Guidance

Scottish Natural Heritage
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Repowering onshore wind farms: bird survey requirements

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1. Background and Purpose

Onshore wind turbine technology has matured considerably in the past 15-20 years, with much larger turbines available now than were typically installed during earlier phases of the industry in Scotland. There is therefore growing interest among operators of existing wind farms to replace small, aged turbines with ones of much greater size, and much higher output, on the same site – the process of 'repowering'. This guidance sets out the bird surveys that will be required to undertake an impact assessment of such proposals. It applies to repowering proposals of all scales and in all onshore locations, unless the modified wind farm falls within our definition of 'small-scale renewables', in which case our guidance specific to that class of development should be used (SNH 2014a).

Our recommendations for bird survey on undeveloped sites (SNH 2014b) are still relevant to repowering proposals, except as indicated in this document. For clarity, 'repowering' in the context used here refers to those proposals entirely contained within the envelope of the existing turbines and access tracks; any extension to the spatial extent (or 'footprint') of development should be treated as a new site and considered for survey accordingly (SNH 2014b, Box 1.)

In line with Environmental Impact Assessment Regulations (Scottish Government, 2011), SNH will assess the effects of the repowered wind farm as a whole, rather than the effects of the changed elements alone.

A repowering proposal that may affect a Natura 2000 site is likely to constitute a new 'plan or project' under the Habitats Regulations, in which case a fresh Habitats Regulations Appraisal will need to be carried out in addition to the EIA assessment (SNH, 2010).

2. Use of existing bird data

In most cases, bird surveys carried out before construction of the original wind farm will not be sufficient on their own to inform SNH's assessment of the repowered wind farm. This is because the original data:

- are likely to be more than five years old, and therefore out of date (SNH 2014b);
- may not have been collected and/or reported in accordance with current standards;
- may not be relevant to consideration of larger turbines, particularly in relation to the flight heights of birds;

- will not reflect changes in bird distribution and abundance that may have occurred since the existing wind farm was constructed.

The original bird surveys may, however, provide useful contextual information as to the range of species likely to be encountered on and around the site. If available, recent information from a range of other organisations (SNH 2014b, Box 2) may also be useful in assessing a repowering proposal, as may post-construction monitoring studies or other wind farm survey data collected from nearby sites.

3. Commissioning new surveys

A wind farm that has been operational for a number of years is likely to have ecological conditions quite different from those that were present before construction. For example, habitats will have been lost or modified, bird species that previously nested may have been displaced, and flight activity patterns altered. Post-construction monitoring studies available from operational Scottish wind farms are currently too few to allow such changes to be predicted reliably. Normally, therefore, new surveys will be needed to quantify the current bird usage of a site proposed for repowering. This new 'baseline' will form the starting point for an impact assessment of the repowering proposals.

3.1 Distribution and abundance surveys

The recommendations contained in SNH (2014b) should be followed. However, as operational wind farms are likely to have a reduced bird interest compared with similar sites pre-development, **only one year of fresh surveys will be required.**

In rare circumstances, the habitats at and around an existing wind farm may be so modified as to be unsuitable for any of the target bird species – perhaps because of deliberate habitat management carried out to make the area unattractive to nesting or feeding birds. New survey information will not be necessary in such cases, provided clear evidence of the relevant habitat changes is submitted in lieu.

3.2 Vantage point (VP) surveys

One of the main purposes of VP surveys is to quantify flight activity so that an assessment of collision risk can be carried out. The calculations are, however, based on flight rates before a wind farm is built; collision rates calculated from VP surveys over an operational wind farm cannot be directly compared with figures obtained from an undeveloped site. For this reason, **flight activity surveys should not be carried out over operational wind farms for the purpose of quantifying collision risk.** There will often be circumstances, however, in which VP watches are still valuable:

- VP watches may help to detect species that would normally be missed in walkover or transect surveys;

- If it is suspected that significant bird displacement has already occurred and that flight activity is now too low to be of concern, a limited program of VP watches will help to confirm this.

The larger turbines associated with repowering proposals typically have a greater maximum rotor tip height, as well as a larger swept area overall. Both factors may increase the collision risk, particularly to high-flying species. By contrast, species that normally fly close to the ground may be at less risk than before, because the lower limit of the rotor swept area is normally at a greater height for larger turbines. In addition, some birds that previously nested

in or near the site, or which used it for foraging, may have been displaced by the original turbines and no longer be at risk of collision.

At sites proposed for repowering, a basic estimation of collision risk may be carried out by a combination of **at least two** of the following methods:

- For breeding species, use nest site locations as an approximate indicator of likely flight activity. The flight activity of many bird species is strongly concentrated around their nests. If distribution and abundance surveys demonstrate that the separation distance between the repowered wind farm and the nearest nests of a target species exceed the core foraging range of that species, collision risk is likely to be considerably reduced. The species to which this technique may be applied, together with the core range in each case, are listed in SNH (2013), Table 1.

- Use old data. When assessing the impacts of a proposed wind farm, SNH does not normally accept bird survey data that is more than five years old. In the specific circumstance of repowering, however, it is acceptable to re-analyse old VP survey data collected prior to original construction, providing such data have in other regards been collected and reported in a manner broadly compatible with current standards.

The original VP watches may not have recorded flights to the maximum blade tip height of the new turbines. In this case, it must be clearly stated that the recalculated collision rate is a minimum figure.

- Use data from similar sites. Robust pre-construction VP surveys for a wind farm with large turbines may be available from other Scottish sites with similar habitats and bird interests. A range of predicted collision rates from such sites may suggest the minimum and maximum collision rates that may be expected from a repowered wind farm. Any such between-site comparisons should be carried out cautiously, as even adjacent wind farms can have very different impacts on birds.

References

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SNH 2014a. Guidance: Assessing the impact of small-scale wind energy proposals on the natural heritage. Available online at http://www.snh.gov.uk/docs/A1323094.pdf

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