Highfield Wind Farm

Litlington

South Cambridgeshire

An Updated Objection by

Stop Litlington Wind Farm Action Group

Local Planning Authority Reference: S/0439/12/FL

June 2012 (Original submission)

March 2013 (Updated submission)

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Foreword

This updated document is submitted by the Stop Litlington Wind Farm Action Group (SLWFAG) with the assistance of Mike Barnard, a wind turbine development consultant who has been involved in over 30 such development applications. As well as coordinating the overall objection he has provided the critique of the noise impact assessment within the Environmental Statement (ES).

This document sets out in detail why this application would impose wide-ranging and substantial harms on the quality of life, health and well being of the local community. These would significantly outweigh the very limited benefits the application offers and thus the application should be refused.

This document has been updated in response to a request for comments from South Cambs District Council on information made available since our original submission was made in March 2012. We have blacklined our original document to show where the additional information warrants updated commentary. In all other cases our views remain unchanged. We ask that our original views and our updated views are all given full and appropriate consideration.

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1 Summary and Conclusions

The Stop Litlington Wind Farm Action Group (SLWFAG) opposes this application for the following reasons:

Policy

1.1 The application would have wide-ranging and significant adverse impacts and is in conflict with:

- National Policy (NPPF), by failing to meet the basic presumption in favour of sustainable development;
- Regional Policy (East of England Plan), by failing to protect and enhance the diversity and local distinctiveness of the countryside character (ENV2), failing to protect biodiversity (ENV3) and failing to protect the historic environment (ENV6);
- Local Policy (Local Development Framework), by being incompatible with the landscape scale, form, siting and proportion, by opposing the wishes of the local population (localism) and by failing to protect residents from disturbance and visual impact in accordance with the policy of South Cambs. District Council (SCDC).

1.2 The relationship between the National, Regional and Local policies was recently considered in the High Court:

"...as a matter of law it is not correct to assert that the national policy promoting the use of renewable resources in PPS1 paragraph 22 negates the local landscape policies or must be given "primacy" over them."

The developer variously suggests that selected planning policies are 'not relevant to the determination of this planning application', and in other places the same policies are 'still material to the determination of planning applications'. This demonstrates that the Developer's appraisal of planning policies relevant to this application cannot be relied upon.

Site Selection

1.3 The site selected is of a constrained size and shape and is in a low wind speed area that would impose disproportionately large adverse impacts for a proportionately small amount of electricity.

1.4 Alternative sites, which might offer a more equitable balance of harms and benefits, are not presented as required by planning regulations.

Landscape Character

1.5 The application acknowledges that the proposal would have significant adverse impacts on the character of the landscape, in conflict with the Local Development Framework.
We note that the developer acknowledges that mitigations '..would not materially change the extent and intensity of the significant effects predicted in this assessment.'

Visual Amenity

1.6 The application acknowledges that the proposal would have significant adverse impacts on the visual amenity of people who live, work, study, visit or travel through the surrounding area.

1.7 The turbines would be completely out of scale with and alien to all other natural or man-made vertical features present.

1.8 Therfield Heath, which overlooks the site, forms part of the nationally designated landscape of the Chilterns to which regional policy requires that the highest level of protection be afforded. The application acknowledges that visitors to Therfield Heath would experience significant effects on their visual amenity as a result of the proposed turbines.

1.9 The proposal is unnecessarily and inappropriately close to residential dwellings and, in the absence of a visual amenity assessment for all dwellings within 1km of the proposed site, the precautionary principle should be applied and the application should be refused.

Cultural Heritage

1.10 The application acknowledges that the effects upon cultural heritage assets would be significant, which conflicts with regional and local policy.

Noise

1.11 Prevailing legislation offers no guarantee that a noise nuisance will not occur and a thorough and rigorous noise assessment should be undertaken before determination.

1.12 Aspects of the noise assessment are flawed, do not meet the requirements of prevailing legislation and thus the conclusions drawn in the ES about the potential for noise nuisance cannot be relied upon.

1.13 Excessive amplitude modulation is likely, due to the insufficient separation of the turbines within the turbine array. Dwellings lie well within the normal separation distance and are likely to suffer unacceptable noise impacts.

1.14 The scheme should be required to meet the acceptance criteria at the EIA stage prior to determination rather than through planning conditions.

Construction/Traffic

1.15 The traffic movements predicted have been considerably under-estimated and hence the conclusions drawn about the significance of the potential impacts cannot be relied upon.

1.16 The application fails to address the implications for road safety during the 25-year operational period, in particular the increased risk of distraction for drivers crossing 2 lanes of a dual carriageway with oncoming traffic travelling at the national speed limit.

Ornithology/Ecology

1.17 The potential risk of significant adverse impacts on the richness and diversity of species within a comparatively small area conflicts with local policy. This states that planning permission will not be granted for a development that would have an unacceptable impact on biodiversity.

Benefits

1.18 The applicant does not offer any credible data to support the claim for the amount of electricity the site might produce.

1.19 The type of turbine proposed is unsuited to wind speeds at this site and has been included solely to inflate the 'headline' amount of electricity that the site might produce.

1.20 SLWFAG has identified and used 3 local, independent, verifiable sources of mean wind speed data to prepare a rigorous, 'real-world' forecast of the amount of energy that the site could produce which suggest that the amount of electricity that the site could produce is likely to be around *one third* of the amount claimed by the Applicant.

We note the continuing absence of actual wind speed data to support the claims of the developer for the amount of electricity that the site could produce.

The developer now suggests that estimates are merely 'indicative of the scale of development only'

The 'estimates' offered by the developer simply cannot be relied upon and should be discounted.

Conclusion

1.21 This application would impose wide-ranging and substantial harms on the quality of life, health and well being of the local community. These would substantially outweigh the very limited benefits the application offers and thus the application should be refused.

The main body of this document sets out in detail why SLWFAG oppose this application in common with the Parish Councils and Members of Parliament for the surrounding area.

2 Policy

National Policy - National Policy Planning Framework (NPPF)

2.1 The introduction of the National Planning Policy Framework (NPPF) in March 2012 was one of the biggest overhauls of national planning policy in many years, replacing as it does a large number of policies, including PPS 22, the previous main national renewable energy policy. The Companion Guide to PPS 22 retains its status as guidance not policy.

2.2 The introduction of the NPPF at the end of March postdates this application and there is mention in the planning appraisal submitted by the applicant of the consultation draft of the NPPF. However, there were significant changes between the draft and the final policy and, thus, a planning appraisal against policies that have now been replaced and a draft NPPF that does not reflect the final document means that the planning appraisal does not take appropriate account of the planning policies that will be in place at the time of determination. It would be a material omission if no supplementary planning appraisal is submitted by the applicant assessing how the significant changes in planning policy have impacted on the conclusions drawn in the planning appraisal submitted with the application.

Presumption in Favour of Sustainable Development

2.3 The NPPF includes a presumption in favour of sustainable development but the policy makes clear that this does not give carte-blanche for all claimed 'sustainable developments' to be approved irrespective of any adverse impacts. The NPPF says[1]

At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking.

*For **plan-making** this means that:*

- Local planning authorities should positively seek opportunities to meet the development needs of their area;
- Local Plans should meet objectively assessed needs, with sufficient flexibility to adapt to rapid change, unless:

[1] NPPF - Para 14

[2] NPPF - Para 97

[3] PPS 22 - Para 20

- *any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or*
- *specific policies in this Framework indicate development should be restricted.*

*For **decision-taking** this means:*

- approving development proposals that accord with the development plan without delay; and
- where the development plan is absent, silent or relevant policies are out-of-date, granting permission unless:
  - *any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or*
  - *specific policies in this Framework indicate development should be restricted.*

2.4 The key word here is demonstrably. By failing to quantify accurately the benefits the application would offer (see Section 10), namely the amount of electricity generated, the applicant cannot show that the wide-ranging and significant adverse impacts which the applicant acknowledges this application would impose on the local community could somehow be outweighed by the claimed benefits. This application, therefore, fails the basic presumption of sustainable development at the heart of the NPPF.
The NPPF makes clear that the benefits of the proposal must outweigh the adverse impacts. We note that the developer remains unwilling or unable to quantify the benefits the proposal might offer (see section 10). Our original view therefore remains unchanged: If the benefits of the proposal are not 'demonstrably' quantified, they cannot be considered to be 'significant' and no meaningful judgement can be made ("*For decision-taking this means:*") as to whether the benefits outweigh the adverse impacts. *This application, therefore, fails the basic presumption of sustainable development at the heart of the NPPF.*

2.5 On renewable energy[2] the NPPF requires local authorities to maximise renewable and low carbon energy development *while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts* (our highlight).

2.6 Any commercial scale wind turbine development will inevitably have significant adverse impacts that cannot be mitigated (as acknowledged in the

[2] NPPF - Para 97

ES) purely as a result of their size and scale. Thus it is very clear that every renewable energy development must be determined by examining the balance between the harms and the benefits and refusing applications where the former outweigh the latter.

Regional Policy - East of England Plan

2.7 The Regional Spatial Strategies still remain in force, notwithstanding the published intention of the Government to remove this layer of planning policy. As such the East of England Plan must be given significant weight in the determination of this application.

2.8 As identified within the Planning Appraisal accompanying the application there are key policies within this plan providing protection to different areas. It is not proposed to repeat these policies in detail but the key areas are:

- ENV2 - requires that diversity and local distinctiveness of the countryside character areas are protected and enhanced.

  ENV2 also requires that, in accordance with statutory requirements, the highest level of protection should be afforded to the East of England's nationally designated landscapes. Therfield Heath (see Section 5.4), which overlooks the site, is a distinctive open, rolling landscape fronted by gentle, stepped escarpments that form part of the nationally designated landscape of the Chilterns. The highest level of protection should therefore be afforded to this landscape.

- ENV3 - provides protection to biodiversity.

- ENV6 - provides protection to the historic environment

Local Policy - Local development Framework (LDF)

2.9 Whilst the Core Strategy does not have any policies specific to renewable energy generation the Development Control Policy NE/2 states that planning permission will be granted for renewable energy schemes provided that they accord with the development principles set out in DP/1-3. These policies require development to, amongst others:

- preserve and enhance the character of the local area.

- be compatible with its location in terms of scale, mass, form, siting and proportion.

- not have unacceptable adverse effects on residential amenity, countryside and landscape character, noise, and wildlife, ecological and archaeological interests.

2.10 It is generally accepted that commercial scale wind turbines represent alien structures within a traditional, flat rural landscape and PPS 22[3] recognised that they are the most visually intrusive of all renewable energy development with the greatest impact on landscape character. In this submission we show that, at 100m high and located below the ridge to the south, turbines with rotating blades are incompatible with the landscape in scale, form, siting and proportion.

We note in item 16 of 'Highfield consultation clarification SLWFAG' that the developer suggests that PPS22 'no longer forms part of planning policy in England' and is '...not relevant to the determination of this planning application.' We separately note in 'Observations on the NPPF Highfield Wind Farm' that the developer states 'It is important to note that the Companion Guides to the PPS series have not yet been withdrawn and are still material to the determination of planning applications. This is relevant to both the Companion Guide to PPS22 and the PPS5 Practice Guide.' We suggest that the propensity of the developer to be selective about which policies are relevant in which circumstances demonstrates that his appraisal of planning policies relevant to this application cannot be relied upon.

Localism

2.11 The NPPF states that planning should empower local people to shape their surroundings. We show very clearly in Section 11 that there is overwhelming public opposition with all the local parishes and towns consulted, representing over 20,000 local residents, all recommending refusal of this application.

Separation Distance

2.12 The NPPF goes on to say that plans should be based on joint working and co-operation, with succinct local and neighbourhood plans setting out a positive vision for the future of the area. There are no specific local plans dealing with the location of commercial renewable energy projects but SCDC has adopted[4] a policy that introduces a 2km separation distance from turbines to residential properties. This states:

"It was resolved that this Council supports seeking energy from renewable resources. However, applications for wind farms (2 turbines or more) cause

[3] PPS 22 - Para 20

[4] Adopted at full Council 24/02/2011

deep concerns to our residents by nature of their size, scale and noise. This Council believes that a minimum distance of 2 kilometres between a dwelling and a turbine should be set to protect residents from disturbance and visual impact. If the applicant can prove that this is not the case a shorter distance would be considered. This will be addressed during the review of the Local Development Framework."

2.13 This is a clear and succinct local policy that, according to the NPPF, should be given significant weight. There is no mention in the ES of this policy which is understandable as it post dates the application by one day but it is clearly relevant and again there should be a supplementary submission from the Applicants to demonstrate how, if at all possible, residents will be protected from disturbance and visual impact, as required by the Policy. In the absence of such proof then this application is clearly in breach of SCDC policy and should be refused.

The Developer states that "In the event that such an exclusion policy did exist, the ES demonstrates the acceptability of the shorter separation distance." We note that the policy places the burden of responsibility on the *developer* to prove that the proposal *will not* harm residents. We therefore ask the planning department to determine whether the ES does indeed 'prove' that the proposal will 'protect residents from disturbance and visual impact', particularly in view of the wide range of adverse impacts the developer acknowledges in the ES.

Balance Between Harms and Benefits

2.14 The determination of an onshore wind farm planning application depends upon an assessment of the balance between two potentially conflicting sets of planning policies. On the one hand there are policies promoting renewable energy production, including onshore wind, and on the other there are numerous policies protecting the countryside, wildlife, the cultural heritage, the recreation and the general amenity of people living, working, studying, visiting and travelling in the vicinity. This is the situation here where the development plan exhibits precisely such conflicting policies. Thus a balancing exercise has to be undertaken to determine whether the adverse impacts of the turbines outweigh the benefits of the electricity produced. PPS22 recognised this in Key Principle (i), which clearly spelt out that renewable energy developments could only be accommodated where the environmental, economic and social impacts can be addressed satisfactorily. The role of the determining authority is to carry out this balancing exercise.

2.15 Any commercial scale wind turbine development will inevitably have significant adverse impacts that cannot be mitigated (as acknowledged in the ES) purely as a result of their size and scale. Thus it is very clear that every renewable energy development must be determined by examining the balance between the harms and the benefits and refusing applications where the former outweigh the latter.

2.16 SLWFAG supports the need to increase the amount of renewable energy generated but renewable energy developments are only of long-term value if the benefits outweigh the adverse impacts.

2.17 It is self-evident that in any balancing exercise an equal degree of thoroughness should be applied in quantifying both sides of the equation, namely the balance between adverse impacts and benefits. The ES spends some 1,600 pages assessing the adverse impacts in great detail but the primary benefit, the amount of electricity the site is likely to produce, is based on assumptions that are wholly unrepresentative of the site, and are set out on a single page of the ES.

2.18 This leaves a decision maker without any meaningful information to make a reasoned judgement about the extent of the benefits the application may offer. The lack of a substantiated statement of the benefits is all the more remarkable given that an anemometer has been in place on the site for over two years and has recorded the actual wind speed data that is fundamental to any quantification of the amount of electricity that the site could produce.

2.19 The analysis discussed in Section 10 suggests that the amount of electricity that the site could produce is likely to be around *one third* of the amount claimed by the Applicant.

2.20 This analysis suggests, and the almost total lack of any robust data included by the applicant seems to confirm, that the benefits of this site are so small that the balance between the benefits and harms of the scheme should be tilted heavily toward refusal of the application.

Reconciling National, Regional and Local Policies

2.21 The relationship between the National, Regional and Local policies was recently considered in the High Court where Mrs Justice Lang dismissed claims that "primacy" should be given to national renewable energy targets over local conservation policies:

"...as a matter of law it is not correct to assert that the national policy promoting the use of renewable resources in PPS1 paragraph 22 negates the local landscape policies or must be given "primacy" over them."

2.22 We conclude that that the proposed scheme has significant adverse impacts and is in conflict with:

- The NPPF;
- Policies ENV 2/6 of the East of England Plan;

- Policies DP/1-3 and NE/2 of the Local Development Framework.

2.23 Thus when considering the planning balance, the harms that the relevant national, regional and local planning policies aim to prevent significantly outweigh the very limited benefits that this application offers and thus the application should be refused.

3 Site Selection

3.1 We have already identified that renewable energy projects can only be accommodated where the environmental, social and economic impacts can be addressed satisfactorily. There is no carte blanche to approve wind farms anywhere and each decision will be based on the specifics of the individual site.

3.2 PPS 22 recognised that onshore wind farms have the greatest visual and landscape effects of all renewable technologies. Little can be done to mitigate the effect given their inherent scale compared to most other natural and man-made structures present in the landscape. However, PPS22 in Key Principle (viii) placed a requirement on the developer to demonstrate how any environmental and social impacts have been minimised through careful consideration of location, scale, design and other measures.

3.3 One of the main opportunities for the mitigation of adverse impacts obviously relates to location. In this case no alternative locations were considered as the scheme was brought forward by the Parker family specifically to be situated on their landholding. If this proposal was for a small-scale turbine purely to service their farming business then the lack of any consideration of alternatives may be less significant. That is not the case here where the proposal is for five 100m high turbines the output of which even the ES suggests will be 900%[5] greater than the electricity requirements of the farm. The main purpose of the scheme will be to profit from the sale of the electricity to the national grid.

3.4 In such circumstances this wind farm could be located anywhere and the consideration of alternatives should have been included in the assessment of the site.

3.5 There is an overriding statutory requirement for alternatives to be presented as part of the ES for EIA developments under the Town and Country Planning (Environmental Impact Assessment) Regulations 1999, No.293. Schedule 4 of the EIA Regulations requires Environmental Statements to include an outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects. The EIA Good Practice Guide (DCLG 2006) at Para 139 confirms this and advises that in the event that none are considered the ES should explain why.

3.6 This is not an esoteric argument. The amount of electricity generated by a wind turbine is proportional to the cube of the wind speed. By way of example,

[5] ES - Para 17.107

moving from a mean wind speed of 6m/s to 8m/s doubles the amount of electricity produced. Selecting a low wind area such as the proposed site means that, to generate the same amount of electricity, more or larger turbines have to be used. This will obviously increase the adverse effects and tilt the balance between positive and negative impacts of the scheme. Thus the initial site selection is crucial and wind speed is a fundamental part of the site selection criteria for wind farm developers.

3.7 The analysis in Section 10, using multiple, independent and correlated sources of local data, demonstrates that this is a uniquely low wind speed site.

3.8 The fact that this site is proposed at all is wholly due to the desire of the landowners to gain the financial benefit of having wind turbines on their land. However, this does not alter the fact that, by trying to harvest the energy from wind in a low wind speed area, this scheme will impose disproportionately large adverse impacts for a proportionally small amount of electricity.

3.9 The reason that this site is completely inappropriate can be traced back to the rationale for the initial site selection. This was purely based on a landowner wishing to make money from wind turbines. If the application was for the normal single 30/50m to blade tip turbine that would support the electricity consumption of the farm itself then the impacts could have been mitigated more readily. However, by going for initially 4 turbines of 126m there was a clear intent that this was purely a commercial money making operation. By not considering any alternatives but having to locate the turbines in an extremely low wind speed environment this has led inevitably to a situation where the benefits, in terms of electricity production, are so limited that they have become completely outweighed by the adverse impacts of the turbines. We note that none of the mitigations proposed by the developer overcome the limitation of the low wind speeds of this site and therefore no 'optimum balance' could be '..struck between electricity generation and potential landscape and visual impacts of the proposed development.'

4 Landscape

4.1 The landscape and visual impact assessment within the ES appears to have been carried out in a reasonably complete manner and in Table 9.1 it is accepted that moderate+ and moderate impacts may be significant or contribute to significant impacts. This is important as it is not just the immediately significant visual impacts that are important but also the wide range of moderate impacts that all add up to the highly significant visual impact of the five 100m high turbines.

4.2 In the ES[6] there is a claim that a comprehensive range of mitigation measures to limit the extent and intensity of the landscape and visual effects were incorporated into the design of the wind farm. There is absolutely no evidence to back up this claim. Any changes to the proposed layout as identified in Section 3 of the ES were as a result of issues concerning aviation, archaeology, telecommunications and track redesign. Mitigation of the visual impact is not mentioned and it must be concluded that it was not a reason for any of the changes in design.

4.3 The layout has been constrained by the limited extent of the land ownership available as already discussed. With the basically expansive nature of the landscape a linear arrangement of the turbines would have been a better fit rather than the asymmetrical situation of two lines (not parallel) that is proposed. The proposed layout will provide greater 'stacking' of turbines with the blades appearing behind one another as can be seen from viewpoint 8.

4.4 There is then an attempt in the ES[7] to include enhancement measures, proposed as part of the habitat management and enhancement plan, as some form of mitigation of visual impact. The introduction of nesting plots for stone curlew, grassland for cattle, a sugar beet exclusion zone and buffer strips has no relevance to the visual impact of 100m high wind turbines and the only conclusion that can be drawn is that concerns over the acknowledged significant visual impacts has lead to a somewhat desperate attempt to find anything that can be put forward in mitigation.
We note that the developer acknowledges that the enhancements proposed '...would not materially change the extent and intensity of the significant effects predicted in this assessment.'

4.5 The key issue is that the ES[8] itself has to admit that there will be a significant effect on the character of the south western part of LCA 2, the western part of

[6] ES - Para 9.321

[7] ES - Paras 9.322/4

[8] ES - Para 9.326

LCA 227 and the north western part of LCA 228. This is in conflict with policies DP 2/3 of the Local Development Framework (see Section 0).

4.6 The ES uses two arguments to attempt to overcome the implications of this significant impact on landscape character:

1. Significance of Public Opinion

4.7 The first argues that because there are differences within public opinion on wind energy it is difficult to define significant changes in views as having a significant beneficial or adverse effect. This argument has been put forward by other wind farm developers and has been roundly rejected at a number of public inquiries. By way of example, at the Tedder Hill Inquiry, for three 111m high turbines, the Inspector said[9]:

"In addressing the impact of the proposal on that landscape, it seems to me necessary to deal, first of all, with the concept of 'Valency'. In very simple terms, this suggests that because of the varying reactions people have to wind turbines in the landscape, ranging from the strongly positive to the strongly negative, it is wrong or misleading to conclude whether the impact of those turbines on the landscape is negative/harmful, positive/beneficial or neutral.

I have no reason to doubt that these varying reactions exist. However, it is incumbent upon me to address the landscape impact of this specific proposal in an objective manner. I could not possibly base my conclusion in terms of landscape impact on a predilection. On this basis the concept of 'valency' is one that offers little assistance to my deliberations."

4.8 Any determination of a wind turbine development planning application cannot be based on a plebiscite and the approach adopted in the ES is not consistent with the methodology recommended in the Landscape Institute/Institute of Environmental Management and Assessment's publication Guidelines for Landscape and Visual Impact Assessment, Second Edition 2002. The advice given in the Guidelines is that as well as assessing the magnitude of the change the nature of the effects should also be assessed:

'Effects can be negative (adverse) or positive (beneficial); direct, indirect, secondary or cumulative and could be either permanent or temporary (short, medium or long term).'

4.9 The approach taken by the ES leaves the decision as to whether an impact is adverse, beneficial or neutral in the hands of public opinion. This is incorrect, because no assessment is made of the nature of the impacts as required by

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[9] Tedder Hill Inquiry - APP/E2001/A/09/2097720 - Paras 18/19

the guidance quoted above, and there can be no doubt that the introduction of industrial rotating wind turbines into a landscape will constitute an adverse impact on landscape character.

2. Relevance of Landscape Character Area (LCA) Size

4.10 The second argument contends that because the significant effects on a landscape character area are limited to only a part of the LCA then the impact on the whole LCA will be less and hence not significant. The logical conclusion of this approach is that only small LCAs can be significantly affected by wind turbine development. The relative size of a LCA is determined by the level of Assessment (national/county/district) and cannot therefore be a key factor in judging the significance of the landscape impact of wind turbine development.

Conclusion

4.11 The ES has concluded that there will be significant impacts on three LCAs and it must also be concluded that these will be significant adverse impacts, sufficient for planning permission to be refused. In the planning balance this very important harmful impact, which is the main reason why most wind turbine development planning applications are refused, carries significant weight and with the very limited benefits forthcoming from the scheme is sufficient in its own right to require refusal.

The developer suggests that '..the local authority whose jurisdiction encompasses Therfield Heath, considers there to be no significant or unacceptable landscape or visual impacts from within the North Hertfordshire District as a result of the proposed Highfield Wind Farm, as no such concerns have been raised.'

We note that North Herts District Council (NHDC) did not express *any* view about the significance or acceptability of the landscape or visual impacts, or indeed about any aspect of the application. We do note, however, that NHDC suggested that the nearest parishes be consulted, and those that lie closest within North Herts, namely Therfield and Royston, have both subsequently placed on record their opposition to the proposal.

5 Visual Amenity

Overall impacts

5.1 The ES[10] admits that significant visual impacts for high sensitivity receptors, such as residents and users of public rights of way, will occur up to 7km of the development. These are summarises as follows:

'Residents in properties with open views towards the wind farm within approximately 7 km of the development, although beyond approximately 4.5-5km from the proposed turbines the occurrence of significant effects on residential views is expected to be extremely limited; visitors to Therfield Heath; users of parts of the Icknield Way Path and the Hertfordshire Chain Walk within approximately 5km of the turbines; walkers, equestrians and cyclists on local public rights of way within approximately 5km of the development, including the immediate local footpaths and bridleways running between the Icknield Way Path and the railway line; and motorists on the minor road network within 2km of the development, in particular those using the roads adjacent to the site including the A505 towards Litlington, the Litlington to Steeple Morden road to the north and the Steeple Morden to A505 road to the west; and rail passengers travelling between Ashwell Station and the built up edge of Royston within 2 km of the development.'

5.2 There can be no clearer indication of the enormous visual impact that these turbines will have on everyone who lives, works, studies, visits or travels through the surrounding area. They will be an ever-present source of visual distraction accentuated by the fact that the spinning rotor blades will be much more visually intrusive than a static object of the same size. However, the point to be made is that there are no objects of anything even approaching this vertical height within the area. The proposed turbines would be more than double the size of the chimney stack at the Johnson Matthey plant on the edge of Royston. The proposed turbines will be completely out of scale with and alien to all other natural or man-made vertical features.

Visualisations

5.3 The photomontages show just how unspoilt by intrusive features this area is. The highest features in most of the montages are trees at a height of up to some 17m, 83% shorter than these turbines. There are no pylons and the countryside has retained its historic character with remarkably little intrusive development.

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[10] ES - Para 9.326

Therfield Heath

5.4 Therfield Heath, which overlooks the site, is one of the last surviving pieces of natural chalk and grass downland in the Chilterns, it is an important historic site, a designated Nature Reserve and a Site of Special Scientific Interest.

5.5 The Heath is also a hugely popular location for locals and people from further afield to come and enjoy the countryside. Its situation just outside the town of Royston increases its importance to urban dwellers who enjoy quick and easy access to the countryside. There are good facilities for parking on the Heath and with a sports club and a golf course as added attractions there are always people walking, riding, cycling and exercising on the ridge. The main attraction is the view to the North across the wide open plain that lies in front of you; there is no view to the South as it is blocked by the trees on the top of the ridge.

5.6 As well as being a major current asset, the Heath is an example of a very important historic landscape. The earliest evidence of life on the Heath dates back some 2/3 thousand years and there are a number of barrows, some scheduled ancient monuments. The reason for their existence is precisely the view overlooking the ancient Icknield Way across the flat countryside.

5.7 The introduction of turbines into this panorama will significantly degrade the visual experience as can be seen in viewpoint 4 (even though the applicant has tried to reduce the perceived impact by including a bush in the foreground). This view is one of the most attractive in Cambridgeshire, with Country Life going so far as to describe it as offering spectacular views and perfect picnic panoramas.

5.8 In 2003 North Hertfordshire District Council (NHDC) refused a planning application from The Trustees of Royston Town Football Club to build a football ground on land adjacent to the Little Chef, Baldock Road, Royston, SG8 9NT. This site is overlooked by Therfield Heath and one of the primary reasons cited for refusal was the adverse impact on the visual amenity of visitors to Therfield Heath.

5.9 In the Applicant's own words:

"... visitors at Therfield Heath would experience a significant effect on their visual amenity as a result of the proposed turbines, due to the elevated and open nature of the public space...".

The adverse impact to the visual amenity of this landscape feature alone would be reasonable grounds to refuse the application.

Public Rights of Way (PRoW)

5.10 The local PRoW network is extensive and well used. It includes the national Icknield Way which passes within a few hundred metres of the site and which

will be significantly adversely affected. It is sometimes claimed by developers that people will have different views on how wind turbines will affect their ability to enjoy the countryside. This was considered by an Inspector in his decision[11] for a wind farm near Oundle:

"Some would choose to view the turbines at close quarters and for them the public rights of way would have a considerable attraction. But that would not be so for local people who would be only too familiar with the turbines and would have lost the benefit of a rural tranquil network. Overall, the proposed wind farm would have an adverse impact on the users of nearby rights of way."

There can be no doubt that the ability of people to enjoy the attractive countryside and use the PRoWs would be significantly adversely affected by the introduction of 5 industrial scale wind turbines.

Residential Amenity

5.11 A further impact of the visual intrusion of these turbines will be on the residential amenity of people living in close proximity to the site. Whilst the planning system is not intended to safeguard a private view, a proposal could unacceptably affect amenities and the existing use of land and buildings, which ought to be protected in the public interest. At a Public Inquiry at Brent Knoll[12] the Inspector concluded that:

"However, private and public interests may coincide where a proposal would have such a severe adverse impact on the outlook of a property that it would make it a significantly less attractive place to live, as perceived by a reasonable observer without strong views for or against the type of development in question. In such a situation protecting the amenities of a dwelling may be a legitimate and material planning consideration."

In other words the issue is not whether the properties become "unliveable" but whether they become significantly less attractive places to live.

This was reinforced in a recent Inquiry for the Wadlow[13] wind farm where the Inspector said:

"Nonetheless, when turbines are present in such number, size and proximity that they represent an unpleasantly overwhelming and unavoidable presence

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[11] APP/G2815/A/06/2019989

[12] APP/V3310/A/06/2031158

[13] APP/W0530/A/07/2059471

in main views from a house or garden, or are likely to cause overshadowing (and particularly flicker effects), there is every likelihood that the property concerned would come to be widely regarded as an unattractive (rather than simply less attractive, but not necessarily uninhabitable) place in which to live. It is not in the public interest to create such living conditions where they did not exist before, and it is against that threshold that I have assessed the effects on outlook."

5.12 The ES admits that local residents are high sensitivity receptors. As such, within 7km where they gain clear and relatively unobstructed views of the turbines they will experience a significant visual impact. There are thousands of people living within 7km, who might have significant impacts on their views, but there has been no attempt whatsoever to quantify what proportion will be so affected. All that appears in the ES is a general discussion relating to the nearest villages.

Proximity of Dwellings

5.13 One of the key features of this scheme is the closeness of the nearest dwellings to the turbines. The closest is only 500m away from the nearest turbine with another five lying within 650m. These are much closer separation distances than other wind farm developers would even consider as can be seen from the North Dover[14] Inquiry where the Inspector said:

"ETSU-R-97 does not set a minimum separation distance. However, I note that other wind farm developers such as Powergen Renewables and Enertrag look for separation distances of at least 700m; and Scottish Power's windfarm Site Selection Policy requires an even greater separation of at least 1000m."

5.14 It is common practice for a detailed evaluation to be undertaken for all houses within at least 1km and often at greater distances. Whether the residential amenity at a particular house meets the test above in terms of becoming an unattractive place to live will be dependant on the specific issues such as orientation, screening and main external areas for relaxation. This can only be determined by a detailed evaluation of each property that could be so affected.

5.15 In the absence of any such survey then the precautionary principle should be applied and permission should be refused. This is particularly pertinent when SCDC has a policy requiring developers to prove that if a turbine is less than 2km from a dwelling then residents will be protected from disturbance and visual impact (see Section 0). No such proof is provided and this scheme does not conform to Council policy and should therefore be refused.

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[14] APP/X2220/A/08/2071880 - Para 67

6 Cultural Heritage

Study Area

6.1 It is interesting to note that whilst a 5km study area was used for Grade I & II* listed buildings, Grade II listed buildings were only assessed up to 3km. Given that all listed buildings are nationally important and that significant visual effects on the settings of listed buildings may be present up to 7km then this is an unnecessary restriction in the scope of the assessment. It may well be that this has been imposed because of the large number of Grade II listed buildings within 7km but this merely serves to underline how many nationally important heritage assets could be affected by the proposal.

Number of Cultural Heritage Assets

6.2 Indeed one of the most noticeable facts about this scheme is the sheer wealth of cultural heritage assets within the study area, numbering as follows:

Cultural Heritage Asset	Number
Scheduled Ancient Monument	26
Grade I Listed Building	6
Grade II* Listed Building	21
Grade II Listed Building (within 3km)	73
Conservation Area	8

Classification of Listed Buildings

6.3 There is a basic flaw in the methodology employed by the ES in assessing cultural heritage. In Table 10.1 it classifies Grade II listed buildings as of only medium importance, purportedly of only county importance. This is incorrect as Grade II listed buildings are of national importance and should be classified as High importance. Such a misclassification must compromise the conclusions of the whole assessment particularly given the large number of such buildings within and beyond the abridged 3km study area.

6.4 There is another error in Table 10.3 where magnitude of impact is combined with site importance in a matrix to arrive at significance. Whilst a medium importance when combined with moderate impact correctly gives a moderate significance the rest of the diagonal should also provide a moderate significance. However, these squares have been downgraded to moderate/slight or even slight. This again will have the effect of underestimating the number of significant adverse impacts.

6.5 Notwithstanding these methodological errors the ES still concludes[15] that there will be significant impacts on eleven of the identified assets. These include the Parish Church of St. Peter and St. Paul in Steeple Morden and the Conservation Area of Litlington. These impacts will be adverse and if a more balanced classification is used then this number will increase further.

6.6 Taking cultural heritage as a whole into consideration, the Applicant states that:

The effects upon eleven assets are predicted to be significant. The cause of the effects would be the presence of the turbine array in the landscape, and the magnitude of the change this array would have on the settings of these assets. The proximity of the proposed turbine array to these assets and the size of the turbines are significant factors in magnitude of the change and there is no way to avoid these adverse effects without changing the location or scale of the proposed wind farm. There is also no scope for reduction of the impact through design amendments.

6.7 With significant adverse impacts on a number of cultural heritage assets then this application is in conflict with policy ENV 6 of the East of England Plan and policies CH1/4/5 of the Core Strategy of the Local Development Framework and must be refused.

[15] ES - Para 10.91

7 Noise

Regulation

7.1 The assessment of noise from wind farms is a complicated technical subject. The Government realised early in the development of onshore wind that if the noise output was assessed under the existing methodology for industrial development (BS4142) of allowing 5dB above background then, because most sites were in rural locations with low background noise, it would mean that most wind farms would be refused. Therefore they introduced a specific methodology - ETSU-R-97 - for the assessment of noise from wind farms.

7.2 The compromise ETSU has adopted between not constraining onshore wind farm development and protecting the amenity of local residents means that it has adopted less stringent noise requirements than are in place for other industrial developments.

7.3 The assumptions and experience from which ETSU was drawn up, being based on turbines of much smaller height and blade diameter, have limited relevance to the size and scale of the turbines being proposed for this scheme. Yet there has been no attempt to update ETSU in the twelve years since its introduction.

7.4 There are a number of issues, such as excessive aerodynamic modulation and wind shear that are now recognised to be significant factors in wind turbine noise that are not taken into account by ETSU. Indeed an alternative methodology for dealing with wind shear has been proposed and used, even though it is in conflict with ETSU. This shows that although ETSU is the required methodology it is acceptable to modify its interpretation in the light of more recent information, provided there is adequate justification. The key issue is not whether the scheme will conform to ETSU but whether it will create unacceptable noise impacts on local residents, particularly with regard to sleep disturbance and resulting health problems.

7.5 Given we have shown above that even if a proposed wind farm scheme does comply with ETSU-R-97 there is no guarantee that a noise nuisance will not occur it is imperative that a thorough and rigorous noise assessment is carried out.

Measurement of Background Noise

7.6 Three measurement locations were used in March/April 2009. ETSU-R-97 is very clear that its methodology is based on measuring the specific noise environment of the nearest noise sensitive properties so that the noise output of the turbines can be related directly to that particular noise environment. The selection of the actual measurement locations is crucial to reflect the external noise environment where the residents spend the majority of their time when

enjoying the amenity of their garden as ETSU is predicated on external limits. The locations chosen here throw up a number of problems.

7.7 One of the issues with ETSU is that it uses averages to calculate the background noise levels. In particular it averages the background noise from all wind directions. This does not predict the worst case scenario because obviously this will be when the wind is blowing in a direction from the wind farm to the receptor. In normal circumstances where the background noise is not direction specific this is not a concern. However in this case with the A505 providing an abnormal noise source then background noise when the wind is either blowing towards or away from the A505 will vary significantly. With no analysis of the background noise by wind direction no worst case can be quantified. Another effect of averaging is that the night-time noise is averaged from 23:00 to 07:00 yet the A505 background noise will vary considerably over this period with the quietest period in the early morning. The low background noise in this period, when people most want quiet for sleep will be submerged in the overall higher average.

7.8 This is a very important point in this case because the presence of the A505 means that the background noise levels at all properties are higher than would be expected for a rural village location, particularly at night. For Highfield House and Morden Grange Farm when the wind is blowing from the turbines towards these properties then it will also be blowing the background noise from the A505 away from the houses. Thus there will be maximum noise from the turbines when the background noise will be at a minimum.

7.9 A similar situation arose in the Wadlow Farm wind farm application[16], also in South Cambridgeshire, where the proposed wind farm was located close to the A11. The Inspector in his decision commented:

"9.90 The Appellant Company rightly chose to exclude noise data from certain directions because it would have been unrepresentative of the background noise levels that would be experienced without the interference of A11(T) traffic noise."

If such an approach had been taken here then the background noise levels would have been lower and it is possible that the ETSU limits would be exceeded.

7.10 With regard to the specific measurement locations, at Limlow the selected location was at least 30m from the property with a possible drive to the left. Morden Grange was between two properties so could be unrepresentative of

[16] Wadlow Farm Wind Farm Appeal - APP/W0530/A/07/2059471

both. Highfield House, although some way from the house was a more suitable location.

Wind Speed and Direction

7.11 As has been mentioned above the specific noise environment at each measurement location is crucial. Given that the individual background noise characteristics of each dwelling will be unique and will vary differently by time of day, wind speed and wind direction it is vital that the survey period is sufficiently long to provide a complete spectrum of values for each variable.

7.12 This is defined in ETSU-R-97 (Pg.99 1.2 The Background Noise Survey) which states:

"The background survey should be taken over a sufficient period of time to enable a reliable assessment of the prevailing background noise levels at each property to be made. As a guideline, an appropriate survey period might be 1 week, although the actual duration will depend on the weather conditions, in particular the wind speed and direction during the survey. It **must** (our bold) be ensured that, during the survey period, wind speeds over the range zero to at least 12m/s and a range of wind directions that are typical of the site, are experienced."

7.13 There is no chart provided in the ES which shows that the range of wind directions appertaining during the measurement period was typical of the site. This is standard practice for wind farm ESs and its omission here is unusual and places a question mark over the representativeness of the background noise data.

Unrepresentative Noise

7.14 ETSU-R-97 makes it clear that atypical noises such as rainfall or seasonal activity should be excluded from the data. The ES in Section 13.62 says that any data obviously corrupted by rainfall was discarded. There appears to have been no removal of any other abnormal background noise, which again is standard practice. Plate 13.7 for the quiet daytime period at Limlow shows clearly atypical outlying data points at high levels which should have been removed.

Background data

7.15 At night there is a very wide spread of data points, up to 30db for a given wind speed, as can be seen in Plate 13.8 the night time chart for Highfield House and is repeated for all the other properties. This makes the calculation of a typical background noise level very difficult. There is no comment on this effect at all, it is just accepted. This is not acceptable, as the determination of the noise limits in any condition will come directly from these calculated background noise levels. Without any explanation there must be a high

degree of uncertainty surrounding the representativeness of the background noise calculations.

Summary of Measurement of Background Noise

7.16 We have shown that the background measurement regime has significant flaws that it is in contravention of ETSU-R-97 and does not provide an adequate representative background noise assessment.

7.17 If this scheme is approved any noise conditions to protect resident's residential amenity and quality of life will be derived from these background measurements. It would be intolerable to put residents' health at risk with no potential redress with concerns of the thoroughness of the work carried out by the applicant.

7.18 The flawed background noise assessment is in contravention of ETSU-R-97 and means that the conclusions drawn in the ES about the potential for noise nuisance cannot be relied upon.

Predictions of Noise

7.19 Notwithstanding that no conclusions can be reached regarding background noise levels there are also concerns regarding the predicted noise output from the wind farm in a number of areas.

7.20 It is impossible to accurately predict what the actual noise output of any wind farm will be prior to commissioning. There are too many variables specific to each site. This is why a worst-case scenario must be used to provide some form of contingency.

7.21 There is no evidence within the ES, as required by PPS 22 Key Principle (viii), of how noise has been included in any mitigation through the iterative design process either by considering alternative turbines (including other manufacturers and other capacities) or different turbine locations. This is particularly important here where the nearest property is only 500m from the nearest turbine. Most developers use a 700/800m minimum separation distance and it appears that the limited land area available has forced the applicant to squeeze the turbines into too tight a space, leading to close separation distances from houses and to the turbines themselves being too close together.

7.22 The noise levels from the Nordex N80 turbine are shown in Table 13.4. There are two noise levels, normal operation and sound optimised mode, it is not clear within the text which level has been used in the modelling and as there is up to 2.2dB difference between them this needs to be clarified.

7.23 In 13.73 a ground effect value of G=0.5 is used but in previous assessments Hayes MacKenzie have used a figure of G=0 to provide a worst-case

scenario. By choosing G=0.5 this will reduce the projected noise output by a few dB.

Excess Aerodynamic Modulation

7.24 Aerodynamic modulation (AM) is a phenomenon, which was the subject of a research paper for the DTI17 (The Measurement of Low Frequency Noise at Three UK Wind Farms). It concluded that the cause of the noise complaints at these three wind farms was the audible modulation of the aerodynamic noise, especially at night. Although the noise levels were not high enough to result in the awakening of a resident, once awoken the audibility of this noise could result in difficulties in returning to sleep. The authors also concluded that they did not know what caused aerodynamic modulation, that it could not be predicted if a wind farm would suffer from it and that its effects would cause the noise output of the wind farm to be higher than that predicted by the ETSU-R-97.

7.25 Indeed one of the sites affected by AM is at Deeping St Nicholas in Lincolnshire. Here the owners of a house 930m away have had to rent a house 5 miles away to assure themselves of a good night's sleep. Their quality of life has been completely destroyed. A case brought by the owners against the wind farm developers and landowner was settled out of court and it appears that the developers have bought their property.

7.26 This wind farm will have properties closer than 930m to the turbines, with the closest at 500m.

7.27 A further study by Salford University for BERR18 showed that 19% of existing wind farms had resulted in noise complaints to the local planning authority. This will be an underestimate of the actual noise problem, as many people do not complain, as they believe that nothing can be done. Also the universe of wind farms in the study included all the smaller original wind farms and the large number in Scotland with no houses within a few kilometres for whom there is no chance of any noise nuisance.

7.28 AM has been found to be present at distances in excess of 1km and can be exacerbated by turbines in linear arrays and/or insufficient distance between turbines. In this case Fig 3.1 shows that there are two rough lines of turbines pointing towards Morden Grange Farm. The unsuitable layout in terms of separation distances between the turbines is discussed below but the Companion Guide to PPS22 on page 162 shows a separation distance across the prevailing wind of four rotor diameters (320m for this scheme). Yet the

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[17] The Measurement of Low Frequency Noise at Three UK Wind Farms - URN 06/1412

[18] Research into Aerodynamic Modulation of Wind Turbine Noise - URN 07/1235

distance between turbines 2 and 1 is only 250m and 289m for turbines 3-4. Significant excess AM is expected as a result of the turbine layout.

Turbine Separation Distances

7.29 Guidance within the Companion Guide to PPS 22 requires turbines to be positioned so that there is a minimum distance between them of 3-10 rotor diameters. Industry guidelines tend to be 6 diameters in the prevailing wind direction and 4 diameters perpendicular to it. This is confirmed by a letter from Enertrag, a wind farm developer, (Appendix 1) objecting to another developer placing two turbines in close vicinity to their existing North Pickenham wind farm. The reasons for their objection were:

"In summary, we object to this development on the following grounds:

The installation of the two turbines, irrespective of their position, would reduce output from the existing windfarm, and possibly cause damage due to turbulence if positioned as shown on the application.

The proposal does not accord with industry guidelines on separation of wind farms etc.

The close positioning of the new turbines to our turbines is against guidance and could give rise to major noise issues such as Amplitude Modulation. This has not been addressed sufficiently in the Environmental Statement."

Earlier in the letter it clarified what the guidelines were as follows:

"Guidelines recommend that in the predominant wind direction, turbines should be spaced some 6-7 rotor diameters apart and in the cross direction, 4 to 5 rotor diameters apart."

7.30 The actual distance of the nearest turbine to Enertrag's existing turbines in this case was only 34m inside the guidance.

7.31 Assuming a minimum 6 rotor diameter separation in the prevailing downwind direction then for this scheme this equates to 480m. Yet the separation distances in this direction are:

Turbine	1-4	377m
	2-3	455m
	3-5	377m

All are well within the 480m guideline, by in the worst case 103m, and thus must be expected to give rise to major noise issues including amplitude modulation.
The crosswind separation has been discussed above.

7.32 The close spacing of the turbines will lead to excessive amplitude modulation and this noise issue will not be accounted for within the ETSU-R-97 methodology. Thus mere conformity with the ETSU-R-97 limits will not protect local residents from potential noise and health problems.

Summary of Predictions of Noise

7.33 Given the problems outlined above the conclusions contained within the ES about potential noise impacts can be given no weight at all in the determination of this planning application.

7.34 We have shown that the background measurement locations were unrepresentative of the main external amenity areas of the nearest dwellings as required by ETSU-R-97. There is insufficient evidence of what abnormal noise has been removed and the presence of the A505 requires a worst-case scenario to be considered.

7.35 Excessive amplitude modulation is likely due to the insufficient separation of the turbines within the turbine array. With dwellings well within the normal separation distance they are likely to suffer unacceptable noise impacts.

7.36 The noise impact assessment does not comply with ETSU-R-97 and does not provide a sufficiently solid foundation for determination to take place.

Health

7.37 It is now accepted that the greatest noise and potential health problems from wind farms occur at night when the background noise levels will be at a minimum, turbines will be operating at maximum noise output if the wind is blowing, wind shear is highest and people are trying to sleep. The ETSU-R-97 indicative night-time limit of 43dB was based upon the internal 35dB guidance in PPG 24, which in turn was based upon WHO 1980 guidance.

7.38 This WHO guidance was reviewed in 1999 and the internal limit reduced by 5dB to 30dB but no corresponding change was made in ETSU-R-97.

7.39 Recently the World Health Organisation Regional Office for Europe has published a comprehensive review of the health effects of night noise and published night noise guidelines for Europe19. This reviewed all the epidemiological and other research regarding the cause and effects of sleep disturbance through noise. It provides a clear and authoritative link between noise and sleep disturbance, and between sleep disturbance and adverse health

[19] World Health Organisation - Europe - Night Noise Guidelines for Europe (2009)

7.40 It states in the executive summary:

"Based on the systematic review of evidence produced by epidemiological and experimental studies, the relationship between night noise exposure and health effects can be summarised as below.

Below the level of 30dBLnight,outside, no effects on sleep outside are observed except for a slight increase in the frequency of body movements during sleep due to night noise. There is no sufficient evidence that the biological effects observed at the level below 40dBLnight, outside are harmful to health. However, adverse health effects are observed at the level above 40dBLnight, outside, such as self-reported sleep disturbance, environmental insomnia, and increased use of somnifacient drugs and sedatives."

7.41 It goes on to conclude that an Lnight, outside of 40dB (this is an LAeq figure and relates to a 38dBL90 figure used in ETSU) should be the target of the night noise guideline to protect the public. Thus the most recent, comprehensive guidance from the WHO sets a clear 38dB night-time limit for the LA90 descriptor used by ETSU-R-97.

7.42 This figure of 38dB is also supported by Hayes McKenzie, the leading acoustical consultants into wind farms and members of the Noise Working Group who produced ETSU-R-97, who produced a report20 for the DTI into amplitude modulation.

7.43 Draft versions of the report have recently come to light as a result of Freedom of Information requests. They show that HMP had recommended a reduction of the ETSU-R-97 permitted night time limits to 38 dB LA90 (40dB LAeq) in the absence of AM with a further penalty of up to 5 dB in the presence of modulation. These recommendations were removed from the final version of the report at the behest of DECC. No scientific explanation for their removal seems to have been offered. An example of removed text is:

"The analysis of the external and internal noise levels indicates that it may be appropriate to re-visit the issue of the absolute night-time noise criterion specified within ETSU-R-97. To provide protection to wind farm neighbours, it would seem appropriate to reduce the absolute noise criterion for periods when background noise levels are low. In the absence of high levels of modulation, then a level of 38 dB LA90 (40 dB LAeq) will reduce levels to an internal noise level which lies around or below 30 dB LAeq with windows open for ventilation. In the presence of high levels of aerodynamic modulation of the incident noise, then a correction for the presence of the noise should be considered."

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[20] The Measurement of Noise at Three UK Wind Farms - DTI 2006

Similarly, DECC required the removal of references to WHO guidance for the protection of sleep disturbance which supported HMP's recommendations for a reduction in ETSU-R-97 night time noise limits. The removed text follows:

"If one takes the guidance within the WHO for the protection against sleep disturbance of 30 dB LAEq, and apply a 5 dB correction for the presence of high levels of [aerodynamic] modulation within the incident noise, then this gives rise to an internal noise criterion of 25dB LAeq. Based upon the measured building attenuation performances at Site 1 & 2, then an external level between 35 - 40dB LAEq (33-38 dB LA90) would provide sufficient protection to neighbouring occupants to minimise the risk of disturbance from the modulation of aerodynamic noise."

7.44 We would argue that with the wind farm only 500m away from the nearest property there is a clear risk of health problems resulting. Indeed with the likelihood of excessive amplitude modulation, caused by the inappropriate layout and proximity to dwellings, Hayes McKenzie would recommend an external night-time limit of 33dB.

7.45 In this context it is worth referring to the Inspector's decision at the Shipdham[21] (Daffy Green) wind farm Inquiry. He said:

"67. So far as I am aware, it is unprecedented in flat and quiet rural locations to have such large turbines within 700m of 9 dwellings, 2 of which would only be about 500m away and one of which would be only 432m away. ETSU-R-97 does not set a minimum separation distance. However, I note that other wind farm developers such as Powergen Renewables and Enertrag look for separation distances of at least 700m; and Scottish Power's windfarm Site Selection Policy requires an even greater separation of at least 1000m.
68. In my view, the separation distances have not been chosen to minimise increases in ambient noise levels; a requirement of paragraph 22 of PPS22"

7.46 SLWFAG has shown that the noise impact assessment included as section 13 in the ES is inadequate and deficient in many areas. It does not comply with requirements of Environmental Impact Assessments and does not provide SCDC with the necessary data and analysis to determine this application.

7.47 The application does not meet the requirements of ETSU-R-97 and hence is in conflict with National Planning Policy Statement EN-3 and must be refused.

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[21] Shipdham Wind Farm Inquiry - APP/F2605/A/08/2089810

Conditions

7.48 Any protection would be via a planning condition that would be based on the inaccurate background noise measurements and the ETSU-R-97 methodology. The implications of this were shown in the Shipdham Inquiry[22] mentioned earlier where the Inspector concluded:

"I consider that the suggested conditions could not control noise effectively. They fail the Circular 11/95 tests of precision and enforceability, and they are too cumbersome for frequent use."

7.49 In other words if the scheme were built it is extremely difficult for residents to get any protection if a noise nuisance occurs. Any complaint post-determination against the operator is likely to lead to lengthy arguments as to the factual validity of the complaint, opportunities for remediation and, possibly, as to the validity of the Condition itself. In this process, much of the burden of proof will be on the complainant, who may be hampered by a number of practical limitations as to how he can substantiate his claim - one such limitation being the problem of differentiating between wind farm emissions and background noise when the scheme is operating.
In practice, SCDC resources available to investigate and pursue a possible breach of noise limits are limited. It is therefore highly desirable that this point is not reached. This is also further complicated by the potential presence of wind shear and excessive amplitude modulation, which are not covered by the ETSU-R-97 methodology.

7.50 This point is discussed at length and with great lucidity by the Inspector for the appeal to Long Bennington wind farm:

"It is therefore important both for the operator and those potentially affected by noise to have confidence that turbines capable of meeting the "permitted" levels at any particular site, and addressing AM should it occur, are installed at the outset..."

"...Enforceable noise limit conditions form the basis of PPG24 and PPS22 advice and represent an important safeguard, often of last resort, to local residents. I have considered the approach outlined in the Appellant's noise evidence (document 14, paragraph 6.7) but in the interests of public confidence in the decision-making and enforcement process, it is in my view necessary for the noise limits and choice of turbine to be founded upon data which has, and can be seen to have been, carefully and accurately compiled before full permission has been granted, rather than afterwards. That is, after all, a purpose of statutory Environmental Assessment, and the judgement in

[22] Shipdham - APP/F2605/A/08/2089810

Newport County Borough Council-v-The Secretary of State for Wales and Browning Ferris Environmental Services Ltd (1998) Env LR 174 reinforces the point."

7.51 For this reason, and those expressed above, we submit that it is of fundamental importance that the scheme can be seen to meet acceptance criteria at the EIA stage prior to determination, and that use of Conditions should be seen only as a final line of defence.

8 Construction/Traffic

Vehicle Movements

8.1 The ES suggests that the construction of a wind farm is a simple operation. Whilst this may be true in terms of the work actually on the site, the main impact on the people living in the area will result from the traffic movements conveying materials and workers to the site. The ES undertakes an analysis of the traffic movements and concludes that there will be no significant impacts. The accuracy of such a conclusion obviously relies on an accurate forecast of the number of vehicular movements.

8.2 The detail of this calculation is provided in Appendix 8.3 and concludes that there will be 2,366 movements (incl. return journeys). Given that the construction of wind farms is very standard, with the same processes being used, one way of verifying the accuracy of the assumptions used is to compare them with another scheme of comparable size.

8.3 The ES for the Jacks Lane[23] wind farm (6x125m turbines) identifies 10,398 movements and the detail is shown in Appendix 2. This is over 400% greater than the figures put forward in this scheme. Whilst there is one more turbine and the length of the onsite tracks is greater there is no way that this can account for more than a maximum of 2,000 additional movements.

8.4 The conclusion that must be drawn from this analysis is that the number of trips used in this assessment has been considerably under-estimated and hence the conclusions drawn about the significance of the potential impacts cannot be relied upon.

Junction of A505 and Royston Road

8.5 Within the ES the assessment on traffic and transport has been limited to the construction process with no account taken of the implications on road safety during the twenty-five year operational period. For drivers navigating the junction turning right from the A505 onto Royston Road, this will increase the risk of distraction and resulting high-speed accidents as drivers attempt this already challenging manoeuvre.

8.6 Royston Road, which connects the A505 to the site, is also not without risk with a fatal accident on this stretch occurring in recent years.

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[23] http://www.jackslanewindfarm.co.uk/about-the-project/environmental-impacts.aspx

8.7 Without a full assessment there is no indication as to the level of risk this development may pose to drivers on these roads and what mitigation measures could be implemented.

9 Ornithology/Ecology

9.1 There seems little dispute that the site is an important ornithological asset. The fact that the 2008 surveys had to be aborted because of the discovery of a nesting site for stone curlew - a very important bird that has declined significantly in Cambridgeshire to such an extent that a single pair were found nesting only in 1999 and 2007 - shows the uniqueness of the site. The fact that a sighting was made again in 2009 reinforces the importance of the area and the fact that no further sightings were made should not reduce this importance. This species is listed under Annex 1 of European Directive 2009/147/EC on the Conservation of Wild Birds and this directive requires member states to take special conservation measures affording these birds additional protection. It is also listed in Schedule I of the Wildlife and Countryside Act 1981.
Wind farms can be located in many places and to locate one in such a sensitive location makes no sense.

9.2 The ES admits that the following raptors were observed during the assessment:

- Hobby
- Marsh Harrier
- Sparrowhawk
- Buzzard
- Kestrel
- Merlin
- Peregrine
- Montagu's Harrier
- Red Kite

This assemblage of breeding raptor species within a comparatively small area is probably unique in the UK.

9.3 Raptors in general are at high risk from wind turbines. Firstly because they spend time at blade height circling when searching for prey and secondly once prey is sighted they dive at great speed entirely focused on their prey and oblivious to the rotating turbine blades.

9.4 There is a potential risk of a significant adverse impact on raptors, particularly on Montagu's Harrier where even one death would be disastrous. With protected bird species of regional/district and county level of importance

present on the site then clearly this scheme should be sited in a less important location.

9.5 In addition there were a large number of red/amber listed birds also present including:

- Corn Bunting
- Grey Partridge
- Linnet
- Skylark
- Yellow Hammer
- Yellow Wagtail
- Dunnock
- Whitethroat
- Nightjar

9.6 In addition two bats of district-level importance were found on site, namely Nauthusius pipistrelle and Noctule.

9.7 We note that in the consultation response by Litlington Parish Council they identify that a local ornithologist has recorded barn owls in the area as recently as 2010 but no sighting was made in the surveys undertaken by the Applicant. It is self-evident that simply because a species was not observed does not mean it is not present and this calls into doubt the validity of the surveys carried out.

9.8 Development Control Policy NE/6 states that planning permission will not be granted for development that would have an unacceptable impact on biodiversity and it seems reasonable to conclude that this application proposal will be in conflict with this policy.

10 Benefits

10.1 The amount of electricity the site could produce is a material consideration in assessing the balance between the 'benefits' the application offer and the 'harms' that it will cause.

10.2 The ES acknowledges that there will be no significant socioeconomic effects apart from the electricity produced. The turbines will be produced overseas and there will be limited local input into the construction work given the specialised nature of the erection of wind turbines.

10.3 The potential for electricity generation has already been compromised by the reduction in height of the turbines from 126m to 100m driven solely by the fact that the site selected was in direct line of sight to the radar at Debden. A further reason why this is an inappropriate site.

10.4 The output of electricity from a wind turbine is proportional to the cube of the wind speed and variations in the available wind speed at any site due to topography, vegetation and built structures will therefore make a large difference in electrical output and hence the benefits that can be claimed. The specific wind profile of a site determines the amount of the installed capacity of the wind farm that can be "harvested".

10.5 A graphic example of just what difference topography can make is shown by the performance of two similar sized schemes a few kilometres apart near Workington. In 2006 the Siddick wind farm had a capacity factor of 19.6% whilst the Lowca wind farm achieved 33.9%. The reason was that the Lowca site is on top of a ridge whilst the Siddick wind farm was on the coastal plain. For this application the turbines would be sheltered by the ridge to the South and thus output will be compromised.

10.6 The only way of obtaining the actual wind profile, and hence an accurate calculation of power generated, is to erect an anemometer mast on the site and collect wind data for at least 12 months. There has been such a mast on the site for two years and the data collected will give the most accurate estimate of the capacity factor (% of the installed capacity that will be generated) that the proposed site could generate.

10.7 Yet, extraordinarily, the developer does not offer this data to support the claim for the amount of energy the site might produce. Instead, the ES uses an 'average' capacity factor (25%) of all the wind farms, of whatever size or location, across the East of England for the years 1998 - 2009. This is a wholly unrepresentative measure with no basis in the realities of the actual site, and therefore cannot be relied upon in the balancing exercise.

10.8 It seems reasonable to assume that if the actual wind speed data does support the applicant's claims, this data would have been used. In the absence of this data it seems reasonable to conclude that the actual wind

speed data does not support the applicant's prediction for the amount of electricity that the site might produce.

We note the continuing absence of actual wind speed data to support the claims of the developer for the amount of electricity that the site could produce.

We note that the developer suggests that estimates are merely 'indicative of the scale of development only'

We note that 'Estimates are not projected forward based on the wind speed data collected on-site...until the exact turbine model is selected' and yet an estimate *is* offered using *average* wind speed data for the area that assumes an exact turbine model. We suggest that if the Developer cannot offer an estimate based on *real world data* because an exact model *is not known*, then equally he cannot offer an estimate based on *average data* that assumes an exact model *is known*. This reaffirms our view that the 'estimates' offered by the developer simply cannot be relied upon and should be discounted.

10.9 In order to try and arrive at a more credible figure for the potential capacity factor, SLWFAG has identified and used 3 local, independent, verifiable, corroborated sources of mean wind speed data to prepare a rigorous, 'real-world' forecast of the amount of energy that the site could produce.

10.10 The claim made by the Applicant and the analysis completed by SLWFAG can be summarised as follows:

Category	Applicant Claim	SLWFAG Analysis
Forecast wind speed	8m/s	2.9m/s[1] 3.3m/s[2] 3-4m/s[3]
Source of data	*Average* Capacity Factor figure for the *East of England* taken from the DECC Digest of UK Energy Statistics	[1]Iceni Weather Station at Royston –2001-2010 [2]Cambridge University Digital Weather Station. [3]Met. Office Annual Wind Speed Map 1971-2000
Load factor	25%	8.4%
Energy forecast	27,400Mwhrs/annum	9,400Mwhrs/annum

10.11 This analysis suggests that the amount of electricity that the site could produce is likely to be around *one third* of the amount claimed by the Applicant.

10.12 We consider that our analysis has been optimistic in the amount of electricity the site might produce and the actual amount of electricity the site may produce may be less still than we forecast.

10.13 This is not just an esoteric argument about which numbers are correct in terms of the amount of electricity produced. PPS22 Key Principle (viii) states that:

Development proposals should demonstrate how any environmental and social impacts have been minimised through careful consideration of location, scale, design and other measures."

10.14 By choosing a demonstrably low wind speed site the Applicant is in conflict with this key policy because by selecting a site with higher wind speeds they could mitigate the environmental and social impacts by using fewer or smaller turbines to produce the same amount of electricity.

10.15 The amount of electricity produced is also impacted by the separation distances between the turbines as can be seen in an E.ON application at Syderstone (Chiplow Wind Farm). In the ES in 4.1.2 one of the constraints quoted as important to the design of a wind farm was:

"To minimise the turbulent interaction between wind turbines (wake effect), which is a key factor in maximising the overall power generating capacity of a site, turbines were also separated by set distances both in line with the prevailing wind direction and perpendicular to it (in the case of Chiplow, this being 5 x 4 rotor diameters)."

10.16 We have already shown in the noise section that the turbines in this scheme do not meet this separation guidance and hence there will be a reduction in capacity factor, and thus the amount of electricity the site could produce, due to array losses.

10.17 Further loss would arise because of the selection of the Nordex N80 2.5MW wind turbine. This is because wind turbines are designed specifically for a particular range of wind speeds. The IEC categorises turbines into different classes as shown below:

Class	Specified average wind speed
IEC I (high wind)	10m/s
IEC II (medium wind)	8.5m's
IEC III (low wind)	7.5m/s

10.18 The Nordex N80 is Class IA aimed specifically at high wind areas. Indeed in its promotional brochure it says that it suits perfectly for high wind regions. The reason that it has an installed capacity of 2.5MW with blades of only 40m is because such a generator requires high torque to power it. Placing it in a low wind speed area such as this will mean that its capacity factor will be dramatically impaired.

10.19 It is interesting that the Nordex N90 with 45m blades but only a capacity of 2.3MW is designed for lower wind speed areas. It is clear that by being constrained to a maximum height of 100m the maximum installed capacity of a suitable turbine will be 2MW. This will impact the installed capacity.

10.20 This calls into question why the Applicant has proposed a turbine that they must know is completely unsuitable for the location of the site. It seems reasonable to conclude that the Applicant has cited this turbine solely to claim the highest installed capacity possible. When combined with the unrealistic illustrative capacity factor discussed previously, which we have demonstrated has little realistic prospect of ever being achieved, the applicant can claim the maximum 'headline' amount of electricity that the site might produce.

10.21 This highly selective and wholly unrepresentative approach is disingenuous at best and calls into question the overall credibility of the other assumptions and conclusions contained in the ES.

10.22 The SLWFAF group analysis suggests, and the almost total lack of any robust data included by the applicant seems to confirm, that the benefits of this site are so small that the balance between the benefits and harms of the scheme are tilted heavily toward refusal of the application.

10.23 The weight given to the 'benefits' of the application should be reduced to one third or less of the weight that would otherwise be applied if the claims of the Applicant could be properly substantiated.

11 Public Attitudes

11.1 Chapter 17. Socio-Economics of the ES cites a limited number of surveys that purport to demonstrate that there is widespread support for wind farms. We note that many of these surveys were commissioned by organisations with an interest in the development of the onshore wind industry and it is common for poll results to reflect the views of the poll sponsors.

11.2 Chapter 17 also suggests that there is a significant difference in views between the population at large and those who live close to a planned or actual development. The Appeal Decision for Chiplow and Jack's Lane considers this point:

54. The Appellants have provided survey evidence of increased support for all wind farms from those who live further away. That is not unexpected, as they would receive the benefits of renewable energy without experiencing any adverse visual or other impacts on such a frequent basis. Little weight is therefore accorded to that evidence.

11.3 Each planning application has its own balance of specific benefits and harms and its acceptability can only be determined by a careful consideration of the relevant local issues. The people who are in the best position to fully assess the overall balance of a scheme are those who live in the area and fully appreciate the values attached to the local amenity. As we have demonstrated, the benefits of this application are limited and the harms are considerable and thus it is reasonable to conclude that the greatest weight should be afforded to those who will suffer the harms as well as receiving the benefits.

11.4 Seven local parishes in the vicinity of the site consulted, representing over 21,000 residents, all oppose this application:

Parish	Population
Royston	14,570
Bassingbourn cum Kneesworth	4,005
Steeple Morden	963
Litlington	813
Therfield	539
Kelshall	149
Abington Pigotts	143
Total	**21,182**

11.5 Members of Parliament for the constituencies closest to the site, and representing a population of over 204,000, both oppose this application:

Constituency	MP	Electorate	Population
South Cambridgeshire	Andrew Lansley	80,001	109,104
North East Hertfordshire	Oliver Heald	72,658	95,235
		152,659	**204,339**

11.6 It seems beyond question that the local community, having due regard for the weight of the benefits and harms of the application, and the balance between these, is overwhelmingly opposed to this application.

The developer suggests that the overwhelming opposition expressed by locally elected representatives somehow does not reflect the views of the communities they represent. We would suggest that local communities elect representatives for the express purpose of representing their interests, and the views expressed by these representatives are the product of wide-ranging consultation, including public meetings convened for the sole purpose of inviting views on this application. We would suggest that it is entirely reasonable to assume that the views expressed by democratically elected representatives reflect the views of the communities they serve, and it is fanciful for the developer to suggest otherwise.