Attachment 2

Re: Hessler Analysis

Complaint Exhibit
Amber Christenson
Linda Lindgren
Timothy Lindgren

Hessler and Associates Report

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- The Hessler Report asserts the Mitigation Plan evaluation does not limit the turbine evaluation to 100% output. This sound study was to determine compliance, because the second sound study, the study that was required post-construction to determine compliance, showed the project was NOT in compliance. The Mitigation Plan does not, and cannot, ignore the Final Order and Conditions placed by the PUC. See Page 5, Sep 16, 2020, The final decision requires that compliance evaluation periods be when the five closest wind turbines to the measurement locations are operating and when the absolute closest wind turbine is operating at a maximum sound power (within 1.0 dba)… The Mitigation Plan did waive the requirement of the Condition regarding the entire project being shut down during shutdown periods, to only shutting down turbines within 1.75 miles of a test location, that was the only requirement waived.

Condition 26:

- **E) AT A MINIMUM**, the closest five wind turbines will be operating for evaluation periods and when at least the closest wind turbine is operating at a condition at FULL (within one decibel of maximum sound power levels) acoustic emissions.

of ice or frost on the turbine blades, which caused them to generate significantly more noise than they otherwise would. As a result of this finding a mitigation plan was devised by CRW where winter ice operating mode (WIOM) software would be installed to automatically monitor for ice and shut down affected units to prevent a spike in noise. A facet of the mitigation plan was to retest the Project's sound emissions during similar winter conditions without limiting the evaluation to 100% power output in order to see if the problem persisted or not, should icing conditions occur. This test was carried out by Epsilon over a two week period in November of

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The Hessler Report discusses the project and background noise being steady at 45 dBA for an hour before the shutdown. For approximately an hour before that, the weather conditions were relatively identical, yet the sound was 46-48 dBA, this period should be considered in the analysis. Also the background sound during the shutdown should NOT be AVERAGED with times outside the 10 minute shutdown period. The 1:00-1:110 reading was 36. The ten minute shutdown period was 1:00-1:10. During that time, the background sound was 36, thus making the dBA an additional 2 points higher than what Dr. Hessler submitted in his review, **47 dBA**. This time period did not involve icing, frost or any of the criteria associated with the sound exceedances of the 2020 sound study. This time period is straight up over the limit without other issues to attribute to the noise such as frost, ice or dust.

Additionally, Mr. Hessler states he hears only leaf rustle in the recording. **ANSI S12.9, Part 3** is applicable, but was not applied as permit Condition 26 requires.

- ***American National Standard Institute (ANSI) S12.9 Part 3 to exclude dB(A) corruption from audible natural sounds: insects, treefrogs, and leaf rustle, by excluding octave bands from 2kHz thru 8 kHz and identify with dB(ANS).***

Condition 26:

- A) The post construction monitoring survey shall be conducted following applicable ANSI methods.
- ~~B) 10 on/off tests (shutdowns) shall be carried out during the survey period when the Project is operating at full power production irrespective of the ground level wind speed.~~
- **E) AT A MINIMUM**, the closest five wind turbines will be operating for evaluation periods and when at least the closest wind turbine is operating at a condition at FULL (within one decibel of maximum sound power levels) acoustic emissions.

See excerpt describing leaf rustle below/following page. (We are not privy to the audio files, and this brings to the surface the question we have regarding audio. Which instrument or instruments were used to record the audio files and in what format and what quality? A question we would have liked to asked and have discussed at the Commission meeting when we asked to be put on the agenda to discuss the sound study.)

At Position 9 the Project-only sound level could not be determined in all cases except for Shutdown 17 at 1:00 a.m. November 8. For at least an hour before this shutdown the total Leq sound level (both Project and background) was steady at 45 dBA (indicating compliance). During the shutdown the sound level dropped to an average of 38 dBA and then increased to around 49 dBA once the turbines were restarted. Mathematically, that ostensibly puts the Project-only sound level 1 dBA over the permit limit of 45 dBA at that Location; however, there is no apparent reason why the Project would be significantly louder after the shutdown than before since the wind and weather conditions were largely unchanged through this outage period. A review of the audio files recorded before, during and after this shutdown indicates only that a hissing, leaf rustle sound is present

whether the turbines are on or not. The rhythmic churning sound of wind turbines is not perceptible in the before or after recordings. Consequently, although the numbers suggest that the Project may have been generating a sound level of 46 dBA at this time, it is our view that the data are inconclusive and do not provide enough evidence to demonstrate a permit exceedance – particularly in light of the fact the Project was completely undetectable at this location during all the other shutdowns that were examined.

The Hessler Report does not make any mention of the project's curtailment issues, the turbines down for maintenance for extended periods, such as turbine 71 being down for 18 hours during a potential icing event, nor the missed shutdowns and the shutdowns not coordinated with CR2 affecting Location 6.

Mr. Hessler refers to Ms. Christenson's trees as 'barren'. The trees were leaved. This photo is from page 28 of the Epsilon report. Epsilon's numbered page 6-12.

Figure 6-7 Epsilon Meteorological Instrumentation – Location 6 - HOBO