels would be unlikely to increase significantly due to cumulative impacts. This would limit the risk of the proposed rules being used to install multiple turbines in close proximity to adjacent non-residential premises.

9a. Do you agree that non-domestic wind turbine installations should be certified to the relevant MCS standards?

Yes.

9b. Please explain your answer.

The MCS 020b standard includes a procedure for the assessment of noise impacts at any neighbouring dwellings, which will provide a level of protection of amenity.

9c. Do you agree that turbines meeting an equivalent standard should be allowed to be installed under this PDR?

Yes, provided that the standard includes an equivalent noise criterion.

9d. Please explain your answer.

To ensure protection of amenity against noise impacts.

9e. What schemes or standards, if any, would you consider as equivalent certification to MCS?

The IOA is not aware of any equivalent schemes or standards to that of MCS 020b**.** The IEC 61400-11 standard describes a procedure for testing the noise emissions from wind turbines, including smaller models, however it does not include a procedure for assessing noise levels at sensitive receptors.

11a. Do you agree with including prior approval in respect of siting, impact of the development on the amenity of the area, and land contamination risks?

Yes

11b. Please explain your answer.

A requirement for prior approval will provide assurance that the proposed installation meets the requirements of the PDR in respect of noise impacts and their effect on amenity.

13. Do you have any comments on the relationship between EIAs and PDRs for small-scale, non-domestic wind turbine installations?

It would seem inconsistent that a simplified PDR project could also trigger an EIA. This needs to be looked at carefully to ensure the two regimes can operate in parallel, as the noise assessment methods are different.

Wind turbine schemes subject to EIA would be assessed using ETSU-R-97 which requires noise from all turbines in the area to be included in a cumulative noise assessment. It is unclear from the proposals whether, if PDR for non-domestic properties is approved, how cumulative impacts would be assessed. Has the interaction between the two regimes been considered on how to deal with cumulative impacts?

14a. Do you think government should make changes to existing PDRs for small-scale turbines in domestic settings?

No.

14b. Please explain your answer. If you have said yes, please include changes you think government should make.

The potential for increasing noise levels at domestic dwellings when seen in conjunction with the emerging use of other technologies such as air source heat pumps, which are subject to the same noise level limits under the MCS scheme, has not been considered.

15a. Do you think government should introduce a new PDR for repowering projects?

Yes, but only in respect of single turbines which meet the criteria for PDR proposed under this consultation.

15b. Please explain your answer.

If a single small wind turbine in a non-domestic context that currently exists and has planning permission requires replacement, it would make sense that this could be allowed under PDR rather than a renewal of the existing planning permission, provided that the replacement complies with all of the requirements of PDR.

However, for larger wind energy projects, such as operational wind farms, repowering is likely to involve larger turbines and in many cases an expansion of the development's footprint. As such these should be assessed on their individual merits through the appropriate consenting processes. This would include an EIA and allow for a full consideration of the new development's impacts to be carried out. This is important in relation to noise as the noise emissions of the repowered project will more than likely differ from that of the existing site. Additionally, as guidance and good practice has evolved since the consenting of older developments, this needs to be taken into consideration in the evaluation of the repowering.

15c. Do you have views on how the planning system in England could be improved for repowering (or life extension) projects, beyond changes to the NPPF?

Any such changes that may be proposed should include consideration of how noise impacts should be assessed and appropriate noise limits should be applied.

In the case of repowering, the most appropriate approach may be to base the assessment on current / updated noise guidelines and good practice.

In the case of life extensions, where it can be demonstrated that the development operates within its current consent conditions, and there is no evidence of widespread or outstanding noise complaints it may be appropriate to allow the life extension without changes to noise limit conditions.

16a. Do you think government should introduce a new PDR for community energy projects?

Yes, but only if the project meets the criteria for PDR proposed within this consultation.

16b. Please explain your answer.

The PDR criteria will provide protection of amenity against noise impacts. However, larger projects could have greater noise impacts or be more complex in nature (e.g., multiple turbines) which would require appropriate consideration to ensure that the amenity of neighbouring dwellings is protected. Even for some community-owned projects, some of the neighbouring properties potentially affected by noise may not be part of the community-ownership structure and would not have a reduced sensitivity to noise.

16c. Do you have views on how the planning system in England could be improved for community energy projects, beyond changes to the NPPF?

No comment.

17. Do you have suggestions for any other circumstances where a PDR could be used for onshore wind installations?

No comment.

18. Do you have any further comments on the proposals in this consultation?

Noise limits for wind turbines in general (outside the PDR regime) are defined in terms of a total noise limit (in line with the ETSU-R-97 guidance or any subsequent update published by the Government). Therefore, these noise limit act as a form of "noise budget", which applies to the total cumulative noise from all turbines, which cannot be exceeded. There is the potential for a turbine permitted under the proposed PDR to produce noise levels at a property such that it would use some or all of this noise budget. This could effectively prejudice the development of larger wind energy developments, which have the potential to produce large amounts of renewable energy. Therefore, if not correctly controlled or regulated, or if future revised guidance on noise impacts does not take this into account, PDR turbines could substantially constrain larger wind energy developments while offering only limited and localised energy generation. This could be taken into account either by strictly controlling the noise impacts of PDR developments or considering if by a clarification that the cumulative noise requirements of the ETSU-R-97 method (or any subsequent update published by the Government) should not be considered literally when the impacts on energy generation disproportionately affect larger wind energy developments.

We also note that the MCS 020b noise calculation method references a DECC national wind speed database which is no longer accessible: web link http://www.decc.gov.uk/en/windspeed/default.aspx. This means that it is not currently possible to use the method defined in MCS 020b as written. Therefore, either the link to the wind speed database should be restored/repaired or the MCS 020b method should be updated to point to a correct database location.

19. Do you have any further evidence or data to share?

No.

Conclusion

In summary, the proposed changes to PDR to include a single wind turbine for non-domestic premises PDR appears to be a pragmatic extension of the rules to those that exist currently for domestic dwellings. The rules though, must be carefully constructed to ensure that the MCS scheme can be applied to control the potential for noise impacts, particularly to neighbouring noise sensitive dwellings, and manage the potential for cumulative impacts to occur. It should also be weighed up in the decision to extend PDR to non-domestic premises on the potential for these to compromise much larger wind farm schemes in the vicinity, and the interaction with EIA.

If officials would like to explore further any of the points raised, relevant members of the Institute would be delighted to meet with them.

This response has been prepared by members of the Institute who are experienced practitioners in this area. The response has been approved by representatives approved by the Institute's Governing Council.

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