

The Project, exclusive of all unrelated background noise, shall not generate a sound pressure level (10-minute equivalent continuous sound level, Leq), of more than 50 dBA when all turbines are producing full acoustic output at any currently occupied participating residence unless the owner of the residence has signed a waiver, or more than 45 dBA at any currently occupied non-participating residence unless the owner of the residence has signed a waiver. Applicant shall, in support of the evaluation of a formal noise complaint and upon Commission formal request, conduct field surveys or provide post-construction monitoring data verifying compliance with specified noise level limits. If the measured wind turbine noise level exceeds 50 dBA at any currently occupied participating residence or 45 dBA at any non-participating residence where the owner of the residence has not signed a waiver, then the Applicant shall take whatever steps are necessary in accordance with prudent operating standards to meet this standard. Sound monitoring will not be repeated in a representative area during any five-year period unless operational or maintenance changes result in a reasonable assumption of higher turbine sound levels.

The post-construction monitoring survey, upon Commission formal request, shall be executed as follows:

- a) The post-construction monitoring survey shall follow the applicable portions of American National Standards Institute (ANSI) standard S12.9 Part 3, and other acoustical standard relating to equipment and calibration specifications.
- b) Noise levels shall be measured continuously for at least two weeks, or until such time that a sufficient number of valid 10-minute Leq periods are acquired to determine compliance to a reasonable degree of scientific certainty. At a minimum, data must be collected for multiple 10-minute periods on at least two different nights when the nearest turbines are operating at full acoustic emissions, and background noise levels are sufficiently low such that the measured total noise level can be assumed to equal the turbine-only noise level. During the post-construction monitoring survey, windscreens will be used to protect microphones and minimize effects from self-generated wind-induced noise.
- c) Measurements shall be conducted in proximity to the complainant's dwelling. In the event of multiple complainants, representative locations will be at a select number of non-participating and participating residences (where access can be arranged) with the highest expected noise levels based on acoustic modeling. Typically, 4 to 6 measurement locations total.
- d) Measurements shall be conducted using sound level meters meeting ANSI Type 1 specifications. An anemometer shall be placed within 20 feet of each microphone, and at a height of 2 meters above the ground.

- e) The measurement data shall be analyzed as follows:
 - i. Analyze those data acquired when the ~4 turbines nearest to each measurement location are operating at full capacity (80% electric power or more, which typically occurs at a hub-height wind speed of 6 m/s or greater).
 - ii. Discard those samples measured when the 10-minute average ground wind speed is 5 m/s or greater.
 - iii. Remove transient background noise (i.e. occasional traffic, activities of residents, farming activities, and wind gusts) per ANSI S12.9 Part 3.
 - iv. Remove continuous background noise by conducting turbine shut-downs, where the background noise is measured directly. Shut down testing will be conducted in a controlled manner, where consultant's staff may be present on site to observe and listen during the tests and/or collect audio recordings. Shut down testing shall continue until enough data has been collected when ground wind speeds are between approximately 2 and 5 m/s that a repeatable pattern is observed in the measured background noise level. Background noise levels will be subtracted from total noise levels measured during these wind conditions to calculate turbine-only noise levels.
 - v. Review of the frequency spectra of potential turbine-only samples to identify and remove outliers (spectral shape clearly differing from those samples measured under very low (less than 2 m/s) ground wind conditions, which are the samples most representative of turbine-only noise).
- f) Compare the resulting turbine-only noise levels to the 45 and 50 dBA limits. Compliance shall be demonstrated if all samples are less than the limits.