DO WIND FARM NOISE CONTROLS IN THE UK WORK?

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1 Introduction

UK Consultants, regulators and decision makers generally adjudge the acceptability of wind farm noise by considering the methodologies and criteria set out in ETSU-R-97[(1)] (ETSU) and the Institute of Acoustics (IOA) Good Practice Guide[(2)] (GPG) but this approach contradicts that applied to noise from other sources. The structure and complexity of the assessment protocols and planning conditions set out in these documents, combined with the bespoke policy position, can make Local Planning Authority (LPA) decisions very difficult. Whilst the development of an amplitude modulation (AM) control mechanism may be welcome it also serves to intensify the specialist nature of the field, hampering meaningful engagement by non-specialists. This paper compares and contrasts the noise policies and practices applied to wind farm noise with those in wider application in the UK. It explores the nature of the controls available for wind farm noise and questions whether they actually work in practice.

2 Administrative Controls

The key administrative controls for noise from wind farms are planning conditions and the statutory nuisance regime. The two regimes (planning and nuisance) are fundamentally different.

The planning regime is a 'top-down' process, primarily driven by national policies and guidance whilst the nuisance regime could be considered to be a 'bottom-up' regime. Whilst the statutory nuisance provisions are set out in statute[(3)] (the EPA) the definition of nuisance relies on the common law meaning which stems from 150 years of Court precedents with their respective relevance determined on a case by case basis. As such, the determinants of nuisance are not, and cannot be, aligned with any extant planning policy.

Although LPAs are the enforcing authority for the statutory nuisance regime they cannot apply the two regimes interchangeably but must ensure some level of administrative separation; a fact sometime lost on decision makers.

3 Planning Conditions

The proper use of planning conditions is most usefully set out in the Planning Practice Guidance (PPG) on Use of Conditions which is provided as an online resource at www.gov.uk/government/collections/planning-practice-guidance. The PPG includes guidance on the six tests of planning conditions[(4)], all of which conditions must comply with to be lawful. These tests require conditions to be:

- **Necessary**. For a condition to be necessary, it would have to be appropriate to refuse the permission without that condition. There must be a clear planning reason for it and it must be no wider in scope than it needs to be to achieve the desired objective.
- **Relevant to planning** (i.e to planning objectives).
- **Relevant to the development to be permitted.**
- **Enforceable**. The PPG asks *'Would it be practically possible to enforce the condition?'* and states that '*unenforceable conditions included those for which it would, in practice, be impossible to detect a contravention… '* (Emphasis added).
- **Precise** so that it is clear and unambiguous what needs to be done to comply with it. A lack of precision can also undermine the 'necessity' or 'enforceability'.
- **Reasonable in all other respects**. Unjustifiable and disproportionate burdens will fail the test of reasonableness.

The compliance of a planning condition with the first and second of the tests can only be adjudged with reference to the policy justification hence the importance (and complication) of the unique noise policy status of wind farm noise.

In contrast to the approach taken to most development types; national policy[5] states that: *'the applicant's assessment of noise from the operation of wind turbines should use ETSU-R-97, taking account of the latest industry good practice'*. The more recent PPG for Renewables and Low Carbon Energy[6] more explicitly endorses the IOA GPG as a supplement to ETSU.

ETSU and the GPG effectively provide both noise assessment methodologies and policy objectives in one so arguments regarding condition 'necessity' or 'relevance to planning' are on a unique footing as adherence to ETSU and the GPG arguably suggests compliance with both.

In spite of (or perhaps because of) this, proposed conditions for wind farms have been fiercely argued at numerous Public Inquiries resulting in conditions of unprecedented length and complexity in contrast to those applied to the majority of development types.

When the IOA GPG was published in May 2013, the example condition provided at Annex B comprised five pages of clauses, tables, figures, equations and guidance notes and yet still arguably fails to include some key elements.

Since the production of the GPG, the AM assessment metric has evolved[7] and its adoption in future planning conditions and complaint investigation is recommended in a recently released report[8] commissioned by the Department for Energy and Climate Change (DECC)[9]. Inevitably, this metric is controversial and its technical application remains subject to debate[10] but it seems inevitable that it will add still more complexity to assessment methodologies and planning conditions.

A review of the noise conditions applied in ten recent appeal decisions (2016 and 2017) has been undertaken for the purpose of this paper with particular regard to the 'six tests'. Seven of those wind farms were for multiple turbines (between 3 and 19 turbines with total ratings

of between 2.5MW and 97MW). The other three were for single turbine developments (50kW to 500kW).

All of the noise conditions showed a high degree of influence from ETSU and nine of the ten explicitly referenced ETSU in the decision notice and/or the conditions. Reasons for the noise conditions (which could justify their *'necessity'*), however, were only explicitly provided in five of the ten examples and in each case failed to reference any particular policy preferring instead to refer to *'protection of amenity', 'protection from disturbance'* or similar. In the absence of explicit policy justifications for these conditions it is assumed that the decision makers took the direction[5] to use ETSU and the GPG to satisfy the 'necessary' and *'relevant to planning'* tests regardless of their (sometimes) significant departures from those endorsed methodologies. It is though that such an approach would be vulnerable to challenge and would erode the perceived enforceability of the conditions.

Despite the IOA qualifying its Annex B condition as an example only[11], pointing out that it is *'for the legal process to verify if planning conditions are fit on a case by case basis'*, the sample condition is sometimes applied wholesale contrary to the PPG advice that model conditions *'should not be applied in a rigid way without regard to whether the 6 tests will be met'*[12]. More worrying still, based on the study sample, it seems the example condition is sometimes subject to poorly considered variations or additions.

The review of the recent decision conditions also raises concerns regarding other tests; such are whether the conditions are *'precise', 'enforceable'* and *'reasonable in all other respects'*.

In each of the seven multiple turbine permissions reviewed, ETSU and the IOA GPG had clearly influenced the drafting of the noise conditions with noise limits were expressed as $L_{A90,10min}$ measurements with some explicit or implicit reference to background noise levels. In some cases the limits were tabulated for individual receptors during the day and night time periods. In others, however, there were only a single set of values covering both day and night time periods, or inappropriately covering all receptors. Some examples referenced the lower fixed limits *or* 5dB above background (the greater of the two) referencing background noise levels set out in the application or leaving these to be determined at a later date. These lack sufficient precision to withstand challenge. Guidance notes, akin to those presented in the example IOA condition, were included in four of these seven consents.

In each of the three single turbine developments, the noise conditions contained elements of the simplified approach proposed in the IOA GPG with some additional or alternative content.

In most of the conditions there were indications that technical elements had been misunderstood or misapplied and the cohesion of the suites of conditions and guidance notes had suffered as a consequence. The severity of errors varied significantly but, in all cases, undermined condition coherence to the point where various interpretations could be reached. Whilst current case law requires conditions to be interpreted *'benevolently'* [13] and accepts the sensible application of professional judgement in interpretation [14], errors and ambiguity nevertheless undermine enforceability. Specific areas of concern include:

1) Unspecified noise limits (to be determined/referenced to a separate document)[15,16,17]
2) Noise limits too low (from 13 to 30dB $L_{A90,10min}$)[15,18]
3) The same noise limits during both day and night time periods[15,18]
4) Applying a noise limit only applicable when the wind speed is $10ms^{-1}$[17]
5) Fixed noise limits described as a function of wind speed[20]
6) Double counting tonality[16]
7) Applying a fixed tonality penalty for a single tone level audibility[16]
8) Conferring obligations on residents (not beneficiaries of the consent)[15]
9) Vague assessment requirements[15,17,20,21,22]
10) An obligation to shut down turbines where LPA deems it necessary[16]
11) Incorrect cross references between guidance notes/tables and conditions[16,23]
12) Referencing BS4142:1997 or its replacement[18,23,24]
13) No scheme in relation to observed exceedances[15,16,17,18,19,23,24]

The prevalence of extremely lengthy, complex and erroneous noise conditions has a direct bearing on their enforceability for a number of reasons.

Firstly, the compliance investigations are complex and time consuming. If, following completion of the assessment an exceedance is observed this will comprise a breach of condition. In many cases, it will then be for the LPA to consider enforcement options. In other cases the breach will trigger a requirement for a mitigation scheme to be agreed and implemented.

If there is no mitigation scheme provision, the LPA will be left with four options: (I) to negotiate with the operator; (II) to serve a Breach of Condition Notice (BCN); (III) to serve an Enforcement Notice (EN) or (IV) to do nothing.

For the LPA to consider options (II) or (III) it will need to apply the public interest test and consider whether or not the breach amounts to *'material harm'* or *'adverse impact to amenity'*. Formal action will not be appropriate for a *'trivial or technical breach'*[25]. In the case of (II) the LPA must consider if it is expedient to serve having regard to the provisions of the development plan and to any other material considerations[26].

A lack of confidence in evidence purported to demonstrate a breach or, indeed, compliance makes enforcement decisions difficult. The interpretation of evidence in terms of its *material harm* or *adverse impact* is often intangible to decision makers. It may, therefore, be attractive for the LPA to elect to do nothing rather than risk taking enforcement action in the face of such fundamental uncertainties and complexities.

In any event, it is likely to be too complex and resource intensive for most LPAs to undertake compliance investigations. Responses to a questionnaire sent to all UK LPAs in February 2017 indicated that only two notices had been served (one EN and one BCN) for wind farm noise between 2012 and 2016. In both of these cases, the LPAs concerned sought external experts to assist with assessments.

4 Statutory Nuisance

The statutory nuisance regime has been seen, by some, as a panacea for wind farm noise complaints and has been referred to as providing the necessary protection against excess

amplitude modulation by some Planning Inspectors. As the investigation of statutory nuisance is a duty, rather than a discretionary power, it can take precedence over investigation of planning conditions for an LPA.

Where noise conditions are in place, compliance with them is usually investigated first. Perhaps because of this, anecdotal evidence suggests that most nuisance investigations tend to rely on the ETSU and GPG methodologies which are arguably unhelpful.

The existence, or otherwise, of a statutory noise nuisance cannot be established via the application of rigid methodologies. The primary considerations in the determination of a nuisance (in no particular order) are [27, 28]:

A. Location (character of the neighbourhood)
B. Time
C. Duration
D. Intensity
E. Frequency (how often something happens)
F. Particular sensitivity
G. Give and take
H. Importance and value to the community of the activity
I. Difficulty in avoiding external effects of activity
J. Convention
K. Reasonableness (both behaviour and expectation)

Each of these factors is considered in terms of the strength of evidence (both positive and negative); its relevance to the facts of the case and the relative weight that it should be given. Of the considerations relevant to a nuisance assessment, only one (intensity) is assessed using the ETSU and GPG methodologies and that in a way which does little to help understand the impact of that intensity on the complainant.

For A, H, I and J a certain amount of research is required. Point A is influenced by planning consents so, in the case of a new wind farm development, that wind farm is included as part of the character of the neighbourhood (detracting from any apparent impact).

For B, C and E the LPA will rely heavily on the evidence of the complainant(s). Whilst analysis of wind speed, wind direction and power production can help to predict complaints[29], it cannot actually quantify that impact. For this, the experiences of the complainants are key and some form of logged evidence will be required. Deployment of annoyance recorders (sound level meters with audio record triggers) can provide useful supporting evidence but long-term deployment and analysis is resource intensive.

For D, the assessed intensity should be that which provokes the nuisance complaints (so that which has been accounted for under B, D and E). ETSU regression lines are therefore unhelpful as they do not describe the periods of maximum intensity (or impact) which are lost in the averaging process. Annoyance recorder records can be helpful but the assessment of the annoyance or disturbance ‘value’ (in the setting in which they were experienced) is

difficult. Attended measurements, observations and contemporaneous notes probably form the most robust assessment, but rely on the presence of the assessor at the right time, under the right conditions and only cover short periods. It is also, of course, expensive for the LPA to deploy specialist staff outside normal office hours.

F, G and K are also difficult; depending on the personalities and actions of the respective parties. Sensitivity, in particular, is difficult as tolerance to noise varies and attitudes to the wind farm will have a direct bearing on their tolerance level[30].

Investigating a nuisance complaint is therefore resource-intensive for the LPA and, where satisfied that nuisance exists (or is likely to recur), the LPA is obliged to serve an Abatement Notice. The LPA is then exposed to the risk of proceedings by an appellant whom may be far better placed and resourced to argue the case.

One of the statutory appeal grounds is that the Best Practicable Means (BPM) has been employed to abate the nuisance. The existence of BMP does not technically remove the obligation to serve, so the LPA may find itself in a position where it is persuaded it would lose an appeal even at the point of service.

All things considered then, it is a brave (or foolish?) LPA who serves an Abatement Notice (despite the obligation to do so), or takes summary proceedings for a contravention. The cost of investigation, latitude for argument and risks of defeat in Court are simply too great.

Figure 1 below shows the number of reported noise complaints about UK wind farms from 2012 to 2016 with the number of those complaints that were; resolved informally; subject to an Abatement Notice and subject to Prosecution. These responses are presented as percentages of the total number of complaints in Figures 2 – 4 plotted against the comparable data, provided by the Chartered Institute of Environmental Health CIEH), for noise complaints from other sectors for 2012 – 2014.

It is evident from the data presented in Figure 1 that noise complaints about wind farms have been in decline throughout the five year study period and this trend is thought to correspond with a similar decrease in the commissioning of new installations, probably associated with the withdrawal of subsidies (although many LPAs declined to give information regarding numbers of installations so this is conjecture).

Figure 1 also indicates that only small numbers of Abatement Notices have been served (zero in fact in both 2012 and 2016). There appears to have been a spike in informal (negotiated) resolutions and service of Abatement Notices in 2014 and it is hypothesised that this followed the publication of the GPG, which might have been awaited by those contemplating enforcement action.

When the incidence of informal resolutions, Abatement Notice service and Prosecutions are compared with other sectors it is apparent that it is relatively low although not to such a marked degree as might have been expected.

Figure 1 Complaints per year

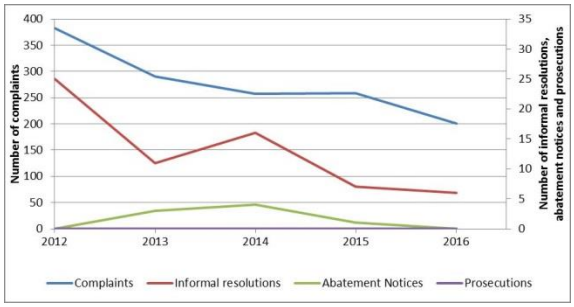


Figure 2 Informal Complaint Resolutions

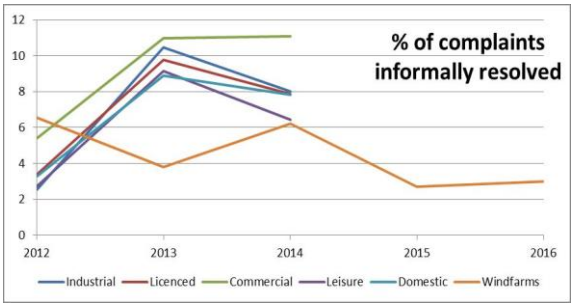


Figure 3 Abatement Notices Served

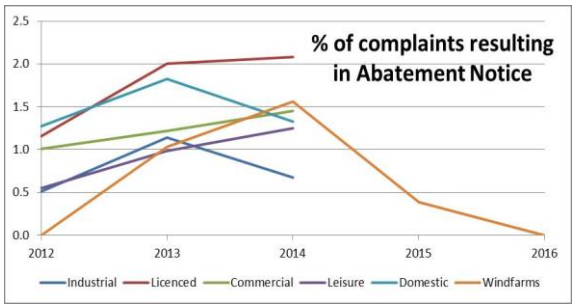
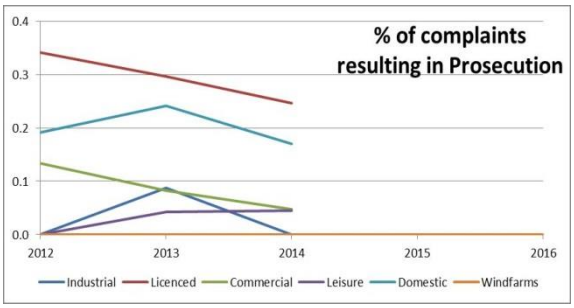


Figure 4 Prosecutions



Unfortunately, the CIEH sample number was very low in 2012 and the survey was discontinued in 2015 so there are only two years in which a relatively robust comparison can be made. In those years (2013 and 2014) the rate of informal resolution was lower than for any other sector; the rate of Abatement Notice service was joint-lowest in 2013 and mid table in 2014; and there were no prosecutions whatsoever.

5 Conclusions

Based on the review of recent appeal decisions; errors and ambiguity in conditions appear common, presumably due to the complexity of the endorsed approach. It is thought that these negatively influence enforcement decisions by LPAs, where resourcing issues and aversion to risk are common. Only two enforcement notices were reported in the five year study period.

Based on the questionnaire responses, the incidence of noise complaints over the study period is in general decline, probably in accordance with a decline in new installations. An increase in negotiated complaint resolutions and Abatement Notices in 2013/2014 may correlate with increased enforcer confidence following the publication of the IOA GPG.

The comparison of non-planning enforcement with other sectors (where suitable CIEH data was available) suggests that it is generally lower (as a proportion of complaints received). The exception was the service of Abatement Notices in 2013/2014 where their prevalence (as a proportion of complaints received) exceeded that of some other sectors (all sectors except licensed in 2014).

There were no reported prosecutions in the study period. This may not be statistically significant, however, due to the low numbers of complaints compared to other sectors.

It is propounded that the complexity of the endorsed and proposed assessment methodologies are such that they inhibit the imposition of effective conditions, the investigation of complaints and the application of enforcement regimes.

Simplified assessments[31] or alternative assessment approaches more aligned with the NPPF[32] have been mooted by others and, it is suggested, that these should be explored more fully.

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