



# **Review of Permitted Development Rights for Small Scale Renewable Energy Development**

## **Policy Consideration**

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An Agency within the Department of the

**Environment**

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INVESTORS IN PEOPLE



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## **1.0 Purpose**

- 1.1 The purpose of this paper is to consider the provision of permitted development rights for small scale renewable energy development (hereafter referred to as 'microgeneration').

## 2.0 Need

2.1 The need for this review arises from:

- a. the requirement to meet the renewable energy target set out in the Strategic Energy Framework for NI<sup>1</sup>. This requires that by 2012, at least 12% of all electricity consumed in Northern Ireland should be obtained from indigenous renewable energy sources, with at least 15% of this being generated by non-wind technologies. DETI<sup>2</sup> have indicated that we will not achieve this target through large scale projects alone and have placed emphasis on the need to support microgeneration initiatives; and
- b. the requirement, under an EC Directive on the promotion of electricity produced from renewable energy sources in the internal electricity market<sup>3</sup>, to evaluate the existing legislative and regulatory framework authorising the production of electricity from renewable energy sources, with a view to:
  - (i) reducing regulatory and non-regulatory barriers to the increase in electricity production from renewable energy sources;
  - (ii) streamlining and expediting procedures at the appropriate administrative level; and
  - (iii) ensuring that the rules are objective, transparent and non-discriminatory, and take fully into account the particularities of the various renewable energy source technologies.

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<sup>1</sup> Strategic Energy Framework for NI produced by the Department of Enterprise, Trade and Investment – June 2004

<sup>2</sup> The Department of Enterprise, Trade and Investment

<sup>3</sup> 2001/77/EC

### 3.0 Background

- 3.1 Permitted development rights are provided by the Planning (General Development) (Northern Ireland) Order 1993<sup>4</sup> (the 'GDO'), to allow certain, often minor, non-contentious types of development, to proceed without the need for a planning application, since planning permission for them is deemed to be granted. Such rights help reduce the number of planning applications and the regulatory burden of the planning system.
- 3.2 In England the Department for Communities and Local Government (DCLG) has employed consultants to look at microgeneration<sup>5</sup> in a domestic context, including flats. On receipt of the consultants' report they expect to consult on any proposed changes to permitted development rights with any changes to legislation being made by October 2007.
- 3.3 The Scottish Executive is currently carrying out research on the Town and Country Planning (General Permitted Development) (Scotland) Order 1992 (S.I. 1992 No. 223 (S.17)) and have commissioned research for a comprehensive review of permitted development rights including micro renewables. In May 2006 they published 'Planning for Micro Renewables'<sup>6</sup> explaining how the planning system can support the micro-renewables industry in the rollout of the technology.
- 3.4 The Welsh Executive have joined with DCLG in employing consultants to look at microgeneration and in light of the report are considering their position with regard to any potential changes to permitted development rights.
- 3.4 In Northern Ireland, to raise awareness of the issues associated with conventional energy use and the range of solutions available through renewable energy technologies, the government has established Action Renewables<sup>7</sup>. Action Renewables provides a range of services including the publication of information and research material via events, conferences and its web page [www.actionrenewables.org](http://www.actionrenewables.org). They also have an educational initiative linked to the national curriculum and provide advice on renewable energy to householders and communities.
- 3.5 The Planning Service reviewed permitted development rights ('PD rights') in 2003 as part of its Modernising Planning Processes initiative<sup>8</sup>. A consultation document<sup>9</sup> and the accompanying consultants' report were then published in September 2003. The Planning Service is at an advanced stage in the analysis of the responses to that consultation and identifying possible changes to PD rights and expects to consult on a replacement of the GDO in 2007. This could include proposed PD rights for microgeneration development.
- 3.6 A key issue for Planning Service is to maintain a balance between facilitating

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<sup>4</sup> Statutory Rule 1993 No. 278

<sup>5</sup> Microgeneration is defined in section 82(6) of the Energy Act 2004

<sup>6</sup> Planning for Micro Renewables an annex to Planning Advice Note 45 Renewable Energy Technologies published by the Scottish Executive Development Department

<sup>7</sup> A joint initiative between DETI and the Viridian Group established in August 2003

<sup>8</sup> Modernising Planning Processes Implementation Plan – February 2003

<sup>9</sup> Review of Permitted Development Rights – September 2003

microgeneration projects and protection of visual amenity, including conservation of the built heritage.

#### **4.0 What is microgeneration?**

- 4.1 Renewable energy is energy generated from natural resources. These resources are constantly being replenished and will not be exhausted in the foreseeable future, for example, the sun, wind and water. Fossil fuels such as coal, oil and gas, on the other hand, draw on finite resources that will be exhausted.
- 4.2 Microgeneration development, for the purposes of this paper is taken to mean non-commercial renewable energy development which provides heat and/ or electricity to a single end user, i.e. a single dwelling house. Although electricity can be sold back to the national grid, under microgeneration the electricity sold is ancillary to the main purpose of installing the technology – to provide electricity (and/or heat) to an individual user. Therefore it is not viewed as a ‘commercial’ development.
- 4.3 Microgeneration technologies embrace the following:
- a. Solar water heating
  - b. Photovoltaics (PV)
  - c. Biomass
  - d. Heat pumps
  - e. Wind
  - f. Hydro
  - g. Fuel Cells
  - h. Combined heat and power

#### **Solar Water Heating (‘SWH’)**

- 4.4 Solar water heating (‘SWH’) systems, comprising solar collectors (panels), a heat transfer system (pipes) and a hot water store (hot water cylinder), are usually integrated with the existing water heating system. Panels should ideally face south (although are still feasible between southeast and southwest), and be angled towards the sun’s elevation. They can be retrofitted or incorporated in the original construction and are normally fixed to the slope of existing roofs but may also be freestanding (with suitable support) on a flat roof, the ground or similar surface, or affixed to walls. The heat transfer pipes may or may not be visible depending on the type of installation and site conditions.

- 4.5 Solar energy is absorbed by the collector<sup>10</sup> and heats a water/antifreeze fluid mix in pipes in the collector panel. The heated fluid is then piped to a hot water store - which may be a modified domestic hot water cylinder - where it heats the water via a transfer coil in the store/cylinder. The cooled fluid is then pumped back to the collector panel to be reheated. This keeps the water/antifreeze fluid in a continuous "loop" and avoids contamination of the hot water supply. A series of electronic sensors and valves ensure that the water only circulates when the hot water store is at a lower temperature than the fluid in the collector panel.
- 4.6 The majority of these pipes, valves, electronics, pump etc. will normally be installed inside the building and not be visible externally. Visual amenity is normally therefore limited to the effect of the solar panel and connection pipes. These panels are typically of a dark colour and have a glass type surface.

### **Photovoltaics (PV)**

- 4.7 Photovoltaic systems are similar to SWH systems in that they collect solar energy from the sun by means of a collector, but instead of heating a fluid, the PV collector produces electricity. It does this through cells of semi-conducting materials such as silicon, which produce electricity when exposed to light. PV collectors produce direct current ('DC') electricity which is converted to alternating current ('AC') by an inverter and harmonised with electricity supplied from the national grid.
- 4.8 Collector panels are made up of modules of cells designed to suit the needs of the specific site. They are fixed to the slope of ideally, a south facing roof in receipt of unobstructed sunlight (although, again similar to SWH panels, they are still feasible between southeast and southwest). They can also, with suitable support, be freestanding on a flat roof, the ground or similar surface, or secured to a wall. PV tiles are now available in styles simulating traditional materials. These are used in place of traditional roofing tiles and are less visually obtrusive than collector panels. Transparent panels are also available although less common.
- 4.9 PV collectors will produce electricity in normal daylight. However, their efficiency increases with the intensity of the sunlight they receive. Freestanding solar tracking systems are available which increase efficiency by following the path of the sun. These are more expensive than PV panels as they have moving parts and maintenance costs can be high. PV panels have no moving parts and require no maintenance. They may be retrofitted or incorporated in the original construction with the associated electronics, cables etc being located inside the building. The generated electricity can be used on site or fed back into the grid. Small scale systems are mainly suitable for on site use.
- 4.10 The impact of PV systems on visual amenity is similar to that of SWH

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<sup>10</sup> There are two types of collector: flat plate and evacuated tube (more efficient). The principle is, however, similar. Action Renewables suggest 3 (evacuated tube) to 4 (flat plate) square metres of collector for a typical 4 person household.

systems, being limited to the effect of the solar collector panel which is more commonly of dark appearance and glass type surface although as mentioned above, transparent panels and replacement roofing tiles are also available.

### **Biomass**

- 4.11 Biomass is the term used to describe all the organic matter produced by photosynthesis. The source of biomass energy is the sun, with the biomass acting as an energy store. To utilise biomass energy we convert the stored energy into heat and power.
- 4.12 There are three categories of biomass energy:
- (a) Solid Biomass – where the biomass source is burned directly to produce heat and power e.g. trees, woody plants, the residue from agriculture and forestry, the organic component of municipal and industrial wastes;
  - (b) Biogas – where the biomass source, through anaerobic digestion, produces a combustible gas (methane) which is burned to produce heat and power e.g. animal and municipal waste; and
  - (c) Liquid Biofuels – where the biomass source is subjected to a chemical and/or physical process to produce a usable, combustible, liquid fuel e.g. vegetable oils and ethanol.
- 4.13 It is unlikely that the processing of raw biomass to produce solid biomass, biogas or liquid biofuels will fall within the category of microgeneration. (Indeed such development, to be economically viable, is unlikely to fall within the minor non-contentious scope of permitted development).
- 4.14 Biomass in the context of microgeneration will most likely relate to the use of processed biomass to produce heat and power. Development required to utilize the biomass product may include storage facilities, the installation of a chimney or flue and, where the burner is to be positioned outside the existing building, any ancillary housing.

### **Ground source heat pump**

- 4.15 Ground source heat pumps ('GSHP') extract heat from the ground and transfer it to a building. In the UK, ground temperatures maintain a constant 11 to 13°C a few metres below the surface. GSHP technology makes use of this heat by collecting it via a loop of plastic pipe containing a water/antifreeze mix placed either in a shallow trench of 1 to 2m depth, or deeper boreholes of 15 to 100m (these provide higher ground temperatures). The heat pump extracts the collected heat and boosts it on average to approximately 40°C, making it ideally suited to under floor heating installations<sup>11</sup>. Heat pumps operate very efficiently and produce 2.5 to 4 units of output heat for each unit of input electricity (the higher outputs are

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<sup>11</sup> It may also be used to pre- heat domestic hot water and space heating systems which operate at 60 to 80°C.

achieved through under floor heating installations).

- 4.16 The collector loop of plastic piping can be placed either horizontally in shallow trenches or horizontal boreholes, or, placed in vertical "coils" in deeper trenches thus requiring a lesser ground area to excavate, or placed in deeper vertical boreholes. Once installed, the ground surface may be returned to its original or any other desired condition. Where suitable, the collector loop may also be submerged in a lake or river to collect heat from the water. The heat pump, valves and electronic control system would normally be located inside the building in a similar manner to any conventional heating system controls, but might also be housed in a standalone building within the curtilage.

### **Hydro-Geothermal heat pump**

- 4.17 With a hydro-geothermal heat pump, water replaces the collector loop used in a GSHP system. The water supply may be drawn from a river, lake or adjacent boreholes (10 to 15m apart). The water is pumped directly to the heat pump and then the heat is extracted and transferred to the building in a similar manner to the GSHP system. After the heat is extracted, the water is returned to the source (downstream) or the adjacent borehole. This system requires a frost free location for the heat pump due to the source water not having any antifreeze properties.

### **Air source heat pumps**

- 4.18 Air source heat pumps ('ASHP') operate in a similar manner to ground source heat pumps with the exception that the heat to supply the pump is extracted from the air rather than from a ground loop. To extract the heat, a convector has to be placed outside the building<sup>12</sup>. These vary in size, shape and positioning depending on the output required, space available and manufacturer. Air is drawn through the convector, the heat extracted and transferred to the heat pump. Small air source convectors resemble air conditioning units. They use a fan/s to draw air through the unit and therefore create a certain level of noise. Convectors can also freeze up due to the heat being extracted from the air and may require defrosting to maintain efficiency. Air source heat pumps are cheaper to install than GSHP systems, however their efficiency drops as the ambient air temperature drops.

### **Wind**

- 4.19 Wind energy can be used to generate electricity by means of a wind turbine. Turbine design varies depending on the manufacturer. Vertical axis wind turbines (VAWTs) are not sensitive to wind direction and do not require a means of orientating themselves. There are several types of VAWTs. Smaller, less obtrusive versions create less noise but are also less efficient, requiring higher wind speeds to start rotation. More efficient versions are larger and less suited to domestic use.
- 4.20 The most common wind turbine design features a multi-blade rotor mounted

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<sup>12</sup> An air source heat pump may also be placed inside the building with either outside air ducted to and from it, or used to recover heat from an internal ventilation system.

on a horizontal axis which is free to rotate into the wind on a tall tower. The rotor drives a generator, either directly or in larger turbines via a gearbox, to produce electricity.

- 4.21 Turbine output capacity sizes vary depending on their intended use; typical sizes<sup>13</sup> are 0.5 to 2.5kW for domestic projects and 5 to 20kW for small to medium sized projects. Output is rated to an optimum capacity, i.e. during optimum wind speeds<sup>14</sup>. Larger output turbines have larger rotors. Again, these vary depending on the manufacturer, but would be in the range of 1.1m diameter for a 0.4kW turbine to 15m diameter for a 50kW turbine. As with PV panel installations, small scale turbines produce DC electricity which is converted to AC by an inverter and harmonised with grid supply. In larger installations, surplus electricity can be sold to the grid. Smaller off-grid or standalone systems require batteries or fuel cells<sup>15</sup> to store the electricity generated.
- 4.22 Wind speeds generally increase with height above ground level. To maximise the efficiency of the turbine it is therefore desirable to erect them where they will be exposed to clear air<sup>16</sup>, avoiding any shelter provided by buildings, trees etc. This makes it more difficult to “screen” turbines to reduce their impact on the visual amenity. Turbines have to date mainly been designed to be mounted on tall towers, although small building mounted turbines have also been developed and are becoming more widely available.
- 4.23 The impact on visual amenity created by a turbine is therefore created by the tower supporting it, the main turbine housing and the rotating blades of the rotor (shadow flicker<sup>17</sup> and shadow throw). Turbines also create noise and may in certain circumstances, cause television and/or radio interference.

## Hydro

- 4.24 Generation of hydroelectric power requires a suitable supply of water, a hydraulic head (the distance the water falls to the turbine), a turbine and associated controls. Hydro-electricity uses the potential energy the water possesses at height, to power a turbine and produce electricity<sup>18</sup>. The volume of water has to be sufficient to feed the turbine and provide a residual flow to maintain the river. The hydraulic head and quantity of water available are essential to making the production of electricity viable. Low head systems (5 to 10m) require large volumes of water, medium head systems (10 to 100m) require a lesser volume.
- 4.25 Hydroelectric power schemes can require substantial civil engineering works e.g. construction of a dam or weir, piping or channelling water to and from

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<sup>13</sup> Classification used by Action Renewables

<sup>14</sup> On average turbines achieve 30% of their rated capacity.

<sup>15</sup> Fuel cells convert electricity into hydrogen which is stored and converted back to electricity when required (see paragraphs 4.27 - 4.29).

<sup>16</sup> The hub height of small scale turbines typically ranges from 5.5m (0.5kW) to 25m (50kW).

<sup>17</sup> ‘shadow flicker’ occurs when the shadow from the blades of a turbine is cast on a narrow window of a building causing the shadow to flick ‘on and off’. Increased distance or careful orientation will normally avoid this problem.

<sup>18</sup> Action Renewables advise a typical domestic scheme would be 5kW

the turbine, or the restoration of existing works. This can increase the overall costs of providing the energy. The cost per kilowatt for hydroelectricity is therefore typically high in comparison to other renewable technologies.

- 4.26 The options for siting of a hydroelectric turbine are limited, it being normally positioned as close as possible to the water supply to minimise the extent of piping or channelling required. This restricts the use of natural features to screen the development and reduce potential visual and noise impact. Small scale hydro development may include the construction of a dam or reservoir, piping or channelling to and from the turbine, a structure to house the turbine and an electricity supply connection to the building/s.

### **Fuel Cells**

- 4.27 Although not strictly a renewable energy technology, fuel cells can be used in conjunction with renewable energy electricity production to provide a means of storage of surplus electricity for later use. A fuel cell converts chemical energy (normally hydrogen), into direct current electricity and heat. Unlike batteries which possess a limited quantity of stored electricity, a fuel cell will continue to supply electricity as long as fuel is supplied. When fuelled by hydrogen, water is the only by-product produced by the fuel cell, however the method used to produce the hydrogen fuel may have released carbon dioxide as a by-product.
- 4.28 Hydrogen can be produced by various methods including electrolysis of water. Electrolysis of water produces hydrogen using electricity. This technology allows surplus renewable electricity (solar, wind, water) to be 'stored' by using it to create hydrogen which can be stored and used to power the fuel cell when the renewable electricity is not available. Production of hydrogen by electrolysis does not release carbon dioxide as a by-product.
- 4.29 Although not a new technology, it is likely to be some time before fuel cells are developed and commercially available for the domestic storage of surplus renewable energy.

### **Combined Heat and Power**

- 4.30 Combined heat and power ('CHP') systems as the name suggests produce both heat and power from a fuel source. Several domestic combined heat and power ('d-CHP') systems are being developed however currently operational systems are relatively rare. The Department is aware of only one manufacturer's system operating in Northern Ireland which is being trialled by NIE<sup>19</sup> in a variety of homes to assess future potential. It comprises a natural gas powered d-CHP boiler which replaces the existing heating boiler and provides all of the heat required in the dwellinghouse. It also produces a small amount of electricity (around 1 kW) which, depending on demand, is either used on site or sold to the national grid. The remaining electricity needs of the household are met from the grid. The d-CHP boiler is approximately the size of an average dishwasher and is designed to be installed internally. It requires a horizontal or vertical balanced flue, water

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<sup>19</sup> Northern Ireland Electricity

and electrical connections. In the majority of installations, no additional 'development' (see paragraphs 5.1 to 5.4) is envisaged. The system operates at around 90% efficiency by recovering additional heat from the electricity generation element to heat water, whereas with existing domestic gas boilers, about a third of the heat produced is wasted. The greater efficiency reduces fuel consumption and in turn results in lower carbon emissions. Commercially available units are expected early in 2008 with the development of additional systems operating on other fuels to follow.

## 5.0 Existing Permitted Development (PD) Rights

- 5.1 Could any operations or uses of land associated with microgeneration be taken not to involve development under the Planning (Northern Ireland) Order 1991<sup>20</sup> ('the 1991 Order') or to fall within existing permitted development rights in the GDO?
- 5.2 Article 11 of the 1991 Order provides, subject to paragraphs (2) – (4) of that Article that "development" means the carrying out of building, engineering, mining or other operations in, on, over or under land, or the making of a material change in the use of any buildings or other land. It provides among other things, that the following operations or uses of land do not involve development for the purposes of the 1991 Order (and by implication do not require planning permission):

Article 11(2)(a) - the carrying out of works for the maintenance, improvement or other alteration of any building, being works which affect only the interior of the building or which do not affect the external appearance of the building; and,

Article 11(2)(c) - the use of any buildings or other land within the curtilage of a dwelling house for any purpose incidental to the enjoyment of the dwellinghouse as such does not involve development of the land.

- 5.3 Certain definitions in article 2 of the 1991 Order are relevant to interpretation of these provisions and provisions in the GDO:

"building " includes any structure or erection, and any part of a building, as so defined, but does not include plant or machinery comprised in a building;

"building operations" has the meaning assigned to it by Article 11 – includes demolition of buildings, rebuilding, structural alteration of or addition to buildings and other operations normally undertaken by a person carrying on business as a builder;

"erection " in relation to buildings includes extension, alteration and re-erection;

"use " in relation to land, does not include the use of land for the carrying out of any building or other operations thereon.

- 5.4 In this context, the 'development' associated with microgeneration can be summarised as follows:

### **Solar water heating**

- a. Fixing solar panels to an existing roof or to walls of a building – ideally south facing;
- b. Freestanding solar panels (with suitable support) on a flat roof, the

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<sup>20</sup> 1991 No. 1220 (N.I. 11)

- c. ground or similar surface;  
Installation of heat transfer pipes external to the building (may or may not be visible).

### **Photovoltaics (PV)**

- a. Fixing PV panels to an existing roof or to walls of a building – ideally south facing;
- b. Freestanding PV panels (with suitable support) on a flat roof, the ground or similar surface;
- c. PV roofing tiles which can simulate traditional materials.

### **Biomass (consumption, not processing or production)**

- a. Biomass storage either using a dedicated container or in an additional building;
- b. Burner ancillary housing (where not within an existing building) and chimney/ flue).

### **Heat Pump**

- a. Temporary Plant and machinery, e.g. for drilling boreholes or digging trenches;
- b. Equipment housing at ground level, attached to an external wall or on a flat roof (where such equipment cannot be accommodated within an existing building);
- c. erection of an air source heat pump collector either standalone at ground level, attached to an external wall or to a flat roof.

### **Wind**

- a. Erection of a wind turbine on a tall tower – turbine size related to output capacity;
- b. Any associated equipment housing at ground level;
- c. Small building-mounted turbines.

### **Hydro**

- a. Engineering and building operations to construct dams or reservoirs;
- b. Structure to house turbine.

### **Fuel Cell**

- a. Equipment housing at ground level (where such equipment cannot be accommodated within an existing building);
- b. Hydrogen gas storage.

### **Combined Heat and Power**

- a. Boiler ancillary housing (where not within an existing building) and chimney/ flue).

## **Potential issues with microgeneration development**

5.5 Potential issues which may arise as a result of such development include:

### **Solar water heating (SWH) and Photovoltaics (PV)**

- a. Visual impact of the collector panels and transfer pipes against the existing building materials and environment;
- b. Broken roofscape where the collector panels are mounted above the plane or height of the existing roof;
- c. Reduction in light where freestanding panels are placed adjacent to boundaries.

### **Biomass**

- a. Broken roofscape where a chimney or flue has to be constructed above the height of the existing roof;
- b. Size and affect of any ancillary works or buildings especially in sensitive areas e.g. Conservation Areas.

### **Heat pumps**

- a. Noise, water (condensation) and ice generated by air source heat pumps;
- b. Excavation within sensitive sites e.g. site of archaeological interest;
- c. Size and affect of any ancillary works or buildings especially in sensitive areas e.g. Conservation Areas.

### **Wind**

- a. Visual impact of the turbine and associated tower or mast;
- b. Broken roofscape where the turbine is erected above the line of the existing roof;
- c. Noise generated by the wind turbine;
- d. Shadow flicker created by the turbine blades;
- e. Shadow throw from the turbine blades;
- f. Ice throw from the turbine blades;
- g. Television and radio interference caused by the generator.

### **Hydro**

- a. Noise generated by the turbine;
- b. Water abstraction;
- c. Size and affect of any ancillary works or buildings especially in sensitive areas e.g. Conservation Areas.

### **Fuel cell**

- a. Size and affect of any ancillary works or buildings especially in sensitive areas e.g. Conservation Areas;
- b. Safety issues surrounding the production and storage of hydrogen.

## **Combined heat and power**

- a. Broken roofscape where a flue has to be constructed above the height of the existing roof;
  - b. Size and affect of any ancillary works or buildings especially in sensitive areas e.g. Conservation Areas.
- 5.6 Existing PD rights already give permission for some of the development listed above and have also addressed some of the potential issues. The following consideration of each renewable energy technology illustrates the extent to which development is permissible under existing Part 1 'Development within the curtilage of a Dwellinghouse' PD rights in the GDO (Annex A).

## **Solar Collectors (solar panels and photovoltaic panels)**

### **Solar Collectors fitted to the roof of a dwellinghouse**

- 5.7 Class B of Part 1 permits development comprising 'The enlargement, improvement or other alteration of a dwellinghouse consisting of an addition or alteration to its roof'. The Department considers that, under Part 1 Class B, solar collectors can be fitted to the roof of a dwellinghouse provided that:
- i. their design and finishes are in conformity with those of the original dwellinghouse;
  - ii. the fitted collectors do not cause any part of the dwellinghouse to exceed the highest part of the existing roof;
  - iii. the fitted collectors do not cause any part of the dwellinghouse to project beyond the plane of any existing roof slope fronting a road by more than 15 cms;
  - iv. the dwellinghouse is not in a conservation area;
  - v. when fitted, they do not increase the cubic content of the dwellinghouse by more than 20 cubic metres, in the case of a terrace house, or 25 cubic metres in any other case; or the cubic content of the resulting building does not exceed the cubic content of the original dwellinghouse –
    - (a) in the case of a terrace house by more than 50 cubic metres or 10% whichever is the greater;
    - (b) in any other case by more than 70 cubic metres or 15% whichever is the greater; or
    - (c) in any case by more than 115 cubic metres.
- 5.8 Where the roof of the dwellinghouse, or part of it, is flat, the proviso at 5.7 ii. applies. It should be noted that the highest part of the roof refers to the dwelling as a whole, not the particular part of the roof where the panel is to be fitted. The height is determined by the height of the highest ridge tile on a pitched roof, or in the case of a flat roof the height of its top surface. Where

the dwellinghouse has both pitched and flat roofs it will be determined by whichever is the highest.

- 5.9 In Part 1 Classes A and B permitted development rights do not apply in cases where the "height of the highest part of the existing roof" is exceeded. In practice this means that, to be permitted development, any new work should not exceed the height of the highest ridge tile on a pitched roof, or in the case of a flat roof the height of its top surface. A parapet is taken as being part of a wall, not the roof. A chimney is similarly not part of a roof, and its height does not determine the highest part of the roof. Decorative appendages such as finials also do not determine the height. In the case of flat roofs it is normally accepted that the top surface of a rooflight may be counted towards height and that a rooflight forms part of a roof.

**Solar collectors fitted to the wall of an existing dwellinghouse or included in an enlargement, improvement or other alteration of a dwellinghouse**

- 5.10 Class A of Part 1 permits development comprising 'The enlargement, improvement or other alteration of a dwellinghouse'. The Department considers that under Part 1 Class A, solar collectors could be fitted to the wall of an existing dwellinghouse or included in an enlargement, improvement or other alteration to the dwellinghouse provided that:
- i. their design and finishes are in conformity with those of the original dwellinghouse;
  - ii. the cubic content of the resulting building does not exceed the cubic content of the original dwellinghouse –
    - (a) in the case of a terrace house or in the case of a dwellinghouse in a conservation area, by more than 50 cubic metres or 10% whichever is the greater;
    - (b) in any other case by more than 70 cubic metres or 15% whichever is the greater; or
    - (c) in any case by more than 115 cubic metres;
  - iii. the solar collectors or other enlargement, improvement or alteration do not cause the part of the building enlarged, improved or altered to exceed the height of highest part of the existing roof;
  - iv. the solar collectors or other enlargement, improvement or alteration do not cause any part of the resulting building to be nearer to any road which bounds its curtilage than the part of the original dwellinghouse nearest to that road;
  - v. the solar collectors or other enlargement, improvement or alteration do not cause the part of the building enlarged, improved or altered to exceed 4 metres in height where it is within 3 metres of the boundary of the curtilage.

Where the solar collectors are on a flat roof the proviso at 5.10 iii applies. See also general commentary on height and flat roofs at 5.8 and 5.9 above.

It is more likely (in comparison with solar collectors fitted to a roof) that solar collectors fitted to a wall will NOT be in conformity with the design and finishes of the original dwellinghouse.

### **Solar collectors fitted to other buildings within the curtilage of a dwellinghouse**

5.11 Class D of Part 1 permits 'The provision within the curtilage of a dwellinghouse of any building or enclosure, swimming or other pool required for a purpose incidental to the enjoyment of the dwellinghouse, or the maintenance, improvement or other alteration to such a building or enclosure'. The Department considers that under Part 1 Class D solar collectors may be fitted, as an alteration to an existing building within the curtilage of the dwellinghouse, or as part of a new building provided under Class D, for a purpose incidental to the enjoyment of a dwellinghouse provided that:

- i. the building altered or provided does not become nearer to any road which bounds the curtilage of the dwellinghouse than the part of the original dwellinghouse nearest to that road;
- ii. the building altered or provided does not have a cubic content greater than 10 cubic metres and any part of it is not within 5 metres of any part of the dwellinghouse;
- iii. the height of the building altered or provided does not exceed 4 metres in the case of a building with a ridged roof or 3 metres in any other case.
- iv. the total ground area covered by the buildings altered or provided (other than the original dwellinghouse) does not exceed 50% of the total area of the curtilage (excluding the ground area of the original dwellinghouse);
- v. the building altered or provided does not have a cubic content greater than 10 cubic metres where it is on land within a conservation area, an area of outstanding natural beauty, a National Park, or within the curtilage of a listed building.

### **Freestanding solar collectors**

5.12 The GDO provides by definition that "building" does not include plant and machinery or a structure or erection of the nature of plant or machinery. The Department considers that freestanding solar collectors are, at least, of the nature of plant and machinery. They will very likely require some form of supporting structure and could be motorised to 'follow the sun'. They are therefore not considered to be permitted development under Part 1 of Schedule 1 to the GDO.

## **Biomass development**

### **The provision of biomass ancillary housing, a chimney or flue as an enlargement, improvement or other alteration of a dwellinghouse**

- 5.13 Class A of Part 1 permits development comprising 'The enlargement, improvement or other alteration of a dwellinghouse'. The Department considers that under Part 1 Class A, the provision of biomass ancillary housing, a chimney or flue may be undertaken as an enlargement, improvement or other alteration to the dwellinghouse provided that:
- i. the design and finishes are in conformity with those of the original dwellinghouse;
  - ii. the cubic content of the resulting building does not exceed the cubic content of the original dwellinghouse –
    - (a) in the case of a terrace house or in the case of a dwellinghouse in a conservation area, by more than 50 cubic metres or 10% whichever is the greater;
    - (b) in any other case by more than 70 cubic metres or 15% whichever is the greater; or
    - (c) in any case by more than 115 cubic metres;
  - iii. the enlargement, improvement or alteration do not cause the part of the building enlarged, improved or altered to exceed the height of highest part of the existing roof;
  - iv. the enlargement, improvement or alteration do not cause any part of the resulting building to be nearer to any road which bounds its curtilage than the part of the original dwellinghouse nearest to that road;
  - v. the enlargement, improvement or alteration do not cause the part of the building enlarged, improved or altered to exceed 4 metres in height where it is within 3 metres of the boundary of the curtilage;

Where the roof of the dwellinghouse, or part of it, is flat, the proviso at 5.13 iii applies. See also general commentary on height and flat roofs at paragraphs 5.8 and 5.9 above.

### **The provision of biomass ancillary housing or addition of a chimney or flue to other buildings within the curtilage of a dwellinghouse**

- 5.14 Class D of Part 1 permits 'The provision within the curtilage of a dwellinghouse of any building or enclosure, swimming or other pool required for a purpose incidental to the enjoyment of the dwellinghouse, or the maintenance, improvement or other alteration to such a building or enclosure'. The Department considers that under Part 1 Class D the provision of biomass ancillary housing, a chimney or flue may be undertaken, as an alteration, to an existing building within the curtilage of the dwellinghouse, or as part of a new building provided under Class D, for a purpose incidental to

the enjoyment of a dwellinghouse provided that:

- i. the building altered or provided does not become nearer to any road which bounds the curtilage of the dwellinghouse than the part of the original dwellinghouse nearest to that road;
- ii. the building altered or provided does not have a cubic content greater than 10 cubic metres and any part of it is not within 5 metres of any part of the dwellinghouse;
- iii. the height of the building altered or provided does not exceed 4 metres in the case of a building with a ridged roof or 3 metres in any other case;
- iv. the total ground area covered by the buildings altered or provided (other than the original dwellinghouse) does not exceed 50% of the total area of the curtilage (excluding the ground area of the original dwellinghouse);
- v. the building altered or provided does not have a cubic content greater than 10 cubic metres where it is on land within a conservation area, an area of outstanding natural beauty, a National Park, or within the curtilage of a listed building.

## **Heat pump development**

### **An Air Collector fitted to the roof of a dwellinghouse**

5.15 Class B of Part 1 permits development comprising 'The enlargement, improvement or other alteration of a dwellinghouse consisting of an addition or alteration to its roof'. The Department considers that, under Part 1 Class B, an air collector could be fitted to the roof of a dwellinghouse provided that:

- i. the design and finishes are in conformity with those of the original dwellinghouse;
- ii. the fitted collector does not cause any part of the dwellinghouse to exceed the highest part of the existing roof;
- iii. the fitted collector does not cause any part of the dwellinghouse to project beyond the plane of any existing roof slope fronting a road by more than 15 cms;
- iv. the dwellinghouse is not in a conservation area;
- v. when fitted, it does not increase the cubic content of the dwellinghouse by more than 20 cubic metres, in the case of a terrace house, or 25 cubic metres in any other case; or the cubic content of the resulting building does not exceed the cubic content of the original dwellinghouse –
  - (a) in the case of a terrace house by more than 50 cubic metres or

- 10% whichever is the greater;
- (b) in any other case by more than 70 cubic metres or 15% whichever is the greater; or
- (c) in any case by more than 115 cubic metres.

Where the roof of the dwellinghouse, or part of it, is flat, the proviso at 5.15 ii applies. See also general commentary on height and flat roofs at paragraphs 5.8 and 5.9 above.

**The provision of heat pump ancillary housing and/or the fitting of an air collector to the wall of an existing dwellinghouse as an enlargement, improvement or other alteration of a dwellinghouse**

- 5.16 Class A of Part 1 permits development comprising 'The enlargement, improvement or other alteration of a dwellinghouse'. The Department considers that under Part 1 Class A, the provision of heat pump ancillary housing and/or the fitting of an air collector to the wall of an existing dwellinghouse may be undertaken as an enlargement, improvement or other alteration to the dwellinghouse provided that:
- i. the design and finishes are in conformity with those of the original dwellinghouse;
  - ii. the cubic content of the resulting building does not exceed the cubic content of the original dwellinghouse –
    - (a) in the case of a terrace house or in the case of a dwellinghouse in a conservation area, by more than 50 cubic metres or 10% whichever is the greater;
    - (b) in any other case by more than 70 cubic metres or 15% whichever is the greater; or
    - (c) in any case by more than 115 cubic metres;
  - iii. the enlargement, improvement or alteration do not cause the part of the building enlarged, improved or altered to exceed the height of the highest part of the existing roof;
  - iv. the enlargement, improvement or alteration do not cause any part of the resulting building to be nearer to any road which bounds its curtilage than the part of the original dwellinghouse nearest to that road;
  - v. the enlargement, improvement or alteration do not cause the part of the building enlarged, improved or altered to exceed 4 metres in height where it is within 3 metres of the boundary of the curtilage.

**The provision of heat pump ancillary housing and/or an air collector fitted to other buildings within the curtilage of a dwellinghouse**

- 5.17 Class D of Part 1 permits 'The provision within the curtilage of a dwellinghouse of any building or enclosure, swimming or other pool required for a purpose incidental to the enjoyment of the dwellinghouse, or the

maintenance, improvement or other alteration to such a building or enclosure'. The Department considers that under Part 1 Class D the provision of heat pump ancillary housing and/or the fitting of an air collector to other buildings within the curtilage of a dwellinghouse may be undertaken, as an alteration, to an existing building within the curtilage of the dwellinghouse or as part of a new building provided under Class D for a purpose incidental to the enjoyment of a dwellinghouse provided that:

- i. the building altered or provided does not become nearer to any road which bounds the curtilage of the dwellinghouse than the part of the original dwellinghouse nearest to that road;
- ii. the building altered or provided does not have a cubic content greater than 10 cubic metres and any part of it is not within 5 metres of any part of the dwellinghouse;
- iii. the height of the building altered or provided does not exceed 4 metres in the case of a building with a ridged roof or 3 metres in any other case;
- iv. the total ground area covered by the buildings altered or provided (other than the original dwellinghouse) does not exceed 50% of the total area of the curtilage (excluding the ground area of the original dwellinghouse);
- v. the building altered or provided does not have a cubic content greater than 10 cubic metres where it is on land within a conservation area, an area of outstanding natural beauty, a National Park, or within the curtilage of a listed building.

### **Freestanding air collector**

5.18 The GDO provides by definition that "building" does not include plant and machinery or a structure or erection of the nature of plant or machinery. The Department considers that a freestanding air collector is plant and machinery. It is therefore not considered to be permitted development under Part 1 of Schedule 1 to the GDO.

### **Wind development**

5.19 Typical domestic wind development can range from the smaller, building (wall or roof) mounted turbines, to larger standalone turbines mounted on tall towers. The turbines may be either vertical axis type i.e. they rotate around a vertical axis, or more commonly, horizontal axis where the turbine blades rotate around a horizontal axis and the entire turbine is free to rotate through 360° around a vertical axis depending on wind direction.

5.20 Wind turbines are generally accounted to be 'plant and machinery' whether they are attached to a building or standalone. The GDO provides by definition that "building" does not include plant and machinery or a structure or erection of the nature of plant or machinery. The attachment of wind turbines to a dwellinghouse or their erection within the curtilage of a

dwellinghouse is therefore not considered to be permitted development under Part 1 of Schedule 1 to the GDO.

### **Hydro development**

- 5.21 The extent of development required for a hydro scheme will vary depending on the type of system being installed, whether it is a new installation or the refurbishment of an existing system and the local site topography. Development required may include engineering and building operations to construct dams or reservoirs to divert water to and from the turbine, the erection of a building/s to house equipment and power connections to buildings.
- 5.22 Some of the works might be granted planning permission through existing PD rights. However, due to the individual requirements of each installation it is likely that a planning application would be required for some element of the works. Also, Class D only grants PD rights for the provision (within the curtilage) of a building or enclosure. Although this would generally include any associated excavations ('engineering operations'<sup>21</sup>) required to facilitate the construction of a building or enclosure, standalone engineering operations e.g. construction of dams, channelling of water etc, would not be included and would therefore require express planning permission. It is normal practice that where a proposed development consists of both development that is permitted development and development requiring a planning application that the totality of the development is included in the planning application and obtains express planning permission.

### **Fuel cell**

- 5.23 Until working domestic fuel cell systems are produced, it is not possible to determine what the development requirements associated with such systems will be. General assumptions may be made that where additional ancillary housing is required, this may be provided by the existing PD rights in Part 1.

### **Combined Heat and Power**

- 5.24 It is difficult to fully assess what development may be required to facilitate domestic combined heat and power systems as many systems are still being developed. The Department is aware of only one operational system. This system is relatively small (approximately the size of an average dishwasher) and is designed to be fitted inside the building, replacing the existing boiler or burner in retro fit installations. Where no flue currently exists it will be necessary to install a horizontal or vertical balanced flue. If internal space is not available and additional ancillary housing is required, the existing PD rights identified for biomass (see paragraph 5.13) will equally apply to d-CHP.

### **Environmental Impact Assessment**

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<sup>21</sup> 'engineering operations' the general understanding of engineering operation is one on which an engineer could be employed, whether or not the work is actually supervised by an engineer.

- 5.25 In the majority of cases, the environmental effects of microgeneration development should not be a factor in relation to the application of permitted development rights or the processing of a planning application for such development. However, where a development involves the installation of more than two wind turbines, or the hub height of any turbine or height of any other structure for harnessing wind power for energy production exceeds 15 metres, an environmental statement under the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 1999 ('the EIA Regulations') (S.R. 1999 No73) is required. PD rights are withdrawn in such cases.

### **Listed Building Consent**

- 5.26 Article 42 of the 1991 Order requires the Department to compile lists of buildings of special architectural or historic interest. Such buildings are important for their intrinsic value and for their contribution to the character and quality of settlements in the open countryside of Northern Ireland.
- 5.27 Once a building is listed, Article 44 of the 1991 Order provides that consent is required for its demolition and for any works or alteration or extension in any manner which would affect its character as a building of special architectural or historic interest. This is referred to as "listed building consent" and planning permission is also required in addition to listed building consent if the works involve "development".
- 5.28 Irrespective of whether or not the proposed microgeneration development is PD, it is likely that listed building consent will also be required.

## 6.0 Proposed microgeneration PD rights

6.1 The Department is committed to putting in place a simplified regulatory regime for microgeneration development that features easily understood permitted development rights. Considering each technology in turn, what factors should determine the extent of development permitted and what restrictions, if any, should apply to the exercise of those permitted development rights? As discussed earlier, it is possible to carry out some microgeneration development under existing PD rights which are themselves subject to certain constraints. These were not, however, designed to facilitate renewable energy development and the circumstances in which development is not permitted and conditions that apply may not be appropriate. The Department therefore believes that a simplified regulatory regime entails providing permitted development rights that are specifically for microgeneration and not reliant on interpretation of existing PD rights. The issues relating to those PD rights are discussed below.

### Solar Collector Development

6.2 Typical solar collector development is described in paragraph 5.4 above.

### Solar Panels fitted to the roof of a dwellinghouse

6.3 Existing Part 1 PD rights allow the installation of solar panels in a range of locations. Class B grants PD rights for the enlargement, improvement or other alteration of a dwellinghouse consisting of an addition or alteration to its roof. There are a number of requirements in B.1 of Class B which must be complied with if PD rights are to apply:

6.4 **a. the design and external finishes must be in conformity with those of the original dwellinghouse**

6.5 Solar panels by their nature are placed on the outside of buildings and will therefore be visible. They are mainly dark in colour and have a reflective surface although alternatives have recently been developed, especially in the replacement roof tile sector, with a more traditional design and material finish. The extent to which they impact on visual amenity is dependent on a range of factors which are site and building specific, e.g. the design and finishes of the existing roof or building, the exposure of the site. While the extent to which design and finishes of a solar panel can be in conformity with those of the original dwellinghouse would be a matter of judgment, it would be difficult, if not impossible, to comply with this requirement. It is also a requirement that is open to interpretation and its application would not be line with the Department's objectives outlined at paragraph 6.1. The Department does not therefore propose to apply this requirement to solar panels attached to the outside of a dwellinghouse.

6.6 Option tabled for comment is:

i. do not apply this constraint to solar panels fitted to a roof.

6.7 **b. any part of the dwellinghouse, as a result of the works,**

**exceeds the height of the highest part of the existing roof**

6.8 Solar panels would exceed the height of the highest part of the existing roof when fitted as follows (see paragraphs 5.8 - 5.9 above for commentary on the highest part of a roof):

1. close to the ridge of the roof where the depth of the panel results in the top of the panel exceeding the height of the roof;
2. close to the ridge of the roof and where the panels are raised above the plane of the roof and inclined towards the sun, resulting in them exceeding the height of the roof;
3. on a flat roof which is the highest roof of the dwellinghouse.

Fitting panels lower down a roof slope can avoid 1. and 2. Panels laid flat on a flat roof would be similar to a roof light and as long as a panel did not extend more than 15 centimetres above the roof plane (see paragraph 6.10) might be considered de minimis. However, not being inclined towards the sun would reduce efficiency and possibly, lead to increased maintenance (cleaning) costs. The Department would therefore wish to permit solar panels fitted to a flat roof to be inclined above the roof plane subject to certain constraints in designated areas (see paragraph 6.22 - 6.23). It proposes in the case of a flat roof that a solar panel could be permitted to project up to 1.5 metres above the plane of the roof, except that, in a designated area, the solar panel must not be visible from a road. This would enable a 2 metre solar panel to be tilted at an optimum angle.

6.9 Option tabled for comment is:

- i. retain the highest part of the roof constraint for solar panels fitted to a ridged roof and allow solar panels fitted to a flat roof to project up to 1.5 metres above the plane of the roof.

6.10 **c. any part of the dwellinghouse, as a result of the works, extends more than 15 centimetres beyond the plane of any existing roof slope which fronts any road**

6.11 In England the guidance set out in technical annex 6 of the companion guide to PPS22.<sup>22</sup> paragraph 13 states that in general solar panels should be encouraged and that provided the panels are not of an unusual design, do not involve a listed building and are not in a designated area, they should be treated as being within the plane of the existing roof slope for the purposes of Part 1, Class B.1(b) of Schedule 2 to the Town and Country Planning (General Permitted Development ( Order) 1995 ('the GPDO'). Class B permits 'the enlargement of a dwellinghouse consisting of an addition or alteration to its roof' and restriction B.1(b) excludes development where any part of the dwellinghouse would, as a result of the works, extend beyond the plane of

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<sup>22</sup> Planning for Renewable Energy A Companion Guide to Planning Policy Statement 22 published in 2004 by the then Office of the Deputy Prime Minister (ODPM) now the Department for Communities and Local Government (DCLG)

the roof slope which fronts any highway. The guide represented a change in the approach to be taken with regard to solar panels. These were previously considered under Class C 'any other alteration to the roof of a dwellinghouse' and found to require a planning application on the grounds that they breached Class C.1 - development is not permitted by Class C if it would result in a material alteration to the shape of the dwellinghouse. Enforcement action had been successfully taken in England against panels which projected 8cm and 12cm from the plane of the roof.

- 6.12 The GPDO and GDO differ in this restriction insofar as the GPDO Class B does not permit any development which would extend beyond the plane of any existing roof slope which fronts any highway, while the GDO allows development up to 15 centimetres beyond the plane of any existing roof slope which fronts any road. The Department's understanding is that the industry can fit panels (where they are to be laid flat onto the roof slope), within the existing 15 centimetre limit.
- 6.13 Where the orientation of the dwellinghouse does not facilitate the panels being laid flat onto the roof slope and facing south, the panels may have to be raised on one side to face the sun, resulting in the panels exceeding the 15 centimetre restriction. This may be considered to be a less 'natural' method of fitting panels and as such, more visually intrusive than panels laid flat on the roof slope. The Department feels therefore that the existing restriction, i.e. panels may not exceed 15 centimetres above the plane of that part of the roof fronting onto any road, modified to 'facing onto and visible from a road' should be applied. This still allows, of course solar panels fitted on a roof slope **not facing onto and visible from a road** to be tilted since the height constraint there is the highest part of the roof (see paragraphs 6.8 and 6.9).
- 6.14 Option tabled for comment is:
- i. apply this constraint to solar panels fitted to a roof slope which faces onto and is visible from a road.
- 6.15 **d. it increases the cubic content of the dwellinghouse by more than 20 cubic metres, in the case of a terrace house, or 25 cubic metres in any other case; or**
- 6.16 **e. the cubic content of the resulting building exceeds the cubic content of the original dwellinghouse:**
- (i) in the case of a terrace house by more than 50 cubic metres or 10% whichever is the greater;**
  - (ii) in any other case by more than 70 cubic metres or 15% whichever is the greater; or**
  - (iii) in any case by more than 115 cubic metres**
- 6.17 Class B applies a limit to the volume of development it permits. These volume limits control the scale of alterations or additions such as dormers and it is

therefore debatable whether they are relevant to microgeneration PD rights. Action Renewables advise that for a typical household, the area of solar water heating panels would be 3 to 4 square metres and for a photovoltaic panel array, an output of 1.5 kilowatt peak, equating to 10 square metres would meet 30% of the annual electricity needs. PV panel outputs vary and currently range from approximately 7 to 18 square metres per kilowatt peak. The Department is therefore of the opinion that for a typical domestic installation, the area of panels installed may be 'self limiting'. Additional heated water over and above normal usage is of little value and although in theory, electricity could be generated and sold to the grid, the current cost of PV panels makes this uneconomic on a commercial basis. The Department therefore feels that restricting the quantity of solar panels fitted to a roof through volume limits is unnecessary.

- 6.18 Also, as Part 1 volume restrictions are currently cumulatively calculated, solar panels fitted to a roof would reduce the overall volume allowance of permitted development rights as they would be included in calculation of the resultant building. The interpretation of Part 1 defines,

““resultant building” means the dwellinghouse as enlarged, improved or altered, taking into account any enlargement, improvement or alteration to the original dwellinghouse, whether permitted by this Part or not.”

Article 2(1) of the GDO defines,

““cubic content” means the cubic content of a structure or building measured externally.”

To eliminate any potential confusion over the volumetric calculation of what should be a relatively minor volume, the Department feels that the volume of solar panels fitted to the roof of a dwellinghouse should not be included in the calculation of the resultant building.

- 6.19 Options tabled for comment are:

- i. do not apply this constraint to solar panels fitted to a roof; and
- ii. do not control the area of the roof covered by solar panels (on the basis that they will be self limiting).

6.20 **f. the dwellinghouse is in a conservation area**

- 6.21 Class B PD rights do not apply in conservation areas. This restriction is intended to protect the character or appearance of an area of special architectural or historic interest.

- 6.22 However, recent amendments to Part 1 Class G and Part 18 of the GDO reflect a more targeted and consistent approach by the Department to restricting PD rights in designated areas, including conservation areas. Class G grants PD rights for ‘the installation, alteration or replacement of a microwave antenna on a dwellinghouse or within the curtilage of a dwellinghouse’. The previous restriction G.1(f) removed the PD right in a conservation area, an area of outstanding natural beauty or a National Park.

The amended Class G PD rights however have relaxed this restriction and now only exclude such development where:

G.1- (d) in the case of a dwellinghouse situated within a designated area, it would consist of the installation of an antenna –

- (i) on a chimney, wall or roof slope which faces onto, and is visible from, a road;
- (ii) on a building which exceeds 15 metres in height.

Article 2(1) of the GDO has also been amended to define:

“designated area means a Conservation Area, an Area of Outstanding Natural Beauty (AONB), an Area of Special Scientific Interest (ASSI), or a National Park.”

A similar amendment has been made to Part 18 Class A and this restriction has been applied in Part 18 Class B where previously there was no restriction on the PD rights in designated areas.

6.23 The effect of the foregoing is that in both Part 1 Class G and Part 18, development in a conservation area is permitted provided it is not facing onto and visible from a road. Also, the reference to designated areas as defined provides a consistent approach to the protection given to such areas, The key feature, however, is that where appropriate, these areas can now benefit from PD rights, yet still have their public visual amenity protected. Class G was amended to assist the government to meet commitments for the uptake of digital television and broadband internet connections by removing, where possible, the need and cost of a planning application for proposed development. A similar approach may be justified to assist the government in meeting its obligations with regard to the reduction of carbon emissions through renewable energy development. The Department suggests that PD rights should allow the fitting of solar panels to the roof of a dwellinghouse in a designated area provided, in the case of a sloping roof, the roof slope does not face onto and is not visible from a road, and in the case of a flat roof, the solar panel is not visible from a road.

6.24 Options tabled for comment are:

- i. in designated areas (as defined in Article 2(1) of the GDO) allow fitting of solar panels to a roof provided that:
  - a. in the case of a ridged roof, the roof slope does not face onto and is visible from a road; and
  - b. in the case of a flat roof, no part of a solar panel is visible from a road.

6.25 **Other considerations**

6.26 The Department is of the opinion that in all cases solar panels should be limited to the boundaries of the existing roof and should not project beyond

the existing roof edges.

6.27 Option tabled for comments is:

- i. limit solar panels to the boundaries of the existing roof.

### **Solar panels fitted to the wall of a dwellinghouse**

6.28 Class A permits the enlargement, improvement or other alteration of a dwellinghouse. The erection within the curtilage of a dwellinghouse of any building with a cubic content greater than 10 cubic metres is treated as the enlargement of the dwellinghouse where –

- (i) the dwellinghouse is in a conservation area; or
- (ii) in any other case, any part of that building is within 5 metres of any part of the dwellinghouse.

There are a number of requirements in A.1 of Class A which must be complied with if PD rights are to apply:

6.29 **a. the design and external finishes are not in conformity with those of the original dwellinghouse**

6.30 Similar to solar panels fitted to the roof of a dwellinghouse (see paragraphs 6.4 – 6.6) the extent to which solar panels impact on visual amenity is dependent on a range of factors which are site and building specific, e.g. the design and finishes of the existing roof or building, the exposure of the site. The properties of solar panels are specific to their function. While the extent to which their design and finishes can be in conformity with those of the original dwellinghouse is a matter of judgment, it would be difficult, if not impossible, to comply with this requirement. It is also a requirement that is open to interpretation and its application would not be in line with the Department's objectives outlined at paragraph 6.1. The Department does not therefore propose to apply this requirement to solar panels attached to the wall of a dwellinghouse.

6.31 Option tabled for comment is:

- i. do not apply this constraint to solar panels fitted to the wall of a dwellinghouse.

6.32 **b. the cubic content of the resulting building exceeds the cubic content of the original dwellinghouse:**

- (i) **in the case of a terrace house by more than 50 cubic metres or 10% whichever is the greater;**
- (ii) **in any other case by more than 70 cubic metres or 15% whichever is the greater; or**
- (iii) **in any case by more than 115 cubic metres**

- 6.33 As discussed in paragraph 6.17 above, the Department is of the opinion that for a typical domestic installation, the area of panels installed will to a certain extent be self limiting. Additional heated water over and above normal usage is of little value and although in theory, electricity could be generated and sold to the grid, the current cost of PV panels makes this uneconomic on a commercial basis. The Department therefore feels that restricting the quantity of solar panels fitted to walls is unnecessary.
- 6.34 Under current Part 1 volume calculations, solar panels fitted to a wall would also reduce the volume of permitted development available as they would be included in calculation of the resultant building (see paragraph 6.18). To eliminate any potential confusion over the volumetric calculation of what should be a relatively minor volume, the Department does not propose to apply this constraint to solar panels fitted to the wall of a dwellinghouse.
- 6.35 Option tabled for comment is:
- i. do not apply this constraint to solar panels fitted to the wall of a dwellinghouse.
- 6.36 **c. the part of the building enlarged, improved or altered exceeds the height of the highest part of the roof of the original dwellinghouse**
- 6.37 Solar panels fitted to a wall of a dwellinghouse would exceed the height of the roof of the original dwellinghouse when they:
- (i) are fitted to a wall and project beyond the highest part of the roof;
  - (ii) are fitted to an existing wall which is higher than the highest part of the roof e.g. the chimney.
- The scenario at (i) is addressed at paragraph 6.52 and by the proposed constraint at paragraph 6.53. Restricting any part of a solar panel to within the boundaries of the wall to which it is attached effectively means that, it could not exceed the highest part of the roof of the existing dwellinghouse. However, consistent with its approach to solar panels fitted to a roof, the Department considers that solar panels fitted to a chimney should not exceed the highest part of the existing roof.
- 6.38 Option tabled for comment is:
- i. Solar panels fitted to the wall of a chimney should not be allowed to exceed the highest part of the existing roof.
- 6.39 **d. any part of the resulting building is nearer to any road which bounds its curtilage than the part of the original dwellinghouse nearest to that road**
- 6.40 Historically, this restriction is intended to protect roads from development which because of its proximity to the road, could be detrimental to the road and its further improvement, or to road users. As far as PD rights are

concerned, this sort of restriction is in addition to the 'blanket' protection for roads given by Article 3(5) of the GDO which provides that "The permission granted by Schedule 1 shall not, except in relation to development permitted by Parts 9 and 11, authorise any development which requires or involves the construction, formation, laying out or alteration of a means of access to an existing road which is a special, trunk or classified road or which creates an obstruction to the view of persons using any road at or near any crest, bend, corner, junction or intersection so as to be likely to cause danger to such persons." The question is – are solar panels attached to the walls of a dwellinghouse an issue in relation to roads or road users? If the existing restriction were retained - possibly the most common 'nearest' part of a dwellinghouse would be the eaves and therefore solar panels fitted flat to a wall would most likely be permissible within this restriction as they are unlikely to be closer to the road than the eaves. Panels inclined to the wall horizontally or tilted vertically towards the sun to improve efficiency, could extend beyond the eaves and, if so, would be excluded from PD rights by this restriction. The Department feels that this restriction, which is not aimed at visual amenity, may not be necessary to protect roads and roads users, over and above the protection afforded by Article 3(5) of the GDO and might be dispensed with unless some detrimental impact upon roads or road users is identified.

6.41 Option tabled for comment is:

- i. do not apply this requirement.

6.42 e. **the part of the building enlarged, improved or altered is within 3 metres of the boundary of the curtilage of the dwellinghouse and exceeds 4 metres in height**

6.43 This constraint is intended to protect adjacent properties from overshadowing which could be caused by tall development close to the boundary of the curtilage. This could occur in the case of solar panels where they are tilted out from the wall to which they are fitted to achieve optimum efficiency. The Department proposes that where an existing wall is within 3 metres of the curtilage and is higher than 4 metres, panels fitted to the wall and extending higher than 4 metres should not extend more than 15 centimetres beyond the plane of the wall. On the other hand, where panels fitted to the wall do not extend higher than 4 metres, this constraint would not apply and they could be tilted at the optimum angle.

6.44 Option tabled for comment is:

- i. where any part of a solar panel fitted to wall within 3 metres of the boundary of the curtilage extends above 4 metres in height the panel must not extend more than 15 centimetres beyond the plane of the wall.

6.45 f. **the total area of ground covered by buildings within the curtilage (other than the original dwellinghouse) exceeds 50% of the total area of the curtilage (excluding the ground area of the original dwellinghouse)**

- 6.46 Solar panels fitted to the wall of a dwellinghouse will most likely be fitted above ground level to avoid shadows and protect against damage. They would therefore not create an area of development within the curtilage as they do not touch the ground. Where panels are supported from the ground as well as being fitted to the building, an area of development could be quantified. However, the Department feels that this restriction may be irrelevant.
- 6.47 Option tabled for comment is:
- i. this constraint should not apply to solar panels fitted to the wall of a dwellinghouse.
- 6.48 **i. it would consist of or include the erection of a building within the curtilage of a listed building**
- 6.49 The attachment of solar panels to an existing wall would not constitute the erection of a building within the curtilage. Moreover, the attachment of solar panels to the wall of a listed building would require listed building consent. However, it is considered that attaching solar panels to the wall or roof of a dwellinghouse which is a listed building should not be permitted development and should be considered on a case by case basis through the planning application process.
- 6.50 Option tabled for comment is:
- i. development comprising the fitting of solar panels to the wall or roof of a dwellinghouse should not be permitted where the dwellinghouse is a listed building.
- 6.51 **Other considerations**
- 6.52 The height of solar panels relative to the wall to which they are attached has been discussed at paragraph 6.43 in the context of development within 3 metres of the boundary of the curtilage of the dwellinghouse. This is also an issue however as regards visual amenity generally. The Department considers that they should generally not project above the height of the wall to which they are attached and in the case of gable walls they should not project above the plane of the existing roof, i.e. they should be confined to the boundaries of the wall to which they are attached.
- 6.53 Option tabled for comments is:
- i. solar panels not to project beyond the boundaries of the wall to which they are attached.
- 6.54 **Facing onto and visible from a road**
- 6.55 See comments on PD rights at paragraphs 6.22 and 6.23 on the attachment of solar panels facing onto and visible from a road in designated areas. The Department considers that similar constraints should apply to solar panels

attached to walls but as they are more likely to be in the eyeline and thereby more obtrusive, this should be applied in all areas.

6.56 Option tabled for comment is:

- i. solar panels not to be permitted where they are fitted to existing walls or walls of existing buildings which face onto and are visible from a road.

**Solar panels fitted to other buildings within the curtilage of a dwellinghouse.**

6.57 Class D permits the provision within the curtilage of a dwellinghouse of any building or enclosure, swimming or other pool required for a purpose incidental to the enjoyment of the dwellinghouse, or the maintenance, improvement or other alteration to such a building or enclosure. There are a number of requirements in D.1 of Class D which must be complied with if PD rights are to apply. It would be possible for a person, subject to the existing constraints in Class D, to exercise PD rights under Class D to provide a building or enclosure to which he might wish to attach solar panels. It may also be possible under Class D to attach solar panels to such buildings as an improvement or other alteration. As regards the attachment of solar panels, the Department considers that its comments at paragraphs 6.3 – 6.27 (solar panels fitted to the roof of a dwellinghouse) and 6.28 – 6.56 (solar panels attached to an existing wall or the wall of an existing building) apply as they apply to dwellinghouses. The constraints at Class D.1(a) and (d) are the same as in Class A so no further comment is required. As regards the remaining constraints:

6.58 **b. any building to be constructed or provided has a cubic content greater than 10 cubic metres and any part of it is within 5 metres of any part of the dwellinghouse**

6.59 This is not considered relevant to the fitting of solar panels to the wall or roof of an existing building within the curtilage of a dwellinghouse or to the wall of an existing enclosure. See general comments at paragraph 6.17 in relation to volume limits vis-a-vis solar panels. The fitting of solar panels to the wall of an existing building within the curtilage of a dwellinghouse or to the wall of an existing enclosure could conceivably bring it within 5 metres of part of the dwellinghouse but this is not thought to be a material consideration.

6.60 Option tabled for comment is:

- i. do not apply this constraint to the fitting of solar panels to the roof or wall of an existing building within the curtilage of a dwellinghouse and the attachment of solar panels to an existing wall, including that of an enclosure, within the curtilage of a dwellinghouse.

6.61 **c. the height of the building or enclosure to be constructed or erected exceeds-**

- (i) 4 metres, in the case of a building with a ridged roof; or**

**(ii) 3 metres in any other case**

6.62 This is not considered relevant to the fitting of solar panels to the wall or roof of an existing building within the curtilage of a dwellinghouse or to the wall of an existing enclosure. Where panels are attached to the roof of a building within the curtilage of dwellinghouse, they should not exceed the height of the existing roof (see paragraphs 6.7 – 6.9). Where panels are attached to the wall of an existing building within the curtilage of dwellinghouse or to an existing wall, including that of an enclosure, they should extend beyond the boundaries of the wall (see paragraphs 6.52 – 6.53).

6.63 Option tabled for comment is:

- i. do not apply this constraint to the fitting of solar panels to the roof or wall of an existing building within the curtilage of a dwellinghouse and the attachment of solar panels to an existing wall, including that of an enclosure, within the curtilage of a dwellinghouse.

6.64 e. **in the case of land within a conservation area, an area of outstanding natural beauty, a National Park, or land within the curtilage of a listed building, it consists of the provision, alteration or improvement of a building with a cubic content greater than 10 cubic metres**

6.65 The volume limit is not considered relevant to the fitting of solar panels to the wall or roof of an existing building within the curtilage of a dwellinghouse or to the wall of an existing enclosure. As regards the exercise of such PD rights within a conservation area, an area of outstanding natural beauty or a National Park, see the Department's comments at paragraphs 6.22 and 6.23. The Department considers that in designated areas (as defined in Article 2(1) of the GDO) PD rights should not apply to attaching solar panels to the roof of existing buildings where the roof faces onto and is visible from a road. In all areas (see paragraphs 6.54 – 6.56), PD rights should not apply to attaching solar panels to walls or walls of existing buildings which face onto and are visible from a road. As regards the exercise of PD rights within the curtilage of a listed building see paragraphs 6.48 – 6.50, the Department considers that attaching solar panels to the roof or walls of a building or an existing wall within the curtilage of a listed building should not be permitted development.

6.66 Options tabled for comment are:

- i. do not apply this constraint but exclude:
  - a. in a designated area, the fitting of solar panels to a roof slope which faces onto and is visible from a road and the fitting of solar panels to a flat roof where any part of the solar panel would be visible from a road;
  - b. the fitting of solar panels to existing walls or walls of existing buildings which face onto and are visible from a road; and,
  - c. the fitting of solar panels to the roof or walls of a building or an

existing wall within the curtilage of a listed building,  
from microgeneration permitted development rights.

**6.67 Other considerations**

6.68 No other considerations have been identified.

**Freestanding solar panels within the curtilage of an existing dwellinghouse**

6.69 Class D contains PD rights for the provision of a 'building', defined in the GDO as -

"building" does not include plant or machinery or a structure or erection of the nature of plant or machinery, and in Schedule 1 does not include any gate, fence, wall or other means of enclosure but except as aforesaid includes any structure or erection and any part of a building as so defined.

Freestanding solar panels, particularly perhaps where they include a tracking mechanism to keep them facing the sun, are considered to be plant and machinery or of the nature of plant or machinery and would not therefore be permitted under Part 1 of Schedule 1 to the GDO. The Department considers, however, that freestanding solar panels should benefit from suitable microgeneration PD rights, subject to appropriate restrictions and taking account of the commentary on existing PD rights restrictions discussed earlier.

6.70 Option tabled for comment is:

i. microgeneration PD rights should allow freestanding solar panels subject to suitable restrictions.

6.71 Freestanding solar panels may in many cases be more flexible with regard to siting within the curtilage of a dwellinghouse. However, they still have the potential to impact on their surroundings. The Department considers that suitable constraints can help guide the installation of freestanding solar panels in a sympathetic manner.

**Proximity to a road**

6.72 Although of the nature of plant and machinery, the Department considers freestanding solar panels to be similar to building operations in Part 1 Classes A and D of the GDO which can lead to development nearer to a road than the nearest part of the existing dwellinghouse which could be detrimental to both visual amenity and road safety. The Department therefore proposes that freestanding solar panels should not be permitted nearer to any road which bounds the curtilage than the part of the dwellinghouse nearest to that road.

6.73 Option tabled for comment is:

- i. do not allow freestanding solar panels where any part of a solar panel is nearer to any road which bounds the curtilage than the part of the dwellinghouse nearest to that road.

### **Scale**

- 6.74 For solar panels fitted to the roof or wall of a dwellinghouse or to other buildings or walls within the curtilage of a dwellinghouse the Department has adopted the approach that the area of panels fitted would be self limiting due to the finite needs of a household for hot water and the high cost of PV panels (see paragraph 6.33). Additional constraints also limit the area of panels by excluding their fitting in certain locations and keeping them within the boundaries of a roof or wall. Freestanding panels however do not readily lend themselves to this range of controls. The Department considers therefore that an upper limit on the area of panels permitted is needed. Action Renewables advise that, for a typical household, the total area of solar panels needed would be 14 square metres (see paragraph 6.17). The Department therefore proposes that the area of freestanding solar panels permitted should be limited to 14 square metres.
- 6.75 Option tabled for comment is:
- i. limit the area of freestanding solar panels allowed within the curtilage of a dwellinghouse to 14 square metres.

### **Height**

- 6.76 The current height restrictions in Part 1 Class D limit development to 4 metres for a building with a ridged roof or 3 metres in any other case. As with solar panels on a flat roof, the Department wishes to facilitate freestanding solar panels, with the possibility of tracking mechanisms so that the panels can be tilted etc. at optimum angles. The issues are whether permitted development rights should be different for designated areas than they are elsewhere or should there be a height limit that applies everywhere? Also, in the case of solar panels fitted to a flat roof the proposed constraint is that no part of the solar panel should be visible from a road – should this also apply to freestanding solar panels? The Department proposes that the height limit for freestanding solar panels should be 1.5 metres with the proviso that in a designated area, no part of the panels should be visible from a road.
- 6.77 Options tabled for comment are:
- i. freestanding solar panels within the curtilage of a dwellinghouse should not exceed 1.5 metres in height; and
  - ii. in a designated area, no part of the solar panels is to be visible from a road.

### **Listed Buildings**

- 6.78 Part 1 Class A PD rights exclude development within the curtilage of a listed building (see paragraphs 6.48 – 6.50). Consistent with proposals for solar panels fitted to roofs and walls within the curtilage of a dwellinghouse, the

Department considers that freestanding solar panels should not be permitted development within the curtilage of a listed building.

6.79 Option tabled for comment is:

- i. freestanding solar panels not to be permitted development within the curtilage of a listed building.

### **Biomass Development**

6.80 Typical biomass development is described in paragraph 5.4 above. Any enlargement, improvement or other alteration to a dwellinghouse, or the provision, alteration or improvement of any building or enclosure within the curtilage of a dwellinghouse, required to facilitate the use of biomass is subject to the existing Schedule 1 Part 1 Classes A and D permitted development rights.

### **Biomass fuel storage containers**

6.81 Class F grants PD rights for the erection or provision, within the curtilage of a dwellinghouse, of a container for the storage of oil or liquefied petroleum gas for domestic purposes. There are a number of requirements in F.1 of Class F which must be complied with if PD rights are to apply:

6.82 **a. the capacity of the container exceeds-**

**(i) 3,500 litres, in the case of oil; or**

**(ii) 2,500 litres, in the case of liquefied petroleum gas**

6.83 Bio-heating oil is a blend of bio and regular heating oil and uses the existing oil storage and burning equipment. Bio heating oil is not yet commercially available in Northern Ireland. However, it is anticipated that deliveries of bio-heating oil will most likely be similar to that of regular heating oil (quantity, method etc). The Department considers that the existing PD rights for the storage of oil are sufficient to accommodate the needs of bio-heating oil and suggests that these be extended to specifically refer to bio-heating oil storage.

6.84 Biomass solid fuel currently available commercially includes tree logs, wood chip and wood pellets. Small quantities of logs and pellets are available as 'cash and carry' requiring little storage volume and would be used mainly for standalone fires. Biomass central heating systems more commonly utilise a mechanical self feed fuel system and for economic and convenience reasons, are geared towards a bulk delivery and storage system. Bulk wood chip is currently available with a minimum delivery quantity of 4 tonnes. Density of wood chip depends on the moisture content and ranges from 3 to 6 cubic metres per tonne therefore the volume of storage required to facilitate a 4 tonne delivery would be 12 to 24 cubic metres. For domestic heating, wood chip systems are less common than wood pellet systems. Biomass wood pellet minimum delivery is currently 3 tonnes which equates to approximately 5 to 5.5 cubic metres. A storage capacity of 6 cubic metres is recommended

to provide some reserve. Wood pellets can be stored inside a building or alternatively in a dedicated storage container. Containers can be placed above or below ground level and are required to keep the pellets dry. Ventilation is necessary, especially allowing air to escape as the delivered fuel is being blown into the container. Underground storage systems are normally more expensive but may provide a solution where space is limited or there are concerns about protection of the built heritage. The visible elements of an underground system are reduced to the delivery connections and possibly the pipe/s to transfer pellets to the burner. With above ground storage systems, all of the equipment is visible. If restricted to the minimum operational storage capacity of 6,000 litres, above ground storage containers would still be significantly larger in comparison to an oil container of 3,500 litres. The Department therefore suggests that a limit of 6,000 litres be applied to above ground biomass solid fuel storage container PD rights. No capacity restriction is proposed on below ground storage.

6.85 Options tabled for comment are:

- i. the existing PD rights for oil storage should be extended to include bio heating oil;
- ii. a capacity limit of 6,000 litres should be applied to an above ground solid biomass storage container only;
- iii. no capacity restriction to apply to below ground solid biomass storage.

6.86 **b. any part of the container is above the level of the ground by more than-**

**(i) 3 metres, in the case of an oil container; or**

**(ii) 2 metres, in the case of a liquefied petroleum gas container**

6.87 The bottom of a wood pellet storage container is normally sloped to guide the pellets (under gravity) into a central point where they can be transferred to the burner by an auger, vacuum or similar transfer system. Containers therefore require height to allow all of the pellets to “run” to the pick up point. The Department feels that a 3 metre height limit, similar to that applied to oil containers in Class F would be adequate for wood pellet containers.

6.88 Option tabled for comment is:

- i. apply a limit of 3 metre height limit to above ground solid biomass fuel storage containers.

6.89 **c. any part of the container is nearer to any road which bounds the curtilage than the part of the original building nearest to that road**

6.90 As discussed in paragraph 6.40, the Department considers that this restriction should apply to biomass development. Consistent with that, it should apply to any solid biomass fuel storage container, whether above or below ground.

6.91 Option tabled for comment is:

- i. no part of a solid biomass fuel storage container, whether above or below ground to be nearer to any road which bounds the curtilage than the part of the dwellinghouse nearest to that road.

6.92 **Other considerations**

#### **Sites of archaeological interest**

6.93 PPS 6<sup>23</sup> highlights the importance of sites of archaeological interest and the need to protect them where possible. Archaeological remains are a limited, finite and non-renewable resource, in many cases highly fragile and vulnerable to damage and destruction. Care must be taken to ensure that archaeological remains are not needlessly or thoughtlessly damaged or destroyed. They can contain irreplaceable information about our past and the potential for an increase in future knowledge, which, once destroyed, cannot be replaced. They are valuable both for their own sake and for their role in education, leisure and tourism. The surroundings of any site or monument can provide further evidence about why that particular location was chosen for use and how it was used. Such information can come from below-ground remains or other sites or monuments. Protecting sites and monuments and their settings is therefore the means of maximising survival of information about our past. The Department therefore proposes that PD rights for underground solid biomass storage tanks should be withdrawn within sites of archaeological interest.

6.94 Option tabled for comment is:

- i. remove PD rights for underground solid biomass fuel storage containers within a site of archaeological interest.

### **Heat Pump Development**

6.95 Typical heat pump development is described in paragraph 5.4 above. Development associated with heat pumps that involves the enlargement, improvement or other alteration to a dwellinghouse, or the provision, alteration or improvement of any building or enclosure within the curtilage of a dwellinghouse, is subject to the existing Schedule 1 Part 1 Classes A and D permitted development rights. In addition to Part 1 PD rights, the Department considers that the following heat pump development could benefit from PD rights subject to consideration of relevant issues and the application of suitable restrictions.

#### **Sites of archaeological interest**

6.96 Ground source heat pumps (see paragraph 4.15) collect heat from the ground via a collector loop placed either in a shallow trench of 1 to 2m depth, or deeper boreholes of 15 to 100m. This involves excavations below ground

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<sup>23</sup> Planning Policy Statement 6 Planning, Archaeology and the Built Heritage

level which may be extensive. Consistent with the Department's view on the protection of sites of archaeological interest in relation to underground solid biomass fuel storage (see paragraphs 6.93 - 6.94), the Department considers that PD rights should be withdrawn for ground source heat pumps within sites of archaeological interest.

6.97 Option tabled for comment is:

- i. remove PD rights for the provision of a ground source heat pump system within the curtilage of a dwellinghouse where the underground elements of the heat pump are within a site of archaeological interest.

### **Designated areas**

6.98 An air source heat pump (ASHP) is considered to be plant and machinery and where all or part of the equipment is not installed within an existing dwellinghouse or building permitted under Part 1, PD rights could require a planning application. Where this is the case, the Department would wish to facilitate air source heat pumps subject to appropriate constraints, related to existing constraints in Part 1 PD rights and the Department's consideration of issues specific to air source heat pumps.

6.99 Air source heat pumps even where the heat pump itself is internal to the building require an external air module which might be mounted at ground level, on a wall or on a flat roof. Alternatively, the entire heat pump and air module might be installed to 'standalone' within the curtilage of the building served. The heat pump internal to the building can be similar in appearance to a fridge freezer and the external air module similar in appearance to an air conditioning unit. This may vary from one manufacturer to another and there are also larger and smaller heat pumps. Whether an air source heat pump is installed internally or externally, it does have a certain degree of flexibility with regard to positioning and should be capable of being located to minimise its visual impact. The Department therefore proposes that, consistent with earlier thinking, in designated areas, an air source heat pump or any element of it such as an external air module, should not be permitted where it would face onto and be visible from a road.

6.100 Option tabled for comment is:

- i. in designated areas, an air source heat pump or any external element of the heat pump within the curtilage of a dwellinghouse must not face onto and be visible from a road.

### **Listed buildings**

6.101 PD rights in Part 1 Class D do not permit development where "in the case of land within a conservation area, an area of outstanding natural beauty, a National Park, or land within the curtilage of a listed building, it consists of the provision, alteration or improvement of a building with a cubic content greater than 10 cubic metres." The Department has indicated (see paragraphs 6.22 – 6.24) its intention to develop a more consistent approach to PD rights in designated areas and has suggested that in relation to heat

pumps in designated areas, they should not be permitted where they face onto and are visible from a road. In addition the Department proposes that within the curtilage of a listed building, the ASHP, its housing or where appropriate an external air module, should not exceed 10 cubic metres.

6.102 Option tabled for comment is:

- i. limit a heat pump or its housing to 10 cubic metres within the curtilage of a listed building.

### **Overshadowing**

6.103 To protect neighbouring property from overshadowing, Part 1 Class A PD rights exclude development within 3 metres of the boundary of the curtilage which exceeds 4 metres in height. The Department considers that this restriction should also be applied to ASHP development to guard against similar overshadowing. This should not create major difficulties due to the flexibility of ASHPs with regard to positioning.

6.104 Option tabled for comment is:

- i. provide that an air source heat pump or any part of it provided within the curtilage of a dwellinghouse must not exceed 4 metres in height where it is within 3 metres of the boundary of the curtilage of the dwellinghouse.

### **Proximity to roads**

6.105 Both Class A and Class D PD rights in Part 1 exclude development nearer to any road than the original dwellinghouse to protect roads interests (see paragraph 6.39 – 6.40). The Department considers that this restriction should also be applied to ASHP development.

6.106 Option tabled for comment is:

- i. provide that development is not permitted where any part of the heat pump or its housing is nearer to any road which bounds the curtilage than the part of the dwellinghouse nearest to that road.

6.107 **Other considerations**

### **Noise**

6.108 The fan and compressor associated with air source heat pumps generate more noise during operation than ground or water source units and could be considered a nuisance by neighbours. The noise level varies from one manufacturer to another and in relation to the capacity of the heat pump. Sound levels are measured in units called decibels (dB) and environmental noise levels are usually assessed in terms of A weighted decibels, the dB(A), where the A-weighting approximates to the response of the human ear. For one air source heat pump manufacturer, the noise level across the model range is stated to vary from 45 dB(A) to 61 dB(A) at 1 metre from the

outdoor unit. To put this in perspective, in the absence of any other noise, a normal conversation could generate a noise level of 60 dB(A) and a noisy office 70 dB(A). So could an air source heat pump be a noise nuisance, particularly at night when background noise levels can be lower? The World Health Organisation<sup>24</sup> (WHO) advises that "sleep disturbance is one of the most serious effects of environmental noise"<sup>25</sup>. Their guidelines state that for good sleep, sound levels should not exceed 30 dB(A) for continuous background noise and individual noise events exceeding 45 dB(A) should be avoided. An air source heat pump may be expected to generate a continuous noise level. However, sound levels reduce as the distance from the source increases. A reduction of up to 6 dB(A)<sup>26</sup> is said to occur with each doubling of distance from the source i.e. a noise level of 50 dB(A) at 5 metres from the source will reduce to 44 dB(A) at 10 metres from the source. Also the noise level outside a residential window could be reduced inside the room by double glazing by as much as 35 dB(A) (see Annex B). There are therefore a range of factors which could affect whether an air source heat pump in any specific case could give rise to a noise nuisance. These include the noise emitted by the pump itself, the distance from the neighbouring property, the 'normal' background noise level and so on.

6.109 In light of the foregoing, the Department considers that an air source heat pump could be detrimental to neighbouring amenity in some circumstances and is considering whether a minimum distance should be enshrined in permitted development rights for an air source heat pump from the nearest residential window of a neighbouring dwellinghouse. The question is what should that distance be? For example, if the noise emitted by the external elements of a heat pump at 1 metre from source was 60 dB(A) this could expect to be reduced at a distance of 5 metres to 46 dB(A) (see Annex C) and beyond that, inside a room with an open window to about 30 dB(A) and further reduced behind double glazing.

6.110 Options tabled for comment are:

- i. that to minimise the risk of a noise nuisance, an air source heat pump should be a minimum distance from the façade of the nearest residential window (not being a window within the curtilage of the dwellinghouse which it serves); and
- ii. views are invited on what the minimum distance should be – the Department suggests it could be 10 metres.

## **Wind Turbine Development**

6.111 Typical wind turbine development is described in paragraph 5.4 above. Wind turbine development, being 'plant and machinery', cannot avail of any existing Part 1 PD rights (see paragraph 5.20 above). Domestic wind turbines are available in a range of sizes. Action Renewables advise that turbines up to 2.5kW are typical for domestic use. These have a rotor diameter of

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<sup>24</sup> The United Nations specialised agency for health

<sup>25</sup> WHO "Noise and Sleep" factsheet

<sup>26</sup> British Standard 8233:1999 Sound insulation and noise reduction for buildings – Code of practice (section 5.5.3 Attenuating the noise)

approximately 1 to 3.5 metres and can be fitted to a building or mounted on a tall tower. Turbines fitted to a building are in the smaller range, up to approximately 1.5kW (rotor diameter of just over 2 metres).

- 6.112 All wind turbines require clear air, free of turbulence to operate efficiently. This requires them to be mounted at height, above existing roof tops, trees, etc and out of the 'shadow' of existing buildings. Turbines may be mounted at lower levels and in areas of turbulence; however, this will reduce their efficiency and may lead to undue wear and strain on component parts. The pay back period will also be extended which could result in the turbine not being economically viable.
- 6.113 The visual prominence of wind turbines may make it difficult to absorb them into the urban environment, especially in areas of protected built heritage. Tower mounted turbines have the added difficulty of incorporating the tower into the environment together with safety and overshadowing concerns for towers erected close to neighbouring property. Views are sought on whether it is feasible to provide PD rights for both building and tower mounted wind turbines that would assist rollout of the technology or is this a situation where each case should be considered on its merits through the planning application process?
- 6.114 Options tabled for comment are:
- i. should tower mounted wind turbines erected within the curtilage of a dwellinghouse require a planning application?;
  - ii. should building mounted wind turbines erected within the curtilage of a dwellinghouse require a planning application?

### **Wind turbines fitted to a dwellinghouse or to other buildings within the curtilage of a dwellinghouse**

- 6.115 If PD rights are contemplated for building mounted wind turbines, what restrictions should be applied, bearing in mind their ideal requirements (paragraph 6.167)?

#### **Designated Areas**

- 6.116 The height of a building mounted turbine will be crucial to its performance, but has a potentially significant visual impact. Existing Part 1 PD rights, relating to development within the curtilage of a dwellinghouse, protect the roofline by excluding development above the highest part of the existing roof (not including the chimney). In addition to this general prohibition, there is the issue of 'facing onto and visible from a road' development in designated areas. Consistent with the line taken in this paper so far, the Department considers that, in designated areas, building mounted roof turbines should not be permitted where the wall or roof to which they are fitted faces onto and is visible from a road. As indicated earlier, this is also consistent with the line taken in new PD rights recently introduced for microwave antenna. This is not to say that such development would not be possible in all cases but rather that, in such circumstances, each case in a designated area should be considered on its merits through the planning process.

6.117 Option tabled for comment is:

- i. in designated areas, wind turbines should not be attached to a wall or roof of a dwellinghouse or of a building within the curtilage of a dwellinghouse that faces onto and is visible from a road.

### **Height**

6.118 As indicated earlier, wind turbines require clear air from all directions for optimum performance. Where they are attached to a building this means erecting them so that they project above the highest part of the roof. Based on the information at paragraph 6.111, turbines fitted to a building are in the smaller range in terms of size, up to approximately 1.5kW (rotor diameter of just over 2 metres). This means that the topmost part of such a wind turbine would need to project more than 2 metres above the highest part of the roof, perhaps 3 metres to reduce the effect of turbulence created by the roof itself. Views are sought on what limits should be applied to the height of building mounted turbines.

6.119 Option tabled for comment is:

- i. the topmost part of a wind turbine attached to a dwellinghouse or to a building within the curtilage of a dwellinghouse must not project more than 3 metres above the highest part of the roof (excluding the chimney which is not part of the roof).

### **Size**

#### **Horizontal Axis Wind Turbines**

6.120 The rotor diameter of a wind turbine will have an obvious impact on visual amenity and may also determine the overall height of the fitted turbine. The Department could take the view that by setting a limit on the height of the topmost part of the turbine above the highest part of a roof it has effectively limited the rotor diameter that may be fitted without a planning application. However, this would assume that the wind turbine would not be fitted in a non-optimal position. The Department is therefore considering whether there should also be a limit on the rotor diameter of wind turbines fitted to a dwellinghouse or to a building within the curtilage of a dwellinghouse. Rotor diameters vary depending on output and manufacturer; current examples of building mounted turbines include:

1. Stealthgen D400 - output 0.4kW & rotor diameter 1.1 metres;
2. Windsave WS 1000 - output 1kW & rotor diameter 1.75 metres;
3. Renewable devices Swift 2 - output 1.5kW & rotor diameter 2.1 metres.

The Department suggests that the maximum rotor diameter permissible for building mounted wind turbines should be 2.5 metres.

6.121 Option tabled for comment is:

- i. the rotor diameter of a building mounted horizontal axis wind turbine should not exceed 2.5 metres.

### **Vertical Axis Wind Turbines**

6.122 A limit on the height of the topmost part of the turbine above the highest part of a roof could apply equally to vertical axis wind turbines. The Department is not aware of any commercially available building mounted vertical axis wind turbines and cannot advise on what 'typical' rotor dimensions may be. Views are sought however on what limits might be applied to these dimensions under PD rights.

6.123 Options tabled for comment are:

- i. should the rotor diameter of a building mounted vertical axis wind turbine be restricted to a maximum?; and if so,
- ii. what should the maximum diameter be?

### **Number of Turbines**

6.124 From the current advice available the Department feels that the size of a wind turbine suggested under these PD rights may provide a significant contribution to the energy needs of a dwellinghouse. The Department therefore proposes that PD rights should be limited to the provision of a single turbine within the curtilage of a dwellinghouse irrespective of whether it is attached to a building or standalone on a tower.

6.125 Option tabled for comment is:

- i. only one wind turbine to be permitted development within the curtilage of a dwellinghouse.

### **Noise**

6.126 The Department's comments about noise in relation to heat pumps at paragraphs 6.108 – 6.109 equally apply to wind turbines. Wind turbines generate both mechanical noise and noise from the passage of the blades of the wind turbine through the air and could be considered a nuisance by neighbours. The information available to the Department indicates that the noise from a domestic size wind turbine could range from 25 dB(A) to 85 dB(A) depending on the particular wind turbine (wind turbines from different manufacturers generate different noise levels), wind speed and where the noise is measured. An additional factor in the case of wind turbines is that the greater the wind speed, the greater the background levels of noise are likely to be against which the noise from the wind turbine will be perceived. Sound levels are measured in units called decibels (dB) and environmental noise levels are usually assessed in terms of A weighted decibels, the dB(A), where the A-weighting approximates to the response of the human ear. To put the potential noise from a wind turbine in perspective, a noise level of 25 dB(A) would be considered very quiet, similar to the noise level in a quiet rural area while a noise level of 85 dB(A) would be above that of a noisy street (typically

70 dB(A)). So could a single domestic wind turbine be a noise nuisance, particularly at night? The World Health Organisation<sup>27</sup> (WHO) advises that “sleep disturbance is one of the most serious effects of environmental noise”<sup>28</sup>. Their guidelines state that for good sleep, sound levels should not exceed 30 dB(A) for continuous background noise, and individual noise events exceeding 45 dB(A) should be avoided. The noise from a wind turbine could be considered to be discontinuous, being subject to the wind and variable with wind speeds. Moreover, sound levels reduce as the distance from the source increases. A reduction of approximately 6 dB(A) is said to occur with each doubling of distance from the source i.e. a noise level of 50 dB(A) at 5 metres from the source will reduce to 44 dB(A) at 10 metres from the source. As indicated earlier, a wind turbine requires a clear flow of air to maximise efficiency and it is proposed that the highest part of a wind turbine could be allowed to project up to 3 metres above the highest part of the roof – this already starts to distance it from where it might be heard. Also the noise level outside a residential window could be reduced inside the room by double glazing by as much as 35 dB(A) (see Annex B). There is the further issue of background noise – it can be taken as given that when a wind turbine is rotating, background noise levels are likely to be higher. There are therefore a range of factors which could affect whether a wind turbine in any specific case could give rise to a noise nuisance. These include the noise emitted by the turbine itself and by the passage of blades through the air, the distance from the neighbouring property, the background noise level and the extent to which the noise is continuous.

6.127 In light of the foregoing, the Department considers that the noise from a wind turbine could be detrimental to neighbouring amenity in some circumstances and is considering whether a minimum distance should be enshrined in permitted development rights for a wind turbine from the nearest residential window of a neighbouring dwellinghouse. The question is what should that distance be? For example, if the noise emitted by a wind turbine at 1 metre from source was on average 80 dB(A) this could expect to be reduced at 10 metres to 60 dB(A) (see Annex C) and beyond that, inside a room with an open window to about 45 dB(A) and behind double glazing to 30 dB(A) or less.

6.128 Options tabled for comment are:

- i. that to minimise the risk of a noise nuisance, a wind turbine should be a minimum distance from the façade of the nearest residential window (not being a window within the curtilage of the dwellinghouse which it serves); and
- ii. views are invited on what the minimum distance should be - the Department suggests it could be 10 metres.

### **Listed Building**

6.129 Although the attachment of a wind turbine to the wall or roof of an existing dwellinghouse or to other buildings within the curtilage of a dwellinghouse,

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<sup>27</sup> The United Nations specialised agency for health

<sup>28</sup> WHO “Noise and Sleep” factsheet

would not constitute a building operation permitted under existing Part 1 Classes A, Class A PD rights do exclude development within the curtilage of a listed building. Moreover, the attachment of a wind turbine to the roof or wall of a listed building would require listed building consent. The Department therefore considers that attaching a wind turbine to the wall or roof of an existing dwellinghouse or to other buildings within the curtilage of a dwellinghouse which is a listed building should not be permitted development and should be considered on a case by case basis through the planning application process.

6.130 Option tabled for comment is:

- i. that attaching a wind turbine to the wall or roof of an existing dwellinghouse or to other buildings within the curtilage of a dwellinghouse which is a listed building should not be permitted.

### **Vibration**

6.131 The mechanical nature of a wind turbine creates vibration which manufacturers seek to minimise by appropriate engineering. Additional steps can also be taken in the method of securing the turbine to reduce the affect of vibration on both the structure of the building and the inhabitants. The following British Standards offer guidance on the evaluation and assessment of vibration:

BS 6472 Evaluation of human exposure to vibration in buildings (1Hz to 80Hz)

BS 7385 Evaluation and measurement for vibration in buildings

Given the nature of the measures that can be taken to minimise the effects of vibration, the Department does not consider that this can be addressed by constraints on PD rights. Manufacturers and installers should take responsibility for addressing this issue and householders should seek to ensure it is addressed in their installation.

6.132 In light of the foregoing, option tabled for comment is:

- i. that the potential effects of vibration should be addressed by manufacturers and installers of building mounted wind turbines and householders should seek to ensure that this issue is addressed in their installation.

### **Bats**

6.133 Bats are a European protected species and are given legal protection under The Wildlife (Northern Ireland) Order 1985 (1985 No.171 (N.I.2)) and The Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995 (S.R. 1995 No.380). There is some anecdotal evidence related to wind farms that bats can be detrimentally affected through collision, loss of foraging habitat, interruption of flight paths or noise. Although there has been no research done in Northern Ireland to corroborate this, the Department considers that there is a potential for small wind turbines erected for

domestic purposes to have similar effects, which could be cumulative.

- 6.134 It is known that bats feed in areas rich in insects such as woodlands, hedgerows, near water (lakes, river corridors, wetlands, etc.) and flower rich grassland or grassland containing livestock. Bats live in roosts and may use different roost sites for different purposes (hibernation, breeding) throughout the year. These may typically be found in buildings, bridges, caves and hollow trees etc. Where bats are known to be present, it would be desirable to avoid areas close to woodlands, mature trees, hedgerows and water when siting a wind turbine.
- 6.135 In view of the lack of evidence that would enable the risk to bats which small wind turbines may pose to be assessed, the Department does not propose at present to consider whether constraints could be incorporated in PD rights. However, it recommends that this be kept under review. In the meantime, the Department proposes that guidance be provided to developers highlighting what factors should be taken into account when siting a wind turbine and in particular, the potential issues that could affect bats and their existing legal protection.
- 6.136 Option tabled for comment is:
- i. that the Department provide guidance on siting and location of small wind turbines to minimise the potential detrimental impact upon bats.

6.137 **Other considerations.**

6.138 No other considerations have been identified.

**Provision of a 'standalone' wind turbine within the curtilage of a dwellinghouse**

6.139 If PD rights were contemplated for tower mounted wind turbines, what restrictions should be applied, bearing in mind their ideal requirements (see paragraph 6.112)?

**Height**

6.140 Wind turbines require clear air from all directions for optimum performance. The British Wind Energy Association (BWEA) recommends that where the flow of air to a turbine is obstructed, e.g. by buildings, trees etc., the turbine should be placed well above such obstacles on a very tall tower or sited clear of all obstacles by a distance equal to at least 10 times the height of the obstacle. Any increase in height to clear obstacles will most likely increase the visual impact on the surrounding area. BWEA also indicate that tower height varies according to wind turbine models, but generally ranges from 6 to 12 meters for stand-alone. The current height restrictions for buildings under Part 1 PD rights are: the highest part of the dwellinghouse (for enlargements under Class A); and 4 metres for a ridged roof or 3 metres in any other case (for incidental buildings under Class D).

6.141 The Department considers that 4 metres would be too restrictive as a

maximum height for tower mounted turbines. Planning applications processed during the last 5 years indicate a range of heights for domestic wind turbines from 6.5 to 26 metres. This range of heights suggests to the Department that the permitted height should be site-specific and that the best way to address that in permitted development rights would be to relate the maximum height of most permitted to the height of the existing dwellinghouse which in most cases will be the tallest building within the curtilage. Similar to building mounted wind turbines the Department proposes a maximum height for a standalone wind turbine equivalent to 3 metres above the highest part of the roof.

6.142 Option tabled for comment is:

- i. the topmost part of a tower mounted wind turbine – that is, the highest part inclusive of the rotor blades - must not project more than 3 metres above the highest part of the roof of the existing dwellinghouse.

### **Size**

#### **Horizontal Axis Wind Turbines**

6.143 As discussed under building mounted wind turbines in paragraph 6.120, the rotor diameter of a wind turbine will have an obvious impact on visual amenity. The Department proposes that the rotor diameter of a tower mounted wind turbine within the curtilage of a dwellinghouse should be the same as that for a building mounted wind turbine, that is, a maximum of 2.5 metres.

6.144 Option tabled for comment is:

- i. that the rotor diameter of a tower mounted horizontal axis wind turbine be restricted to a maximum of 2.5 metres.

#### **Vertical Axis Wind Turbines**

6.145 As discussed under building mounted wind turbines in paragraph 6.122 vertical axis wind turbines are less common and commercially available unit dimensions are not available. Views are sought however on what limits might be applied to rotor diameter under PD rights.

6.146 Options tabled for comment are:

- i. should the rotor diameter of a building mounted vertical axis wind turbine should be restricted to a maximum?; and if so,
- ii. what should the maximum diameter be?

#### **Number of Turbines**

6.147 As indicated at paragraph 6.124, the Department proposes that only one turbine within the curtilage of a dwellinghouse should be permitted development. Any additional wind turbines would require a planning

application.

6.148 Option tabled for comment is:

- i. only one wind turbine to be allowed within the curtilage of a dwellinghouse, either building mounted or tower mounted.

### **Neighbour Issues**

6.149 Tower mounted wind turbines being separated from any building may present an additional neighbour or road safety issue in relation to concern about 'toppling'. This would be in addition to other issues relating to shadow throw, shadow flicker and ice throw which are not amenable to planning control. The Department considers that a constraint on proximity to the neighbouring curtilage boundary could afford sufficient protection. As tower mounted wind turbines offer greater flexibility with regard to siting within the curtilage, the Department proposes that they should not be permitted within a distance from the boundary at least equal to their overall height including the blades. The Department favours this linkage to turbine height over the use of a set distance and feels that it permits greatest flexibility especially for shorter towers.

6.150 Option tabled for comment is:

- i. that tower mounted wind turbines should not be permitted where any part of the wind turbine is nearer to the neighbouring curtilage boundary, or nearer to any road, than a distance equal to at least the overall height of the turbine (measured with the blade of the turbine in its vertical position).

### **Noise**

6.151 The Department's comments about noise in relation to building mounted wind turbines at paragraph 6.126 apply equally to standalone wind turbines. The Department considers that the noise from a wind turbine could be detrimental to neighbouring amenity in some circumstances and is considering whether a minimum distance should be enshrined in permitted development rights for a wind turbine from the nearest residential window of a neighbouring dwellinghouse. In the case of a standalone wind turbine with the curtilage, it has already been proposed that the highest part of the wind turbine could be 3 metres above the highest part of the roof of the dwellinghouse. It has also been proposed that a tower mounted wind turbine should not be permitted where any part of the wind turbine is nearer to the neighbouring curtilage boundary than a distance equal to the overall height of the turbine (measured with the blade of the turbine in its vertical position). This distances the moving parts of the turbine from the neighbouring property by a distance equal to the height at 3 metres above the highest part of the roof of the dwellinghouse. The question is – is an additional minimum distance required for the wind turbine from the façade of the nearest residential window of the neighbouring property and, if so, what should that distance be For example, if the noise emitted by a wind turbine at source was 80 dB(A) this could expect to be reduced at a distance 10 metres to 60 dB(A) and beyond that, inside a

room with an open window to about 45 DB(A) and behind double glazing to 30 dB(A) or less.

6.152 Options tabled for comment are:

- i. that to minimise the risk of a noise nuisance, a wind turbine should be a minimum distance from the façade of the nearest residential window (not being a window within the curtilage of the dwellinghouse which it serves); and
- ii. views are invited on what the minimum distance should be - the Department suggests it could be 10 metres.

### **Proximity to a road**

6.153 Both Class A and Class D PD rights in Part 1 exclude development nearer to any road than the original dwellinghouse. Historically, this restriction is intended to protect roads from development which because of its proximity to the road, could be detrimental to the road and its further improvement or to road users. As far as PD rights are concerned, this sort of restriction is in addition to the 'blanket' protection for roads given by Article 3(5) of the GDO which provides that "The permission granted by Schedule 1 shall not, except in relation to development permitted by Parts 9 and 11, authorise any development which requires or involves the construction, formation, laying out or alteration of a means of access to an existing road which is a special, trunk or classified road or which creates an obstruction to the view of persons using any road at or near any crest, bend, corner, junction or intersection so as to be likely to cause danger to such persons." The issues associated with a standalone wind turbine nearer to the road than the existing building would be related to a road being within 'reach' of the turbine should it topple, possible distraction of road users and any excavation near to the road needed to create a foundation for the mast. More probable are issues related visual amenity where the mast and turbine would be forward of the building line. Another issue is designated areas. The proposal that the topmost part of a wind turbine could be allowed to project up to 3 metres above the highest part of the roof suggests that a constraint upon a standalone wind turbine that it should not face onto and be visible from a road would not be tenable. Given the foregoing the Department considers that an appropriate constraint is that the standalone wind turbine should not be permitted any nearer the road than the part of the dwellinghouse nearest to a road.

6.154 Option tabled for comment is:

- i. no part of the wind turbine, including any supporting structure, should be nearer to any road which bounds the curtilage than the part of the dwellinghouse nearest to that road.

### **Listed Building**

6.155 Although the erection of a tower mounted wind turbine within the curtilage of a dwellinghouse does not constitute a building operation permitted under existing Part 1 Classes A, Class A PD rights do exclude development within the curtilage of a listed building. The Department therefore considers,

consistent with its approach to standalone solar panels, that the provision of a tower mounted wind turbine within the curtilage of a dwellinghouse which is a listed building should not be permitted development and should be considered on a case by case basis through the planning application process.

6.156 Option tabled for comment is:

- i. that provision of a tower mounted wind turbine within the curtilage of a dwellinghouse should not be permitted development where the dwellinghouse is a listed building.

### **Bats**

6.157 Paragraphs 6.133 to 6.136 apply equally to standalone wind turbines as they apply to building mounted wind turbines.

### **Hydro Development**

6.158 Typical hydro development is described in paragraph 5.4 above. The extent of development required for a hydro scheme will vary depending on the type of system being installed, whether it is a new installation or the refurbishment of an existing system and the local site topography. Development required may include engineering and building operations to construct dams or reservoirs to divert water to and from the turbine, the erection of a building/s to house equipment and power connections to buildings.

6.159 It is normal practice that, where a proposed development consists of both development that is permitted development and development requiring a planning application, the totality of the development is included in the planning application and obtains express planning permission. Due to the individual requirements of each installation and the likelihood that a planning application would be required for some element of the works, the Department feels that PD rights are not appropriate for hydro development.

6.160 Regulations<sup>29</sup> have been drafted to control water abstractions and impoundments in Northern Ireland which when implemented, will require that all abstraction or impoundment of water will require the authorisation of the Department.

6.161 Option tabled for comment is:

- i. hydro development will always require express planning permission.

6.162 **Other considerations**

6.163 No other considerations have been identified.

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<sup>29</sup> The Draft Water Abstraction & Impoundment (Licensing) Regulations (Northern Ireland) 2006 were issued for consultation by the Department of the Environment in Northern Ireland Environmental Policy Division (EPD) May to Aug 2006 and are scheduled to come into force early 2007.

## **Fuel Cell Development**

6.164 Although not a new technology, it is likely to be some time before fuel cells are developed and commercially available for the domestic storage and reuse of surplus renewable energy (electricity). The extent of development required for a typical domestic installation has still to be determined. The Department feels that until more research and development has been carried out to establish what development will be required for a typical system, PD rights for fuel cell development cannot be fully explored.

## **Combined Heat and Power Development**

6.165 Typical domestic combined heat and power development is described in paragraph 5.4 above. Any enlargement, improvement or other alteration to a dwellinghouse, or the provision, alteration or improvement of any building or enclosure within the curtilage of a dwellinghouse, required to facilitate the use of domestic combined heat and power development is subject to the existing Schedule 1 Part 1 Classes A and D permitted development rights. No additional PD rights are considered necessary.

## **General Condition**

6.166 The microgeneration PD rights proposed in this paper relate to development affecting a dwellinghouse or within the curtilage of a dwellinghouse. They are not intended to facilitate the generation of heat or energy for sale. It is acknowledged, however, that there are possibilities, in the case of energy generation, for selling surplus energy to the grid. Given its proposed approach to some aspects of microgeneration PD rights, e.g. that the area of solar panels installed will be self limiting, determined by the needs of the household, the Department proposes, where appropriate, to stipulate that the primary purpose of the development permitted must be to provide heat or energy for use within the curtilage of the dwellinghouse.

6.167 Option tabled for comment is:

- i. the primary purpose of the development permitted must be to provide heat or energy for use within the curtilage of the dwellinghouse.

Planning Policy and Legislation

January 2007

**Annex A**

**Planning (General Development) Order (Northern Ireland) 1993 (as amended)**

SCHEDULE 1

Article 3

DEVELOPMENT PERMITTED UNDER ARTICLE 3

Part 1

DEVELOPMENT WITHIN THE CURTILAGE OF A DWELLINGHOUSE

**Class A**

**Permitted development**

**A. The enlargement, improvement or other alteration of a dwellinghouse.**

*Development not permitted*

- A.1 Development is not permitted by Class A if –
- (a) the design and external finishes are not in conformity with those of the original dwellinghouse;
  - (b) the cubic content of the resulting building exceeds the cubic content of the original dwellinghouse -
    - (i) in the case of a terrace house or in the case of a dwellinghouse in a conservation area, by more than 50 cubic metres or 10%, whichever is the greater;
    - (ii) in any other case by more than 70 cubic metres or 15%, whichever is the greater;
    - (iii) in any case by more than 115 cubic metres;
  - (c) the part of the building enlarged, improved or altered exceeds the height of the highest part of the roof of the original dwellinghouse;
  - (d) any part of the resulting building is nearer to any road which bounds its curtilage than the part of the original dwellinghouse nearest to that road;
  - (e) the part of the building enlarged, improved or altered is within 3 metres of the boundary of the curtilage of the dwellinghouse and exceeds 4 metres in height;

- (f) the total area of ground covered by buildings within the curtilage (other than the original dwellinghouse) exceeds 50% of the total area of the curtilage (excluding the ground area of the original dwellinghouse);
- (g) it consists of or includes the installation, alteration or replacement of a microwave antenna (see Class G);
- (h) it consists of or includes an alteration to any part of the roof (see Class B); or
- (i) it would consist of or include the erection of a building within the curtilage of a listed building.

*Interpretation of Class A*

A.2 For the purposes of Class A -

- (a) the erection within the curtilage of a dwellinghouse of any building with a cubic content greater than 10 cubic metres shall be treated as the enlargement of the dwellinghouse for all purposes including calculating cubic content where -
  - (i) the dwellinghouse is in a conservation area; or
  - (ii) in any other case, any part of that building is within 5 metres of any part of the dwellinghouse;
- (b) where any part of the dwellinghouse is within 5 metres of an existing building within the same curtilage, that building shall be treated as forming part of the resulting building for the purpose of calculating the cubic content.

**Class B Permitted development**

**B. The enlargement, improvement or other alteration of a dwellinghouse consisting of an addition or alteration to its roof.**

*Development not permitted*

B.1 Development is not permitted by Class B if –

- (a) the design and external finishes are not in conformity with those of the original dwellinghouse;
- (b) any part of the dwellinghouse, as a result of the works, exceeds the height of the highest part of the existing roof;
- (c) any part of the dwellinghouse, as a result of the works, extends more than 15 centimetres beyond the plane of any existing roof slope which fronts any road;

- (d) it increases the cubic content of the dwellinghouse by more than 20 cubic metres, in the case of a terrace house, or 25 cubic metres in any other case; or
- (e) the cubic content of the resulting building exceeds the cubic content of the original dwellinghouse –
  - (i) in the case of a terrace house by more than 50 cubic metres or 10% whichever is the greater;
  - (ii) in any other case by more than 70 cubic metres or 15% whichever is the greater; or
  - (iii) in any case by more than 115 cubic metres;
- (f) the dwellinghouse is in a conservation area.

**Class C**  
**Permitted development**  
*Development not permitted*

**C. The erection or construction of a porch outside any external door of a dwellinghouse.**

C.1 Development is not permitted by Class C if-

- (a) the design and external finishes are not in conformity with those of the original dwellinghouse;
- (b) the ground area (measured externally) of the structure exceeds 2 square metres;
- (c) any part of the structure is more than 3 metres above ground level; or
- (d) any part of the structure is within 2 metres of any boundary of the curtilage of the dwellinghouse with a road.

**Class D**  
**Permitted development**

**D. The provision within the curtilage of a dwellinghouse of any building or enclosure, swimming or other pool required for a purpose incidental to the enjoyment of the dwellinghouse, or the maintenance, improvement or other alteration to such a building or enclosure.**

D.1 Development is not permitted by Class D if -

- (a) any part of the building or enclosure to be constructed or provided is nearer to any road which bounds the curtilage than the part of the original dwellinghouse nearest to that road;

*Development not permitted*

- (b) any building to be constructed or provided has a cubic content greater than 10 cubic metres and any part of it is within 5 metres of any part of the dwellinghouse;
- (c) the height of the building or enclosure to be constructed or erected exceeds -
  - (i) 4 metres, in the case of a building with a ridged roof; or
  - (ii) 3 metres, in any other case;
- (d) the total area of ground covered by buildings or enclosures to be constructed or erected within the curtilage (other than the original dwellinghouse) exceeds 50% of the total area of the curtilage (excluding the ground area of the original dwellinghouse); or
- (e) in the case of land within a conservation area, an area of outstanding natural beauty, a National Park, or land within the curtilage of a listed building, it consists of the provision, alteration or improvement of a building with a cubic content greater than 10 cubic metres.

*Interpretation of Class D*

D.2 For the purposes of Class D “purpose incidental to the enjoyment of the dwellinghouse” includes the keeping of poultry, bees, pet animals, birds or other livestock for the domestic needs or personal enjoyment of the occupants of the dwellinghouse, but excludes the keeping of pigeons.

**Class E Permitted development**

**E. The provision, within the curtilage of a dwellinghouse, of a hard surface for any purpose incidental to the enjoyment of the dwellinghouse.**

**Class F Permitted development**

**F. The erection or provision, within the curtilage of a dwellinghouse, of a container for the storage of oil or liquefied petroleum gas for domestic purposes.**

*Development not permitted*

F.1 Development is not permitted by Class F if -

- (a) the capacity of the container exceeds -
  - (i) 3,500 litres, in the case of oil; or
  - (ii) 2,500 litres, in the case of liquefied petroleum gas;
- (b) any part of the container is above the level of the ground by more than -

- (i) 3 metres, in the case of an oil container; or
- (ii) 2 metres, in the case of a liquefied petroleum gas container;
- (c) any part of the container is nearer to any road which bounds the curtilage than the part of the original building nearest to that road.

**Class G  
Permitted  
development**

*Development not  
permitted*

**G The installation, alteration or replacement of a microwave antenna on a dwellinghouse or within the curtilage of a dwellinghouse**

G. 1 Development is not permitted by Class G if—

- (a) it would result in the presence on the dwellinghouse or within its curtilage of—
  - (i) more than two antennas;
  - (ii) a single antenna exceeding 100 centimetres in length;
  - (iii) two antennas which do not meet the relevant size criteria;
  - (iv) an antenna installed on a chimney, where the length of the antenna would exceed 60 centimetres;
  - (v) an antenna installed on a chimney, where the antenna would protrude above the chimney;
  - (vi) an antenna with a cubic capacity in excess of 35 litres;
- (b) in the case of an antenna to be installed on a roof without a chimney, the highest part of the antenna would be higher than the highest part of the roof;
- (c) in the case of an antenna to be installed on a roof with a chimney, the highest part of the antenna would be higher than the highest part of the chimney, or 60 centimetres measured from the highest part of the ridge tiles of the roof, whichever is the lower;
- (d) in the case of a dwellinghouse situated within a designated area, it would consist of the installation of an antenna—
  - (i) on a chimney, wall or roof slope which faces onto, and is visible from, a road;

- (ii) on a building which exceeds 15 metres in height.

*Conditions*

- G. 2 Development is permitted by Class G subject to the following conditions—
  - (a) an antenna shall so far as is practicable be sited so as to minimise its effect on the external appearance of the building; and
  - (b) an antenna no longer needed for reception or transmission purposes shall be removed as soon as reasonably practicable.
- G. 3 The relevant size criteria for the purpose of paragraph G. 1(a)(iii) are that—
  - (a) only one of the antennas may exceed 60 centimetres in length; and
  - (b) any antenna which exceeds 60 centimetres in length must not exceed 100 centimetres in length.
- G. 4 The length of an antenna is to be measured in any linear direction, and shall exclude any projecting feed element, reinforcing rim, mounting or brackets.

*Interpretation of Part 1*

- H. For the purposes of Part 1—

“resulting building” means the dwellinghouse as enlarged, improved or altered, taking into account any enlargement, improvement or alteration to the original dwellinghouse, whether permitted by this Part or not.

## Sound insulation of typical windows

British Standard 8233:1999 Sound insulation and noise reduction for buildings – Code of practice for buildings (section 8 Sound insulation in buildings and control of noise from building services)

Section 8.4.7 Windows

**Table 10 — Sound insulation of typical windows**

| Description                                        | Weighted sound reduction index $R_w$<br>dB |
|----------------------------------------------------|--------------------------------------------|
| Any type of window in a façade when partially open | 10–15                                      |
| Single glazed windows (4 mm glass)                 | 22–30                                      |
| Thermal insulating units (6-12-6)                  | 33–35                                      |
| Secondary glazed windows (6-100-6)                 | 35–40                                      |
| Secondary glazed windows (4-200-4)                 | 40–45                                      |

## Reduction of noise over distance and example noise levels

| Dist<br>from<br>source<br>(m) | noise<br>reduction<br>dB(A) | Source noise level dB(A) |                   |           |
|-------------------------------|-----------------------------|--------------------------|-------------------|-----------|
|                               |                             | e.g. wind<br>turbine     | e.g. heat<br>pump |           |
| 1                             |                             | <b>80</b>                | <b>60</b>         | <b>40</b> |
| 2                             | 6.0                         | 74.0                     | 54.0              | 34.0      |
| 3                             | 9.5                         | 70.5                     | 50.5              | 30.5      |
| 4                             | 12.0                        | 68.0                     | 48.0              | 28.0      |
| 5                             | 14.0                        | 66.0                     | <b>46.0</b>       | 26.0      |
| 6                             | 15.6                        | 64.4                     | 44.4              | 24.4      |
| 7                             | 16.9                        | 63.1                     | 43.1              | 23.1      |
| 8                             | 18.1                        | 61.9                     | 41.9              | 21.9      |
| 9                             | 19.1                        | 60.9                     | 40.9              | 20.9      |
| 10                            | 20.0                        | <b>60.0</b>              | 40.0              | 20.0      |
| 11                            | 20.8                        | 59.2                     | 39.2              | 19.2      |
| 12                            | 21.6                        | 58.4                     | 38.4              | 18.4      |
| 13                            | 22.3                        | 57.7                     | 37.7              | 17.7      |
| 14                            | 22.9                        | 57.1                     | 37.1              | 17.1      |
| 15                            | 23.5                        | 56.5                     | 36.5              | 16.5      |
| 16                            | 24.1                        | 55.9                     | 35.9              | 15.9      |
| 17                            | 24.6                        | 55.4                     | 35.4              | 15.4      |
| 18                            | 25.1                        | 54.9                     | 34.9              | 14.9      |
| 19                            | 25.6                        | 54.4                     | 34.4              | 14.4      |
| 20                            | 26.0                        | 54.0                     | 34.0              | 14.0      |
| 21                            | 26.4                        | 53.6                     | 33.6              | 13.6      |
| 22                            | 26.8                        | 53.2                     | 33.2              | 13.2      |
| 23                            | 27.2                        | 52.8                     | 32.8              | 12.8      |
| 24                            | 27.6                        | 52.4                     | 32.4              | 12.4      |
| 25                            | 28.0                        | 52.0                     | 32.0              | 12.0      |
| 26                            | 28.3                        | 51.7                     | 31.7              | 11.7      |
| 27                            | 28.6                        | 51.4                     | 31.4              | 11.4      |
| 28                            | 28.9                        | 51.1                     | 31.1              | 11.1      |
| 29                            | 29.2                        | 50.8                     | 30.8              | 10.8      |
| 30                            | 29.5                        | 50.5                     | 30.5              | 10.5      |