

Cullerin Range Wind Farm Survey

August 2012

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Key Findings

73% of all residences out to **5km** returned the survey with **85.7%** of households indicating that noise is present at their residence and property during the day and/or night, with **78.5%** of households reporting sleep disturbance from the noise generated by the wind energy development.

70.8% of all residences out to **7.5km** returned the survey with **82.4%** of households indicating noise is present at their residence and property during the day and/or night, with **76%** of households reporting sleep disturbance.

Introduction

Cullerin Range Wind Farm was developed by Epuron and transferred to Origin who completed construction and operation began in July 2009. The wind farm consists of 15 2MW REpower turbines, each tower reaching to around 80 metres with turbine blades of 46 metres.

Local residents have complained of noise and other disturbing impacts from the wind farm since operation began in July 2009.

It was clear that there were indeed some significant noise and amenity problems as a result of the Cullerin Range Wind Farm. I undertook to conduct this survey, the same survey that was conducted around Waterloo Wind Farm in South Australia by Mary Morris. The survey area included households within approximately a 10+km radius of the wind farm.

The aim of the survey was to establish what percentage of people who live in the vicinity of Cullerin Range Wind Farm are disturbed by noise, shadow flicker or TV/radio interference from the wind farm.

It was also to establish the distance from the turbines at which any disturbance may be occurring.

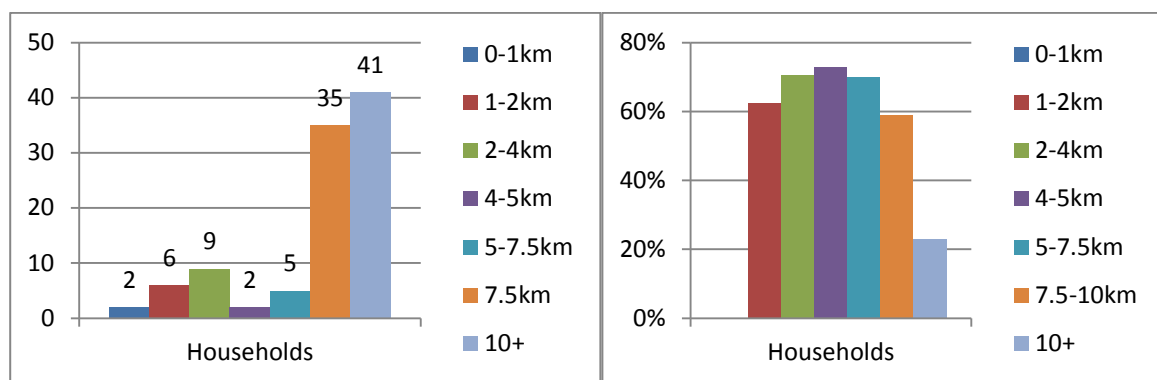
Results of the survey are to be used to inform the relevant Local, State and Federal Government authorities of any disturbance issues which fall within their duty of care.

Method and Results

An anonymous self-reporting survey, map with distance bands indicated so households could establish how far they actually resided from the turbines and a letter of introduction explaining why the survey was being conducted, was hand delivered to all households within or near a 10km zone of the Cullerin Range wind farm. Each survey was individually numbered to avoid tampering.

100 surveys were delivered with 23 households returning completed surveys. A 23% response rate.

From what we can establish in the **0-1km** band there are **2** households, (**1** being a host), in the **1-2km** band there are **6** households, in the **2-4km** band there are **9** households (**1** being a host), in the **4-5km** band there are **2** households, in the **5-7.5km** band there are **5** households and in the **7.5km to 10km** band there are approximately **35** households. This includes the population of Breadalbane and Banister. The remaining **41%** of surveys were delivered around the **10km plus zone**.



In the 10km+ area that was surveyed out to **4km** there is a total of an estimated **17** households and the response rate was **70.6%**, out to **5km's** there is an estimated **19** households and there was a return rate of **73%**, out to **7.5km's** there is an estimated **24** households with a **70%** return rate, out to **10km's** there was an estimated **59** households with a return rate of **33%**.

For the **23** households which responded to the survey and located within a radius of **10+km** of Cullerin Range Wind Farm **56.5%** were disturbed by impacts including noise, flicker or television. This does **not** include the **2** households in the below two paragraphs.

***1** household with **1** resident reported having been told of the existence of day time and night time noise at the residence in the **1-2km** band. The noise had no impact on the resident as they are deaf. This would take the overall percentage to **60.8%** of households experiencing noise

Another household experiences disturbance with TV and radio but did not know if it was from the turbines. This household also experiences annoyance from the twirling of turbines whilst working outside. This household would then take the overall percentage of households impacted in the survey to **65.2%**.

Daytime Noise disturbance, which in some cases varied with various weather conditions was reported at **60.8%** of the households who returned the survey *including the residence of the deaf person.

Night Time noise disturbance impacted **60.8%** of households who returned the survey *including the residence of the deaf person.

Upon examining the responses from within 5km of the wind farm, **85.7%** of households were disturbed by daytime noise and night time noise, *including the residence of the deaf person. A total of **78.5%** of households experience sleep disturbance.

In addition to the questions from the survey that Mary Morris completed question 13 was added for further comments. These comments are listed at the end of the summary of results. It is interesting to note that while some are not affected by noise, vibration, shadow flicker or EMI's that visual amenity and the community cohesion is of concern.

Conclusion

Whilst this survey is not definitive, it clearly supports the claims that Cullerin Range Wind Farm is generating noise disturbance, sleep disturbance and electromagnetic interference which are above levels acceptable to a significant proportion of the local population.

Sleep is an essential part of healthy life and recognized as a fundamental right by WHO under the European Convention on Human Rights (European Court of Human Rights 2003) (2).

It is clear that noise pollution governance is failing the people of Cullerin.

It is clear that siting turbines too close to homes and workplaces is inappropriate and further multi-disciplinary research is needed to establish what is safe. The acoustic modeling for this wind farm is clearly flawed.

It has been suggested that this wind farm is compliant, so if this is the case then the noise regulations are manifestly inadequate to protect the community and need to be revised immediately.

Currently low frequency noise and infrasound are not measured and the whole process is not transparent, open or honest.

A thorough review of audible and inaudible noise measurement and monitoring relating to wind farms is long overdue and should be undertaken immediately by experts independent of the industry to protect residents where wind farms are established and are being planned.

Whilst question 11 was included in the survey it is purely a hypothetical question and until this was something people could experience a true indication of the impact would not be possible.

The following pages contain a summary of results from the survey and graphs representing the percentages. I have included the comments received from question 13, whilst some of the comments are not pertaining to noise, EMI interference or shadow flicker they give an indication of the feelings within the community and highlight some of the other impacts being felt.

(No Subject)

From: **owainrowlandjones@gmail.com** on behalf of **Owain Rowland-Jones** (rowland-jones@bigpond.com)

Sent: Thursday, 1 November 2012 3:11:00 PM

To: rosepark101 (rosepark101@hotmail.com)

Dear Mrs. Schneider,

I enclose below a statement regarding the Cullerin Range Windfarm Survey (Aug 2012), which you may use/display publicly at your discretion .

Yours Sincerely,
O.Rowland-Jones

To whom it may concern ,

I, Owain Rowland-Jones, "Woodlands", Sally's Flat Rd, Pyramul, NSW make the following statement :

I am a retired Senior Mathematics Teacher (1970 -2008) and hold the degree B.Sc (Uni NSW - 1970), majoring in Pure and Applied Mathematics .

I have examined the raw data provided to me with regard to a Survey (Aug 2012) conducted around the Cullerin Range Windfarm environs. I have also checked the final report on the survey and believe it to be an accurate interpretation of the data provided .

O.Rowland -Jones
1-11-2012

CULLERIN RANGE WIND FARM SURVEY

August 2012

(please circle appropriate answer)

1. How many people reside at your house?.....

2. (i) Are any of your household affected/impacted by the Wind farm?

Yes No **(If not affected please go to question 12)**

(ii) How many people are affected?.....

3. Does the wind farm generate shadow flickering? Yes No (if No go to question 5)

4. Does the flickering annoy or disturb anyone in your home? Yes No (if No go to question 5)

What happens?

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.....

5. (i) Does the Wind farm affect your household watching television or listening to the radio or other electronic devices? Yes No (if No go to question 6)

(ii) What happens?

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6. (i) Does the wind farm generate noise disturbance during the day? Yes No
(if No go to question 7)

(ii) How does it disturb your household during the day?

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7. (i) Does the wind farm generate noise disturbance during the night? Yes No

(if No go to question 8)

(ii) How does it disturb your household during the night?

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8. (i) Are there any particular weather conditions that create more noise disturbance? Yes No

(if No go to question 9)

(ii) What happens?

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.....

9. (i) Is your household's sleep disturbed? Yes No (if No go to question 10)

(ii) If so how many nights a week ? (iii) How are your household disturbed?

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.....

10. At present how would you describe the impact of the noise on your household ? :

Seriously affected Moderately Affected Slightly Affected Not Affected

11. If the turbines were not operated at night (10 pm – 7am) would you describe people in your home as:

Seriously affected Moderately Affected Slightly Affected Not Affected

12. From looking at the attached map of the Cullerin Range area which shows distances in km from the turbines, please circle one letter below to indicate **inside** which line your residence is located.

If outside line F, please circle G

A B C D E F G
0 -1 km 1-2 km 2-4 km 4-5 km 5 -7.5 km 7.5-10km outside 10 km

13. *If you have any further comments that you believe are relevant to this survey please feel free to write below.*

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Thank you for taking the time complete this survey, it is appreciated.

Cullerin Range Wind Farm Survey

August 2012

Totals and percentages for 0-10+ from Cullerin Range Wind Farm.

23 respondents out of **100** surveys delivered. A **23 %** response rate

Question 1. 0-10+km How many people reside at your house?

65 residents in total reside in the **23** households.

13 households with a total of **41** residents said they were **affected**

1 household with a total of **1** resident said **not affected** as deaf. * *See methods and results*
Experiences TV interference.

1 household with a total of **3** residents answered **yes and no to being affected**,
experiences TV and radio interference but did not know if from turbines. They were affected
when working outside as twirling of the turbines was annoying. * *See method and results*

8 households with a total of **20** residents were not affected by noise, shadow flicker or EMI's

Question 2. 0-10+km Are any of your household affected/impacted by the Cullerin Range Wind Farm?

Yes 36 (55.4%) **No 29 (44.6%)**

if we included the 4 residents who are affected by EMI and annoyance whilst working outside this would raise the percentage of those affected to:

Yes 40 (61.5%) and lower the not affected to **No 25 (38.5%)**

Question 3. 0-10+km Does the wind farm generate shadow flickering?

Yes 9 (39.1%) **No 14 (60.9%)**

Question 4. 0-10+km

- (i) Does the flickering annoy anyone in your home?

Yes 2 (8.6%) No 21 (91.4%)

- (ii) What happens?

Startling, annoying. Outside the home creates a danger when riding horses as horse perceive shadow flicker as solid objects.

Question 5. 0-10+km

- (i) Does the wind farm affect your household watching television or listening to the radio or other electronic devices?

Yes 15 (65.2%) No 8 (34.8%)

- (ii) What happens?

15 (65.2%) TV freezes, on bad days doesn't start again, electronic noise, static, snowy, pixilates, no reception or limited reception, shadow effect, interference

4 (17.3%) No radio reception, static, poor radio reception

1 (4.3%) Aircraft radio signal interfered with.

Question 6. 0-10+km

- (i) Does the wind farm generate noise disturbance during the day?

Yes 13 (56.5%) No 10 (44.5%)

if deaf resident's home was counted the figures would be:

Yes 14 (60.8%) No 9 (39.2%)

- (ii)How does it disturb your household during the day?

Upsetting, annoying, strange noises, continuous thud, thud, feeling of pressure, difficulty to work outside, difficult to hear in paddocks, fatigued, loud noises, noisy, nuisance, irritating noise, headaches

Question 7. 0-10+km

- (i) Does the wind farm generate noise disturbance during the night?

Yes 13 (56.5%) No 10 (44.5%)

if deaf resident's home was counted the figures would be:

Yes 14 (60.8%) No 9 (39.2%)

- (ii) How does it disturb your household during the night?

Continual sound, whirring sounds, loud noise

Question 8. 0-10+km

- (i) Are there any particular conditions that create more noise disturbance?

Yes 5 (21.7%) No 18 (78.3%)

- (ii) What happens?

Noise can vary greatly more audible in lower strength winds nearer to the ground level, can be very noisy in still conditions, more noise in hot humid conditions, noisy in fog and cloudy conditions, more wind more noise, very noisy when very windy.

Question 9. 0-10+km

- (i) Is your households sleep disturbed?

Yes 13 (56.5%) No 10 (43.5%)

- (ii) How many nights per week?

Most said it was variable but usually between 3 to 7 nights a week with an average of 4 to 5 nights a week.

- (iii) How are your household disturbed?

Can't get to sleep, no sleep, kept awake, broken sleep, impossible to get a good nights sleep, woken and can't get back to sleep, woken in a panic state, woken gasping for air, feeling of pressure, not getting enough sleep, too tired to work, high blood pressure, depression, stressed out, nausea, fatigue, balance impairment, blurred vision, ulcers, headaches

Question 10. 0-10+km At present how would you describe the impact of noise on your household?

Seriously affected **10 (66.7%)**
Moderately affected **3 (20%)**
Slightly affected **0**
Not affected **2 (13.3%)** (one household occupied by one resident who is deaf, has been told of day time noise at residence)

Question 11. 0-10+km

If the turbines were not operated at night (10pm to 7am) would you describe the people in your home as:

Seriously affected **2 (13.3%)**
Moderately affected **6 (40%)**
Slightly affected **4 (26.7%)**
Not affected **3 (20%)** (one household occupied by one resident who is deaf, has been told of night time noise at residence)

Question 12. 0-10+km

Inside which line on the map is your residence located?

| | | | | | | |
|----------|----------|----------|----------|------------|-------------|----------|
| 0 – 1 km | 1 – 2 km | 2 – 4 km | 4 – 5 km | 5 – 7.5 km | 7.5 – 10 km | 10+ km |
| 0 | 5 | 7 | 2 | 3 | 3 | 3 |

Total and percentages for 0–7.5 km from Cullerin Range Wind Farm

Question 1. 0 - 7.5 km How many people reside at your house?

50 residents in total reside in the **17** households.

13 households with a total of **41** residents said they were **affected**

1 household with a total of **1** resident said **not affected** as deaf. * *See methods and results*
Experiences TV interference.

1 household with a total of **3** residents answered **yes and no to being affected**, experiences TV and radio interference but did not know if from turbines. They were affected when working outside as twirling of the turbines was annoying. * *See method and results*

2 households with a total of **5** residents were not affected by noise, shadow flicker or EMI's

Question 2. 0 - 7.5 km Are any of your household affected/impacted by the Cullerin Range Wind Farm?

Yes 36 (72%) No 14 (28%)

if we included the 4 residents who are affected by EMI and annoyance whilst working outside this would raise the percentage of those affected to:

Yes 40 (80%) and lower the not affected to No 10 (20%)

Question 3. 0 - 7.5km Does the wind farm generate shadow flickering?

Yes 9 (52.9%) No 8 (47.1%)

Question 4. 0 - 7.5km

(i) Does the flickering annoy anyone in your home?

Yes 2 (11.8%) No 15(88.2%)

(ii) What happens?

Startling, annoying. Outside the home creates a danger when riding horses as horse perceive shadow flicker as solid objects.

Question 5. 0 - 7.5km

(i) Does the wind farm affect your household watching television or listening to the radio or other electronic devices?

Yes 15 (88.2%) No 2 (11.8%)

(ii) What happens?

15 (88.2%) TV freezes, on bad days doesn't start again, electronic noise, static, snowy, pixilates, no reception or limited reception, shadow effect, interference

4 (23.5%) No radio reception, static, poor radio reception

1 (5.8%) Aircraft radio signal interfered with.

Question 6. 0-7.5km

(i) Does the wind farm generate noise disturbance during the day?

Yes 13 (76.5%) No 4 (23.5%)

if deaf resident's home was counted the figures would be:

Yes 14 (82.4%) No 3 (17.6%)

(ii) How does it disturb your household during the day?

Upsetting, annoying, strange noises, continuous thud, thud, feeling of pressure, difficulty to work outside, difficult to hear in paddocks, fatigued, loud noises, noisy, nuisance, irritating noise, headaches

Question 7. 0-7.5km

(i) Does the wind farm generate noise disturbance during the night?

Yes 13 (76.5%) No 4 (23.5%)

if deaf resident's home was counted the figures would be:

Yes 14 (82.4%) NO 3 (17.6%)

(ii) How does it disturb your household during the night?

Continual sound, whirring sounds, loud noise

Question 8. 0-7.5km

(i) Are there any particular conditions that create more noise disturbance?

Yes 5 (29.4%) No 12 (70.6%)

(ii) What happens?

Noise can vary greatly more audible in lower strength winds nearer to the ground level, can be very noisy in still conditions, more noise in hot humid conditions, noisy in fog and cloudy conditions, more wind more noise, very noisy when very windy.

Question 9. 0-7.5km

(i) Is your households sleep disturbed?

Yes 13 (76.5%) No 4 (23.5%)

(ii) How many nights per week?

Most said it was variable but usually between 3 to 7 nights a week with an average of 4 to 5 nights a week.

(iii) How are your household disturbed?

Can't get to sleep, no sleep, kept awake, broken sleep, impossible to get a good nights sleep, woken and can't get back to sleep, woken in a panic state, woken gasping for air, feeling of pressure, not getting enough sleep, too tired to work, high blood pressure, depression, stressed out, nausea, fatigue, balance impairment, blurred vision, ulcers, headaches

Question 10. 0-7.5km At present how would you describe the impact of noise on your household?

Seriously affected **10 (66.7%)**

Moderately affected **3 (20%)**

Slightly affected **0**

Not affected **2 (13.3%)** (one household occupied by one resident who is deaf, has been told of day time noise at residence)

Question 11. 0-7.5km

If the turbines were not operated at night (10pm to 7am) would you describe the people in your home as:

Seriously affected **2 (13.3%)**

Moderately affected **6 (40%)**

Slightly affected **4 (26.7%)**

Not affected **3 (20%)** (one household occupied by one resident who is deaf, has been told of night time noise at residence)

Question 12. 0-7.5km

Inside which line on the map is your residence located?

0 – 1 km 1 – 2 km 2 – 4 km 4 – 5 km 5 – 7.5 km

0

5

7

2

3

Total and percentages for 0 -5 km from Cullerin Range Wind Farm

14 of the respondents were within 5km of the wind farm. (**60%** of all households that responded)

Question 1. 0- 5 km How many people reside at your house?

11 households with **34** residents said they were **affected**

1 household with **1** resident said they were **not affected** as deaf. *See method and results. Experiences TV interference*

1 household with a total of **3** residents answered **yes and no to being affected**, TV and radio interference but did not know if from turbines. They were affected when working outside as twirling of the turbines was annoying. **See method and results*

1 household with **3** residents said they were **not affected** by noise, shadow flicker or EMI's

Question 2. 0 – 5 km Are any of your household affected/impacted by Cullerin Range Wind Farm?

Yes 31 (75.6%) No 10 (24.9%)

if we included the 4 residents who are affected by EMI and annoyance whilst working outside this would raise the percentage of those affected to:

Yes 35 (85.4%) No 6 (14.6%)

Question 3. 0- 5 km Does the wind farm generate shadow flickering?

Yes 8 (57%) No 6 (43%)

Question 4. 0 – 5 km

(i) Does the flickering annoy anyone in your home?

Yes 2 (14.2%) No 12 (85.8%)

(ii) What happens?

Startling, annoying. Outside the home creates a danger when riding horses as horse perceive shadow flicker as solid objects.

Question 5. 0 – 5 km

- (i) Does the wind farm affect your household watching television or listening to the radio or other electronic devices?

Yes 13 (92.8%) No 1 (7.2%)

- (ii) What happens?

13 (92.8%) TV freezes, on bad days doesn't start again, electronic noise, static, snowy, pixilates, no reception or limited reception, shadow effect, interference

3 (21.4%) No radio reception, static, poor radio reception

1 (7.1%) Aircraft radio signal interfered with.

Question 6. 0 – 5 km

- (i) Does the wind farm generate noise disturbance during the day?

Yes 11 (78.5%) No 3 (21.5%)

if deaf resident's home was counted the figures would be:

Yes 12 (85.7%) No 2 (14.3%)

- (ii) How does it disturb your household during the day?

Upsetting, annoying, strange noises, continuous thud, thud, feeling of pressure, difficulty to work outside, difficult to hear in paddocks, fatigued, loud noises, noisy, nuisance, irritating noise, headaches

Question 7. 0- 5 km

- (i) Does the wind farm generate noise disturbance during the night?

Yes 11 (78.5%) No 3 (21.5%)

if deaf resident's home was counted the figures would be:

Yes 12 (85.7%) No 2 (14.3%)

(ii) How does it disturb your household during the night?

Continual sound, whirring sounds, loud noise

Question 8. 0- 5 km

(i) Are there any particular conditions that create more noise disturbance?

Yes 5 (35.7%) No 9 (64.3)

(ii) What happens?

Noise can vary greatly more audible in lower strength winds nearer to the ground level, can be very noisy in still conditions, more noise in hot humid conditions, noisy in fog and cloudy conditions, more wind more noise, very noisy when very windy.

Question 9. 0 – 5 km

(i) Is your households sleep disturbed?

Yes 11 (78.5%) No 3 (21.5%)

(ii) How many nights per week?

Most said it was variable but usually between 3 to 7 nights a week with an average of 4 to 5 nights a week.

(iii) How are your household disturbed?

Can't get to sleep, no sleep, kept awake, broken sleep, impossible to get a good nights sleep, woken and can't get back to sleep, woken in a panic state, woken gasping for air, feeling of pressure, not getting enough sleep, to tired to work, high blood pressure, depression, stressed out, nausea, fatigue, balance impairment, blurred vision, ulcers, headaches

Question 10. 0 – 5 km At present how would you describe the impact of noise on your household?

Seriously affected **8 (66.7%)**

Moderately affected **3 (25%)**

Slightly affected **0**

Not affected **1 (8.3%)** (one household occupied by one resident who is deaf, has been told of day time noise exists at residence)

Question 11. 0- 5+km If the turbines were not operated at night (10pm to 7am) would you describe the people in your home as:

Seriously affected **2 (16.6%)**
Moderately affected **4 (33.3%)**
Slightly affected **3 (25%)**
Not affected **3 (25%)** (one household occupied by one resident who is deaf, has been told of night time noise exist at residence)

Question 12. 0-10+km Inside which line on the map is your residence located?

| | | | |
|----------|----------|----------|----------|
| 0 – 1 km | 1 – 2 km | 2 – 4 km | 4 – 5 km |
| 0 | 5 | 7 | 2 |

Total and percentages for 0- 4km from the Cullerin Range Wind Farm

12 of the respondents where within **4km** of the wind farm. (**52.1%** of all households that responded)

Question 1. 0-4km

How many people reside at your house?

9 households with **28** residents said they were **affected**

1 household with **1** resident said they were **not affected** as deaf. **See method and results Experiences TV interference*

1 household with a total of **3** residents answered **yes and no to being affected**, TV and radio interference but did not know if from turbines. They were affected when working outside as twirling of the turbines was annoying. ** See method and results*

1 household with **3** residents said they were **not affected** by noise, shadow flicker or EMI's

Question 2. 0-4km Are any of your household affected/impacted by Cullerin Range Wind Farm?

Yes 25 (71.4.%) **No** 10 (28.6%)

if we included the 4 residents who are affected by EMI and annoyance whilst working outside this would raise the percentage of those affected to:

Yes 29 (82.9%) **No** 6 (17.1%)

Question 3. 0-4km Does the wind farm generate shadow flicker?

Yes 8 (66.6%) No 4 (33.3%)

Question 4. 0-4km

(i) Does the flickering annoy anyone in your home?

Yes 2 (16.6%) No 8 (83.4%)

(ii) What happens?

Startling, annoying. Outside the home creates a danger when riding horses as horse perceive shadow flicker as solid objects.

Question 5. 0-4km

(i) Does the wind farm affect your household watching television or listening to the radio or other electronic devices?

Yes 11 (91.7%) No 1 (8.3%)

(ii) What happens?

11 (91.7%) TV freezes, on bad days doesn't start again, electronic noise, static, snowy, pixilates, no reception or limited reception, shadow effect interference

2 (16.6%) No radio reception, static, poor radio reception

1 (8.3%) Aircraft radio signal interfered with

Question 6. 0-4km

(i) Does the wind farm generate noise disturbance during the day?

Yes 9 (75%) No 3 (25%)

if deaf resident's home was counted the figures would be:

Yes 10 (80%) No 2 (20%)

(ii) How does it disturb you household during the day?

Upsetting, annoying, strange noises, continuous thud, thud, feeling of pressure, difficulty to work outside, difficult to hear in paddocks, fatigued, loud noises, noisy, nuisance, irritating noise, headaches

Question 7. 0-4km

(i) Does the wind farm generate noise disturbance during the night?

Yes 9 (75%) No 3 (25%)

if deaf resident's home was counted the figures would be:

Yes 10 (80%) No 2 (20%)

(ii) How does it disturb your household during the night?

Continual sound, whirring sounds, loud noise

Question 8. 0-4km

(i) Are there any particular conditions that create more noise disturbance?

Yes 5 (41.6%) No 7 (58.4%)

(ii) What happens?

Noise can vary greatly more audible in lower strength winds nearer to the ground level, can be very noisy in still conditions, more noise in hot humid conditions, noisy in fog and cloudy conditions, more wind more noise, very noisy when very windy

Question 9. 0-4km Is your households sleep disturbed?

Yes 9 (75%) No 3 (25%)

Question 10. 0-4km At present how would you describe the impact of noise on your household?

Seriously affected 7 (70%)

Moderately affected 2 (20%)

Slightly affected 0

Not affected 1 (10%) (one household occupied by one resident who is deaf, has been told of day time noise at residence)

Question 11. 0-4km If the turbines were not operated at night (10pm to 7am) would you describe the people in your home as:

Seriously affected 2 (20%)

Moderately affected 4 (40%)

Slightly affected 1 (10%)

Not affected 3 (30%) (one household occupied by one resident who is deaf, has been told of day time noise at residence)

Question 12. 0-4km Inside which line on the map is your residence located?

| | | |
|----------|----------|----------|
| 0-1km | 1-2km | 2-4km |
| 0 | 5 | 7 |

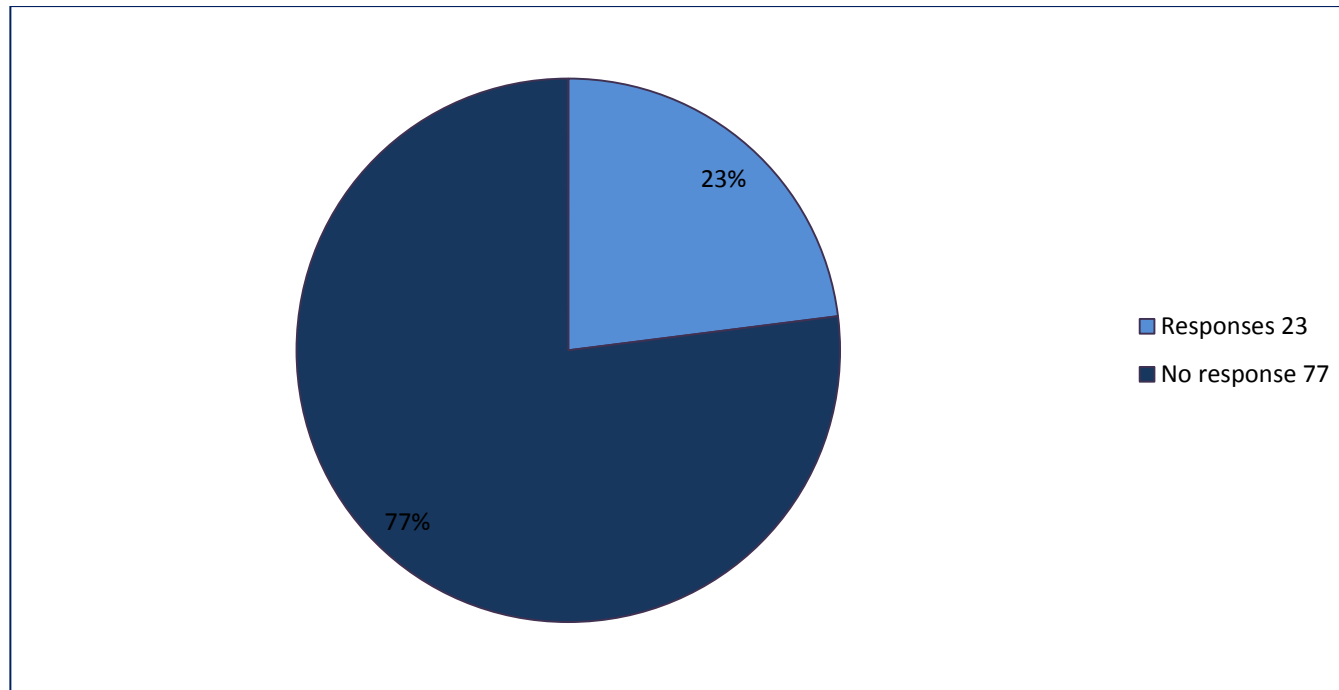
Cullerin Range Wind Farm Survey August 2012

P Schneider August 2012

The following graphs are in conjunction with the summary of the survey undertaken at Cullerin Range Wind Farm.

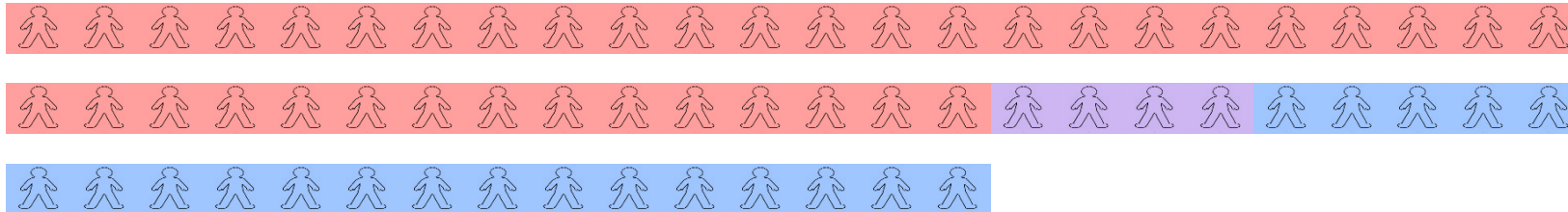
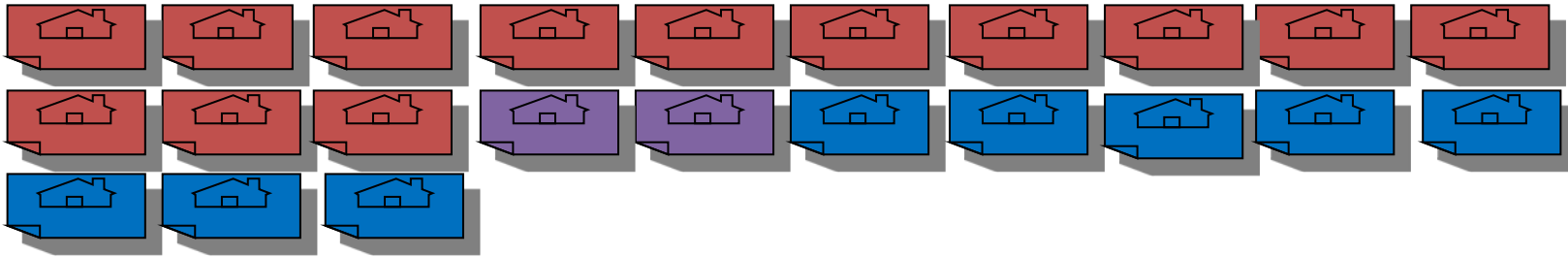
These graphs serve to demonstrate on a visual level the extent of noise, EMI's, shadow flicker and sleep disturbance reported in the survey from the Cullerin Range Wind Farm.

Out of the 100 surveys delivered out to a 10+ radius of the wind farm 23 surveys were returned.



Question 1. How many people reside at your house?

65 residents in total reside in the 23 households.



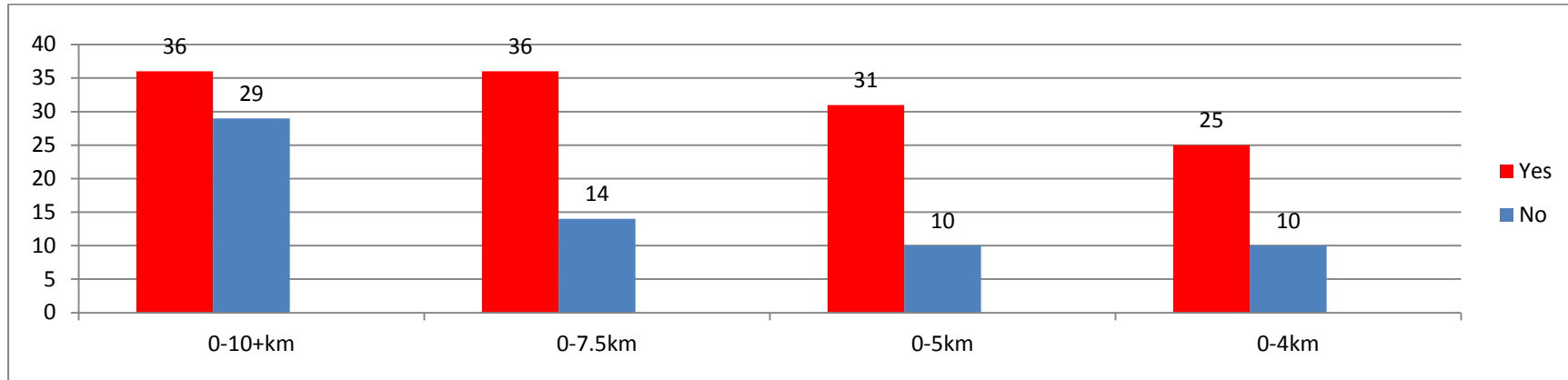
13 households with 41 residents in total said they were affected by noise, flicker or EMI's.

1 household with a total of 1 resident said they were not affected as they are deaf, but has been told by others that day and night time noise exists. Experiences TV interference.

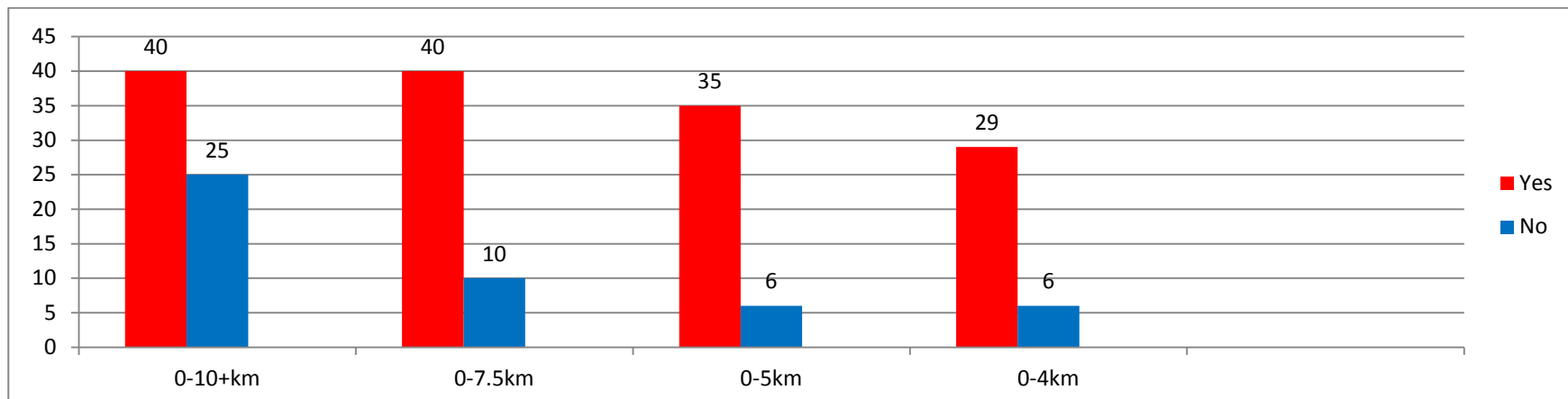
1 household with a total of 3 residents answered yes and no to being affected, TV and radio interference but did not know if from the turbines. This household is affected when working outside as twirling of turbines was annoying.

8 households with a total of 20 residents were not affected by noise, shadow flicker or EMI's

Question 2. Are any of your household affected/impacted by Cullerin Range Wind Farm?

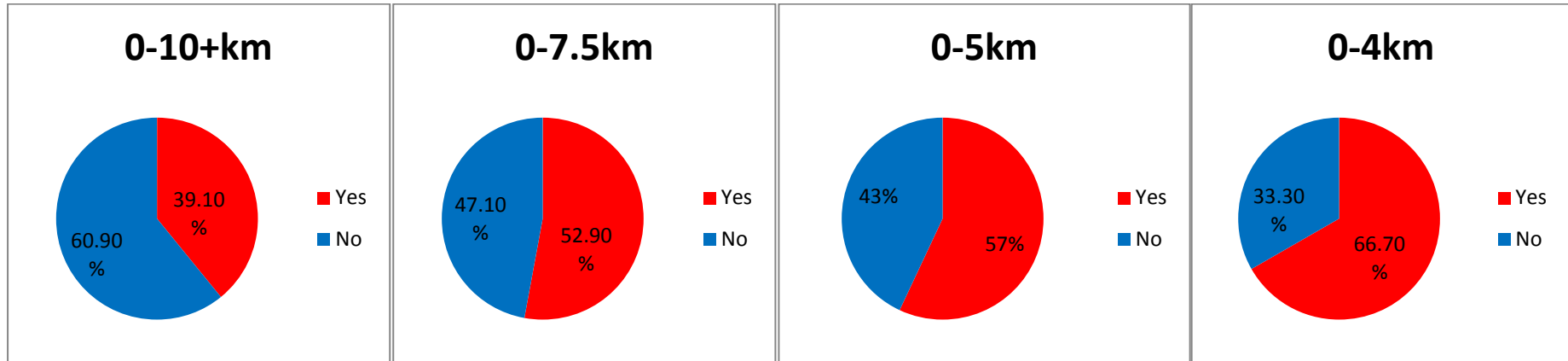


If we included the *deaf resident and the household affected by TV Interference and annoyance from twirling turbines the figures would change to the below graph.

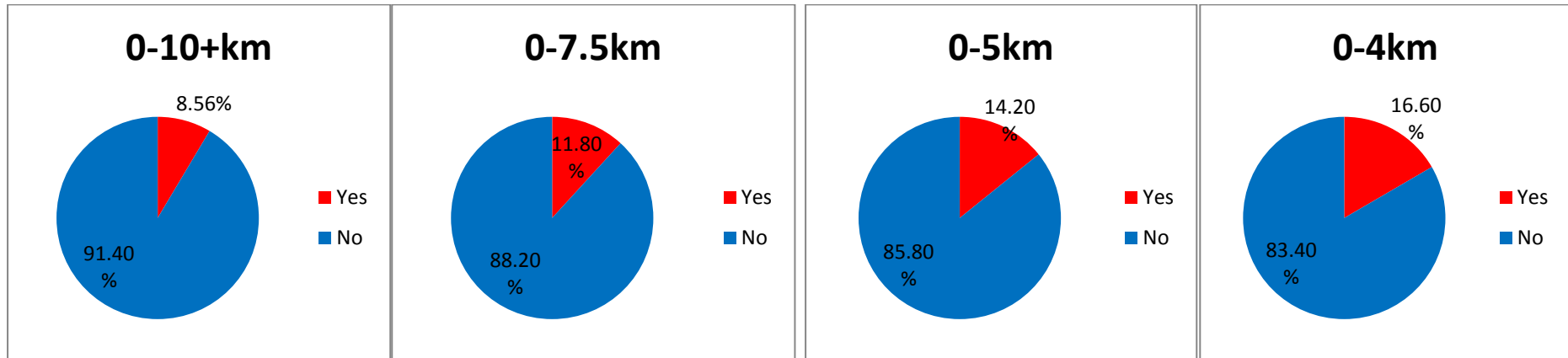


*The left hand scale represents the number of persons.

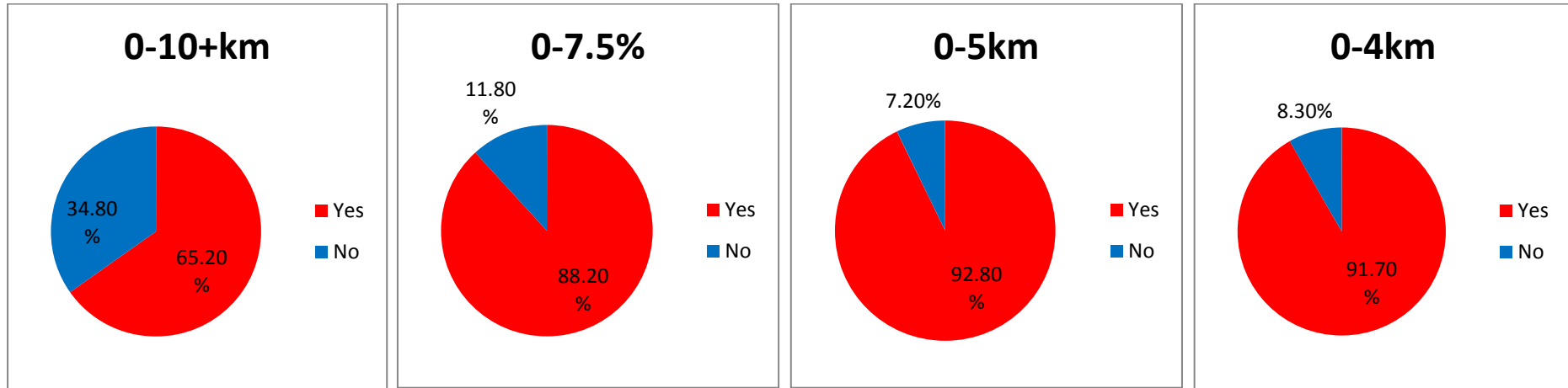
Question 3. Does the wind farm generate shadow flicker?



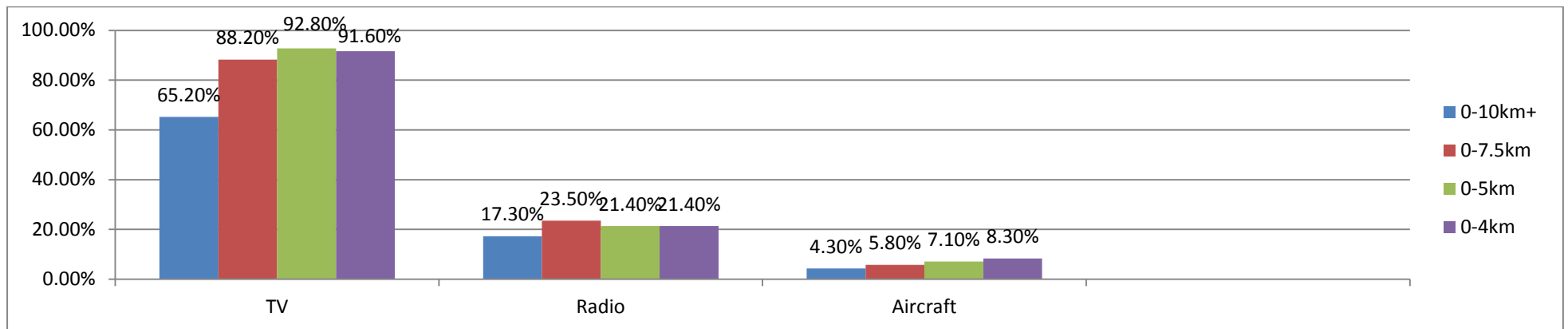
Question 4. Does the flickering annoy anyone in your home?



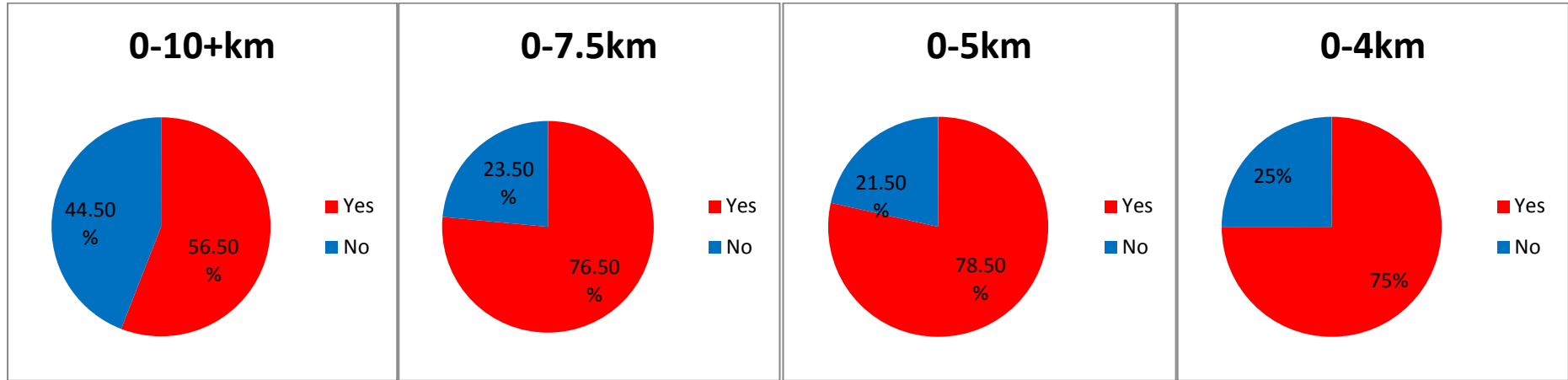
Question 5. (i) Does the wind farm affect your household watching television or listening to the radio or other electronic devices?



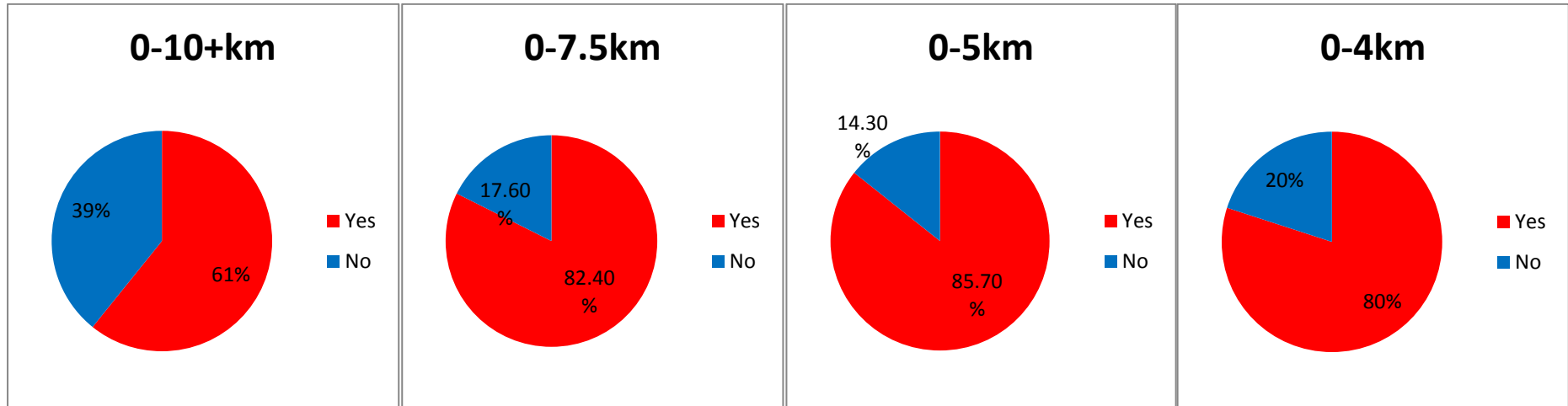
(ii) What happens? Percentages of TV, Radio and Aircraft radio signal interference.



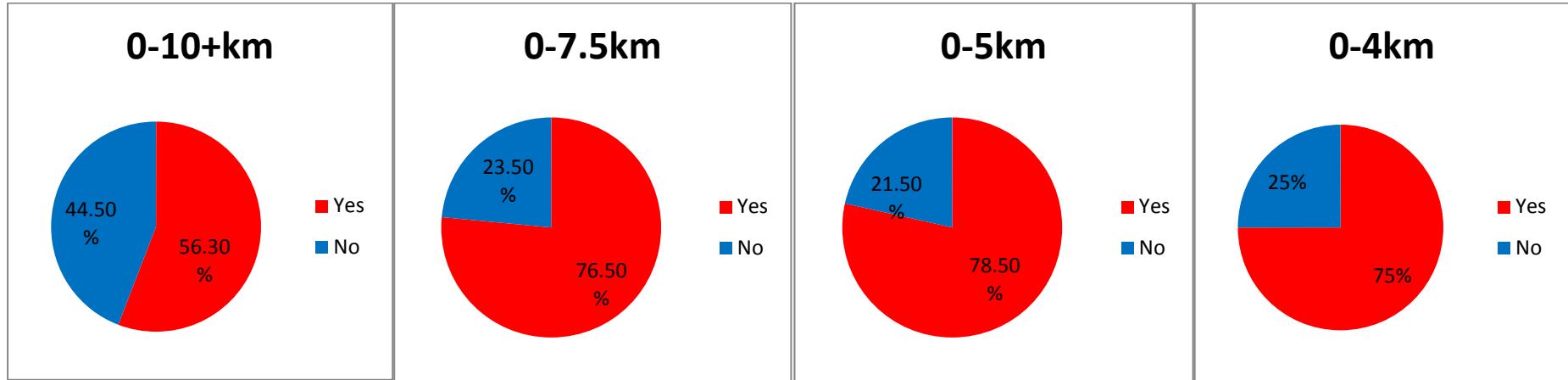
Question 6. Does the wind farm generate noise disturbance during the day?



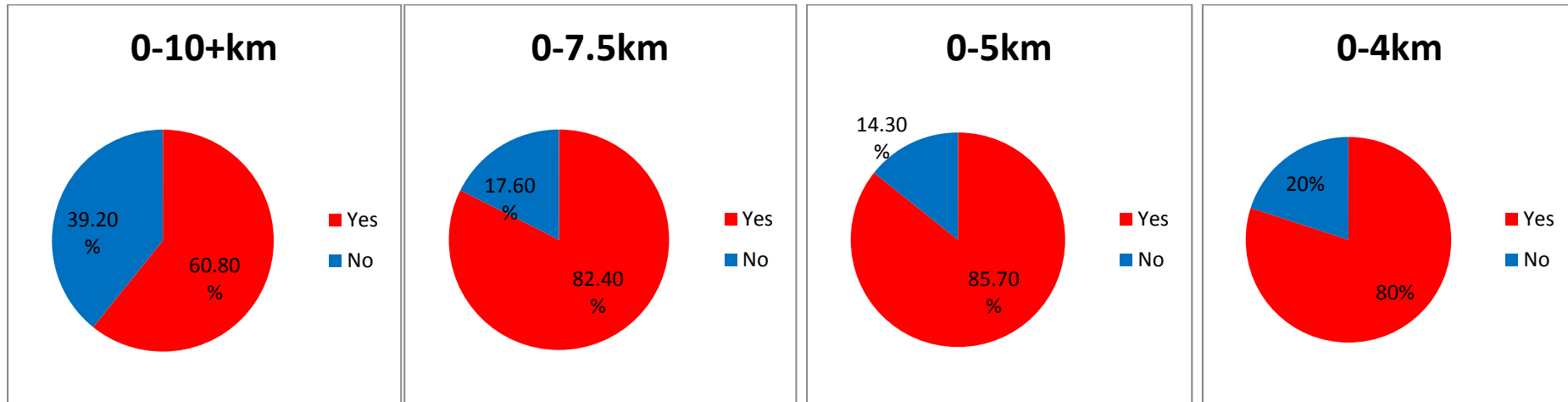
If we included the residence of the *deaf person who has been told day time noise exists, the percentages would be as follows:



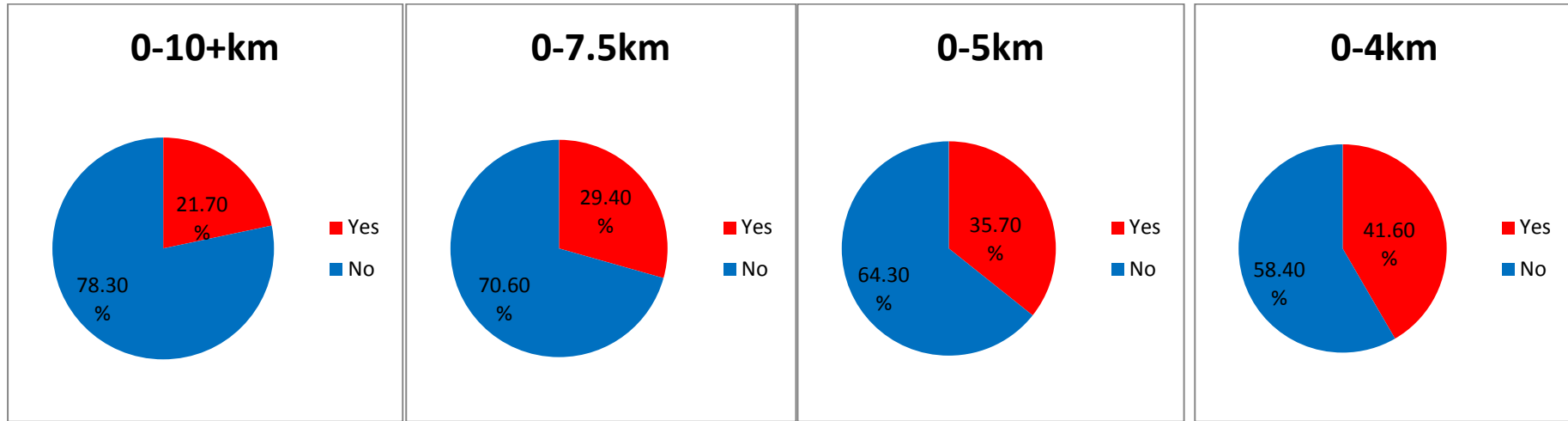
Question 7. Does the wind farm generate noise disturbance during the night?



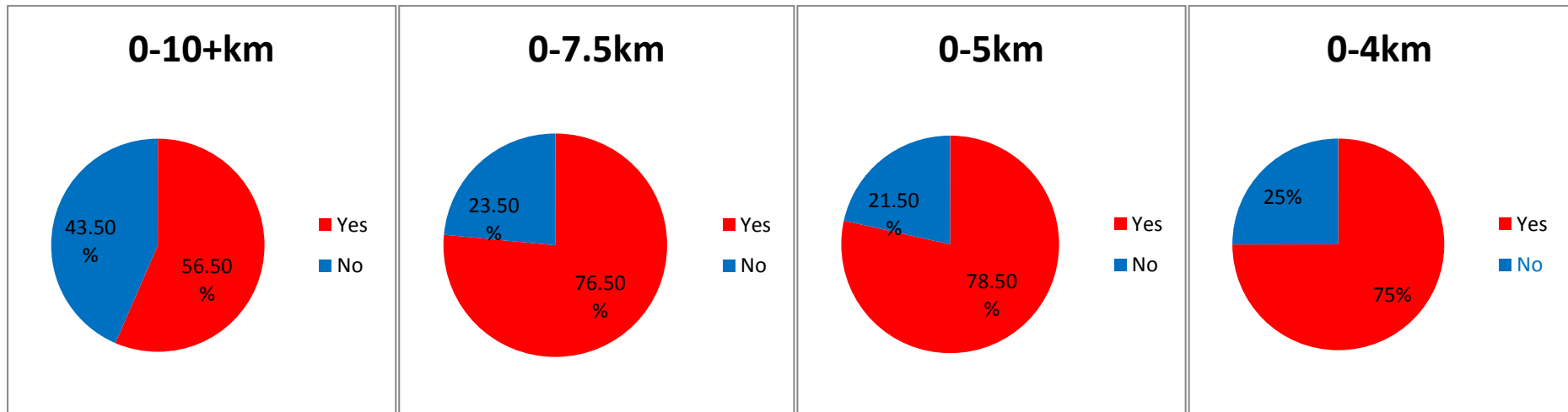
If we included the residence of the *deaf person who has been told day time noise exists, the percentages would be as follows:



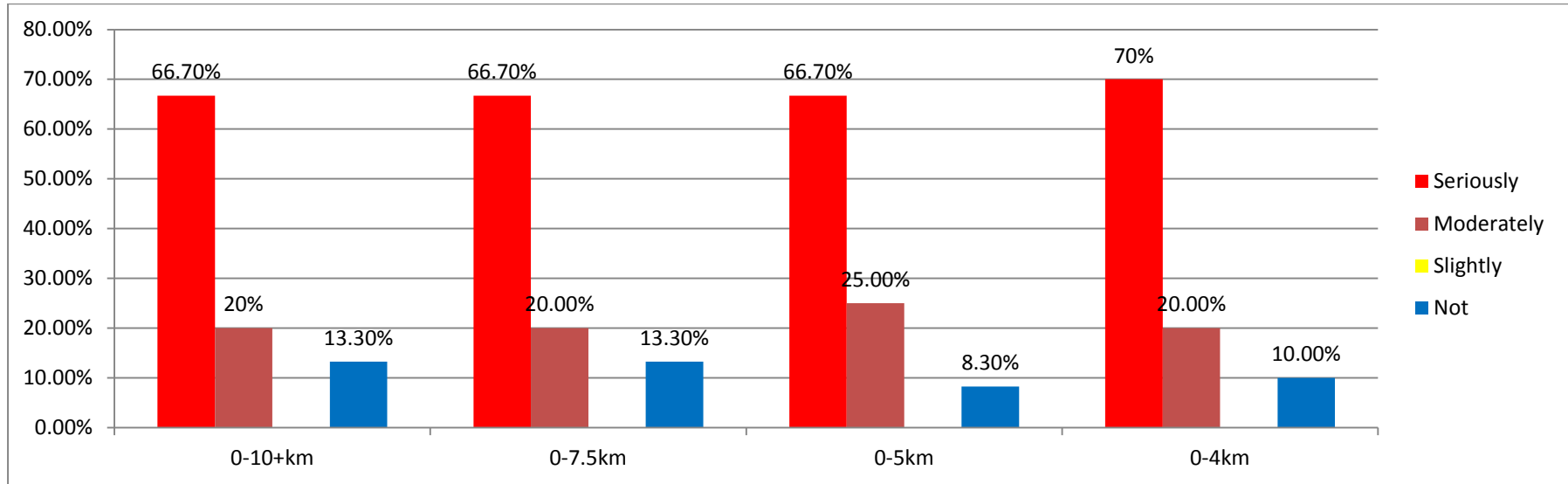
Question 8. Are there any particular weather conditions that create more noise disturbance?



Question 9. Is your households sleep disturbed?



Question 10. At present how would you describe the impact of noise on your household?



Cullerin Range Wind Farm Survey

August 2012

Comments as reported in survey

Affected Resident's comments 1-2km

Summer months we get shadow flicker on walls and ground which startle you at first, then becomes annoying.

Received TV reception on only 2 channels, shadow effect and electronic noise. TV antenna replaced by satellite dish by wind turbine company.

Continuous thud, thud noise and feeling of pressure.

Noise can vary greatly more audible in lower strength winds and can be very noisy in still wind condition at ground level when turbines are moving quickly due to wind gradient.

Sleeplessness, sleep pattern broken, wake-up panic attack and gasping for breath and feeling of pressure.

I feel very much cheated and betrayed by the government and authorities in a number of ways. Firstly by subjecting me to the profound health effects that are caused by these turbines, being denied my rights as a citizen. Have been forced to work and reside (try to sleep) in this new environment. I have been prejudiced against, my livelihood has been detrimentally affected. The government has favored a new private company against an established one. Has refused all reasonable requests and has shown a bias toward wind turbine developments actively discriminating against any one questioning the benefits, the costs, subsidies being given to these companies and refused to act in a responsible manner totally failing in a duty of care. The whole industry is one of corruption, lack of due diligence and denial and require a royal commission into the activities and policy employed by government and departmental planning.

Resident 1-2km

Television does not always work well, I cannot get ABC or SBS and it often freezes.

Deaf resident who is told by others that there is noise during the day and night.

Affected Resident 1-2km

Our TV freezes, for a few minutes then starts again, on a bad day it doesn't start again.

Continual sound particularly on hot summer nights. Keeps me awake like a whirring sound.

More affected in hot summer weather.

Waking and not able to get back to sleep from noise at night.

Affected resident 1-2km

The TV pixilates, very annoying, you can't watch without constant interference.

Night time noise makes it difficult to get to sleep and if you wake, unable to get back to sleep.

More affected in still hot humid weather.

Not getting enough sleep

Very concerned as I fly a small aircraft, and the wind turbines are a danger, as they are impossible to see at night, or on cloudy days. They also affect the radio signals, which can also be dangerous. I use my aircraft on the property and DD stock checks, I have to be very aware of the turbines.

Affected resident 1-2km

Dangerous riding in the paddock as horses perceive shadow flicker as solid objects.

No or faint signal on TV, no radio reception

Headaches and difficult to hear stock when out in paddocks.

Pressure inside farm vehicles have to wind windows down, constant fatigue.

Impossible to sleep at night.

Health Impacts: high blood pressure, depression, nausea, blurred vision, ulcers, headaches, balance impairment, fatigue.

More noise when very windy, foggy, cloudy or no wind.

We believe the wind development has made us very ill.

Affected resident 2-4km

Too tired to work

Don't agree with turbines

More wind more noise

Affected resident 2-4km

TV affected,

Noisy through the day and night No sleep or poor sleep

Affected resident 2-4km

TV snowy,

Loud noise in the day and night no sleep

Resident 2-4km

Possibly static reception for both radio and tv do not know if related

Not affected health wise

Wind farm has damaged social fabric, ruined my lifetime of looking west for rain, for sunset, for peace, **twirling all day annoys when working** . Most of wind farm visible from our farm, treated without respect during process.

Non Affected resident 2-4km

The wind farm process for Cullerin shattered community cohesion and effects still very evident. The disrespect for neighbours, lack of consultation, the height and prominence of the site visible for up to 50km make it a terrible intrusion in the landscape, but the insulting process to get the turbines erected meant there was no chance the surrounding landholders could ever have taken ownership of the wind farm. We ourselves are not conscious of any ill effects health wise, but the stress and destruction to "our country has been considerable for all family members. (2 now left home)

Affected resident 2-4km

Bad TV reception

Noise nuisance of a day Night time no proper sleep. Stressed out.

More wind more noise

Affected resident 2-4km

Television poor,

Irritating daytime noise, night time noise no sleep to tired to work

Don't agree with turbines

Affected Resident 2-4km

Poor TV reception

Daytime nuisance noise, night time noise impacts sleep everybody tired

Affected resident 4-5km

Poor TV

Daytime noise makes it hard to work, night time noise no sleep

Affected resident 4-5km

Static TV and no radio reception

Daytime noise annoying strange noises

Night time noise hard to sleep

Affected Residents 5-7.5km

Telly reception bad

Day time noise is annoying night time noise stops us sleeping

Wind turbines are bad.

Affected Resident 5-7.5km

TV and radio bad reception

Day time noises are upsetting

Noise at night makes it difficult to sleep all tired.

Non Affected Residents 5-7.5km

The wind farm has generated a lot of ill feeling in the community.

Oddly enough it seems to some degree that the hosts (of the wind farm) feel they have some ownership over who gets what and a lot of the disharmony is coming from them.

They feel the Breadalbane Community or Breadalbane tricked Origin into funding the Hall they built and are running a hate campaign. I believe. The method of running the CDEP's should be more transparent and it is a lot better.

That adjacent landholders (within 2kms) should receive some form of compensation. That would go a long way to solving disputes or ill feeling.

But good luck to the wind farm hosts, No one begrudges them anything but its strange they are the ones causing the trouble you would think they would be keen for the community to share in the benefits. It's very hard to understand.

Even if mistakes have been made its time to bury the hatchet and move on.

Non Affected Resident 7.5 to 10km

Whilst we are not directly affected by the Cullerin turbines we believe that they are a blight on the landscape and we do not support further construction. We believe that they are inefficient technology purely to appease the "Green Vote" They could not survive without huge subsidies.

Thank you so much for taking the time to conduct this survey.

Non affected resident 7.5 – 10km

We have no issues at all with any current or proposed wind farms.

Non affected resident 10km +

I live far enough away from Cullerin Range Wind Farm to not be affected by the things you have listed, IE: noise shadow flicker and TV/radio interference. I started off being towards being positive toward wind farms, as anything that is seen to be green and beneficial to our landscape and wellbeing is a great thing, but since then (more than 3 years ago) I have been educated about wind farms.

They are in my opinion and others, far from green. They are lethal to bird life and bats and many protected species, that small individual persons would be fined and jailed for causing harm to.

They are causing family's to leave their homes due to health issues and not just neighbours, but people who are being paid to have them on their property, the amount of concrete they require, oil for their gear boxes, landscape disturbance, gas to prevent fire in their towers, etc. all for intermittent power.

I asked a RATCH employer, from one of their exhibitions, if they would build their industrial wind farm at Collector if they did not benefit from REC subsidies, without hesitation the reply was NO.

The only true wilderness is between the ears of a green.

Non affected resident 10km+

The turbines affect our amenity. They are intrusive.

From my reading of the press and other articles the wind turbines are the second most expensive source of electrical power.

Gas is the most efficient source with the advantage that gas turbines can be turned on or off as required unlike wind turbines, solar and coal fired power stations.