4K

ABERDEENSHIRE COUNCIL
ABERDEENSHIRE LOCAL DEVELOPMENT PLAN

MICROGENERATION
PLANNING ADVICE
No. 2/2010

Aberdeenshire COUNCIL

Microgeneration

1. Introduction

The generation of renewable energy is increasingly being seen as necessary to address climate change (see Box 1), fuel poverty and to promote sustainable development. Microgeneration provides the opportunity to generate low or zero carbon energy (e.g. heat or electricity) from small-scale renewable sources in the home, community or workplace.

Box 1: Climate Change (Scotland) Act 2009.

The Climate Change (Scotland) Act 2009 sets out the long-term statutory framework to reduce greenhouse gas emissions in Scotland. The Act sets an interim 42% reduction target for 2020 and an 80% reduction target for 2050 from 1990 levels. Further information on climate change is available at http://www.scotland.gov.uk/Topics/Environment/climatechange.

The Scottish Government also set targets to increase the amount of electricity and heat generated from renewable sources. The target is for 50% of Scotland's electricity to be generated and 11% of heat demand to be met from renewable sources by 2010.[1]

The purpose of this advice is primarily to inform homeowners, community groups, and owners of business premises on whether planning permission is required for micro-generation proposals. It also informs applicants on the planning and environmental issues that must be considered before submitting a planning application for a micro-renewable energy development.

It also provides advice to applicants on the microgeneration technologies available to reduce greenhouse gas emissions as part of a wider development proposal (e.g. housing development, community building or a new office block).

The planning advice is divided into three parts:

- **Background information,** which explains the different terms used to describe microgeneration (see Chapter 2).
- **The Planning System,** which explains when a microgeneration technology is unlikely to require Planning Permission (see chapters 3 and 4) and provides general planning policy advice (see chapter 3).
- **General Location, Siting and Design Considerations,** which sets out a list of questions for potential end users to consider when deciding which micro-renewable energy development is suitable for their site and energy needs. It also explains in more detail when Planning Permission and other consents may be required, (see Chapter 4).

1 Scottish Planning policy (http://www.scotland.gov.uk/Resource/Doc/300760/0093908.pdf)

2. Background Information

What is microgeneration?

Microgeneration is the generation of heat (up to 45kW (heat)) and/or electricity (not exceeding 50kW) from a renewable source. Micro-renewables is used to describe a small-scale renewable energy developments, which provides heat and/or electricity to a single end user (e.g. a single dwelling house, office or community facility). In light of this, microgeneration is not viewed as a 'commercial' development.

The generation of heat and/or electricity from micro-renewables may provide an attractive alternative to heating and powering homes etc. by oil and gas due to increasing fossil fuel prices. Microgeneration has a long history and the cost of purchasing micro-renewables is steadily declining. Electricity can be sold back to the national grid through a mechanism known as the Feed in Tariff[2], which can influence the economics of installing micro-renewables and earn the owner/occupier of the building extra money to offset the initial capital costs. The Feed in Tariff gives a guaranteed payment annually for up to 25 years for small scale electricity projects. The Scottish Government is proposing a similar scheme for renewable heat generation. Details of the Renewable Heat Initiative (RHI) are expected to be confirmed before the end of 2010.

Rika Cult wood burning stove (Courtesy of Aberdeen and North East Heating Limited)

Solar/wind turbine speed sign

Kalvis Biomass Boiler

Wall mounted air source heat pump

2 http://www.energysavingtrust.org.uk/Generate-your-own-energy/Sell-your-own-energy/Feed-in-Tariff-scheme

3. The Planning System

Planning policy

The Aberdeen City and Shire Structure Plan (2009)[3] and the proposed Aberdeenshire Local Development Plan (ALDP)[4] focus on reducing greenhouse gases through the use of energy efficient, micro-generating and decentralised renewable energy systems.

The Structure Plan requires all new developments to be designed and built to use resources more efficiently. It introduces the requirement for developers to examine the scope for including energy efficient technologies in their development proposals. The sustainable development and climate change objective sets two targets:

- for all new buildings to be carbon neutral by 2016; and
- for the region's electricity needs to be met from renewable sources by 2020.

The ALDP supports renewable energy development, subject to other policies in the plan, if it is appropriately sited and designed. Box 2 sets out the policy that applies to microgeneration proposals (Supplementary Guidance Rural Development 3: Other renewable energy developments)[5].

Box 2: Supplementary Guidance Rural Development 3: Other renewable energy developments

We will approve renewable energy development, subject to other policies, if it is located, sited and designed in accordance with the following criteria. The applicant must demonstrate that:

1) any new facilities are well related to the source of the primary renewable resources that are needed for operation; AND

2) the proposal will not compromise public heath, safety or amenity; AND

3) satisfactory steps will be taken to mitigate any negative development impacts on occupiers of nearby properties (in or outwith a settlement boundary).

In all cases, if consent is granted, we will approve appropriate conditions (along with a legal agreement under Section 75, where necessary), relating to the removal of the development and associated equipment and to the restoration of the site, whenever the consent expires or the project ceases to operate for a specific period.

Advice on Consents Required

The planning authority will be able to advise on whether Planning Permission, Listed Building Consent or Conservation Area Consent is required. Planning staff will also be able to provide detailed advice on matters relating to protected natural heritage sites and species, Conservation Areas, trees, Listed Buildings and archaeological remains. Contact details are provided in chapter 5. The planning authority also holds maps of designated built, cultural and environmental sites, which are available for inspection.

3 http://www.aberdeencityandshire-sdpa.gov.uk/home/home.asp
4 http://www.aberdeenshire.gov.uk/planning/ldp/index.asp
5 http://www.aberdeenshire.gov.uk/planning/ldp/index.asp

It is unlikely that proposals for a micro-generation development will require a formal Environmental Impact Assessment (EIA). However, excavation works and installation can affect trees, local hydrology, and protected habitats and species. Developers are advised to contact the local authority at an early stage to discuss whether an EIA or other survey (e.g. tree or habitat) would be required. Exceptionally an informal EIA, presented as an Environmental Statement may be requested. Such a statement may include an assessment of the landscape, visual impact, local hydrology, potential ecological impact, transportation, amenity (TV, radio reception, noise, and shadow flicker/throw), and safety impacts. The planning authority should be consulted as to whether a formal or informal EIA is required.

Other impacts may be identified by the planning authority that are not identified in this guidance. Applicants are advised to contact the planning authority at an early stage in developing their proposals, in order to scope any issues associated with their proposals and determine whether Planning Permission or a Building Warrant is required. Enquiries should be directed to the local Planning and Building Standards offices, details of which are contained in Section 5.

Permitted Development

Permitted Development rights[6] allow the installation of micro-generation equipment without the need for Planning Permission. However, other consents, such as a Building Warrant or Listed Building Consent (see Box 3) may still be required. Planning Permission may also be required if the building is in a designated area, such as a Conservation Area. The need for Planning Permission is described in greater detail for each microgeneration technology in chapter 4.

Box 3: Listed building consent and other historic environment considerations

If the renewable energy development is sited on or within a Listed Building, Listed Building Consent will be required for any works that alter the character of the building or structure.

Listed building protection covers both the inside and outside of the building and can include buildings and structures within the grounds of the building, including the boundary wall.

Works should avoid adverse impacts on Scheduled Ancient Monuments and, where possible, on other significant archaeological sites. Arrangements for the protection or recording, as appropriate, of any archaeological deposits or features may be a condition of Planning Permission, Conservation Area Consent (e.g. if a building is to be demolished) or Listed Building Consent.

6 Town and Country Planning (General Permitted Development) (Domestic microgeneration) (Scotland) Amendment Order 2009.

4.General Location, Siting and Design Considerations for Micro-renewable Energy Developments

The following provides general guidance in locating, siting and designing micro-renewable energy developments. Further advice is available in the Scottish Government's Planning Advice Note entitled Planning for micro-renewables Annex to PAN45 Renewable Energy Technologies[7].

Consideration should be given to the most appropriate renewable energy technology either to supplement or to provide all your electricity and/or heating needs. This will depend on the availability of the fuel source (e.g. wind, sunlight or wood fuel) and size, location and orientation of the building.

If Planning Permission or Listed Building Consent is required for any part of a microgeneration proposal this guidance indicates the range of issues that would be considered in arriving at a decision.

A summary of the Town and Country Planning (General Permitted Development) (Domestic microgeneration) (Scotland) Amendment Order 2009 is provided in tables 1 to 7. Permitted Development rights are currently being extended for domestic wind turbines and air source heat pumps. The order extending these permitted development rights is expected to be published in April 2011.

The Climate change (Scotland) Act 2009 requires the Scottish Government to introduce Permitted Development rights to allow the installation of microgeneration equipment on non-domestic properties[8]. The Scottish Government is still developing the order, but tables 1 to 7 summarise the draft order, which was published for consultation in 2010.

Where a prospective developer is unable to comply with the conditions and limitations listed in tables 1 to 7, then a full application for planning permission would be required. The removal of equipment is the landowners responsibility and can be enforced through the planning system if necessary where it is clear that the technology is no longer being used for its designed purpose.

Note: The Council does not have specialised technical knowledge on the technologies listed below, and interested parties should contact an advisor or suppliers who will be able to provide the necessary advice on the scale and likely energy needs. Further independent information is available from the Energy Saving Trust (www.est.org.uk/scotland), who work with households, businesses and the public sector to promote the use of small-scale renewable energy sources. You can also contact the Energy Saving Scotland Advice Centre on 0800 512 012. Information may also be obtained from SCARF (Save Cash and Reduce Fuel) http://www.scarf.org.uk/.

7 http://www.scotland.gov.uk/Publications/2006/10/03093936/0
8 Non-domestic properties are those that are not dwelling houses.

A: Solar (Photovoltaic)

Solar photovoltaic (PV) panels generate electricity by converting energy from the sun to run appliances and lighting. Solar PV panels do not require direct sunlight to generate electricity and can work in normal daylight conditions. Solar PV panels are available in a variety of shapes and colours, from dark grey "roof tiles" to transparent cells. They can be mounted on walls, roofs or conservatories that face between east and west. For maximum output, buildings or trees should not overshadow the PV panels. Solar panels are not light, and care must be taken to ensure the roof is strong enough to take their weight.

The following should be considered if a solar PV is proposed:

- Does the roof, wall or conservatory face within 90° of south?
- Will other buildings, structures or trees overshadow the site?9[9]
- If the solar PV panels are to be mounted on the roof, will it be strong enough to support the panels' weight?[9]
- Is planning permission required (check with the planning authority if an Article 4 Direction (removes permitted development rights) is in force)?[10]
- If the property is a listed building, consideration should be given to the scale, location and design (shape and colour) of the panels.[11]
- If the property is within a Conservation Area solar PV panels should ideally be sited at the rear of the property.
- Can you use solar PV for a stand-alone application e.g. outdoor lighting/ signs?[10]
- The number of solar PV panels required (this will depend on how much electricity is to be generated).
- The shape and colour of the solar PV panels (ideally to match the colour of the wall or roof the panels will be mounted on).
- If the property is a listed building or in a conservation area, consideration should be given to the character of the listed building or the character of the conservation area, as well as to the scale, location and design (shape and colour) of the panels. A less prominent location should always be sought. The roofs of some buildings may not be suitable for any solar panels.
- Will the siting of the solar panels on a southern elevation affect bats?[12]

Permitted Development rights for solar photovoltaic installations are provided in Table 1.

9 Consider if the preferred microgeneration technology is appropriate for the building or end user.
10 See Table 1 Permitted development rights for further information.
11 Listed building consent may be required.
12 If bats are known to be in the area, contact the Planning Department (Environment Team North or South) for further information.

Table 1: Permitted development rights for solar photo-voltaic and solar thermal installations on a house, building containing a flat, building within the curtilage of a house, and non-domestic property.

Criteria	Domestic (Class 6A and Class 6B)	Non-domestic (draft)
A) Pitched roof mounted solar installations		
Size.	• Surface Area: Unrestricted. • Within limits of existing roof. • Protrusion: 200mm.	• Surface Area: Unrestricted. • Within limits of existing roof. • Protrusion: 200mm
B) Flat Roof Mounted Solar Installations		
Size	• Surface Area: Unrestricted. • Within limits of existing roof. • Height: 1 metre within 1 metre of the roof edge.	• Surface Area: Unrestricted. • Within limits of existing roof. • Height: 1 metre within 1 metre of the roof edge, 2 metres elsewhere (vertical instillations). • Protrusion: 200mm or not exceeding height of parapet wall (horizontal instillations)
C) Wall Mounted Solar Installations		
Size	• Surface Area: Unrestricted. • Protrusion: 200mm • Wholly within the curtilage of the house (not flat)	• Protrusion: 200mm • Not within 200mm of building edge. • Wholly within the curtilage of the building.
D) Freestanding / Array Mounted Solar Installations		
Size	• Surface Area: 9 sq metres. • Height: 4 metres. • Distance between the boundary of the curtilage of the house to the installation is at least the height of the installation.	• Surface Area: 20 metres2. • Height: 4 metres. • Minimum 10 metres from site boundary not closer to a road than existing buildings.
Number	• 1 per house (not flat).	
E) Pole Mounted Solar Installations		
Size	• No permitted development rights.	• Surface Area: 1 metre2. • Height: 7 metres.
Number		• 2 per property, unless statutory undertaker or Council installation
Limitations (all types)		
Designated areas (wall or roof mounted)	• Not on the principle elevation of house or flat and not visible from a road in a Conservation Area or World Heritage Site.	• Not visible from a road, not facing onto a road in a Conservation Area. • Not on a Scheduled Ancient Monument. • Additionally for wall mounted installations: Not within a town centre where the installation would face a road or public space.

continued overleaf

Criteria	Domestic (Class 6A and Class 6B)	Non-domestic (draft)
Designated areas (free-standing or pole mounted)	• Not visible from a road in a Conservation Area or World Heritage Site.	• Not visible from a road, not facing onto a road in a Conservation Area. • Not within Sites of Special Scientific Interest, Natura 2000 sites, or site of Archaeological Interest. • Not on the site of a Scheduled Ancient Monument.Listed buildings • Not visible from a road in a Conservation Area or World Heritage Site (freestanding) • Not permitted development unless Listed Building Consent already granted.
Siting		• Not within 3km of an aerodrome. • Vehicle and/or cycle parking space not to be reduced
Compliance		• Microgeneration Certification Scheme.
Conditions	• Sited to minimise effects on amenity. • Equipment removed where it is no longer needed or capable of do mestic micro-generation.	• Equipment removed where it is no longer capable of generating energy or is no longer intended to be used for the generation of energy.

3.60KWp Pitch root mounted mounted solar pv panels of Aberdeen (image courtesy of AISSC Electrial and Solar)

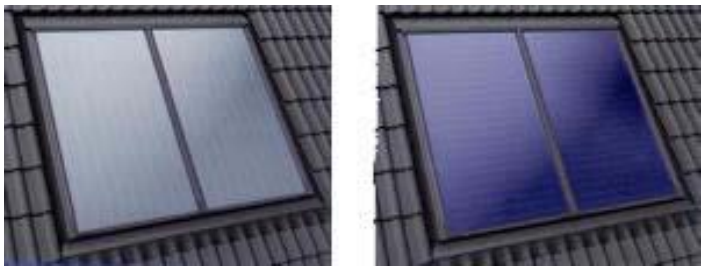
Pitch roof mounted, 3.60Kwp solar pv panels at Drumoak (image courtesy of AISSC Electrial and Solar)

3.87 KWp pitch roof mounted solar pv panels of Aboyne (image courtesy of AISSC Electrial and Solar)

B: Solar (water heating)

Solar water heating systems can be used in a variety of scales, to work alongside a conventional wet central heating system or to heat a larger area such as a swimming pool. They work by collecting the sun's energy (heat) through solar panels or collectors, which can be mounted on the roof or the ground. Under each solar panel or collector is a network of pipes filled with (cold) water (known as a heat transfer system). Heat from the solar panels is transferred into the pipes and the heated water is then stored in a hot water cylinder until used. In order to receive the most sunlight during the day, solar panels/collectors should be sited between the southeast and southwest. For domestic use, it is recommended that an area of 2-4 sq metres is suggested.

On roof mounted solar panels (Image courtesy of Aberdeen & North East Heating)



In roof mounted solar panels (Image courtesy of Aberdeen & North East Heating)

'Stand-alone' solar panels (Image courtesy of Aberdeen & North East Heating)

Wall mounted solar panels (Image courtesy of Aberdeen & North East Heating)

The following should be considered if solar water heating is proposed:

- Does the roof or will the self-supporting (standing) solar panels face between the southeast and southwest?[13]
- The number of solar panels required (for domestic hot water, preferably 2-4sq m will be required).
- Is the area of roof or ground large enough to accommodate the panels?[13]
- Is it compatible with the existing water heating system (Solar water systems can work alongside a combie-boiler system, but a separate tank may be required)?
- Will a larger water cylinder be required (Solar water systems can work alongside a combie-boiler system, but a separate tank may be required)?[13]
- Will other buildings, structures or trees overshadow the site (although not a significant issue it will reduce the solar panels' efficiency)?[13]
- Is the roof strong enough to support the panels' weight?[11]
- Can you use solar water heating for a stand-alone application e.g. swimming pool?[13]
- If the property is a listed building consideration should be given to the scale, location and design (shape and type) of the panels.[14]
- Is planning permission required (check with the planning authority if an Article 4 Direction (removes permitted development rights) is in force)?[15]
- If the property is within a Conservation Area the solar panels should ideally be sited at the rear of the property.
- If the property is a listed building or in a conservation area, consideration should be given to the character of the listed building or the character of the conservation area, as well as to the scale, location and design (shape and colour) of the panels. A less prominent location should always be sought. The roofs of some buildings may not be suitable for any solar panels.
- Will the siting of the solar panels on a southern elevation affect bats?[16]

Permitted development rights for solar thermal installations are provided in Table 1.

13 Consider if the preferred microgeneration technology is appropriate for the building or end user.
14 Listed building consent may be required.
15 See Table 1 Permitted development rights for further information.
16 If bats are known to be in the area, contact the Planning Department (Environment Team North or South) for further information.

C: Biomass energy

Heat, electricity and bio-oil can be produced from organic matter of recent origin, which is known as 'biomass'. Wood fuel is the most commonly used source of biomass (e.g. logs, chips and pellets). Organic matter of recent origin is burnt in a biomass furnace. In domestic situations this is usually wood or a forestry co-product such as wood chip or pellets. Biomass energy can be used to heat an individual house or flat using a stand-alone pellet stove to provide space heating in a room, or incorporate boilers connected to a central heating and hot water system. A biomass heating system can also connect to an existing chimney.

The following should be considered if a biomass energy development is proposed:

- Is the building a flat or is it on the first (or above) floor?[17]
- Will there be a year-round demand for heat?[17]
- Will there be more than one end user?[17]
- Type of fuel source (logs, chips, pellets or other), which will have an influence on the area of space required to store the biomass fuel.
- Is there potential for a local supply and delivery (access) for biomass fuel?[17]
- Is there sufficient storage space for biomass fuel (will it be stored inside or outside)?[17&18]
- For non-domestic end users, is there space within the building or outside to locate the boiler house?[17]
- Will the boiler house be suitable with sufficient storage capacity in or adjacent to it?17
- Is planning permission required for the boiler house, storage facility and new road access (if proposed)?[18]
- Will the flue or biomass installation affect the character or setting of a listed building, landscape designation or conservation area?[18&19]

Further information is available in 'Use of Biomass Energy in Aberdeenshire: Information Requirements and Policy Interpretation', which is also available online at www.aberdeenshire.gov.uk/planning/supplementary/index.asp and follow the Biomass Energy Developments link.

Permitted development rights for biomass installations and flues are provided in Table 2.

17 Consider if the preferred microgeneration technology is appropriate for the building or end user.
18 See Table 2 Permitted development rights for further information.
19 Listed building consent may be required.

Table 2: Permitted development rights for biomass installations on a house, building containing a flat and within the curtilage non-domestic property.

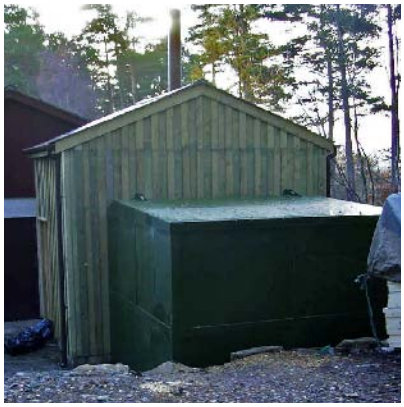
Criteria	Domestic (Class 6C and Class 6F)	Non-domestic (draft)
Flue (including on proposed extension or freestanding structure under permitted development rights).	• Height: not exceeding1 metre above the highest part of the exist ing roof (excluding any chimney) on which the flue is fixed. • Location: Not within an Air Quality Management Area.	• 1 per building. • If an alteration/replacement of existing flue should not be of any greater dimension than the existing flue. • Height: not exceeding1 metre above the highest part of the existing (or proposed) roof. • Size: Not exceeding 500 millimetres in diameter. • Siting: Not on the principle elevation. • Location: Not within an Air Quality Man-agement Area.
Extension for use to house boiler (excluding flue)	• Refer to the General Permitted Development (Scotland) Order 1992.	• Primary function of extension to house the exchanger unit and fuel. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome. • Not exceeding the height of the original building. • Not exceeding 10% of the cubic content of the existing building. • No closer to an adjoining road than the existing building.
Freestanding building to house boiler (excluding flue)	• Refer to the General Permitted Development (Scotland) Order 1992.	• Primary function of extension to house the heat exchanger unit. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome • Not exceeding the height of the existing onsite building. • Not exceeding 20 metres^2. • Not closer to an adjoining road than the existing building.
Self contained boiler unit and flue	• Refer to the General Permitted Development (Scotland) Order 1992.	• Combined height of the boiler unit and the flue not exceeding 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aero drome. • Flue height not exceeding 1 metre above existing structures on site. • Not exceeding 20 square metres. • Not closer to an adjoining road than the existing building.
Fuel storage	• Refer to the General Permitted Development (Scotland) Order 1992.	• Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome • Not exceeding the height of the existing buildings. • Not exceeding 20 square metres. • Not closer to an adjoining road than the existing building.

Limitations		
Criteria	**Domestic (Class 6C and Class 6F)**	**Non-domestic (draft)**
Designated areas	• Not on the principle elevation of a house or flat in a Conservation Area.	• Not visible from a public road or footpath in a Conservation Area. • Not in a site of archaeological interest where foundations are required. • Not within a Natura 2000 site or Site of Special Scientific Interest. • Not on the site of a Scheduled Ancient Monument. • Not within an Air Quality Management Area.
Listed buildings	• Discuss with Local Planning department.	• Not permitted development unless Listed Building Consent already granted.
Condition	• Equipment removed where it is no longer capable of generating energy or is no longer intended to be used for the generation of energy.	

Note: A clarification of the existing permitted development rights for agricultural and forestry units is intended to be made to include Anaerobic Digestion systems.

7-10kW Sandor pellet stove (heats one room only), courtesy of Calimax

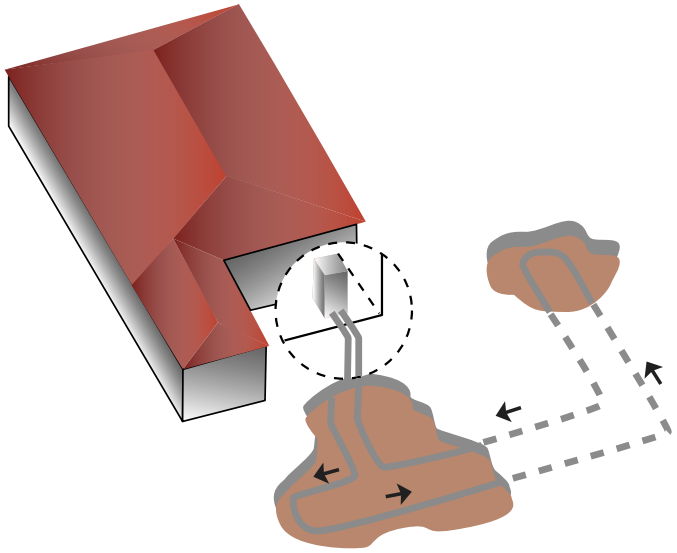
Rika Cult wood pellet burning stove (courtesy of Aberdeen & North East Heating)



30kW (heat output) wood fuel system with the green hopper and boiler house attached to main building

D: Ground source heat pumps

Ground source heat pumps transfer heat from the ground into a building to provide space heating and, in some cases, to pre-heat domestic hot water. This transfer requires an energy input (usually electricity) generating a far greater output (usually heat). Therefore it is not entirely "carbon neautral" unless that electricity is generated by a sustainable source. It consists of a length of pipe filled with water (and anti-freeze) which is buried underground (either in a trench or borehole), a heat pump, which acts like a refrigerator and removes the heat from the water and converts it into heat and hot water. The heat distribution system consists of either an underfloor heating system or radiators for space heating, and in some cases water storage for hot water supply. Water source heat pumps are also available. Some heat pumps may also be used to provide both heating and cooling.



Ground source heat pump system

The following should be considered if a ground or water source heat pump is proposed:

- The type of heat distribution system (e.g. via radiators or an underfloor heating system).
- The amount of heat to be supplied by the ground system – this will determine the length of pipe required.
- Whether the system will provide all the heat required for the building or will additional or supplementary heating be required?[19]
- Is the trench or borehole located in a site designated for its natural heritage interest?[20&22]
- Are trees, habitats or species present on the site that could be affected by associated pipes? [21&22]

20 Consider if the preferred microgeneration technology is appropriate for the building or end user.
21 A tree, habitat and/or species survey may be required highlighting the likely impact of excavation works on tree(s), habitats and/or species and any mitigation measures proposed.
22 Impact on local hydrology may require to be investigated.

- Is planning permission required to house the heat pump?[23]
- Will trenching works or boreholes have an impact on any archaeological sites? [20&23]
- For a vertical pipe system (borehole), is the ground accessible and free from ground obstruction such as sewers and tunnels, and does the council allow drilling in that area?[20]
- Is the pipe free from the threat of development in the future?[20]
- Can the heating system be designed to work in low temperatures (underfloor heating works best in such conditions)?
- Has the building (e.g. house or commercial premises) been constructed? If not, underfloor could be installed.
- Will the heat pump be housed in a new building (e.g. shed-type) adjacent to the house/commercial premises?
- If the property is within a Conservation Area the heat pump should ideally be sited at the rear of the property.[20&23]
- If the property is listed, contact the planning department to find out if listed building consent is required for any works internally or externally.
- Will the pipe system affect any public access on land or water?[20]
- Is the trench or borehole located in a natural heritage designation – contact the planning authority (Environment Team) who will be able to advise on the siting of the trench/borehole?[20,21&23]
- Are there opportunities for long-term habitat creation to safeguard the pipe-run?
- Will the works have an adverse impact on any feature of geological or geomorphological interest? [20&22]

Permitted development rights for ground source and water source heat pump are provided in table 3 and 4.

23 See tables 3 or 4 Permitted development rights for further information.

Table 3: Permitted development rights for ground source heat pumps within the curtilage of a house, building containing a flat and non-domestic property.

Criteria	Domestic (Class 6D)	Non-domestic (draft)
Number	• 1 per property.	• 1 per property.
Area of buriedpipework	• Within curtilage of a house.	• 0.5 hectares, land to be made good following excavations.
Extension for use to house heat exchanger	• Refer to the General Permitted Development (Scotland) Order 1992.	• Primary function of extension to house the exchanger unit. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aero drome. • Not exceeding the height of the original building. • Not exceeding 10% of the cubic content of the existing building. • No closer to an adjoining road than the existing building.
Freestanding building to house heat exchanger	• Refer to the General Permitted Development (Scotland) Order 1992.	• Primary function of extension to house the heat exchanger unit. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome • Not exceeding the height of the existing onsite building. • Not exceeding 20 metres^2. • No closer to an adjoining road than the existing building.
Limitations		
Designated areas	• If the proposal is within a designated area, discuss with the local planning department if the proposal has permitted development rights. • Where an Article 4 Direction (removes permitted develop-ment rights) is in force within a conservation area.	• Not visible from a public road or foot path in a Conservation Area. • Not within a site of archaeological interest where foundations are required. • Not within a Natura 2000 site or Site of Special Scientific Interest. • Not on the site of a Scheduled Ancient Monument.
Listed buildings	• Discuss with Local Planning department.	• Not permitted development unless Listed Building Consent already granted.
Condition		• Equipment removed where it is no longer capable of generating energy or is no longer intended to be used for the generation of energy.

Table 4: Permitted development rights for water source heat pumps within the curtilage of a house, building containing a flat and non-domestic property.

Criteria	Domestic (Class 6E)	Non-domestic (draft)
Number	• 1 per property.	• 1 per property.
Area of buried pipework	• Within curtilage of a house.	• 0.5 hectares, land to be made good following excavations.
Extension for use to house heat exchanger	• Refer to the General Permitted Development (Scotland) Order 1992.	• Primary function of extension to house the exchanger unit. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome. • Not exceeding the height of the original building. • Not exceeding 10% of the cubic content of the existing building. • No closer to an adjoining road than the existing building.
Freestanding building to house heat exchanger	• Refer to the General Permitted Development (Scotland) Order 1992.	• Primary function of extension to house the heat exchanger unit. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome • Not exceeding the height of the existing onsite building. • Not exceeding 20 metres^2. • No closer to an adjoining road than the existing building.
Limitations		
Designated areas	• If the proposal is within a designated area, discuss with the local planning department if the proposal has permitted development rights. • Where an Article 4 Direction (removes permitted development rights) is in force within a conservation area.	• Not visible from a public road or footpath in a Conservation Area. • Not within a site of archaeological interest where foundations are required. • Not within a Natura 2000 site or Site of Special Scientific Interest. • Not on the site of a Scheduled Ancient Monument.
Listed buildings	• Discuss with Local Planning department.	• Not permitted development unless Listed Building Consent already granted.
Condition		• Equipment removed where it is no longer capable of generating energy or is no longer intended to be used for the generation of energy.

E: Wind energy

Small-scale wind energy developments also come in a variety of forms: very small turbines mounted on a boat's mast; turbines mounted on a building or tower (e.g. on caravans, businesses or homes); and building-integrated wind turbines suitable for urban locations. They can be used to supplement the end users' energy needs or be a part of a stand-alone (off-grid) power system. Knowledge of the local wind patterns is critical to designing a wind energy system and predicting output, which will affect the location and viability of using a wind turbine.

Building-mounted turbines (typically less than 25kW) may suffer from turbulence associated with the building making them less efficient. For maximum efficiency, turbines should be mounted on a free-standing tower in open ground, well away from obstruction such as buildings and trees, which can cause turbulence.

Roof mounted domestic wind turbine

The following should be considered if a wind energy development is proposed:

- Scale of the wind turbine: a typical blade diameter of a 1kW turbine is approximately 2 metres.
- Is there a high enough wind resource to make this technology feasible (exceptionally, an assessment for at least 4 months may be necessary for a turbine mounted on a tower)?[24]
- Is the site free from excess turbulence or obstructions (e.g. buildings, structures or large trees)?[24]
- Is planning permission required (check with the planning authority if an Article 4 Direction (removes permitted development rights) is in force)?[25]
- If the property is a listed building consideration should be given to the scale, location and design (shape, colour and type) of the wind turbine and tower (if proposed) and to the character of the listed building. In some cases no part of the listed building will be capable of carrying a wind turbine without harm to its character.[26]

24 Consider if the preferred micro-generation technology is appropriate for the building or end user.
25 See Table 5 Permitted development rights for further information.
26 Listed building consent may be required.

- If the property is within a Conservation Area the wind turbine, either mounted on a building or tower (pole) should ideally be sited at the rear of the property. Consideration should be given to long views that are important to the character of the conservation area.

- Will the wind energy development affect the amenity of neighbouring inhabited buildings or their grounds, or the amenity of public open space (e.g. noise, visual or shadow flicker/throw)?[25]

- Will the electricity produced be stored in a battery/fuel cell or fed into the national grid (an inverter and controller (converts direct current (DC) electricity to alternating current (AC) - mains electricity) will be required).

- For off-grid systems, will a backup system (e.g. a diesel engine or other renewable energy technology) be used?[25&26]

- Will the turbine be used to generate solely electricity or to provide electric storage heating?[25]

- Will the turbine be visually prominent in relation to existing buildings and surrounding landscape features?

- Has consideration been given to the colour and design of the turbine to ensure that it is in keeping with the built environment?

- Will the wind turbine affect any scheduled ancient monuments or other archaeological sites?

Free standing domestic wind turbine

Further information on the issues of locating, siting and designing a wind energy development is available in supplementary planning guidance titled:

- Use of Wind Energy in Aberdeenshire Guidance for Developers'; and

- 'Use of Wind Energy in Aberdeenshire: Guidance for Assessing Wind Energy Developments',
  - which are available online at http://www.aberdeenshire.gov.uk/planning/supplementary/wind_energy.asp

Permitted development rights for wind turbine installations are provided in Table 5.

Table 5: Permitted development rights for wind turbines within the curtilage of a house and non-domestic property.

A) Freestanding Wind Turbines		
Criteria	**Domestic (draft) (Class 6G)**	**Non-domestic (draft)**
Size (1)	• Blade diameter: 3.5 metres. • Swept area: 9.6 sq metres. • Height to blade tip: 11.1 metres and more than 100m from neighbour's curtilage. • Minimum blade ground clearance: 5 metres.	• Blade diameter: 6 metres. • Swept area: 28 metres2. • Height to blade tip: 15 metres. • Minimum blade ground clearance: 5 metres.
Size (2)	• Blade diameter: 2.2 metres. • Swept area: 3.8 sq metres. • Height to blade tip: 11.1 metres and more than 11.1m from neighbour's curtilage. • Minimum blade ground clearance: 5 metres.	
Distance from site boundary		• Height of installation + 10% OR distance required to achieve noise thresholds, whichever is greater.
B) Building Mounted Wind Turbines		
Size	• Blade diameter: 2.2 metres. • Swept area: 3.8 sq m. • Height above building: 3 metres (including blades).	• Blade diameter: 2.5 metres. • Swept area: 5 metres2. • Height to blade tip: 15 metres from ground. • Height above building: 3 metres (including blades).
C) Anemometers		
Size	• Height: not exceed 3m above roof if building-mouted. • Height: 11.1m free standing.	• Height: 15 metres.
Time limit	• 12 months and removed thereafter.	• 18 months. Permitted development rights would not apply again within 12 months of the last anemometer mast being re moved.
Limitations (all types)		
Number	• 1 per house (not flats).	• 2 per property.
Noise	• 45 decibels at the curtilage of the site. • 30 decibels within any habitable room of neighbouring domestic property.	• 45 decibels at the curtilage of the site, unless that curtilage adjoins open fields not designated as public open space. • 30 decibels within any habitable room of neighbouring domestic property.

Criteria	Domestic (draft) (Class 6G)	Non-domestic (draft)
Designated areas	• Building-mounted wind turbine or anemometer not permitted within a Conservation Area. • If free-standing additionally not within a Site of Special Scientific Interest and sites of archaeological interest.	• Not visible from a road, in a Conservation Area. • Not on a Scheduled Ancient Monument. • If freestanding additionally not in a National Park, Area of Outstanding Natural Beauty, not within Sites of Special Scientific Interest, Natura 2000 sites, or site of Archaeological Interest.
Materials		• Non-reflective blades.
Listed buildings	• Not permitted development if within the curtilage of a listed building.	• Not permitted development unless Listed Building Consent already granted.
Compliance	• Microgeneration Certification Scheme.	• Microgeneration Certification Scheme.
Conditions	• Equipment removed where it is no longer needed or capable of domestic micro-generation.	• Equipment removed where it is no longer capable of generating energy or is no longer intended to be used for the generation of energy.

Free standing (non-domestic) wind turbine

Solar/Wind Turbine speed sign

Free standing wind turbine

F: Air source heat pumps

Electric air-source heat pumps use a similar process found in refrigerators to pull in heat from the outdoor air in the winter (to provide heat) and remove heat from the indoor air in the summer (to cool the building), and it can work in temperatures as cold as minus 18° Celsius. The heat pump is housed in two compartments: an outdoor compressor and conditioning coil combination, and an indoor conditioning coil and condenser, which distributes or absorbs the heat inside depending on its setting (heat mode or cooling mode).

Heat pump system (large - FIGHTER 315P, which replaces both the conventional gas condensing boiler, hot water tank and the separate heat recovery ventilation system) from of NIBE Industrier, courtesy of Ecoliving Ltd.

Vent for the air-source heat pump, from of NIBE Industrier, courtesy of Ecoliving Ltd.

The following should be considered if an air source heat pump is proposed:

- If the property is within a Conservation Area the heat pump should ideally be sited where it is not visible from a road.[27]
- If the property is listed, contact the planning department to find out if listed building consent is required for any works internally or externally.
- Will the proposed heat pump, if sited on a listed building, within the curtilage of a listed building, on land listed in the Inventory of Gardens and Designed Landscapes or within a conservation area, impact upon its character?

Permitted development rights for air source heat pumps are provided in Table 6.

27 Discuss with the planning department

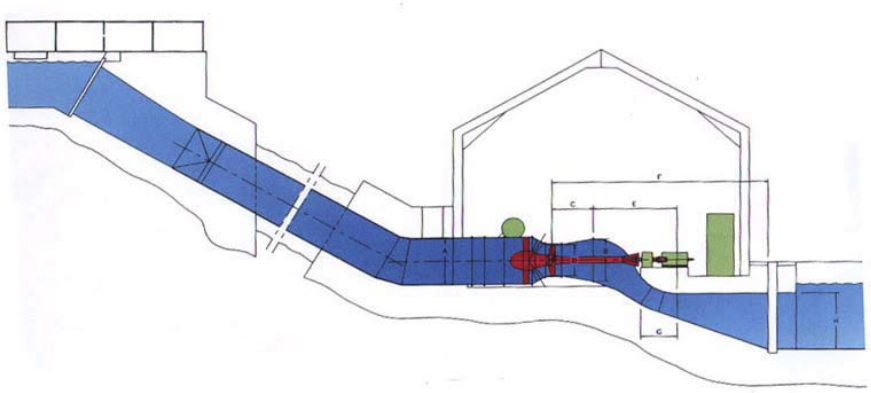
Table 6: Permitted development rights for air source heat pumps within the curtilage of a house, building containing a flat and non-domestic property.

A) Freestanding Air Source Heat Pumps		
Criteria	Domestic (draft) (Class 6H)	Non-domestic (draft)
Size	• No restrictions.	• Height: 4 metres when within 2 metres of the boundary of a domestic property. • Height: 1 metre when closer to a road or footpath than existing building.
B) Wall or Window Mounted Air Source Heat Pumps		
Size	• No restrictions.	• Not exceeding height of existing building.
Number	• 1 per property.	• 1 per property.
Siting	• No restrictions.	• Not visible from a road or footpath adjoining the site and should not overhang any public space.
C) Roof Mounted Air Source Heat Pumps		
Size	• No restrictions.	• Height 1.5 metres. • Location: Not within 1.5 metres of roof edge.
Limitations (all types)		
Number (not wall/ window mounted)	• 1 per dwelling or flat.	• Limited by total noise / total output not exceeding 45 kilowatts (heat)
Noise	• 45 decibels (A) at the curtilage of the site. • 30 decibels (A) within any habitable room of neighbouring domestic property.	• 45 decibels at the curtilage of the site when that adjoins a domestic (or other building similar to residential use) property curtilage. • 30 decibels within any habitable room of neighbouring domestic property. • Cumulative measure where more than 1 unit is installed.
Designated areas	• Not visible from a road in a Conservation Area.	• Not visible from a road in a Conservation Area. • Not on a Scheduled Ancient Monument. • If freestanding additionally not within Sites of Special Scientific Interest, Natura 2000 sites, or site of Archaeological Interest.
Listed buildings	• Not permitted development if within the curtilage of a listed building.	• Not permitted development unless Listed Building Consent already granted.
Compliance	• Microgeneration Certification Scheme.	• Microgeneration Certification Scheme.
Conditions	• Equipment removed where it is no longer needed or capable of domestic micro-generation.	• Equipment removed where it is no longer capable of generating energy or is no longer intended to be used for the generation of energy.

G: Micro hydro installations

Hydropower systems convert potential energy stored in water to turn a turbine to produce electricity. They can be connected to the main electricity grid or be part of a stand-alone (off-grid) power system. The end user (or grid connection point) needs to be close to the hydropower system, and for an off-grid hydro system, a back-up power system may be needed to compensate for seasonal variations in water flow.

Gilbert Gilkes & Gordon turbine, courtesy of the British Hydropower Association



"S" Type Axial Flow Turbine, courtesy of Newmills Hydro

The following should be considered if a small scale hydro plant is proposed:

- Is the end user or grid connection point close to the site selected for a small-scale hydro scheme?[28]
- Is there a back up power system – either renewable or non-renewable?
- Will there be one or more end users?
- The potential noise impact.[29]
- The potential visual impact.[29]
- Is the water course covered by any natural heritage designation?[29]

28 Consider if the preferred micro-generation technology is appropriate for the building or end user.
29 See Table 7 Permitted development rights for further information.

- What will be the potential impact to the river's ecology, and/or protected species (the Scottish Environmental Protection agency will be able to provide advice)?[29&30]

- Will there be a need for water impoundment at the site?

- Will there be implications on recreation and access and potential conflicts with other users?

Permitted development rights for micro-hydro installations are provided in Table 7.

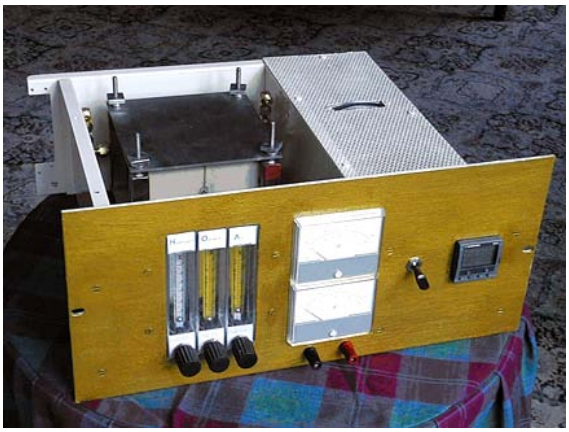
Table 7: Permitted development rights for micro hydro installations within the curtilage non-domestic property.

Criteria	Domestic	Non-domestic (draft)
Freestanding Structures to house a hydro turbine	• No permitted development rights.	• Primary function of the structure to house the hydro turbine unit. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome • Not exceeding the height of the existing buildings. • Not exceeding 20 square metres. • No closer to an adjoining road than the existing building.
Extension for use to house a micro hydro turbine	• No permitted development rights.	• Primary function to house the micro hydro turbine. • Height: 4 metres within 2 metres of the boundary of a domestic property or within 3 kilometres of an aerodrome. • Not exceeding the height of the original building. • Not exceeding 10% of the cubic content of the existing building. • No closer to an adjoining road than the existing building.
Limitations		
Designated areas		• Not visible from a public road or footpath in a Conservation Area. • Not in a site of archaeological interest where foundations are required. • Not within a Natura 2000 site or Site of Special Scientific Interest. • Not on a Scheduled Ancient Monument.
Listed buildings		• Not permitted development unless Listed Building Consent already granted.
Condition		• Equipment removed where it is no longer capable of generating energy or is no longer intended to be used for the generation of energy.

30 Impact on local hydrology may require to be investigated.

H: Fuel cells

Although not technically a renewable energy technology, fuel cells can be used to store excess electricity (like a battery) that has been generated from a renewable source. Using a chemical process, it works by converting electricity into hydrogen, and when needed, converting it back into electricity. Heat is also generated during the conversion process, which can also be harnessed.



19inch rack mounted fuel cell courtesy of Fuel Cells (Scotland) Ltd

The following should be considered if fuel cells are proposed:

- Is a storage device necessary (e.g. will surplus electricity be generated or are the premises not connected to the national grid)?[31]
- The location of the hydrogen fuel tank, and whether planning permission will be required.
- Is planning permission required for any future structure to house the fuel cell technology?

31 Consider if the preferred micro-generation technology is appropriate for the building or end user.

5. Further Information and contact details

Further information is also available in:

- Scottish Planning Policy (2010)
- Planning Advice Note 45: Renewable Energy Technologies
- Planning Advice Note 58: Environmental Impact Assessment.
- Planning Advice Note 71: Conservation Area Management

  These 4 documents are available on line at http://www.scotland.gov.uk/Topics/Built-Environment/planning/publications/pans
- Scottish Historic Environment Policy – which is available at http://www.historic-scotland.gov.uk/shep
- Scottish Natural Heritage (SNH) http://www.snh.gov.uk/planning-and-development/renewable-energy/
- SEPA have more information online at www.sepa.org.uk and at http://www.sepa.org.uk/planning/energy.aspx. SEPA Pollution Prevention Guidelines (PPGs) are available online at http://www.sepa.org.uk/about_us/publications/guidance/ppgs.aspx.Water Framework Directive which is available online at http://www.sepa.org.uk/water/water_publications/water_framework_directive.aspx.
- Water Environment and Water Services (Scotland) Act 2003 and Water Environment (Controlled Activities) Regulations 2005 are available online at http://www.sepa.org.uk/water/water_regulation.aspx and http://www.scotland.gov.uk/library5/environment/twecar-00.asp

Table 8: Main planning offices in Aberdeenshire

Area	Address
Banff & Buchan Area	Town House Low Street Banff AB45 1AY Phone: 01261 813200 Fax: 01261 813281 E-mail: bb.planapps@aberdeenshire.gov.uk
Buchan Area	Arbuthnot House 62 Broad Street Peterhead AB42 1DA Telephone 01779 483724 Fax 01779 483727 E-mail: bu.planapps@aberdeenshire.gov.uk
Formartine Area	45 Bridge Street Ellon AB41 9AA Phone: 01358 726429 Fax: 01358 726450 E-mail: fo.planapps@aberdeenshire.gov.uk
Garioch Area	Gordon House Blackhall Road Inverurie AB51 3WA Phone: 01467 628576 Fax: 01467 628469 E-mail: ga.planapps@aberdeenshire.gov.uk
Kincardine & Mearns Area	Viewmount Arduthie Road Stonehaven AB39 2DQ Phone: 01569 768300 Fax: 01569 766549 E-mail: km.planapps@aberdeenshire.gov.uk
Marr Area	Viewmount Arduthie Road Stonehaven AB39 2DQ Phone: 01569 768300 Fax: 01569 766549 E-mail: ma.planapps@aberdeenshire.gov.uk
Planning Policy Infrastructure Services	Woodhill House Westburn Road Aberdeenshire Council AB16 5GB Phone 01224 664221 Fax: 01224 664679 E-mail: ldp@aberdeenshire.gov.uk

Aberdeenshire
COUNCIL

Produced by Aberdeenshire Council - GDT13063 January 2011