

# Micro renewables and the natural heritage

Guidance Note. October 2009.

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## Introduction

SNH supports the development and installation of all renewable energy technologies<sup>1</sup> and recognises the significant contribution that they can make towards tackling climate change. SNH views climate change as the single greatest threat to the natural heritage and we strongly support measures to reduce carbon emissions<sup>2</sup>.

SNH also recognises that micro renewables make an important contribution, especially in reducing carbon emissions from both domestic and commercial buildings, tackling fuel poverty, supporting rural development and reducing the need for centralised, fossil fuelled generation. Therefore we support the installation of micro renewables in locations where they do not have significant adverse impacts on the natural heritage and, in particular, species which are protected by law. In most locations and in most circumstances, micro renewable technologies can be successfully installed with minimal effect on the natural heritage.

This guidance note seeks to describe and advise on the potential natural heritage impacts which some micro renewables technologies could have in certain circumstances. It is aimed at installers, planners and the developers of these technologies to foster greater understanding of these impacts and assess the potential impact of a specific proposal. It applies to all installations and to both domestic and commercial buildings. A separate leaflet for householders and installers summarising this technical guidance is being developed and will be published shortly. Within this guidance note the term 'micro renewables' refers to all forms of 'micro generation' which utilise a renewable form of energy.

In some locations the installation of micro renewable devices could have an impact on designated sites and some species which are protected by law. It is therefore important that householders and installers conduct some basic checks prior to installation. These checks are summarised in **appendix 1**. Householders and installers should contact the relevant Local Planning Authority for further advice if required.

Further guidance on micro renewables can be found in the annex to Planning Advice Note 45 'Planning for microrenewables'<sup>3</sup> which should be read alongside this guidance note.

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<sup>1</sup> [SNH's approach to Renewable Energy](#) (2010)

<sup>2</sup> [Energy and the Natural Heritage](#), SNH (2006)

<sup>3</sup> Available at [www.scotland.gov.uk](http://www.scotland.gov.uk)

## What are micro renewables ?

For the purpose of this guidance note, micro renewables refers to installations of **less than 50kW** (electrical) or **less than 45kW** (thermal). The technologies considered in this guidance note are:

- Micro wind turbines (including building mounted and free standing)
- Solar photovoltaics (PV)
- Solar hot water (sometimes referred to as Solar Thermal)
- Micro hydro
- Biomass
- Heat pumps

The majority of micro renewables installations will be for individual and smaller devices. However, within this definition of micro renewables, multiple installations and the installation of some larger devices may also apply. A 50kW wind turbine, for example, could be up to 25m in height. In some circumstances, therefore, careful consideration of these technologies may be required. Installations of greater than 50kW electrical or 45kW thermal should be assessed against other SNH guidance.

### *Which technology is most appropriate?*

There are many factors to consider when choosing an appropriate renewables technology, including cost, location, technical feasibility and the characteristics of the building involved. It is important that those installing these technologies carefully consider these issues to ensure that the best savings in terms of carbon emissions are achieved. At the same time, every effort should be made to reduce energy consumption in the first place. In addition to these issues, installers should also consider the potential impacts on the natural heritage when selecting the most appropriate technology. Guidance on the potential impacts is provided below.

## Planning applications, consultation and legal obligations

### *Planning applications*

Some forms of micro renewables, when installed at a domestic property, are classed as 'permitted development', meaning that they do not require planning permission<sup>4</sup>. These include (with certain exceptions as outlined in the permitted development order):

- Solar PV or solar thermal installations
- Ground source heat pumps
- Water source heat pumps
- Flues required for biomass or combined heat and power installations.

However, there are a number of circumstances in which permitted development rights do not apply and installers should refer to the [\(Town and Country Planning](#)

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<sup>4</sup> For further information see <http://www.permitteddevelopment.org/Renewable-Energy-Permitted-Development.html>. The relevant order (Town and Country Planning (General Permitted Development) (Domestic Microgeneration) (Scotland) Amendment Order 2009) can be accessed at [www.scotland.gov.uk](http://www.scotland.gov.uk)

[\(General Permitted Development\) \(Domestic Microgeneration\) \(Scotland\) Amendment Order 2009](#) for further information. At present, air source heat pumps, micro wind turbines and micro hydro installations are not covered by permitted development.

Some micro renewables still require planning permission in certain circumstances and the Local Planning Authority will determine whether or not it needs advice from SNH.

**SNH does not need to be involved in planning applications for the installation of these technologies, except in the circumstances described below.**

#### *Consultation on proposals affecting designated sites*

In certain locations, some of these technologies could have a significant impact on designated natural heritage interests (e.g. Special Protection Areas [SPAs], Special Areas of Conservation [SACs], Sites of Special Scientific Interest [SSSIs]). SNH therefore requests consultation on any proposals within or near to certain designated sites as outlined for each technology below. Where a householder, installer or Local Planning Authority is unsure about potential impacts they should contact the local SNH office for advice. Contact details can be found at [www.snh.org.uk](http://www.snh.org.uk) and information on designated sites can be found at [www.snh.org.uk/snhi](http://www.snh.org.uk/snhi) via 'Sitelink'.

#### *Legal obligations and protected species*

The reason that SNH seeks consultation in these areas is that many habitats, species of birds, all species of bats and many plants and mammals are protected by domestic and European law. Whilst micro renewables technologies are less likely to have a significant impact on these species, it is possible that in certain locations the impacts could be significant and may contravene the law protecting sensitive species. For this reason, householders and installers should familiarise themselves with the law and seek further guidance from the relevant Local Authority if required. A summary of the relevant legislation is included as **appendix 2**.

### **Impacts on bats associated with installation works**

The installation of any micro renewables technology which involves work in roof spaces or alterations to a building could have an impact on bats, which are protected by domestic and European legislation. All species of bats in Scotland are protected primarily by the Conservation (Natural Habitats &c) Regulations 1994 (as amended).

Installers should note that **it is illegal to deliberately or recklessly kill, injure or disturb a bat, or obstruct access to a bat roost. It is also an offence to damage or destroy a bat roost (whether deliberately or recklessly).**

Prior to installation it is essential that an installer or the owner of the property establishes whether or not bats are present. Guidance on searching for bats and what to do if bats are found is contained in the SNH guidance note 'Bats and People' and the leaflet 'Bats in Buildings – a guide for building professionals'<sup>5</sup>.

Work which could have an impact on bats includes, for example:

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<sup>5</sup> Both are available at: [www.snh.org.uk/scottish/species/mammals/bats/ns-bats.asp](http://www.snh.org.uk/scottish/species/mammals/bats/ns-bats.asp)

- Installation of cabling and pipework within roof spaces
- Installation work affecting chimney stacks
- Any installation work which could block access to a bat roost
- Installation of flues through roof spaces

**If the presence of bats is suspected, seek specialist advice from SNH.**

## **Natural heritage impacts associated with each technology**

### ***Micro wind turbines***

Well located micro wind turbines are likely to have little or no impact on the natural heritage. However, in some locations potential impacts on birds and bats could be significant. All micro wind turbines currently require planning permission.

#### *Research*

We are currently working in partnership with the University of Stirling, RSPB, Bat Conservation Trust, Scottish Renewables the Scottish Government and others to develop research in to the impacts of micro wind turbines. We will review the approach taken in this guidance as and when evidence on impacts becomes available. Installers and householders can help us build up our knowledge of these impacts by reporting collisions and fatalities associated with micro wind turbines to SNH, using the contacts provided at the end of this document.

#### *Birds*

Some species of birds, such as house martins, swifts, swallows, house sparrows<sup>6</sup> and starlings<sup>6</sup> commonly fly close to and nest on or within buildings. The impacts of micro turbines on these birds have not been researched fully but the potential for collision is clearly greater for birds which dwell on or near buildings. As a result we are unable to offer detailed advice on siting micro wind turbines or on their relative impact compared to other risks associated with these species.

However, to reduce the potential for negative impacts on these bird populations and to avoid introducing a further pressure on existing populations **it is therefore recommended that if a micro wind turbine is installed on or near a building it is located to minimise the potential impact on house dwelling birds by locating the turbine as far from regular nest sites as is practical. It would also be advisable to avoid installing a turbine close to nest sites during the breeding season (March – September).**

Micro wind turbines, particularly those which are free standing, with larger blade diameters and which may be installed some distance from a building, also have the potential to have an impact on a wider range of birds. It is not yet practical to identify which species are most at risk, nor to expect an installer to complete a detailed risk assessment. Research at existing installations may provide the basis for more detailed guidance in future.

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<sup>6</sup> Both house sparrows and starlings are red listed species and their populations are declining.

In order to assess the potential impact on key habitats and species, which are protected by law, **SNH should be consulted on any proposal to install a micro wind turbine within a Special Protection Area, Special Area of Conservation, Ramsar site or Site of Special Scientific Interest.**

Within 200m of a Special Protected Area (SPA) the installer should consider whether there could be a detrimental impact on the species for which the SPA has been designated, recognising that many birds will travel outside of the site for feeding or breeding and that they may be at risk of collision or disturbance. This could include, for example, a turbine installed close to the boundary; a turbine installed near to a known nest site or a turbine installed on a known flight corridor (for example between roosting and feeding sites). A map showing the location of Special Protection Areas can be found via the [Sitelink](#) page on the SNH website. The Local Plan for an area should also identify these sites and should be available on the relevant Local Planning Authority website. For further clarification please contact your local SNH Office.

Householders and installers should be aware that all bird nests are fully protected from damage, destruction or interference whilst in use or being built under The Wildlife & Countryside Act 1981 as amended by the Nature Conservation (Scotland) Act 2004. It is not possible to move a nest or attempt to move a nesting bird to another site during the breeding season.

**SNH will not comment on micro wind proposals at this scale, unless they could affect a designated site or designated species or we are requested to do so by the consenting authority.**

### *Bats*

All species of bats in the UK are protected by law. The potential impacts of micro wind turbines on bats are not fully understood. However, it is clear that the installation of micro wind turbines on or near to buildings could increase the risk of collision. Until the impacts are better understood, and mindful of the legal protection which applies to bats, **SNH recommends a precautionary approach to the siting of micro wind turbines in certain locations, as indicated below.**

As such, in choosing a location for a micro-turbine (both roof mounted and free standing) it is recommended that they should not be installed:

- On buildings known to or suspected to contain bat roosts<sup>7 8</sup>
- Within 50m of a known bat roost
- On buildings where bats are frequently observed
- On known bat flyways (commonly along watercourses, hedges, woodland edges)

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<sup>7</sup> Refer to SNH guidance note '[Bats and People](#)' and the leaflet '[Bats in Buildings – a guide for building professionals](#)' for further guidance, both available on [www.snh.gov.uk](http://www.snh.gov.uk)

<sup>8</sup> On larger buildings containing a bat roost it would be acceptable to locate the turbine on the building if it is more than 50m from the entrance to the roost.

If a micro wind turbine is installed and bat mortality is detected, the turbine should be removed / relocated as soon as is practical. Corpses should be removed wearing gloves – and bat fatalities associated with micro wind turbines should be reported to SNH. The onus is on the installer / householder to determine whether bats are present. This can be determined by following the guidance contained within the leaflet ‘Bats in Buildings – a guide for building professionals’.

#### *Landscape and Visual impact*

The visual impacts of micro wind turbines, up to 50kW, are likely to be localised. However, as some turbines in this category could be up to 25m in height they may require careful assessment in certain locations. SNH therefore recommends that:

- Micro wind turbines which are attached to a building should be assessed by the Local Planning Authority;
- Free standing turbines up to 15m in height (to blade tip) are assessed by the Local Planning Authority;
- Free standing turbines of between 15m and 50m in height (to blade tip) may require a basic level of landscape and visual assessment, depending on the location and this should be determined by the Local Planning Authority;
- SNH should be consulted on all proposals within National Scenic Areas<sup>9</sup> where the height of the turbine(s) exceeds 12m (to blade tip)<sup>10</sup>;
- Proposals to install a turbine within a National Park should be discussed with the National Park Authority;
- SNH should be consulted on any proposal for a turbine of greater than 50m in height (to blade tip), noting that it is unlikely that a wind turbine of less than 50kw is likely to reach this scale.

Further guidance on the siting and design of micro wind turbines can be found in the PAN 45 annex ‘Planning for micro renewables’ and in the SNH Guidance Note ‘Natural Heritage Assessment of small scale wind energy projects which do not require formal Environmental Impact Assessment (2008)’<sup>11</sup>.

#### **Micro hydro**

For the purpose of this guidance micro hydro means installations of less than 50kw. Installations at this scale are unlikely to give cause for concern, unless:

- the proposal is on, or could affect a freshwater Special Area of Conservation;

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<sup>9</sup> Maps identifying the presence of National Scenic Areas can be found at [www.sng.org.uk/snhi](http://www.sng.org.uk/snhi) and are usually identified within Local Plans.

<sup>10</sup> As recommended in Scottish Government Planning Circular 9/1987.

<sup>11</sup> Available at [www.snh.org.uk/pdfs/strategy/Assofsmallscalewindenergyprojects.pdf](http://www.snh.org.uk/pdfs/strategy/Assofsmallscalewindenergyprojects.pdf)

- the proposal is on or could affect a river which contains important fishing interests (developers /installers should contact the local fisheries board to establish the importance of a particular watercourse);
- the proposal could affect a European Protected Species (e.g. Otter);
- there are other hydro developments within the same catchment, which could have a cumulative impact.

Any micro hydro installation is likely to require a licence from the Scottish Environment Protection Agency (SEPA) and developers should consult SEPA as early as possible. SEPA and SNH have produced joint guidance on hydro installations and further information on impacts and licensing can be found on the SEPA website. All micro hydro installations require planning consent.

**SNH will not comment on micro hydro proposals at this scale, unless they could affect a designated site or designated species or we are requested to do so by the consenting authority.**

#### ***Solar PV and hot water***

Installation of solar PV and solar hot water panels are unlikely to have significant natural heritage impacts, unless they have the potential to impact on bats (by blocking access to a bat roost); on nesting birds, or are of a scale (for example covering an entire roof) and in a location which could have a significant visual impact, due to the size of the device or its reflective surfaces. These impacts should be assessed by the Local Planning Authority.

**SNH will not comment on solar PV or hot water installations unless bats are known to be present and detailed advice is required.**

#### ***Biomass***

The impacts likely to give concern associated with biomass installations at this scale would be the visual impact of the flue or the visual impact of any external storage hopper required for fuel. However, both are likely to be of a scale which can be accommodated within most buildings, with the flue, for example, being similar to the flue required for a log burning stove or fire and the storage hopper similar in size to a domestic oil tank.

**Only in highly visible locations within a National Scenic Area where the installation would significantly alter the appearance and / or setting of a building would SNH be likely to raise concerns about biomass installations. We do not require consultation on biomass installations at this scale and this will generally be a matter for the local planning authority.**

Installers may need to contact SEPA<sup>12</sup> if the installation will burn waste wood or the Local Planning Authority if it is located within a Smoke Control Area<sup>13</sup> or Air Quality Management Area<sup>14</sup>.

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<sup>12</sup> [www.sepa.org.uk](http://www.sepa.org.uk)

<sup>13</sup> See [www.uksmokecontrolareas.co.uk](http://www.uksmokecontrolareas.co.uk) for further information

### ***Ground source / Air source heat pumps***

Ground source and air source heat pumps are unlikely to give rise to significant natural heritage concerns, unless the installation of ground loops / boreholes are likely to cause significant changes to local hydrology, or damage to sensitive habitats during installation.

**SNH will not comment on ground / air source heat pumps, unless these are proposed within a designated site, or immediately adjacent to a site where impacts on hydrology could give cause for concern (e.g. adjacent to a freshwater SAC).**

Installers should contact SEPA to determine the applicability of the General Binding Rules of the Water Framework Directive<sup>15</sup>.

### **Contact**

To discuss a specific application please contact your local **SNH Area Office**. Contact details can be found on our website [www.snh.org.uk](http://www.snh.org.uk) or by calling our Headquarters on 01463 725000

To discuss our approach to micro renewables and the guidance contained within this document, please contact **Kenny Taylor** on 01738 458624 or email [kenny.taylor@snh.gov.uk](mailto:kenny.taylor@snh.gov.uk)

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<sup>14</sup> See [www.scottishairquality.co.uk/lqgm.php](http://www.scottishairquality.co.uk/lqgm.php) for further information

<sup>15</sup> See [www.sepa.org.uk/pdf/wfd/regimes/genbindingrules.pdf](http://www.sepa.org.uk/pdf/wfd/regimes/genbindingrules.pdf) for further information

## Appendix 1: pre installation checklist

| <i>General</i>   | No | Yes | If yes...  |
|--|----|-----|--|
| Is the proposed installation within a designated site (SPA, SAC, SSSI, Ramsar) or could it affect an SPA ? |    |     | Consult SNH  |
| Are bats present within the building where the device is to be installed ?                                 |    |     | Consult SNH before carrying out any installation works |
| Is there a known bat roost within 50m of the proposed installation ?                                       |    |     | Consult SNH before carrying out any installation works |

| <i>Micro wind turbines</i>  | No | Yes | If yes...  |
|---|----|-----|--|
| Are any birds known to occupy / nest in or on the building at any time of the year?                           |    |     | It is recommended that you do not install a micro wind turbine near to regularly used nest sites, especially during the breeding season (March to September) |
| Is the proposed turbine within 200m of a Special Protection Area?   |    |     | Consult SNH  |
| If the proposed turbine is free standing, is it within a National Scenic Area and greater than 12m in height? |    |     | Consult SNH  |
| Are bats known to roost within the building ?   |    |     | It is not recommended that you install a micro wind turbine in this location   |
| Are bats frequently observed at the proposed location ?   |    |     | It is not recommended that you install a micro wind turbine in this location   |
| Is there a bat roost or hibernacula nearby ?  |    |     | Consult SNH  |
| Is the proposed turbine located on a well used bat flyway (e.g. by a watercourse, hedgerow) ?                 |    |     | It is not recommended that you install a micro wind turbine in this location   |

| <i>Solar photovoltaic / hot water</i>   | No | Yes | If yes...   |
|---|----|-----|---|
| Have you checked the roofspace for bats and nesting birds ?                     |    |     | If evidence of bats or birds is found, you should consult SNH for further advice. |
| Have you checked the proposed location of the panel(s) for holes used by bats ? |    |     |   |

## **Appendix 2: related wildlife legislation**

The following links will take you to the relevant pages on the SNH website for further information on legislation:

[Nature Conservation \(Scotland\) Act 2004.](#)

[European Natura legislation](#) (relating to SPAs, SACs)

[European protected species](#)

[Legislation and guidance relating to bats](#)