

National Assembly for Wales
Petitions Committee

Control of Noise from Wind Turbines

May 2012



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National Assembly for Wales
Petitions Committee

Control of Noise from Wind Turbines

May 2012



Petitions Committee

The role of the Petitions Committee is to consider all admissible petitions that are submitted by the public. Petitions must be about issues that the National Assembly has powers to take action on. The petitions process enables the public to highlight issues and directly influence the work of the National Assembly.

Powers

The Committee was established on 15 June 2011. Its powers are set out in the National Assembly for Wales' Standing Orders, particularly SO 23. These are available at www.assemblywales.org

Current Committee membership



William Powell (Chair)
Welsh Liberal Democrats
Mid and West Wales



Russell George
Welsh Conservatives
Montgomeryshire



Bethan Jenkins
Plaid Cymru
South Wales West



Joyce Watson
Welsh Labour
Mid and West Wales

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Chair's Foreword

As Chair of the Petitions Committee, I often hear impassioned pleas from petitioners. The Committee is presented with two new petitions each week, on average, and Members work hard to ensure that the issues raised in those petitions are given proper consideration both by the Committee and those with the power to change things.

When the Committee received a petition calling for greater control of noise from wind turbines, Members decided to invite people to write in to express their thoughts and experiences relating to wind turbines. Some of the responses we received suggested that wind turbines are less problematic than other forms of energy production, such as gas or nuclear power stations. Some suggested that it is not considered appropriate to take a blanket approach to environmental issues arising from the development of windfarms and so argued that the petition's call for a ban on windfarms operating overnight is unreasonable. However, the overwhelming number of responses we received were from people who are affected by noise from wind turbines, and these responses were very emotive indeed. We were told that some people can no longer enjoy simple pleasures such as sitting in their garden in the sun. Others were afraid that their homes would be devalued and they would lose out financially. Others were so affected by the persistent whine from the turbines close to their homes that they found it difficult or impossible to sleep at night, leading to mental and physical health problems. The health and wellbeing of our citizens must be a top priority and, therefore, the Petitions Committee decided it needed to investigate the subject further.

The great strength of the petitions system in Wales is that it allows the voices of the people of Wales to be heard by those who hold the policy makers, the Welsh Government, to account. Through our work on this petition, I hope the public feel that we are doing just that.

William Powell
Chair

The Committee's Recommendations

The Committee's recommendations to the Welsh Government are listed below, in the order that they appear in this report. Please refer to the relevant pages of the report to see the supporting evidence and conclusions:

Recommendation 1. The Committee recommends that the Welsh Government should amend Statutory Planning Guidance to introduce buffer zones that maintain the current 500 metres minimum distance between dwellings and turbines, and increase the separation distance as appropriate, and in specified circumstances up to 1500 metres, according to environmental factors such as the topography and the ambient noise levels of the area. (Page 15)

Recommendation 2. The Committee recommends that ETSU-R-97 guidelines are revised to take into account the lower ambient noise levels in rural areas and the latest research and World Health Organisation evidence on the effects of noise on sleep disturbance. (Page 19)

Recommendation 3. The Committee recommends that statutory planning guidance is amended to include a requirement that faulty turbines are switched off at specified times overnight as soon as a fault affects its noise emissions and that turbines are not returned to full operation until any such faults are fully repaired. (Page 20)

Recommendation 4. The Committee recommends that the Institute of Acoustics Working Group carries out meaningful consultation with people living close to wind turbines so that their experiences can help to shape the conclusions and recommendations of the Group that are expected to be published in September 2012. (Page 22)

1. Introduction

1. The Petitions Committee exists to consider all admissible petitions submitted to the National Assembly for Wales.

2. In July 2011, the Petitions Committee was presented with a petition stating:

“We call upon the National Assembly for Wales to urge the Welsh Government to pass a statute controlling the noise nuisance from wind turbines during anti-social hours. We ask for the implementation of respite periods during which time turbines would be switched off.

“Noise respite periods are common in public health legislation. They are called for by the World Health Organisation in their Community Noise report; and are currently implemented in the U.K. on airport operations, construction sites and factories and other evening and overnight noise nuisance.

“We ask that this applies to turbines above 1.3 MW, and that respite periods be between 18.00Hrs to 06.00Hrs for turbines within 1.5 Km of individual residences; and 22.00Hrs to 06.00 Hrs for turbines within 2Km of communities. Authorities within Wales determining applications under 50MW Plate Capacity, and the Infrastructure Planning Commission determining those over 50MW should make developers aware of this Public Health restriction which may affect individual turbines.”¹

3. The petition was raised by James Shepherd Foster, a retired engineer, and collected 1074 signatures. It was first considered by Committee in September 2011.

4. The Committee could only consider the elements of the petition relating to windfarm development under 50MW, as responsibility for larger developments is retained at Westminster.

5. However, the Committee recognises that noise levels do not necessarily correlate with the wattage of wind turbines and feels that it is important that when assessing the disturbance caused by wind

¹ Petition:

<http://www.senedd.assemblywales.org/mqIssueHistoryHome.aspx?Ild=1737>

farms it is the noise levels and not the wattage of individual wind turbines that is measured.

The Committee's consideration of the petition

6. As a result of its first consideration of the petition, the Committee wrote to the Minister for Environment and Sustainable Development seeking his initial views on the subject. In his response, the Minister stated that noise from windfarm developments of up to 50MW (the level of development up to which the Welsh Government has responsibility) is most appropriately dealt with by the local planning authority, as planning applications can be conditioned and restrictions on power generation imposed. He also stated that,

“independent research for the UK Government on the impacts of noise from turbines indicate that there is no evidence to support claims of negative health impacts, and that the existing guidelines do not require revision.”²

7. As the petitioner himself stated in his response to the Minister's letter, the impacts of the sound emitted from turbines is sometimes not fully known until the turbines are operational.

8. However, the Minister also accepted that the science in this area is developing and stated that he welcomed,

“further evidence and discussion on wind turbine noise, to enhance our current understanding and reassure public confidence.”³

9. The Committee then undertook a consultation on the issue. The responses to this consultation can be found at Annex C. The Committee received a significant response to this consultation, with strong arguments presented on both sides of the debate.

10. Due to the proportionately large number of consultation responses from the village of Gwyddgrug, the Committee resolved to undertake a study visit to windfarms local to the Gwyddgrug area. The Committee also held a public meeting in Carmarthen to which all those who responded to the consultation were invited.

² Correspondence from Minister for Environment and Sustainable Development to Petitions Committee Chair, 6 October 2011

³ Ibid

11. The Committee visited two windfarm sites in February 2012 and held a public meeting the following day.

12. Following the visits and the public meeting, the Committee wrote to the owners of one of the windfarms, Statkraft, to urge it to seek a resolution to the problems experienced by the local community and to hold a formal meeting with the local community to discuss their experiences.

13. The Committee also wrote to the Minister to draw his attention to the complaints from Gwyddgrug residents about the noise, despite the fact that the noise levels now fall within the ETSU-R-97 guidelines. The Committee also wrote to the Minister for Health and Social Services to highlight concerns about the impact of the noise on human health and wellbeing.

14. The Minister for Environment and Sustainable Development responded that, following the UK Government's review⁴ of the impact of noise, which highlighted potential problems in the assessment of windfarm noise, the Institute of Acoustics is leading a working group, which includes Welsh Government officials, on establishing best practice guidance.

15. At its meeting on 1 May 2012, the Committee resolved to issue a report summarising the Committee's investigation and setting out recommendations to the Welsh Government.

The scope of the report

16. The Committee has previously received petitions on windfarm development and transportation, which it referred to the Assembly's Environment and Sustainability Committee. The Petitions Committee looks forward to the outcome of that Committee's inquiry into energy policy in Wales, which has considered those petitions alongside other evidence.

17. This report focuses more narrowly on the issue of noise from wind turbines and considers how the health and wellbeing of people living alongside turbines should be protected.

⁴ 'Analysis of How Noise Impacts are Considered in the Determination of Wind Farm Planning Applications' Hayes Mckenzie
http://www.decc.gov.uk/en/content/cms/meeting_energy/wind/onshore/comms_planning/noise/noise.aspx

2. Effect of Noise on those Living near Wind Turbines

18. The Committee's consultation responses described the noise experienced by those living near turbines as: 'a steam train trying to build up steam'; 'unbearable'; 'noise so loud it [makes] our head spin'; 'a plane hovering over you'; 'whining...of transmission mechanisms, resonating and amplified by the pipe organ effect of the towers, together with the thumping effect of turbulence at the blade edges'; 'pounding and humming'; and 'growling noises.'⁵ However, many people also said that it is not necessarily the volume of noise but its unremitting presence that causes the problem. One respondent likened it to tinnitus, where the sufferer feels that there is no escape from the noise.

19. The majority of the members of the public who responded to the consultation reported that the noise disrupts their sleep, leading to stress, depression and health and safety concerns for those who have to drive to work in the morning, those who drive for a living and those who operate heavy machinery at work. One respondent sent in a log she had taken, in which she recorded six sleepless nights in a row due to the noise. Other respondents reported resorting to sleeping in the car during work lunchtimes; sleeping with the television or radio on to drown out the noise; closing all windows at night; and having to move into other rooms in the house to sleep.

20. Disruption to other aspects of people's lives was also reported, such as not being able to spend time in the garden. A farmer who lives within 815 meters of windfarm stated that he sometimes finds it impossible to work on the farm because of the noise, and another respondent reported 'panicky palpitations' brought on by the 'thumping rhythm' and that it:

"gets inside the house/bedroom and seems to bounce off the walls; it does the same inside your head."⁶

21. Several respondents told us that faults with turbines increase the noise problem, and reported faulty turbines making screeching and

⁵ Consultation responses

<http://www.senedd.assemblywales.org/documents/s4012/Consultation%20response.pdf>

⁶ Ibid

grinding noises. Delays in repairing turbines and turbines remaining operational for months while faulty were also reported, thus prolonging the ill effects of the noise pollution.

22. Several months after the consultation closed, the British Medical Journal published an article on wind turbine noise, which stated:

“Shortly after wind turbines began to be erected close to housing, complaints emerged of adverse effects on health. Sleep disturbance was the main complaint. Such reports have been dismissed as being subjective and anecdotal, but experts contend that the quantity, consistency, and ubiquity of the complaints constitute epidemiological evidence of a strong link between wind turbine noise, ill health, and disruption of sleep.”⁷

23. The report states that noise generated by wind turbines is largely low frequency sound, which is,

“considerably more annoying than higher frequency noise and is harmful to health—it can cause nausea, headaches, disturbed sleep, and cognitive and psychological impairment.”⁸

24. The report concludes that wind turbine noise seems to affect health adversely and that an independent review of evidence is needed.

The acoustics of the environment

25. Many stated that the natural topography and landscape in rural areas seem to have an impact on noise. In some cases, the natural topography can screen noise from wind turbines. However, one respondent living within 1 km of a windfarm stated that the noise:

“from the mountain nearby carries with an echo effect into the dip of the valley that we live in.”⁹

⁷ British Medical Journal 8 March 2012 ‘Wind Turbine Noise’ Christopher D Hanning, Alun Evans

⁸ Ibid

⁹ Consultation responses

<http://www.senedd.assemblywales.org/documents/s4012/Consultation%20response.pdf>

26. The Farmers' Union of Wales and Natural Power stated that site-specific factors need to be considered when considering the location of a wind turbine in relation to homes.

27. Many respondents identified the weather as a factor in the level of noise, and suggested that the turbines could be turned off in certain weather conditions. One respondent stated:

“it doesn't seem unreasonable to me for someone to correlate this data and attempt to identify the conditions that produce the noise nuisance.”¹⁰

28. Some responses mentioned the possibility of installing a microchip in the turbine so that it could easily be switched off in certain weather conditions.

¹⁰ Ibid

3. Environmental and Economic considerations

29. Many of the organisations who responded to the Committee's consultation stated that the UK has a commitment to international, legally binding carbon emission and renewable energy targets and that windfarms are a key part of efforts to combat climate change by offsetting CO2 emissions that would be produced by fossil fuel power generation. For example, Renewable UK stated that:

“Wales has significant wind, wave and tidal resources and...should lead by example...Renewable energy plays a key part in tackling climate change, energy security and fuel poverty in the long term.”¹¹

30. Some respondents stated that the target would not be met were the petition proposals to be implemented.

31. Several respondents stated that the renewables industry, and onshore wind in particular, contributes significantly to Welsh GDP and that if Wales is made a less attractive place to invest, that contribution would be significantly reduced. Many argued that building a strong renewables industry in Wales would provide high-quality jobs, considerable inward investment, long-term biodiversity benefits, and energy supply and costs security for consumers.

32. Many of those living near turbines reported that the noise is more troublesome at night when it is quiet and were therefore supportive of the idea of holding respite periods overnight. However, RWE and Natural Power stated that that would lead to around 50% of the turbine generation capacity being lost, making Wales a less attractive place for developers to invest in, and reducing return on investment and financial benefit to Welsh communities. It was also stated that, for small-scale projects, overnight is the most profitable time to generate electricity and that switching turbines off at that time could mean a project becoming financially unviable due to longer payback times of the capital invested.

33. Several councils responded that they were not supportive of blanket legislation as it would reduce the capacity for energy

¹¹ Consultation responses
<http://www.senedd.assemblywales.org/documents/s4012/Consultation%20response.pdf>

generation and would cover areas where communities do not experience problems with noise. They felt that issues such as noise should be considered on a case-by-case basis, pointing out that conditions controlling noise can be attached to planning permission and that permission can also be refused if it was felt that noise would be a problem.

34. On the other hand, concern was also expressed about the effect of noise from turbines on the tourism industry in terms of B&Bs and holiday lets near wind turbines. As one respondent commented, people go to the country for peace and quiet, and if they are disappointed with their experience, they may leave negative feedback on websites and so on.

35. Many respondents stated that they would like to see a buffer zone implemented in Wales. Hayes McKenzie Consultants state that they believe that buffer zones should vary according to the background noise of an area. They stated that separation distances may need to be 'as much as 1500 metres' in quiet areas but that in a noisy environment, for example, near a busy road, it would be acceptable to have a separation distance of 50 metres. They felt that the adoption of a restriction on the operation of a wind turbine based solely upon the separation distance would mean that some windfarms would be unnecessarily penalised.

36. The petition calls for restrictions to be applied to turbines over 1.3MW, however West Coast Energy argue that the capacity rating of a turbine cannot be used to accurately predict or determine noise output. They state that older turbines below the 1.3MW threshold can produce more noise than newer, larger 2MW machines due to improved technology. RWE also argue that the introduction of restrictions on wind turbines over 1.3MW could lead to a greater number of smaller turbines being erected, covering larger areas. Several organisations that responded to the consultation quoted a study by Salford University, which found that the number of complaints about noise from wind turbines is relatively small when compared with the number of complaints about other sources of noise.

37. Questions were also raised as to whether any legislation on noise from windfarms would also apply to other sources of noise, including power stations (nuclear, gas, coal and oil) and national grid power

lines. Concern was raised that such a step could impact severely on the working of hospitals, water works, street lights and so on.

38. The Committee recognises the importance of securing green energy sources to meet our future energy needs, but this should not be done at the expense of people's health and wellbeing.

Recommendation 1

The Committee recommends that the Welsh Government should amend Statutory Planning Guidance to introduce buffer zones that maintain the current 500 metres minimum distance between dwellings and turbines, and increase the separation distance as appropriate, and in specified circumstances up to 1500 metres, according to environmental factors such as the topography and the ambient noise levels of the area.

4. Guidance on Noise

Technical Advice Note 8 (2005)

40. Technical Advice Note 8 (2005) sets out the planning policy position of the Welsh Government on the issue of wind turbines and noise. This refers to The Assessment and rating of Noise from Wind Farms (ETSU-R-97) as good practice guidance. Paragraph 3.4 of annex D to the Technical Advice Note also suggests a typical separation of 500 metres between residential properties and wind turbines to ‘avoid unacceptable noise impacts’. TAN8 should be taken into account by Local Planning Authorities in Wales when developing their Local Development Plans and when deciding planning applications for windfarms of up to 50 Megawatts.

41. Paragraphs 2.7.52 to 2.7.62 of EN-3 National Policy Statement for Renewable Energy Infrastructure¹² deal with noise and vibration impacts of onshore wind. This also refers to ETSU-R-97. The NPS says that the Environmental Statement that is prepared for a windfarm development should include a noise assessment and the method of assessing the impact of noise should be based on ETSU-R-97.

ETSU-R-97 guidelines

42. ETSU-R-97 guidelines, the assessment and rating of noise from windfarms, which is identified in TAN 8 as current best practice, set out the noise levels within which a turbine must operate in order to protect public health. These guidelines state that wind turbine noise will be audible to some neighbours and at times may be ‘very audible’. However, many of those living near turbines who responded to the consultation stated although the turbine(s) in their area operate within those guidelines, the noise is still a problem for them. Some respondents also expressed concern that the ETSU-R-97 guidelines, published in 1996, were out of date as the height of wind turbines has increased since that time, which could have an impact how noise from them will carry. However, Hayes McKenzie Partnership, acoustic consultants, stated that the guidelines are in accordance with World Health Organization guidance on noise levels at night, which was published in 2009.

¹² <http://www.official-documents.gov.uk/document/other/9780108510793/9780108510793.pdf>

43. In its consultation response, Hayes McKenzie Partnership Ltd quoted the World Health Organisation (WHO) report, 'Burden of Disease from Environmental Noise: Quantification of Healthy Life Years Lost in Europe', which states that,

“levels of less than 50 dB will result in no statistically significant increase in health effects associated with noise. Levels of highly disturbed sleep start to increase when noise levels exceed a level of 45 dB and levels of annoyance increase for values above around 55 dB which is equivalent to a level of 46 – 47 dB depending upon wind speed distribution for a wind farm.”¹³

44. Hayes McKenzie state that noise from wind turbines should therefore fall below these levels.

45. One witness told the Committee that:

“uniquely among noise regulations, [ETSU-R-97] permits higher levels of noise at night when, as everyone knows, the countryside is quiet and noise is at its most intrusive. ETSU-R-97 should be scrapped. We call on planners and public protection agencies to use World Health Organization noise limits. The WHO says that measurable effects of noise on sleep begin at 30 decibels.”¹⁴

46. ETSU-R-97 guidance states that night time noise levels should be no higher than 45dB, and a higher noise level should be considered acceptable,

“where the occupier of the property has some financial involvement in the wind farm.”¹⁵

¹³ Consultation responses
<http://www.senedd.assemblywales.org/documents/s4012/Consultation%20response.pdf>

¹⁴ Petitions Committee 28 February
<http://www.senedd.assemblywales.org/documents/s6363/28%20February%202012.pdf>

¹⁵ ETSU-R-97 report
<http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/energy/sources/renewables/explained/wind/onshore-offshore/page21743.html>

Noise levels that are within ETSU-R-97 guidelines

47. Residents local to Gwyddgrug told the Committee that even when noise levels are within the ETSU-R-97 limits, they are still experiencing adverse effects as a result of noise from the wind turbines.

48. Ms Harris, who lives close to wind turbines in Gwyddgrug, told the Committee that she was experiencing significant disturbance from the noise, despite the fact that the noise levels fell within the ETSU-R-97 guidelines. She told the Committee that the windfarm,

“has cost us, as a family, an enormous amount of stress, and has impacted severely on our health.”¹⁶

49. She added:

“The ETSU-R-97 guidelines do not offer any protection to those of us living in areas with very low background noise levels; the guidelines need reviewing urgently.”¹⁷

50. Another resident told the Committee:

“As everybody has said, the regulations—ETSU-R-97—relating to noise are useless and need to be updated. What is relevant in an urban area with background noise is not relevant in a quiet, rural and hilly area. Noise travels, follows contours around hills and down valleys and reverberates and echoes around buildings, certainly in our farmyard. It also resonates off water droplets—mist and drizzle. That is when the noise is at its worst.”¹⁸

51. The Committee wrote to the Minister for Health and Social Services to highlight concerns about the impact of the noise on human health and wellbeing.

52. The Committee understands that residents living with very low background noise will be more disturbed by noises of up to 45dB at night than residents in areas with a higher ambient noise level.

¹⁶ Petitions Committee 28 February 2012
<http://www.senedd.assemblywales.org/documents/s6363/28%20February%202012.pdf>

¹⁷ Ibid

¹⁸ Ibid

53. The Committee feels that it is imperative that the health and wellbeing of people living close to wind turbines is protected, and that the guidelines used when assessing planning applications for, and the operation of, windfarms should uphold this principle.

Recommendation 2

The Committee recommends that ETSU-R-97 guidelines are revised to take into account the lower ambient noise levels in rural areas and the latest research and World Health Organisation evidence on the effects of noise on sleep disturbance.

Noise exceeding ETSU-R-97 guidelines

54. The Committee visited two windfarm sites in February 2012, including Alltwalis windfarm in Gwyddgrug, which is owned by Statkraft, a Norwegian renewable energy company. During the visit, Statkraft officials accepted that there had been noise problems that had resulted in noise levels exceeding the guidelines, for a time. However, Statkraft told Members that they had taken steps to monitor and rectify the noise problems. They told Members that, after three months of testing and monitoring, a problem with a turbine gearbox was identified, and there was a delay while a new part for the turbine was manufactured, during which time the turbine was switched off at night. It was also found that wind speed and direction contributed to the problem. Although the overall noise levels from the windfarm then fell within guidance limits, residents at a nearby farm continued to experience tonal noise. It was decided that the fix had not worked and Siemens therefore agreed to replace the whole gearbox. Due to a breakdown in their relations with Statkraft, the residents of the nearby farm withdrew permission to allow Statkraft's monitoring equipment to be installed at their residence, so no further monitoring has taken place.

55. In correspondence, Statkraft has since confirmed that:

“The wind farm continues to legally operate within the conditions laid down by the local authority when planning consent was granted.”¹⁹

¹⁹ Correspondence from Statkraft to Chair, 7 March 2012

56. The Committee considers it to be vital that repairs are carried out swiftly to avoid excessive noise disturbances, or that turbines are switched off if repairs cannot be carried out within a reasonable time.

Recommendation 3

The Committee recommends that statutory planning guidance is amended to include a requirement that faulty turbines are switched off at specified times overnight as soon as a fault affects its noise emissions and that turbines are not returned to full operation until any such faults are fully repaired.

Monitoring of noise

57. The Committee wrote to the Minister for Environment and Sustainable Development to draw his attention to the complaints from Gwyddgrug residents about the noise, despite the fact that the noise levels now fall within the ETSU-R-97 guidelines. The Minister for Environment and Sustainable Development responded that, following the UK Government's review²⁰ of the impact of noise, which highlighted potential problems in the assessment of windfarm noise, the Institute of Acoustics is leading a working group, which includes Welsh Government officials, on establishing best practice guidance. The final version of this guidance is expected in September 2012.

58. Whilst considering this petition, the Committee has heard from many people who, having made complaints to their local council about the noise, had taken the opportunity to 'host' a noise monitor. However, people are unwilling to do this on a long-term basis as there are practical difficulties involved. The host needs to press a button on the monitor to record a five minute sample of the noise at any time during the day or night. It can be difficult to provide consistent daytime readings as people will not always be at home during the day.

59. Consideration should therefore be given to carrying out independent monitoring of noise levels when hosts for noise monitoring equipment cannot be found.

²⁰ Analysis of How Noise Impacts are Considered in the Determination of Wind Farm Planning Applications' Hayes Mckenzie http://www.decc.gov.uk/en/content/cms/meeting_energy/wind/onshore/comms_planning/noise/noise.aspx

60. The Committee considers it important that any monitoring of noise should take into account the effects of the topography of the landscape which, as discussed earlier in this report, can potentially change the effects of the noise produced by wind turbines.

61. The Committee also considers it important to consider the cumulative effect of all wind turbines and other sources of noise in the area. This is especially important when windfarms are being planned in areas that already have turbines in operation. Ms Morris told the Committee:

“I live 2 km from the windfarm, but now I am fearful of the effect of even more, even larger turbines. Another 28 are currently going through the planning process. If the planning permission is granted for all the windfarm developments, there will more than 80 more turbines. The development with the 28 big turbines will be sited a similar distance from my home to the existing one, but in a slightly different direction, therefore increasing the chance of much greater noise disturbance, much more often and with a greater span of wind direction.

“Sleep deprivation is most unpleasant. I cannot describe how unpleasant it is. It is also dangerous. I frequently have to make long car journeys and I do not feel that I should be forced into a situation where I have to decide to drive tired, even to my office in Carmarthen, and I cannot just tell my employer that I am too tired to come to work. If all of this was to be for just a few months during construction, then maybe, just maybe, it might be acceptable, but surely not for the next 25 or more years.”²¹

62. The Committee recognises that residents may be fearful at the prospect of more wind turbines being installed in an area already struggling with the effects of noise pollution. The Committee also recognises and welcomes the Welsh Government’s ambitious targets for green energy production. However, the experiences of so many people who are affected by wind turbines cannot be overlooked

²¹ Petitions Committee 28 February
<http://www.senedd.assemblywales.org/documents/s6363/28%20February%202012.pdf>

especially as, once installed, the turbines are operational for many years.

Recommendation 4

The Committee recommends that the Institute of Acoustics Working Group carries out meaningful consultation with people living close to wind turbines so that their experiences can help to shape the conclusions and recommendations of the Group that are expected to be published in September 2012.

Annex A: Witnesses

The following witnesses provided oral evidence to the Committee on the dates noted below. Transcripts of all oral evidence sessions can be viewed in full at:

<http://www.senedd.assemblywales.org/ieListMeetings.aspx?CId=218&Year=2012>

Meeting: 28 February 2012

Stephen Dubé, Chair of Grwp Blaengwen Action Group

Bleddyn Williams, Grwp Blaengwen Action Group Member

Caryl Harris, Grwp Blaengwen Action Group Member

Lynn Morris, Grwp Blaengwen Action Group Member

Terrence Neil, Grwp Blaengwen Action Group Member

Annex B: List of written evidence

The following written evidence was considered by the Committee on the dates noted below. All written evidence can be viewed in full at:

<http://www.senedd.assemblywales.org/ieListMeetings.aspx?CId=218&Year=2012>

Meeting: 1 May 2012

Coversheet – Petition Wording

Windfarms Visits - Note

Correspondence from Statkraft

Stephen Dube – extract from Hanning Report on Wind Turbine Noise

Stephen Dube – summary of Frey Haddon Report on Noise Radiation from Wind Turbines

Email from Grwp Blaengwen

BMJ Article

Correspondence from Petitioner to Chair

Correspondence from Minister to Chair

Meeting: 13 March 2012

Coversheet – Petition Wording

Evidence from Campaigner on Noise from Windfarm in Parc Cynog

Evidence from Local Resident

Windfarms Visits – Note

Correspondence from Statkraft

Meeting: 28 February 2012

Coversheet – Petition Wording

Correspondence from Petitioner

Meeting: 15 November 2011

Coversheet – Petition Wording

Correspondence from the Minister for Environment and Sustainable Development

Meeting: 27 September 2011

Coversheet – Petition Wording

Additional information provided by the Petitioner

Annex C: Consultation Responses

The following people and organisations responded to the Committee's call for evidence. All responses can be viewed in full at:

<http://www.senedd.assemblywales.org/documents/s4012/Consultation%20response.pdf>

Peter Harper, Centre for Alternative Technology in Wales

Bryan Norris

Conwy County Borough Council

Infrastructure Planning Commission

Rhondda Cynon Taf County Borough Council

James Cole

Sally Learoyd

Vivienne Kincaid

Bernie and Paul Blackwell

Mr E J and Mrs E O Davies

Margaret Lawn

Grŵp Blaengwen

J H M and C L Harris

Volunteers for Abergorlech, Llansawel and Rhydcymerau (GALAR)

Sally Ballamy

Gus Hellier

Hayes McKenzie Partnership Limited

Mr and Mrs Hewer

S J Lewis

Farmers' Union of Wales

Dwr Cymru

RWE npower renewables

Ms L R Morris

M V and J E Evans

Natural Power

Robert F Jones

S and J Thomas

T M J and G A Evans

T Marshall

J M Shepherd Foster

Sustainable Energy Alliance

West Coast Energy

Mrs Norma Jones

Tegni Limited

RenewableUK

Pembrokeshire Coast National Park Authority

S J Lewis