NETWORK SERVICES

SPATIAL PLANNING ADVICE NOTE: SP 12/09

PLANNING APPLICATIONS FOR WIND TURBINES SITED NEAR TO TRUNK ROADS

Document Control

This document requires formal sign off by the Senior Policy Advisor in the Network Services Spatial Planning Team. Sign off implies that the guidance is relevant and accurate on the date it was published.

Please note that the latest version of this guidance will always be located on the Way we Work. If you print this document be aware that it may be subsequently updated.

Sign Off:

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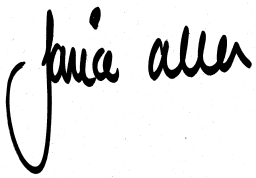
Janice Allen	Senior Policy Advisor	31.01.09	
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Version Control:

Version	Date	Comments/Principal Changes
v0.1	19/12/2006	**Working draft**
v.1	7/3/2007	Published version
v.2	23/7/07	Revised version
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Introduction

1. *Micro Wind Turbines* are generally used for domestic purposes. They have a maximum output of up to 13.5 kilowatts (kW) per hour and a maximum rotor diameter of 4 metres. Micro wind turbines can be either erected in an open exposed location or, occasionally, mounted on a building.

2. *Small Wind Turbines* are slightly larger and generally are used in rural locations or for small industrial/commercial units. These turbines have a maximum output of up to 50kW per hour and a rotor diameter of up to 16 metres Small wind turbines are usually mounted on a mast in an open exposed location.

3. *Commercial Wind Turbines*, which are the ones usually grouped together to form wind farms tend to have a maximum output of at least 300 kW per hour and a rotor diameter of over 30 metres. Many large scale commercial developments have turbines with a maximum output of 1.8 megawatts per hour using rotor diameters of 70 metres or more.

General

4. All wind turbines require planning permission and applicants are advised by Planning Policy Statement 22 (PPS22): Planning for Renewable Energy that they should consult the Highways Agency at an early stage whenever it is proposed to site wind turbines close to the Strategic Road Network (SRN), which comprises the Agency's motorways and all-purpose trunk roads.

5. There is no policy against the siting of wind farms alongside our motorways and trunk roads. On the contrary, the Agency is most keen to support the Government's policy of encouraging sustainable sources of energy. However, we do need to ensure that the safety of road users and Agency operatives is not compromised.

6. The Agency's normal powers under Article 14 of the GDPO apply to wind farm developments. We should handle such applications as we do all others. There is also the potential for the Agency to become involved in technical approval of the turbine towers, which are sited closer to the trunk road than their own maximum height. However, this is unlikely to be the case in practice as a significant offset from the trunk road will be required for the reasons set out below. In all cases the structure should

conform to European Union and The **International Electrotechnical Commission** (**IEC**) standards and have received appropriate certification.

Structural Collapse

7. Cases of wind turbines collapsing or blades coming off are very rare but not totally unknown. No formal advice exists within the UK to define where wind turbines can be located in relation to roads. PPS22 states that, "Although a wind turbine erected in accordance with best engineering practice should be a stable structure, it may be advisable to achieve a set-back from roads and railways of at least fall over distance (height measured to blade tip) to achieve maximum safety."

8. However, given the potential consequences were debris to fall on a busy motorway or trunk road, an additional allowance for debris scatter is necessary in order to truly maximize safety.

'Icing'

9. A further factor that must be considered is the phenomenon of ice being thrown from the turbine blades ('icing'). In certain meteorological conditions, significant accretions of ice can build up on wind turbine blades. Surprisingly, moving blades are affected to a far greater extent than stationary blades.

10. Warming or fragmentation may then lead to ice being shed from the rotating blades. Large fragments may be thrown a considerable distance.

11. Again, this is a very rare event and the frequency of occurrence does decrease markedly with distance. Nevertheless, the consequences of an ice projectile hitting a moving vehicle could be severe. Not only would the occupants be at risk but a multi-vehicle accident could result.

12. Most modern wind turbines will have vibration and/or climate sensitive technology that will shut down the turbine if there is the potential for icing. Where this technology is present there should be no need to consider this issue further. Evidence of this technology on the proposed turbines should be provided.

Location

13. Consideration of the risks associated with structural failure and 'icing' identifies the clear need to incorporate a safety margin in the offset between the trunk road boundary and the siting of a wind turbine. Therefore, it is appropriate to achieve a set-back from the nearest highway boundary equal in distance to their height + 10% for micro and small turbines. Commercial turbines should be set back a distance equal to their height + 50 metres

14. However, in certain circumstances relaxations to the above set-back may be considered, subject to the findings of a site-specific assessment. The proposer would

be expected to demonstrate that any relaxation on the suggested set-back distance poses no unacceptable risk. The burden of proof will lie with the proposer.

Visual Distraction

15. Any potential for visual distraction should be minimised, not by screening but rather by the provision of a clear, continuous view of the wind farm that develops over the maximum possible length of approach carriageway. The potential for distraction may be greater than with other roadside features – advertisements, etc., do not generally rotate – but a clear view from distance will considerably reduce the temptation for drivers to turn their heads when passing the towers.

16. Sites where the topography, vegetation or buildings might conceal the view of the turbines until the last minute should be avoided as drivers may be distracted suddenly and take their attention from the road and other traffic.

17. Wind farms should not be located where motorists need to pay particular attention to the driving task, such as the immediate vicinity of road junctions, sharp or unexpected bends and crossings for pedestrians and cyclists. Therefore, the associated road network should be reviewed with particular attention being paid to the complexity of junctions, traffic flows and the possible presence of short headways between vehicles.

18. The existing accident record and type of accidents occurring near the proposed wind turbine should be analysed. Locations with a history of rear end shunt accidents should be treated with particular caution.

Dazzle

19. As with icing, most modern turbines will be constructed with materials that eliminate Dazzle, and this should be easy to establish and eliminate as a concern. Evidence of this technology on the proposed turbines should be provided.

Access

20. The promoter of a wind farm should be asked to prepare a transport assessment covering the construction, operation and de-commissioning stages of the development for consideration at the pre-application stage. The transport assessment should demonstrate the likely impacts of the development on the highway network and on road users. From this, the acceptability of the proposal should be determined and any mitigating measures should be identified.

21. Access to the site for construction, maintenance and de-commissioning should be derived via the local road network and, normally, there should be no direct connection to the SRN.

22. Access to a wind farm is required at all times for maintenance. However, this will generally be infrequent and will not generate a large amount of traffic on the surrounding road network. Usually maintenance will be carried out using light vehicles.

23. Therefore, the main period of disruption to the highway network usually will occur during the construction and decommissioning stages of a wind farm development, although account should be taken of the need to replace major components in the event of failure. A commercial wind farm will have a life span of approximately 20 to 25 years (10 years for a micro wind turbine) and a plan should be put in place for its decommissioning or replacement.

24. The construction period for a wind farm development will be several months. The single largest components that must be transported to the site are likely to be the rotor blades as they are normally prefabricated in one piece, whereas the towers are built in sections. Swept path analyses should be provided by the developer for the abnormal load deliveries to the site.

25. It is possible that tourists may wish to visit the site during construction and once it has become operational. Some sites have been provided with visitor centres in anticipation of this. Therefore, any likely tourist trips should be incorporated into the transport assessment, which should also identify the facilities (e.g. parking area) required to accommodate them.

Use of Agency Land

26. There may be some areas of ‘surplus land’ owned by the Agency that could be sold for use as wind farms but these are likely to be quite small in size as we try to limit our acquisitions to land directly required for highway construction plus essential landscaping. Surplus land is only acquired where there is a legal obligation imposed.

23. Land within ‘the Highway’ (which includes all the land encompassed by the highway boundaries plus the landscape areas) cannot be used for other development purpose, even the erection of wind turbines. The sole exception to this general rule is in the case of micro and small turbines used for the generation of power for highway equipment.

Spacing of Turbines

24. The Highways Agency has no particular views on the spacing of turbines. That is an issue for the Local Planning Authorities.