

# WIND TURBINES POLICY GUIDANCE NOTE

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## **Introduction**

1. The purpose of this Policy Guidance Note is to assist in the interpretation and application of relevant planning policy in relation to proposals for wind turbines in Bedford borough. It does not represent new policy but draws together and expands on Government guidance and the Council's development plan policies. By providing a greater level of detail, the Policy Guidance Note aims to ensure that a consistent approach is taken to wind turbine proposals and increase understanding of the factors that can be considered when determining planning applications.
2. This Policy Guidance Note is primarily concerned with large and medium size, freestanding wind turbines rather than micro-turbines mounted on or within the curtilage of dwellings, which often do not require an application to be made for planning permission provided that certain specified limits and conditions are met.

### Environment Impact Assessment

3. Wind turbines are listed under Section 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 as potentially requiring an Environmental Impact Assessment (EIA). A project may require EIA if the development involves more than two turbines or the hub height of any turbine exceeds 15 metres, or if the proposal lies within a "sensitive area" as defined by the Regulations. If requested by the applicant, the local planning authority must provide a Screening Opinion advising whether or not an EIA is required. The applicant may also request a Scoping Opinion from the local planning authority which will advise on the issues and information to be included in an Environmental Statement.

## **Government guidance**

### National Planning Policy Framework

4. The National Planning Policy Framework (NPPF), published in 2012, sets out the Government's planning policies and how these are to be applied. The NPPF is a material consideration in determining planning applications. In relation to renewable energy (including wind) the NPPF states that communities have a responsibility to contribute to energy generation from renewable and low carbon sources in order to help increase the use and supply of renewable and low carbon energy. Local planning authorities should recognise this by designing their policies to maximise renewable and low carbon energy

development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts. When determining planning applications, local planning authorities should not require applicants to demonstrate the overall need for renewable or low carbon energy and also recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions. Planning applications should be approved if their impacts are (or can be made) acceptable (paragraphs 97, 98).

5. The NPPF states that, in assessing the likely impacts of wind energy proposals, local planning authorities should follow the approach set out in the Government's National Policy Statements for energy. The NPPF can be viewed at <https://www.gov.uk/government/publications/national-planning-policy-framework--2>.

#### National Policy Statements for energy

6. National Policy Statements set out the Government's objectives for the development of a wide range of nationally significant infrastructure. Six National Policy Statements relating to energy were published in 2011 and give advice relevant to the siting of particular energy generating technologies. Although the National Policy Statements for energy are specifically directed to large-scale projects (generating more than 50 megawatts in the case of onshore electricity generation) they may also be a material consideration when considering smaller schemes.
7. The National Policy Statement for Renewable Energy Infrastructure provides guidance on the impacts that should be taken into account when considering wind turbine proposals. These include: biodiversity and geological conservation, historic environment, landscape and visual effects, noise and vibration, shadow flicker, and traffic / transport during construction (paragraphs 2.7.30 – 2.7.83). In addition, the Overarching National Policy Statement for Energy Infrastructure states that the following general impacts may also be relevant: aviation and defence interests, land use impacts for example on open space and green infrastructure, and social and economic impacts (paragraphs 5.1 – 5.15). The National Policy Statements for energy can be viewed at <https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure>.

#### National Planning Practice Guidance

8. Published in 2014, this guidance supplements the NPPF and, amongst other things, provides advice on the planning issues associated with the development of renewable energy (including wind). It replaces and repeats the Government's Planning Practice Guidance for Renewable and Low Carbon Energy which was published in 2013. It too is a material consideration in

determining planning applications. The guidance emphasises that the need for renewable energy does not automatically override environmental protections and the planning concerns of local communities. It states that cumulative impacts require particular attention, that local topography is an important factor in assessing the effect of wind turbines on landscape, that great care should be taken to ensure that heritage assets are conserved (including impacts on views important to their setting) and that protecting local amenity is an important consideration (paragraph 007).

9. In relation to wind turbines, the guidance identifies as particular considerations: noise, safety, electromagnetic transmissions, ecology, heritage assets (including their setting), shadow flicker, cumulative landscape and visual impacts (paragraphs 014 - 024). The National Planning Practice Guidance can be viewed at <http://planningguidance.planningportal.gov.uk/>.

## **Development plan policy**

10. Planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise. As the Government guidance referred to above is a material consideration when considering planning proposals, the Council's development plan policies should be read alongside the Government's guidance. The main development plan policy in relation to wind turbines is policy BE7 of the Bedford Borough Local Plan 2002, which sets out the criteria against which planning applications for renewable energy schemes in general (including wind) will be determined. Other development plan policies will also be relevant, particularly those relating to the potential impacts identified in the National Policy Statement for Renewable Energy Infrastructure. Reference should therefore be made to policies in the following documents: Core Strategy and Rural Issues Plan 2008, the Allocations and Designations Local Plan 2013 and the Bedford Borough Local Plan 2002. Both policies BE7 and BE30 (which relates to material considerations in determining planning applications) of the Bedford Borough Local Plan 2002 will be relevant to all planning applications for wind turbines and are reproduced in the attached Appendix.
11. Taken together with the Government's guidance, the following issues and impacts (including cumulative impacts) may be relevant when determining planning applications for wind turbine development.
  - o Context, visual appearance, landscape (individual and cumulative impacts).
  - o Natural features, the natural environment and ecology.
  - o Cultural features, historical and archaeological features, heritage assets.
  - o Local land use, social and economic impacts

- Amenity impacts – disturbance to neighbours and the surrounding community, noise, electromagnetic transmissions, shadow flicker.
- Safety.
- Aviation and defence.
- Traffic and access.

These are considered in more detail in the remainder of this Policy Guidance Note.

12. Policy BE7, in line with the NPPF, requires that, when considering proposals for wind turbine development, their impacts should be balanced against the local and wider benefits. These benefits may include contributions to meeting the Government's targets to reduce greenhouse gas emissions, energy security, local and national employment, and any other scheme specific benefits. Planning applications should be approved if their impacts are or can be made acceptable.

## **Context, visual appearance, landscape**

13. Wind turbines can form a very visible feature in the landscape, although not all landscapes are sensitive to the same degree and the size of wind turbines varies. Furthermore, in contrast to pylons and other stationary structures, turbine blades are moving features in the landscape. Every site is unique and any proposal involving wind turbines must be informed by a detailed site-specific analysis of the landscape. Landscape character assessment can help in the consideration of the impact of wind turbine proposals. In Bedford a study of landscape character was undertaken in 2007 by Land Use Consultants. This identified six landscape character types, which were subdivided into 14 character areas, and aimed to articulate their character and the special values attached to those landscapes.

14. In making judgements on overall landscape sensitivity, consideration needs to be given to both the sensitivity of landscape character and visual sensitivity. The particular aspects of landscape character that are likely to be sensitive include: scale and enclosure, landform and topography, land cover, settlement density and pattern. Visual landscape aspects may, amongst other things, include: views to landmarks and visible built structures, skyline and visual connections with adjacent landscapes.

15. Visual impacts may affect residents over a wide area as well as visitors to a locality, although local impacts will depend on topography and landscaping. The varying sensitivity of homes, places of employment, gathering places, public rights of way and other viewpoints needs to be taken into account when considering the visual impact of wind turbine development.

Landscaping, for example filling in gaps in tree and hedge lines if this is appropriate, may be able to mitigate some of these impacts. Cumulative visual impacts may arise where more than one wind turbine development is visible from the same point. Mapping of 'zones of visual influence' can be helpful in identifying key viewpoints where photomontages and wireframes may assist in visualising the impact of wind turbine proposals and cumulative impacts.

16. The Government's National Planning Practice Guidance advises against the use of inflexible rules on buffer zones or separation distances from wind turbine developments, as distance of itself does not determine the acceptability of the impact of a proposal. Landscape and visual impacts, along with other impacts, need to be assessed on a case by case basis in relation to the local context. This type of approach to considering wind turbine proposals, although more time consuming, is more effective in identifying the particular impacts on local communities and features of importance.

## **Natural features, the natural environment and ecology**

17. Wind turbines can adversely affect biodiversity, nature conservation and geological interests. Some of these may be particularly rare or form part of wider biodiversity networks. It is crucial for any development to take these interests into account, reducing adverse effects and considering opportunities for enhancement. Sites of national and local importance, together with priority habitats and species, in Bedford borough are identified by the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre ([http://www.bedscape.org.uk/BRMC/newsite/index.php?c=about\\_home](http://www.bedscape.org.uk/BRMC/newsite/index.php?c=about_home)). In addition to site designations, there are a number of plant and animal species that are subject to special protection under the Habitats Regulations, the Wildlife and Countryside Act or their own legislation. Wind turbine proposals will need to demonstrate that these are protected from adverse effects by suitable site selection, design and the adoption of appropriate avoidance and mitigation measures.
18. Effects on biodiversity can take place during the construction, operation or decommissioning phases of a wind turbine scheme. They can arise from any element of the development including the foundations, access roads, moving blades and ancillary buildings. Cumulative effects may also impact on biodiversity across a wide area arising from both wind energy and other developments or activities.
19. The main adverse effects of wind turbines on nature conservation are: direct habitat loss, habitat damage, interference with geological processes, interference with hydrological processes, disturbance to species such as birds and bats. Proposers of wind turbine development will need to consider the effect of the scheme on these, both alone and in combination with other

developments. If adverse effects are identified, appropriate mitigation should be considered. This could include repositioning turbines, changing the height or number of turbines or seeking an alternative site. Consideration should be given to the opportunities for enhancing nature conservation within a site and its surroundings. In some cases compensatory habitat may be appropriate. Further guidance on biodiversity issues can be found in 'Wind Farm Development and Nature Conservation', English Nature, RSPB, WWF and BWEA, 2001.

### Bats and birds

20. The impact on bats and birds is of particular concern in relation to wind turbines. Not only can the development disturb or displace migrating, feeding or roosting bats and birds, but there can be direct harm through collision with wind turbine blades. All bats and some birds are protected species that need to be considered when designing a proposed development.
21. In areas where bat activity is likely, work will need to be carried out to establish roosts, flight lines, feeding areas, hibernation and swarming sites in the vicinity of a proposal. The results of such surveys should assist in identifying the appropriateness of the proposed development, its design and layout. If a foraging habitat is likely to be affected by a proposed wind turbine, then mitigation measures would be expected to ensure that additional habitat is provided within the locality and to reduce the potential for harm
22. For birds an assessment will need to be carried out to establish any protected, priority or rare species in or within the vicinity of a site, any migratory routes, and any habitats related to such species.

### **Cultural features, historical and archaeological features, heritage assets**

23. Development of a wind turbine has the potential to cause harm to the significance of heritage assets both above and below ground. Key considerations are the impact of proposals on Scheduled Monuments, archaeological features, conservation areas and listed buildings, historic parks and gardens and other designated or undesignated heritage assets. The setting of heritage assets may also make an important contribution to their significance and the impact of wind turbine proposals should carefully consider this. Impacts may be direct: from the construction of foundations for wind turbines, other structures and access tracks, or indirect: through the impact on the visual amenity of the wider landscape, detracting from historic character, sense of place, tranquillity and remoteness. Further guidance on historic sites can be found in 'Wind Energy and the Historic Environment',

English Heritage, 2005. Heritage assets in Bedford borough are identified in the Bedford Borough Historic Environment Record (<http://www.heritagegateway.org.uk/gateway/chr/herdetail.aspx?crit=&ctid=95&id=5059>).

24. The NPPF requires applicants for planning permission to provide a description of the significance of any heritage assets affected, including any contribution made by their setting. This should be proportionate to the assets' importance and sufficient to understand the potential impact of the proposal on their significance. The NPPF highlights the priority given to the conservation of designated assets, which increases in proportion to their importance. Any harm or loss of significance therefore requires clear and convincing justification.

## **Local land use, social and economic impacts**

25. Wind turbines have direct effects on the existing use of the proposed site and may have indirect effects on the use of land in the vicinity. Wind turbines can affect views and change the character of the landscape in which many rural recreation activities take place such as walking, horse riding, bird watching and angling.
26. Wind turbines can contribute to the local economy both in terms of supporting farmers and landowners, and also through job creation, particularly during construction.

## **Amenity impacts**

27. Wind turbines can have certain impacts on the amenity of residents, other neighbours and the surrounding community (including on users of recreational areas and routes). These impacts include disturbance from noise and vibration, shadow flicker and interference with electromagnetic transmissions.

### Noise and vibration

28. Apart from any noise created during construction, two types of noise are associated with the operation of wind turbines: aerodynamic noise and mechanical noise.

29. Aerodynamic noise is produced by rotating blades moving through the air. This noise is usually only perceived at low wind speeds, as at higher wind speeds the noise of the wind often masks any noise created by the blades. The noise impact of a wind turbine is therefore determined by assessing the level of noise caused by the turbines, measured against the background noise which occurs at nearby residential dwellings or other receptors. Potential impacts associated with aerodynamic noise include:
- Amplitude modulation – the modulation of the level of broadband noise emitted by a turbine at blade-passing frequency. This normally gives rise to a characteristic ‘swish’ noise, which under certain conditions and on certain occasions, can result in a more pronounced thumping noise.
  - Noise attributable to wind shear – the change in wind speed with height. Under high wind shear conditions, the higher wind speeds at height results in higher noise output without the masking noise caused by the wind at low level than under low wind shear conditions, when the wind speeds at the upper and lower heights are similar.
30. Mechanical noise is emitted by the turbine gearbox or generator. Modern turbines are designed to minimise mechanical noise, however the noise level can vary greatly between different machines.
31. Vibration is a separate consideration from noise. Large turbines may potentially cause vibration through the ground or through the walls of nearby buildings.
32. Where there is potential for a wind turbine proposal to result in noise or vibration impacts which affect residential properties, or other sensitive receptors, the applicant must undertake a noise impact assessment. The National Policy Statement for Renewable Energy Infrastructure states that the ETSU guidance ‘Assessment and Rating of Noise from Wind Farms’, 1996 (ETSU-R-97) should be used to assess the potential noise effects associated with wind turbines. This guidance has recently been endorsed and supplemented by the Institute of Acoustics ‘Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise’, 2013.

#### Shadow flicker

33. In sunny conditions, rotating wind turbine blades can cast an intermittent shadow. When experienced through a narrow window opening this can cause a phenomenon known as ‘shadow flicker’. Not only can this be a nuisance to nearby residents but, it has been suggested, could aggravate medical problems such as migraine and epilepsy.

34. In Britain, the potential shadow flicker area is limited to within 130 degrees either side of north relative to a turbine. In addition, harmful shadow flicker effects are only likely to occur within ten rotor diameters distance. Where shadow flicker effects are predicted, mitigation measures that may be considered include:
- Changing the location of turbines within the selected site.
  - Screening affected properties through landscaping or the use of blinds.
  - Shutting down the turbines during periods when shadow flicker is predicted to occur.

### Electromagnetic transmissions

35. Wind turbines can interfere with radio signals and can affect local television reception and telecommunication systems (police and emergency services) through physical obstruction or the reflection of signals. Interference with the reception of terrestrial television services can cause a pale shadow or shadows to appear, although digital signals are thought to be better at coping with signal reflections. Telecommunications relying on microwave radio links can be affected by reducing signal availability. As a result, the Office of Communications (OFCOM) will need to be contacted to establish what systems might be affected by the proposal. When concerns are likely to arise, repositioning of a turbine may solve these problems.

## **Safety**

36. The desirable distance between wind turbines and occupied buildings on the basis of expected noise levels and visual impact will often be greater than the necessary distance to meet safety requirements. The Government's National Planning Practice Guidance refers to 'fall over distance' (i.e. the height of the turbine to the tip of the blade) plus 10% as often being used as a safe separation distance to buildings and this may also be considered an acceptable separation to public rights of way, roads and railways, however there is no statutory separation distance. In relation to trunk roads the Department for Transport's policy document Strategic Road Network and the Delivery of Sustainable Development, 2013 recommends that wind turbines should be no nearer to a road than their height plus 50 metres or a total of one and a half times their height, whichever is the lower. Further consultation should be undertaken with the local highways authority for all other publicly maintained highways.
37. In relation to bridleways, the British Horse Society guidance Advice on Wind Turbines, 2013, recommends a separation distance of three times overall height from bridle paths, including roads, to avoid wind turbines frightening horses, and a minimum 200m

where this would be acceptable to riders. This is not a statutory requirement however and separation distances will need to be assessed on a case-by-case basis.

## **Aviation and defence**

38. Wind turbines may cause adverse impacts on the use of aerodromes, radar and other navigation systems used for air traffic control and aircraft instruments. Early consultation between developers and statutory authorities can help with siting and mitigation measures. The movement of a wind turbine can interfere with radar as it may be interpreted as a moving object. This could cause it to be mistaken for an aircraft or reduce the ability to track aircraft by radar in the vicinity of a wind energy development. Wind turbines also potentially create an additional collision risk for low flying aircraft. As a result of these factors developers will need to consult with radar operators as well as civil and appropriate military bodies.
39. There is a 15 km consultation zone and 30 – 32 km advisory zone around every civilian air traffic radar, although objections can be raised to developments that lie beyond the 32 km advisory zone. Wind turbines may affect other radar installations such as weather radar operated by the Meteorological Office. In Bedford borough consultation will be required with the Civil Aviation Authority, National Air Traffic Services (NATS), Ministry of Defence (Defence Estates Safeguarding) and Cranfield Airport.

## **Traffic and access**

40. Wind turbine developments may have significant road transport requirements depending on the nature and scale of the project. The construction (and decommissioning) of wind turbines may affect traffic and transport in the following ways:
- Generation of potentially large numbers of vehicle movements, bringing construction materials, plant, turbine components and the workforce to site.
  - Abnormal loads necessitating temporary traffic signals or diversions (trailers will carry blades of up to 45m in length and cranes can weigh over 30 tonnes).
  - Need for temporary upgrades to junctions, widening carriageways, strengthening of minor bridges and/or road surfacing to cope with long, wide and heavy loads.
  - Need to remove obstructions along the route such as overhanging trees, overhead lines, traffic signs, soft or embanked verges and buildings / walls adjacent to the route.
  - Construction of access tracks.

41. Getting large scale wind turbine components and construction material to site effectively and with minimal impact requires careful route assessment, identification of likely 'pinch points' or obstructions and design of appropriate mitigation measures. Tracks that have to be constructed to gain access to the turbine location(s) need to be designed carefully in order to reduce their visual impact. It may be possible to reduce some in width after completion of turbine construction as they should only be needed for light maintenance vehicles thereafter.

## **Involving local communities**

42. It is important that developers engage with local communities early on, and throughout, the development process. Gaining an early insight into local concerns can help to identify community benefits, assist with planning the overall scheme and mitigate against negative impacts.

43. Developers are expected to carry out positive engagement with communities, both before a planning application is prepared and after it has been submitted to the Council for consideration. However, it is also helpful to continue liaison with the local community during the construction and operational stages. Good practice on consultation is set out in the Council's adopted Statement of Community Involvement.

44. Developers could involve community stakeholders in identifying constraints and opportunities such as landscape character, biodiversity enhancement, links to local schools and colleges, and community benefits that could result from a development. A package of exhibitions, newsletters, briefing packs and public meetings could be adopted. A community liaison group could be set up with community representatives to discuss issues throughout the process. Approaches such as these could help reduce the feeling that communities have no ownership of a scheme, which may be the case if they are presented with a finalised proposal by the developer.

### Benefits for communities

45. When proposing a wind turbine, developers should engage with the community to explore the potential for community benefits and how their scheme can enhance community interests. In Britain several developers have worked with the local community to provide them with voluntary contributions, often in the form of a community fund, although this is entirely separate from the

planning considerations of any proposal. Developers may also directly make improvements to community facilities, offer local ownership of shares in the project and provide local employment during construction. The Government's Department of Energy and Climate Change is planning to produce best practice guidance to set out expected standards in relation to engagement with communities.

## **Conclusions**

46. This Policy Guidance Note is concerned with the interpretation and application of existing planning policy in relation to proposals for wind turbines. The issues and impacts that may be considered when determining planning applications for wind turbine development are set out in both the Council's development plan policies and Government guidance, which is a material consideration that must be taken into account.
47. The Council's policies in relation to renewable energy are being reviewed as part of the preparation of the new Local Plan, which is expected to be adopted in 2016. The review will give an opportunity to ensure that all relevant material considerations are included in development plan policy. Consideration will also be given to including technology specific policy, so that the particular requirements of wind turbines, solar farms, etc can be highlighted.

### **Development plan policy – policy BE7 of the Bedford Borough Local Plan 2002**

*In assessing proposals for renewable energy schemes, the Borough Council will have particular regard to the following issues:*

- i) the immediate and wider impact of the proposed development on the landscape;*
- ii) the need to protect features and areas of natural, cultural, historical and archaeological interest;*
- iii) the measures that would be taken, both during and after construction, to minimise the impact of the development on the landscape, local land use and residential amenity;*
- iv) the local and wider benefits that the proposal may bring;*
- v) certain renewable energy resources can only be harnessed where the resource occurs;*
- vi) any requirement for future restoration of the site.*

### **Development plan policy – policy BE30 of the Bedford Borough Local Plan 2002**

*When determining applications for new development, the Borough Council will have full regard to all material considerations and in particular:*

- i) the visual impact of the development and its relationship with the context within which it is placed, and the contribution the building will make to the townscape and landscape qualities of the area, and where appropriate, the extent to which local distinctiveness is reinforced or created;*
- ii) the quality of the buildings in terms of scale, density, massing, height, materials and layout;*
- iii) the quality of the public spaces created by new buildings in terms of public safety, hard and soft landscaping, and where appropriate how buildings interact with public space;*
- iv) any additional traffic expected to arise from the development, either in relation to highway capacity or general disturbance, and provision made for car parking;*

- v) *the extent to which the development is served by, and makes provision for access by public transport, cycles and pedestrians;*
- vi) *the suitability of access arrangements to and within new development for all members of the community, including, pedestrians, cyclists and disabled people;*
- vii) *any noise, smell or other health and safety problems which are likely to be generated by the development;*
- viii) *the suitability of the existing noise environment;*
- ix) *any factors which might give rise to disturbance to neighbours and the surrounding community;*
- x) *any adverse effects on the natural environment and the built heritage likely to arise from the development.*
- xi) *the proposals for dealing with any significant amounts of waste which may arise;*
- xii) *the adequacy of the existing infrastructure. Consultation will be undertaken with the appropriate agencies in this respect. If provision is inadequate the Borough Council will seek to phase or postpone the development until adequate infrastructure provision is likely to be available.*