



Microgeneration Schemes: Risks, Evidence and Recommendations

Scope

Most of the following comments relate to micro- turbines as BCT are more aware of their impacts on bats. BCT may make more comments on air source heat pump, ground source heat pumps, water source heat pumps, solar panels and flues for biomass and CHP systems should further concerns on their potential impacts on bats come to light.

Risks and Evidence

Microturbines

BCT has anecdotal evidence of bat mortality due to micro-turbines even in relatively featureless areas where bats were not thought to occur. At wind farm sites bats have been killed as a result of barotrauma and this may also be an issue with micro-turbines.

Micro- turbines can also pose further problems for bats;

- They may cause an obstruction if sited near to roost entrances; this is a potential problem to young bats learning to fly and to bats as they swarm before entering a roost.
- Micro- turbines may discourage feeding in particular areas.
- Conversely they can be a danger when situated in feeding areas or close to/along commuting routes.
- Sounds created by micro- turbines may also interfere with bats echolocation and social calls. (There is evidence to suggest that at certain frequencies large turbines attract bats, further research is needed to find out why this happens and whether this applies to micro- turbines)

Recent work at Loughborough University¹ confirms that bats have an awareness of the presence of turning blades and that they pose a risk. Suggestions for mitigating bat-turbine fatalities include increasing turbine blade number, blade width and increasing minimum wind speed operational cut-ins. Where micro-turbines are to be sited designs that mitigate for bats should be the preferred option.

Another BCT concern relates to the cumulative effects associated with the presence of high concentrations of micro wind turbines on bats, particularly in urban areas, which could result in injury or mortality of bats. Bat commuting routes may be affected.

[Air source heat pumps, solar panels, ground source heat pumps, water source heat pumps, and flues for biomass and CHP systems](#)

¹ Long et al (2009) Proceedings of the Institute of Acoustics, Vol 31, Pt 1

We believe that these technologies are less likely than micro- turbines to pose threats to bats. However, our earlier comment on the need to identify bat roosts also applies to avoid disturbance during installation and the blocking of exits to bat roosts. The reasons to identify the roost exits are to;

- avoid installing pumps where they might obstruct access into a roost
- allow a clear flight path into and out of roosts
- avoid siting pumps where vibrations might disturb roosting bats²
- Avoid situations where bats might be able to enter fans

Recommendations

BCT recommends that micro-turbines should not be situated in areas where it is likely or known (e.g. through survey, local records) that relatively large numbers of bats forage. The foraging habitat requirements for different species of bats vary. However, opportunities for minimising potential effects on foraging habitat can be achieved through avoiding areas close to:

- woodland;
- hedgerows;
- water; and
- fields containing livestock.

Bats also forage within gardens, and this should be taken into account when considering where to site turbines (e.g. avoidance of linear features or trees). The risk is increased in more structured landscapes e.g. where lines of hedges run towards the turbines (i.e. such features should be avoided). Bats also roost in buildings, and there is the potential for building mounted turbines to pose a collision risk with bats flying in proximity to the roost entrance after emergence, or bats swarming prior to re-entering a roost. Such risks should be reduced if the habitats described above (with respect to foraging) are avoided and locations for stand-alone turbines are predominantly of an open nature.

In the absence of evidence, we recommend clear guidance be published by statutory bodies based upon:

- do not locate stand-alone turbines within close proximity of linear features such as hedgerows, woodland edges, watercourses which bats use as commuting routes and foraging habitat;
- stand-alone turbines should preferably be sited out in the open and not adjacent to mature trees or other features such as buildings that have the potential to be used by roosting bats;
- if mature trees need to be modified or removed to accommodate a turbine then they should be subject to a bat survey, the presence of bats may require an European Protected Species licence issued by the SNCO (Statutory Nature Conservation Organisation);
- If a roost is found when installing a turbine on a roof or a stand-alone turbine adjacent to a tree, householders should be advised that they are required to seek the advice of the SNCO before proceeding.
- To reduce the cumulative effect of high concentrations of micro-turbines BCT would wish to see, subject to monitoring, a limit of the number of turbines where developers are building a number of houses in the same site.

Further Work

² It is important to consider the noise and vibration caused when the pump is first installed and while it is running.

- BCT would wish to see the requirement for an owner/occupier and the installer to be satisfied that the installation and operation of a micro-generation scheme would not have an adverse impact on bats – this could be part of a Microgeneration Certification Scheme that could also extend to the manufacturer.

In order to do this BCT believe that information should be targeted towards the manufacturers and suppliers of microgeneration systems, local authorities and householders. BCT supports the use of a microgeneration certification scheme and recommends that Information and training should be targeted at the companies who install these systems so that they are able to identify signs of bats roosts and aware of their legal responsibilities.

- Where there is likely to be an impact then there should be an obligation, possibly through an amendment to the Wildlife and Countryside Act 1981, to seek the advice of the SNCO (Statutory Nature Conservation Organisation) before undertaking such works. We would point out that installation works should not normally give rise to ‘disturbance’ subject to appropriate working practice that might form part of an advice letter by the SNCO or a licence application under the Conservation (Natural Habitats &c.) (Amendment) (England and Wales) Regulations 2010. BCT would wish to see guidance notes published so that owner/occupiers and installers are aware of this potential issue.

In some cases an owner/occupier may need to commission a bat survey and we recognise that this will mean an extra expense for the householder in employing a bat ecologist to carry out a survey, however, this would be advisable in order to prevent potential crimes from being committed under the Habitats Regulations.