



## Wind Farms - Distance from housing

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- People are often concerned that wind farms might be too close to houses. There are no statutory limits in the UK. This note explains the planning guidance in different parts of the UK, with the different likely effects on the distance from housing. A closely related note deals more generally with consents, [Consents for Wind Farms - Onshore \(SN/SC/4370\)](#). Another note, [Wind power-overview and update \(SN/SC/3276\)](#), deals more generally with issues relating to wind farms.
- England has no separation distance, although noise limits suggest a minimum separation distance of 350 metres for a typical wind turbine. Scotland has guidance suggesting 2km and Wales suggests 500m between a wind turbine and housing.
- There is no compensation for those living near a wind farm. It is not clear that house prices are actually reduced when a wind farm is built nearby.
- Two Private Member's Ten Minute Rule Bills have suggested a separation distance.
- Some people have claimed that the noise from wind farms is greater than the Government has admitted and that warnings were removed from the draft of an official report. The issue is being investigated.

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**1 The current position in different part of Great Britain**

**1.1 England works mainly via noise controls**

There is no minimum separation distance in English planning law or guidance. The draft National Policy Statement on Renewable Energy (2009) states:

Proximity of site to dwellings

2.7.9 Commercial scale wind turbines are large structures and can range from tip heights of 100m up to 130m although advances in technology may result in larger machines coming on the market. All wind turbines generate sound during their operation. As such, appropriate distances should be maintained between wind turbines and residential properties to protect residential amenity. The two main impact issues that determine the acceptable separation distances are visual amenity and noise. These are considered in the Landscape and Visual and Noise impact sections below.<sup>1</sup>

*The Government Companion Guide to Planning Policy Statement 22 (PPS22):* Renewal Energy notes that safety is not really an issue:

51. The minimum desirable distance between wind turbines and occupied buildings calculated on the basis of expected noise levels and visual impact will often be greater than that necessary to meet safety requirements. Fall over distance (i.e. the height of the turbine to the tip of the blade) plus 10% is often used as a safe separation distance.<sup>2</sup>

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<sup>1</sup> DECC, [Draft National Policy Statement for Renewable Energy Infrastructure \(EN-3\)](#), November 2009  
<sup>2</sup> ODPM, [Planning for Renewable Energy: A Companion Guide to PPS22](#), 2004

In a PQ in September 2010, the Coalition Government stated that they had no plans to introduce a proximity rule.<sup>3</sup>

However, the Companion Guide to PPS22 gives examples of noise suggesting a practical separation distance of 350 metres.<sup>4</sup> It contains a comparison between typical wind turbine noise at 350 metres and other common noise sources. The noise limits it suggests would fit with a wind farm at that distance.

#### Noise

41. Well-specified and well-designed wind farms should be located so that increases in ambient noise levels around noise-sensitive developments are kept to acceptable levels with relation to existing background noise. This will normally be achieved through good design of the turbines and through allowing sufficient distance between the turbines and any existing noise-sensitive development so that noise from the turbines will not normally be significant. Noise levels from turbines are generally low and, under most operating conditions, it is likely that turbine noise would be completely masked by wind-generated background noise. Table 1 below indicates the noise generated by wind turbines, compared with other every-day activities.

Source/Activity	Indicative Noise Level dB(A)
Threshold of Pain	140
Jet aircraft at 250 m	105
Pneumatic drill at 7 m	95
Truck at 30 mph at 100 m	65
Busy general office	60
Car at 40 mph at 100 m	55
<u>Wind farm at 350 m</u>	<u>35–45</u>
Quiet bedroom	20
Rural night-time background	20–40
Threshold of hearing	0
(...) <sup>5</sup>	

Leaving out the detail of the recommended noise levels, one can see that the suggested levels – for day and night - would fit with the 35-45 db(A) range:

#### **Recommended Good Practice on Controlling Noise from Wind Turbines**

From 'The Assessment and Rating of Noise from Wind Farms' (ETSU for DTI 1997).

The current practice on controlling wind farm noise by the application of noise limits at the nearest noise-sensitive properties is the most appropriate approach. (...)

<sup>3</sup> HC Deb 14 September 2010 cc960-1W

<sup>4</sup> ODPM, [Planning for Renewable Energy: a Companion Guide to PPS22](#), 2004

<sup>5</sup> ODPM, [Planning for Renewable Energy: a Companion Guide to PPS22](#), 2004

Noise limits set relative to the background noise are more appropriate in the majority of cases. Generally, the noise limits should be set relative to the existing background noise at the nearest noise-sensitive properties and the limits should reflect the variation in both turbine source noise and background noise with wind speed. (...)

Noise from the wind farm should be limited to 5 dB(A) above background for both day- and nighttime, remembering that the background level of each period may be different. (...)

A fixed limit of 43 dB(A) is recommended for night-time. (...) Both day- and night-time lower fixed limits can be increased to 45 dB(A) to increase the permissible margin above background where the occupier of the property has some financial interest in the wind farm.

Clearly the argument cannot be pushed too far. The guidance seems to be based upon a fairly fixed noise from a wind farm. Some might be quieter, others noisier. A quieter wind farm would presumably be allowed closer to houses than 350 metres, a noisier one kept further away.

Greater separation distances are encouraged in Scotland and Wales. Scotland suggests 2km separation, largely because of the visual effect, and Wales 500 metres.

## 1.2 Scotland

The Scottish Planning Policy 6 Annex A states:

### Communities

Broad criteria should be used to set out the considerations that developers should address in relation to local communities. These should ensure that proposals are not permitted if they would have a significant long term detrimental impact on the amenity of people living nearby. When considering spatial policies, planning authorities may consider it helpful to introduce zones around communities as a means of guiding developments to broad areas of search where visual impacts are likely to be less of a constraint. *PAN 45* confirms that development up to 2 km is likely to be a prominent feature in an open landscape. The Scottish Ministers would support this as a separation distance between turbines and the edge of cities, towns and villages so long as policies recognise that this approach is being adopted solely as a mechanism for steering proposals to broad areas of search and, within this distance, proposals will continue to be judged on a case-by-case basis.<sup>6</sup>

## 1.3 Wales

The position in Wales is set out in a National Assembly for Wales PQ, which was answered by the Environment Sustainability and Housing Minister on 21 January 2008:

**Kirsty Williams (Brecon and Radnorshire):** Will the Minister make a statement on increasing the minimum distances between wind turbines and properties? (WAQ50841)

**Jane Davidson:** Guidance on proximity of wind turbines to residential dwellings is set out in Technical Advice Note (TAN) 8: Planning for Renewable Energy. This states that '500m is currently considered a typical separation distance between a wind turbine and residential property to avoid unacceptable noise impacts, however when applied in a rigid manner it can lead to conservative results and so some flexibility is advised'. The

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<sup>6</sup> Scottish Executive, [Scottish Planning Policy SPP 6 Renewable Energy, Annex A](#)

issue is less to do with distance than the need to limit noise from wind farms to 5 decibels (dBA) above background noise for both day and night-time.

The separation distances between wind turbines and residential properties can be examined as part of the refinement work by local planning authorities and on a case-by-case basis, taking into account topography and orientation, when decisions on planning applications are taken.<sup>7</sup>

## **2 Is there compensation for those living near a wind farm?**

### **2.1 The principles**

Wind farms would not be treated in a different manner from any other development. In certain limited circumstances, compensation is payable for disturbance, even though the land is not acquired compulsorily. The reply to a PQ in March 2006 summed up the position:

**Yvette Cooper:** Under Part 1 of the Land Compensation Act 1973, compensation may be payable for a reduction in value of land caused by the use of certain public works. This compensation is based upon the depreciation caused by physical factors: noise, vibration, smell, fumes, smoke, artificial light and the discharge onto land of any solid or liquid substance. Compensation is not available for a loss of view.<sup>8</sup>

The compensation only applies to works undertaken as a result of statutory powers that exclude the possibility of private legal action for damages in tort. If wind farms were built on those terms and had those results, they would presumably be treated like other development. However, wind farms are not built as a result of statutory powers excluding the possibility of action for damages.

If wind farms were singled out for compensation, there would almost certainly be demands for a similar scheme to cover other unpopular developments – for example incinerators, telecommunications masts, bail hostels and so on.

### **2.2 Do wind farms actually reduce house prices?**

Recent studies are not at all agreed on this point, with some studies arguing that house prices have actually increased after erection of a wind farm:

Some opponents of wind farms allege that wind farm reduce nearby house prices while some supporters argue the opposite. The truth is that there is no conclusive evidence with regard to the relationship of wind farms and house prices.

The latest study 'What is the Impact of Wind Farms on House Prices?' was carried out in March 2007 by Peter Dent and Dr Sally Sims of the Department of Real Estate and Construction, Oxford Brookes University. This study, supported by a grant from the Royal Institute of Chartered Surveyors Foundation, examined three locations in Cornwall and proved inconclusive. It did, however, comment that the research "highlighted to some extent, wind farm developers are themselves avoiding the problem by locating their developments in places where the impact on prices is minimised, carefully choosing their sites to avoid any negative impact on the locality". Interestingly it also commented that "the 'threat' of a wind farm may have a more significant impact than the actual presence of one."

The research also referred to the findings of another extensive study conducted in the United States, by the Renewable Energy Policy Project, called 'The Effect of Wind

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<sup>7</sup> National Assembly for Wales, [Answers issued to Members on 21 January 2008](#), WAQ50841

<sup>8</sup> HC Deb 9 March 2006 c1758W

Development on Local Property Values'. This report suggests that far from having a negative impact on value, property prices within a five mile radius of a wind farm appeared to rise above the regional average, suggesting that wind turbines actually had a positive effect on value.

The '[Impact of Wind Farms on Residential Property Prices - Crystal Rig Case Study](#)' published in February 2007, and carried out by Edinburgh Solicitors' Property Centre focused on property sales near the Crystal Rig wind farm in the Scottish Borders. The study found that prices in the nearby town of Dunbar (10km north of the wind farm) had risen from below the regional average to above the regional average over a four years period which saw the wind farm built and begin generating renewable energy.

Two public opinion surveys were also commissioned by National Wind Power, now NPower Renewables, for the [Taff Ely](#) and [Novar](#) wind farms. These two studies, carried out by Robertson Bell Associates, were published in 1997 and 1998.

The [Taff Ely](#) study concluded: "In regards to house prices, more than three in four (78%) say the wind farm has had no effect, with a further 15% saying 'don't know'. As many residents say house prices have increased a little because of the wind farm (3%) as say they have decreased a little (3%), similarly, as many say they have increased a lot (1%) as say decreased a lot (1%)."

The [Novar](#) study concluded: "In regards to house prices, almost three in four (72%) say the wind farm has had no effect, with a further 26% saying 'don't know'. None of the respondents say house prices have decreased as a result of the wind farm. Indeed, 1% say house prices have increased a little because of the wind farm".<sup>9</sup>

In other words, if there were a compensation scheme, it would be almost impossible to decide upon the appropriate level of compensation.

### **3 Ten Minute Rule Bills**

#### **3.1 Peter Luff's Ten Minute Rule Bill**

On 3 November 2009, Peter Luff proposed a ten minute rule Bill:

Peter Luff (Mid-Worcestershire) (Con): I beg to move,

That leave be given to bring in a Bill to specify the minimum distances permissible between onshore wind turbines of certain dimensions and the nearest habitation; and for connected purposes.

A visit to the home of two of my constituents in the small settlement of Sheriffs Lench in the vale of Evesham started the process that led me to this Bill. When I saw just how close to their home ScottishPower Renewables plans to put a 125-metre wind turbine, as part of a larger wind farm plan for the area, I realised that I would not like that done to me. The turbines proposed are among the largest ever constructed in England. They will be half as high again as Big Ben and only a little lower than the London Eye—and in the open countryside that is huge. It is roughly equivalent to a 40-storey building.

In the case of this wind farm, the closest of those massive structures would be only 508 metres from the nearest home, with many more homes about 600 metres from a turbine. That is too close. I ask myself whether the wider social good is served by building such enormous renewable energy sources so close to the homes of hundreds

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<sup>9</sup> Partnership for Renewables webpage, [House Prices](#) [on 24 September 2010]

of my constituents, or whether the sacrifice being asked of them, and the damage to be done to a beautiful part of the vale of Evesham, is too great.

I also noted that the turbines in Worcestershire would not be allowed in a similar location in Germany, or in large areas of Spain and Italy. Denmark is one of the most successful countries in the development of onshore wind power—and I understand that if Danish rules applied, the turbines in my constituency could be built, but many householders would become liable for compensation for loss of property value. England and Wales stand apart from the developing pattern of regulation of onshore wind on mainland Europe. Indeed, in Scotland, too, guidelines specifying what is acceptable are already in place. (...)

My Bill would specify minimum distances between turbines of certain dimensions and the nearest house. I propose that there should be no specific restriction on turbines below 25 metres in height, while wind turbines up to 50 metres high should not be located closer than half a mile to a home. Larger wind turbines up to 100 metres high should be at least a mile away, and the largest—those above 100 metres—should be at least one and a half miles from any home. There would be an important exception where the residents of homes within the buffer zone agreed to the construction of the turbines. They might do so because they stood to gain financially from the construction—something that the industry should look at more carefully—because they had received compensation for loss of amenity or the reduced value of their homes, or simply because they supported the application. (...)

However, my Bill would also make possible a different approach, which is used in some European countries and which some hon. Members might prefer. That would mean specifying set-back distances from turbines in proportion to their total height. In other words, the distance from the base of the turbine to the nearest home should be at least a fixed multiple of the height of the turbine to the tip of the blades. The distance would then depend on the multiple. The 125-metre turbines proposed for my constituency would have to be set back 16 times their height to achieve a separation of 2 km, while a smaller 100-metre turbine, using the same multiple, would be set back 1.6 km. A smaller multiple would produce smaller distances.<sup>10</sup>

#### Martin Horwood opposed the Bill:

Although it looks at first sight like traditional Conservative opposition to wind power, the Bill that the hon. Member for Mid-Worcestershire (Peter Luff) proposes would in fact achieve the perverse result of increasing the pressure on rural areas, including areas of outstanding natural beauty and national parks, to accept wind turbines that local people would oppose. It is a Bill that would harm the prospects for wind energy in many places where it is supported by local people, and it would deepen the undermining of democratic local planning procedures. In the end, local people should decide. We in this place should not commit our usual error of creating inflexible and—in the hon. Gentleman's own words—arbitrary rules that will do more harm than good.

Let me illustrate the problem with an example that is literally close to home. Cheltenham's first wind turbine is likely to be placed in Springfield park, in the Springbank area of my constituency. Planning permission is being applied for. It will not be big—a bit less than 18 metres tall, to the tip of the highest blade. It will generate 9,500 kWh of electricity a year, and save more than 4 tonnes of CO<sub>2</sub> emissions a year. Perhaps more importantly, it will follow the good example of Danish wind energy by being owned by a community organisation, the Hesters Way Neighbourhood Project. The project was set up to support regeneration in one of the least well-off parts of

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<sup>10</sup> HC Deb 3 November 2009 cc746-9

Cheltenham, and the wind turbine will shave the best part of £1,000 a year off its electricity bill, allowing it to spend more money on its other work in the community.

The turbine will be safe and virtually silent, with no noisy gearbox. It also has a rather striking design. I concede that beauty is in the eye of the beholder, but in general, I think that most wind turbines are rather graceful, and easily more attractive than the average pylon. The Springbank wind turbine has so far encountered very little opposition, but whether it receives community support should surely be a matter for the people of Springbank and their elected representatives. We should not contemplate a Bill that would rule out the project at a stroke—

**Peter Luff:** It would not.

**Martin Horwood:** It would, because it would impose on planning law—not on planning guidance, local area partnerships or local area policy—a rule that that turbine should not be allowed, because it is about 60 metres from the nearest dwelling. That is well inside the hon. Gentleman’s proposed limit for a small turbine of 800 metres—I have translated that—away from any dwelling. So the Bill would kill that project.

He argued that the Bill would prevent some local projects with local support, but would be favoured by insensitive energy companies trying to erect wind farms in unsuitable locations:

However, I can see the supporters of such companies rubbing their hands with glee if the Bill became law. “Surely local campaigners shouldn’t be allowed to get away with opposition to this wind farm,” they would argue. “After all, it complies with the Onshore Wind Turbines (Proximity of Habitation) Act 2010, which was promoted by the Member for Mid-Worcestershire in his attempt to, as he put it, settle the matter.” Ironically, the hon. Gentleman’s name could end up being used in planning inquiries more in support of insensitive wind power applications than against them.<sup>11</sup>

### 3.2 Chris Heaton-Harris’s Ten minute Rule Bill

Similar issues were raised in Chris Heaton-Harris’s Onshore Wind Turbines (Proximity of Habitation) on 17 November 2010, but his proposal differed in one respect:

Wind turbine operators say that if there is a minimum distance between turbines and dwellings—a distance of 2 km, say—there would be very few areas in the United Kingdom where turbines could be sited. That might be the case, but my Bill does not state what the minimum distance should be; it simply gives local planning authorities the opportunity to determine such distances—hopefully after consulting the people who live in an area—based on local knowledge and local conditions.<sup>12</sup>

Martin Horwood also opposed this Bill.

### 3.3 Criticism of the proposed separation distance

The magazine *Planning* noted some criticism:

Corialis Energy development director Vicky Portwain said the buffer zone would put a halt to new onshore wind farms. (...) The British Wind Energy Association claimed that setting exclusion zones is the wrong approach.<sup>13</sup>

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<sup>11</sup> HC Deb 3 November 2009 cc749-51

<sup>12</sup> HC Deb 17 November 2010 cc900-1

<sup>13</sup> “Experts slam plans to curb wind farms”, *Planning*, 13 November 2009

## 4 Allegation that noise is more serious than claimed

In December 2009, the *Sunday Times* published an article claiming that

Civil servants have suppressed warnings that wind turbines can generate noise damaging people's health for several square miles around. The guidance from consultants indicated that the sound level permitted from spinning blades and gearboxes had been set so high—43 decibels—that local people could be disturbed whenever the wind blew hard. The noise was also thought likely to disrupt sleep.

The report said the best way to protect locals was to cut the maximum permitted noise to 38 decibels, or 33 decibels if the machines created discernible "beating" noises as they spun. It has now emerged that officials removed the warnings from the draft report in 2006 by Hayes McKenzie Partnership (HMP), the consultants. The final version made no mention of them.

It means that hundreds of turbines at wind farms in Britain have been allowed to generate much higher levels of noise, sparking protests from people living near them.<sup>14</sup>

In January 2010, the Labour Government answered a PQ about the allegation:

**Mr. Jenkin:** To ask the Secretary of State for Energy and Climate Change on what advice the maximum permitted night-time noise from onshore wind turbines was set at 43 decibels; when this limit was last reviewed; and why the recommendation in the 2006 draft report by Hayes McKenzie Partnership of a reduction in the sound level was rejected.

**Mr. Kidney** [holding answer 6 January 2010]: The 43 decibel night-time limit in the ETSU-R-97 guidance is derived from the 35 dB(A) sleep disturbance criteria referred to in Planning Policy Guidance 24 (Planning and Noise). An addition of 10 dB(A) was made to the 35 dB(A) figure to allow for attenuation through an open window, and 2 dB subtracted to account for the use of LA90 rather than LAeq. ETSU-R-97 has not been formally reviewed, but other aspects of wind turbine noise have been subject to a number of studies including the 2006 research by Hayes McKenzie.

In relation to the Hayes McKenzie research, I understand that the reference to the decibel levels was not included in the final report because the consultants decided that referring to a specific level (as in the first draft of the report) did not reflect the terms of reference of the study.<sup>15</sup>

The Coalition Government is looking further into the issues, as was noted in September 2010:

**Chris Heaton-Harris:** To ask the Secretary of State for Energy and Climate Change what investigations his Department has commissioned into noise from wind farms; and from whom.

**Charles Hendry:** I have recently commissioned an analysis of matters arising in the consideration of noise impacts in the determination of wind farm developments in England. The project will seek to establish best practice in assessing and rating wind turbine noise as applied by specialist acoustics consultants by investigating previous decisions, to ensure that the ETSU-R-97 is applied in a consistent and effective

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<sup>14</sup> "Officials cover up wind farm noise report; A study suggesting that turbines would be too loud for nearby families to bear was suppressed" *Sunday Times*, 13 December 2009

<sup>15</sup> HC Deb 7 January 2010 c636W

manner (though the project will not revisit ETSU itself). The project will be looking at decisions made at all levels of the planning system.

**Chris Heaton-Harris:** To ask the Secretary of State for Energy and Climate Change which officials from which sections of (a) his Department and (b) other Departments were involved in determining and drafting the remit of the contract awarded to the Hayes McKenzie Partnership to investigate the implementation of ETSU-R-97 guidance; and whether any such official is on secondment from industry.

**Charles Hendry:** The head of the land-based renewables team within the Office for Renewable Energy Deployment, Sarah Rhodes, has responsibility for onshore wind policy and for the award of a contract to the Hayes McKenzie Partnership. Junior officials from her team were directly involved in the contractual process, together with others from DEFRA (including advice from DEFRA's expert acoustic advisers) and CLG. None of these officials are on secondment from industry or any other organisation.

**Chris Heaton-Harris:** To ask the Secretary of State for Energy and Climate Change what reports he has received on (a) challenges to the ETSU-R-97 method for the assessment and rating of noise from wind farms made by expert acousticians at planning inquiries and (b) the views of planning inspectors on the appropriateness of the ETSU method.

**Charles Hendry:** The Department is aware from various sources, including planning decisions, that some expert acousticians at planning inquiries have challenged aspects of the ETSU-R-97 method and its implementation. This is for a number of reasons including the way in which it has been implemented, which is why I have asked Hayes McKenzie to carry out new analysis of this particular issue. In the light of such concerns presented to them, planning inspectors have reflected these comments. Planning inspectors are, however, aware that ETSU-R-97 remains the applicable guidance for assessing and rating noise from wind energy developments.<sup>16</sup>

There was an update on this research in October 2010:

**Gregory Barker:** The work being carried out by Hayes McKenzie Partnership is a review of how the current noise guidance is implemented in consideration of planning decisions, and is not concerned with the guidance itself or issues such as permitted noise limits. Hayes McKenzie are now working up their draft report which will then be independently peer reviewed. It is too early to speculate on possible next steps following its publication.<sup>17</sup>

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<sup>16</sup> HC Deb 14 September 2010 cc959-60W

<sup>17</sup> HC Deb 18 October 2010 cc482-3W