

Mason County Planning & Zoning Department

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1
2 August 14, 2013 [SPECIAL]
3

4 Minutes of the Mason County Planning Commission special meeting held at Summit
5 Township Hall, 4879 W. Deren Road, on August 14, 2013 at 7:00 p.m.
6

7 MEMBERS PRESENT: Chuck Lange, Doug Robidoux, Virginia Fox, Bruce Patterson,
8 Tom Hooper, Dennis Dunlap
9

10 MEMBERS ABSENT: Ralph Lundberg (excused)
11

12 OTHERS PRESENT: Mary Reilly, Trudy Roy
13

14 The meeting was called to order at 7:00 pm by Virginia Fox.
15

16 Public Comment:
17

18 Evelyn Bergaila asked why turbine #40 had been shut down.
19

20 Mary Reilly stated she was aware the turbine had been shut down but did not know the
21 cause of the shutdown.
22

23 Carl Anton handed out a letter to the Board members. Mr. Anton asked for clarification
24 on several terms used in the post construction sound study and asked if the public could
25 get a copy of the post construction sound study. He questioned HGC's use of statistics.
26

27 Mary Reilly stated anyone wishing to receive the full study should contact Fabian
28 Knizacky. A portion of the study is on the county website.
29

30 Virginia Fox closed public comment.
31

32 Virginia Fox turned the meeting over to Mary Reilly.
33

34 Mary Reilly thanked Summit Township for the use of the hall. Ms. Reilly stated the post
35 construction sound study was required by the zoning ordinance and special land use
36 permit and the Planning Commission was to get the results within one year of the start of
37 operations. Ms. Reilly gave a summary of how the consultant was selected and why the
38 time of year (early spring) was chosen. HGC had 8 monitoring sites, 6 on unpooled
39 parcels and 2 on pooled parcels. Ms. Reilly handed out maps with the monitoring sites
40 and turbine locations. Testing was from April 24 to May 10, 2013. Mary Reilly turned the
41 meeting over to HGC representative Brian Howe.
42

43 Brian Howe, HGC Engineering, handed out information for the audience to accompany
44 the power point presentation. Mr. Howe showed the 8 monitoring sites, weather stations,
45 and explained that HGC received data from Consumers on power output from the
46 turbines. Mr. Howe explained the turbine on-turbine off measurements to get a close

1 determination of ambient sound levels. They had to anticipate the weather the best they
2 could due to a 24-48 hour notice required by Consumers. During the on-off testing there
3 were both attended and unattended measurements.

4
5 Brian Howe stated the terms “Db” and the weighted scale “dBA” are very different. The
6 frequency spectrum of the sound was obtained (in dB) so the decibel level as a function
7 of frequency can be determined in different weighted scales. The frequency spectrum
8 would just be dB. “For infrasound, the A-weighting makes no sense, you have to look at
9 frequency levels.” The 1Hz to 20 Hz was looked at for infrasound. Mr. Howe stated the
10 ordinance states the sound level is 45 dBA on unpooled parcels and 55 dBA on pooled
11 parcels at 10 min. intervals on the LAeq scale. “You simply cannot go out and just look at
12 dBA and say the turbines are within compliance or without.” Sound level limits apply to
13 contribution of the wind turbines only so sound was measured with the turbines on and
14 off to get the ambient sound to then determine the contribution of sound from the
15 turbines.

16
17 He stated that the measurements went on for over 2 weeks in 10-minute by 10-minute
18 intervals.

19
20 Brian Howe explained the different graphs and the wind data from Test site 1. He
21 explained how to interpret the graphs including the L90, LAeq, power data, and wind data
22 including ground and hub height winds. He stated that the power data correlated well
23 with the wind speed. During periods of high wind at ground level, he stated that it is
24 important to recognize that ambient sounds may be caused by trees and grass moving in
25 the wind; in the night there tends to be less ambient sound. There is more sound
26 downwind from a turbine.

27
28 Mr. Howe explained there were times when the 45 dBA is exceeded when the turbines
29 are running but there are also times when the 45 is exceeded when the turbines are not
30 running. This is the reason ambient noise needs to be “backed out” of the total sound
31 contribution.

32
33 Brian Howe stated that the turbines (for test site 1) are running “very close” to 45 dBA.
34 There is not a “huge factor of safety”. “The bottom line is that we would be extremely
35 hard pressed to find periods where we would conclusively say the turbines are over 45”.
36 Even though there are peaks in the sound, the system is not always exceeding 45 dBA at
37 full power. Howe stated there are no recommendations to correct for these times
38 because “there is not a situation where they are predictably going over 45. “

39
40 Brian Howe explained infrasound measurements down to 6.3 Hz and this is in the dB
41 scale. Infrasound measurements were taken inside a garage. The main thing they were
42 looking for in the frequency spectra is pure tones. No pure tones were found. He
43 explained other factors in the frequency spectra, such as the frogs.

44
45 HGC has investigated infrasound issues in Barbados that are into the “100’s” and people
46 are describing a rattling but people can’t feel it or hear it.” Howe stated that “wind in itself

1 is infrasound, wind is a pressure fluctuation.” Mr. Howe described the threshold of
2 perception and the thresholds of vibration on a graph and stated that sound from LWEP
3 is 10 dB below that threshold.
4

5 In summary:

- 6 1. Turbines are running close to the 45 dBA limit but there is not a systemic
7 exceedance. “There is not a large factor or safety.”
- 8 2. You can hear the turbines, not hearing the turbines is not the standard.
- 9 3. If ambient sound is low around a certain house, the turbines will be more
10 audible.
- 11 4. Infrasound is measurable, but at the levels observed it is well below the
12 threshold for perception and for other rattles. He explained that “perception”
13 here does not mean audibility, it can also be felt such as with a vibration.
- 14 5. There are no measured tones attributed to the turbines.
- 15 6. Nothing in the report indicates that the turbines should be shut off over certain
16 wind speeds or from certain direction. In some audits it is clear that that if the
17 wind is coming out a certain direction then the turbines will exceed their limit.
18 “In this case where there are houses scattered all over and wind turbines all
19 over, it does not lend itself well to that.”
20

21 Virginia Fox asked the Board if they had any questions.
22

23 Bruce Patterson asked Brian Howe to explain the C-1 graph on infrasound and what the
24 upper lines were for.
25

26 Brian Howe stated the upper lines show where people have the onset of perception.
27

28 Dennis Dunlap asked how the attended measurements were picked. He noted that there
29 were only 3 of the 68 observations taken with the turbines at full power. He was hoping
30 to address noise complaints which he was assuming occurred at full power.
31

32 Brian Howe explained how the attended measurements were taken. To get Consumers
33 to do the on-off they were wanting 24-48 hours notice “so we had to pick the time and
34 hope the wind was there.”
35

36 Mary Reilly asked what is wind buffeting.
37

38 Brian Howe explained in gusting winds “you can feel wind fluctuation and this can cause
39 low frequency sound. An example would be your car window down while driving.” Howe
40 stated that many standards say not to measure when ground wind is high due to this
41 effect.
42

43 Mary Reilly asked if there were periods within the data for low level ground wind and high
44 hub height level winds.
45

46 Brian Howe stated there was low level ground wind and high hub level winds during the

1 testing period or “wind sheer”. For most part, the results favor compliance during these
2 events

3
4 Dennis Dunlap stated charts look like when turbines are producing at full power Lq90 is
5 above the 45 dBA limit.

6
7 Brian Howe stated turbines are running very close to 45. There are small periods when
8 they are over 45. The question is “what does Mason County want to do about it”. There
9 are also periods under very similar conditions when the sound level is under 45.

10
11 Tom Hopper stated there are times when turbines are not on and sound is over 45.

12
13 Brian Howe stated yes and that can be explained by ground level wind producing sound
14 irrespective of cars, lawn mowers etc. Howe stated “You have to be very careful to pick
15 a number and say it’s over 45 and the turbines are out of compliance.”

16
17 Chuck Lange asked if it was fair to take an average of the sound?

18
19 Brian Howe stated that from a technical point of view is there not an obvious, clear
20 excess of sound.

21
22 Virginia Fox asked if HGC has seen these anomalies in other wind parks.

23
24 Brian Howe stated yes. In some places, every time winds peaks and comes out of a
25 certain direction the turbines are out of compliance. Mr. Howe does not see anything that
26 illustrates a problem here. He does not see a recommendation of what to act on.

27
28 Virginia Fox commented on the ambient sound contributions of tractors, frogs, birds.

29
30 Brian Howe stated that that has nothing to do with being able to take a measurement. It
31 does not create a problem.

32
33 Mary Reilly asked Mr. Howe if HGC measured low frequency sound and vibration against
34 the section of the ordinance and the O’Neal article.

35
36 Brian Howe stated yes they did and the wind farm meets those standards.

37
38 Virginia Fox opened up the meeting for public question.

39
40 John Kreinbrink asked why the scale on chart C1 with the infrasound measurement ends
41 at about the blade passing frequency, before 1 hz.

42
43 Brian Howe stated that the microphones at all of the test sites to 6.3 Hz. Howe stated a
44 special microphone was used at one site to get down to 1 hz. Not all of the turbines in
45 the park were turned off, it was a certain radius. So the microphone may have picked up
46 some of the distant turbines.

1 John Kreinbrink asked if the data was available from the turbines
2
3 Brian Howe stated it was not, just what was in the report.
4
5 Jeannie Anton asked how the locations were selected, she had a concern about a
6 property off of Brye Road.
7
8 Brian Howe explained that they did not take measurements anywhere else other than the
9 8 locations on the map.
10
11 Carl Anton asked about low frequency requirements and stated low frequency sound is a
12 problem. He stated the literature is very clear about low frequency sound.
13
14 Brian Howe stated the turbines are around 60dB (not a weighted scale) and he does not
15 believe this causes a problem. He understands that many people will not agree with him.
16
17 Carl Anton asked for clarification on the statistics used on the project. What percent
18 certainty does HGC have in their results?
19
20 Brian Howe explained that with what was observed and the measurements taken, there
21 is not a predictable situation where it is going to be exceeding.
22
23 Eric Jefferies asked if there was a slide with information on the turbine near his home,
24 Location 7.
25
26 Brian Howe stated there was not.
27
28 Eric Jefferies gave Mary Reilly a copy of an analysis of the post construction sound study
29 done by Rob Rand, accoustician, and read several sections of the analysis. Eric
30 Jefferies stated he gets “the feeling the results have been cherry picked” to favor
31 Consumers. Rob Rand identified areas where the L90 and Leq correlated closely, with
32 turbines at half near to full power the turbines are consistently above 45dBA. Mr.
33 Jefferies has to listen to these all the time. “He has filed complaints with Consumers
34 Energy to no avail.” “This was my last hope”.
35
36 Brian Howe stated that the L90 during the first period is right at 45 dBA, in the second
37 period there is a lot of ground effect.
38
39 Eric Jefferies read from the Rob Rand report. The 10 minute increments [LAeq] take out
40 the modulation of sound. The sound could be between 55 dBA and 45 dBA but it could
41 still be in compliance. Mr. Jefferies explained that his family is being woken up at night
42 and he is now clenching his teeth. Mr. Jefferies stated that the turbines are over the limit
43 and he hoped the Planning Commission would do something to change that.
44
45 Sue Kaiser asked why one week of data was deleted from turbine 25.
46

1 Brian Howe stated the data was corrupted because the sound meter “flat lined”. He
2 thought something happened to the microphone.

3
4 Carl Anton voiced concern that the study had insufficient data with testing at full power.
5 He stated “we might or might not have strong conclusive evidence”. Anton asked if the
6 Planning Commission would explore getting more data at full power to satisfy a very
7 contentious issue? Without that, “this will continue to fester.”

8
9 Brian Howe stated that the study is dependent on the weather. He agreed that more data
10 at full power could help to clarify the study. Turning the turbines on and off with a
11 quicker response would be helpful.

12
13 Evelyn Bergaila stated she agreed with Eric Jefferies. The sound from turbines is not a
14 steady sound. “There could be a 55 sound level coming at me but that sound gets
15 averaged out.” In 2003 she went to a meeting and the Planning Commission stated, in
16 the minutes, they would “shut them down” if the turbines were over the sound limit.

17
18 William Parsons stated his house vibrates and shakes at times.

19
20 Brian Howe stated the turbines do not cause vibration thru the ground, it is air pressure.
21 Measured infrasound can cause light weight structures to vibrate, such as a window
22 shade, at a resonant frequency but not a heavy structure.

23
24 Colleen Plummer stated HGC was part of the 2011 Ontario Environmental Review
25 Tribunal that found wind turbines can harm humans when placed too close.

26
27 Brian Howe stated HGC is assessing the sound here through a numeric limit. HGC
28 wrote a report for the Ontario Govt. on low frequency noise, and there is a correlation
29 between sound level and annoyance. Mr. Howe said “that is not what we are addressing
30 here.”

31
32 Colleen Plummer stated that health effects are happening all over the world. “How do we
33 explain that?.”

34
35 Mary Nichols asked if all 56 turbines were shut down at on time and why did it take 24 to
36 48 hour notice for Consumers to turn off the turbines. When there are ice issues,
37 Consumers turns them off.

38
39 Brian Howe stated not all turbines at one time only those 8000’ from a turbine that was
40 being monitored.

41
42 Mary Nichols asked about “slamming” and could the noise in the background be the
43 turbines that were not turned off.

44
45 Brian Howe said “to a certain extent”, at the low frequency during blade pass.

1 Kirk Dinkins stated he has 15 turbines around and they do not bother him. "I'm also as a
2 taxpayer I'm getting tired of wasting money on studies that do not need to be studied".
3 He stated "it's time to move on".
4
5 Cheryl Baker stated she can see 32 wind turbines from her deck and does not have a
6 problem with noise or health issues. She thanked the Board.
7
8 Jeannie Parsons stated when the turbines were shut down it was peaceful.
9
10 Ed Baker voiced his support of the wind farm. He stated that the trees are also loud.
11 Should there be a study on tree noise?
12
13 Colleen Plummer stated that these people are not liars.
14
15 Virginia Fox asked that Ms. Plummer not get into personal attacks. She asked that
16 people ask questions and not make comments during this time.
17
18 Carl Anton stated some people are more sensitive to low frequency sound and asked the
19 Board to at least give some consideration to what they heard tonight.
20
21 Virginia Fox closed public questions.
22
23 Tom Hooper asked Consumers why does it take 1-2 days notice to turn off the turbines?
24
25 Bill Schoenlein stated Consumers has to schedule a dispatch shutdown with MISO and
26 they require at least a 24-hour notice.
27
28 Tom Hooper asked if there could be a shorter notice?
29
30 Bill Schoenlein said "no". Turbines are a source of generation. Consumers has to put a
31 request in to shut down LWEP.
32
33 Mary Reilly explained why only a range of 8000' was chosen.
34
35 Brian Howe explained the concept. Ideally having all turned off would be what you want
36 and discussed the limitations.
37
38 Mary Reilly asked if the sound study was affected by the radius selected.
39
40 Brian Howe stated it would not effect the overall conclusion. "When subtracting out the
41 ambient we are still subtracting out something".
42
43 Evelyn Bergaila voiced her surprise that all the turbines were not turned off all at once.
44
45 Mary Reilly stated it was a compromise such as if the turbines on the south were shut
46 down some turbines could remain operational on the north.

1 Virginia Fox opened public comment.
2
3 Ervin Silvis voiced his concern with the sound study having only 8 sites and not running
4 longer.
5
6 Brian Howe stated that he came to a conclusion based on the data he had.
7
8 Colleen Plummer asked who decided to allow the turbines to be shut down only within an
9 8000' radius and where did the discussion take place.
10
11 Mary Reilly stated she was part of a phone meeting and explained the process taken.
12 The sound consultant agreed that the radius would end in a result that would not affect
13 the outcome of the study in terms of dBA. The County relied on HGC to determine the
14 radius.
15
16 Colleen Plummer recalled that all of the turbines would be turned off during a past
17 meeting.
18
19 Doug Robidoux stated the Planning Commission talked about the possibility of all the
20 turbines being turned off but nothing was cast in stone. The Planning Commission relied
21 on HGC.
22
23 Evelyn Bergaila stated that all of the turbines should have been shut off and this was not
24 something to compromise on.
25
26 Mary Reilly stated that she would issue a statement on the matter.
27
28 Eric Jeffries stated he felt the low frequency tests were invalid because the winds were
29 low to moderate and he did not put a lot of stock in the report. He asked that the turbines
30 be curtailed when they get close to the limit.
31
32 Ken Ward asked who controls the wind turbines in the county and who turns them on or
33 off.
34
35 Bill Schoenlein, Consumers Energy, stated the turbines are controlled from Charlotte NC.
36
37 Virginia Fox closed public comment.
38
39 Meeting adjourned by Virginia Fox at 8:58 pm.



Chuck Lange, Secretary
Mason County Planning Commission

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