

## Draft 4/1/10

### Microgeneration Permitted Development Rights associated with non-domestic land uses - Consultation Response

#### **Introduction**

The Government's energy policy aims to put the UK on a path to cut its carbon dioxide emissions by some 80% by 2050, with real progress by 2020, and to maintain reliable and competitive energy supplies. The development of renewable energy will make a vital contribution to these aims.

Environmental Health as a service would endorse the Government's stance on reducing greenhouse gases and thereby reducing the potential for the environment to be affected by climate change.

Planning Service in advocating the provision of permitted development rights for microgeneration associated with non-domestic land uses, wish to increase the development of renewable energy resources in an attempt to meet the Government's commitments on both climate change and renewable energy. Although such a recommendation is noble, it should not be at the expense of neighbouring residents who may be subject to reduced levels of residential amenity. Reduced levels of residential amenity will place extra burdens on District Councils (as opposed to Planning Service) with regard to the investigations of subsequent complaints (noise, smoke, odour etc.). Legislative powers available to local councils are not able to afford the level of protection necessary to protect residential amenity (Ref: PPS23: Annex 1 Paragraph 1.8) with the potential for irresolvable complaints.

Previous comments were submitted to Planning Service in relation to the 2007 consultation regarding PD rights for microgeneration associated with domestic land uses. A number of points raised with our previous submission are re-iterated/supplemented below. Only questions relevant to the Environmental Health Service are answered.

#### **Overview**

##### **Question 1:**

Although the Environmental Health Service supports a policy position that could increase the uptake of renewable microgeneration, such a policy position should not come at the price of reduced levels of residential amenity. The legacy of planning control within Northern Ireland has resulted in domestic, commercial and industrial developments becoming intertwined with each other. Incompatible land uses being located adjacent to each other has the potential to lead to complaints being received by local councils. The provision of PD rights for microgeneration associated with non-domestic land uses, without adequate conditions, will only exasperate this situation, due to the close proximity of many domestic dwellings to non-domestic land uses.

It would appear from reviewing the consultation document that relevant stakeholders had not been involved in the drafting of the document and hence a number of important issues in relation to residential amenity have not been appropriately considered. As such, the Environmental Health Service would welcome the opportunity to assist in the drafting of a revised consultation document.

The consultation paper gives no specific upper limit on what can be defined as microgeneration. This ambiguity needs to be addressed by definition/conditions, to ensure that PD rights can be prescribed where appropriate and prohibited when not.

#### **Question 4:**

The Environmental Health Service agrees that PD rights should be restricted to microgeneration development that primarily provides heat or energy for use within the curtilage of the non-domestic building or agricultural unit, therefore restricted the proliferation of 'non-scrutinised' microgeneration development. However, the Environmental Health Service would welcome details as to how Planning Service propose to differentiate between those microgeneration developments that primarily provide heat or energy for use within the curtilage of the non-domestic building or agricultural unit and those that primarily provide heat or energy outside of the curtilage i.e. wind turbine providing power primarily to the grid and therefore deriving an income for the applicant.

#### **Wind Turbines both building mounted and free standing**

##### **Questions 38, 62:**

The Environmental Health Service agrees that PD rights should only permit one wind turbine (either building mounted or free standing) within the curtilage of the non-domestic building, therefore reducing the potential for increased noise levels as a result of numerous wind turbines.

However, it would appear that the scenario of a developer wishing to have both a building mounted and free standing wind turbine within the curtilage of their non-domestic buildings has not been considered. Any PD rights should not simply restrict development to just one building mounted wind turbine and one free standing wind turbine per curtilage of non-domestic building but should restrict development to only one wind turbine per curtilage of non-domestic building, irrespective of the position of the turbine.

##### **Questions 41, 67:**

The Environmental Health Service agrees that PD rights should be deferred until noise issues associated with both building mounted and free standing wind turbines have been satisfactorily addressed. The Environmental Health Service is aware of the recent Department of Communities and Local Government consultation entitled, "Permitted development rights for small scale renewable and low carbon technologies, and electric vehicle charging

infrastructure". Within this consultation document it states, "*The 45dB LAEQ, 5 min noise limit is now proposed in relation to both domestic and non domestic installations of wind turbines and air source heat pumps.*" The Environmental Health Service would not be in support of the DCLG suggested 45 dB(A) noise limit, as it has the potential to generate complaint.

The Environmental Health Service would welcome the opportunity to assist in the development of appropriate PD rights condition's further to a satisfactory solution to the noise issues.

**Question 42:**

Unfortunately an answer cannot be provided to question 42 until details of the simplified regulatory regime with regard to noise control, are provided. Current and proposed PD rights do not take into consideration existing noise environments e.g. background noise levels. Therefore what may be deemed acceptable in a busy industrial location may not be acceptable in a rural location. The advantages of employing a technical expert ensures that site specific details can be taken into consideration resulting in an appropriate development by way of location, size and noise output of wind turbine.

**Questions 43, 44:**

Although the Environmental Health Service agrees that it is a matter for installers and manufacturers to ensure there is no negative impact associated with vibration that may be caused by building mounted wind turbines, there may be the potential for vibration issues to result in neighbouring properties. The Environmental Health Service does not agree that "*vibration is not considered a matter for the planning system.*"

If you consider the simple scenario of a corner shop at the end of a row of terraced houses wishing to erect a building mounted wind turbine. It is not unknown for building mounted wind turbines to cause structure borne vibration within the attached building, which may be experienced as either vibration and/or elevated internal noise levels. Structure borne noise/vibration can travel throughout structures relatively easily. Although the shop owner may not be disturbed by the structure borne noise in the upstairs store, the adjoining residential properties bedroom may be subjected to elevated levels of noise, especially at night-time when background noise levels are lower and the corner shop is closed. Such a scenario could result in a reduced level of residential amenity, which is a material consideration with regard to the planning system.

The above scenario may be overcome with the addition of a PD rights condition restricting building mounted wind turbines only to detached buildings or buildings not attached to residential properties.

**Questions 45, 60, 61:**

The Environmental Health Service agrees that PD rights should be removed for wind turbines where they extend above public open spaces, roads and footpaths with sufficient distance being provided with regard to 'fall down' scenarios. However, it should be noted that the issue of 'ice throwing' has not been considered within the consultation document.

Planning for Renewable Energy: A Companion Guide to PPS22 in relation to icing states;

*"The build-up of ice on turbine blades is unlikely to present problems on the majority of sites in England. For ice to build up on wind turbines particular weather conditions are required, that in England occur for less than one day per year. (See Wind Energy Production in Cold Climates (WECO) (ETSU W/11/00452/00/REP)). In those areas where icing of the blades does occur, fragments of ice might be released from the blades when the machine is started. Most wind turbines are fitted with vibration sensors which can detect any imbalance which might be caused by icing of the blades; in which case operation of machines with iced blades could be inhibited."*

It is the Environmental Health Service's understanding that wind turbines considered under the proposed PD rights are not fitted with vibration sensors inhibiting the operation of the turbine with iced blades. It should also be noted such wind turbines rotate at a far greater speed than large commercial wind turbines. Further detail is needed from wind turbine manufacturers with regard to 'ice throw' distances before the minimum distance from a neighbouring curtilage of 17m could be accepted.

#### **Question 47, 59:**

It is noted that the consultation paper does not provide any details with regard to potential shadow flicker issues. The NI, 'Best Practice Guidance to Planning Policy Statement 18 'Renewable Energy – August 2009' states,

*"Problems caused by shadow flicker are rare. At distances greater than 10 rotor diameters from a turbine, the potential for shadow flicker is very low... Careful site selection, design and planning, and good use of relevant software, can help avoid the possibility of shadow flicker in the first instance. It is recommended that shadow flicker at neighbouring offices and dwellings ... should not exceed 30 hours per year or 30 minutes per day."*

As noted in other areas of the consultation document, Planning Service are reluctant to include the need for expert technical reports to be produced in relation to PD rights development. Therefore, taking into consideration the above advice, shadow flicker issues may be overcome with the addition of a PD rights condition restricting wind turbines being located within 10 rotor diameters of the curtilage of the nearest residential dwelling.

In relation to induced seizures and photosensitive epilepsy, Planning for Renewable Energy: A Companion Guide to PPS22 states,

*“Around 0.5 % of the population is epileptic and of these around 5 % are photo-sensitive. Of photo-sensitive epileptics less than 5 % are sensitive to lowest frequencies of 2.5-3 Hz, the remainder are sensitive only to higher frequencies. The flicker caused by wind turbines is equal to the blade passing frequency. A fast-moving three-bladed machine will give rise to the highest levels of flicker frequency. These levels are well below 2 Hz. The new generation of wind turbines is known to operate at levels below 1 Hz.”*

The above advice relates to large commercial wind turbines. As noted above, wind turbines considered under the proposed PD rights rotate at a far greater speed than large commercial wind turbines and further data would be required from wind turbine manufacturers with regard to their rotational frequency before the Environmental Health Service would be in a position to provide an informed comment.

**Questions 53, 54:**

It should be noted that the height and diameter limitations as suggested within the consultation document have been derived with regard to visual impacts, not noise impacts. It is normally the case that the larger the turbine, the more noise it produces and therefore such limitations may need to be reviewed further to the noise issues being resolved.

Confirmation is also sought with regard to the definition of ‘maximum height’. Does this refer to the hub height or the total height including the height of the blades above the hub?

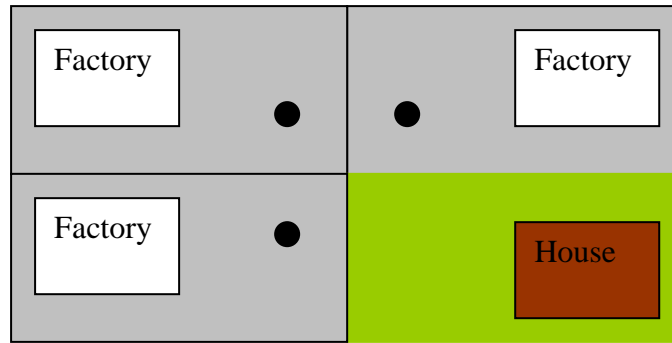
**Question 57:**

The Environmental Health Service does not agree that a minimum separation distance of 17m may be sufficient to prevent loss to residential amenity by way of noise. For example, noise data currently held with regard to the ‘Proven 6kW’ model, which would fit both the ‘total height’ and ‘blade diameter’ requirements, requires that the turbine should be located no closer than 27m from a neighbouring residential curtilage. The current minimum separation distance of 17m will need to be reviewed further to the noise issues being resolved.

**Questions 63, 64:**

Questions 63 and 64 raise the issue of separation distance between free standing wind turbines on neighbouring properties in relation to cumulative visual impact. However, it appears that the issue of cumulative noise impact has not been adequately considered within the consultation document.

The situation could be envisaged, of a resident being ‘surrounded’ by numerous wind turbines, with the cumulative noise impact on their property being significantly higher than that of a single wind turbine (see below).



● = Wind Turbine

It can be seen that the rear garden is exposed to noise from 3 turbines, all of which are approximately 17 metres distant. Although the above example would be seen as a worst case scenario, the PD rights as suggested would not prevent it from happening. Therefore, the Environmental Health Service suggests that consideration be given to the cumulative noise impact from numerous wind turbines located within the same vicinity or PD rights would be removed if the potential for a cumulative noise impact exists.

### **Maintenance**

The question of ongoing maintenance is not covered within the suggested PD rights. All mechanical parts will generate some form of wear and tear throughout the lifespan of the wind turbine. Such wear and tear may then result in higher noise levels than those measured when the turbine is new e.g. loose bearings, twisted or bent blades.

Wind turbine manufacturers state that their products are low maintenance. However, they also suggest that purchasers take out a 'maintenance package'. As the payback for a micro-wind turbine is in the region of 10 years (length of time it would take for the wind turbine to produce enough power to payback its original cost) and would be longer if Government grants are removed, it is likely that purchasers would be unwilling to pay extra for preventative maintenance packages and rely more on 'cheaper' reactive repairs.

### **Hydroelectric generation**

#### **Questions 72 and 73:**

It is noted that the issue of noise impact in relation to hydroelectric generation has not been considered within the consultation document. Noise levels taken by Environmental Health Officers within existing hydroelectric turbine houses noted noise levels in excess of 90 dB(A). Such noise levels are likely to result in loss to residential amenity unless significant mitigation measures are incorporated into the turbine house or the turbine house is located at a significant distance from neighbouring residential property. Hydro-electric

turbines also produce noise at a very low frequency, therefore requiring specialist advice and mitigation measures to combat noise breakout. The current proposal to permit new or replacement turbine houses within 5m of potentially, residential property without any consideration of the noise impact could result in losses to residential amenity. It is recommended that PD rights are not made available to this type of development.

### **Biomass and combined heat and power plants**

#### **Questions 79 and 81:**

Paragraph 8.1.10 states, *“the Review considered in light of the scale of biomass and CHP boilers that would benefit from permitted development rights that the noise impacts associated with them will be limited.”* To enable the Environmental Health Service to provide an informed response to questions 79 and 81, it is requested that noise level details of biomass/CHP plant to benefit from PD rights, be presented.

#### **Question 80:**

The Environmental Health Service agrees that fuel burnt in biomass/CHP plant should not be derived from animal wastes or wood containing dangerous substances.

#### **Question 85:**

The Environmental Health Service agrees that PD rights should only permit one biomass/CHP boiler within the curtilage of the non-domestic building, therefore reducing the potential for reduction in local air quality as a result of numerous biomass/CHP boilers.

However, it is noted that the cumulative impact on local air quality from numerous biomass/CHP boilers in the same vicinity (similar to wind turbine diagram above) has not been considered within the consultation document. Although the above example would be seen as a worst case scenario, the PD rights as suggested would not prevent it from happening. Therefore, the Environmental Health Service suggests that consideration be given to the cumulative impact on local air quality from numerous biomass/CHP boilers located in the same vicinity or PD rights should not apply where there is potential for a cumulative impact on local air quality..

#### **Questions 86 and 87:**

It is noted that no consideration of air quality impacts from biomass/CHP boilers has been considered within the consultation document. Unfortunately, the by-product of every combustion process is the emission of greenhouse gases, most notably carbon dioxide. Also, depending on the efficiency of the appliance and the quality of the biomass fuel, smoke may be emitted.

'Clean Air' Legislation was introduced to deal with the smogs of the 1950s and 1960s, which were caused by the widespread burning of coal for domestic heating. Under the Clean Air (Northern Ireland) Order 1981, Article 4 prohibits dark smoke being emitted from industrial or trade premises whilst Article 5 requires certain furnaces to be so far as practicable smokeless.

It is recommended that PD rights include a condition prohibiting any biomass/CHP boilers that cannot burn smokelessly.

The proposed PD rights as currently suggested note that flue heights should not exceed 1m above the highest part of the existing roof line. The flue height should be of such a height to provide adequate dispersion of the flue gases, such that there is no health impact on surrounding neighbours. It is normally the case that flue heights are calculated using the 'Third Edition of the 1956 Clean Air Act Memorandum - Chimney heights' or 'Technical Guidance Note (Dispersion) D1, Guidelines on Discharge Stack Heights for Polluting Emissions', which takes into consideration the size of the boiler, fuel type and neighbouring buildings/topography etc. A height of 1m above the highest part of the existing roof line may not be sufficient to provide adequate dispersal of flue gases and therefore result in a negative air quality impact on surrounding neighbours. It is recommended that PD rights are amended to take into consideration the requirement to appropriately calculate the height of the flue and not apply the inappropriate 'one size fits all' approach as currently suggested.

### **Anaerobic digestion**

#### **Questions 93, 94 and 95:**

Although the Environmental Health Service would agree that PD rights for anaerobic digestion plants be limited to those that use only materials generated on the agricultural unit on which the plant is located, no evidence has been provided noting that a separation distance of 75m is sufficient to prevent loss to residential amenity. To enable the Environmental Health Service to provide an informed response, it is requested that further details regarding the odour potential from anaerobic digestion plants to benefit from PD rights, be presented.

### **Ground source heat pump**

#### **Questions 103 and 111:**

To enable the Environmental Health Service to provide an informed response to questions 103 and 111, it is requested that details of noise levels from ground source heat pumps to benefit from PD rights be presented. In the absence of adequate evidence demonstrating that noise issues are not problematic, PD rights should not be granted.

## **Air source heat pump - ASHP**

### **Question 115:**

The Environmental Health Service agrees that PD rights should be deferred until noise issues associated with air source heat pumps have been satisfactorily addressed. As noted above, the Environmental Health Service would not be in support of the DCLG suggested 45 dB(A) noise limit, as it has the potential to generate complaint.

The Environmental Health Service would welcome the opportunity to assist in the development of appropriate PD rights condition's further to a satisfactory solution to the noise issues.

### **Question 116:**

Unfortunately an answer cannot be provided to question 116 until details of the simplified regulatory regime with regard to noise control, are provided. Current and proposed PD rights do not take into consideration existing noise environments e.g. background noise levels. Therefore, what may be deemed acceptable in a busy industrial location may not be acceptable in a rural location. The advantages of employing a technical expert ensures that site specific details can be taken into consideration resulting in an appropriate development by way of location, size and noise output of the air source heat pump.

### **Question 119:**

The Environmental Health Service does not agree that a minimum separation distance of 5m may be sufficient to prevent loss to residential amenity by way of noise. It would appear from researching air source heat pumps, that they are similar in size, appearance and noise level to commercial air handling/ refrigeration units. Councils across Northern Ireland receive numerous noise complaints every year regarding the inappropriate selection and location of such units.

BS 4142:1997 "Method for rating industrial noise affecting mixed residential and industrial noise sources" provides a methodology for assessing whether a noise of an industrial nature (this would arguably include noise from ASHP) is likely to give rise to complaints from neighbouring residents. The methodology is based on how much higher the offending noise level (ASHP) is over the background noise level (noise level when ASHP is off). A 5dB penalty can also be added to the offending noise if it contains a distinct tone, impulse or other characteristic that would attract attention. The greater the difference between the background and offending noise level, the greater the likelihood of complaints. A difference of around +10 dB or more indicates that complaints are likely.

A Bwarm 8000 ASHP, produces a noise level of 59 dB(A) at 1 metre from the heat pump. If the neighbours garden was only 5 metres from the heat pump,

this would equate to a noise level of 45 dB(A) (if the ASHP contained tonal qualities a plus 5dB penalty could be added resulting in a rating level of 50 dB(A)) or probably slightly more if there was a hard reflective wall immediately behind the source. A typical evening background noise level for a semi-rural environment would equal 35 dB(A). The resultant difference would therefore be  $50 - 35 = 15$  dB(A), a clear “complaints are likely” scenario.

A recent Planning Appeal in Dartmouth, England (Ref: APP/K1128/A/09/2108481) related to a retrospective application to retain an ASHP located approximately 30m from neighbouring residents. Noise levels were noted to be as high 52 dB(A) at neighbouring residents whilst the ASHP was operating within a cooling cycle. The ASHP also contained tonal qualities which were identified as ‘problematic’, ‘penetrative’ and a ‘constant droning noise’. The Inspector concluded that the ASHP unacceptably harmed the living conditions of local residents and refused the appeal. The appeal re-enforces the need for appropriate consideration of noise in relation to PD rights and the current minimum separation distance of 5m may not be sufficient to protect residential amenity.

### **Annex 1 – Proposed ‘Planning (General Development)(Amendment) Order (Northern Ireland)**

This proposed legislation will provide PD rights to both ground or water source heat pumps within the curtilage of a dwelling. As per response to Questions 103 and 111, in the absence of adequate evidence demonstrating that noise issues are not problematic, PD rights should not be granted.

### **Conclusions**

In conclusion there are considerable reservations about the PD rights proposed for micro-generation developments associated with non-domestic land-uses due to their potential noise and air quality impacts. Currently recommended minimum distances/sizes may not be appropriate to protect local residential amenity.