Eco-friendly microturbines need to be bat-friendly, say Stirling researchers

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Common Pipistrelle - Hugh Clark/Bat Conservation Trust

(Phys.org) -- New research from the University of Stirling indicates that small wind turbines, which are becoming an increasingly popular means of power generation for homeowners, can halve bat activity in their immediate vicinity.

The research, to be published in the American journal PLoS ONE, was conducted by Dr Jeroen Minderman from the University's School of Natural Sciences*. It is the first study of its kind to examine the impact of small wind 'microturbines' on wildlife activity and concludes that bats' use of habitats may be reduced by their operation.

Dr Minderman said: "Previous studies have shown that birds and bats

can be killed by colliding with large turbine blades or that wildlife may avoid the surrounding environment, leading to effective habitat loss. To date, studies have focused solely on large-scale wind farms. We therefore felt it vital to address this knowledge gap by determining whether such effects are also applicable to small wind turbines, to improve planning guidance and deter badly-sited turbines in the future. This is particularly important given the recent boom in their usage."

The Stirling team's research, funded by the Leverhulme Trust, involved halting microturbine movement at 20 sites across the UK and examining the effect on bird and bat activity.

The results revealed bird activity was not significantly affected but bat activity was 54% lower in close proximity to operating turbines compared to those which were stopped. Whilst this effect diminished at increasing distance from the turbines, the findings highlight that this habitat loss may have undesirable consequences for bats if availability of suitable alternative habitat nearby is already limited.

Dr Kirsty Park, Senior Lecturer in Ecology at Stirling who led the research team, said: "Reducing our carbon footprint is important, but we also need to understand the implications of renewable energy technologies for wildlife conservation. Current planning guidance on the siting and installation of new small wind turbines is very limited so our findings will provide valuable information and help create more sensible and useful guidelines.

"Based on our results, we recommend that turbines are sited at least 20 metres away from potentially valuable bat habitat. This will help us to maximise the benefits of renewable energy generation whilst minimising potentially adverse effects on wildlife."

She added: "This study focused mainly on just two bat species**.

Further research is needed to understand the impact of microturbines on other species and the role landscapes surrounding turbines may play."

Microturbines are much smaller than their large wind farm counterparts and used mainly in domestic and farmland settings. Normally they are installed individually and can make a substantial contribution to household energy needs. The increase in installation of such turbines is due to rapid technological developments and the introduction of financial incentives in the form of feed-in tariffs: schemes which pay people for creating their own 'green' electricity and offer additional bonuses for exporting electricity into the grid.

Provided by University of Stirling